

SINAMICS S110

List Manual · 10/2008

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SINAMICS S110

List Manual

Valid for

Drive

SINAMICS

Firmware version

4.1

Foreword

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Faults and alarms

Appendix

List of abbreviations

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10/2008

Safety information

This manual contains information that must be observed to ensure your personal safety and to prevent property damage. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol; notices referring to property damage only do not have a safety alert symbol. These notices shown below are graded according to the level of danger:



Danger

indicates that death or serious injury **will** result if proper precautions are not taken.



Warning

indicates that death or serious injury **may** result if proper precautions are not taken.



Caution

with a safety alert symbol, indicates that minor personal injury **may** result if proper precautions are not taken.

Caution

without a safety alert symbol, indicates that property damage may result if proper precautions are not taken.

Note

means an undesirable result or state can occur if the corresponding instruction is not followed.

If more than one level of danger exists, the warning notice for the highest level of danger is used. A warning with a warning triangle indicating possible injury to personnel may also include a warning relating to property damage.

Qualified personnel

The associated device/system may only be installed and used in conjunction with this documentation. Only **qualified personnel** should be allowed to commission and operate the device/system. For the purpose of the safety information in this documentation, a “qualified person” is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

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Please note the following:



Warning

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Foreword

SINAMICS Documentation

The SINAMICS documentation is organized in 2 parts:

- General Documentation / Catalogs
- Manufacturer/service documentation

At <http://www.siemens.com/motioncontrol/docu> information is available on the following topics:

- Ordering documentation

Here you can find an up-to-date overview of publications

- Downloading documentation

Further links for downloading files from Service & Support

- Researching documentation online

Information on DOConCD and direct access to the publications in DOCon-Web.

- Customize documentation based on Siemens content using My Documentation Manager (MDM), see

<http://www.siemens.com/mdm>

My Documentation Manager provides you with a range of features for creating your own machine documentation

- Training and FAQs

Information on the range of training courses and FAQs (frequently asked questions) are available via the page navigation.

Usage phases and their tools/documents (as an example)

Table Foreword-1 Usage phases and the available tools/documents

Usage phase	Tools/documents
Orientation	SINAMICS S Sales Documentation
Planning/configuration	SIZER configuration tool Configuration Manuals, Motors
Decision/ordering	SINAMICS S Catalogs
Installation/assembly	<ul style="list-style-type: none"> • SINAMICS S110 Equipment Manual
Commissioning	<ul style="list-style-type: none"> • STARTER parameterization and commissioning tool • SINAMICS S110 Getting Started • SINAMICS S110 Function Manual • SINAMICS S110 List Manual
Usage/operation	<ul style="list-style-type: none"> • SINAMICS S110 Function Manual • SINAMICS S110 List Manual
Maintenance/servicing	<ul style="list-style-type: none"> • SINAMICS S110 Function Manual • SINAMICS S110 List Manual

Target group

This documentation is aimed at machine manufacturers, commissioning engineers, and service personnel who use SINAMICS.

Benefits

This documentation contains the comprehensive information about parameters, function diagrams and faults and alarms required to commission and service the system.

This manual should be used in addition to the other manuals and tools provided for the product.

Standard scope

The scope of the functionality described in this document can differ from the scope of the functionality of the drive system that is actually supplied.

- Other functions not described in this documentation might be able to be executed in the drive system. This does not, however, represent an obligation to supply such functions with a new control or when servicing.
- Functions can be described in the documentation that are not available in a particular product version of the drive system. The functionality of the supplied drive system should only be taken from the ordering documentation.
- Extensions or changes made by the machine manufacturer must be documented by the machine manufacturer.

For reasons of clarity, this documentation does not contain all of the detailed information on all of the product types. This documentation cannot take into consideration every conceivable type of installation, operation and service/maintenance.

Search tools

The following guides are provided to help you locate information in this manual:

1. Contents
 - General table of contents for the complete manual (after the preface).
 - Table of contents for function diagrams (Chapter 2.1).
2. List of abbreviations
3. Index (Index)

Technical support

If you have any questions, please get in touch with our Hotline:

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Fax	+49 (0) 180 5050 - 223
Internet	http://www.siemens.de/automation/support-request

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Phone	+1 423 262 2522
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	Asia/Pacific
Phone	+86 1064 757 575
Fax	+86 1064 747 474
E-mail	support.asia.automation@siemens.com

Note:

Country-specific telephone numbers for technical support are provided on the Internet at:

<http://www.automation.siemens.com/partner>

Calls are subject to charge (e.g. 0.14 €/min on the German landline network). Tariffs of other telephone service providers may vary.

Questions about the Manual

Please send any questions about the technical documentation (e.g. suggestions for improvement, corrections) to the following fax number or E-Mail address:

Fax: +49 (0) 9131 / 98 - 2176

E-mail: docu.motioncontrol@siemens.com

A fax form is at the end of this document.

Internet address for SINAMICS

<http://www.siemens.com/sinamics>

EC declaration of conformity

The EC Declaration of Conformity for the EMC Directive can be obtained from:

- Internet

<http://support.automation.siemens.com>

Product/Order No.: 15257461

- Branch offices

At the relevant regional office of the I DT MC Business Unit of Siemens AG.

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Parameter

1

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1.1 Overview of parameters

1.1.1 Explanation of list of parameters

Basic structure of parameter descriptions

The data in the following example has been chosen at random. The table below shows all the information which can be included in the description of a parameter. Some of the information is optional.

The structure of the parameter list (See Section 1.2) is as follows:

----- **Start of example** -----

pxxxx[0...n]	BICO: Full parameter name / Abbreviated name				
Drive object (function module)	Changeable in: C1(x), C2(x), U, T	are calculated: CALC_MOD_REG	Access level: 2		
	Data type: Unsigned32 / Integer16	Dynamic index: CDS, p0170	Function diagram: 2080		
	P group: Cl.-lp. control	Unit Group: 7_1	Unit selection: p0505		
	Not for motor type: FEM		Expert list: 1		
	Min 0.00 [Nm]	Max 10.00 [Nm]	Factory setting 0.00 [Aeff]		
Description:	Text				
Values:	0: Name and meaning of value 0 1: Name and meaning of value 1 2: Name and meaning of value 2 etc.				
Recommended:	Text				
Index:	[0] = Name and meaning of index 0 [1] = Name and meaning of index 1 [2] = Name and meaning of index 2 etc.				
Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Name and meaning of bit 0	Yes	No	8010
	01	Name and meaning of bit 1	Yes	No	-
	02	Name and meaning of bit 2 etc.	Yes	No	8012
Depends on:	Text See also: pxxxx, rxxxx See also: Fxxxx, Axxxx				
Danger:	Alarm:	Caution:	Safety-related information with a safety alert symbol		
					
Caution:	Note:	Safety-related information without a safety alert symbol			
Note:	Information which might be useful.				

----- **End of example** -----

pxxxx[0...n] Parameter number

The parameter number consists of a "p" or "r", followed by the parameter number and the index (optional).

Examples of number representation in the parameter list:

- p... Adjustable parameter (read and write parameter)
- r... Display parameters (read only)
- p0918 Adjustable parameter 918
- p0099[0...3] Adjustable parameter 99, indices 0 to 3
- p1001[0...n] Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944 Display parameter 944

Other examples of notation in the documentation:

- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098, index 1 bit 3
- r0945[2](3) Display parameter 945, index 2 of drive object 3
- p0795.4 Adjustable parameter 795, bit 4
- r2129.0...15 Display parameter 2129 with bit field (maximum 16 bit)

The following applies to adjustable parameters:

The "shipped" parameter value is specified under "Factory setting" with the relevant unit in square parenthesis. The value can be adjusted within the range defined by "Min" and "Max".

The term "linked parameterization" is used in cases where changes to adjustable parameters affect the settings of other parameters.

Linked parameterization can occur, for example, as a result of the following actions or parameters:

- Execute macros
p0015, p0700, p1000, p1500
- Set PROFIBUS telegram (BICO interconnection)
p0922
- Set component lists
p0230, p0300, p0301, p0400
- Calculate and preset automatically
p0340, p0578, p3900
- Restore factory settings
p0970

The following applies to display parameters:

The fields "Min", "Max" and "Factory setting" are specified with a dash "-" and the relevant unit in square parenthesis.

Note:

The parameter list can contain parameters that are not visible in the expert lists of the particular commissioning software (e.g. parameters for trace functions).

BICO: Full parameter name / Abbreviated name

The following abbreviations can be placed in front of the parameter name:

- BI: Binector input
This parameter is used for selecting the source of a digital signal.
- BO: Binector output
This parameter is available as a digital signal for interconnection with other parameters.
- CI: Connector input
This parameter is used for selecting the source of an analog signal.
- CO: Connector output
This parameter is available as an "analog" signal for interconnection with other parameters.
- CO/BO: Connector/Binector Output
This parameter is available as an "analog" and digital signal for interconnection with other parameters.

Note:

A connector input (CI) cannot be just interconnected with any connector output (CO, signal source).

When interconnecting a connector input using the commissioning software, only the corresponding possible signal sources are listed.

Drive object (function module)

A drive object (DO) is an independent, "self-contained" functional unit which possesses its own parameters and, in some cases, faults and alarms.

When carrying out commissioning using the commissioning software, you can select/deselect additional functions and their parameters by activating/deactivating function modules accordingly.

Note:

References: /FH3/ SINAMICS S110 Function Manual

The parameter list specifies the associated drive object and function module for each individual parameter.

Examples:

- p1070 CI: Main setpoint
SERVO (extended setpoint)
This parameter is available only for the SERVO drive object in conjunction with the "Extended setpoint channel" function module regardless of which function modules are activated.
- p1055 BI: Jog bit 0
SERVO
This parameter is available in association with the SERVO drive object regardless of which function modules are activated (i.e. it is available with every activated function module belonging to the drive object).

A parameter can belong to either one, several, or all drive objects.

The following information relating to "Drive object" and "Function module" can be displayed under the parameter number:

Table 1-1 Data in "Drive object (function module)" field

Drive object (function module)	Data type	Meaning
All objects	-	This parameter belongs to all drive objects.
CU	-	Control Unit, all versions.
CU_S110-CAN CU_S110-DP	1	Control Unit SINAMICS S110 with CAN interface or PROFIBUS interface.
SERVO_S110-CAN SERVO_S110-DP	11	SINAMICS S110 servo drive
SERVO_S110-CAN (position control) SERVO_S110-DP (position control)	-	SINAMICS S110 servo drive with "Position control" function module (r0108.3).
SERVO_S110-CAN (EPOS) SERVO_S110-DP (EPOS)	-	SINAMICS S110 servo drive with "Basic positioner" function module (r0108.4).
SERVO_S110-CAN (extended setpoint) SERVO_S110-DP (extended setpoint)	-	SINAMICS S110 servo drive with "Extended setpoint channel" function module (r0108.8).
SERVO_S110-CAN (Safety red) SERVO_S110-DP (Safety red)	-	SINAMICS S110 servo drive with "Safety rotary axis" function module (r0108.13).
SERVO_S110-CAN (extended brake) SERVO_S110-DP (extended brake)	-	SINAMICS S110 servo drive with "Extended braking control" function module (r0108.14)
SERVO_S110-CAN (techn. controller) SERVO_S110-DP (tech. controller)	-	SINAMICS S110 servo drive with "Technology controller" function module (r0108.3).
SERVO_S110-CAN (extended message) SERVO_S110-DP (extended message)	-	SINAMICS S110 servo drive with "Extended messages/monitoring functions" function module (r0108.17).

Note:

The drive object type is used to identify the drive objects in the drive system (e.g. r0107, r0975[1]).

Changeable in

The "-" sign indicates that the parameter can be changed in any object state and that the change will be effective immediately.

The specifications "C1(x), C2(x), T, U" ((x): optional) mean that the parameter can be changed only in the specified drive object state and that the change will not take effect until the object switches to another state. This can be one or more states.

The following states may be specified:

- C1(x) Device commissioning C1: **Commissioning 1**
 Converter commissioning is in progress (p0009>0).
 Pulses cannot be enabled.
 The parameter can only be changed in the following device commissioning settings (p0009 > 0):
 - C1: Changeable for all settings p0009 > 0.
 - C1(x): Only changeable when p0009 = x.
 A modified parameter value does not take effect until converter commissioning mode is exited with p0009 = 0.

- C2(x) Drive object commissioning C2: **Commissioning 2**
 Drive commissioning is in progress (p0009 = 0 and p0010 > 0).
 Pulses cannot be enabled.
 The parameter can only be changed in the following drive commissioning settings (p0010 > 0):
 - C2: Changeable for all settings p0010 > 0.
 - C2(x): Only changeable when p0010 = x.
 A modified parameter value does not take effect until drive commissioning mode is exited with p0010 = 0.

- U Operation A: **Run**
 Pulses are enabled.

- T Ready T: **Ready to run**
 The pulses are not enabled and status "C1(x)" or "C2(x)" is not active.

Note:

Parameter p0009 is CU-specific (belongs to Control Unit).

Parameter p0010 is drive-specific (belongs to each drive object).

The operating status of individual drive objects is displayed in r0002.

Calculated

Specifies whether the parameter is influenced by automatic calculations.

The calculation attribute defines which activities influence the parameter.

The following attributes apply:

- CALC_MOD_ALL
 - p0340 = 1
 - Project download with commissioning software and send from p0340 = 3
- CALC_MOD_CON
 - p0340 = 1, 3, 4
- CALC_MOD_EQU
 - p0340 = 1, 2
- CALC_MOD_LIM_REF
 - p0340 = 1, 3, 5
 - p0578 = 1
- CALC_MOD_REG
 - p0340 = 1, 3

Note:

For p3900 > 0, also p0340 = 1 is automatically called.

After p1910 = 1, p0340 = 3 is automatically called.

Access level

Specifies the access level required to be able to display and change the relevant parameter. The required access level can be set via p0003.

The system uses the following access levels:

1. Standard
2. Advanced
3. Expert
4. Service
Please contact your local Siemens office to obtain the password for parameters with access level 4 (service).
5. Macro (the parameter can only be changed via macro)

Note:

Parameter p0003 is CU-specific (belongs to Control Unit).

Data type

The information on the data type can consist of the following two pieces of information (separated by a slash):

- First information
Data type of the parameter
- Second information (only for binector or connector input)
Data type of the signal source to be interconnected (binector/connector output).

The possible data types of parameters are as follows:

- I8 Integer8 8-bit integer
- I16 Integer16 16-bit integer
- I32 Integer32 32-bit integer
- U8 Unsigned8 8 bits without sign
- U16 Unsigned16 16 bits without sign
- U32 Unsigned32 32 bits without sign
- Float FloatingPoint32 32-bit floating point number

Depending on the data type of the BICO input parameter (signal sink) and BICO output parameter (signal source) the following combinations are possible when creating BICO interconnections:

Table 1-2 Possible combinations of BICO interconnections

	BICO input parameter			
	CI parameter			BI parameter
BICO output parameter	Unsigned32 / Integer16	Unsigned32 / Integer32	Unsigned32 / FloatingPoint32	Unsigned32 / Binary
CO: Unsigned8	x	x	–	–
CO: Unsigned16	x	x	–	–
CO: Integer16	x	x	–	–
CO: Unsigned32	x	x	–	–
CO: Integer32	x	x	–	–
CO: FloatingPoint32	x	x	x ¹	–
BO: Unsigned8	–	–	–	x
BO: Unsigned16	–	–	–	x
Legend: x: BICO interconnection permitted –: BICO interconnection not permitted				
1 Exception: BICO input parameters with data type "Unsigned32 / FloatingPoint32" can also be interconnected with the following BICO output parameters although these are not of the "FloatingPoint32" data type: CO: r8850, CO: r8860, CO: r2050, CO: r2060				

Table 1-2 Possible combinations of BICO interconnections, continued

BICO output parameter	BICO input parameter			
	CI parameter			BI parameter
	Unsigned32 / Integer16	Unsigned32 / Integer32	Unsigned32 / FloatingPoint32	Unsigned32 / Binary
BO: Integer16	–	–	–	x
BO: Unsigned32	–	–	–	x
BO: Integer32	–	–	–	x
BO: FloatingPoint32	–	–	–	–
Legend:	x: BICO interconnection permitted –: BICO interconnection not permitted			
1 Exception:	BICO input parameters with data type "Unsigned32 / FloatingPoint32" can also be interconnected with the following BICO output parameters although these are not of the "FloatingPoint32" data type: CO: r8850, CO: r8860, CO: r2050, CO: r2060			

Dynamic index

For parameters with a dynamic index [0...n], the following information is specified here:

- Data set (if this is available).
- Parameter for the number of indices (n = number - 1).

The following information can be contained in this field:

- "CDS, p0170" (Command Data Set, CDS count)

Example:

p1070[0] → main setpoint [command data set 0]

p1070[1] → main setpoint [command data set 1], etc.

- "DDS, p0180" (Drive Data Set, DDS count)
- "EDS, p0140" (Encoder Data Set, EDS count)
- "MDS, p0130" (Motor Data Set, MDS count)
- "PDS, p0120" (Power unit Data Set, PDS count)
- "p2615" (traversing blocks count)

Note:

Information on the data sets can be taken from the following references:

References: /FH3/ SINAMICS S110 Function Manual
Chapter "Data sets"

Table 1-3 Unit Groups (p0100), continued

Unit group	Unit Choice for p0100=		Reference quantity for %
	0	1	
14_6	kW	HP	-
25_1	kgm ²	lb ft ²	-
27_1	kg	lb	-
28_1	Nm/A	lbf ft/A	-
29_1	N/Arms	lbf/Arms	-
30_1	m	ft	-

Table 1-4 Unit Groups (p0349)

Unit group	Unit Choice for p0349 =		Reference quantity for %
	1	2	
15_1	mH	%	$\frac{1000 \cdot p0304}{2 \cdot \pi \cdot \sqrt{3} \cdot p0305 \cdot p0310}$
16_1	Ohms	%	$\frac{p0304}{\sqrt{3} \cdot p0305}$

Table 1-5 Unit Groups (p0505)

Unit group	Unit Choice for p0505 =				Reference quantity for %
	1	2	3	4	
2_1	Hz	%	Hz	%	p2000
2_2	kHz	%	kHz	%	p2000
3_1	RPM	%	RPM	%	p2000
4_1	m/min	%	ft/min	%	p2000
4_2	m/min	m/min	ft/min	ft/min	-
5_1	Vrms	%	Vrms	%	p2001
5_2	V	%	V	%	p2001
5_3	V	%	V	%	p2001
6_1	mArms	%	mArms	%	p2002
6_2	Arms	%	Arms	%	p2002
6_3	mA	%	mA	%	p2002
6_4	A	%	A	%	p2002
6_5	A	%	A	%	p2002
7_1	Nm	%	lbf ft	%	p2003
7_2	Nm	Nm	lbf ft	lbf ft	-

Table 1-5 Unit Groups (p0505), continued

Unit group	Unit Choice for p0505 =				Reference quantity for %
	1	2	3	4	
7_3	Nm	%	lbf ft	%	1.0
8_1	N	%	lbf	%	p2003
8_2	N	N	lbf	lbf	-
8_3	N	%	lbf	%	1.0
14_1	W	%	HP	%	r2004
14_3	W	%	HP	%	r2004
14_4	W	%	HP	%	r2004
14_5	kW	%	HP	%	r2004
14_7	kW	%	HP	%	r2004
14_8	kW	%	HP	%	r2004
14_9	W	W	HP	HP	-
14_10	kW	kW	HP	HP	-
17_1	Nms/rad	%	lbf ft s/rad	%	p2000/p2003
18_1	V/A	%	V/A	%	p2002/p2001
19_1	A/V	%	A/V	%	p2001/p2002
21_1	°C	°C	°F	°F	-
21_2	K	K	°F	°F	-
22_1	m/s ²	m/s ²	ft/s ²	ft/s ²	-
22_2	m/s ²	%	ft/s ²	%	p2007
23_1	Vrms s/m	Vrms s/m	Vrms s/ft	Vrms s/ft	-
24_1	Ns/m	Ns/m	lbf s/ft	lbf s/ft	-
24_2	Ns/m	%	lbf s/ft	%	p2000/p2003
26_1	m/s ³	m/s ³	ft/s ³	ft/s ³	-
39_1	1/s ²	%	1/s ²	%	p2007

Table 1-6 Unit Group (p0595)

Unit group	Unit Choice for p0595 =		Reference quantity for %
	Value	Unit	
9_1	The values that can be set and the technological units are shown in p0595 (See Section 1.2).		

Parameter values

Min	Minimum value of the parameter [unit]
Max	Maximum value of the parameter [unit]
Factory setting	Shipped value (default) [unit]

A different value may be displayed for certain parameters (e.g.p1800) at the initial commissioning stage.
Reason:
The setting of these parameters is determined by the operating environment of the Control Unit (e.g. depending on converter type, macro, Power Module).

Not for motor type

Specifies for which motor type this parameter has no significance.

ASM: Asynchronous motor

FEM: Separately excited synchronous motor

PEM: Permanent-magnet synchronous motor

REL: Reluctance motor/SIEMOSYN-Motor

Expert list

Specifies whether this parameter is available in the expert list of the specified drive objects in the commissioning software.

1: Parameter does exist in the expert list.

0: Parameter does not exist in the expert list.

Note:

The user shall assume full responsibility for using parameters marked "Expert list: 0" (Parameter does not exist in the expert list).

These parameters and their functionalities have not been tested and no further user documentation is available for them (e.g. function description). Moreover no support is ensured for these parameters by "Technical Support" (hotline).

Description

Explanation of the function of a parameter.

Values

Lists the possible values of a parameter.

Recommendation

Information about recommended settings.

Index

The name and meaning of each individual index is specified for indexed parameters.

The following applies to the values (min, max, factory setting) of indexed setting parameters:

- Min, Max:

The setting range and unit apply to all indices.

- Factory setting:

When all indices have the same factory setting, index 0 is specified with unit to represent all indices.

When the indices have different factory settings, they are all listed individually with unit.

Bit field

For parameters with bit fields, the following information is provided about each bit:

- Bit number and signal name
- Meaning with signal states 0 and 1
- Function diagram (optional)

The signal is shown on this function diagram.

Dependency

Conditions which need to be fulfilled in connection with this parameter. Also includes special effects which can occur between this parameter and others.

See also: List of other relevant parameters.

Safety-related information

Important information which must be heeded to avoid the risk of physical injury or property damage.

Information which must be observed to avoid problems.

Information which the user or operator may find useful.

Danger

The description of this safety-related information can be found at the beginning of this manual (see **Safety information**).

Warning

The description of this safety-related information can be found at the beginning of this manual (see **Safety information**).

Caution

The description of this safety-related information can be found at the beginning of this manual (see **Safety information**).

Caution

The description of this safety-related information can be found at the beginning of this manual (see **Safety information**).

Note

The description of this safety-related information can be found at the beginning of this manual (see **Safety information**).

Note

Information which the user or operator may find useful.

1.1.2 Numerical ranges of parameters

Note:

The following numerical ranges represent an overview for all parameters in SINAMICS.

The parameters for the product described in this List Manual are described in detail in Chapter 1.2.

Parameters are grouped into the following numerical ranges:

Table 1-7 Numerical Ranges of Parameters

Area		Description
of	up to	
0000	0099	Operation and visualization
0100	0199	Commissioning
0200	0299	Power Section
0300	0399	Motor
0400	0499	encoders
0500	0599	Technology and units
0600	0699	Thermal motor monitoring and motor model, maximum current
0700	0799	Command sources and terminals on Control Unit, measuring sockets
0800	0839	CDS, DDS data sets (e.g. switch over, copy)
0840	0879	Sequencer (e.g. source for ON/OFF1)
0880	0899	Control and status words
0900	0999	PROFIBUS/PROFIdrive
1000	1199	Setpoint Channel
1200	1299	Functions (e.g. motor holding brake)
1300	1399	V/f control
1400	1799	Closed-loop control
1800	1899	Gating unit
1900	1999	Power unit and motor identification
2000	2099	Communication (PROFIBUS)
2100	2199	Faults and alarms, monitoring functions
2200	2399	Technology controller
2900	2930	Fixed values (e.g. per cent, torque)
3400	3699	Infeed control (Active Line Module)
3800	3899	Friction characteristic

Table 1-7 Numerical Ranges of Parameters, continued

Area		Description
of	up to	
3900	3999	Management parameters
4000	4199	Terminal Boards, Terminal Modules (e.g. TB30, TM31)
4200	4399	Terminal Modules (e.g. TM15, TM17)
6000	6999	SINAMICS GM/SM/GL
7000	7499	Parallel connection of power units
7800	7899	EEPROM read/write parameters
8500	8599	Data and macro management
8600	8799	CAN bus
8800	8899	Communication Board
9300	9399	Safety Integrated
9400	9499	Parameter consistency and storage
9500	9899	Safety Integrated
9900	9949	Topology
9950	9999	Diagnostics (internal)
10000	10099	Safety Integrated
20000	20999	Freie Funktionsblöcke
21000	25999	Drive Control Chart (DCC)

1.2 List of parameters

Product: SINAMICS S110, Version: 4101500, Language: eng
 Objects: CU_S110-CAN, CU_S110-DP, SERVO_S110-CAN, SERVO_S110-DP

r0002		Control Unit operating display / CU op_display		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	99	-	
Description:	Operating display for the Control Unit (CU).			
Value:	0: [00] Operation 10: [10] Ready for operation 20: [20] Wait for run-up 25: [25] Wait for automatic FW update DRIVE-CLiQ components 31: [31] Commissioning software download active 33: [33] Remove topology error / acknowledge 34: [34] Exit the commissioning mode 35: [35] Carry out first commissioning 70: [70] Initialization 80: [80] Reset active 99: [99] Internal software error			
Notice:	For several missing enable signals, the corresponding value with the highest number is displayed.			

r0002		Drive operating display / Drv op_display		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	250	-	
Description:	Operating display for the drive.			
Value:	0: [00] Operation - everything enabled 10: [10] Operation - set "enable setpoint" = "1" (p1142, p1152) 11: [11] Operation - set "enable speed controller" = "1" (p0856) 12: [12] Operation - RFG frozen, set "RFG start" = "1" (p1141) 13: [13] Operation - set "enable RFG" = "1" (p1140) 14: [14] Oper. - MotID, excit. running and/or brake opens, SS2, SOS 15: [15] Operation - open brake (p1215) 16: [16] Oper - withdraw braking w/ OFF1 using "ON/OFF1" = "1" 17: [17] Oper - braking w/ OFF3 can only be interrupted w/ OFF2 18: [18] Operation - brake on fault remove fault acknowledge 19: [19] Operat. - armature short-circ./DC brake act. (p1230, p1231) 21: [21] Ready for operation - set "Operation enable" = "1" (p0852) 22: [22] Ready for operation - de-magnetizing running (p0347) 23: [23] Ready for operation - set "infeed operation" = "1" (p0864) 31: [31] Ready for switching on - set "ON/OFF1" = "0/1" (p0840) 35: [35] Switching on inhib - Carry out first commissioning (p0010) 41: [41] Switching on inhib - set "ON/OFF1" = "0" (p0840) 42: [42] Switching on inhibited - set "OC/OFF2" = "1" (p0844, p0845) 43: [43] Switching on inhibited - set "OC/OFF3" = "1" (p0848, p0849) 44: [44] Switching on inhib - connect 24 V to terminal EP (hardware) 45: [45] Switching on inhib - rectify fault, acknowledge fault, STO 46: [46] Switching on inhibited - exit comm mode (p0009, p0010) 60: [60] Infeed de-activated/not operational 250: [250] Device signals a topology error			

Dependency: Refer to: r0046
Notice: For several missing enable signals, the corresponding value with the highest number is displayed.
Note: OC: Operating condition
 EP: Enable Pulses (pulse enable)
 RFG: Ramp-function generator
 COMM: Commissioning
 MotID: Motor data identification
 SS2: Safe Stop 2
 SOS: Safe Operating Stop
 STO: Safe Torque Off

p0003 BOP access level / BOP access level

CU_S110-CAN, CU_S110-DP	Can be changed: C1, U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	4	1

Description: Sets the access level for reading and writing parameters using the Basic Operator Panel (BOP) and Advanced Operator Panel (AOP).

Value:
 0: User-defined
 1: Standard
 2: Extended
 3: Expert
 4: Service

Note: Access level 0 (user-defined):
 Parameters from the user-defined list (p0013). Not used as of firmware version 2.6 (p0016).
 Access level 1 (standard):
 Parameters for the simplest operator control possibility (e.g. p1120 = ramp-function generator, ramp-up time).
 Access level 2 (extended):
 Parameters to operate the basic functions of the drive unit.
 Access level 3 (experts):
 Expert know-how is required for these parameters (e.g. BICO parameterization).
 Access level 4 (service):
 For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).

p0005[0...1] BOP operating display selection / BOP op_disp sel

All objects	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	[0] 2 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 2, 4 for the Basic Operator Panel (BOP).
 Examples for the SERVO drive object:

p0005[0] = 21, p0005[1] = 0: Speed actual value smoothed (r0021)
 p0005[0] = 25, p0005[1] = 0: Output voltage smoothed (r0025)
 p0005[0] = 27, p0005[1] = 0: Absolute current actual value, smoothed (r0027)

Index:
 [0] = Parameter number
 [1] = Parameter index

Dependency: Refer to: p0006

Note: Procedure:

1.
The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the current drive object.
If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.
2.
The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0006	BOP operating display mode / BOP op_ disp mode		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 4	Max 4	Factory setting 4
Description:	Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".		
Value:	4: p0005		
Dependency:	Refer to: p0005		
Note:	Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object. Mode 4 is available for all drive objects.		

p0006	BOP operating display mode / BOP op_ disp mode		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 4	Factory setting 4
Description:	Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".		
Value:	0: Operation --> r0021, otherwise r0020 <--> r0021 1: Operation --> r0021, otherwise r0020 2: Operation --> p0005, otherwise p0005 <--> r0020 3: Operation --> r0002, otherwise r0002 <--> r0020 4: p0005		
Dependency:	Refer to: p0005		
Note:	Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object. Mode 4 is available for all drive objects.		

p0007	BOP background lighting / BOP lighting		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [s]	Max 2000 [s]	Factory setting 0 [s]
Description:	Sets the delay time until the background lighting of the Basic Operator Panel (BOP) is switched off. If no keys are actuated, then the background lighting automatically switches itself off after this time has expired.		
Note:	p0007 = 0: Background lighting is always switched on (factory setting).		

p0008	BOP drive object after booting / BOP DO after boot		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 65535	Factory setting 2
Description:	Sets the required drive object that is active at the Basic Operator Panel (BOP) after booting.		
Note:	The value from p0008 initializes the display on the Basic Operator Panel (BOP) at the top left after booting. The drive object Control Unit is selected using the value 1.		
p0009	Device commissioning parameter filter / Dev comm par_filt		
CU_S110-CAN, CU_S110-DP	Can be changed: C1, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 55	Factory setting 1
Description:	Sets the device and basic drive commissioning. By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.		
Value:	0: Ready 1: Device configuration 2: Defining the drive type/function module 3: Drive basis configuration 4: Data set basis configuration 29: Device download 30: Parameter reset 50: OA application configuration 55: OA application installation		
Note:	The drives can only be powered up outside the device commissioning (the inverter enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010). p0009 = 1: Device configuration At the first commissioning of the device, after booting, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic sampling time in p0110). p0009 = 2: Defines the drive type / function module In this state, the drive object types and/or the function modules can be changed or selected for the individual drive objects. To do this, the drive object type can be set using p0107[0...15] and the function can be set using p0108[0...15] (refer to p0101[0...15]). p0009 = 3: Drive basis configuration In this state, after the device has been commissioned for the first time, basic changes can be made for the individual drive objects (e.g. sampling times in p0111, p0112, p0115 and the number of data sets in p0120, p0130, p0140, p0170, p0180). p0009 = 4: Data set basis configuration In this state, after the device has been commissioned for the first time, for the individual drive objects changes can be made regarding the assignment of the components (p0121, p0131, p0141, p0151, p0161) to the individual data sets and the assignment of the power unit, motor and encoder to the drive data sets (p0185, ...).		

p0009 = 29: Device download

If a download is made using the commissioning software, the device is automatically brought into this state. After the download has been completed, p0009 is automatically set to 0 (ready). It is not possible to manually set p0009 to this value.

p0009 = 30: Parameter reset

In order to bring the complete unit into the "first commissioning" state or to load the parameters saved using p0977, to start, p0009 must be set to this value. p0976 can then be changed to the required value.

p0009 = 50: OEM application configuration

In this state, after the device has been commissioned for the first time, changes can be made for the individual drive objects regarding the activity (p4956) of the OEM applications.

p0009 = 55: OEM application installation

OEM applications can be installed and/or uninstalled in this state.

p0010	Drive commissioning parameter filter / Drv comm. par_filt		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: 2800, 2846
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	95	1
Description:	Sets the parameter filter to commission a drive.		
	Setting this parameter filters-out the parameters that can be written into in the various commissioning steps.		
Value:	0: Ready 1: Quick commissioning 2: Power unit commissioning 3: Motor commissioning 4: Encoder commissioning 5: Technological application/units 15: Data sets 17: Basic positioning commissioning 25: Commissioning the position control 29: Download with parameter reset 30: Parameter reset 95: Safety Integrated commissioning		
Note:	The drive can only be powered up outside the drive commissioning (inverter enable). To realize this, this parameter must be set to 0. For p3900 not equal to 0, at the end of the quick commissioning, this parameter is automatically reset to 0. Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.		

p0015	Macro drive unit / Macro drv unit		
CU_S110-CAN, CU_S110-DP	Can be changed: C1	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	999999	1
Description:	Runs the appropriate ACX file on the CompactFlash card. The selected ACX file must be located in the following directory: ... /PMACROS/DEVICE/P15/PMxxxxxx.ACX Example: p0015 = 6 --> the file PM000006.ACX is run.		
Dependency:	The ACX file to be run must be created according to the definition for ACX macros and must be saved in the appropriate directory in the non-volatile memory.		

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.
Macros available as standard are described in the technical documentation of the particular product.

p0015 Macro drive object / Macro DO

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1)	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	999999	0

Description: Run the corresponding ACX files.
The selected ACX file must be located in the following directory:
... /PMACROS/<drive object>/P15/PMxxxxx.ACX
Example:
p0015 = 6 --> the file PM000006.ACX is run.

Dependency: The ACX file to be run must be created according to the definition for ACX macros and must be saved in the appropriate directory in the non-volatile memory.

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning software.
Macros available as standard are described in the technical documentation of the particular product.

r0018 Control Unit Firmware-Version / CU FW version

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the firmware version of the Control Unit.

Dependency: Refer to: r0128, r0148, r0197, r0198

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0019.0...14 CO/BO: Control word BOP / STW BOP

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the control word for the Basic Operator Panel (BOP).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON / OFF (OFF1)	ON	OFF (OFF1)	-
	01	No coast-down / coast-down (OFF2)	No coast down	Coast down (OFF2)	-
	02	No Quick Stop / Quick Stop (OFF3)	No Quick Stop	Quick Stop (OFF3)	-
	07	Acknowledge fault (0 -> 1)	Yes	No	-
	13	Motorized potentiometer raise	Yes	No	-
	14	Motorized potentiometer lower	Yes	No	-

r0020	Speed setpoint smoothed / n_set smth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5020, 6799
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the currently smoothed speed setpoint at the input of the speed controller or V/f characteristic (after the interpolator).		
Dependency:	Refer to: r0060		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).		
r0021	CO: Actual speed smoothed / n_act smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 1580, 1680, 4710, 6799
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the smoothed actual value of the motor speed.		
Dependency:	Refer to: r0063		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The value displayed in r0021 is the smoothed value of r0063.		
r0022	Speed actual value rpm smoothed / n_ist rpm smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 1580, 1680, 4710, 6799
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the smoothed actual value of the motor speed. r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over.		
Dependency:	Refer to: r0063		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The value displayed in r0022 is the smoothed value of r0063.		

r0024	Output frequency smoothed / f_outp smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1690, 5300, 5730, 6799
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the smoothed converter frequency.		
Dependency:	Refer to: r0066		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The output frequency is available smoothed (r0024) and unsmoothed (r0066).		
r0025	CO: Output voltage smoothed / V_outp smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1690, 5730, 6799
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the smoothed output voltage of the power unit.		
Dependency:	Refer to: r0072		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The output voltage is available smoothed (r0025) and unsmoothed (r0072).		
r0026	CO: DC link voltage smoothed / Vdc smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 5730, 8750, 8850, 8950
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the smoothed actual value of the DC link voltage.		
Dependency:	Refer to: r0070		
Notice:	For SINAMICS S120 AC Drive (AC/AC) the following applies: When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied. In this case, when an external 24V power supply is connected, a value of approx. 24 V is displayed in the display parameter.		
Note:	SERVO, VECTOR: Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).		

r0027	CO: Absolute actual current smoothed / I_{act} abs val smth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 5730, 6799, 8850, 8950
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed absolute actual current value.		
Dependency:	Refer to: r0068		
Notice:	This smoothed signal is not suitable for diagnostics or evaluating dynamic operations. In this case, the unsmoothed value should be used.		
Note:	A_INF, S_INF, VECTOR: Smoothing time constant = 300 ms SERVO: Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).		
r0028	Modulation depth smoothed / Modulat depth smth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5730, 6799, 8950
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the smoothed actual value of the modulation depth.		
Dependency:	Refer to: r0074		
Note:	A_INF: Smoothing time constant = 300 ms SERVO, VECTOR: Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).		
r0029	Current actual value field-generating smoothed / Id_{act} smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5730, 6799
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed field-generating actual current.		
Dependency:	Refer to: r0076		
Note:	SERVO: Smoothing time constant = 100 ms VECTOR: Smoothing time constant = 300 ms The signal is not suitable as process quantity and may only be used as display quantity. The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).		

r0030	Current actual value torque-generating smoothed / Iq_act smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5730, 6799
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the smoothed torque-generating actual current.		
Dependency:	Refer to: r0078		
Note:	SERVO: Smoothing time constant = 100 ms VECTOR: Smoothing time constant = 300 ms The signal is not suitable as process quantity and may only be used as display quantity. The following applies for SERVO: The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]). For VECTOR, the following applies: The torque-generating current actual value is available smoothed (r0030 with 300 ms) and unsmoothed (r0078).		
r0031	Actual torque smoothed / M_act smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5730, 6799
	P-Group: Displays, signals	Units group: 7_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the smoothed torque actual value.		
Dependency:	Refer to: r0080		
Note:	Smoothing time constant = 100 ms The signal is not suitable as process quantity and may only be used as display quantity. The active current actual value is available smoothed (r0031) and unsmoothed (r0080).		
r0032	CO: Active power actual value smoothed / P_actv_act smth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5730, 6799, 8750, 8850, 8950
	P-Group: Displays, signals	Units group: 14_10	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the smoothed actual value of the active power.		
Dependency:	Refer to: r0082		
Notice:	This smoothed signal is not suitable for diagnostics or evaluating dynamic operations. In this case, the unsmoothed value should be used.		
Note:	Significance for the drive: Power output at the motor shaft Significance for the infeed: Line power drawn For A_INF, B_INF and S_INF the following applies: The active power is available smoothed (r0032 with 300 ms) and unsmoothed (r0082). The following applies for SERVO: The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]). For VECTOR and VECTORMV, the following applies: The active power is available smoothed (r0032 with 100 ms) and unsmoothed (r0082).		

r0033 Torque utilization smoothed / M_util smooth

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8012
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the smoothed torque utilization as a percentage.
The torque utilization is obtained from the required smoothed torque referred to the torque limit.

Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
The torque utilization is available smoothed (r0033) and unsmoothed (r0081).
For $M_{set\ total} (r0079) > M_{max\ offset} (p1532)$, the following applies:
- demanded torque = $M_{set\ total} - M_{max\ offset}$
- current torque limit = $M_{max\ upper\ effective} (r1538) - M_{max\ offset}$
For $M_{set\ total} (r0079) \leq M_{max\ offset} (p1532)$, the following applies:
- demanded torque = $M_{max\ offset} - M_{set\ total}$
- current torque limit = $M_{max\ offset} - M_{max\ lower\ effective} (r1539)$
For the current torque limit = 0, the following applies: r0033 = 100 %
For the current torque limit < 0, the following applies: r0033 = 0 %

r0034 Motor utilization / Motor utilization

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8017
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the motor utilization from the thermal I2t motor model.
Dependency: The motor utilization is only determined for permanent-magnet synchronous motors and if the I2t motor model is activated.
The motor utilization is formed from the ratio between the I2t motor model temperature (minus 40 Kelvin) and the reference value p0605 (motor overtemperature, fault threshold) - 40 Kelvin. If p0605 is reduced, r0034 increases and the motor temperature remains the same.

Refer to: p0611, p0612, p0615
Note: Smoothing time constant = 100 ms
The signal is not suitable as process quantity and may only be used as display quantity.
A value of r0034 = -200.0% indicates an invalid display, for example, because the thermal I2t motor model was not activated or was incorrectly parameterized.

r0035	CO: Motor temperature / Mot_temp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 7008, 8016, 8017
	P-Group: Displays, signals Not for motor type: -	Units group: 21_1	Unit selection: p0505 Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the current temperature in the motor.		
Note:	For r0035 not equal to -200.0 °C, the following applies: - this temperature display is valid. - a KTY sensor is connected. - for induction motors, the thermal motor model is activated (p0600 = 0 or p0601 = 0). For r0035 equal to -200.0 °C, the following applies: - this temperature display is not valid (temperature sensor error). - a PTC sensor is connected. - for synchronous motors, the thermal motor model is activated (p0600 = 0 or p0601 = 0).		
r0036	CO: Power unit overload I2t / PU overload I2t		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 8014
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the power unit overload determined using the I2t calculation. A current reference value is defined for the I2t monitoring of the power unit. It represents the current that can be conducted by the power unit without any influence of the switching losses (e.g. the continuously permissible current of the capacitors, inductances, busbars, etc.). If the I2t reference current of the power unit is not exceeded, then an overload (0 %) is not displayed. In the other case, the degree of thermal overload is calculated, whereby 100% results in a trip.		
Dependency:	Refer to: p0290, p0294 Refer to: F30005		
r0037[0...1]	Control Unit temperature / CU temperature		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: -
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the Control Unit temperature. An appropriate message is output when 85°C is exceeded.		
Index:	[0] = Control Unit temperature current [1] = Control Unit temperature maximum		
Dependency:	Refer to: A01009		

Note: The value of -200 indicates that there is no measuring signal.
 Re r0037[0]:
 Displays the currently measured Control Unit temperature.
 Re r0037[1]:
 Displays the highest measured Control Unit temperature. This value is saved on the module in a non-volatile fashion.

r0037[0...19] CO: Power unit temperatures / PU temperatures

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8014
	P-Group: Displays, signals	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]

Description: Displays the temperatures in the power unit.

Index:
 [0] = Inverter, maximum value
 [1] = Depletion layer maximum value
 [2] = Rectifier maximum value
 [3] = Air intake
 [4] = Electronics module in the power unit
 [5] = Inverter 1
 [6] = Inverter 2
 [7] = Inverter 3
 [8] = Inverter 4
 [9] = Inverter 5
 [10] = Inverter 6
 [11] = Rectifier 1
 [12] = Rectifier 2
 [13] = Depletion layer 1
 [14] = Depletion layer 2
 [15] = Depletion layer 3
 [16] = Depletion layer 4
 [17] = Depletion layer 5
 [18] = Depletion layer 6
 [19] = Cooling system liquid intake

Note: The value of -200 indicates that there is no measuring signal.
 r0037[0]: Maximum value of the inverter temperatures (r0037[5...10]).
 r0037[1]: Maximum value of the depletion layer temperatures (r0037[13...18]).
 r0037[2]: Maximum value of the rectifier temperatures (r0037[11...12]).
 The maximum value is the temperature of the hottest inverter, depletion layer, or rectifier.

p0045 Smoothing time constant, display values / T_smth display

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 4715, 5610, 5730, 6714, 8012
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 1.00 [ms]

Description: Sets the smoothing time constant for the following display values:
 SERVO: r0078[1], r0079[1], r0081 (calculated from the quantities smoothed with p0045), r0082[1].
 VECTOR: r0063[1], r0068[1], r0080[1], r0082[1].

r0046.0...31 CO/BO: Missing enable sig / Missing enable sig					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2634		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays missing enable signals that are preventing the closed-loop drive control from being commissioned.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	OFF1 enable missing	Yes	No	-
	01	OFF2 enable missing	Yes	No	-
	02	OFF3 enable missing	Yes	No	-
	03	Operation enable missing	Yes	No	-
	04	Armature short-circuit / DC current brake, enable missing	Yes	No	7014, 7016
	05	STOP2 enable missing	Yes	No	-
	06	STOP1 enable missing	Yes	No	-
	08	EP terminals enable missing	Yes	No	-
	09	Infeed enable missing	Yes	No	-
	10	Ramp-function generator enable missing	Yes	No	-
	11	Ramp-function generator start missing	Yes	No	-
	12	Setpoint enable missing	Yes	No	-
	16	OFF1 enable internal missing	Yes	No	-
	17	OFF2 enable internal missing	Yes	No	-
	18	OFF3 enable internal missing	Yes	No	-
	19	Pulse enable internal missing	Yes	No	-
	20	Armature short-circuit/DC current brake internal enable missing	Yes	No	7014, 7016
	21	STOP2 enable internal missing	Yes	No	-
	22	STOP1 enable internal missing	Yes	No	-
	25	Function bypass active	Yes	No	-
	26	Drive inactive or not operational	Yes	No	-
	27	De-magnetizing not completed	Yes	No	-
	28	Brake open missing	Yes	No	-
	29	Cooling system ready signal missing	Yes	No	-
	30	Speed controller inhibited	Yes	No	-
	31	Jog setpoint active	Yes	No	-
Dependency:	Refer to: r0002				
Note:	The value r0046 = 0 indicates that all enable signals for this drive are present.				
	Bit 00 = 1 (enable signal missing), if:				
	- the signal source in p0840 is a 0 signal.				
	- there is a "switching on inhibited".				
	Bit 01 = 1 (enable signal missing), if:				
	- the signal source in p0844 or p0845 is a 0 signal.				
	Bit 02 = 1 (enable signal missing), if:				
	- the signal source in p0848 or p0849 is a 0 signal.				
	Bit 03 = 1 (enable signal missing), if:				
	- the signal source in p0852 is a 0 signal.				
	Bit 04 = 1 (armature short-circuit active), if:				
	- the signal source in p1230 has a 1 signal				
	Bit 05, Bit 06: Being prepared				
	Bit 08 = 1 (enable signal missing), if:				
	- the pulse enable via terminal EP is missing (booksize: X21, chassis: X41).				
	Bit 09 = 1 (enable signal missing), if:				
	- the signal source in p0864 is a 0 signal.				

Bit 10 = 1 (enable signal missing), if:

- the signal source in p1140 is a 0 signal.

Bit 11 = 1 (enable signal missing) if the speed setpoint is frozen, because:

- the signal source in p1141 is a 0 signal.
- the speed setpoint is entered from jogging and the two signal sources for jogging, bit 0 (p1055) and bit 1 (p1056) have a 1 signal.

Bit 12 = 1 (enable signal missing), if:

- the signal source in p1142 is a 0 signal.
- When activating the function module "basic positioner" (r0108.4 = 1), the signal source in p1142 is set to a 0 signal.

Bit 16 = 1 (enable signal missing), if:

- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching on inhibited" withdrawn with OFF1 = 0.

Bit 17 = 1 (enable signal missing), if:

- commissioning mode is selected (p0009 > 0 or p0010 > 0).
- there is an OFF2 fault response.
- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 18 = 1 (enable signal missing), if:

- OFF3 has still not be completed or an OFF3 fault response is present.

Bit 19 = 1 (internal pulse enable missing), if:

- synchronization is running between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle.

Bit 20 = 1 (internal armature short-circuit active), if:

- the drive is not in the state "S4: Operation" or "S5x" (refer to function diagram 2610).
- the internal pulse enable is missing (r0046.19 = 0).

Bit 21 = 1 (enable signal missing), if:

The pulses have been enabled and the speed setpoint has still not been enabled, because:

- the holding brake opening time (p1216) has still not expired.
- the motor has still not been magnetized (induction motor).
- hibernation mode is active.

Bit 22: Being prepared

Bit 26 = 1 (enable signal missing), if:

- the drive is inactive (p0105 = 0) or is not operational (r7850[DO-Index]=0).

Bit 27 = 1 (enable signal missing), if:

- de-magnetizing has still not been completed (only for vector).

Bit 28 = 1 (enable signal missing), if:

- the holding brake is closed or has still not been opened.

Bit 29 = 1 (enable signal missing), if:

- the cooling system ready signal via BI: p0266[1] missing.

Bit 30 = 1 (speed controller inhibited), if one of the following reasons is present:

- A 0 signal is available via BI: p0856.
- the function generator with current input is active.
- the measuring function "current controller reference frequency characteristic" is active.
- the pole position identification is active.
- motor data identification is active (only certain steps).

Bit 31 = 1 (enable signal missing), if:

- the speed setpoint from jog 1 or 2 is entered.

r0047		Status, identification / Status ident	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	104	-
Description:	Displays the currently executed steps or the first step after the enable for the motor identification and pole position identification routines.		
Value:	<ul style="list-style-type: none"> 0: No measurement 1: PolID: Wait for brake closing time 2: PolID: Measurement, step 1 3: PolID: Measurement, step 2 4: PolID: Measurement, step 3 5: PolID: Measurement, step 4 6: PolID: Measurement, stage 2 7: PolID: Measurement evaluation 8: PolID: Measurement end 11: MotID: Inductance measurement, step 1 12: MotID: Inductance measurement, step 2 13: MotID: Inductance measurement evaluation 14: MotID: Resistance measurement evaluation 15: MotID: Fine synchronization, step 1 16: MotID: Fine synchronization, step 2 17: MotID: Fine synchronization, step 3 18: MotID: Fine synchronization, end 20: MotID: Rotating inductance measurement, step 1 21: MotID: Rotating inductance measurement, step 2 22: MotID: Rotating inductance measurement, step 3 23: MotID: Rotating inductance measurement, step 4 24: MotID: Rotating Inductance measurement evaluation 25: MotID: Rotating Inductance measurement end 30: MotID: Induction motor measurement, step 1 31: MotID: Induction motor measurement, step 2 32: MotID: Induction motor measurement, step 3 33: MotID: Induction motor measurement, step 4 34: MotID: Induction motor measurement, step 5 35: MotID: Induction motor measurement, step 6 36: MotID: Induction motor measurement, step 7 37: MotID: Induction motor measurement, step 8 38: MotID: Induction motor measurement, step 9 40: MotID: Commutating angle, step 1 41: MotID: Commutating angle, step 2 42: MotID: Commutating angle, step 3 43: MotID: Commutating angle, step 4 45: MotID: Commutating angle rotating, step 1 46: MotID: Commutating angle rotating, step 2 47: MotID: Commutating angle rotating, step 3 48: MotID: Commutating angle rotating complete 50: MotID: kT determination, step 1 51: MotID: kT determination, step 2 52: MotID: kT determination, step 3 53: MotID: kT determination evaluation 54: MotID: kT determination end 60: MotID: Reluctance constant measurement, step 1 61: MotID: Reluctance constant measurement, step 2 62: MotID: Reluctance constant measurement, step 3 63: MotID: Reluctance constant measurement end 70: MotID: Moment of inertia measurement, step 1 71: MotID: Moment of inertia measurement, step 2 		

72:	MotID: Moment of inertia measurement, step 3
73:	MotID: Moment of inertia measurement end
80:	MotID: Magnetizing inductance measurement, step 1
81:	MotID: Magnetizing inductance measurement, step 2
82:	MotID: Magnetizing inductance measurement, step 3
83:	MotID: Magnetizing inductance measurement evaluation
84:	MotID: Magnetizing inductance measurement end
90:	MotID: Saturation characteristic. step 1
91:	MotID: Saturation characteristic. step 2
92:	MotID: Saturation characteristic. step 3
93:	MotID: Saturation characteristic evaluation 1
94:	MotID: Saturation characteristic evaluation 2
95:	MotID: Saturation characteristic end
96:	MotID: Converter model, step 1
97:	MotID: Converter model, step 2
98:	MotID: Converter model, step 3
99:	MotID: Converter model, step 4
100:	PolID: Motion-based, step 1
101:	PolID: Motion-based, step 2
102:	PolID: Motion-based, step 3
103:	PolID: Motion-based, step 4
104:	PolID: Motion-based, step 5

r0049[0...3] Motor data set/encoder data set effective / MDS/EDS effective

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 8565
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the effective Motor Data Set (MDS) and the effective Encoder Data Sets (EDS).

Index:
 [0] = Motor Data Set MDS effective
 [1] = Encoder1 Encoder Data Set EDS effective
 [2] = Encoder 2 Encoder Data Set EDS effective
 [3] = Reserved

Dependency: Refer to: p0186, p0187, p0188, r0838

Note: Value 99 means the following: No encoder assigned (not configured).

r0050.0...1 CO/BO: Command Data Set CDS effective / CDS effective

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 8560
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the effective Command Data Set (CDS).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CDS eff., bit 0	On	Off	-
	01	CDS eff., bit 1	On	Off	-

Dependency: Refer to: p0810, r0836

Note: The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.

r0051.0...1		CO/BO: Drive Data Set DDS effective / DDS effective		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the effective Drive Data Set (DDS).			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	DDS eff., bit 0	On	Off
	01	DDS eff., bit 1	On	Off
Dependency:	Refer to: p0820, r0837			
Note:	The drive data set changeover is suppressed when selecting the motor identification, during the rotating measurement, the encoder calibration and the friction characteristic record.			
r0056.1...15		CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2526	
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the status word of the closed-loop control.			
Bit field:	Bit	Signal name	1 signal	0 signal
	01	De-magnetizing completed	Yes	No
	04	Magnetizing completed	Yes	No
	08	Field weakening active	Yes	No
	14	Vdc_max controller active	Yes	No
	15	Vdc_min controller active	Yes	No
Note:	Re bit 04: The bit is immediately set after power-on Exception: For an induction motor with brake (except for p1215 = 2), the bit is only set when 60% of the reference flux is reached.			
r0060		CO: Speed setpoint before the setpoint filter / n_set before filt.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2701, 2704, 5020, 6030, 6799	
	P-Group: Displays, signals	Units group: 3_1	Unit selection: p0505	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [rev/min]	- [rev/min]	- [rev/min]	
Description:	Displays the current speed setpoint at the input of the speed controller or V/f characteristic (after the interpolator).			
Dependency:	Refer to: r0020			
Note:	The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).			

r0061	CO: Speed actual value motor encoder / n_ist mot. encoder		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1580, 4710, 4715
	P-Group: Displays, signals Not for motor type: -	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed sensed by the motor encoder (unsmoothed).		
r0062	CO: Speed setpoint after the filter / n_set after filter		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1590, 1750, 5020, 5030, 5210, 6030
	P-Group: Displays, signals Not for motor type: -	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the current speed setpoint after the setpoint filters.		
r0063	CO: Speed actual value after actual value smoothing / n_act smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1580, 1590, 4710, 5300
	P-Group: Displays, signals Not for motor type: -	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the current smoothed actual speed for speed control.		
Dependency:	Refer to: r0021		
Note:	The speed actual value is calculated in encoderless operation. For operation with encoder, r0063 is smoothed with p1441. The speed actual value is available smoothed (r0021) and unsmoothed (r0063).		
r0064	CO: Speed controller system deviation / n_ctrl system dev		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5040, 6040
	P-Group: Displays, signals Not for motor type: -	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the current system deviation of the speed controller.		
Note:	In the servo control mode with active reference model, the system deviation to the P component of the speed/velocity controller is displayed.		

r0065	Slip frequency / f_Slip		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1710, 6310, 6727, 6730, 6732
	P-Group: Displays, signals Not for motor type: -	Units group: 2_1	Unit selection: p0505 Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the slip frequency for induction motors (ASM).		
r0066	CO: Output frequency / f_outp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1690, 5300, 5730, 6310, 6730, 6731, 6799
	P-Group: Displays, signals Not for motor type: -	Units group: 2_1	Unit selection: p0505 Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the Motor Module output frequency.		
Dependency:	Refer to: r0024		
Note:	The output frequency is available smoothed (r0024) and unsmoothed (r0066).		
r0067	CO: Output current, maximum / I_outp max		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5722, 6300, 6640, 6724
	P-Group: Displays, signals Not for motor type: -	Units group: 6_2	Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum output current of the Motor Module.		
Dependency:	The maximum output current is determined by the parameterized current limit and the motor and converter thermal protection. Refer to: p0290, p0640		
r0068	CO: Absolute current actual value / I_act abs val		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5730, 7017, 8014, 8017, 8850, 8950
	P-Group: Displays, signals Not for motor type: -	Units group: 6_2	Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays actual absolute current.		
Dependency:	Refer to: r0027		
Notice:	Bei A_INF, S_INF the following applies: The value is updated with the current controller sampling time. The following applies for SERVO: The value is updated with a sampling time of 1 ms.		
Note:	Absolute current value = $\sqrt{I_q^2 + I_d^2}$ The absolute current actual value is available smoothed (r0027) and unsmoothed (r0068).		

r0069[0...6]	Phase current actual value / I_phase act value		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 5730, 6714, 6730, 6731, 8850, 8950
	P-Group: Displays, signals Not for motor type: -	Units group: 6_5	Unit selection: p0505 Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	Displays the measured actual phase currents as peak value.		
Index:	[0] = Phase U [1] = Phase V [2] = Phase W [3] = Phase U offset [4] = Phase V offset [5] = Phase W offset [6] = Total U, V, W		
Note:	In indices 3 ... 5, the offset currents of the 3 phases, which are added to correct the phase currents, are displayed. The sum of the 3 corrected phase currents is displayed in index 6.		
r0070	CO: Actual DC link voltage / Vdc_act		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5730
	P-Group: Displays, signals Not for motor type: -	Units group: 5_2	Unit selection: p0505 Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	Displays the measured actual value of the DC link voltage.		
Dependency:	Refer to: r0026		
Notice:	For SINAMICS S120 AC Drive (AC/AC) the following applies: When measuring a DC link voltage < 200 V, for the Power Module (e.g. PM340) a valid measured value is not supplied. In this case, when an external 24V power supply is connected, a value of approx. 24 V is displayed.		
Note:	The DC link voltage is available smoothed (r0026) and unsmoothed (r0070).		
r0072	CO: Output voltage / V_output		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 5730, 6730, 6731, 6799
	P-Group: Displays, signals Not for motor type: -	Units group: 5_1	Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the current power unit output voltage (Motor Module).		
Dependency:	Refer to: r0025		
Note:	The output voltage is available smoothed (r0025) and unsmoothed (r0072).		

r0074	CO: Modulat_depth / Modulat_depth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5730, 6730, 6731, 6799, 8940, 8950
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the current modulation depth.		
Dependency:	Refer to: r0028		
Note:	For space vector modulation, 100% corresponds to the maximum output voltage without overcontrol. Values above 100 % indicate an overcontrol condition - values below 100% have no overcontrol. The phase voltage (phase-to-phase, rms) is calculated as follows: $(r0074 * r0070) / (\sqrt{2} * 100 \%)$. The modulation depth is available smoothed (r0028) and unsmoothed (r0074).		
r0075	CO: Current setpoint field-generating / Id_set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 5714, 5722, 6714
	P-Group: Displays, signals Not for motor type: -	Units group: 6_2	Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the field-generating current setpoint (Id_set).		
Note:	This value is irrelevant for the V/f control mode.		
r0076	CO: Current actual value field-generating / Id_act		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 1710, 5714, 5730, 6714, 6799
	P-Group: Displays, signals Not for motor type: -	Units group: 6_2	Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the field-generating current actual value (Id_act).		
Dependency:	Refer to: r0029		
Note:	This value is irrelevant for the V/f control mode. The field-generating current actual value is available smoothed (r0029) and unsmoothed (r0076).		
r0077	CO: Current setpoint torque-generating / Iq_set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 1774, 5714, 6710, 6714, 6719
	P-Group: Displays, signals Not for motor type: -	Units group: 6_2	Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the torque/force generating current setpoint.		
Note:	This value is irrelevant for the V/f control mode.		

r0078[0...1]	CO: Current actual value torque-generating / Iq_act		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 1630, 5714, 5730
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the torque-generating current actual value (Iq_act).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
Dependency:	Refer to: r0030, p0045		
Note:	These values are irrelevant for the V/f control mode. The torque-generating current actual value is available smoothed (r0030 with 100 ms, r0078[1] with p0045) and unsmoothed (r0078[0]).		
r0079[0...1]	CO: Torque setpoint total / M_set total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5610, 8012
	P-Group: Displays, signals	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the speed controller (before clock cycle interpolation).		
Index:	[0] = Unsmoothed [1] = Smoothed with p0045		
r0080	CO: Torque actual value / M_act		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5730
	P-Group: Displays, signals	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the actual torque value.		
Dependency:	Refer to: r0031		
Note:	The torque actual value is available smoothed (r0031) and unsmoothed (r0080).		
r0081	CO: Torque utilization / M_Utilization		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8012
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the torque utilization as a percentage. The torque utilization is obtained from the required smoothed torque referred to the torque limit.		
Dependency:	Refer to: r0033		

Note: The torque utilization is available smoothed (r0033) and unsmoothed (r0081).
 The torque utilization is obtained from the required torque referred to the torque limit as follows:
 - Positive torque: $r0081 = ((r0079 + p1532) / (r1538 - p1532)) * 100 \%$
 - Negative torque: $r0081 = ((-r0079 + p1532) / (-r1539 + p1532)) * 100 \%$
 For SERVO, the following applies:
 The calculation of the torque utilization depends on the selected smoothing time constant (p0045).

r0082[0...2] CO: Active power actual value / P_act

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5730
	P-Group: Displays, signals	Units group: 14_5	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]

Description: Displays the instantaneous active power.
Index: [0] = Unsmoothed
 [1] = Smoothed with p0045
 [2] = Power drawn
Dependency: Refer to: r0032
Note: The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

r0083 CO: Flux setpoint / Flux setpoint

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5722
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the flux setpoint.

r0084 CO: Flux actual value / Flux act val

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5722
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the flux actual value.

p0092 Clock synchronous operation pre-assignment/check / Clock sync op			
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	<p>Setting to pre-assign/check the sampling times for the internal controller clock cycles for clock-synchronous PROFIBUS operation.</p> <p>p0092 = 1: The controller clock cycles are set so that clock synchronous PROFIBUS operation is possible. If it is not possible to change the controller clock cycles of the clock-cycle synchronous PROFIBUS operation, then an appropriate message is output.</p> <p>The pre-setting of the controller clock cycles can result in a de-rating of the Motor Module (e.g. p0115[0] = 400 µs -> 375 µs).</p> <p>p0092 = 0: The controller clock cycles are set without any restrictions by the clock-cycle PROFIBUS operation (as for up to version V2.3).</p>		
Dependency:	Refer to: A01223, A01224		
r0093 CO: Pole position angle electrically normalized / Pole pos el norm			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the normalized electrical pole position angle.		
Dependency:	Refer to: r0094, p0431, r1778		
Notice:	<p>When the pole position angle (r0093) is output via test socket Tx (x = 0, 1, 2) to adjust the encoder (to determine the angular commutation offset) the test socket being used must be parameterized as follows:</p> <p>p0771[x] = r0093 p0777[x] = 0 % p0778[x] = 0 V p0779[x] = 400 % p0780[x] = 4 V p0783[x] = 0 V p0784[x] = 0</p> <p>For p1821 = 1 (counter-clockwise direction of rotation) the following applies: In order to adjust the encoder using the EMF method, the value, determined using the oscilloscope, must be inverted and then entered in p0431.</p>		
Note:	<p>For operation with encoder and pulse suppression, the following applies:</p> <ul style="list-style-type: none"> - the value is generated from r0094 + 180 °. - this angle can be used to adjust the encoders of synchronous motors. <p>For pulse enable, the following applies:</p> <ul style="list-style-type: none"> - the value indicates the transformation angle used by the control + 180 °. - this value is, contrary to r0094, also applicable (provides information) for encoderless operation and after a pole position identification routine. 		

r0094	CO: Transformation angle / Transformat_angle		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1580, 1680, 1690, 4710, 6714, 6730, 6731, 6732
	P-Group: Displays, signals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the transformation angle.		
Dependency:	Refer to: r0093, p0431, r1778		
Note:	The transformation angle corresponds to the electrical commutation angle. If no pole position identification is carried out (p1982), and the encoder is adjusted, the following applies: The encoder supplies the value and indicates the electrical angle of the flux position (d axis).		
p0097	Select drive object type / Select DO type		
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Integer16	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: -
	P-Group: Topology Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 0	Max 16	Factory setting 0
Description:	Executes an automatic device configuration. In so doing, p0099, p0107 and p0108 are appropriately set.		
Value:	0: No selection 1: Drive object type SERVO 16: Drive object type SERVO HMI		
Dependency:	Refer to: A01330		
Note:	For p0097 = 0, p0099 is automatically set to the factor setting. The setting p0097 = 1 is not possible for chassis-type power units as well as for SINAMICS G or SINAMICS GM. The setting p0097 = 12 is not possible for booksize power units.		
p0100	IEC/NEMA mot stds / IEC/NEMA mot stds		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1) Data type: Integer16	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: -
	P-Group: Converter Not for motor type: FEM	Units group: -	Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Defines whether the motor and drive converter power settings (e.g. rated motor power - p0307) are expressed in [kW] or [hp]. Depending on the selection, the rated motor frequency (p0310) is either set to 50 Hz or 60 Hz. The following applies for IEC drives: The power factor (p0308) should be parameterized. The following applies for NEMA drives: The efficiency (p0309) should be parameterized.		
Value:	0: IEC-Motor (50 Hz, SI units) 1: NEMA motor (60 Hz, US units)		
Dependency:	If p0100 is changed, all of the rated motor parameters are reset. Only then are possible unit changeovers made. The units of all motor parameters are changed that are involved in the selection of IEC or NEMA (e.g. r0206, p0307, p0316, r0333, r0334, p0341, p0344, r1493, r1969). Refer to: r0206, p0210, p0300, p0304, p0305, p0307, p0308, p0310, p0311, p0312, p0314, p0320, p0322, p0323, p0335, r0336, r0337, p0338, p1800		

Note: The parameter can only be changed for vector control (p0107).
The parameter value is not reset when the factory setting is restored (p0010 = 30, p0970).

p0101[0...15] Drive object numbers / DO numbers

CU_S110-CAN, CU_S110-DP	Can be changed: C1(1)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	62	0

Description: The parameter contains the object number via which every drive object can be addressed.
The number of an existing drive object is entered into each index.
The numbers are automatically assigned once and can no longer be changed as long as the object has not been deleted.

In the commissioning software, this object number cannot be entered using the expert list, but is automatically assigned when inserting an object.

Index: [0] = Drive object number Control Unit
[1] = Drive object number object 1
[2] = Drive object number object 2
[3] = Drive object number object 3
[4] = Drive object number object 4
[5] = Drive object number object 5
[6] = Drive object number object 6
[7] = Drive object number object 7
[8] = Drive object number object 8
[9] = Drive object number object 9
[10] = Drive object number object 10
[11] = Drive object number object 11
[12] = Drive object number object 12
[13] = Drive object number object 13
[14] = Drive object number object 14
[15] = Drive object number object 15

Note: Value = 0: No drive object is defined.

r0102[0...1] Number of drive objects / DO count

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of existing or existing and prepared drive objects.

Index: [0] = Existing drive objects
[1] = Existing and prepared drive objects

Dependency: Refer to: p0101

Note: The numbers of the drive objects are in p0101.

Index 0:

Displays the number of drive objects that have already been set up.

Index 1:

Displays the number of drive objects that have already been set up and, in addition, the drive objects that still have to be set up.

p0108[0...15] Drive object, function module / DO function module					
CU_S110-CAN, CU_S110-DP	Can be changed: C1(2)	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	The function module of an existing drive object is entered into each index (also refer to p0101, p0107) The following bits are available for the Control Unit (Index 0): Bit 18: Free function blocks For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0108 of the drive object.				
Index:	[0] = Function module Control Unit [1] = Function module object 1 [2] = Function module object 2 [3] = Function module object 3 [4] = Function module object 4 [5] = Function module object 5 [6] = Function module object 6 [7] = Function module object 7 [8] = Function module object 8 [9] = Function module object 9 [10] = Function module object 10 [11] = Function module object 11 [12] = Function module object 12 [13] = Function module object 13 [14] = Function module object 14 [15] = Function module object 15				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
	16	Bit 16	On	Off	-
	17	Bit 17	On	Off	-
	18	Bit 18	On	Off	-
	19	Bit 19	On	Off	-
	20	Bit 20	On	Off	-
	21	Bit 21	On	Off	-
	22	Bit 22	On	Off	-
	23	Bit 23	On	Off	-
	24	Bit 24	On	Off	-
	25	Bit 25	On	Off	-
	26	Bit 26	On	Off	-

27	Bit 27	On	Off	-
28	Bit 28	On	Off	-
29	Bit 29	On	Off	-
30	Bit 30	On	Off	-
31	Bit 31	On	Off	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive object, function module / DO function module

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the activated function module for the particular drive object.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	02	Closed-loop speed/torque control	Activated	Not activated	-
	03	Closed-loop position control	Activated	Not activated	-
	04	Basic positioner	Activated	Not activated	-
	08	Extended setpoint channel	Activated	Not activated	-
	13	Safety rotary axis	Activated	Not activated	-
	14	Extended brake control	Activated	Not activated	-
	16	Technology controller	Activated	Not activated	-
	17	Extended signals/monitoring	Activated	Not activated	-
	18	Free function blocks	Activated	Not activated	-
	25	Fail-safe inputs/outputs of the CU	Activated	Not activated	-

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

p0121[0...n] Power unit component number / PU comp_no

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: PDS	Func. diagram: -
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	199	0

Description: The power unit data set is assigned to a power unit using this parameter.

This unique component number is assigned when parameterizing the topology.

Only component numbers can be entered into this parameter that correspond to a power unit.

Note: For parallel circuit configurations, the parameter index is assigned to a power unit.

p0124[0...15] Detection of main components using LED / Detection LED

CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Detects the main components of the drive object selected via the index.

r0127[0...n]	Power unit version EPROM data / PU EPROM version		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the power unit.		
Dependency:	Refer to: r0147		
Note:	For parallel circuit configurations, the parameter index is assigned to a power unit.		
r0128[0...n]	Power unit, firmware version / PU FW version		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: PDS Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware version of the power unit.		
Dependency:	Refer to: r0018, r0148, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00. For parallel circuit configurations, the parameter index is assigned to a power unit.		
p0130	Number of Motor Data Sets (MDS) / MDS count		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the number of Motor Data Sets (MDS).		
p0131[0...n]	Motor component number / Mot comp_no		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	The motor data set is assigned to a motor using this parameter. This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to a motor.		

p0139[0...2]	Copy Motor Data Set MDS / Copy MDS		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(15) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 0	Max 31	Factory setting 0
Description:	Copying a Motor Data Set (MDS) into another.		
Index:	[0] = Source motor data set [1] = Target motor data set [2] = Start copying		
Note:	Procedure: 1. In Index 0, enter which motor data set should be copied. 2. In Index 1, enter the motor data set data that is to be copied into. 3. Start copying: Set index 2 from 0 to 1. p0139[2] is automatically set to 0 when copying is completed. When copying, p0131 is not taken into account.		
p0140	Number of Encoder Data Sets (EDS) / EDS count		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 1	Factory setting 1
Description:	Sets the number of Encoder Data Sets (EDS).		
Note:	When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).		
p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: 4704, 8570 Unit selection: - Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC). This unique component number is assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an encoder evaluation.		
Note:	If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical. For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).		

p0142[0...n]	Encoder component number / Encoder comp_no		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: 4704 Unit selection: - Expert list: 1
	Min 0	Max 199	Factory setting 0
Description:	This parameter is used to assign the encoder data set to an encoder. This assignment is made using the unique component number that was assigned when parameterizing the topology. Only component numbers can be entered into this parameter that correspond to an encoder.		
Note:	If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical. For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).		
p0144[0...n]	Sensor Module detection via LED / SM detection LED		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned8 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Detects the Sensor Module assigned to this drive and data set.		
Note:	While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module.		
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4), U, T Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Setting to activate/de-activate an encoder interface (Sensor Module).		
Value:	0: De-activate component 1: Activate component 2: Component, de-activate and not present		
Recommend.:	After inserting a component, before activating, first wait for Alarm A01317.		
Dependency:	Refer to: r0146 Refer to: A01317		
Note:	The de-activation of an encoder interface corresponds to the "parking encoder" function and has the same effect. The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.		

r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Integer16 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting -
Description:	Displays the "active" or "inactive" state of an encoder interface (Sensor Module).		
Value:	0: Component inactive 1: Component active		
Dependency:	Refer to: p0145, p0480, p0897		
r0147[0...n]	Sensor Module EPROM data version / SM EEPROM version		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the EPROM data of the Sensor Module.		
Dependency:	Refer to: r0127		
r0148[0...n]	Sensor Module firmware version / SM FW version		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the firmware version of the Sensor Module.		
Dependency:	Refer to: r0018, r0128, r0197, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		
p0170	Number of Command Data Sets (CDS) / CDS count		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(3) Data type: Unsigned8 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the number of Command Data Sets (CDS).		
Note:	It is possible to toggle between command parameters (BICO parameters) using this data set changeover.		

p0180	Number of Drive Data Sets (DDS) / DDS count		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(3) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8565 Unit selection: - Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the number of Drive Data Sets (DDS).		

p0186[0...n]	Motor Data Sets (MDS) number / MDS number		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Using the parameter, each Drive Data Set (= index) is assigned the associated Motor Data Set (MDS). The parameter value therefore corresponds to the number of the assigned motor data set.		

p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1580, 8570 Unit selection: - Expert list: 1
	Min 0	Max 99	Factory setting 99
Description:	Using the parameter, each Drive Data Set (= index) is assigned the associated Encoder Data Set (EDS) for encoder 1. The parameter value therefore corresponds to the number of the assigned encoder data set. Example: Encoder data set 0 should be assigned to encoder 1 in drive data set 2. --> p0187[2] = 0		
Note:	A value of 99 means that no encoder has been assigned to this drive data set (not configured).		

p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1(4) Data type: Unsigned8 P-Group: Data sets Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1580, 8570 Unit selection: - Expert list: 1
	Min 0	Max 99	Factory setting 99
Description:	Using the parameter, each Drive Data Set (= index) is assigned the associated Encoder Data Set (EDS) for encoder 2. The parameter value therefore corresponds to the number of the assigned encoder data set.		
Note:	A value of 99 means that no encoder has been assigned to this drive data set (not configured).		

r0192 Power unit firmware properties / PU FW property

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the properties supported by the power unit firmware.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Edge modulation possible	Yes	No	-
	01	Free telegram can be selected	Yes	No	-
	02	Smart mode possible for Active Line Module	Yes	No	-
	03	Safety Integrated possible for VECTOR	Yes	No	-
	06	Liquid cooling	Yes	No	-
	07	SERVO pulse frequency changeover, DDS-dependent	Yes	No	-
	08	Simulation mode possible	Yes	No	-
	09	Internal armature short-circuit possible	Yes	No	-
	10	Autonomous internal armature short-circuit possible	Yes	No	-
	11	Infeed temperature inputs X21.1/2	Yes	No	-
	12	Integral normalized to half the gating unit clock cycle freq.	Yes	No	-
	13	Filtering thermal power unit current limit possible	Yes	No	-
	14	DC link compensation possible in power unit	Yes	No	-
	15	PT100 temperature evaluation possible	Yes	No	-
	16	Gating unit with pulse frequency wobulation possible	Yes	No	-
	17	Compound brake possible	Yes	No	-
	18	Extended voltage range possible	Yes	No	-
	20	Component status possible	Yes	No	-
	21	Temperature evaluation via Motor Module / CU terminals possible	Yes	No	-

Notice: This information represents the characteristics/features of the power unit firmware. It does not provide information/data about the characteristics/features of the hardware (e.g. bit 06 = 1 means that although the firmware supports "liquid cooling", a power unit with liquid cooling does not have to be used).

Note: Re bit 09:

The Motor Module supports the internal armature short-circuit. The function is internally required for voltage protection (p1231 = 3).

Re bit 10:

The Motor Module supports the autonomous internal voltage protection. If the voltage protection function is internally activated (p1231 = 3) the Motor Module decides autonomously - using the DC link voltage - as to whether the short-circuit is activated.

r0196[0...255] DRIVE-CLiQ component status / DLQ comp status			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the status of DRIVE-CLiQ components. r0196[0...1]: Not used r0196[2]: Status of DRIVE-DRIVE-CLiQ components with component number 2 ... r0196[255]: Status of DRIVE-DRIVE-CLiQ components with component number 255		
Note:	Structure of status value: Bits 31 ... 8, 7, 6 ... 4, 3 ... 0 Re Bit 31 ... 8: Reserved Re Bit 7: 1: Part of set topology, 0: Only in actual topology Re Bit 6 ... 4: 1: Active, 0: Inactive or parked Re Bit 3 ... 0: 0: Component data not available. 1: Power-up, acyclic DRIVE-CLiQ communication (LED = orange). 2: Ready for operation, cyclic DRIVE-CLiQ communication (LED = green). 3: Alarm (LED = green). 4: Fault (LED = red). 5: Detection via LED and ready for operation (LED = green/orange). 6: Detection via LED and alarm (LED = green/orange). 7: Detection via LED and fault (LED = red/orange). 8: Downloading firmware (LED = green/red at 0.5 Hz). 9: Firmware downloading completed, Waiting for POWER ON (LED = green/red at 2.0 Hz).		

r0197 Loader 1 version / Loader 1 version			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the version of loader 1 (first level loader).		
Dependency:	Refer to: r0018, r0128, r0148, r0198		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

r0198[0...1] Loader 2 version / Loader 2 version			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the version of loader 2 (second level loader).		
Dependency:	Refer to: r0018, r0128, r0148, r0197		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		

p0199[0...24] Drive object name / DO name

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0

Description: Freely assignable name for a drive object.
In the commissioning software, this name cannot be entered using the expert list, but is specified in the configuration assistant. The object name can be subsequently modified in the Project Navigator using standard Windows resources.

r0200[0...n] Power unit current code number / PU code no. act

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the unique code number of the power unit.

Note: r0200 = 0: No power unit found

For parallel circuit configurations, the parameter index is assigned to a power unit.

p0201[0...n] Power unit code number / PU code no

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(2)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: PDS	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0

Description: Sets the current code number from r0200 to acknowledge the power unit being used.
When commissioned for the first time, the code number is automatically transferred from r0200 into p0201.

Dependency: Refer to: F07815

Notice: When p0201 = 10000, the rated power unit data is reloaded and dependent parameters are set (e.g. p0205, p0210, p0230, p0857, p1800). p0201 is then automatically assigned the value of r0200 if the code number of the power unit could be read. A warm start must be performed after this procedure (automatically if necessary).

Note: The parameter is used to identify when the drive is being commissioned for the first time.

The power unit commissioning can only be exited (p0201 = r0200), if the current and acknowledged code numbers are identical (p0010 = 2). However, if the comparator in p9906 or p9908 is at 2 (low) or 3 (minimum), the power unit commissioning is automatically set to p0201 = r0200 upon exiting.

When the code number is changed, the connection voltage (p0210) is checked and, if necessary, adjusted.

For parallel circuit configurations, the parameter index is assigned to a power unit.

r0203[0...15]	Memory card name / Sp_card name		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the name of the memory card in ASCII code. r0203[0]: Name character 1 ... r0203[15]: Name character 16 For the commissioning software, the ASCII characters are displayed unencoded.		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		

r0203[0...n]	Current power unit type / PU current type		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: PDS	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	2	400	-
Description:	Displays the type of power unit found.		
Value:	2: MICROMASTER 440 3: MICROMASTER 411 4: MICROMASTER 410 5: MICROMASTER 436 6: MICROMASTER 440 PX 7: MICROMASTER 430 100: SINAMICS S 101: SINAMICS S (value) 112: PM220 (SINAMICS G120) 113: PM230 (SINAMICS G120) 114: PM240 (SINAMICS G120) 115: PM250 (SINAMICS G120) 116: PM260 (SINAMICS G120) 118: SINAMICS G120 Px 120: PM340 (SINAMICS S120) 150: SINAMICS G 200: SINAMICS GM 250: SINAMICS SM 300: SINAMICS GL 350: SINAMICS SL 400: SINAMICS DCM		
Note:	For parallel circuit configurations, the parameter index is assigned to a power unit.		

r0204[0...n] Power unit hardware properties / PU HW property					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: PDS	Func. diagram: -		
	P-Group: Converter	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the properties supported by the power unit hardware.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Device type	DC/AC device	AC/AC device	-
	01	RFI filter available	Yes	No	-
	02	Active Line Module available	Yes	No	-
	03	Smart Line Module available	Yes	No	-
	04	Basic Line Module available with thyristor bridge	Yes	No	-
	05	Basic Line Module available with diode bridge	Yes	No	-
	06	Liquid cooling with cooling system (chassis PU)	Yes	No	-
	07	F3E regenerative feedback into the line supply	Yes	No	-
	08	Internal Braking Module	Yes	No	-
	09	Different cooling type supported	Yes	No	-
	12	Safe Brake Control (SBC) supported	No	Yes	-
	13	Safety Integrated supported	Yes	No	-
	14	Internal LC output filter	Yes	No	-
Note:	For parallel circuit configurations, the parameter index is assigned to a power unit.				

r0206[0...4] Rated power unit power / PU P_rated				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Converter	Units group: 14_6	Unit selection: p0100	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [kW]	- [kW]	- [kW]	
Description:	Displays the rated power unit power for various load duty cycles.			
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 continuous duty cycle [4] = S6 load duty cycle			
Dependency:	IECdrives (p0100 = 0): Units kW NEMA drives (p0100 = 1): Units hp Refer to: p0100			

r0207[0...4]	Rated power unit current / PU PI_rated		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8014
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the rated power unit power for various load duty cycles.		
Index:	[0] = Rating plate [1] = Load duty cycle with low overload [2] = Load duty cycle with high overload [3] = S1 cont duty cyc [4] = S6 load duty cycle		
r0208	Rated power unit line supply voltage / PU V_rated		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the rated line supply voltage of the power unit. r0208 = 400 : 380 - 480 V +/-10 % r0208 = 500 : 500 - 600 V +/-10 % r0208 = 690 : 660 - 690 V +/-10 % For the Basic Line Module (BLM) the following applies: r0208 = 690 : 500 - 690 V +/-10 %		
r0209[0...4]	Power unit, maximum current / PU I_max		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8750, 8850, 8950
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum output current of the power unit.		
Index:	[0] = Catalog [1] = Load duty cycle with high overload [2] = Load duty cycle with low overload [3] = S1 load duty cycle [4] = S6 load duty cycle		

p0210		Drive unit line supply voltage / Supply voltage		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(2), T	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -	
	P-Group: Converter	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 1 [V]	Max 63000 [V]	Factory setting 600 [V]	
Description:	Sets the drive unit supply voltage. AC/AC unit: The rms value of the phase-to-phase line supply voltage should be entered. DC/AC unit: The rated DC voltage of the connection busbar should be entered.			
Dependency:	Set p1254, p1294 (automatic detection of the Vdc switch-on levels) = 0. The switch-in thresholds of the Vdc_max controller are then directly determined using p0210.			
Caution:	If the line supply voltage is higher than the entered value, the Vdc controller may be automatically de-activated in some cases to prevent the motor from accelerating. In this case, an appropriate alarm is output.			
Note:	Setting ranges for p0210 as a function of the rated power unit voltage: V _{rated} = 230 V: - p0210 = 200 ... 240 V (AC/AC) V _{rated} = 400 V: - p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V (DC/AC) V _{rated} = 400 V (booksize): - p0210 = 380 ... 480 V (AC/AC), 510 ... 720 V, 270 ... 360 V (DC/AC) V _{rated} = 500 V: - p0210 = 500 ... 600 V (AC/AC), 675 ... 900 V (DC/AC) V _{rated} = 690 V: - p0210 = 660 ... 690 V (AC/AC), 890 ... 1035 V (DC/AC) The pre-charging switch-in threshold for the DC link voltage (Vdc) is calculated from p0210: Vdc _{pre} = p0210 * 0.82 * 1.35 (AC/AC) Vdc _{pre} = p0210 * 0.82 (DC/AC) The undervoltage thresholds for the DC link voltage (Vdc) are calculated from p0210 as a function of the rated power unit voltage: V _{rated} = 400 V: - V _{min} = p0210 * 0.78 (AC/AC), p0210 * 0.60 (DC/AC) V _{rated} = 500 V: - V _{min} = p0210 * 0.76 (AC/AC) V _{rated} = 690 V: - V _{min} = p0210 * 0.74 (AC/AC), p0210 * 0.57 (DC/AC)			
p0230		Drive filter type, motor side / Drv filt type mot		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 2)	Calculated: -	Access level: 4	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Converter	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0	Max 3	Factory setting 0	
Description:	Sets the type of the filter at the motor side.			
Value:	0: No filter 3: Sine-wave filter, Siemens			

- Dependency:** The following parameters are influenced with p0230 = 3:
 --> p0233 (power unit, motor reactor) = filter inductance
 --> p0234 (power unit sine-wave filter capacitance) = filter capacitance
 --> p1082 (maximum speed) = Fmax filter / pole pair number
 --> p1800 (pulse frequency) >= nominal pulse frequency of the filter
 Refer to: p0233, p0234, p1082, p1800
- Note:** If the power unit (e.g. PM260) is equipped with an internal sine-wave filter, the parameter cannot be changed. If a filter type cannot be selected, then this filter type is not permitted for the Motor Module.
 If the current controller sampling time is not set to match the rated pulse frequency of the sine-wave filter, p0230 = 3 cannot be selected.
 Chassis power units with sine-wave filter are limited to output frequencies of 115 Hz or 150 Hz.

p0233	Power unit motor reactor / PU mot reactor		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(2), U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [mH]	Max 1000.000 [mH]	Factory setting 0.000 [mH]
Description:	Enter the inductance of a filter connected at the power unit output.		
Dependency:	The parameter is automatically pre-assigned when selecting a filter via p0230 if a SIEMENS filter is defined for the power unit. Refer to: p0230		
Note:	The parameter cannot be changed if the power unit has an internal sine-wave filter.		

p0234	Power unit sine-wave filter capacitance / PU sine filter C		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(2), U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [µF]	Max 1000.000 [µF]	Factory setting 0.000 [µF]
Description:	Enters the capacitance of a sine-wave filter connected at the power unit output.		
Dependency:	This parameter is defaulted when you select a filter via p0230 if a SIEMENS filter is defined for the power unit. Refer to: p0230		
Note:	The parameter value includes the sum of all of the capacitances of a phase connected in series (phase - ground). The parameter cannot be changed if the power unit has an internal sine-wave filter.		

p0249	Power unit cooling type / PU cool type		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 2)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the cooling type for booksize compact power units. This therefore defines whether for these power units, the internal air cooling is shut down and instead, the "Cold-Plate" cooling type is used.		
Value:	0: Air cooling int 1: Cold-Plate		
Note:	For booksize compact power units, there is a 4 at the 5th position in the Order No. The parameter is irrelevant for all other power unit types.		

p0251[0...n]	Operating hours counter power unit fan / PU fan t_oper		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: PDS	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [h]	Max 4294967295 [h]	Factory setting 0 [h]
Description:	Displays the power unit fan operating hours. The number of hours operated can only be reset to 0 in this parameter (e.g. after a fan has been replaced).		
Dependency:	Refer to: p0252		
p0252	Maximum operating time power unit fan / PU fan t_oper max		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [h]	Max 100000 [h]	Factory setting 40000 [h]
Description:	Sets the maximum operating time of the power unit fan. The pre-alarm (warning) is output 500 hours before this set value. The monitoring is de-activated with p0252 = 0.		
Dependency:	Refer to: p0251		
Note:	For chassis units, the maximum operating time in the power unit parameter is set to 50000 via the factory setting.		
p0278	DC link voltage undervoltage threshold reduction / Vdc V_under red		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -80 [V]	Max 0 [V]	Factory setting 0 [V]
Description:	Sets the absolute value by which the threshold to initiate the undervoltage fault (F30003) is reduced.		
Dependency:	Refer to: p0210, r0296 Refer to: F30003		
Notice:	When using a Control Supply Module (CSM) for 24 V supply from the DC link, the minimum continuous DC link voltage may not lie below 430 V. DC link voltages in the range 300 ... 430 V are permissible up to a duration of 1 min.		
Note:	The resulting shutdown threshold can be read in r0296 and is dependent on the selected rated voltage (p0210) and the power unit being used.		
p0287[0...1]	Ground fault monitoring thresholds / Grnd flt thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [%]	Max 100.0 [%]	Factory setting [0] 6.0 [%] [1] 16.0 [%]
Description:	Sets the shutdown thresholds for the ground fault monitoring. The setting is made as a percentage of the maximum power unit current (r0209).		
Index:	[0] = Threshold for pulse inhibit [1] = Threshold for pulse enable		

Dependency: Refer to: F30021
Note: De-activating the ground fault monitoring:
 - Sequence: --> p0287[1] = 0 --> p0287[0] = 0
 - irrespective of the firmware version of the power unit.
 Sets the thresholds:
 - the prerequisite is at least firmware version 2.2 of the power unit.

r0289 CO: Maximum power unit output current / PU I_outp max

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]

Description: Displays the current maximum output current of the power unit taking into account de-rating factors.

p0290 Power unit overload response / PU overld response

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 8014
	P-Group: Converter	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 3	Factory setting 0

Description: Sets the response to a thermal overload condition of the power unit.
 The following quantities can result in a response to thermal overload:
 - heat sink temperature (r0037.0)
 - chip temperature (r0037.1)
 - power unit overload I2T (r0036)
 Possible measures to avoid thermal overload:
 - reduce the output current (closed-loop speed/velocity or torque/force control) or the output frequency (V/f control).
 - reduce the pulse frequency (only for vector control).
 A reduction, if parameterized, is always realized after an appropriate alarm is output.

Value:
 0: Reduce output current or output frequency
 1: No reduction, shutdown when overload threshold is reached
 2: Reduce I_output or f_output and f_pulse (not using I2t)
 3: Reduce the pulse frequency (not using I2t)

Dependency: If a sine-wave filter is parameterized as output filter (p0230 = 3, 4), then only responses can be selected without pulse frequency reduction (p0290 = 0, 1).
 If a fault or alarm is present, then r2135.13 or r2135.15 is set.
 Refer to: r0036, r0037, p0108, r0108, p0230, r2135
 Refer to: A05000, A05001, A07805

Caution: If the thermal overload of the power unit is not sufficiently reduced by the actions taken, the drive is always shut down. This means that the power unit is always protected irrespective of the setting of this parameter.

Note: The setting p0290 = 0, 2 is only practical if the load decreases with decreasing speed (e.g. for applications with variable torque such as for pumps and fans).
 Under overload conditions, the current and torque limit are reduced, and therefore the motor is braked and forbidden speed ranges (e.g. minimum speed p1080 and suppression [skip] speeds p1091 ... p1094) can be passed through.
 For p0290 = 2, 3, the I2t overload detection of the power unit does not influence the responses.
 When the motor data identification routine is selected, p290 cannot be changed.

p0294	Power unit alarm with I2t overload / PU I2t alm thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8014 Unit selection: - Expert list: 1
	Min 10.0 [%]	Max 100.0 [%]	Factory setting 95.0 [%]
Description:	Sets the alarm threshold for the I2t power unit overload. Drive: If this threshold is exceeded, an overload alarm is generated and the system responds as parameterized in p0290. Infeed: When the threshold value is exceeded, only an overload alarm is output.		
Dependency:	Refer to: r0036, p0290 Refer to: A07805		
Note:	The I2t fault threshold is 100 %. If this value is exceeded, fault F30005 is output.		
p0295	Fan run-on time / Fan run-on time		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [s]	Max 600 [s]	Factory setting 0 [s]
Description:	Sets the fan run-on time after the pulses for the power unit have been canceled.		
Note:	Under certain circumstances, the fan can continue to run for longer than was set (e.g. as a result of the excessively high heat sink temperature). For values less than 1 s, a 1 s run on time for the fan is effective.		
r0296	DC link voltage undervoltage threshold / Vdc V_lower_thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Converter Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	If the DC link voltage falls below this threshold, the Motor Module is shut down due to a DC link undervoltage condition (F30003).		
Dependency:	Refer to: p0278 Refer to: F30003		
Note:	For booksize units, the following applies: The undervoltage threshold can be reduced with p0278.		

r0297	DC link voltage overvoltage threshold / Vdc V_upper_thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned16	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 8750, 8760, 8850, 8864, 8950, 8964
	P-Group: Converter Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	If the DC link voltage exceeds the threshold specified here, the drive unit is tripped due to DC link overvoltage.		
Dependency:	Refer to: F30002		
p0300[0...n]	Motor type selection / Mot type sel		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: Integer16	Calculated: - Dynamic index: MDS, p0130	Access level: 1 Func. diagram: 6310
	P-Group: Motor Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 0	Max 10001	Factory setting 0
Description:	Selects the motor type or start to read in the motor parameters for a motor with DRIVE-CLiQ (p0300 = 10000). The following applies for p0300 < 10000: The first digit of the parameter value always defines the general motor type and corresponds to the unlisted motor belonging to a motor list: 1 = Rotating induction motor 2 = Rotating synchronous motor The type information must be entered to filter motor-specific parameters and to optimize the operating characteristics and behavior. For example, for synchronous motors, power factor (p0308) is neither used nor displayed (in the BOP/AOP).		
Value:	0: No motor 1: Induction motor (rotating) 2: Synchronous motor (rotating, permanent-magnet) 104: 1PH4 induction motor 107: 1PH7 induction motor 108: 1PH8 induction motor 200: 1PH8 synchronous motor 206: 1FT6 synchronous motor 207: 1FT7 synchronous motor 236: 1FK6 synchronous motor 237: 1FK7 synchronous motor 10000: Motor with DRIVE-CLiQ 10001: Motor with DRIVE-CLiQ 2nd data set		
Dependency:	When the motor type is changed, the code number in p0301 may be reset to 0. If p0300 is changed during quick commissioning (p0010 = 1), then the matching technological application (p0500) is automatically pre-assigned. This does not occur when commissioning the motor (p0010 = 3). If 10000 is written to p0300 for a parameter download, then p0500 is pre-assigned with DRIVE-CLiQ corresponding to the motor type. Refer to: p0301		
Caution:	If a catalog motor is selected (p0300 >= 100) and an associated motor code number (p0301), then the parameters, that are associated with this list cannot be changed (write protection). The write protection is canceled if the motor type p0300 is set to a non-Siemens motor that matches p0301 (e.g. p0300 = 2 for p0301 = 2xxxx). Write protection is automatically canceled when the results of motor data identification are copied to the motor parameters.		
Notice:	The list for motor/encoder codes can be found in the following documentation: SINAMICS S120/S150 List Manual or S110 List Manual		

Note: With p0300 = 10000, for a motor with DRIVE-CLiQ, the motor parameters are automatically downloaded, with p0300 = 10001, the motor parameters of a second data set (if available).
 If a motor type has not been selected (p0300 = 0), then the drive commissioning routine cannot be exited.
 A motor type with a value above p0300 >= 100 describes motors for which a motor parameter list exists.
 Motor types with a value below p0300 < 100 correspond to the selection of an unlisted motor. When appropriately selected, this means that the motor parameters are pre-assigned the settings for an unlisted motor.
 This also applies for parameters for a motor with DRIVE-CLiQ. In this case p0300 can only be set to p0300 = 10000 or 10001 (read motor parameters) or to the corresponding non-Siemens motor (first digit of the motor code number) in order to be able to cancel the write protection.

p0301[0...n]	Motor code number selection / Mot code No. sel		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3), U Data type: Unsigned16 P-Group: Motor Not for motor type: FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	The parameter is used to select a motor from a motor parameter list. When changing the code number (with the exception to the value 0), all of the motor parameters are pre-assigned from the internally available parameter lists.		
Dependency:	Only code numbers for motor types can be selected that correspond to the motor type selected in p0300. For 1PH2, 1PH4, 1PH7, 1PM4, 1PM6, 1FT6 motors, code numbers are also possible, whose fourth decimal position is greater by a value of 1 or 2 than the matching motor type in p0300. For 1FE1 motors, the third decimal position can be higher by a value of 1. Refer to: p0300		
Notice:	The list for motor codes /encoder codes can be found in the following literature: SINAMICS S120/S150 List Manual or S110 List Manual		
Note:	The motor code number can only be changed if the matching list motor was first selected in p0300. For a motor with DRIVE-CLiQ, p0301 cannot be changed. In this case, p0301 is automatically written to the code number of the motor parameter read-in (r0302) if p0300 is set to 10000. When selecting a list motor (p0300 >= 100), drive commissioning can only be exited if a code number is selected. If, for direct drives, the motor code number (p0301) is changed, this does not automatically result in the angular commutation offset being determined (p0431).		

r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Motor code Mot DLQ		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the motor code number from the saved motor data from a motor with DRIVE-CLiQ.		
Note:	Drive commissioning can only be exited if the code number that was downloaded (r0302) matches the stored code number (p0301). If the numbers differ, then the motor data set should be re-loaded using p0300 = 10000. The motor data are always expected from the first encoder that is assigned to the drive data sets (refer to p0187 = encoder 1) data set number.		

r0303[0...n]	Motor status word of motor with DRIVE-CLiQ / Mot ZSW Mot DLQ				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -		
	P-Group: Motor	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word of the automatic motor parameter sensing of a motor with DRIVE-CLiQ.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	No. of motor data sets	Two	One	-
	01	Motor connection type	Delta	Star	-
p0304[0...n]	Rated motor voltage / Mot V_{rated}				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3)	Calculated: -	Access level: 1		
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 6300, 6724		
	P-Group: Motor	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0 [Vrms]	20000 [Vrms]	0 [Vrms]		
Description:	Sets the rated motor voltage (rating plate).				
Dependency:	Refer to: p0349				
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.				
Note:	When the parameter value is entered the connection type of the motor (star/delta) must be taken into account.				
p0305[0...n]	Rated motor current / Mot I_{rated}				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3)	Calculated: -	Access level: 1		
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 6300		
	P-Group: Motor	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0.00 [Arms]	10000.00 [Arms]	0.00 [Arms]		
Description:	Sets the rated motor current (rating plate).				
Dependency:	Refer to: p0349				
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.				
Notice:	If p0305 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).				
Note:	When the parameter value is entered the connection type of the motor (star/delta) must be taken into account.				

p0307[0...n]	Rated motor power / Mot P_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 14_6	Access level: 1 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [kW]	Max 100000.00 [kW]	Factory setting 0.00 [kW]
Description:	Sets the rated motor power (rating plate).		
Dependency:	IECdrives (p0100 = 0): Units kW NEMA drives (p0100 = 1): Units hp Refer to: p0100		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0308[0...n]	Rated motor power factor / Mot cos_{phi}_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: PEM, REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000	Max 1.000	Factory setting 0.000
Description:	Sets the rated motor power factor (cos phi, rating plate). For a parameter value of 0.000, the power factor is internally calculated and displayed in r0332.		
Dependency:	This parameter is only available for IEC motors (p0100 = 0). Refer to: p0100, r0332		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When a catalog motor is selected, this parameter cannot be changed (write protection). The data in p0300 must be taken into account when write protection is removed.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
p0310[0...n]	Rated motor frequency / Mot f_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [Hz]	Max 3000.00 [Hz]	Factory setting 0.00 [Hz]
Description:	Sets the rated motor frequency (rating plate).		
Dependency:	The number of pole pairs (r0313) is automatically re-calculated when the parameter is changed (together with p0311), if p0314 = 0. If p0310 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned. Refer to: p0311, r0313, p0314		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	If p0310 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		

Note: The parameter is automatically pre-assigned for induction motors from the motor list (p0301).
For synchronous motors, the parameter is not required and must therefore be pre-assigned zero. For p0310 = 0, it is not possible to calculate the pole pair; instead, it must be entered in p0314.

p0311[0...n]		Rated motor speed / Mot n_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1	Factory setting 0.0 [rev/min]
Min	0.0 [rev/min]	Max	210000.0 [rev/min]	
Description:	Sets the rated motor speed (rating plate). For VECTOR the following applies (p0107): For p0311 = 0, the rated motor slip of induction motors is internally calculated and displayed in r0330. It is especially important to correctly enter the rated motor speed for vector control and slip compensation for V/f control.			
Dependency:	If p0311 is changed and for p0314 = 0, the pole pair (r0313) is re-calculated automatically. Refer to: p0310, r0313, p0314			
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.			
Notice:	If p0311 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).			

p0312[0...n]		Rated motor torque / Mot M_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 7_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1	Factory setting 0.00 [Nm]
Min	0.00 [Nm]	Max	1000000.00 [Nm]	
Description:	Sets the rated motor torque (rating plate).			
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.			

r0313[0...n]		Motor pole pair number, current (or calculated) / Mot PolePairNo cur		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned8 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 5300 Unit selection: - Expert list: 1	Factory setting -
Min	-	Max	-	
Description:	Displays the number of motor pole pairs. The value is used for internal calculations. Values: r0313 = 1: 2-pole motor r0313 = 2: 4-pole motor etc.			
Dependency:	For p0314 > 0, the entered value is displayed in r0313. For p0314 = 0, the pole pair number (r0313) is automatically calculated from the rated frequency (p0310) and the rated speed (p0311). Refer to: p0310, p0311, p0314			

Note: For the automatic calculation, the pole pair number is set to the value of 2 if the rated speed or the rated frequency is zero.

p0314[0...n]	Motor pole pair number / Mot pole pair No.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: Unsigned8 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Sets the motor pole pair number. Values: p0314 = 1: 2-pole motor p0314 = 2: 4-pole motor etc.		
Dependency:	For p0314 = 0, the pole pair number is automatically calculated from the rated frequency (p0310) and the rated speed (p0311) and displayed in r0313.		
Notice:	If p0314 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3). For induction motors, the value need only be input if the rated data of a generator is entered therefore resulting in a negative rated slip. In this case, the number of pole pairs in r0313 is too low by 1 and must be manually corrected.		

p0316[0...n]	Motor torque constant / Mot kT		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 28_1	Access level: 1 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm/A]	Max 100.00 [Nm/A]	Factory setting 0.00 [Nm/A]
Description:	Sets the torque constant of the synchronous motor. p0316 = 0: The torque constant is calculated from the motor data. p0316 > 0: The selected value is used as torque constant.		
Dependency:	Refer to: r0334, r1937		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When a catalog motor is selected, this parameter cannot be changed (write protection). The data in p0300 must be taken into account when write protection is removed.		
Note:	This parameter is not used for induction motors (p0300 = 1xx).		

p0318[0...n]	Motor stall current / Mot I_standstill		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 8017 Unit selection: - Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the stall current for synchronous motors (p0300 = 2xx).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is used for the I2t monitoring of the motor (refer to p0611). This parameter is not used for induction motors (p0300 = 1xx).		

p0319[0...n] Motor stall torque / Mot M_standstill			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 7_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the standstill (stall) torque for rotating synchronous motors (p0300 = 2xx).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	This parameter is not used for induction motors (p0300 = 1xx). This parameter value is not evaluated from a control-related perspective.		
p0320[0...n] Motor rated magnetizing current/short-circuit current / Mot I_mag_rated			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 5000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Induction motors: Sets the rated motor magnetizing current. For p0320 = 0.000 the magnetizing current is internally calculated and displayed in r0331. Synchronous motors: Sets the rated motor short-circuit current.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When a catalog motor is selected, this parameter cannot be changed (write protection). The data in p0300 must be taken into account when write protection is removed.		
Note:	The magnetization current p0320 for induction motors (not for catalog motors) is reset when quick commissioning is exited with p3900 > 0. VECTOR: If, for induction motors, the magnetizing current p0320 is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance p0360 is changed so that the EMF r0337 remains constant.		
p0322[0...n] Maximum motor speed / Mot n_max			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [rev/min]	Max 210000.0 [rev/min]	Factory setting 0.0 [rev/min]
Description:	Sets the maximum motor speed.		
Dependency:	Refer to: p1082		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	If p0322 is changed during quick commissioning (p0010 = 1), then the maximum speed p1082, which is also associated with quick commissioning, is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		

p0323[0...n]	Maximum motor current / Mot I_max		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3) Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.00 [Arms]	Max 20000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Set the maximum permissible motor current (e.g. de-magnetizing current for synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	If p0323 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		
Note:	The parameter has no effect for induction motors. For synchronous motors, a value must always be entered for the maximum motor current. p0323 is a motor data. The user-selectable current limit is entered into p0640.		
p0325[0...n]	Motor pole position identification current, 1st phase / Mot PoIID 1 1st ph		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 10000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Sets the current for the 1st phase of the two-stage technique for pole position identification routine. The current of the 2nd phase is set in p0329. The two-stage technique is selected with p1980 = 4.		
Dependency:	Refer to: p0329, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: F07995		
Notice:	When the motor code (p0301) is changed, it is possible that p0325 is not pre-assigned. p0325 can be pre-assigned using p0340 = 3.		
Note:	The value is automatically pre-assigned for the following events: - For p0325 = 0 and automatic calculation of the closed-loop control parameters (p0340 = 1, 2, 3). - for quick commissioning (p3900 = 1, 2, 3).		
p0326[0...n]	Motor stall torque correction factor / Mot M_stall_corr		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 5 [%]	Max 300 [%]	Factory setting 60 [%]
Description:	Sets the correction factor for the stall torque/force at a 600 V DC link voltage.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

p0327[0...n]	Optimum motor load angle / Mot phi_load opt		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.0 [°]	Max 135.0 [°]	Factory setting 90.0 [°]
Description:	Sets the optimum load angle for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction motors. SERVO: The load angle is measured at 1.5 x rated motor current. VECTOR: The load angle is measured at the rated motor current.		
Dependency:	Refer to: r1947		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors without reluctance torque, a angle of 90 degrees must be set.		
p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -1000.00 [mH]	Max 1000.00 [mH]	Factory setting 0.00 [mH]
Description:	Sets the reluctance torque constant for synchronous motors with reluctance torque (e.g. 1FE ... motors). This parameter has no significance for induction motors.		
Dependency:	Refer to: r1939		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For synchronous motors without reluctance torque, the value 0 must be set.		
p0329[0...n]	Motor pole position identification current / Mot PolID current		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the current for the pole position identification routine. For a two-stage technique, the current is set for the second phase.		
Dependency:	Refer to: p0325, p1980, p1981, p1982, p1983, r1984, r1985, r1987, p1990 Refer to: F07995		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

r0330[0...n]	Rated motor slip / Mot slip_rated		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the rated motor slip.		
Dependency:	The rated slip is calculated from the rated frequency, rated speed and number of pole pairs. Refer to: p0310, p0311, r0313		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0331[0...n]	Current motor magnetizing current/short-circuit current / Mot I_mag_rtd cur		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 5722, 6722, 6724
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL, FEM		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Induction motor: Displays the rated magnetizing current from p0320. For p0320 = 0, the internally calculated magnetizing current is displayed. Synchronous motor: Displays the rated short-circuit current from p0320.		
Dependency:	If p0320 was not entered, then the parameter is calculated from the rating plate parameters.		
Note:	In the case of multi-motor operation r0331 is increased by the factor p0306 compared to p0320.		
r0332[0...n]	Rated motor power factor / Mot cos_phi_rated		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the rated power factor for induction motors. For IEC motors, the following applies (p0100 = 0): For p0308 = 0, the internally-calculated power factor is displayed. For p0308 > 0, this value is displayed. For NEMA motors, the following applies (p0100 = 1): For p0309 = 0, the internally-calculated power factor is displayed. For p0309 > 0, this value is converted into the power factor and displayed.		
Dependency:	If p0308 is not entered, the parameter is calculated from the rating plate parameters.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

r0333[0...n] Rated motor torque / Mot M_{rated}			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 7_4	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the rated motor torque.		
Dependency:	IEC drives (p0100 = 0): unit Nm NEMA drives (p0100 = 1): unit lbf ft		
Note:	For induction and reluctance motors, r0333 is calculated from p0307 and p0311. For synchronous motors, r0333 is calculated from p0305, p0316, p0327 and p0328. The result can deviate from the input in p0312. If p0316 = 0, then r0333 = p0312 is displayed. In the case of multi-motor operation r0333 is increased by the factor p0306 compared to the rated torque of an individual motor.		
r0334[0...n] Current motor-torque constant / Mot kT_{cur}			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 28_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min - [Nm/A]	Max - [Nm/A]	Factory setting - [Nm/A]
Description:	Displays the torque constant of the synchronous motor used.		
Dependency:	IEC drives (p0100 = 0): unit Nm / A NEMA drives (p0100 = 1): unit lbf ft / A Refer to: p0316		
Note:	This parameter is not used for induction motors (p0300 = 1xx). For synchronous motors, parameter r0334 = p0316 is displayed. if p0316 = 0, r0334 is calculated from p0305 and p0312.		
p0335[0...n] Motor cooling type / Motor cooling type			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3), T Data type: Integer16 P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 128	Factory setting 0
Description:	Sets the motor cooling system used.		
Value:	0: Non-ventilated 1: Forced cooling 2: Liquid cooling 4: Non-ventilated and internal fan 5: Forced cooling and internal fan 6: Liquid cooling and internal fan 128: No fan		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

Note: The parameter influences the thermal 3-mass motor model.
 1LA1 and 1LA8 motors are characterized by the fact that they have an internal rotor fan. This "internal cooling" lies within the motor frame and is not visible. Air is not directly exchanged with the motor ambient air. For 1PQ8 motors, p0335 should be set to 5 as these motors are force-ventilated motors.
 1LA7 motors, frame size 56 are operated without fan.

r0336[0...n]	Current rated motor frequency / Mot f_{rated cur}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Hz]	Max - [Hz]	Factory setting - [Hz]
Description:	Displays the rated frequency of the motor. For p0310 > 0, this value is displayed.		
Dependency:	Refer to: p0311, p0314		
Note:	For p0310 = 0 or for synchronous motors, the rated motor frequency r0336 is calculated from the rated speed and the pole pair number. For p0310 > 0, this value is displayed (not for synchronous motors).		

r0337[0...n]	Rated motor EMF / Mot EMF_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the rated EMF of the motor.		
Note:	EMF: Electromagnetic force		

p0338[0...n]	Motor limit current / Mot I_{limit}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3)	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the motor limit current for synchronous motors (for a 600 V DC link voltage). Using this current, the maximum torque is achieved at the rated speed (voltage limit characteristic).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Notice:	If p0338 is changed during quick commissioning (p0010 = 1), then the maximum current p0640 is appropriately pre-assigned. This is not the case when commissioning the motor (p0010 = 3).		

r0339[0...n]	Rated motor voltage / Mot V_{rated}		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Motor Not for motor type: REL	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the rated motor voltage		
Note:	For induction motors (p0300 = 1xx) the parameter is set to p0304. For synchronous motors, parameter r0339 = p0304 is displayed. If p0304 = 0, then r0339 is calculated from p0305 and p0316.		
p0340[0...n]	Automatic calculation, motor/control parameters / Calc auto par		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 5	Factory setting 0
Description:	Setting to automatically calculate motor parameters and V/f open-loop and closed-loop control parameters from the rating plate data.		
Value:	0: No calculation 1: Complete calculation 2: Calculation of equivalent circuit diagram parameters 3: Calculation of closed-loop control parameters 4: Calculation of controller parameters 5: Calculation of technological limits and threshold values		
Notice:	The following parameters are influenced using p0340: The parameters designated with (*) are, for list motors (p0300 > 100) not overwritten. SERVO: p0340 = 1: -> All of the parameters influenced for p0340 = 2, 3, 4, 5 -> p0341 (*) -> p0342, p0344, p0600, p0640, p1082, p2000, p2001, p2002, p2003, p2005, p2007 p0340 = 2: -> p0350 (*), p0354 (*), p0356 (*), p0358 (*), p0360 (*) -> p0625 (matching p0350) p0340 = 3: -> All of the parameters influenced for p0340 = 4, 5 -> p0325 (is only calculated for p0325 = 0) -> p0348 (*) (is only calculated for p0348 = 0) -> p0441, p0442, p0443, p0444, p0445 (only for 1FT6, 1FK6, 1FK7 motors) -> p0492, p1082, p1980, p1319, p1326, p1327, p1612, p1752, p1755 p0340 = 4: -> p1441, p1460, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1656, p1657, p1658, p1659, p1715, p1717 -> p1461 (for p0348 > p0322, p1461 is set to 100 %) -> p1463 (for p0348 > p0322, p1463 is set to 400 %) p0340 = 5: -> p1037, p1038, p1520, p1521, p1530, p1531, p2140 ... p2142, p2148, p2150, p2155, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p3820 ... p3829		

VECTOR:

p0340 = 1:

--> All of the parameters influenced for p0340 = 2, 3, 4, 5

--> p0341 (*)

--> p0342, p0344, p0600, p0640, p1082, p1231, p1232, p1333, p1349, p1441, p1442, p1576, p1577, p1609, p1619, p1620, p1621, p1654, p1726, p1825, p1828 ... p1832, p1909, p1959, p2000, p2001, p2002, p2003, p2005, p2007, p3927, p3928

p0340 = 2:

--> p0350 (*), p0354 ... p0361 (*), p0652 ... p0660

--> p0625 (matching p0350)

p0340 = 3:

--> All of the parameters influenced for p0340 = 4, 5

--> p0346, p0347, p0492, p0622, p1262, p1320 ... p1327, p1582, p1584, p1616, p1744, p1755, p1756, p2178

p0340 = 4:

--> p1290, p1292, p1293, p1299, p1338, p1339, p1340, p1341, p1345, p1346, p1460, p1461, p1462, p1463, p1464, p1465, p1470, p1472, p1590, p1592, p1600, p1628, p1629, p1630, p1643, p1703, p1715, p1717, p1740, p1756, p1757, p1760, p1761, p1764, p1767, p1781, p1783, p1785, p1786, p1795, p7036, p7037, p7038

p0340 = 5:

--> p260 ... p264, p1037, p1038, p1520, p1521, p1530, p1531, p1574, p1750, p1802, p1803, p2140, p2142, p2148, p2150, p2161, p2162, p2163, p2164, p2175, p2177, p2194, p3207, p3208, p3815, p3820 ... p3829

Note:

p0340 = 1 contains the calculations of p0340 = 2, 3, 4, 5 without overwriting the motor parameters from the Siemens motor lists (p0301 > 0).

p0340 = 2 calculates the motor parameters (p0350 ... p0360), but only if it does involve a Siemens catalog motor (p0301 = 0).

p0340 = 3 contains the calculations of p0340 = 4, 5.

p0340 = 4 only calculates the controller parameters.

p0340 = 5 only calculates the controller limits.

When existing the quick commissioning using p3900 > 0, p0340 is automatically set to 1.

At the end of the calculations, p0340 is automatically set to 0.

If the STARTER commissioning software (start-up tool) writes a 3 into p0340 when "downloading to the target device", then this corresponds to a "complete calculation of the motor/control parameters without equivalent circuit diagram data". The same calculations are carried out as for p0340 = 1, however, without the equivalent circuit diagram parameters of the motor (p0340 = 2), the motor moment of inertia (p0341) and the motor weight (p0344).

For third-party linear synchronous motors (p0300 = 4) equivalent circuit diagram data are not calculated (p0340 = 2).

p0341[0...n]		Motor moment of inertia / Mot M_mom of inert	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130	Access level: 3 Func. diagram: 1700, 5042, 5210, 6030, 6031 Unit selection: p0100 Expert list: 1
	P-Group: Motor Not for motor type: REL	Units group: 25_1	Factory setting 0.000000 [kgm ²]
	Min 0.000000 [kgm ²]	Max 100000.000000 [kgm ²]	
Description:	Sets the motor moment of inertia (without load).		
Dependency:	IEC drives (p0100 = 0): unit kg m ² NEMA drives (p0100 = 1): unit lb ft ² The parameter value is included, together with p0342, in the rated starting time of the motor. Refer to: p0342		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

Note: SERVO:
p0341 * p0342 + p1498 influence the speed/torque pre-control in encoderless operation.
VECTOR:
The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.

p0342[0...n] Ratio between the total and motor moment of inertia / Mot MomInert Ratio			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 1700, 5042, 5210, 6030, 6031
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 1.000	Max 10000.000	Factory setting 1.000
Description:	Sets the ratio between the total moment of inertia/mass (load + motor) and the intrinsic motor moment of inertia/mass (no load).		
Dependency:	This means that together with p0341, the rated starting (accelerating time) of the motor is calculated for a vector drive. Refer to: p0341, p1498		
Note:	SERVO: p0341 * p0342 + p1498 influence the speed/torque pre-control in encoderless operation. VECTOR: The product of p0341 * p0342 is used when the speed controller (p0340 = 4) is calculated automatically.		

p0344[0...n] Motor weight (for the thermal motor model) / Mot weight th mod			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 27_1	Unit selection: p0100
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.0 [kg]	Max 50000.0 [kg]	Factory setting 0.0 [kg]
Description:	Sets the motor weight.		
Dependency:	IEC drives (p0100 = 0): unit kg NEMA drives (p0100 = 1): unit lb		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter influences the thermal 3 mass model of the induction motor. The parameter is not used for synchronous motors (p0300 = 2xx).		

p0347[0...n] Motor de-excitation time / Mot t_de-excitat.			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 20.000 [s]	Factory setting 0.000 [s]
Description:	Sets the de-magnetizing time (for induction motors) after the inverter pulses have been canceled. The inverter pulses cannot be switched in (enabled) within this delay time. For SERVO, the de-excitation time is only used for the DC current brake.		

Note: The parameter is calculated using $p0340 = 1, 3$.
For induction motors, the result depends on the rotor time constant (r0384).
if this time is shortened too much, then this can result in an inadequate de-magnetizing of the induction motor and in an overcurrent condition when the pulses are subsequently enabled (only when the flying restart function is activated and the motor is rotating).

p0348[0...n]	Speed at the start of field weakening Vdc = 600 V / Mot n_field weaken		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 5722
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [rev/min]	Max 210000.0 [rev/min]	Factory setting 0.0 [rev/min]
Description:	Sets the speed at the start of field weakening for a DC link voltage of 600 V.		
Dependency:	Refer to: p0320, r0331		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		

p0349	System of units, motor equivalent circuit diagram data / Unit_sys mot ESB		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 1	Factory setting 1
Description:	Sets the current system of units for motor equivalent circuit diagram data.		
Value:	1: System of units, physical		
Dependency:	Refer to: p0304, p0305, p0310		
Note:	The reference parameter for resistances of the rated motor impedance $Z = p0304 / (1.732 * p0305)$ is in the % units system. Inductances are converted into a resistance using the factor $2 * \text{Pi} * p0310$. If a reference parameter (p0304, p305, p0310) is zero, then it is not possible to make a changeover to "referred" values (per unit values).		

p0350[0...n]	Motor stator resistance, cold / Mot R_stator cold		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min 0.00000 [Ohm]	Max 2000.00000 [Ohm]	Factory setting 0.00000 [Ohm]
Description:	Sets the stator resistance of the motor at ambient temperature p0625.		
Dependency:	Refer to: p0625, r1912		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The motor identification routine determines the stator resistance from the total stator resistance minus the cable resistance (p0352).		

p0352[0...n]	Cable resistance / Mot R_cable cold		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min 0.00000 [Ohm]	Max 120.00000 [Ohm]	Factory setting 0.00000 [Ohm]
Description:	Resistance of the power cable between the Motor Module and motor.		
Caution:	The cable resistance should be entered prior to motor data identification. If it is used subsequently, the difference by which p0352 was changed must be subtracted from the stator resistance p0350 or motor data identification must be repeated.		
			
Note:	The parameter influences the temperature adaptation of the stator resistance. The motor identification routine does not change the cable resistance. This is subtracted from the total measured stator resistance in order to calculate the stator resistance (p0350, p0352). The cable resistance is reset when quick commissioning is exited with p3900 > 0.		
p0353[0...n]	Motor series inductance / Mot L_series		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min 0.000 [mH]	Max 1000000.000 [mH]	Factory setting 0.000 [mH]
Description:	Sets the series inductance.		
Note:	For the automatic calculation with p0340 = 1 or 3, the calculation of p0348 is influenced by p0353 if p0348 was 0. For the automatic calculation with p0340 = 1, 3 or 4, the calculation of p1715 is influenced by p0353.		
p0354[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL		Expert list: 1
	Min 0.00000 [Ohm]	Max 300.00000 [Ohm]	Factory setting 0.00000 [Ohm]
Description:	Sets the rotor/secondary section resistance of the motor at the ambient temperature p0625. For separately-excited synchronous motors: Sets the damping resistance in the rotor direction (d-axis). This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).		
Dependency:	Refer to: p0625		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

p0356[0...n]	Motor stator leakage inductance / Mot L_stator leak.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Induction motor, separately-excited synchronous motor: Sets the rotor leakage inductance of the motor. Synchronous motor: Sets the stator quadrature axis inductance of the motor. This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is automatically preset for motors from the motor list (p0301).		
p0358[0...n]	Motor rotor leakage inductance / damping inductance, d axis / Mot L_r leak / LDd		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: PEM, REL	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the rotor/secondary section leakage inductance of the motor. For separately-excited synchronous motors: Sets the damping inductance in the rotor direction (d-axis). This value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx). VECTOR: If the stator leakage inductance (p0358) for induction motors is changed outside the commissioning phase (p0010 > 0), then the magnetizing inductance (p0360) is automatically adapted to the new EMF (r0337). After this, we recommend that the saturation characteristic measurement is repeated (p1960).		
p0360[0...n]	Motor magnetizing inductance/magn. inductance, d axis saturated / Mot Lh/Lh d sat		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: PEM, REL	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 10000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Sets the magnetizing inductance of the motor. For separately-excited synchronous motors: Sets the saturated magnetizing inductance in the rotor direction (d-axis). This parameter value is automatically calculated using the motor model (p0340 = 1, 2) or using the motor identification routine (p1910) (not for separately-excited synchronous motors).		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

r0370[0...n]	Motor stator resistance, cold / Mot R_stator cold		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the motor stator resistance at an ambient temperature p0625. The value does not include the cable resistance.		
Dependency:	Refer to: p0625		
r0373[0...n]	Motor rated stator resistance / Mot R_stator rated		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the rated motor stator resistance at rated temperature (total of p0625 and p0627).		
Dependency:	Refer to: p0627		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0374[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL		Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the rotor/secondary section resistance of the motor for the ambient temperature p0625. For separately-excited synchronous motors: Displays the damping resistance in the rotor direction (d-axis).		
Dependency:	Refer to: p0625		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0376[0...n]	Rated motor rotor resistance / Mot R_rotor rated		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 16_1	Unit selection: p0349
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the rated (nominal) rotor/secondary section resistance of the motor at the rated temperature (total of p0625 and p0628).		
Dependency:	Refer to: p0628		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		

r0377[0...n]	Motor leakage inductance, total / Mot L_leak total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 6640
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Induction motor: Displays the stator leakage inductance of the motor including the series inductance (p0353). Synchronous motor: Displays the stator quadrature axis inductance of the motor including the series inductance (p0353).		
r0382[0...n]	Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: 15_1	Unit selection: p0349
	Not for motor type: PEM, REL		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the magnetizing inductance of the motor. For separately-excited synchronous motors: Displays the saturated magnetizing inductance in the rotor direction (d-axis).		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 6722
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: PEM, REL		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the rotor time constant. For separately-excited synchronous motors: Displays the damping time constant in the rotor direction (d-axis).		
Note:	The parameter is not used for synchronous motors. The value is calculated from the total of the inductances on the rotor side (p0358, p0360) divided by the rotor/damping resistance (p0354). The temperature adaptation of the rotor resistance for induction motors is not taken into account.		
r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the stator leakage time constant.		
Note:	The value is calculated from the total of all leakage inductances (p0233*, p0353, p0356, p0358) divided by the total of all motor resistances (p0350, p0352, p0354). The temperature adaptation of the resistances is not taken into account. * only applies for VECTOR (r0107).		

p0391[0...n] Current controller adaptation, starting point KP / I_adapt pt KP			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 5714
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [Arms]	Max 6000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the starting point of the current-dependent current controller adaptation where the current controller gain p1715 is effective.		
Dependency:	Refer to: p0392, p0393, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.		
p0392[0...n] Current controller adaptation, starting point KP adapted / I_adapt pt KP adap			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 5714
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [Arms]	Max 6000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the starting point of the current-dependent current controller adaptation where the adapted current controller gain p1715 * p0393 is effective.		
Dependency:	Refer to: p0391, p0393, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.		
p0393[0...n] Current controller adaptation p gain adaptation / I_adapt Kp adapt			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 5714
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the factor for the current controller P gain in the adaptation range (current greater than p0392). The value is referred to p1715.		
Dependency:	Refer to: p0391, p0392, p1402, p1715		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
Note:	For p0393 = 100 % or p1402 bit 2 = 0, the current controller adaptation is disabled and p1715 is effective over the entire range.		

r0395[0...n]	Current stator resistance / R_stator cur		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: MDS, p0130	Access level: 3 Func. diagram: 6300, 6730, 6731, 6732
	P-Group: Motor Not for motor type: -	Units group: 16_1	Unit selection: p0349 Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the current stator resistance (phase value). The parameter is influenced by the temperature model and includes the temperature-independent cable resistance.		
Dependency:	Refer to: p0350, p0352, p0620		
Note:	In each case, only the stator resistance of the active motor data set is included with the stator temperature of the thermal motor model.		
r0396[0...n]	Current rotor resistance / R_rotor cur		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: MDS, p0130	Access level: 3 Func. diagram: 6730
	P-Group: Motor Not for motor type: PEM, REL, FEM	Units group: 16_1	Unit selection: p0349 Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the current rotor/secondary section resistance (phase value). The parameter is influenced by the temperature model.		
Dependency:	Refer to: p0354, p0620		
Note:	In each case, only the rotor resistance of the active motor data set is included with the rotor temperature of the thermal motor model. This parameter is not used for synchronous motors (p0300 = 2xx).		
p0400[0...n]	Encoder type selection / Enc_typ sel		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 4) Data type: Integer16	Calculated: - Dynamic index: EDS, p0140	Access level: 1 Func. diagram: 1580, 4704
	P-Group: Encoder Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 0	Max 10100	Factory setting 0
Description:	Selects the encoder from the list of encoder types supported.		
Value:	0: No encoder 202: DRIVE-CLiQ encoder AS20, singleturn 204: DRIVE-CLiQ encoder AM20, multiturn 4096 242: DRIVE-CLiQ encoder AS24, singleturn 244: DRIVE-CLiQ encoder AM24, multiturn 4096 1001: Resolver 1 speed 1002: Resolver 2 speed 1003: Resolver 3 speed 1004: Resolver 4 speed 2001: 2048, 1 Vpp, A/B C/D R 2002: 2048, 1 Vpp, A/B R 2003: 256, 1 Vpp, A/B R 2004: 400, 1 Vpp, A/B R 2005: 512, 1 Vpp, A/B R 2006: 192, 1 Vpp, A/B R 2007: 480, 1 Vpp, A/B R 2008: 800, 1 Vpp, A/B R 2010: 18000, 1 Vpp, A/B R distance-coded		

2051: 2048, 1 Vpp, A/B, EnDat, Multiturn 4096
 2052: 32, 1 Vpp, A/B, EnDat, Multiturn 4096
 2053: 512, 1 Vpp, A/B, EnDat, Multiturn 4096
 2054: 16, 1 Vpp, A/B, EnDat, Multiturn 4096
 2055: 2048, 1 Vpp, A/B, EnDat, Singleturn
 2081: 2048, 1 Vpp, A/B, SSI, Singleturn
 2082: 2048, 1 Vpp, A/B, SSI, Multiturn 4096
 2083: 2048, 1 Vpp, A/B, SSI, singleturn, error bit
 2084: 2048, 1 Vpp, A/B, SSI, multiturn 4096, error bit
 3001: 1024 HTL A/B R
 3002: 1024 TTL A/B R
 3003: 2048 HTL A/B R
 3005: 1024 HTL A/B
 3006: 1024 TTL A/B
 3007: 2048 HTL A/B
 3008: 2048 TTL A/B
 3009: 1024 HTL A/B unipolar
 3011: 2048 HTL A/B unipolar
 3020: 2048 TTL A/B R, with sense
 3081: SSI, Singleturn, 24 V
 3082: SSI, Multiturn 4096, 24 V
 3090: 4096, HTL, A/B, SSI, Singleturn
 9999: User-defined
 10000: Identify encoder
 10050: Encoder with EnDat interface identified
 10051: DRIVE-CLiQ encoder identified
 10100: Identify encoder (waiting)

Caution: An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list. When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to an unlisted encoder (p0400 = 9999).

Notice: The list for motor codes /encoder codes can be found in the following literature:
 SINAMICS S120/S150 List Manual or S110 List Manual

Note: The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using the zero mark. If, for a synchronous motor, the fine synchronization is to be realized using a zero mark, then the following must be executed:

- set p0400 to 9999

- set p0404.15 to 1

Prerequisite:

Coarse synchronization must be selected (e.g. pole position identification) and the zero pulse of the encoder must either be mechanically or electronically (p0431) adjusted to the pole position.

p0401[0...n] Encoder type, OEM selection / Enc type OEM sel

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 4)	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: 1580, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 32767	Factory setting 0

Description: Selects the encoder from the list of encoder types that the OEM supports.

Note: The connected encoder can be identified by p0400 = 10000. This means that the encoder must support this and is possible in the following cases: Motor with DRIVE-CLiQ, encoder with EnDat interface.

If an identification is not possible, then p0400 is set to 0.

The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

Using p0400 = 20000, the encoder type can be selected from the list of OEM encoders using p0401.

p0404[0...n] Encoder configuration effective / Enc_config eff

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Settings for the basic encoder properties.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Abs value encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B sq-wave	Yes	No	-
	04	Track A/B sinus	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	10	DRIVE-CLiQ encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark	Yes	No	-
	16	Acceleration	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excit.	Yes	No	-

Caution: This parameter is automatically preset for encoders from the encoder list (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Notice: If an SSI encoder (bit 9 = 1) is used as motor encoder for permanent-magnet synchronous motors, then this is only permissible in conjunction with an additional A/B track (bit 4 = 1 or bit 5 = 1).

Note: ZM: Zero mark

SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:

The track A/B is adjusted to match the magnetic position of the motor.

Re bit 1, 2 (absolute encoder, multiturn encoder):

These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.

Re bit 10 (DRIVE-CLiQ encoder):

This bit is only used for the large-scale integrated DRIVE-CLiQ encoders that provide their encoder data directly in DRIVE-CLiQ format without converting this data. This bit is not, therefore, set for first-generation DRIVE-CLiQ encoders.

Re bit 12 (equidistant zero mark):

The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution). The bit activates the monitoring of the zero mark distance (p0425).

Re bit 13 (irregular zero mark):

The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark distance is not monitored.

Re bit 14 (distance-coded zero mark):

The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

Re bit 15 (commutation with zero mark):

For distance-coded zero marks, the following applies:

The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).

The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.

The fine synchronization is only started after two zero marks have been passed.

p0405[0...n] Square-wave encoder track A/B / Sq-wave enc A/B

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1111 bin

Description: Settings for the track A/B of a square-wave encoder. For square-wave encoders, p0404.3 must also be 1.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Signal	Bipolar	Unipolar	-
	01	Level	TTL	HTL	-
	02	Track monitoring	A/B <> -A/B	None	-
	03	Zero pulse	Same as A/B track	24 V unipolar	-
	04	Switching threshold	High	Low	-

Caution: This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0408[0...n] Rotary encoder pulse No. / Rot enc pulse No.

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	16777215	2048

Description: Sets the number of pulses for a rotary encoder.

Caution: This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The number of pole pairs for a resolver is entered here.
The smallest permissible value is 1 pulse.

p0410[0...n] Encoder inversion actual value / Enc inv act value

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert actual values.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Invert speed actual value	Yes	No	4710, 4715
	01	Invert position actual value	Yes	No	4704

Note: The inversion influences the following parameters:
 Bit 00: r0061, r0063 (exception: encoderless control), r0094
 Bit 01: r0482, r0483

p0414[0...n] Redundant coarse position value relevant bits (identified) / Relevant bits			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 16	Factory setting 16

Description: Sets the number of relevant bits for the redundant coarse position value.

p0415[0...n] Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 31	Factory setting 14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Note: MSB: Most Significant Bit

p0418[0...n] Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2	Max 18	Factory setting 11

Description: Sets the fine resolution in bits of the incremental position actual values.

Note: The parameter applies for the following process data:

- Gx_XIST1
- Gx_XIST2 for reference mark or flying measurement

The fine resolution specifies the fraction between two encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048).

For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information.

For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy.

p0419[0...n] Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: EDS, p0140	Func. diagram: 4704, 4710
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2	Max 18	Factory setting 9

Description: Sets the fine resolution in bits of the absolute position actual values.

Dependency: Refer to: p0418

Note: This parameter applies to process data Gx_XIST2 when reading the absolute value.

p0421[0...n]	Absolute encoder rotary multiturn resolution / Enc abs multiturn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: 4704 Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 4096
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
p0423[0...n]	Absolute encoder rotary singleturn resolution / Enc abs singleturn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: 4704 Unit selection: - Expert list: 1
	Min 0	Max 1073741823	Factory setting 8192
Description:	Sets the number of measuring steps per revolution for a rotary absolute encoder. The resolution refers to the absolute position.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
p0425[0...n]	Encoder, rotary zero mark distance / Enc rot dist ZM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: 4704, 8570 Unit selection: - Expert list: 1
	Min 0	Max 16777215	Factory setting 2048
Description:	Sets the distance in pulses between two zero marks for a rotary encoder. This information is used for zero mark monitoring.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	For distance-coded zero marks, this means the basic distance.		
p0427[0...n]	Encoder SSI baud rate / Enc SSI baud rate		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [kHz]	Max 65535 [kHz]	Factory setting 100 [kHz]
Description:	Sets the baud rate for an SSI encoder.		
Caution:	This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.		
Note:	SSI: Synchronous Serial Interface		

p0428[0...n] Encoder SSI monoflop time / Enc SSI t_monoflop

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [µs]	Max 65535 [µs]	Factory setting 30 [µs]

Description: Sets the minimum delay time between two data transfers of the absolute value for an SSI encoder.

Caution: This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0429[0...n] Encoder SSI configuration / Enc SSI config

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0000 bin

Description: Sets the configuration for an SSI encoder.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Transfer code	Binary code	Gray code	-
	02	Transfer absolute value twice	Yes	No	-
	06	Data line during the monoflop time	High level	Low level	-

Caution: This parameter is automatically preset for encoders from the encoder list (p0400). When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: Re bit 06:

The quiescent signal level of the data line corresponds to the inverted, set level.

p0430[0...n] Sensor Module configuration / SM config

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1110 0000 0000 1000 0000 0000 0000 0000 bin

Description: Sets the configuration of the Sensor Module.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	17	Burst oversampling	Yes	No	-
	19	Safety position actual value sensing	Yes	No	-
	20	Speed calculation mode (only SMC30)	Incremental diff	Flank time meas	-
	21	Zero mark tol	Yes	No	-
	22	Rot pos adapt	Yes	No	-
	27	SSI position value extrapolation	Yes	No	-
	29	Phase correction	Yes	No	-
	30	Amplitude correction	Yes	No	-
	31	Offset correction	Yes	No	-

p0431[0...n] Angular commutation offset / Ang_com offset			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -180.00 [°]	Max 180.00 [°]	Factory setting 0.00 [°]
Description:	Sets the angular commutation offset.		
Dependency:	The value is taken into account in r0094. Refer to: r0094, r1778		
Caution:	When the firmware is upgraded from V2.3 to V2.4 or higher, the value must be reduced by 60° if all the following conditions are fulfilled: - The motor is a synchronous motor (p0300 = 2, 2xx, 4, 4xx). - The encoder is a resolver (p0404.23 = 1). - The actual speed value is inverted (p0410.0 = 1).		
Notice:	The angular commutation offset cannot be generally taken from other drive systems. As a minimum - the sign of the offset determined for SIMODRIVE 611 digital and SIMODRIVE 611 universal must be reversed for SINAMICS (p0431 (SINAMICS) = -p1016 (SIMODRIVE)).		
Note:	For p0404.5 = 1 (track C/D) the following applies: The angular offset in p0431 acts on track A/B, the zero mark on track C/D. For p0404.6 = 1 (Hall sensor) the following applies: The angular offset in p0431 acts on track A/B and the zero mark.		
p0432[0...n] Gearbox factor, encoder revolutions / Grbx_fact enc_rev			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 10000	Factory setting 1
Description:	Sets the encoder revolutions for the gearbox factor of the encoder evaluation. The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.		
Dependency:	This parameter can only be set for p0402 = 9999. Refer to: p0410, p0433		
Note:	Negative gearbox factors should be implemented with p0410.		
p0433[0...n] Gearbox factor, motor/load revolutions / Grbx_fact mot_rev			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 10000	Factory setting 1
Description:	Sets the motor and load revolutions for the gearbox factor of the encoder evaluation. The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.		
Dependency:	This parameter can only be set for p0402 = 9999. Refer to: p0410, p0432		
Note:	Negative gearbox factors should be implemented with p0410.		

p0434[0...n]		Encoder SSI error bit / Enc SSI error bit	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the position and level of the error bit in the SSI protocol.		
Notice:	The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.		
Note:	Value = dcba ba: Position of the error bit in the protocol (0 ... 63). c: Level (0: Low level, 1: High level). d: Status of the evaluation (0: Off, 1: On with 1 error bit, 2: On with 2 error bits ... 9: On with 9 error bits). For several error error bits, the following applies: - the position specified under ba and the additional bits are assigned increasing consecutively. - the level set under c applies to all error bits. Example: p0434 = 1013 --> The evaluation is switched in and the error bit is at position 13 with a low level. p0434 = 1113 --> The evaluation is switched in and the error bit is at position 13 with a high level.		

p0435[0...n]		Encoder SSI alarm bit / Enc SSI alarm bit	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the position and level of the alarm bit in the SSI protocol.		
Notice:	The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.		
Note:	Value = dcba ba: Position of the alarm bit in protocol (0 ... 63). c: Level (0: Low level, 1: High level). d: State of the evaluation (0: Off, 1: On). Example: p0435 = 1014 --> The evaluation is switched in and the alarm bit is at position 14 with a low level. p0435 = 1114 --> The evaluation is switched in and the alarm bit is at position 14 with a high level.		

p0436[0...n]		Encoder SSI parity bit / Enc SSI parity bit	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the position and parity of the parity bit in the SSI protocol.		
Notice:	The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.		

Note: Value = dcba
 ba: Position of the parity bit in the protocol (0 ... 63).
 c: Parity (0: even, 1: uneven).
 d: State of the evaluation (0: Off, 1: On).
 Example:
 p0436 = 1015
 --> The evaluation is switched in and the parity bit is at position 15 with even parity.
 p0436 = 1115
 --> The evaluation is switched in and the parity bit is at position 15 with uneven parity.

p0437[0...n] Sensor Module configuration extended / SM config ext

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0011 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the extended configuration of the Sensor Module.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activating the data logger	Yes	No	-
	01	Zero mark edge detection	Yes	No	-
	04	Edge evaluation	Yes	No	-
	05	Edge evaluation	Yes	No	-
	06	Freeze the speed actual value for dn/dt errors	Yes	No	-
	28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
	29	EnDat encoder initialization with high accuracy	Yes	No	-
	31	Analog unipolar track monitoring	Yes	No	-

Dependency: Refer to: p0430, r0459

Note: A value of zero is displayed if an encoder is not present.

Re bit 00:

When the data logger (trace) is activated, in the case of a fault, data before and after the event are recorded (traced) and saved in files on the non-volatile memory medium. Experts can then evaluate this data.

Re bit 01:

For bit = 0, the zero mark is evaluated by ANDing tracks A and B.

For bit = 1, the zero mark is evaluated depending on the direction of rotation detected. For a positive direction of rotation, the positive edge of the zero mark is considered and for a negative direction of rotation, the negative edge of the zero mark.

Re Bit 04 and Bit 05:

Bit 5/4 = 0/0: Signal evaluation per period, 4 x

Bit 5/4 = 1/0: Signal evaluation per period, 2 x.

Bit 5/4 = 0/1: Signal evaluation per period, 1 x.

Bit 5/4 = 1/1: Illegal setting.

Re bit 06:

When the function is activated, when the dn/dt monitoring responds, the speed actual value is internally frozen for a specific time. The actual value is then re-enabled after this time has expired.

Re bit 29:

When the bit is set, the EnDat encoder is initialized under a certain speed and, therefore, with high accuracy. If initialization at a higher speed is requested, fault F31151, F32151, or F33151 is output.

Re bit 31:

When monitoring is active, the levels of the individual track signals and the corresponding inverted track signals are monitored separately.

p0438[0...n]	Squarewave encoder filter time / Enc t_filt		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 100.00 [µs]	Factory setting 0.64 [µs]
Description:	Sets the filter time for a squarewave encoder. The hardware of the squarewave encoder only supports the following values: No filtering 0.04 µs 0.64 µs 2.56 µs 10.24 µs 20.48 µs		
Dependency:	Refer to: r0452		
Notice:	If the filter time is too long, the track signals A/B/R may be suppressed and the appropriate messages output.		
Note:	The most suitable filter time depends on the number of pulses and maximum speed of the square-wave encoder. The filter time is automatically corrected to the next value when entering a non-specified value. In this case, no message is output. The effective filter time is displayed in r0452.		
p0440[0...n]	Copy encoder serial number / Copy enc ser_no		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Copies the current serial number of the encoder belong to this encoder data set to p0441 ... p0445. Example: For p0440[0] = 1, the serial number of the encoder belonging EDS0 is copied to p0441[0] ... p0445[0].		
Value:	0: No action 1: Transfer serial number		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464, p1990		
Note:	For encoders with serial number, encoder replacement is monitored in order to request angular commutation calibration (adjustment) for motor encoders and absolute calibration for direct measuring systems with absolute value data. The serial number, which from then onwards is used for monitoring purposes, can be transferred using p0440. In the following cases, copying is automatically started in the following cases: 1.) When commissioning 1FT6, 1FK6, 1FK7 motors. 2.) When writing into p0431. 3.) For p1990 = 1. p0440 is automatically set to 0 when the copying has been completed. In order to permanently accept the copied values, it is necessary to save in a non-volatile fashion (p0977).		

p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 1 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		

p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 2 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		

p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 3 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		

p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: CALC_MOD_ALL	Access level: 4
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 4 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		

p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: EDS, p0140 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Serial number part 5 of the encoder for the commissioning.		
Dependency:	Refer to: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464 Refer to: F07414		
Note:	A value of zero is displayed if an encoder is not present.		
p0446[0...n]	Encoder SSI number of bits before the absolute value / Enc SSI bit before		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the number of bits before the absolute value in the SSI protocol.		
Note:	For example, error bit, alarm bit or parity bit can be positioned at these bits.		
p0447[0...n]	Encoder SSI number of bits absolute value / Enc SSI bit val		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 25
Description:	Sets the number of bits for the absolute value in the SSI protocol.		
p0448[0...n]	Encoder SSI number of bits after the absolute value / Enc SSI bit after		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the number of bits after the absolute value in the SSI protocol.		
Note:	For example, error bit, alarm bit or parity bit can be positioned at these bits.		

p0449[0...n]	Encoder SSI number of bits, filler bits / Enc SSI fill bits		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4) Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 1
Description:	Sets the number of filler bits for double absolute value transfer in the SSI protocol.		
Dependency:	Refer to: p0429		
Note:	This parameter is only of significance for p0429.2 = 1.		
r0451[0...2]	Commutation angle factor / Enc commut_factor		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 4710 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the relationship between the electrical and mechanical pole positions.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Note:	A value of zero is displayed if an encoder is not present.		
r0452[0...2]	Squarewave encoder filter time display / Enc t_filt displ		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [µs]
Description:	Displays the effective filter time for a squarewave encoder. The filter time is set using p0438.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0438		
Note:	A value of zero is displayed if an encoder is not present.		
r0455[0...2]	Encoder configuration recognized / Enc config act		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the detected encoder configuration. In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Abs value encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B sq-wave	Yes	No	-
	04	Track A/B sinus	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	10	DRIVE-CLiQ encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark	Yes	No	-
	16	Acceleration	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excit.	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark

This parameter is only used for diagnostics.

A value of zero is displayed if an encoder is not present.

r0456[0...2] Encoder configuration supported / Enc config supp

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Contains the encoder configuration supported by the Sensor Module.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Abs value encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B sq-wave	Yes	No	-
	04	Track A/B sinus	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	10	DRIVE-CLiQ encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark	Yes	No	-
	16	Acceleration	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excit.	Yes	No	-

Dependency: Refer to: p0404

Note: ZM: Zero mark
This parameter is only used for diagnostics.
A value of zero is displayed if an encoder is not present.

r0458[0...2] Sensor Module properties / SM properties

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Sets the Sensor Module configuration.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder data available	Yes	No	-
	01	Motor data available	Yes	No	-
	02	Temperature sensor connection available	Yes	No	-
	03	Connection for PTC for motor with DRIVE-CLiQ also available	Yes	No	-
	04	Module temperature available	Yes	No	-
	05	Absolute encoder p0408/p0421, no power of 2	Yes	No	-
	06	Sensor Module permits parking/unparking	Yes	No	-
	07	Hall sensor can be combined with actual value inversion	Yes	No	-
	08	Evaluation through several temperature channels possible	Yes	No	-
	09	Encoder fault and its associated information available	Yes	No	-
	10	Speed diagnostics in the Sensor Module	Yes	No	-
	11	Configuring without park state possible	Yes	No	-
	12	Extended functions available	Yes	No	-
	13	Extended encoder fault handling	Yes	No	-
	14	Extended singleturn-multiturn data available	Yes	No	-
	16	Pole position identification	Yes	No	-
	17	Burst oversampling	Yes	No	-
	19	Safety position actual value sensing	Yes	No	-
	20	Extended speed calculation being used (only SMC30)	Yes	No	-
	21	Zero mark tol	Yes	No	-
	22	Rot pos adapt	Yes	No	-
	27	SSI position value extrapolation	Yes	No	-
	29	Phase correction	Yes	No	-
	30	Amplitude correction	Yes	No	-
	31	Offset correction	Yes	No	-

Dependency: Refer to: p0437, p0600, p0601

Note: A value of zero is displayed if an encoder is not present.

Re bit 11:

When the property is set, the following parameters can be changed without the actual value in the encoder interface becoming invalid (state r0481.14 = 1 "parking encoder active"):

p0314, p0315, p0430, p0431, p0441, p0442, p0443, p0444, p0445

Re bit 12:

The extended functions can be configured using p0437.

r0459[0...2] Sensor Module properties extended / SM prop ext				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the extended properties supported by the Sensor Module.			
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activating the data logger	Yes	No
	01	Zero mark edge detection	Yes	No
	04	Edge evaluation	Yes	No
	05	Edge evaluation	Yes	No
	06	Freeze the speed actual value for dn/dt errors	Yes	No
	28	EnDat linear encoder monitoring incremental/absolute	Yes	No
	29	EnDat encoder initialization with high accuracy	Yes	No
	31	Analog unipolar track monitoring	Yes	No
Dependency:	Refer to: p0437			
Note:	A value of zero is displayed if an encoder is not present.			

r0460[0...2] Encoder serial number part 1 / Enc ser_no 1				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the current serial number part 1 of the appropriate encoder.			
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved			
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464			

r0461[0...2] Encoder serial number part 2 / Enc ser_no 2				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the current serial number part 2 of the appropriate encoder.			
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved			
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464			

r0462[0...2]	Encoder serial number part 3 / Enc ser_no 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the current serial number part 3 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464		
r0463[0...2]	Encoder serial number part 4 / Enc ser_no 4		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the current serial number part 4 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464		
r0464[0...2]	Encoder serial number part 5 / Enc ser_no 5		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the current serial number part 5 of the appropriate encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463		

r0465[0...27] Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the serial number of encoder 1. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number		
Dependency:	Refer to: r0460, r0461, r0462, r0463, r0464		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		
Note:	The individual characters of the identification number/serial number are available coded as ASCII characters.		
r0466[0...27] Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the serial number of encoder 2. Index 0 = first character of the identification number ... Index x = 20 hex (blank) --> separation between the identification number of serial number Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number Index x + 3 = first character of the serial number ... Index y with contents = last character of the serial number		
Dependency:	Refer to: r0460, r0461, r0462, r0463, r0464		
Notice:	An ASCII table (excerpt) can be found, for example, in the following List Manual:		
Note:	The individual characters of the identification number/serial number are available coded as ASCII characters.		

r0470[0...2]	Redundant coarse value valid bits / Valid bits		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the valid bits of the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Dependency: Refer to: p9323, p9523

r0471[0...2]	Redundant coarse value fine resolution bits / Fine bit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of valid bits for the fine resolution of the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Dependency: Refer to: p9324, p9524

r0472[0...2]	Redundant coarse position value relevant bits / Relevant bits		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the number of relevant bits for the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

r0474[0...2]	Redundant coarse position value configuration / Red pos config		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder configuration for the redundant coarse position value.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Incrementer	Yes	No	-
	01	Encoder CRC least significant byte first	Yes	No	-
	02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-

Dependency: Refer to: p9315, p9515

r0475[0...2] Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Note: MSB: Most Significant Bit

r0479[0...2] CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics. In contrast to p0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Caution: After booting or after a data set changeover, under certain circumstances, the new value is only available at BICO sinks - that are interconnected to BICO source CO:r0479 - only after several 100ms as the connections must be updated in the background (contrary to other BICO sources, e.g. CO:r0482).



The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

p0480[0...2] CI: Signal source for encoder control word Gn_STW / Enc S_src Gn_STW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 1580, 4720
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the encoder control word Gn_STW according to PROFIdrive.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:

CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

r0481[0...2]		CO: Encoder status word Gn_ZSW / Enc Gn_ZSW			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 4010, 4704, 4730		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the encoder status word Gn_ZSW according to PROFIdrive.				
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Function 1 active	Yes	No	-
	01	Function 2 active	Yes	No	-
	02	Function 3 active	Yes	No	-
	03	Function 4 active	Yes	No	-
	04	Value 1	Displayed in r0483	Not present	-
	05	Value 2	Displayed in r0483	Not present	-
	06	Value 3	Displayed in r0483	Not present	-
	07	Value 4	Displayed in r0483	Not present	-
	08	Measuring probe 1 deflected	Yes	No	-
	09	Measuring probe 2 deflected	Yes	No	-
	11	Encoder fault acknowledge active	Yes	No	9676
	13	Absolute value cyclically	Displayed in r0483	No	-
	14	Parking encoder active	Yes	No	-
	15	Encoder fault	Displayed in r0483	None	-
Notice:	Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature: SINAMICS S120 Function Manual Drive Functions				
Note:	Re bit 14: Displays the acknowledgement for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid. Re bit 14, 15: r0481.14 = 1 and r0481.15 = 0 can have one of the following causes: - the encoder is parked. - the encoder is de-activated. - the encoder is being commissioned. - no parameterized encoder available. - encoder data set is being changed over. r0481.14 = 1 and r0481.15 = 1 has the following significance: An encoder error has occurred and the encoder position actual value (Gn_XIST1) is invalid.				

r0482[0...2]		CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1580, 2450, 4010, 4704, 4735, 4740	
	P-Group: Encoder	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the encoder actual position value Gn_XIST1 according to PROFIdrive.			
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved			

Note: - this value is reset when de-selecting the function "parking axis".
 - in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).

r0483[0...2] CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1580, 2450, 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.		
Recommend.:	Possible causes of the error codes: Error code 4097 and 4098: Defective Control Unit hardware. Error codes 4099 and 4100: Too many measuring pulses have occurred.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Notice:	The encoder position actual value must be requested using the encoder control word Gn_STW.13.		
Note:	- in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1). - if GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx_XIST2 (r0483): 1: Encoder fault. 2: Possible position shift in Gx_XIST1. 3: Reserved. 4: Abort, reference mark search. 5: Abort, retrieve reference value. 6: Abort, flying measurement. 7: Abort, retrieve measured value. 8: Abort, absolute value transfer. 3841: Function not supported. 4097: Abort, reference mark search due to an initialization error. 4098: Abort, flying measurement due to an initialization error. 4099: Abort, reference mark search due to a measuring error. 4100: Abort, flying measurement due to a measuring error.		

r0484[0...2] CO: Redundant coarse encoder position + CRC Gn_XIST1 / Enc red pos+CRC			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check). Upper 16 bits: CRC over the redundant coarse encoder position. Lower 16 bits: Redundant coarse encoder position. The count direction is opposite to r0482 (encoder position actual value Gn_XIST1). The value contains 2 bit fine resolution.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		

Dependency: The values are valid when the safety position actual value sensing is activated (p0430.19 = 1).
Refer to: p0430

Note: This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".

r0487[0...2] Diagnostic encoder control word Gn_STW / Enc Gn_STW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1580, 4704, 4720, 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Request function 1	Yes	No	-
	01	Request function 2	Yes	No	-
	02	Request function 3	Yes	No	-
	03	Request function 4	Yes	No	-
	04	Request command bit 0	Yes	No	-
	05	Request command bit 1	Yes	No	-
	06	Request command bit 2	Yes	No	-
	07	Mode flying measurement / search for reference	Flying measurement	Reference marks	-
	13	Request absolute value cyclic	Yes	No	-
	14	Request parking encoder	Yes	No	-
	15	Request acknowledge encoder fault	Yes	No	-

Notice: Information on Gn_STW/Gn_ZSW can, e.g. be found in the following literature:
SINAMICS S120 Function Manual Drive Functions

Note: The signal source for the encoder control word is set with p0480.

p0488[0...2] Measuring probe 1 input terminal / Meas probe 1 inp

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	7	0

Description: Sets the input terminal to connect probe 1.

Value: 0: No meas probe
1: DI/DO 9 (X122.10/X132.2)
2: DI/DO 10 (X122.12/X132.3)
3: DI/DO 11 (X122.13/X132.4)
7: DI/DO 8 (X122.9/X132.1)

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Dependency: Refer to: p0489, p0490, p0728

Notice: To the terminal designation:
The first designation is valid for CU320, the second for CU305.
To select the values:
For Cx32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output
 The terminal must be set as input (p0728).
 Refer to the encoder interface for PROFIdrive.
 If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0489[0...2] Measuring probe 2 input terminal / Meas probe 2 inp

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	7	0

Description: Sets the input terminal to connect probe 2.

Value:
 0: No meas probe
 1: DI/DO 9 (X122.10/X132.2)
 2: DI/DO 10 (X122.12/X132.3)
 3: DI/DO 11 (X122.13/X132.4)
 7: DI/DO 8 (X122.9/X132.1)

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Reserved

Dependency: Refer to: p0488, p0490, p0728

Notice: To the terminal designation:
 The first designation is valid for CU320, the second for CU305.
 To select the values:
 For Cx32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: DI/DO: Bidirectional Digital Input/Output
 The terminal must be set as input (p0728).
 Refer to the encoder interface for PROFIdrive.
 If parameterization is rejected, check whether the terminal is already being used in p0580, p0680, p2517 or p2518.

p0490 Invert measuring probe or equivalent zero mark / Meas. probe invert

CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4740
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Setting to invert the digital input signals to connect a measuring probe or an equivalent zero mark.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X122.9/X132.1)	Inverted	Not inverted	-
	09	DI/DO 9 (X122.10/X132.2)	Inverted	Not inverted	-
	10	DI/DO 10 (X122.12/X132.3)	Inverted	Not inverted	-
	11	DI/DO 11 (X122.13/X132.4)	Inverted	Not inverted	-

Dependency: Refer to: p0488, p0489, p0495, p0728

Notice: To the terminal designation:
 The first designation is valid for CU320, the second for CU305.
 To select the values:
 For Cx32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).

Note: The terminal must be set as input.
 When the measuring probe or the equivalent zero mark is inverted, this has no effect on the status displays of the digital inputs (r0721, r0722, r0723).
 DI: Digital input, DO: Digital output

p0491 Motor encoder fault response ENCODER / Fault resp ENCODER			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: - Min 0 Max 4	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the behavior for the ENCODER fault response (motor encoder). This means, for example, if an encoder fault occurs, encoderless operation can be automatically selected with a shutdown behavior that can be selected.		
Value:	0: Encoder fault results in OFF2 1: Enc fault results in encoderless oper. and oper. continues 2: Encoder fault results in encoderless operation and OFF1 3: Encoder fault results in encoderless operation and OFF3 4: Encoder fault results in an armature short-cct/DC brake		
Dependency:	The following parameters are relevant for encoderless operation. Refer to: p0341, p0342, p1470, p1472, p1517, p1612, p1755 Refer to: F07575		
Caution:	For p0491 = 1 the following must be carefully observed: In spite of the motor encoder fault that has occurred, the motor is still operated.		
			
Note:	For a value 1, 2, 3, the following applies: Encoderless operation must have been commissioned. Refer to the status signal "encoderless operation due to a fault" (BO: r1407.13). If, when setting r1407.13, a different drive data set is selected (e.g. interconnection from p0820), then the open-loop or closed-loop control type p1300 of this data set must match the original data set (e.g. p1300 = 21). Encoderless closed-loop controlled operation is kept when changing over. For value = 4, the following applies: For synchronous motors, an armature short-circuit is initiated for an encoder fault. The conditions for p1231 = 4 must be maintained. For induction motors, DC braking is initiated for an encoder fault. The DC brake must be commissioned (p1232, p1233, p1234). For encoderless operation (p1404 = 0 or p1300 = 20), the following applies: - The following condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$ - For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.		
p0492 Square-wave encoder, maximum speed difference per sampling cycle / n_dif max/samp_cyc			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Encoder Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: - Units group: - Min 0.0 [rev/min] Max 210000.0 [rev/min]	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.0 [rev/min]
Description:	Sets the maximum permissible speed difference within the current controller sampling time for squarewave encoders. When the value is exceeded, depending on p0491, either encoderless closed-loop speed/torque control is selected or the drive is powered down.		
Dependency:	Refer to: F31118, A31418, F32118, A32418		
Note:	For a value of 0.0, the speed change monitoring is disabled. if the set maximum speed difference is only exceeded for one sampling time of the current controller, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.		

p0495[0...2]		Equivalent zero mark, input terminal / Zero mark inp	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 4735
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	7	0
Description:	Selects the input terminal for connecting an equivalent zero mark (external encoder zero mark).		
Value:	0: No equivalent zero mark (evaluation of the encoder zero mark) 1: DI/DO 9 (X122.10/X132.2) 2: DI/DO 10 (X122.12/X132.3) 3: DI/DO 11 (X122.13/X132.4) 7: DI/DO 8 (X122.9/X132.1)		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0490		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU305. For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	Refer to the encoder interface for PROFIdrive. The terminal must be set as input. For p0495 = 0 (factory setting), the encoder zero mark is evaluated as zero mark. For p0495 > 0, the following applies: Depending on the direction of motion, the positive or negative edge at the appropriate input is evaluated. - increasing position actual values (r0482) --> the 0/1 edge is evaluated. - decreasing position actual values (r0482) --> the 1/0 edge is evaluated. Only one zero mark is supported. If function 2, 3 or 4 is selected, this results in a fault message in Gn_ZSW. The inversion of the inputs via p0490 affects the function "referencing with equivalent zero mark". This is the reason that the edge evaluation is interchanged as a function of the direction of motion. An input can only be assigned to one encoder as measuring probe 1, 2 or equivalent zero mark. Exception: The same encoder can be simultaneously used as measuring probe and equivalent zero mark as both functions cannot be simultaneously requested.		

p0496[0...2]		Encoder diagnostic signal selection / Enc diag selection	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	51	0
Description:	Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.		
Value:	0: Inactive 1: r0497: Mechanical revolution 10: r0498: Raw value, track A, r0499: Raw value, track B 11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2) 12: r0498: Fine position Phi, r0499: - 13: r0498: Offset correction X, r0499: Offset correction Y 14: r0498: Phase correction X, r0499: Amplitude correction Y 15: r0498: Cubic correction X, r0499: Fine position X 16: r0498: oversampling channel A, r0499: oversampling channel B 17: r0498: fan amount, r0499: fan number 18: r0498: Oversampling angle, r0499: Oversampling amount 20: r0498: Raw value, track C, r0499: Raw value, track D		

21: r0498: CD position X (-D/2), r0499: CD position Y (C/2)
 22: r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution
 23: r0497: Zero mark status
 24: r0498: Raw value, track R, r0499: Zero mark status
 25: r0498: Raw value, track A, r0499: Raw value, track R
 30: r0497: Absolute position serial
 31: r0497: Absolute position, incremental
 32: r0497: Zero mark position
 33: r0497: Correction absolute position difference
 40: r0498: Raw temperature, r0499: Temperature in 0.1 °C
 41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C
 42: r0497: Resistance 2500 Ohm
 51: r0497: Absolute speed difference (dn/dt)

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Reserved

Note:
 Re p0496 = 1: 360 ° <--> 2³²
 Re p0496 = 10, 20 (resolver): 2900 mV <--> 26214 dec
 Re p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec
 Re p0496 = 11, 21 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected
 Re p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected
 Re p0496 = 13 (resolver): 2900 mV <--> 13107 dec
 Re p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec
 Re p0496 = 12: 180 ° fine position <--> 32768 dec
 Re p0496 = 14: 100 % <--> 16384 dec
 Re p0496 = 15: 100 % <--> 16384 dec
 Re p0496 = 16: channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec
 Re p0496 = 17: amount: 500 mV <--> 21299 dec, number: 1-8
 Re p0496 = 18: angle: signal period <--> 2¹⁶, amount: 500 mV <--> 21299 dec
 Re p0496 = 22: 180 ° <--> 32768 dec
 Re p0496 = 23, 24: Bit31 of r0497 (Bit15 of r0499) set for at least 1 current controller cycle when encoder zero mark detected
 Re p0496 = 24, 25: 500 mV <--> 21299 dec
 Re p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec
 Re p0496 = 31: Absolute position, incremental in 1/4 encoder pulses
 Re p0496 = 32: Zero mark position in 1/4 encoder pulses
 Re p0496 = 33: counter offset absolute value in 1/4 encoder pulses
 Re p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768
 Re p0496 = 42: 2500 Ohm <--> 2³²
 Re p0496 = 51: 1 Upm <--> 1000 dec

r0497[0...2] Encoder diagnostic signal double word / Enc diag DW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Trace signal for encoder diagnostics (double word representation). The output signal is selected in p0496.

Index:
 [0] = Encoder 1
 [1] = Encoder 2
 [2] = Reserved

r0498[0...2]			
Encoder diagnostic signal word low / Enc diag word low			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Trace signal for encoder diagnostics (low component). The output signal is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
r0499[0...2]			
Encoder diagnostic signal word high / Enc diag word high			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Trace signal for encoder diagnostics (high component). The output signal is selected in p0496.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
p0500			
Technology application / Tec application			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 5), T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	100	102	100
Description:	Sets the technology application. The parameter influences the calculation of open-loop and closed-loop control parameters that is e.g. initiated using p0578.		
Value:	100: Standard drive (SERVO) 101: Feed drive (limit current limitation) 102: Spindle drive (rated current limitation)		
Dependency:	Refer to: p1520, p1521, p1530, p1531, p2000, p2175, p2177		
Caution:	After changing over the technological application and then calculating the open-loop and closed-loop parameters, the behavior of the motor can have changed very significantly (e.g. the same setpoint results in a higher speed due to a different reference speed). For this reason extreme caution must be taken when the motor is started for the first time.		
			

- Note:** The calculation of parameters dependent on the technology application can be called up as follows:
- when exiting the quick commissioning using p3900 > 0
 - when writing p0340 = 1, 3, 5
 - when writing p0578 = 1
- For p0500 = 100 and the calculation is initiated, the following parameters are set:
- p1520/p1521 = rated motor torque (r0333)
 - p1530/p1531= $2 \cdot \pi \cdot r0333 \cdot p0311$ (rotary) or $r0333 \cdot p0311$ (linear)
 - p2000 = rated motor speed (p0311)
 - p2175 = factory setting
 - p2177 = factory setting
- For p0500 = 101 and the calculation is initiated, the following parameters are set:
- p1520/p1521 = torque at the maximum motor current (p0323)
 - p1530/p1531= power at the maximum motor current (p0323) and rated motor speed (p0311)
 - p2000 = rated motor speed (p0311)
 - p2175 = maximum value
 - p2177 = 0.2 s
- For p0500 = 102 and the calculation is initiated, the following parameters are set:
- p1520/p1521 = rated motor torque (r0333)
 - p1530/p1531= $2 \cdot \pi \cdot r0333 \cdot p0311$ (rotary) or $r0333 \cdot p0311$ (linear)
 - p2000 = maximum motor speed (p0322) if p0322 is not equal to 0, otherwise rated motor speed (p0311)
 - p2175 = factory setting
 - p2177 = factory setting

p0505		Selecting the system of units / Select unit sys	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(5)	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	4	1
Description:	Adjustable parameter of the current system of units.		
Value:	1: System of units SI 2: System of units, referred/SI 3: US system of units 4: System of units, referred/US		
Dependency:	The parameter cannot be changed if the master control was fetched.		
Caution:	If a per unit representation is selected and if reference parameters (e.g. p2000) are subsequently changed, then the physical significance of some closed-loop control parameters will also be adapted where as a result, the closed-loop control behavior can change (refer to p1576, p1621, p1744, p1752, p1755 and p1609, p1612, p1619, p1620).		
			
Note:	Reference parameter for the unit system % are, for example, p2000 ... p2004. Depending on what has been selected, these are displayed using either SI or US units.		

p0528		Controller gain, system of units / Ctrl_gain unit_sys	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(5)	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Applications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description:	Sets the system of units for the controller gains.		
Value:	0: Representation, physical/% (p0505) 1: Representation, no dimensions (referred)		

Note: For p0528 = 0 (physical/%), the following applies:
Using p0505, the dependent parameters can be changed over between physical and % representation.
For SERVO (r0107) the following applies:
The parameter is pre-assigned a value of 0 and cannot be changed.

p0570		Inhibit list: Number of effective values / Inhib list: Qty		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -	
	P-Group: Applications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0	Max 50	Factory setting 0	
Description:	Number of parameters in the inhibit list p0571 that should be withdrawn from the automatic motor and closed-loop control parameter calculation (refer to p0340, p0578), starting from index 0.			
Note:	Defines the number of entries in p0571 that should be taken into account. This means that a value of 0 de-activates the complete list.			

p0571[0...49]		Inhibit list, motor/closed-loop control parameter calculation / Inhib list calc		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Applications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0	Max 2142	Factory setting 0	
Description:	The inhibit list contains parameters that should be withdrawn from the automatic motor and closed-loop control parameter calculation (p0340, p0578).			
Value:	0: No parameter 348: Speed at the start of field weakening Vdc = 600 V 640: Current limit 1082: Maximum speed 1441: Actual speed smoothing time 1460: Speed controller P gain 1462: Speed controller integral action time 1470: Speed controller P gain, encoderless 1472: Speed controller integral action time encoderless 1520: Torque limit upper/motoring 1521: Torque limit lower/regenerative 1530: Power limit motoring 1531: Power limit regenerating 1590: Flux controller P gain 1592: Flux controller integral.action time 1656: Activates current setpoint filter 2141: Speed threshold 1 2142: Hysteresis speed 1			
Note:	p0570 defines the number of entries (starting at index 0) for which the inhibit should apply. p0572 can be used to define for which drive data sets the inhibit list should apply. If a motor data set is entered into a parameter number, then this is not overwritten as soon as only one drive data set refers to the motor data set (p0186).			

p0572[0...n]		Activate inhibit list / Act inhib list		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1	
	Min 0	Max 1	Factory setting 0	
Description:	Enable ID as to whether the parameters of the inhibit list p0571 should be overwritten when calculating the motor and closed-loop control parameters for the particular drive data set (index = DDS).			
Value:	0: No 1: Yes			
Note:	0: The automatic calculation (p0340, p0578) also overwrites the parameters of list p0571. 1: The automatic calculation (p0340, p0578) does not overwrite the parameters of list p0571.			
p0573		Inhibit automatic reference value calculation / Inhibit calc		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1	
	Min 0	Max 1	Factory setting 0	
Description:	Inhibits the calculation of reference parameters (e.g. p2000) when automatically calculating the motor and control parameters (p0340, p3900).			
Value:	0: No 1: Yes			
Notice:	The inhibit for the reference value calculation is canceled when new motor parameters (e.f. p0305) are entered and only one drive data set exists (p0180 = 1). This is the case during initial commissioning. Once the motor and control parameters have been calculated (see p3900, p0340), the inhibit for the reference value calculation is automatically reactivated.			
Note:	0: The automatic calculation (p0340, p3900) overwrites the reference parameters. 1: The automatic calculation (p0340, p3900) does not overwrite the reference parameters.			
p0578[0...n]		Calculate parameters that are dependent on the technology/units / Calc tec par		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(5), T Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1	
	Min 0	Max 1	Factory setting 0	
Description:	This parameter is used to calculate all parameters that depend on the technology of the application (p0500). All of the parameters are calculated that can also be determined using p0340 = 5.			
Value:	0: No calculation 1: Complete parameterization			
Note:	At the end of the calculations, p0578 is automatically set to 0.			

p0580		Measuring probe, input terminal / MT input terminal	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 7	Factory setting 0
Description:	Sets the input terminal for the measuring probe for speed actual value measurement.		
Value:	0: No meas probe 1: DI/DO 9 (X122.10/X132.2) 2: DI/DO 10 (X122.12/X132.3) 3: DI/DO 11 (X122.13/X132.4) 7: DI/DO 8 (X122.9/X132.1)		
Dependency:	Refer to: p0728 Refer to: A07498		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU305. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	DI/DO: Bidirectional Digital Input/Output The terminal must be set as input (p0728). If a parameter change is rejected, it should be checked whether the input terminal is already being used in p0488, p0489, p0495, p0680, p2517 or p2518.		

p0595		Selecting technological units / Select tech units	
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: C2(5) Data type: Integer16 P-Group: Applications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 32	Factory setting 1
Description:	Selects the units for the parameters of the technology controller.		
Value:	1: % 2: 1 referred, no dimensions 3: Bar 4: °C 5: Pa 6: ltr/s 7: m³/s 8: ltr/min 9: m³/min 10: ltr/h 11: m³/h 12: kg/s 13: kg/min 14: kg/h 15: t/min 16: t/h 17: N 18: kN 19: Nm 20: psi 21: °F 22: gallon/s 23: inch³/s		

24: gallon/min
 25: inch³/min
 26: gallon/h
 27: inch³/h
 28: lb/s
 29: lb/min
 30: lb/h
 31: lbf
 32: lbf ft

Dependency: Only units of parameters with unit group 9_1 can be changed over using this parameter.
 Refer to: p0596

p0596 Reference quantity, technological units / Ref tech units

SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.01	Max 340.28235E36	Factory setting 1.00

Description: Sets the reference quantity for the technological units. When changing over using changeover parameter 595 to absolute units, all of the parameters involved refer to the reference quantity.

Dependency: Refer to: p0595

p0600[0...n] Motor temperature sensor for monitoring / Mot temp_sensor

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: CALC_MOD_ALL	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 11	Factory setting 1

Description: Sets the sensor to monitor the motor temperature.

Value:
 0: No sensor
 1: Temperature sensor via encoder 1
 10: Temperature sensor via a BICO interconnection
 11: Temperature sensor via Motor Module / CU terminals

Dependency: Refer to: r0458, p0601, p0603

Caution: If, for a selected temperature sensor (p0600 > 0), the motor temperature sensor is not connected but another encoder, then the temperature adaptation of the motor resistances must be switched out. Otherwise, in controlled-loop operation, torque errors will occur that will mean that the drive will not be able to be stopped.



Notice: The parameter is calculated in the drive using p0340 and is inhibited for p0340 > 0.

Note:
 Re p0600 = 1:
 Bimetallic switch (p0601 = 4) and PT100 temperature sensor (p0601 = 5) are not supported.
 Re p0600 = 10:
 The BICO interconnection should be executed via connector input CI: p0603.
 Re p0600 = 11:
 For SINAMICS S120 AC Drive (AC/AC) and using the Control Unit Adapter CUA31, the temperature sensor is connected at the adapter (X210).

p0601[0...n]		Motor temperature sensor type / Mot_temp_sens type	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8016 Unit selection: - Expert list: 1 Factory setting 2
Description:	Sets the sensor type for the motor temperature monitoring.		
Value:	0: No sensor 1: PTC alarm & timer 2: KTY84 3: KTY84 and PTC (only for motors with DRIVE-CLiQ):		
Dependency:	The thermal motor model is only calculated when p0612 bit 1 is set. Refer to: r0458, p0600, p0612		
Note:	The temperature sensor for the temperature evaluation is set in p0600. For p0600 = 10 (temperature sensor via a BICO interconnection), the setting in p0601 has no significance. Information on using temperature sensors is provided in the following literature: - hardware description of the appropriate components - SINAMICS S120 Commissioning Manual Re p0601 = 1 (PTC alarm & timer): Tripping resistance = 1650 Ohm. After the tripping resistance has been exceeded, an appropriate alarm is output and after the delay time set in p0606 has expired, an appropriate fault is output. Re p0601 = 3 (KTY84 and PTC (only for motors with DRIVE-CLiQ)): For motors with DRIVE-CLiQ and 2 temperature sensors, the value is automatically set.		

p0603		CI: Motor temperature signal source / Mot temp S_src	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), T Data type: Unsigned32 / FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8016 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source to evaluate the motor temperature via a BICO interconnection.		
Dependency:	Refer to: p0600		
Note:	Temperature sensor KTY: Valid temperature range -48 °C ... 248 °C. PTC temperature sensor: For the -50 °C, the following applies: Motor temperature < nominal response temperature of the PTC. For the 250 °C, the following applies: Motor temperature >= nominal response temperature of the PTC. Note: When using a Terminal Module 31 (TM31), the following applies: - the sensor type used is set using p4100. - the temperature signal is interconnected using CO: r4105.		

p0604[0...n] Motor overtemperature alarm threshold / Mot TempAlrmThresh			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.0 [°C]	Max 200.0 [°C]	Factory setting 120.0 [°C]
Description:	Sets the alarm threshold for monitoring the motor temperature.		
Dependency:	Refer to: p0606		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When a catalog motor is selected, this parameter cannot be changed (write protection). The data in p0300 must be taken into account when write protection is removed.		
Note:	The hysteresis for canceling the alarm is 2 Kelvin.		
p0605[0...n] Motor overtemperature fault threshold / MotTempFaultThresh			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016, 8017
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.0 [°C]	Max 200.0 [°C]	Factory setting 145.0 [°C]
Description:	Sets the fault threshold to monitor the motor temperature.		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When a catalog motor is selected, this parameter cannot be changed (write protection). The data in p0300 must be taken into account when write protection is removed.		
Note:	The parameter is also used as alarm threshold for the thermal I2t motor model (refer to p0611) for permanent-magnet synchronous motors. When the I2t model identifies that the alarm threshold has been reached, then this is displayed using a motor utilization level of r0034 = 100%.		
p0606[0...n] Motor overtemperature timer / Mot TempTimeStage			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 240.000 [s]
Description:	Sets the timer for the alarm threshold for the motor temperature monitoring function. This timer is started when the temperature alarm threshold (p0604) is exceeded. If the timer expires before the temperature in the meantime falls below the alarm threshold, the fault F07011 is output. If the temperature fault threshold (p0605) is prematurely exceeded before the timer has expired, then fault F07011 is immediately output. As long as the motor temperature has still not exceeded the fault threshold and the alarm thresholds have again been undershot, the fault can be acknowledged.		
Dependency:	Refer to: p0604, p0605 Refer to: F07011, A07910		
Note:	With p0606 = 0 s, the timer is de-activated and only the fault threshold is effective. KTY sensor: When setting the minimum value, the timer is disabled and a fault is not output until p0605 is exceeded. PTC sensor, bimetallic NC contact: The timer minimum value has no special significance.		

p0607[0...n]		Temperature sensor fault timer / Sensor fault time		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1	
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 0.100 [s]	
Description:	Sets the timer between the output of alarm and fault for a temperature sensor fault. If there is a sensor fault, this timer is started. If the sensor fault is still present after the timer has expired, a corresponding fault message is output.			
Note:	If the motor is an induction motor, the timer is switched off when setting the minimum value and no alarm is output. Temperature monitoring is then based on the thermal model.			
p0611[0...n]		I2t motor model thermal time constant / I2t mot_mod T		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: ASM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: 8017 Unit selection: - Expert list: 1	
	Min 0 [s]	Max 20000 [s]	Factory setting 0 [s]	
Description:	Sets the winding time constant. The time constant specifies the warm-up time of the cold stator winding when loaded with the motor standstill current up until a temperature rise of 63% of the continuously permissible winding temperature has been reached.			
Dependency:	This parameter is only used for synchronous motors (p0300 = 2xx). Refer to: r0034, p0612, p0615 Refer to: F07011, A07012, A07910			
Caution:	This parameter is automatically preset from the motor database for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.			
Note:	When parameter p0611 is reset to 0, then this switches out the thermal I2t motor model (also refer to p0612). If no temperature sensor is parameterized, then the ambient temperature for the thermal motor model is referred to p0625.			
p0612[0...n]		Thermal motor model configuration / Therm Mot_mod conf		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8017 Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting 0010 bin	
Description:	Sets the configuration for the thermal motor model.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activate I2t motor model	Yes	No
	01	Activate motor temperature model	Yes	No
Dependency:	Bit 0 is only used for permanent-magnet synchronous motors (p0300 = 2xx). It is only possible to switch in the thermal I2t monitoring if time constant p0611 is not zero. Bit 1 is used to activate/deactivate the thermal motor model for induction motors. Refer to: r0034, p0611, p0615			

p0615[0...n]	I2t motor model fault threshold / I2t mot_mod thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8017
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: ASM, REL, FEM		Expert list: 1
	Min 0.0 [°C]	Max 220.0 [°C]	Factory setting 180.0 [°C]
Description:	Sets the fault threshold for monitoring using the thermal I2t motor model.		
Dependency:	The parameter is only used for permanent-magnet synchronous motors (p0300 = 2xx). Refer to: r0034, p0611, p0612 Refer to: F07011, A07012		
Caution:	This parameter is automatically preset for motors from the motor list (p0301). When selecting a catalog motor, this parameter cannot be changed (write protection). Information in p0300 should be carefully observed when removing write protection.		
p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.0 [°C]	Max 200.0 [°C]	Factory setting 195.0 [°C]
Description:	Sets the alarm threshold 1 for monitoring the motor temperature.		
Note:	The alarm threshold is not, as for p0604, coupled to the timer p0606. The hysteresis for canceling the fault is 2 Kelvin.		
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 2
Description:	Sets the thermal adaptation of the stator/primary section resistance and rotor/secondary section resistance according to r0395 and r0396.		
Value:	0: No thermal adaptation of stator and rotor resistances 1: Resistances adapted to the temperatures of the thermal model 2: Resistances adapted to the measured stator winding temperature		
Note:	For p0620 = 1, the following applies: The stator resistance is adapted using the temperature in r0035 and the rotor resistance together with the model temperature in r0633. For p0620 = 2, the following applies: The stator resistance is adapted using the temperature in r0035. The rotor temperature to adapt the rotor resistance is calculated as follows from the stator temperature (r0035). $\theta_R = (r0628 + r0625) / (r0627 + r0625) * r0035$		

p0624[0...n]	Motor Temperature Offset PT100 / Mot T_offset PT100		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: 21_2	Access level: 3 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min -100.0 [K]	Max 100.0 [K]	Factory setting 0.0 [K]
Description:	Differential temperature to the offset compensation of the PT100 measured value.		
Dependency:	Refer to: p0600, p0601		
Note:	The parameter only has an influence if the temperature sensor of the power unit is detected (p0600 = 11) and PT100 was selected as sensor type (p0601 = 5).		
p0625[0...n]	Motor ambient temperature / Mot T_ambient		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_EQU Dynamic index: MDS, p0130 Units group: 21_1	Access level: 3 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min -40 [°C]	Max 80 [°C]	Factory setting 20 [°C]
Description:	Defines the ambient temperature of the motor to calculate the temperature model.		
Note:	The parameters for stator and rotor resistance (p0350, p0354) refer to this temperature. If the thermal I2t motor model is activated for permanent-magnet synchronous motors (refer to p0611), p0625 is included in the model calculation if a temperature sensor is not being used (see p0601).		
p0626[0...n]	Motor overtemperature, stator core / Mot T_over core		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 21_2	Access level: 3 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 50 [K]
Description:	Defines the rated overtemperature of the stator core referred to the ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		
p0627[0...n]	Motor overtemperature, stator winding / Mot T_over stator		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: MDS, p0130 Units group: 21_2	Access level: 3 Func. diagram: 8016 Unit selection: p0505 Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 80 [K]
Description:	Defines the rated overtemperature of the stator winding referred to the ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		

p0628[0...n]	Motor overtemperature rotor winding / Mot T_over rotor		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_2	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 20 [K]	Max 200 [K]	Factory setting 100 [K]
Description:	Defines the rated overtemperature of the squirrel cage rotor referred to ambient temperature.		
Dependency:	For 1LA5 and 1LA7 motors (refer to p0300), the parameter is pre-set as a function of p0307 and p0311. Refer to: p0625		

r0630[0...n]	Motor temperature model ambient temperature / MotTMod T_amb.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the ambient temperature of the motor temperature model.		

r0631[0...n]	Motor temperature model, stator core temperature / MotTMod T_core		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the stator core temperature of the motor temperature model.		

r0632[0...n]	Motor temperature model, stator winding temperature / MotTMod T_copper		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the stator winding temperature of the motor temperature model.		

r0633[0...n]	Motor temperature model, rotor temperature / MotTMod T_rotor		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 8016
	P-Group: Motor	Units group: 21_1	Unit selection: p0505
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min - [°C]	Max - [°C]	Factory setting - [°C]
Description:	Displays the rotor temperature of the motor temperature model.		

p0640[0...n]		Current limit / Current limit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 5722, 6640 Unit selection: - Expert list: 1	Factory setting 0.00 [Arms]
Description:	Sets the current limit.			
Dependency:	Refer to: r0209, p0323			
Note:	<p>The parameter is part of the quick commissioning (p0010 = 1); this means that it is appropriately pre-assigned when changing p0305, p0323 and p0338.</p> <p>The current limit p0640 is limited to r0209 and p0323. The limit to p0323 is not realized if a value of zero is entered there.</p> <p>The resulting current limit is displayed in r0067 and if required, r0067 is reduced by the thermal model of the Motor Module.</p> <p>The torque and power limits (p1520, p1521, p1530, p1531) matching the current limit are automatically calculated when exiting the quick commissioning using p3900 > 0 or using the automatic parameterization with p0340 = 3, 5. For VECTOR the following applies (p0107): p0640 is limited to 4.0 * p0305.</p> <p>p0640 is pre-assigned for the automatic self commissioning routine (e.g. to 1.5 * p0305, with p0305 = r0207[1]). p0640 must be entered when commissioning the system. This is the reason that p0640 is not calculated by the automatic parameterization when exiting the quick commissioning (p3900 > 0).</p> <p>For SERVO the following applies (p0107): p0640 is pre-assigned as follows using the automatic parameterization (p0340 = 1, p3900 > 0) taking into account the limits r0209 and r0323: - for induction motors: p0640 = 1.5 * p0305 - for synchronous motors: p0640 = p0338</p>			
Min	0.00 [Arms]	Max	10000.00 [Arms]	
p0642[0...n]		Encoderless operation current reduction / Encoderl op I_red		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 3), U, T Data type: FloatingPoint32 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1	Factory setting 100.00 [%]
Description:	Sets the reduction for the current limit in encoderless operation. The value is referred to p0640.			
Dependency:	Refer to: r0209, p0323, p0491, p0640, p1300, p1404			
Note:	If the motor is operated both with encoder as well as without encoder (e.g. p0491 is not equal to 0 or p1404 < p1082) then the maximum current can be reduced in encoderless operation. This reduces disturbing saturation-related motor data changes in encoderless operation.			
Min	0.00 [%]	Max	100.00 [%]	
p0643[0...n]		Overvoltage protection for synchronous motors / Overvolt_protect		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Integer16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1	Factory setting 0
Description:	Sets the overvoltage protection for synchronous motors in the field-weakening range.			
Value:	0: No measure 1: Voltage Protection Module (VPM)			
Min	0	Max	1	

Dependency: Refer to: p0316, p1082, p1231, p9601, p9801
Refer to: F07432, F07906, F07907

Notice: When the speed limiting is removed, the user is responsible for implementing a suitable overvoltage protection.

Note: In the field-weakening range, synchronous motors can, when a fault condition exists, generate high DC link voltages. The following possibilities exist to protect the drive system from being destroyed due to overvoltage:

- limit the maximum speed (p1082) without any additional protection.

The maximum speed without protection is calculated as follows:
Rotary motors: $p1082 \text{ [rpm]} \leq 11.695 * p0297/p0316 \text{ [Nm/A]}$
Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * p0297/0316 \text{ [N/A]}$

- use a Voltage Protection Module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801).

When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be suppressed - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM.

- activating the internal voltage protection (IVP) with $p1231 = 3$.

p0650[0...n] Actual motor operating hours / Mot t_oper act

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [h]	Max 4294967295 [h]	Factory setting 0 [h]

Description: Displays the operating hours for the corresponding motor.
The motor operating time counter continues to run when the pulses are enabled. When the pulse enable is withdrawn, the counter is held and the value saved.

Dependency: Refer to: p0651
Refer to: A01590

Note: The operating hours counter in p0650 can only be reset to 0. In this case, p0651 is automatically set to 0.
For $p0651 = 0$, the operating hours counter is disabled.
The operating hours counter only runs for MDS0 and MDS1 (Motor Data Set).

p0651[0...n] Motor operating hours maintenance interval / Mot t_op maint

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [h]	Max 150000 [h]	Factory setting 0 [h]

Description: Sets the service/maintenance intervals in hours for the appropriate motor.
An appropriate fault is output when the operating hours set here are reached.

Dependency: Refer to: p0650
Refer to: A01590

Note: For $p0651 = 0$, the operating hours counter is disabled.
The operating hours counter only runs for MDS0 and MDS1 (Motor Data Set).

p0680[0...5]	Central measuring probe, input terminal / Cen meas inp		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 7	Factory setting 0
Description:	Sets the digital input used for the function "central measuring probe evaluation". p0680[0]: Digital input, measuring probe 1 p0680[1]: Digital input, measuring probe 2 p0680[2]: Digital input, measuring probe 3 p0680[3]: Digital input, measuring probe 4 p0680[4]: Digital input, measuring probe 5 p0680[5]: Digital input, measuring probe 6		
Value:	0: No meas probe 1: DI/DO 9 (X122.10/X132.2) 2: DI/DO 10 (X122.12/X132.3) 3: DI/DO 11 (X122.13/X132.4) 7: DI/DO 8 (X122.9/X132.1)		
Dependency:	Refer to: p0728		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU305. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	Prerequisite: The DI/DO must be set as input (p0728.x = 0). DI/DO: Bidirectional Digital Input/Output If a parameter change is rejected, it should be checked whether the input terminal is already being used in p0488, p0489, p0495, p0580, p2517 or p2518.		
p0681	BI: Central measuring probe, synchronizing signal signal source / Cen meas sync_sig		
CU_S110-CAN, CU_S110-DP	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the synchronizing signal (SYN) of the function "central measuring probe evaluation". The signal is used to synchronize the common system time between the master and slave.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p0682	CI: Central measuring probe, control word signal source / Cen meas STW S_src		
CU_S110-CAN, CU_S110-DP	Can be changed: T Data type: Unsigned32 / Integer16 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the control word of the function "central measuring probe evaluation".		

p0684	Central measuring probe evaluation technique / Cen meas eval		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 0	Factory setting 0
Description:	Sets the evaluation technique for the function "central measuring probe evaluation".		
Value:	0: Measurement with handshake		

r0685	Central measuring probe, control word display / Cen meas STW disp				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the control word for the function "central measuring probe evaluation".				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Falling edge, measuring probe 1	Yes	No	-
	01	Falling edge, measuring probe 2	Yes	No	-
	02	Falling edge, measuring probe 3	Yes	No	-
	03	Falling edge, measuring probe 4	Yes	No	-
	04	Falling edge, measuring probe 5	Yes	No	-
	05	Falling edge, measuring probe 6	Yes	No	-
	08	Rising edge, measuring probe 1	Yes	No	-
	09	Rising edge, measuring probe 2	Yes	No	-
	10	Rising edge, measuring probe 3	Yes	No	-
	11	Rising edge, measuring probe 4	Yes	No	-
	12	Rising edge, measuring probe 5	Yes	No	-
	13	Rising edge, measuring probe 6	Yes	No	-

r0686[0...5]	CO: Central measuring probe, measuring time rising edge / CenMeas t_meas 0/1		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the measuring time for a rising edge at the digital input for the "central measuring probe evaluation" function.		
	The measuring time is specified as 16-bit value with a resolution of 0.25 μ s.		
	r0686[0]: Measuring time, rising edge measuring probe 1		
	r0686[1]: Measuring time, rising edge measuring probe 2		
	r0686[2]: Measuring time, rising edge measuring probe 3		
	r0686[3]: Measuring time, rising edge measuring probe 4		
	r0686[4]: Measuring time, rising edge measuring probe 5		
	r0686[5]: Measuring time, rising edge measuring probe 6		

r0687[0...5]	CO: Central measuring probe, measuring time falling edge / CenMeas t_meas 1/0				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the measuring time for a falling edge at the digital input for the "central measuring probe evaluation" function. The measuring time is specified as 16-bit value with a resolution of 0.25 µs. r0687[0]: Measuring time, falling edge measuring probe 1 r0687[1]: Measuring time, falling edge measuring probe 2 r0687[2]: Measuring time, falling edge measuring probe 3 r0687[3]: Measuring time, falling edge measuring probe 4 r0687[4]: Measuring time, falling edge measuring probe 5 r0687[5]: Measuring time, falling edge measuring probe 6				
r0688	CO: Central measuring probe, status word display / Cen meas ZSW disp				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word for the function "central measuring probe evaluation".				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Digital input, measuring probe 1	High	Low	-
	01	Digital input, measuring probe 2	High	Low	-
	02	Digital input, measuring probe 3	High	Low	-
	03	Digital input, measuring probe 4	High	Low	-
	04	Digital input, measuring probe 5	High	Low	-
	05	Digital input, measuring probe 6	High	Low	-
	08	Sub-sampling, measuring probe 1	High	Low	-
	09	Sub-sampling, measuring probe 2	High	Low	-
	10	Sub-sampling, measuring probe 3	High	Low	-
	11	Sub-sampling, measuring probe 4	High	Low	-
	12	Sub-sampling, measuring probe 5	High	Low	-
	13	Sub-sampling, measuring probe 6	High	Low	-
r0721	CU digital inputs, terminal actual value / CU DI actual value				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the actual value at the digital inputs. This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p0795.x = 1) to terminal mode (p0795.x = 0). The input signal at terminal DI x is displayed in bit x of r0721.				

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X133.1)	High	Low	-
	01	DI 1 (X133.2)	High	Low	-
	02	DI 2 (X133.3)	High	Low	-
	03	DI 3 (X133.4)	High	Low	-
	08	DI/DO 8 (X132.1)	High	Low	-
	09	DI/DO 9 (X132.2)	High	Low	-
	10	DI/DO 10 (X132.3)	High	Low	-
	11	DI/DO 11 (X132.4)	High	Low	-
	16	DI 16 (X130.1)	High	Low	-
	17	DI 17 (X130.2)	High	Low	-
	18	DI 18 (X130.4)	High	Low	-
	19	DI 19 (X130.5)	High	Low	-
	20	DI 20 (X131.1)	High	Low	-
	21	DI 21 (X131.2)	High	Low	-
	22	DI 22 (X131.4)	High	Low	-

Note: If a DI/DO is parameterized as output (p0728.x = 1), then r0721.x = 0 is displayed.

DI: Digital input

DI/DO: Bidirectional Digital Input/Output

r0722.0...22

CO/BO: CU digital inputs, status / CU DI status

CU_S110-CAN,
CU_S110-DP

Can be changed: -

Calculated: -

Access level: 1

Data type: Unsigned32

Dynamic index: -

Func. diagram: 1510, 2020,
2030, 2031, 2100, 2120, 2130,
2131, 2132, 2133

P-Group: Commands

Units group: -

Unit selection: -

Not for motor type: -

Expert list: 1

Min

Max

Factory setting

-

-

-

Description: Displays the status of the digital inputs.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X133.1)	High	Low	-
	01	DI 1 (X133.2)	High	Low	-
	02	DI 2 (X133.3)	High	Low	-
	03	DI 3 (X133.4)	High	Low	-
	08	DI/DO 8 (X132.1)	High	Low	-
	09	DI/DO 9 (X132.2)	High	Low	-
	10	DI/DO 10 (X132.3)	High	Low	-
	11	DI/DO 11 (X132.4)	High	Low	-
	16	DI 16 (X130.1)	High	Low	-
	17	DI 17 (X130.2)	High	Low	-
	18	DI 18 (X130.4)	High	Low	-
	19	DI 19 (X130.5)	High	Low	-
	20	DI 20 (X131.1)	High	Low	-
	21	DI 21 (X131.2)	High	Low	-
	22	DI 22 (X131.4)	High	Low	-

Dependency: Refer to: r0723

Note: DI: Digital input

DI/DO: Bidirectional Digital Input/Output

r0723.0...22		CO/BO: CU digital inputs, status inverted / CU DI status inv			
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131 2132, 2133		
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the inverted status of the digital inputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X133.1)	High	Low	-
	01	DI 1 (X133.2)	High	Low	-
	02	DI 2 (X133.3)	High	Low	-
	03	DI 3 (X133.4)	High	Low	-
	08	DI/DO 8 (X132.1)	High	Low	-
	09	DI/DO 9 (X132.2)	High	Low	-
	10	DI/DO 10 (X132.3)	High	Low	-
	11	DI/DO 11 (X132.4)	High	Low	-
	16	DI 16 (X130.1)	High	Low	-
	17	DI 17 (X130.2)	High	Low	-
	18	DI 18 (X130.4)	High	Low	-
	19	DI 19 (X130.5)	High	Low	-
	20	DI 20 (X131.1)	High	Low	-
	21	DI 21 (X131.2)	High	Low	-
	22	DI 22 (X131.4)	High	Low	-
Dependency:	Refer to: r0722				
Note:	DI: Digital input DI/DO: Bidirectional Digital Input/Output				
p0728		CU, set input or output / CU DI or DO			
CU_S110-CAN, CU_S110-DP	Can be changed: T Data type: Unsigned32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 1510, 2030, 2031, 2130, 2131, 2132, 2133		
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the bidirectional digital inputs/outputs as an input or output.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X132.1)	Output	Input	-
	09	DI/DO 9 (X132.2)	Output	Input	-
	10	DI/DO 10 (X132.3)	Output	Input	-
	11	DI/DO 11 (X132.4)	Output	Input	-
Note:	DI/DO: Bidirectional Digital Input/Output				

r0729		CU digital outputs access authority / CU DO access			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2030, 2031, 2130, 2131, 2132, 2133		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the access authority at the digital outputs. Bit = 1: The control has access authority to the digital output via PROFIBUS or direct access. Bit = 0: The drive has access authority to the digital output or the digital input/output is not set as digital output or is not available.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X132.1)	High	Low	-
	09	DI/DO 9 (X132.2)	High	Low	-
	10	DI/DO 10 (X132.3)	High	Low	-
	11	DI/DO 11 (X132.4)	High	Low	-
	16	DO 16 (X131.5)	High	Low	-
Dependency:	Refer to: p0728, p0738, p0739, p0740, p0741, r0747, p0748				
Note:	The DI/DO must be connected as output (p0728). DI/DO: Bidirectional Digital Input/Output				

p0738		BI: CU, signal source for terminal DI/DO 8 / CU S_src DI/DO 8		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1510, 2030, 2130	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for terminal DI/DO 8 (X132.1).			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
Note:	Prerequisite: The DI/DO must be set as an output (p0728.8 = 1). DI/DO: Bidirectional Digital Input/Output			

p0739		BI: CU, signal source for terminal DI/DO 9 / CU S_src DI/DO 9		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2030, 2130	
	P-Group: Commands	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for terminal DI/DO 9 (X132.2).			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
Note:	Prerequisite: The DI/DO must be set as an output (p0728.9 = 1). DI/DO: Bidirectional Digital Input/Output			

p0740	BI: CU, signal source for terminal DI/DO 10 / CU S_src DI/DO 10		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2031, 2131
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 10 (X132.3).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.10 = 1). DI/DO: Bidirectional Digital Input/Output		
p0741	BI: CU, signal source for terminal DI/DO 11 / CU S_src DI/DO 11		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1510, 2031, 2131
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DI/DO 11 (X132.4).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Prerequisite: The DI/DO must be set as an output (p0728.11 = 1). DI/DO: Bidirectional Digital Input/Output		
p0746	BI: CU signal source for terminal DO 16 / CU S_src DO 16		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 1510, 2030, 2130
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for terminal DO 16.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed. Terminal DO 16 is used for Safety Extended Functions as soon as this is enabled using p9601 and assuming that it is not controlled via PROFIsafe. The signal source entered in p0746 is then no longer output at terminal DO 16.		
Note:	DO: Digital Output		

r0747		CU, digital outputs status / CU DO status			
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 2130, 2131, 2132, 2133		
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status of digital outputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X132.1)	High	Low	-
	09	DI/DO 9 (X132.2)	High	Low	-
	10	DI/DO 10 (X132.3)	High	Low	-
	11	DI/DO 11 (X132.4)	High	Low	-
	16	DO 16 (X131.5)	High	Low	-
Notice:	Terminal DO 16 is used for Safety Extended Functions as soon as this is enabled using p9601 and assuming that it is not controlled via PROFIsafe.				
	The signal source entered in p0746 is then no longer output at terminal DO 16.				
Note:	Inversion using p0748 has been taken into account.				
	The setting of the DI/DO as either input or output is of no significance (p0728).				
	DI/DO: Bidirectional Digital Input/Output				

p0748		CU, invert digital outputs / CU DO invert			
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 2030, 2031, 2130, 2131, 2132, 2133		
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Setting to invert the signals at the digital outputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	DI/DO 8 (X132.1)	Inverted	Not inverted	-
	09	DI/DO 9 (X132.2)	Inverted	Not inverted	-
	10	DI/DO 10 (X132.3)	Inverted	Not inverted	-
	11	DI/DO 11 (X132.4)	Inverted	Not inverted	-
	16	DO 16 (X131.5)	Inverted	Not inverted	-
Notice:	If telegram 39x is set via p0922 in SINAMICS Integrated, the inversion of the output has no effect.				
Note:	DI/DO: Bidirectional Digital Input/Output				

r0752		CO: CU analog input current input voltage / CU AI inp_V		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 2040	
	P-Group: Terminals Not for motor type: -	Units group: -	Unit selection: - Expert list: 1	
	Min - [V]	Max - [V]	Factory setting - [V]	
Description:	Displays the current input voltage at the analog input.			
Note:	AI: Analog Input			

p0753	CU analog input smoothing time constant / CU AI T_smooth		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the smoothing time constant of the 1st-order low pass filter for the analog input.		
Note:	AI: Analog Input		

r0755	CO: CU analog input current value in percent / CU AI value in %		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the current referred input value of the analog input. When interconnected, the signals are referred to the reference quantities p200x and p205x.		
Note:	AI: Analog Input		

p0756	CU analog input type / CU AI type		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 4	Factory setting 4
Description:	Sets the type of the analog input.		
Value:	0: Unipolar voltage input (0 V ... +10 V) 4: Bipolar voltage input (-10 V ... +10 V)		

p0757	CU analog input characteristic value x1 / CU AI char x1		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -11.000 [V]	Max 11.000 [V]	Factory setting 0.000 [V]
Description:	Sets the normalization characteristic for the analog input. The normalization characteristic for the analog input is defined using 2 points. This parameter specifies the x coordinate (input voltage in V) of the 1st value pair of the characteristic.		
Note:	The parameters for the characteristic do not limit.		

p0758	CU analog input characteristic value y1 / CU AI char y1		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 0.00 [%]

Description: Sets the normalization characteristic for the analog input.
The normalization characteristic for the analog input is defined using 2 points.
This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.

Note: The parameters for the characteristic do not limit.

p0759	CU analog input characteristic value x2 / CU AI char x2		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -11.000 [V]	Max 11.000 [V]	Factory setting 10.000 [V]

Description: Sets the normalization characteristic for the analog input.
The normalization characteristic for the analog input is defined using 2 points.
This parameter specifies the x coordinate (input voltage in V) of the 2nd value pair of the characteristic.

Note: The parameters for the characteristic do not limit.

p0760	CU analog input characteristic value y2 / CU AI char y2		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1000.00 [%]	Max 1000.00 [%]	Factory setting 100.00 [%]

Description: Sets the normalization characteristic for the analog input.
The normalization characteristic for the analog input is defined using 2 points.
This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.

Note: The parameters for the characteristic do not limit.

p0763	CU analog input offset / CU AI offset		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -20.000 [V]	Max 20.000 [V]	Factory setting 0.000 [V]

Description: Sets the offset for the analog input.
The offset is added to the input signal before the normalization characteristic.

p0766	CU analog input activate absolute value generation / CU AI absVal act		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Activates the absolute value generation of the analog input signal.		
Value:	0: No absolute value generation 1: Absolute value generation switched in		

p0767	BI: CU analog input signal source for inversion / CU AI invert		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to invert the analog input signal.		

p0768	CU analog input window to suppress noise / CU AI window		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [%]	Max 20.00 [%]	Factory setting 0.00 [%]
Description:	Sets the noise suppression window for the analog input. Changes less than the window are suppressed.		

p0769	BI: CU analog input signal source for enable / CU AI enable		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2040
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source to enable the analog input.		

p0771[0...2]	CI: Test sockets signal source / TestSktsSigSrce		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the signal to be output at the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		

Dependency: Can only be set when p0776 = 99.
Refer to: r0772, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0772[0...2] Test sockets output signal / TestSktsSignalVal

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]

Description: Displays the actual value of the signal to be output.

Index: [0] = T0
[1] = T1
[2] = Reserved

Dependency: Refer to: p0771, r0774, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

r0774[0...2] Test sockets output voltage / TestSkts V_output

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]

Description: Displays the current output voltage for the test sockets.

Index: [0] = T0
[1] = T1
[2] = Reserved

Dependency: Refer to: p0771, r0772, p0776, p0777, p0778, p0779, p0780, p0783, p0784, r0786

p0776[0...2] Test socket mode / Test skt mode

CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 96	Max 99	Factory setting 99

Description: Sets the mode for the test sockets.

Value: 96: Physical address (32-bit integer signal unsigned)
97: Physical address (32-bit integer signal)
98: Physical address (32-bit floating-point signal)
99: BICO signal

Index: [0] = T0
[1] = T1
[2] = Reserved

Dependency: Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784, r0786, p0788, p0789, r0790

p0777[0...2]	Test socket characteristic value x1 / Test skt char x1		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -100000.00 [%]	Max 100000.00 [%]	Factory setting 0.00 [%]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the first point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Can only be set when p0776 = 99. Refer to: p0778, p0779, p0780, r0786		
Note:	The value 0.00 % corresponds to 2.49 V.		
p0778[0...2]	Test socket characteristic value y1 / Test skt char y1		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [V]	Max 4.60 [V]	Factory setting 2.30 [V]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the first point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Can only be set when p0776 = 99. Refer to: p0777, p0779, p0780, r0786		
p0779[0...2]	Test socket characteristic value x2 / Test skt char x2		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -100000.00 [%]	Max 427.9E9 [%]	Factory setting 100.00 [%]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the x coordinate (percentage) of the second point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Can only be set when p0776 = 99. Refer to: p0777, p0778, p0780, r0786		
Note:	The value 100.00 % corresponds to 4.98 V.		

p0780[0...2]	Test socket characteristic value y2 / Test skt char y2		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [V]	Max 4.60 [V]	Factory setting 4.60 [V]
Description:	The normalization characteristic for the test sockets is defined using two points. This parameter specifies the y coordinate (output voltage) of the second point on the characteristic.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Can only be set when p0776 = 99. Refer to: p0777, p0778, p0779, r0786		
p0783[0...2]	Test sockets offset / Test skt offset		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -4.60 [V]	Max 4.60 [V]	Factory setting 0.00 [V]
Description:	Sets an additional offset for the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
p0784[0...2]	Test socket limit on/off / TestSktLim on/off		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the limit for a signal to be output via test sockets.		
Value:	0: Limiting off 1: Limiting on		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Note:	Limiting on: If signals are output outside the permissible measuring range, the signal is limited to 4.98 V or to 0 V. Limiting off: If signals are output outside the permissible measuring range, this causes signal overflow. In the case of signal overflow, the signal jumps from 0 V to 4.98 V or from 4.98 V to 0 V.		

r0786[0...2]	Test socket normalization per volt / TestSktNorm/Volt		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8134
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the normalization of the signal to be output. A change in the output voltage by 1 volt corresponds to the value in this parameter. The units are determined by the interconnected test signal.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Refer to: p0771, r0772, r0774, p0777, p0778, p0779, p0780, p0783, p0784		
Note:	Example: r0786[0] = 1500.0 and the measuring signal is r0063 (CO: Speed actual value smoothed [RPM]). A change of 1 V at the output of test socket T0 corresponds to 1500.0 [RPM].		
p0788[0...2]	Test sockets physical address / Test skt PhyAddr		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin
Description:	Sets the physical address to output signals via the test sockets.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Changes only become effective if p0776 does not equal 99. Refer to: p0789, r0790		
p0789[0...2]	Test sockets physical address gain / TestSktPhyAddrGain		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Terminals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-340.28235E36	340.28235E36	1.00000
Description:	Sets the gain of a signal output of a physical address via test sockets.		
Index:	[0] = T0 [1] = T1 [2] = Reserved		
Dependency:	Changes only become effective if p0776 does not equal 99. Refer to: p0788		

r0790[0...2]		Test sockets physical address signal value / TestSocketsPhyAddrVal			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Terminals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the actual value of a signal determined via a physical address.				
Index:	[0] = T0 [1] = T1 [2] = Reserved				
Dependency:	Only effective when p0776 = 97 or p0776 = 96. Refer to: p0788				
p0795		CU digital inputs simulation mode / CU DI simulation			
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133		
	P-Group: Commands	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the simulation mode for digital inputs.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X133.1)	Simulation	Terminal eval.	-
	01	DI 1 (X133.2)	Simulation	Terminal eval.	-
	02	DI 2 (X133.3)	Simulation	Terminal eval.	-
	03	DI 3 (X133.4)	Simulation	Terminal eval.	-
	08	DI/DO 8 (X132.1)	Simulation	Terminal eval.	-
	09	DI/DO 9 (X132.2)	Simulation	Terminal eval.	-
	10	DI/DO 10 (X132.3)	Simulation	Terminal eval.	-
	11	DI/DO 11 (X132.4)	Simulation	Terminal eval.	-
	16	DI 16 (X130.1)	Simulation	Terminal eval.	-
	17	DI 17 (X130.2)	Simulation	Terminal eval.	-
	18	DI 18 (X130.4)	Simulation	Terminal eval.	-
	19	DI 19 (X130.5)	Simulation	Terminal eval.	-
	20	DI 20 (X131.1)	Simulation	Terminal eval.	-
	21	DI 21 (X131.2)	Simulation	Terminal eval.	-
	22	DI 22 (X131.4)	Simulation	Terminal eval.	-
Dependency:	The setpoint for the input signals is specified using p0796. Refer to: p0796				
Notice:	If a digital input is used as signal source for the function "STO" (BI: p9620) then it is not permissible to select the simulation mode and this is rejected.				
Note:	This parameter is not saved when data is backed-up (p0971, p0977). DI: Digital input DI/DO: Bidirectional Digital Input/Output				

p0796		CU digital inputs simulation mode setpoint / CU DI simul setp			
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1510, 2020, 2030, 2031, 2100, 2120, 2130, 2131, 2132, 2133 Unit selection: - Expert list: 1 Factory setting 0000 bin		
	P-Group: Commands Not for motor type: -	Units group: -			
	Min -	Max -			
Description:	Sets the setpoint for the input signals in the digital input simulation mode.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X133.1)	High	Low	-
	01	DI 1 (X133.2)	High	Low	-
	02	DI 2 (X133.3)	High	Low	-
	03	DI 3 (X133.4)	High	Low	-
	08	DI/DO 8 (X132.1)	High	Low	-
	09	DI/DO 9 (X132.2)	High	Low	-
	10	DI/DO 10 (X132.3)	High	Low	-
	11	DI/DO 11 (X132.4)	High	Low	-
	16	DI 16 (X130.1)	High	Low	-
	17	DI 17 (X130.2)	High	Low	-
	18	DI 18 (X130.4)	High	Low	-
	19	DI 19 (X130.5)	High	Low	-
	20	DI 20 (X131.1)	High	Low	-
	21	DI 21 (X131.2)	High	Low	-
	22	DI 22 (X131.4)	High	Low	-
Dependency:	The simulation of a digital input is selected using p0795. Refer to: p0795				
Note:	DI: Digital input DI/DO: Bidirectional Digital Input/Output This parameter is not saved when data is backed-up (p0971, p0977).				

p0797		CU analog input simulation mode / CU AI sim_mode		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Integer16	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0	
	P-Group: Terminals Not for motor type: -	Units group: -		
	Min 0	Max 1		
Description:	Sets the simulation mode for the analog input.			
Value:	0: No simulation mode for analog input x 1: Simulation mode for analog input x			
Dependency:	The setpoint for the input voltage is specified via p0798. Refer to: p0798			
Note:	This parameter is not saved when data is backed-up (p0971, p0977). AI: Analog Input			

p0798	CU analog inputs simulation mode setpoint / CU AI sim setp		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Terminals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -20.000 [V]	Max 20.000 [V]	Factory setting 0.000 [V]
Description:	Sets the setpoint for the input value in the simulation mode of the analog input.		
Dependency:	The simulation of an analog input is selected using p797. If AI is parameterized as voltage input (p756), then the setpoint is a voltage in V. If AI is parameterized as current input (p756), then the setpoint is current in mA. Refer to: p0756, p0797		
Note:	This parameter is not saved when data is backed-up (p0971, p0977). AI: Analog Input		
p0799[0...2]	CU inputs/outputs, sampling time / CU I/O t_sampl		
CU_S110-CAN, CU_S110-DP	Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2020, 2030, 2031 Unit selection: - Expert list: 1
	Min 1000 [µs]	Max 5000 [µs]	Factory setting 4000 [µs]
Description:	Sets the sampling time for the inputs and outputs.		
Index:	[0] = Digital inputs/outputs (DI/DO) [1] = Analog inputs (AI) [2] = Not available - analog outputs (AO)		
Dependency:	The parameter can only be modified for p0009 = 3, 29. Refer to: p0009		
Note:	The modified sampling time is not effective until the drive unit is powered up again.		
p0802	Data transfer: memory card as source/target / mem_card src/targ		
CU_S110-CAN, CU_S110-DP	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 100	Factory setting 0
Description:	Sets the number for data transfer of a parameter backup from/to memory card. Transfer of memory card to device memory (p0804 = 1): - Sets the source of parameter backup (e.g. p0802 = 48 --> PS048xxx.ACX is the source). Transfer of device memory to memory card (p0804 = 2): - Sets the target of parameter backup (e.g. p0802 = 23 --> PS023xxx.ACX is the target).		
Dependency:	Refer to: p0803, p0804		

p0803	Data transfer: device memory as source/target / Dev_mem src/targ		
CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 12	Factory setting 0
Description:	Sets the number for data transfer of a parameter backup from/to device memory. Transfer of memory card to device memory (p0804 = 1): - Sets the target for the parameter backup (e.g. p0803 = 10 --> PS010xxx.ACX is the target). Transfer of device memory to memory card (p0804 = 2): - Sets the source of the parameter backup (e.g. p0803 = 11 --> PS011xxx.ACX is the source).		
Value:	0: Source/target standard 10: Source/target with setting 10 11: Source/target with setting 11 12: Source/target with setting 12		
Dependency:	Refer to: p0802, p0804		
p0804	Data transfer start / Data transf start		
CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1100	Factory setting 0
Description:	Sets the transfer direction and start of data transfer between the memory card and device memory. Example 1: The parameter backup is to be transferred from the device memory to the memory card with setting 0. The parameter backup is to be stored on the memory card with setting 22. p0802 = 22 (parameter backup stored on memory card as target with setting 22) p0803 = 0 (parameter backup stored in device memory as source with setting 0) p0804 = 2 (start data transfer from device memory to memory card) --> PS000xxx.ACX is transferred from device memory to memory card and stored as PS022xxx.ACX. Example 2: The parameter backup is to be transferred from the memory card to the device memory with setting 22. The parameter backup is to be stored in the device memory as setting 0. p0802 = 22 (parameter backup stored on memory card as source with setting 22) p0803 = 0 (parameter backup stored in device memory as target with setting 0) p0804 = 1 (start data transfer from memory card to device memory) --> PS022xxx.ACX is transferred from memory card to device memory and stored as PS000xxx.ACX.		
Value:	0: Inactive 1: Memory card to device memory 2: Device memory to memory card 1001: File on memory card cannot be opened 1002: File in device memory cannot be opened 1003: Memory card not found 1100: File cannot be transferred		
Dependency:	Refer to: p0802, p0803		
Notice:	The memory card must not be removed while data is being transferred.		

Note: Once the data has been successfully transferred, this parameter is automatically reset to 0. If an error occurs, the parameter is set to a value > 1000.
If a parameter backup with setting 0 is detected on the memory card when the Control Unit is switched on (PS000xxx.ACX), this is transferred automatically to the device memory.
When the memory card is inserted, a parameter backup with setting 0 (PS000xxx.ACX) is automatically written to the memory card when the parameters are saved in a non-volatile memory (e.g. by means of "Copy RAM to ROM").

p0806	BI: Inhibit master control / PcCtrl inhibit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to block the master control.		
Dependency:	Refer to: r0807		
Note:	The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).		

r0807.0	BO: Master control active / PcCtrl active			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays what has the master control. The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning software).			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Master control active	Yes	No
			FP	5030
Dependency:	Refer to: p0806			
Notice:	The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.			
Note:	Bit 0 = 0: BICO interconnection active Bit 0 = 1: Master control for PC/AOP The master control is used from the commissioning software (drive control panel) and from the Advanced Operator Panel (AOP, LOCAL mode).			

p0809[0...2]	Copy Command Data Set CDS / Copy CDS		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 8560
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Copies one Command Data Set (CDS) into another.		
Index:	[0] = Source Command Data Set [1] = Target Command Data Set [2] = Start copying		

Note: Procedure:
 1. In Index 0, enter which command data set should be copied.
 2. In Index 1, enter the command data set that is to be copied into.
 3. Start copying: Set index 2 from 0 to 1.
 p0809[2] is automatically set to 0 when copying is completed.

p0810 BI: Command Data Set selection CDS bit 0 / CDS select., bit 0

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 8560
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).
Dependency: Refer to: r0050, r0836
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: The Command Data Set selected using the binector inputs is displayed in r0836.
 The currently effective Command Data Set is displayed in r0050.
 A Command Data Set can be copied using p0809.

p0819[0...2] Copy Drive Data Set DDS / Copy DDS

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(15)	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 8565
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	31	0

Description: Copies one Drive Data Set (DDS) into another.
Index: [0] = Source Drive Data Set
 [1] = Target Drive Data Set
 [2] = Start copying
Note: Procedure:
 1. In Index 0, enter which drive data set is to be copied.
 2. In Index 1, enter the drive data set data that is to be copied into.
 3. Start copying: Set index 2 from 0 to 1.
 p0819[2] is automatically set to 0 when copying is completed.

p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(15), T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8565, 8575
	P-Group: Data sets	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).
Dependency: Refer to: r0051, r0837
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0826[0...n] Motor changeover, motor number / Mot_chng mot No.			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 0	Max 15	Factory setting 0
Description:	Sets the freely-assignable motor number for the motor changeover.		
Dependency:	Refer to: p0827		
Caution:	When changing over motor data sets with the same motor number (e.g. star/delta changeover) and for a motor with brake, the motor brake remains open during the changeover.		
Note:	When the motor data sets are changed over, the following applies: The same motor number signifies the same thermal model.		
p0827[0...n] Motor changeover status word bit number / Mot_chng ZSW bitNo.			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 2 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min 0	Max 15	Factory setting 0
Description:	Sets the bit number for every motor data set. Example: p0827[0] = 0: For MDS0, r0830.0 is switched. p0827[1] = 5: For MDS1, r0830.5 is switched.		
Dependency:	Refer to: p0826, r0830		
Note:	A motor is only changed over (a new motor selected) after the pulses have been suppressed. When the motor data sets are changed over, the following applies: Bit numbers that are not identical, signify that the motor must be changed over.		
p0828[0...n] BI: Motor changeover, feedback signal / Mot_chng fdbk sig			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), T Data type: Unsigned32 / Binary P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 8575 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the feedback signal when changing over the motor. For p0833.0 = 1 the following applies: This feedback signal (0/1 edge) is required after a motor changeover to enable the pulses.		
Dependency:	Refer to: p0833		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

r0830.0...15 CO/BO: Motor changeover, status word / Mot_chngov ZSW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8575
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the motor changeover.
These signals can be connected to digital outputs to change over the motor.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor selection, bit 0	High	Low	-
	01	Motor selection, bit 1	High	Low	-
	02	Motor selection, bit 2	High	Low	-
	03	Motor selection, bit 3	High	Low	-
	04	Motor selection, bit 4	High	Low	-
	05	Motor selection, bit 5	High	Low	-
	06	Motor selection, bit 6	High	Low	-
	07	Motor selection, bit 7	High	Low	-
	08	Motor selection, bit 8	High	Low	-
	09	Motor selection, bit 9	High	Low	-
	10	Motor selection, bit 10	High	Low	-
	11	Motor selection, bit 11	High	Low	-
	12	Motor selection, bit 12	High	Low	-
	13	Motor selection, bit 13	High	Low	-
	14	Motor selection, bit 14	High	Low	-
	15	Motor selection, bit 15	High	Low	-

Dependency: Refer to: p0827

p0831[0...15] BI: Motor changeover, contactor feedback / Mot_chg cont fdbk

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 8575
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the feedback signal of the contactors when changing over motors.
There is a fixed inter-relationship between energizing the contactor and the feedback signal.
Example:
A changeover is to be made between MDS0 (motor 0) and MDS1 (motor 1). The contactors should be switched using bit 4 (contactor 0) and 5 (contactor 1). The changeover should be made with an interconnection of the feedback signal.
Implementation:
MDS0: p0827[0] = 4, interconnect output to switch contactor 0 to r0830.4, p0831[4] = "input, feedback signal, contactor 0"
MDS1: p0827[1] = 5, interconnect output to switch contactor 1 to r0830.5, p0831[5] = "input, feedback signal, contactor 1"
The following sequence applies when changing over from MDS0 to MDS1:
1. The status bit r0830.4 is deleted. When the feedback signal (p0831[4]) is connected, the system waits until the feedback signal "contactor open" is displayed. If the feedback signal is not connected, then the system waits for the switch-off interlocking time of 320 ms.
2. The status bit r0830.5 is set. If the feedback signal (p0831[5]) is connected, the system waits until the feedback signal "contactor closed" is displayed. If the feedback signal is not connected, then the system waits for the switch-on interlocking time of 160 ms.

Index:

- [0] = Feedback signal contactor 0
- [1] = Feedback signal contactor 1
- [2] = Feedback signal contactor 2
- [3] = Feedback signal contactor 3
- [4] = Feedback signal contactor 4
- [5] = Feedback signal contactor 5
- [6] = Feedback signal contactor 6
- [7] = Feedback signal contactor 7
- [8] = Feedback signal contactor 8
- [9] = Feedback signal contactor 9
- [10] = Feedback signal contactor 10
- [11] = Feedback signal contactor 11
- [12] = Feedback signal contactor 12
- [13] = Feedback signal contactor 13
- [14] = Feedback signal contactor 14
- [15] = Feedback signal contactor 15

r0832.0...15 CO/BO: Mot. changeover, contactor feedback sig. status word / Mot_chng fdbk ZSW

SERVO_S110-CAN, **Can be changed:** - **Calculated:** - **Access level:** 2
SERVO_S110-DP **Data type:** Unsigned32 **Dynamic index:** - **Func. diagram:** 8575
P-Group: Displays, signals **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the status word of the contactor feedback signals when changing over a motor.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Feedback signal contactor 0	Closed	Opened	-
	01	Feedback signal contactor 1	Closed	Opened	-
	02	Feedback signal contactor 2	Closed	Opened	-
	03	Feedback signal contactor 3	Closed	Opened	-
	04	Feedback signal contactor 4	Closed	Opened	-
	05	Feedback signal contactor 5	Closed	Opened	-
	06	Feedback signal contactor 6	Closed	Opened	-
	07	Feedback signal contactor 7	Closed	Opened	-
	08	Feedback signal contactor 8	Closed	Opened	-
	09	Feedback signal contactor 9	Closed	Opened	-
	10	Feedback signal contactor 10	Closed	Opened	-
	11	Feedback signal contactor 11	Closed	Opened	-
	12	Feedback signal contactor 12	Closed	Opened	-
	13	Feedback signal contactor 13	Closed	Opened	-
	14	Feedback signal contactor 14	Closed	Opened	-
	15	Feedback signal contactor 15	Closed	Opened	-

Dependency: Refer to: p0831

p0833 Data set changeover configuration / DS_chng config

SERVO_S110-CAN, **Can be changed:** C2(15), U **Calculated:** - **Access level:** 2
SERVO_S110-DP **Data type:** Unsigned16 **Dynamic index:** - **Func. diagram:** 8575
P-Group: Data sets **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	0000 bin

Description: Sets the configuration for the motor and encoder changeover.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Contactor changeover from the applica- tion/drive	application	Drive	-
	01	Pulse suppression by application/drive	application	Drive	-
	02	Suppress drive parking for EDS changeover	Yes	No	-

Note: Re bit 00:
When the bit is set and the motor has to be changed over, then p0827 must be set differently in the appropriate motor data sets.
Re bit 02:
The bit defines whether, for an EDS changeover, the status signal Gn_ZSW.14 is suppressed (parking encoder active).

r0835.0 CO/BO: Motor data set changeover status word / MDS_chngov ZSW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8575
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for the motor data set changeover.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor changeover active	Active	Not active	8575

Note: Re bit 00:
The signal is only influenced when a motor changeover is set via p0827 (unequal bit numbers).

r0836.0...1 CO/BO: Command Data Set CDS selected / CDS selected

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 1530, 8560
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the command data set (CDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	CDS select. bit 0	On	Off	-
	01	CDS select. bit 1	On	Off	-

Dependency: Refer to: r0050, p0810

Note: Command data sets are selected via binector input p0810 and following.
The currently effective Command Data Set is displayed in r0050.

r0837.0...1 CO/BO: Drive Data Set DDS selected / DDS selected

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 8565
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the drive data set (DDS) selected via the binector input.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DDS select. bit 0	On	Off	-
	01	DDS select. bit 1	On	Off	-

Dependency: Refer to: r0051, p0820

Note: Drive data sets are selected via binector input p0820 and following.
The currently effective drive data set is displayed in r0051.
If there is only one data set, then a value of 0 is displayed in this parameter and not the selection via binector inputs.

r0838[0...3]	Motor/Encoder Data Set selected / MDS/EDS selected		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned8 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8565 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the selected Motor Data Set (MDS) and the selected Encoder Data Sets (EDS).		
Index:	[0] = Motor Data Set MDS selected [1] = Encoder 1 Encoder Data Set EDS selected [2] = Encoder 2 Encoder Data Set EDS selected [3] = Reserved		
Dependency:	Refer to: r0049, p0186, p0187, p0188		
Note:	Value 99 means the following: No encoder assigned (not configured).		
p0839	Motor changeover contactor control delay time / Mot_chg ctrl t_del		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3), U Data type: Unsigned16 P-Group: Motor Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 500 [ms]	Factory setting 0 [ms]
Description:	Sets the delay time for the contactor control for the motor changeover. The delay time is taken into account in the following cases: - for feedback signal, previous contactor "Open". The new motor contactor is controlled (energized) after the delay time has expired. - for the feedback signal, new motor contactor "Closed". The pulses are enabled after the delay time has expired.		
p0840[0...n]	BI: ON/OFF1 / ON/OFF1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2501, 2610, 8720, 8820, 8920 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for control word 1 bit 0 (ON/OFF1).		
Recommend.:	When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.		
Dependency:	Refer to: p1055, p1056		
Notice:	For BI: p0840 = 0 signal, the motor can be moved, jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that originally powered up can also power down again. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: For drives with closed-loop speed control (p1300 = 20, 21), the following applies:
 Bit 0 = 0: OFF1 (braking with the ramp-function generator, then pulse suppression and switching on inhibited)
 For drives with closed-loop torque control (p1300 = 22, 23), the following applies:
 Bit 0 = 0: Immediate pulse suppression
 For drives with closed-loop torque control (activated using p1501), the following applies:
 Bit 0 = 0: No dedicated braking response, but pulse suppression when standstill is detected (p1226, p1227)
 For drives with closed-loop speed/torque control, the following applies:
 Bit 0 = 0/1: ON (pulses can be enabled)
 For active infeeds (Active Line Module and Smart Line Module) the following applies:
 Bit 0 = 0: OFF1 (reduce Vdc along the ramp, then pulse suppression and pre-charging contactor/line contactor open)
 Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed, pulses can be enabled)
 For passive infeeds (Basic Line Module) the following applies:
 Bit 0 = 0: OFF1 (pre-charging contactor/line contactor open)
 Bit 0 = 0/1: ON (pre-charging contactor/line contactor closed)
 r0863.1 of a drive can also be selected as signal source.

p0844[0...n]	BI: 1. OFF2 / 1. OFF2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 8720, 8820, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for the 1st OC/OFF2.
 The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).
Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For drives, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 For infeed units, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression for Active Infeed Modules and Smart Line Modules, pre-charging contactor/line contactor open and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 OC: Operating condition

p0845[0...n]	BI: 2. OFF2 / 2. OFF2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 8720, 8820, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for the 2nd OC/OFF2.
 The AND logic operation of the 1st OC/OFF2 and 2nd OC/OFF2 results in control word 1, bit 1 (OC/OFF2).

Note: For drives, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 For infeed units, the following applies:
 Bit 1 = 0: OFF2 (immediate pulse suppression for Active Infeed Modules and Smart Line Modules, pre-charging contactor/line contactor open and switching on inhibited)
 Bit 1 = 1: No OFF2 (enable is possible)
 OC: Operating condition

p0848[0...n] BI: 1. OFF3 / 1. OFF3

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for the 1st OC/OFF3.
 The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).
Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
 Bit 2 = 1: No OFF3 (enable is possible)
 OC: Operating condition

p0849[0...n] BI: 2. OFF3 / 2. OFF3

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for the 2nd OC/OFF3.
 The AND logic operation of the 1st OC/OFF3 and 2nd OC/OFF3 results in control word 1, bit 2 (OC/OFF3).
Note: Bit 2 = 0: OFF3 (braking along the OFF3 ramp (p1135), then pulse suppression and switching on inhibited)
 Bit 2 = 1: No OFF3 (enable is possible)
 OC: Operating condition

p0852[0...n] BI: Operation enable / Operation enable

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 8820, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for control word 1 bit 3 (enable operation)
Caution: When "master control from PC" is activated, this binector input is ineffective.



Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: Bit 3 = 0: Inhibit operation (cancel pulses)
 Bit 3 = 1: Enable operation (pulses can be enabled)

p0854[0...n]	BI: Master ctrl by PLC / Master ctrl by PLC		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 8720, 8820, 8920
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for control word 1 bit 10 (master control by PLC).

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: Bit 10 = 0: No master control by PLC
 Bit 10 = 1: Master control by PLC

This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then BI: p0854 should be set to a 1 signal.

p0855[0...n]	BI: Unconditionally release holding brake / Uncond open brake		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the command "unconditionally open holding brake".

Dependency: Refer to: p0858

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake).

p0856[0...n]	BI: Speed controller enable / n_ctrl enable		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2501, 2701, 2707
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1

Description: Sets the signal source for the command "enable speed controller" (r0898.12).

0 signal: Set the I component and speed controller output to zero.

1 signal: Enable speed controller.

Dependency: Refer to: r0898

Note: If "enable speed controller" is withdrawn, then an existing brake will be closed.

If "speed controller enable" is withdrawn, the pulses are not suppressed.

p0857	Power unit monitoring time / PU t_monit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 8760, 8864, 8964
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 100.0 [ms]	Max 60000.0 [ms]	Factory setting 6000.0 [ms]
Description:	Sets the monitoring time for the power unit. The monitoring time is started after an 0/1 edge of the ON/OFF1 command. If the power unit does not return a READY signal within the monitoring time, then fault F06000 (infeeds) or F07802 (drives) is output.		
Dependency:	Refer to: F07802, F30027		
Notice:	The maximum time to pre-charge the DC link is monitored in the power unit and cannot be changed. The maximum duration of the pre-charging depends on the power class and the power unit design. The monitoring time for the pre-charging is started after the ON command (BI: p0840 = 0/1 signal). Fault F30027 is output when the maximum pre-charging duration is exceeded.		
Note:	The factory setting for p0857 depends on the power class and the design of the power unit. The monitoring time for the ready signal of the power unit includes the time to pre-charge the DC link and, if relevant, the de-bounce time of the contactors. If an excessively low value is entered into p0857, then after enable, this results in the corresponding fault.		
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary	Calculated: - Dynamic index: CDS, p0170	Access level: 2 Func. diagram: 2501, 2701, 2707
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 9719.13
Description:	Sets the signal source for the command "unconditionally close holding brake".		
Dependency:	Refer to: p0855		
Note:	The signal via BI: p0858 (unconditionally close holding brake) has a higher priority than via BI: p0855 (unconditionally open holding brake). For a 1 signal via BI: p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered.		
p0860	BI: Line cont. fdbk sig / Line contact feedb		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 2634, 8734, 8834, 8934
	P-Group: Commands Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 863.1
Description:	Sets the signal source for the feedback signal from the line contactor.		
Recommend.:	When the monitoring is activated (BI: p0860 not equal to r0863.1), then to control the line contactor, signal BO: r0863.1 of its own drive object should be used.		
Dependency:	Refer to: p0861, r0863 Refer to: F07300		
Notice:	The line contactor monitoring is de-activated if the control signal of the particular drive object is set as the signal source for the feedback signal of the line contactor (BI: p0860 = r0863.1).		

Note: The state of the line contactor is monitored depending on signal BO: r0863.1.
When the monitoring is activated (BI: p0860 not equal to r0863.1), fault F07300 is then also output if the contactor is closed before it is controlled using r0863.1.

p0861	Line contactor monitoring time / LineContact t_mon		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2634, 8734, 8834, 8934
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 5000 [ms]	Factory setting 100 [ms]
Description:	Sets the monitoring time of the line contactor. This time starts each time that the line contactor switches (r0863.1). If a feedback signal is not received from the line contactor within the time, a message is output.		
Dependency:	Refer to: p0860, r0863 Refer to: F07300		
Note:	The monitoring function is disabled for the factory setting of p0860.		

p0862	Power unit ON delay / PU t_on		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2610, 8732, 8832, 8932
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 65000 [ms]	Factory setting 0 [ms]
Description:	Sets the delay time for the control command of the power unit and a line contactor, if used.		
Note:	This means that it is possible to realize a shifted (delayed) pre-charging or power-on using a single ON command. When the infeed units are active, before the line contactor is closed, an offset adjustment of the current measurement is carried out for a duration of 120 ms (p3491).		

r0863.0...2 CO/BO: Drive coupling status word/control word / CoupleZSW/STW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status and control words of the drive coupling.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Closed-loop control operation	Yes	No	2610, 6495, 8732, 8832, 8932, 9794
	01	Energize contactor	Yes	No	2610, 2634, 8732, 8734, 8832, 8834, 8932, 8934
	02	Infeed line supply failure	Yes	No	-

Note:

Re bit 00:
Bit 0 signals that the infeed is ready.
When the operating signal is transferred via BO: r0863.0 this allows several drives to start (run-up) staggered over time when they are simultaneously powered up.
To realize this, the following connections/interconnections are required:
Drive 1: Internconnect BI: p0864 with BO: r0863.0 of the infeed
Drive 2: Internconnect BI: p0864 with BO: r0863.0 of drive 1
Drive 3: Internconnect BI: p0864 with BO: r0863.0 of drive 2, etc.
The first drive only transfers the operating signal to the next drive after it has reached its ready condition.

Re bit 01:
Bit 1 is used to control an external line contactor.

Re bit 02:
This bit only signals line supply failure for Active Infeed (A_INF) and Smart Infeed (S_INF).

r0896.0 BO: Parking axis, status word / Parking axis, ZSW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for the "parking axis" function.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Parking axis active	Yes	No	-

Dependency: Refer to: p0897

p0897	BI: Parking axis selection / Parking axis sel				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2		
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0		
Description:	Sets the signal source to select the "parking axis" function.				
Dependency:	BI: p0897 = 0 signal The function "parking axis" is not selected. BI: p0897 = 1 signal The function "parking axis" is selected. Refer to: r0896				
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.				
Note:	After it has been selected the "parking axis" function only becomes active when the pulses are suppressed.				
r0898.0...15	CO/BO: Control word drive object 1 / STW DO1				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the control word of drive object 1 (Control Unit).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Synchronization signal SYN	Yes	No	-
	01	Real time synchronization PING	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	12	Master sign-of-life bit 0	Yes	No	-
	13	Master sign-of-life bit 1	Yes	No	-
	14	Master sign-of-life bit 2	Yes	No	-
	15	Master sign-of-life bit 3	Yes	No	-
r0898.0...14	CO/BO: Control word sequence control / STW seq_ctrl				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2501		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the control word of the sequence control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Operation enable	Yes	No	-
	04	Ramp-function generator enable	Yes	No	-
	05	Freeze ramp-function generator	No	Yes	-
	06	Speed setpoint enable	Yes	No	-
	07	Command open brake	Yes	No	-

08	Jog 1	Yes	No	-
09	Jog 2	Yes	No	-
10	Master ctrl by PLC	Yes	No	-
12	Speed controller enable	Yes	No	-
14	Command close brake	Yes	No	-

Note: OC: Operating condition

r0899.0...15 CO/BO: Status word drive object 1 / ZSW DO1

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word from drive object 1 (Control Unit).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready for sw on	Yes	No	-
	03	Fault present	Yes	No	-
	07	Alarm present	Yes	No	-
	08	System time synchronized	Yes	No	-
	12	Slave sign-of-life bit 0	Yes	No	-
	13	Slave sign-of-life bit 1	Yes	No	-
	14	Slave sign-of-life bit 2	Yes	No	-
	15	Slave sign-of-life bit 3	Yes	No	-

r0899.0...15 CO/BO: Status word sequence control / ZSW seq_ctrl

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2503
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the sequence control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready for switching on	Yes	No	-
	01	Ready for operation	Yes	No	-
	02	Operation enabled	Yes	No	-
	03	Jog active	Yes	No	-
	04	No coasting active	OFF2 inactive	OFF2 active	-
	05	No Quick Stop active	OFF3 inactive	OFF3 active	-
	06	Switching on inhibited active	Yes	No	-
	07	Drive ready	Yes	No	-
	08	Controller enable	Yes	No	-
	09	Control request	Yes	No	-
	11	Pulses enabled	Yes	No	-
	12	Holding brake open	Yes	No	-
	13	Command close holding brake	Yes	No	-
	14	Pulse enable from the brake control	Yes	No	-
	15	Setpoint enable from the brake control	Yes	No	-

Note: Re bits 00, 01, 02, 04, 05, 06, 09:
For PROFIdrive, these signals are used for status word 1.
Re bit 13:
When the "Safe Brake Control" (SBC) is activated and selected, the brake is no longer controlled using this signal.
Re bit 14, 15:
These signals are only of significance when the "extended brake control" function module is activated (r0108.14 = 1).

p0918	PROFIBUS address / PB address		
CU_S110-DP	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1520, 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 126	Factory setting 126
Description:	Displays or sets the PROFIBUS address for PROFIBUS interface on the Control Unit. The address can be set as follows: 1) Using the DIP switch on the Control Unit. --> p0918 can then only be read and displays the selected address. --> A change only becomes effective after a POWER ON. 2) Using p0918 --> Only if all of the DIP switches are set to ON or OFF. --> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM". --> A change only becomes effective after a POWER ON.		
Note:	Permissible PROFIBUS addresses: 1 ... 126 Address 126 is used for commissioning. Every PROFIBUS address change only becomes effective after a POWER ON.		
p0922	PROFIdrive telegram selection / PD Telegr_sel		
CU_S110-DP	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1520, 2420, 2423, 2481, 2483
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 390	Max 999	Factory setting 999
Description:	Sets the send and receive telegram.		
Value:	390: SIEMENS telegram 390, PZD-2/2 391: SIEMENS telegram 391, PZD-3/7 999: Free telegram configuration with BICO		
p0922	PROFIdrive telegram selection / PD Telegr_sel		
SERVO_S110-DP (Pos ctrl)	Can be changed: C2(1), T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1520, 2420, 2422, 2423, 2468, 2470
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 999	Max 999	Factory setting 999
Description:	Sets the send and receive telegram.		
Value:	999: Free telegram configuration with BICO		
Dependency:	Refer to: p2038 Refer to: F01505, F01506		
Note:	For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		

p0922 PROFIdrive telegram selection / PD Telegr_sel			
SERVO_S110-DP (EPOS)	Can be changed: C2(1), T Data type: Unsigned16	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2468, 2470
	P-Group: Communications Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 7	Max 999	Factory setting 999
Description:	Sets the send and receive telegram.		
Value:	7: Standard telegram 7, PZD-2/2 9: Standard telegram 9, PZD-6/5 110: SIEMENS telegram 110, PZD-12/7 111: SIEMENS telegram 111, PZD-12/12 999: Free telegram configuration with BICO		
Dependency:	Refer to: p2038 Refer to: F01505, F01506		
Note:	For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		
p0922 PROFIdrive telegram selection / PD Telegr_sel			
SERVO_S110-DP	Can be changed: C2(1), T Data type: Unsigned16	Calculated: - Dynamic index: -	Access level: 1 Func. diagram: 1520, 2420, 2422, 2423, 2468, 2470
	P-Group: Communications Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 1	Max 999	Factory setting 999
Description:	Sets the send and receive telegram.		
Value:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 102: SIEMENS telegram 102, PZD-6/10 103: SIEMENS telegram 103, PZD-7/15 999: Free telegram configuration with BICO		
Dependency:	Refer to: p2038 Refer to: F01505, F01506		
Note:	For p0922 = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed. If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited. The inhibited interconnections can only be changed again after setting value 999.		

r0924[0...1]	ZSW bit pulses enabled / ZSW pulses enab		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2454, 2456
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Display of the position of the "Pulses enabled" status word bit in the PROFIdrive telegram		
Index:	[0] = Signal number [1] = Bit position		
p0925	PROFIdrive clock synchronous sign-of-life tolerance / PD SoL_tol		
CU_S110-DP, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	1
Description:	Sets the number of tolerated consecutive sign-of-life errors of the clock-cycle synchronous master. The sign-of-life signal is normally received in PZD4 (control word 2) from the master.		
Dependency:	Refer to: p2045, r2065 Refer to: F01912		
Note:	The sign-of-life monitoring is disabled for p0925 = 65535.		
r0930	PROFIdrive operating mode / PD operating mode		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the operating mode. 1: Closed-loop speed controlled operation with ramp-function generator 2: Closed-loop position controlled operation 3: Closed-loop speed controlled operation without ramp-function generator		
r0944	CO: Counter for fault buffer changes / Fault buff change		
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays fault buffer changes. This counter is incremented every time the fault buffer changes.		
Recommend.:	Used to check whether the fault buffer has been read out consistently.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109		

r0945[0...63]		Fault code / Fault code	
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the numbers of faults that have occurred.		
Dependency:	Refer to: r0947, r0948, r0949, r2109, r2130, r2133, r2136		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). Fault buffer structure (general principle): r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> current fault case, fault 1 ... r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> current fault case, fault 8 r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1 ... r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8 ... r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1 ... r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8		

r0946[0...65534]		Fault code list / Fault code list	
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Lists the fault codes stored in the drive unit. The indices can only be accessed with a valid fault code.		
Dependency:	The parameter assigned to the fault code is entered in r0951 under the same index.		

r0947[0...63]		Fault number / Fault number	
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	This parameter is identical to r0945.		

r0948[0...63]	Fault time received in milliseconds / t_fault rcv ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the system runtime in milliseconds when the fault occurred.		
Dependency:	Refer to: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115		
Notice:	The time comprises r2130 (days) and r0948 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945. When the parameter is read via PROFIdrive, the TimeDifference data type applies.		
r0949[0...63]	Fault value / Fault value		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays additional information about the fault that occurred (as integer number).		
Dependency:	Refer to: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945.		
p0952	Fault cases, counter / Fault cases qty		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1710, 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Number of fault situations that have occurred since the last reset.		
Dependency:	The fault buffer is deleted (cleared) by setting p0952 to 0. Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		

r0963	PROFIBUS baud rate / PB baud rate		
CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	-
Value:	0: 9.6 kbit/s		
	1: 19.2 kbit/s		
	2: 93.75 kbit/s		
	3: 187.5 kbit/s		
	4: 500 kbit/s		
	6: 1.5 Mbit/s		
	7: 3 Mbit/s		
	8: 6 Mbit/s		
	9: 12 Mbit/s		
	10: 31.25 kbit/s		
	11: 45.45 kbit/s		
	255: Unknown		

r0964[0...6]	Device identification / Device ident.		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the device identification.		
Index:	[0] = Company (Siemens = 42) [1] = Device type [2] = Firmware version [3] = Firmware date (year) [4] = Firmware date (day/month) [5] = Number of drive objects [6] = Firmware patch/hot fix		
Note:	Example: r0964[0] = 42 --> SIEMENS r0964[1] = 5000 --> SINAMICS S CU320 r0964[1] = 5200 --> SINAMICS G CU320 r0964[2] = 102 --> first part of the firmware version V01.02 (second part, refer to index 6) r0964[3] = 2003 --> year 2003 r0964[4] = 1401 --> 14th of January r0964[5] = 4 --> 4 drive objects r0964[6] = 600 --> second part, firmware version (complete version: V01.02.06.00)		

r0965	PROFIdrive profile number / PD profile number		
CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIdrive profile number and profile version. Constant value = 0329 hex. Byte 1: Profile number = 03 hex = PROFIdrive profile Byte 2: Profile version = 29 hex = Version 4.1		
Note:	When the parameter is read via PROFIdrive, the Octet String 2 data type applies.		
p0969	System runtime relative / t_System relative		
CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8060
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0 [ms]	4294967295 [ms]	0 [ms]
Description:	Displays the system runtime in ms since the last POWER ON.		
Note:	The value in p0969 can only be reset to 0. The value overflows after approx. 49 days. When the parameter is read via PROFIdrive, the TimeDifference data type applies.		
p0970	Reset drive parameters / Drive par reset		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(30)	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	100	0
Description:	The parameter is used to initiate the reset of the parameters of an individual drive unit. Parameters p0100, p0205 (only for VECTOR) and the parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).		
Value:	0: Inactive 1: Starts a parameter reset 100: Starts a BICO interconnection reset		
Note:	A factory setting run can only be started if p0010 was first set to 30 (parameter reset). At the end of the calculations, p0970 is automatically set to 0. Parameter reset has been completed if p0970 and p0010 have been set to 0.		

p0971 Save drive object parameters / Drv_obj par save			
CU_S110-DP, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Setting to save the parameter of the particular drive object in the non-volatile memory.		
Value:	0: Inactive 1: Save drive object		
Dependency:	Refer to: p0977, p1960		
Caution:	The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).		
Notice:	Writing to parameters is inhibited while saving. The progress while saving is displayed in r3996.		
Note:	Starting from the particular drive object, the following parameters are saved: CU3xx: Device-specific parameters and PROFIBUS device parameters. Other objects: Parameters of the current object and PROFIBUS device parameters. Prerequisite: In order that the parameter of a drive object, saved with p0971 = 1, is read the next time that the Control Unit is booted, then all parameters must, as a minimum, have first been saved once with p0977 = 1.		

p0972 Drive unit reset / Drv_unit reset			
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	Sets the required procedure to execute a hardware reset for the drive unit.		
Value:	0: Inactive 1: Hardware-Reset immediate 2: Hardware reset preparation 3: Hardware reset after cyclic communication has failed		
Danger:	It must be absolutely ensured that the system is in a safe condition. The memory card of the Control Unit must not be accessed.		
			
Notice:	For SIMOTION or SINUMERIK with integrated SINAMICS, the hardware reset acts on the complete system and depends on the state of the control.		

Note: Re value = 1:
Reset is immediately executed and communications interrupted.
After communications have been established, check the reset operation (refer below).
Re value = 2:
Help to check the reset operation.
Firstly, set p0972 = 2 and then read back. Secondly, set p0972 = 1 (it is possible that this request is possibly no longer acknowledged). The communication is then interrupted.
After communications have been established, check the reset operation (refer below).
Re value = 3:
The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by a control for several drive units.
If the cyclic communication is active for both PROFIdrive interfaces, then the reset is executed after completing both cycle communications.
After communications have been established, check the reset operation (refer below).
To check the reset operation:
After the drive unit has been restarted and communications have been established, read p0972 and check the following:
p0972 = 0? --> The reset was successfully executed.
p0972 > 0? --> The reset was not executed.

r0975[0...10] Drive object identification / DO identification			
All objects	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the identification of the drive object.

Index:
[0] = Company (Siemens = 42)
[1] = Drive object type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = PROFIdrive drive object, type class
[6] = PROFIdrive drive object, sub-type Class 1
[7] = Drive object number
[8] = Reserved
[9] = Reserved
[10] = Firmware patch/hot fix

Note:
Example:
r0975[0] = 42 --> SIEMENS
r0975[1] = 11 --> SERVO drive object type
r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)
r0975[3] = 2003 --> year 2003
r0975[4] = 1401 --> 14th of January
r0975[5] = 1 --> PROFIdrive drive object, type class
r0975[6] = 9 --> PROFIdrive drive object sub-type class 1
r0975[7] = 2 --> drive object number = 2
r0975[8] = 0 (reserved)
r0975[9] = 0 (reserved)
r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976			
CU_S110-CAN, CU_S110-DP	Reset and load all parameters / Reset load all par		
	Can be changed: C1(30)	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Factory settings	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1013	0
Description:	Resets or downloads all parameters of the drive system.		
Value:	0: Inactive 1: Starts to reset all parameters to factory setting 2: Starts to download param. saved in non-volatile way w/ p0977 = 1 3: Start to download the volatile parameters from RAM 10: Starts to download param. saved in non-volatile way w/ p0977=10 11: Starts to download param. saved in non-volatile way w/ p0977=11 12: Starts to download param. saved in non-volatile way w/ p0977=12 20: Starts to download Siemens internal setting 20 21: Starts to download Siemens internal setting 21 22: Starts to download Siemens internal setting 22 23: Starts to download Siemens internal setting 23 24: Starts to download Siemens internal setting 24 25: Starts to download Siemens internal setting 25 26: Starts to download Siemens internal setting 26 100: Starts to reset all BICO interconnections 1011: Starts to download param. saved in volatile way w/ p0977 = 1011 1012: Starts to download param. saved in volatile way w/ p0977 = 1012 1013: Starts to download param. saved in volatile way w/ p0977 = 1013		
Note:	After all of the parameters have been reset to their factory setting, the system must be commissioned for the first time again. Resetting or loading is realized in the non-volatile memory. Procedure: 1. Set p0009 = 30 (parameter reset). 2. Set p0976 to "required value". The system is rebooted. p0976 is automatically set to 0 and p0009 is automatically set to 1 after this has been carried out.		

p0977**Save all parameters / Save all par**CU_S110-CAN,
CU_S110-DP**Can be changed:** U, T**Calculated:** -**Access level:** 1**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Factory settings**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

0

1013

0

Description:

Saves all parameters of the drive system to the non-volatile memory.

Value:

0: Inactive
 1: Save in non-volatile fashion - downloaded at POWER ON
 10: Save as opt. in non-vol. fashion - downloaded w/ p0976=10
 11: Save as opt. in non-vol. fashion - downloaded w/ p0976=11
 12: Save as opt. in non-vol. fashion - downloaded w/ p0976=12
 20: Save in a non-volatile fashion as setting 20 (reserved)
 21: Save in a non-volatile fashion as setting 21 (reserved)
 22: Save in a non-volatile fashion as setting 22 (reserved)
 23: Save in a non-volatile fashion as setting 23 (reserved)
 24: Save in a non-volatile fashion as setting 24 (reserved)
 25: Save in a non-volatile fashion as setting 25 (reserved)
 26: Save in a non-volatile fashion as setting 26 (reserved)
 1011: Save in volatile fashion, loaded with p0976=1011
 1012: Save in volatile fashion, loaded with p0976=1012
 1013: Save in volatile fashion, loaded with p0976=1013

Dependency:

Refer to: p0976, p1960

Caution:

The Control Unit power supply may only be powered down after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).

Notice:

Writing to parameters is inhibited while saving.

The progress while saving is displayed in r3996.

Note:

Parameters saved with p0977 = 10, 11 or 12 can be downloaded again with p0976 = 10, 11 or 12.

r0979[0...30] PROFIdrive encoder format / PD encoder format			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4010, 4704
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the actual position encoder used according to PROFIdrive.		
Index:	[0] = Header [1] = Type, encoder 1 [2] = Resolution encod 1 [3] = Shift factor G1_XIST1 [4] = Shift factor G1_XIST2 [5] = Distinguishable revolutions encoder 1 [6] = Reserved [7] = Reserved [8] = Reserved [9] = Reserved [10] = Reserved [11] = Type, encoder 2 [12] = Resolution encod 2 [13] = Shift factor G2_XIST1 [14] = Shift factor G2_XIST2 [15] = Distinguishable revolutions encoder 2 [16] = Reserved [17] = Reserved [18] = Reserved [19] = Reserved [20] = Reserved [21] = Reserved [22] = Reserved [23] = Reserved [24] = Reserved [25] = Reserved [26] = Reserved [27] = Reserved [28] = Reserved [29] = Reserved [30] = Reserved		
Note:	Information about the individual indices can be taken from the following literature: PROFIdrive Profile Drive Technology		

r0980[0...199] List of existing parameters 1 / List avail par 1			
All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the parameters that exist for this drive.		
Dependency:	Refer to: r0981, r0989		

Note: The existing parameters are displayed in indices 0 to 198. If an index contains the value 0, then the list ends here. In a long list, index 199 contains the parameter number at which position the list continues.

This list completely comprises the following parameters:

r0980[0...199], r0981[0...199] ... r0989[0...199]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0981[0...199] List of existing parameters 2 / List avail par 2

All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0989

Note: The existing parameters are displayed in indices 0 to 198. If an index contains the value 0, then the list ends here. In a long list, index 199 contains the parameter number at which position the list continues.

This list completely comprises the following parameters:

r0980[0...199], r0981[0...199] ... r0989[0...199]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0989[0...199] List of existing parameters 10 / List avail par 10

All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: Refer to: r0980, r0981

Note: The existing parameters are displayed in indices 0 to 198. If an index contains the value 0, then the list ends here.

This list completely comprises the following parameters:

r0980[0...199], r0981[0...199] ... r0989[0...199]

The parameters in this list are not displayed in the expert list of the commissioning software. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

p1001[0...n] CO: Fixed speed setpoint 1 / n_set_fixed 1

SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 1021, 3010
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-210000.000 [rev/min]	210000.000 [rev/min]	0.000 [rev/min]

Description: Sets a value for the fixed speed / velocity setpoint 1.

Dependency: Refer to: p1020, p1021, p1022, p1023, r1024, r1197

Notice: A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.

p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 2.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 3.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 4.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 5.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 6.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 7.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 8.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 9.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 10.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 11.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 12.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 13.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p1014[0...n]	CO: Fixed speed setpoint 14 / n_set_fixed 14		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 14.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1015[0...n]	CO: Fixed speed setpoint 15 / n_set_fixed 15		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 1021, 3010 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets a value for the fixed speed / velocity setpoint 15.		
Dependency:	Refer to: p1020, p1021, p1022, p1023, r1024, r1197		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p1020[0...n]	BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the fixed speed setpoint.		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the current fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1021, p1022, p1023, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), r1024 = 0 (setpoint = 0).		
p1021[0...n]	BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the fixed speed setpoint.		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the current fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1022, p1023, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), r1024 = 0 (setpoint = 0).		

p1022[0...n]	BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the fixed speed setpoint.		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the current fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1021, p1023, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), r1024 = 0 (setpoint = 0).		
p1023[0...n]	BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the fixed speed setpoint.		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the current fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1020, p1021, p1022, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), r1024 = 0 (setpoint = 0).		
r1024	CO: Fixed speed setpoint effective / n_set_fixed eff		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1550, 3010 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the selected and effective fixed speed setpoint. This setpoint is the output value for the fixed speed setpoints and must be appropriately interconnected (e.g. with the main setpoint).		
Recommend.:	Interconnect the signal with main setpoint (p1070).		
Dependency:	Selects the required fixed speed setpoint using p1020 ... p1023. Displays the number of the current fixed speed setpoint in r1197. Sets a value for the fixed speed setpoints 1 ... 15 using p1001 ... p1015. Refer to: p1070, r1197		
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).		

p1030[0...n]		Motorized potentiometer configuration / Mop configuration			
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 3020		
	P-Group: Setpoints	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0110 bin		
Description:	Sets the configuration for the motorized potentiometer.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Data save active	Yes	No	-
	01	Automatic mode, ramp-function generator active	Yes	No	-
	02	Initial rounding-off active	Yes	No	-
	03	Save in NVRAM active	Yes	No	-
Notice:	The following prerequisites must be fulfilled in order to be able to save the setpoint (Bit 03 = 1) in a non-volatile fashion:				
	- Firmware with V2.3 or higher.				
	- Control Unit 320 (CU320) with hardware version C or higher (module with NVRAM).				
Note:	Re bit 00:				
	0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p1040.				
	1: The setpoint for the motorized potentiometer is saved after OFF and after ON set to the saved value. In order to save in a non-volatile fashion, bit 03 should be set to 1.				
	Re bit 01:				
	0: Without ramp-function generator in the automatic mode (ramp-up/ramp-down time = 0).				
	1: With ramp-function generator in the automatic mode.				
	For manual operation (0 signal via BI: p1041), the ramp-function generator is always active.				
	Re bit 02:				
	0: Without initial rounding-off				
	1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed).				
	The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum speed (p1082). It is calculated as follows:				
	$r = 0.01 \% * p1082 [1/s] / 0.13^2 [s^2]$				
	The jerk acts up until the maximum acceleration is reached ($a_{max} = p1082 [1/s] / p1047 [s]$), and then the drive continues to run linearly with a constant rate of acceleration. The higher the maximum acceleration (the lower that p1047 is), the longer the ramp-up time increases with respect to the set ramp-up time.				
	Re bit 03:				
	0: Non-volatile data save de-activated.				
	The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for bit 00 = 1).				
p1035[0...n]		BI: Motorized potentiometer setpoint raise / Mop raise			
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T	Calculated: -	Access level: 3		
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2442, 2505, 3020		
	P-Group: Setpoints	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0		
Description:	Sets the signal source to increase the setpoint for the motorized potentiometer				
Dependency:	Refer to: p1036				
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.				

p1036[0...n]	BI: Motorized potentiometer lower setpoint / Mop lower		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2442, 2505 Unit selection: - Expert list: 1 Factory setting: 0
Description:	Sets the signal source to reduce the setpoint for the motorized potentiometer.		
Dependency:	Refer to: p1035		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1037[0...n]	Motorized potentiometer maximum speed / Mop n_max		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3020 Unit selection: p0505 Expert list: 1 Factory setting: 0.000 [rev/min]
Description:	Sets the maximum speed/velocity for the motorized potentiometer.		
Note:	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value.		
p1038[0...n]	Motorized potentiometer minimum speed / Mop n_min		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3020 Unit selection: p0505 Expert list: 1 Factory setting: 0.000 [rev/min]
Description:	Sets the minimum speed/velocity for the motorized potentiometer.		
Note:	This parameter is automatically pre-assigned in the commissioning phase. The setpoint output from the motorized potentiometer is limited to this value.		
p1039[0...n]	BI: Motorized potentiometer inversion / Mop inversion		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3020 Unit selection: - Expert list: 1 Factory setting: 0
Description:	Sets the signal source to invert the minimum speed/velocity or the maximum speed/velocity for the motorized potentiometer.		
Dependency:	Refer to: p1037, p1038		
Note:	The inversion is only active during "motorized potentiometer raise" or "motorized potentiometer lower".		

p1040[0...n]	Motorized potentiometer starting value / Mop start value		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3020 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets the starting value for the motorized potentiometer. This starting value becomes effective after the drive has been powered up.		
Dependency:	Only effective if p1030.0 = 0. Refer to: p1030		
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3020 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to change over from manual to automatic when using a motorized potentiometer. In the manual mode, the setpoint is changed using two signals - raise and lower. In the automatic mode, the setpoint must be interconnected via a connector input.		
Dependency:	Refer to: p1030, p1035, p1036, p1042		
Note:	The effectiveness of the internal ramp-function generator can be set in automatic mode.		
p1042[0...n]	CI: Motorized potentiometer automatic setpoint / Mop auto setpoint		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3020 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the setpoint of the motorized potentiometer in the automatic mode.		
Dependency:	Refer to: p1041		
p1043[0...n]	BI: Motorized potentiometer accept setpoint / Mop accept set val		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3020 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to accept the setting value for the motorized potentiometer.		
Dependency:	Refer to: p1044		
Note:	The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).		

p1044[0...n]	CI: Motorized potentiometer setting value / Mop set val		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3020 Unit selection: - Expert list: 1 Factory setting: 0
Description:	Sets the signal source for the setting value for the motorized potentiometer.		
Dependency:	Refer to: p1043		
Note:	The setting value (CI: p1044) becomes effective for a 0/1 edge of the setting command (BI: p1043).		
r1045	CO: Mot. potentiometer speed setp. in front of ramp-fct. gen. / Mop n_set bef RFG		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 3020 Unit selection: p0505 Expert list: 1 Factory setting: - [rev/min]
Description:	Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator.		
p1047[0...n]	Motorized potentiometer ramp-up time / Mop ramp-up time		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3020 Unit selection: - Expert list: 1 Factory setting: 10.000 [s]
Description:	Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer. The setpoint is changed from zero up to the speed/velocity limit (p1082) within this time (if no initial rounding-off has been activated).		
Dependency:	Refer to: p1030, p1048, p1082		
Note:	When the initial rounding-off is activated (p1030.2) the ramp-up time is correspondingly extended.		
p1048[0...n]	Motorized potentiometer ramp-down time / Mop ramp-down time		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3020 Unit selection: - Expert list: 1 Factory setting: 10.000 [s]
Description:	Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer. The setpoint is changed from the speed/velocity limit (p1082) to zero within this time (if no initial rounding-off has been activated).		
Dependency:	Refer to: p1030, p1047, p1082		
Note:	The deceleration time is extended corresponding to the activated initial rounding-off (p1030.2).		

r1050	CO: Motor. potentiometer setpoint after the ramp-function generator / Mop setp after RFG		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1550, 3020 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Sets the effective setpoint after the internal motorized potentiometer ramp-function generator. This setpoint is the output value of the motorized potentiometer and must be appropriately interconnected onwards (e.g. with the main setpoint).		
Recommend.:	Interconnect the signal with main setpoint (p1070).		
Dependency:	Refer to: p1070		
Note:	For "With ramp-function generator", after an OFF1, OFF2, OFF3 or for a 0 signal via BI: p0852 (inhibit operation, cancel pulses) the ramp-function generator output (r1050) is set to the starting value (configuration via p1030.0).		
p1055[0...n]	BI: Jog bit 0 / Jog bit 0		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2501, 3030 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jog 1.		
Recommend.:	When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.		
Dependency:	Refer to: p0840, p1058		
Notice:	The drive is enabled for jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that was used to power up can also be used to power down again.		
p1056[0...n]	BI: Jog bit 1 / Jog bit 1		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2501, 3030 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jog 2.		
Recommend.:	When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.		
Dependency:	Refer to: p0840, p1059		
Notice:	The drive is enabled for jogging using BI: p1055 or BI: p1056. The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056. Only the signal source that was used to power up can also be used to power down again.		

p1058[0...n]	Jog 1 speed setpoint / Jog 1 n_set		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 1550, 3030 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets the speed/velocity for jog 1. Jogging is level-triggered and allows the motor to be incrementally moved.		
Dependency:	Refer to: p1055, p1056		
p1059[0...n]	Jog 2 speed setpoint / Jog 2 n_set		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 1550, 3030 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets the speed/velocity for jog 2. Jogging is level-triggered and allows the motor to be incrementally moved.		
Dependency:	Refer to: p1055, p1056		
p1063[0...n]	Speed limit setpoint channel / n_limit setp		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 1 Func. diagram: 3040 Unit selection: p0505 Expert list: 1
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 210000.000 [rev/min]
Description:	Sets the speed limit/velocity limit effective in the setpoint channel.		
Dependency:	Refer to: p1082, p1083, p1085, p1086, p1088		
p1070[0...n]	CI: Main setpoint / Main setpoint		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 1550, 3030 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1024[0]
Description:	Sets the signal source for the main setpoint. Examples: r1024: Fixed speed setpoint effective r1050: Motor. potentiometer setpoint after the ramp-function generator		
Dependency:	Refer to: p1071, r1073, r1078		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p1071[0...n]	CI: Main setpoint scaling / Main setp scal		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 3030 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for scaling the main setpoint.		
r1073	CO: Main setpoint effective / Main setpoint eff		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: - Min - [rev/min]	Calculated: - Dynamic index: - Units group: 3_1 Max - [rev/min]	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting - [rev/min]
Description:	Displays the effective main setpoint. The value shown is the main setpoint after scaling.		
p1075[0...n]	CI: Supplementary setpoint / Suppl setpoint		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 1550, 3030 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the signal source for the supplementary setpoint.		
Dependency:	Refer to: p1076, r1077, r1078		
p1076[0...n]	CI: Supplementary setpoint scaling / Suppl setp scal		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 3030 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for scaling the supplementary setpoint.		
r1077	CO: Supplementary setpoint effective / Suppl setpoint eff		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: - Min - [rev/min]	Calculated: - Dynamic index: - Units group: 3_1 Max - [rev/min]	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1 Factory setting - [rev/min]
Description:	Displays the effective supplementary setpoint. The value shown is the additional setpoint after scaling.		

r1078	CO: Total setpoint effective / Total setpoint eff		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 3030 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the total effective setpoint. The value indicates the sum of the effective main setpoint and supplementary setpoint.		
p1080[0...n]	Minimum speed / Minimum speed		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: C2(1), T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 1 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [rev/min]	Max 19500.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets the lowest possible speed/velocity. This value is not undershot in operation.		
Note:	The parameter value applies for both motor directions of rotation. In exceptional cases, the motor can operate below this value (e.g. when reversing).		
p1082[0...n]	Maximum speed / Maximum speed		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1), T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: 3_1	Access level: 1 Func. diagram: 3020, 3050, 3060, 3070, 3095, 5300 Unit selection: p0505 Expert list: 1
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 1500.000 [rev/min]
Description:	Sets the highest possible speed.		
Dependency:	Refer to: p0322		
Note:	The parameter applies for both motor directions. The parameter has a limiting effect and is the reference quantity for all ramp-up and ramp-down times (e.g. down ramps, ramp-function generator, motor potentiometer). Since the parameter is part of quick commissioning (p0010 = 1), it is defined appropriately when p0310, p0311, and p0322 are changed. The following limits are always effective for p1082: $p1082 \leq p0322$, if $p0322 > 0$ $p1082 \leq 60 / (10.5 * p0115[0] * r0313)$ $p1082 \leq 60 * \text{Maximum power unit pulse frequency} / (5.3 * r0313)$ For the automatic calculation (p0340 = 1) the value of the parameter is pre-assigned the maximum motor speed (p0322). If p0322 = 0, the rated motor speed (p0311) is used as default (pre-assignment) value. For induction motors that are not catalog motors (p0301 = 0), the synchronous no-load speed is used as default (pre-assignment) value ($p0310 * 60 / r0313$). For synchronous motors, the following additionally applies: In the automatic calculation (p0340 = 1), p1082 is limited to speeds for which the steady-state maximum current of the power unit is not sufficient as field current: $p1082 < p0348 / (1 - r0207 / r0331)$. On the other hand, an additional limit is effective, which prevents the EMF from exceeding the maximum DC link voltage. The effective assignment of the motor data set parameter (e.g. p0311) to the drive data set parameter p1082 when pre-assigning should be taken from p0186. p1082 is also available in the quick commissioning (p0010 = 1); this means that when exiting via p3900 > 0, the value is not changed.		

p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 210000.000 [rev/min]
Description:	Sets the maximum speed for the positive direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
r1084	CO: Speed limit positive effective / n_limit pos eff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 3050, 5030, 5210, 6640, 7020, 8010 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the effective positive speed limit.		
Dependency:	Refer to: p1082, p1083, p1085		
p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3050 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1083[0]
Description:	Sets the signal source for the speed limit of the positive direction.		
p1086[0...n]	CO: Speed limit negative direction of rotation / n_limit neg		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min -210000.000 [rev/min]	Max 0.000 [rev/min]	Factory setting -210000.000 [rev/min]
Description:	Sets the speed limit for the negative direction.		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
r1087	CO: Speed limit negative effective / n_limit neg eff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 3050, 5030, 5210, 6640, 7020, 8010 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the effective negative speed limit.		
Dependency:	Refer to: p1082, p1086, p1088		

p1088[0...n]	CI: Speed limit negative direction of rotation / n_limit neg		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 3050 Unit selection: - Expert list: 1 Factory setting: 1086[0]
	Min -	Max -	

Description: Sets the signal source for the speed/velocity limit of the negative direction.

p1091[0...n]	Skip speed 1 / n_skip 1		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting: 0.000 [rev/min]
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	

Description: Sets skip speed 1.

Dependency: Refer to: p1092, p1093, p1094, p1101

Note: The skip (suppression) speeds can be used to prevent the effects of mechanical resonance.

p1092[0...n]	Skip speed 2 / n_skip 2		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting: 0.000 [rev/min]
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	

Description: Sets skip speed 2.

Dependency: Refer to: p1091, p1093, p1094, p1101

p1093[0...n]	Skip speed 3 / n_skip 3		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting: 0.000 [rev/min]
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	

Description: Sets skip speed 3.

Dependency: Refer to: p1091, p1092, p1094, p1101

p1094[0...n]	Skip speed 4 / n_skip 4		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1 Factory setting: 0.000 [rev/min]
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	

Description: Sets skip speed 4.

Dependency: Refer to: p1091, p1092, p1093, p1101

p1101[0...n]	Skip speed bandwidth / n_skip bandwidth		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 0.000 [rev/min]
Description:	Sets the bandwidth for the skip speeds/velocities 1 to 4.		
Dependency:	Refer to: p1091, p1092, p1093, p1094		
Note:	The setpoint (reference) speeds are skipped (suppressed) in the range of the skip speed +/-p1101. Steady-state operation is not possible in the skipped (suppressed) speed range. The skip (suppression) range is skipped. Example: p1091 = 600 and p1101 = 20 --> setpoint speeds between 580 and 620 [rpm] are skipped. For the skip bandwidths, the following hysteresis behavior applies: For a setpoint speed coming from below, the following applies: r1170 < 580 [rpm] and 580 [rpm] <= r1114 <= 620 [rpm] --> r1119 = 580 [rpm] For a setpoint speed coming from above, the following applies: r1170 > 620 [rpm] and 580 [rpm] <= r1114 <= 620 [rpm] --> r1119 = 620 [rpm]		
p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505, 3040 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to disable the negative direction.		
Dependency:	Refer to: p1111		
p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505, 3040 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to disable the positive direction.		
Dependency:	Refer to: p1110		
r1112	CO: Speed setpoint after minimum limiting / n_set n. min_lim		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 3050 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed / velocity setpoint after the minimum limiting.		
Dependency:	Refer to: p1091, p1092, p1093, p1094, p1101		

p1113[0...n]	BI: Setpoint inversion / Setp inv		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: - Min -	Calculated: - Dynamic index: CDS, p0170 Units group: - Max -	Access level: 3 Func. diagram: 2441, 2442, 2505, 3040 Unit selection: - Expert list: 1 Factory setting 0
Dependency:	Refer to: r1198		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
r1114	CO: Setpoint after the direction limiting / Setp after limit		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: - Min - [rev/min]	Calculated: - Dynamic index: - Units group: 3_1 Max - [rev/min]	Access level: 3 Func. diagram: 1550, 3040, 3050 Unit selection: p0505 Expert list: 1 Factory setting - [rev/min]
Description:	Displays the speed/velocity setpoint after the changeover and limiting the direction.		
p1115	Ramp-function generator selection / RFG selection		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T Data type: Integer16 P-Group: Setpoints Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 1	Access level: 3 Func. diagram: 1550, 3080 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the ramp-function generator type.		
Value:	0: Basic ramp-function generator 1: Extended ramp-function generator		
Note:	Another ramp-function generator type can only be selected when the motor is at a standstill.		
r1119	CO: Ramp-function generator setpoint at the input / RFG setp at inp		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: - Min - [rev/min]	Calculated: - Dynamic index: - Units group: 3_1 Max - [rev/min]	Access level: 3 Func. diagram: 1550, 1750, 3050, 3060, 3070, 8010 Unit selection: p0505 Expert list: 1 Factory setting - [rev/min]
Description:	Displays the setpoint at the input of the ramp-function generator.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The setpoint is influenced by other functions, e.g. skip (suppressed) speeds, minimum and maximum limits.		

p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: C2(1), U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 10.000 [s]
Description:	The ramp-function generator ramps-up the speed setpoint from standstill (setpoint = 0) up to the maximum speed (p1082) in this time.		
Dependency:	Refer to: p1082		
p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1), U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 10.000 [s]
Description:	The ramp-function generator ramps-down the speed setpoint from the maximum speed (p1082) down to standstill (setpoint = 0) in this time. Further, the ramp-down time is always effective for OFF1.		
Dependency:	Refer to: p1082		
Note:	The following applies for SERVO: The ramp-function generator is only available when the function module "extended setpoint channel" is active (r0108.8 = 1).		
p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2505 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for bypassing the ramp generator (ramp-up and ramp-down times = 0).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For VECTOR in encoderless operation, it is not permissible that the ramp-function generator is bypassed.		
p1130[0...n]	Ramp-function generator initial rounding-off time / RFG t_start_round		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the initial rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
Note:	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		

p1131[0...n]	Ramp-function generator final rounding-off time / RFG t_end_delay		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the final rounding-off time for the extended ramp generator. The value applies to ramp-up and ramp-down.		
Note:	Rounding-off times avoid an abrupt response and prevent damage to the mechanical system.		
p1134[0...n]	Ramp-function generator rounding-off type / RFG round-off type		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: Integer16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the smoothed response to the OFF1 command or the reduced setpoint for the extended ramp-function generator.		
Value:	0: Cont. smoothing 1: Discont smoothing		
Dependency:	No effect up to initial rounding-off time (p1130) > 0 s.		
Note:	p1134 = 0 (continuous smoothing) If the setpoint is reduced while ramping-up, initially a final rounding-off is carried out and then the ramp-up completed. During the final rounding-off, the output of the ramp-function generator continues to go in the direction of the previous setpoint (overshoot). After the final rounding-off has been completed, the output goes toward the new setpoint. p1134 = 1 (discontinuous smoothing) If the setpoint is reduced while ramping-up, then the output goes immediately in the direction of the new setpoint. For the setpoint change there is no rounding-off.		
p1135[0...n]	OFF3 ramp-down time / RFG OFF3 t_ramp-dn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1), U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3060, 3070 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 600.000 [s]	Factory setting 0.000 [s]
Description:	Sets the ramp-down time from the maximum speed down to zero speed for the OFF3 command.		
Note:	This time can be exceeded if the DC link voltage reaches its maximum value.		
p1136[0...n]	OFF3 initial rounding-off time / RFG OFF3 t_strt_rnd		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070, 3080 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the initial rounding-off time for OFF3 for the extended ramp generator.		

p1137[0...n]	OFF3 final rounding-off time / RFG OFF3 t_end_del		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 30.000 [s]	Factory setting 0.000 [s]
Description:	Sets the final rounding-off time for OFF3 for the extended ramp generator.		
p1140[0...n]	BI: Ramp-function generator enable / RFG enable		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2442, 2443, 2501 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 4 (operating condition/disable ramp-function generator).		
Dependency:	Refer to: p1141, p1142		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Bit 4 = 0: Inhibits the ramp-function generator (the ramp-function generator output is set to zero) Bit 4 = 1: Operating condition (the ramp-function generator can be enabled)		
p1141[0...n]	BI: Start ramp-function generator / Start RFG		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2442, 2443, 2501 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 5 (enables ramp-function generator/stops ramp-function generator)		
Dependency:	Refer to: p1140, p1142		
Notice:	The ramp-function generator is, independent of the state of the signal source, active in the following cases: - OFF1/OFF3. - ramp-function generator output within the suppression bandwidth. - ramp-function generator output below the minimum speed.		
Note:	Bit 5 = 0: Stop the ramp-function generator (the ramp-function generator output is frozen) Bit 5 = 1: Enable ramp-function generator		
p1142[0...n]	BI: Speed setpoint enable / n_set enable		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2441, 2442, 2443, 2501, 2711 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for control word 1 bit 6 (enable setpoint/disable setpoint).		
Dependency:	Refer to: p1140, p1141		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: Bit 6 = 0: Inhibits the setpoint (the ramp-function generator input is set to zero)
Bit 6 = 1: Enable setpoint

p1143[0...n]	BI: Ramp-function generator, accept setting value / Accept RFG set val		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 3060, 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for accepting the setting value of the ramp-function generator.		
Dependency:	The signal source for the ramp-function generator setting value is set using parameters. Refer to: p1144		
Note:	0/1 signal: The ramp-function generator output is immediately (without delay) set to the setting value of the ramp-function generator. 1 signal: The setting value of the ramp-function generator is effective. 1/0 signal: The input value of the ramp-function generator is effective. The ramp-function generator output is adapted to the input value using the ramp-up time or the ramp-down time. 0 signal: The input value of the ramp-function generator is effective.		

p1144[0...n]	CI: Ramp-function generator setting value / RFG setting value		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 3060, 3070
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the ramp-function generator setting value.		
Dependency:	The signal source for accepting the setting value is set using parameters. Refer to: p1143		

p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 3080
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.0	50.0	1.3
Description:	Sets the ramp-function generator tracking. The output value of the ramp-function generator is tracked (corrected) corresponding to the maximum possible drive acceleration. The reference value is the deviation at the speed/velocity controller input that is necessary to ensure that the motor accelerates at the torque/force limit.		

- Recommend.:** p1145 = 0.0:
This value de-activates the ramp-function generator tracking.
- p1145 = 0.0 ... 1.0:
Generally, these values are not practical. They cause the motor to accelerate below its torque limit. The lower the selected value, the greater the margin between the controller and torque limit when accelerating.
- p1145 > 1.0:
The greater the value, the higher the permissible deviation between the speed setpoint and speed actual value.
- Note:** In the V/f mode, the ramp-function generator tracking is not active.
For SERVO with V/f operation, the following applies:
The complete ramp-function generator is not active, i.e. ramp-up and ramp-down time = 0.

p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 3060, 3070 Unit selection: p0505 Expert list: 1
	Min 0.00 [rev/min]	Max 1000.00 [rev/min]	Factory setting 19.80 [rev/min]
Description:	Sets the tolerance value for the status of the ramp-function generator (ramp-up active, ramp-down active). If the input of the ramp-function generator does not change in comparison to the output by more than the entered tolerance time, then the status bits "ramp-up active" and "ramp-down active" are not influenced.		
Dependency:	Refer to: r1199		

r1149	CO: Ramp-function generator, acceleration / RFG acceleration		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 39_1	Access level: 3 Func. diagram: 3060, 3070 Unit selection: p0505 Expert list: 1
	Min - [rev/s ²]	Max - [rev/s ²]	Factory setting - [rev/s ²]
Description:	Displays the acceleration of the ramp-function generator.		

r1150	CO: Ramp-function generator speed setpoint at the output / RFG n_set at outp		
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 1550, 3060, 3070, 3080 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the setpoint at the output of the ramp-function generator.		

p1151[0...n]	Ramp-function generator configuration / RFG config			
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: U, T Data type: Unsigned16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 3070 Unit selection: - Expert list: 1	Factory setting 0000 bin
Description:	Sets the configuration for the extended ramp-function generator.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Disable rounding-off at the zero cross-over	Yes	No
Caution:	Re bit 00 = 1: If the ramp-up time is longer than the ramp-down time (p1120 > p1121), then there is an acceleration step at the zero crossover. This can have a negative impact on the mechanical system.			
Note:	Re bit 00 = 1: When the direction change is changed there is no rounding-off before and after the zero crossover.			
p1152	BI: Setpoint 2 enable / Setp 2 enab			
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2711, 4015 Unit selection: - Expert list: 1	Factory setting 899.15
Description:	Sets the signal source for "setpoint 2 enable".			
p1155[0...n]	CI: Speed controller speed setpoint 1 / n_ctrl n_set 1			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 1550, 3080, 5030, 6031 Unit selection: - Expert list: 1	Factory setting 0
Description:	Sets the signal source for speed setpoint 1 of the speed controller.			
Dependency:	The effectiveness of this setpoint depends on, e.g. STW1.4 and STW1.6. Refer to: r0002, p0840, p0844, p0848, p0852, p0854, r0898, p1140, p1142, p1160, r1170, p1189, p1414, p1417, p1418			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.			
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 1550, 3080 Unit selection: - Expert list: 1	Factory setting 0
Description:	Sets the signal source for speed setpoint 2 of the speed controller.			
Dependency:	Refer to: p1155, r1170			

Note: For OFF1/OFF3, the ramp-function generator ramp is effective.
 The ramp-function generator is set (SERVO: to the actual value, VECTOR: To the setpoint (r1170)) and stops the drive corresponding to the ramp-downtime (p1121 or p1135). While stopping via the ramp-function generator, STW1.4 is effective (enable ramp-function generator).
 When the function module "position control" (r0108.3 = 1) is activated, this connector input is interconnected as follows as standard:
 CI: p1160 = r2562

r1169 CO: Speed controller, speed setpoints 1 and 2 / n_ctrl n_set 1/2

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 3080
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]

Description: Displays the speed setpoint after the addition of the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).
Dependency: Refer to: p1155, p1160
Note: The value is only correctly displayed at r0899.2 = 1 (operation enabled).

r1170 CO: Speed controller, setpoint sum / n_ctrl setp sum

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 1550, 1590, 3080, 5020
	P-Group: Setpoints	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]

Description: Displays the speed setpoint after selecting the ramp-function generator and adding the speed setpoint 1 (p1155) and speed setpoint 2 (p1160).
Dependency: Refer to: r1150, p1155, p1160

p1189[0...n] Speed setpoint configuration / n_ctrl config

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 3080
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0011 bin

Description: Sets the configuration for the speed setpoint.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Interpolation ramp-fct gen/speed controller active	Yes	No	3080
	01	Interpol. op-loop ctrl /speed controller active	Yes	No	3080

Note: Re bit 01:
 The interpolator is only effective for synchronous PROFIBUS operation and when the master receives a sign-of-life (STW 2.12 ... STW 2.15).

p1190	CI: DSC position deviation XERR / DSC XERR		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 1550, 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the position deviation XERR for DSC (position controller output of the higher-level control).		
Dependency:	Clock cycle synchronous operation must be activated for DSC. The position controller gain factor (KPC), the position deviation (XERR) and the speed setpoint (N_SOLL_B) must be included in the setpoint telegram. At least the encoder interface (Gx_XIST1) must be included in the actual value telegram. The position actual value used for the internal position controller can be selected using p1192. Refer to: p1191, p1192		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	DSC: Dynamic Servo Control		
p1191	CI: DSC position controller gain KPC / DSC KPC		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 1550, 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the position controller gain KPC for DSC.		
Dependency:	Clock cycle synchronous operation must be activated for DSC. Refer to: p1190		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	DSC: Dynamic Servo Control		
p1192[0...n]	DSC enc selection / DSC enc selection		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 3090
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	3	1
Description:	Sets the number of the encoder used for DSC.		
Value:	1: Encoder 1 (motor encoder) 2: Encoder 2		
Note:	DSC: Dynamic Servo Control Value 1 corresponds to encoder 1 (motor encoder); the encoder data set is assigned via p0187. Value 2 corresponds to encoder 2; the encoder data set is assigned via p0188.		

p1193[0...n]		DSC encoder adaptation factor / DSC encodAdaptFact			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 3090 Unit selection: - Expert list: 1		
	Min 0.000	Max 1000000.000	Factory setting 1.000		
Description:	Sets the factor to adapt the encoder when using either encoder 2 or 3 for DSC. The factor sets the ratio of the pulse difference between the motor encoder and the selected encoder for the same distance moved through. This factor takes into account gear ratios, differences in the number of encoder pulses, etc.				
Dependency:	Refer to: p1192				
Note:	Example: Encoder 1: Motor encoder with 2048 pulses/revolution, ballscrew with 10 mm/revolution pitch Encoder 2: Linear scale with 20 µm grid division as direct measuring system p1193 = number of pulses, encoder 1 per motor revolution / number of pulses, encoder 2 per motor revolution p1193 = 2048 / (10 mm / 20 µm) = 4.096				
r1197		Fixed speed setpoint, current number / n_set_fixed No act			
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: Unsigned32 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 3010 Unit selection: - Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the number of the selected fixed speed/velocity setpoint.				
Dependency:	Refer to: p1020, p1021, p1022, p1023				
Note:	If a fixed speed setpoint has not been selected (p1020 ... p1023 = 0, r1197 = 0), then r1024 = 0 (setpoint = 0).				
r1198.0...15		CO/BO: Control word setpoint channel / STW setpoint chan			
SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: - Data type: Unsigned16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 1530, 2505 Unit selection: - Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the control word for the setpoint channel.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fixed setpoint bit 0	Yes	No	-
	01	Fixed setpoint bit 1	Yes	No	-
	02	Fixed setpoint bit 2	Yes	No	-
	03	Fixed setpoint bit 3	Yes	No	-
	05	Inhibit negative direction	Yes	No	3040
	06	Inhibit positive direction	Yes	No	3040
	11	Setpoint inversion	Yes	No	3040
	13	Motorized potentiometer raise	Yes	No	3020
	14	Motorized potentiometer lower	Yes	No	3020
	15	Bypass ramp-function generator	Yes	No	-

r1199.0...6 CO/BO: Ramp-function generator status word / RFG ZSW

SERVO_S110-CAN (Extended setp), SERVO_S110-DP (Extended setp)	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1550, 3080, 8010
	P-Group: Setpoints	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for the ramp-function generator (RFG).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ramp-up active	Yes	No	-
	01	Ramp-down active	Yes	No	-
	02	Ramp-function generator active	Yes	No	-
	03	Ramp-function generator set	Yes	No	-
	04	Ramp-function generator held	Yes	No	-
	05	Ramp-function generator tracking active	Yes	No	-
	06	Maximum limit active	Yes	No	-

Note: Re bit 02:
The bit is an OR logic operation - bit 00 and bit 01.

p1208[0...1] BI: AR modification infeed / AR modification

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to modify the automatic restart (AR).
Interconnections between the automatic restart and infeed:
With the following interconnection in the mode p1210 = 6, the automatic restart can respond to infeed faults:
BI: p1208[0] = r2139.3
With the following interconnection, in the mode p1210 = 4, the automatic restart can respond to line supply failure of the infeed:
BI: p1208[1] = r0863.2

Index: [0] = Infeed fault
[1] = Infeed line supply failure

Dependency: Refer to: r0863, r2139

p1210 Automatic restart, mode / AR mode

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	6	0

Description: Sets the automatic restart mode (AR).

Value: 0: Disables automatic restart
1: Acknowledges all faults without restarting
4: Restart after power failure without additional start attempts
6: Restart after fault with additional start attempts

Dependency: The automatic restart requires an active ON command, e.g. that is available at a digital input.
 If, for p1210 > 1, there is no active ON command, then the automatic restart is interrupted.
 When using an Operator Panel in the LOCAL mode, then there is no automatic start.
 Refer to: p0840, p0857
 Refer to: F30003

Danger:  If the automatic restart is activated (p1210 > 1) if there is an ON command (refer to p0840), the drive is powered up as soon as any fault messages that are present can be acknowledged. This also occurs after the line supply returns or the Control Unit boots if the DC link voltage is again present or the feedback of the line supply infeed (refer to p0864) is again available. This automatic power-up sequence can only be interrupted by withdrawing the ON command.

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1). When faults are present, therefore, the parameter cannot be changed.
 For p1210 > 1, the motor is automatically started.

Note: For brief line supply failures, the motor shaft can still be rotating when restarting. In order to restart while the motor shaft is still rotating, the "flying restart" function should be activated using p1200.

p1210 = 1:

Faults that are present are automatically acknowledged. If new faults occur after a successful fault acknowledgement, then these are also automatically acknowledged again. For p1210 = 1, fault F07320 is not generated if the acknowledgement attempt was unsuccessful, for example, because the monitoring time p1213 index 0 was exceeded.

p1210 = 4:

An automatic restart is only carried out if fault F30003 occurred at the Motor Module or a high signal is present at the binector input p1208[1]. If additional faults are present, then these faults are also acknowledged and when successful, starting continues. If the 24 V Control Unit power supply fails, then this is interpreted as a line supply failure.

p1210 = 6:

An automatic restart is carried out if any fault has occurred or there is a high signal at binector input p1208[0].

p1211 Automatic restart, start attempts / AR start attempts

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	10	3

Description: Sets the start attempts of the automatic restart function for p1210 = 4, 6.

Dependency: Refer to: p1210, r1214
 Refer to: F07320

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Notice: After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

After a complete blackout the start counter always starts with the counter value that applied before the blackout, and decrements this startup attempt by 1. If a further attempt to acknowledge is started by the automatic restart function prior to blackout, e.g. when the CU remains active on blackout longer than the time p1212 / 2, the fault counter will already have been decremented by 1. In this case, the fault counter is thus decreased by the value 2.

Note: A start attempt starts immediately when a fault occurs. The start attempt is considered to be completed if the motor was magnetized ($r0056.4 = 1$) and an additional delay time of 1 s has expired.

As long as a fault is present, an acknowledge command is generated in the time intervals of $p1212 / 2$. When successfully acknowledged, the start counter is decremented. If, after this, a fault re-occurs before a restart has been completed, then acknowledgement starts again from the beginning.

Fault F07320 is output if, after several faults occur, the number of parameterized start attempts has been reached. After a successful start attempt, i.e. a fault/error has no longer occurred up to the end of the magnetizing phase, the start counter is again reset to the parameter value after 1 s. If a fault re-occurs - the parameterized number of start attempts is again available.

At least one start attempt is always carried out.

After a line supply failure, acknowledgement is immediate and when the line supply returns, the system is powered up. If, between successfully acknowledging the line fault and the line supply returning, another fault occurs, then its acknowledgement also causes the start counter to be decremented.

p1212 Automatic restart, delay time start attempts / AR t_wait start

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.1 [s]	Max 1000.0 [s]	Factory setting 1.0 [s]

Description: Sets the delay time up to restart.

Dependency: This parameter setting is active for $p1210 = 4, 6$.
For $p1210 = 1$, the following applies: Faults are only automatically acknowledged in half of the waiting time, no restart.
Refer to: p1210, r1214

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Note: The faults are automatically acknowledged after half of the waiting time has expired and the full waiting time.
If the cause of a fault is not removed in the first half of the delay time, then it is no longer possible to acknowledge in the waiting time.

p1213[0...1] Automatic restart, monitoring time / AR t_monitoring

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [s]	Max 10000.0 [s]	Factory setting 0.0 [s]

Description: Sets the monitoring time of the automatic restart (AR).

Index: [0] = For restart
[1] = To reset the fault counter

Dependency: Refer to: p1210, r1214

Caution: A change is only accepted and made in the state "initialization" (r1214.0) and "wait for alarm" (r1214.1).

Notice: After fault F07320 occurs, the power-on command must be withdrawn and all of the faults acknowledged so that the automatic restart function is re-activated.

Note:

Index 0:

The monitoring time starts when the faults are detected. If the automatic acknowledgements are not successful, the monitoring time runs again. If, after the monitoring time has expired, the drive has still not successfully started again (flying restart and magnetizing of the motor must have been completed: r0056.4 = 1), then fault F07320 is output.

The monitoring is de-activated with p1213 = 0. If p1213 is set lower than the sum of p1212, the magnetizing time p0346 and the additional delay time due to the flying restart, then fault F07320 is generated at each restart. If, for p1210 = 1, the time in p1213 is set lower than in p1212, then fault F07320 is also generated at each restart.

The monitoring time must be extended if the faults that occur cannot be immediately and successfully acknowledged (e.g. for faults that are permanently present).

Index 1:

The fault counter (refer to r1214) is only set back to the starting value p1211 if, after successful restart, the time in p1213 index 1 has expired. The delay time is not effective for fault acknowledgement without automatic restart (p1210 = 1). After a power failure (blackout) the delay time only starts after the line supply returns and the Control Unit boots. The fault counter is set to p1211, if F07320 occurred, the power-on command is withdrawn and the fault is acknowledged.

The fault counter is immediately updated if the starting value p1211 or the mode p1210 is changed.

r1214.0...15**CO/BO: Automatic restart, status / AR status**SERVO_S110-CAN,
SERVO_S110-DP**Can be changed:** -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Functions**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

-

-

-

Description:

Displays the status of the automatic restart (AR).

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Initialization	Yes	No	-
01	Wait for alarm	Yes	No	-
02	Auto restart act	Yes	No	-
03	Setting the acknowledgement command	Yes	No	-
04	Acknowledge alarms	Yes	No	-
05	Restart	Yes	No	-
06	Delay time running after automatic power-up	Yes	No	-
07	Fault	Yes	No	-
10	Effective fault	Yes	No	-
12	Start count. bit 0	On	Off	-
13	Start count. bit 1	On	Off	-
14	Start count. bit 2	On	Off	-
15	Start count. bit 3	On	Off	-

Note:

Re bit 00:
State to display the single initialization after POWER ON.

Re bit 01:
State in which the automatic restart function waits for faults (initial state).

Re bit 02:
General display that a fault has been identified and that the restart or acknowledgement has been initiated.

Re bit 03:
Displays the acknowledge command within the "acknowledge alarms" state (bit 4 = 1). For bit 5 = 1 or bit 6 = 1, the acknowledge command is continually displayed.

Re bit 04:
State in which the faults that are present are acknowledged. The state is exited again after successful acknowledgement. A change is only made into the next state if it is signaled that a fault is no longer present after an acknowledgement command (bit 3 = 1).

Re bit 05:
State in which the drive is automatically powered up (only for p1210 = 4, 6).

Re bit 06:
State in which the system waits after having been powered up, to the end of the start attempt (to the end of the magnetizing process).
For p1210 = 1, this signal is directly set after the faults have been successfully acknowledged.

Re bit 07:
State which is assumed after a fault occurs within the automatic restart function. This is only reset after acknowledging the fault and withdrawing the power-on command.

Re bit 10:
When the automatic restart function is active, r1214 bit 7 is displayed, otherwise the effective fault r2139 bit 3.

Re bits 12 ... 15:
Current state of the start counter (binary coded).

p1215 Motor holding brake configuration / Brake config

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 2701, 2707, 2711
	P-Group: Functions Not for motor type: -	Units group: -	Unit selection: - Expert list: 1
	Min 0	Max 3	Factory setting 0

Description: Sets the holding brake configuration.

Value:

- 0: No motor holding brake being used
- 1: Motor holding brake acc. to sequence control
- 2: Motor holding brake always open
- 3: Motor holding brake like sequence control, connection via BICO

Dependency: Refer to: p1216, p1217, p1226, p1227, p1228, p1278

Caution: For the setting p1215 = 0, if a brake is used, it remains closed. If the motor moves, this will destroy the brake.

Notice: If p1215 was set to 1 or if p1215 was set to 3, then when the pulses are suppressed, the brake is closed even if the motor is still rotating. Pulse suppression can either be caused by a 0 signal at p0844, p0845 or p0852 or as a result of a fault with OFF2 response. If this is not desirable (e.g. for a flying restart), then the brake can be kept open using a 1 signal at p0855.

Note: If the configuration is set to "no holding brake present" when booting, then the motor holding brake will be automatically identified. If a motor holding brake is detected, the configuration is set to "motor holding brake as for sequence control".

If a holding brake integrated in the motor is used, then it is not permissible that p1215 is set to 3.

If an external motor holding brake is being used, then p1215 should be set to 3 and r0899.12 should be interconnected as control signal.

When the function module "extended brake control" is activated (r0108.14 = 1), r1229.1 should be interconnected as control signal.

The parameter can only be set to zero when the pulses are inhibited.

The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = 1, p9802 = 1) is not practical if there is no motor holding brake.

The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.

p1216 Motor holding brake, opening time / Brake t_{open}

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2701, 2711
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 100 [ms]

Description: Sets the time to open the motor holding brake.
After controlling the holding brake (opens), the speed/velocity setpoint remains at zero for this time. After this, the speed/velocity setpoint is enabled.

Recommend.: This time should be set longer than the actual opening time of the brake. This ensures that the drive cannot accelerate when the brake is applied.

Dependency: Refer to: p1215, p1217

p1217 Motor holding brake closing time / Brake t_{close}

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2701, 2711
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 100 [ms]

Description: Sets the time to apply the motor holding brake.
After OFF1 or OFF3 and the holding brake is controlled (the brake closes), then the drive remains closed-loop controlled for this time stationary with a speed setpoint/velocity setpoint of zero. The pulses are suppressed when the time expires.

Recommend.: This time should be set longer than the actual closing time of the brake. This ensures that the pulses are only suppressed after the brake has closed.

Dependency: Refer to: p1215, p1216

Notice: If the selected closing time is too short with respect to the actual closing time of the brake, then the load can sag.
If the closing time is selected to be too long with respect to the actual closing time of the brake, the control works against the brake and therefore reduces its lifetime.

p1222	BI: Motor holding brake feedback signal brake closed / Brake feedb closed		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2711
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the feedback signal "brake closed". For motor holding brakes with feedback signal, the signal "brake closed" can be activated using p1275.5 = 1.		
Dependency:	Refer to: p1223, p1275		
Note:	1 signal: Brake closed. When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1223). For r1229.5 = 1, OFF/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.		
p1223	BI: Motor holding brake feedback signal brake open / Brake feedb open		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2711
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the feedback signal "brake open". For motor holding brakes with feedback signal, the signal "brake open" can be activated using p1275.5 = 1.		
Dependency:	Refer to: p1222, p1275		
Note:	1 signal: Brake open. When braking with 1 feedback signal, the inverted feedback signal is connected to the BICO input for the second feedback signal (p1222).		
p1224[0...3]	BI: Close motor holding brake at standstill / Brk close standst		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2704
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for close brake at standstill.		
Dependency:	Refer to: p1275		
Note:	[0]: Signal, close brake at standstill, inversion via p1275.2 [1]: Signal, close brake at standstill, inversion via p1275.3 [2]: Signal, close brake at standstill [3]: Signal, close brake at standstill These four signals form an OR logic operation.		

p1225	CI: Standstill detection, threshold value / Standstill thresh		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2704 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 63[0]
Description:	Sets the signal source "threshold value" for the standstill identification.		
Dependency:	Refer to: p1226, p1228, r1229		
p1226[0...n]	Threshold for zero speed detection / n_standst n_thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 3_1	Access level: 2 Func. diagram: 2701, 2704 Unit selection: p0505 Expert list: 1
	Min 0.0 [rev/min]	Max 210000.0 [rev/min]	Factory setting 20.0 [rev/min]
Description:	Sets the speed threshold for the standstill identification. Acts on the actual value and setpoint monitoring. When braking with OFF1 or OFF3, when the threshold is undershot, standstill is identified. The following applies when the brake control is activated: When the threshold is undershot, the brake control is started and the system waits for the brake closing time in p1217. The pulses are then suppressed. if the brake control is not activated, the following applies: When the threshold is undershot, the pulses are suppressed and the drive coasts down.		
Dependency:	Refer to: p1215, p1216, p1217, p1227		
Notice:	For reasons relating to the compatibility to earlier software versions, a parameter value of 0 in indices 1 to 31 is overwritten with the parameter value in index 0 when the Control Unit boots.		
Note:	Standstill is detected if the actual speed drops below the speed threshold in p1226 or if the monitoring time (p1227) - started when speed setpoint <= speed threshold (p1226) - has expired. The actual value sensing is subject to measuring noise. For this reason, standstill cannot be detected if the speed threshold is too low.		
p1227	Zero speed detection monitoring time / n_standst t_monit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2701, 2704 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 300.000 [s]	Factory setting 4.000 [s]
Description:	Sets the monitoring time for the standstill identification. When braking with OFF1 or OFF3, standstill is identified after this time has expired, after the setpoint speed has fallen below p1226 (also refer to p1145). After this, the brake control is started, the system waits for the closing time in p1217 and then the pulses are suppressed.		
Dependency:	Refer to: p1215, p1216, p1217, p1226		
Notice:	For p1145 > 0.0, the setpoint is not equal to zero dependent on the selected value. This can therefore cause the monitoring time in p1227 to be exceeded. In this case, for a driven motor, the pulses are not suppressed.		

Note: Standstill (zero speed) is detected if, during the complete monitoring time (p1227), the speed setpoint falls below the speed threshold (p1226).
 For p1227 = 300.000 s, the following applies:
 The monitoring is de-activated.
 For p1227 = 0.000 s, the following applies:
 With OFF1 or OFF3 and a ramp-down time = 0, the pulses are immediately suppressed and the motor "coasts" down.

p1228		Pulse suppression delay time / Pulse suppr t_del		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2701, 2704	
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.000 [s]	Max 10.000 [s]	Factory setting 0.000 [s]	
Description:	Sets the delay time for pulse suppression. After OFF1 or OFF3 and zero speed detection, the system waits for this time to expire and the pulses are then suppressed.			
Dependency:	Refer to: p1226, p1227			
Note:	Standstill (zero speed) is detected if, during the complete delay time (p1228), the speed actual value falls below the speed threshold (p1226).			

r1229.1...11		CO/BO: Motor holding brake status word / Brake ZSW			
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Functions	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status word for the motor holding brake.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Command open brake (continuous signal)	Yes	No	2711
	03	Pulse enable, extended brake control	Yes	No	2711
	04	Brake does not open	Yes	No	2711
	05	Brake does not close	Yes	No	2711
	06	Brake threshold exceeded	Yes	No	2707
	07	Brake threshold undershot	Yes	No	2704
	08	Brake monitoring time expired	Yes	No	2704
	09	Pulse enable request missing/n_ctrl inhibited	Yes	No	2707
	10	Brake OR logic operation result	Yes	No	2707
	11	Brake AND logic operation result	Yes	No	2707

p1230[0...n] BI: Armature short-circuit / DC brake activation / ASC actSERVO_S110-CAN,
SERVO_S110-DP**Can be changed:** T
Data type: Unsigned32 / Binary**Calculated:** -
Dynamic index: CDS, p0170**Access level:** 1
Func. diagram: 7014, 7016,
7017**P-Group:** Functions
Not for motor type: -**Units group:** -**Unit selection:** -
Expert list: 1**Min**
-**Max**
-**Factory setting**
0**Description:** Sets the signal source to activate the armature short-circuit or DC brake.**Dependency:** Refer to: p1231, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239**Note:** 1 signal: Armature short-circuit/DC brake is de-activated.
0 signal: Armature short-circuit/DC brake is de-activated.**p1231[0...n] Armature short-circuit / DC brake configuration / ASC config**SERVO_S110-CAN,
SERVO_S110-DP**Can be changed:** U, T
Data type: Integer16**Calculated:** -
Dynamic index: MDS, p0130**Access level:** 1
Func. diagram: 7014, 7016,
7017**P-Group:** Functions
Not for motor type: -**Units group:** -**Unit selection:** -
Expert list: 1**Min**
0**Max**
4**Factory setting**
0**Description:** Setting to activate the various types for armature short-circuit / DC brake.**Value:** 0: No function
1: External armature short-circuit with contactor feedback signal
2: Ext. armature short-circuit without contactor feedback signal
3: Internal voltage protection
4: Internal armature short-circuit / DC brake**Dependency:** Refer to: p0300, p1230, p1232, p1233, p1234, p1235, p1236, p1237, r1238, r1239**Danger:**

Re p1231 = 1, 2:

- only short-circuit proof motors may be used and suitable resistors must be used to short-circuit the motor.

Re p1231 = 3:

- when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)!

- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).

- The Motor Module must be able to conduct 180% short-circuit current (r0320) of the motor (r0209).

- the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.

- if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.

- if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.

- if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).

Re p1231 = 4 and synchronous motor:

- when armature short-circuit is active, all of the motor terminals are at half of the DC link potential.

- it is only permissible to use motors that are short-circuit proof (p0320 < p0323).

- The Motor Module must be able to conduct 180% short-circuit current (r0320) of the motor (r0209).

- Note:** Re p1231 = 1, 2:
The external armature short-circuit can only be selected for synchronous motors (p0300). In this case, control bit BO: r1239.0 must be interconnected to control the external contactor (e.g. to a digital input).
- Re p1231 = 3:
The internal voltage protection (using an internal armature short-circuit) can only be selected for synchronous motors (p0300) and Motor Modules in booksize format. Further, it is not permissible for Safety to be active (i.e. p9501 = 0 and p9601 = 0). The internal voltage protection prevents the DC link capacitance from being charged if there is no possibility of regenerating the EMF of a motor operated in the field-weakening mode. The Motor Module must support this function (r0192.9 = 1).
- a) If the Motor Module does not support the autonomous, internal armature short-circuit (r0192.10 = 0), the armature short-circuit is activated as soon as the activation criterion is fulfilled (refer below):
- b) If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module itself decides - using the DC link voltage - as to whether the short-circuit should be activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn. This therefore ensures that the required input voltage for the Control Supply Module is maintained.
- Re p1231 = 4:
The function is activated as soon as the activation criterion is fulfilled.
- the function can be initiated by OFF2.
- a) For synchronous motors (p0300 = 2xx, 4xx), the internal armature short-circuit is initiated.
- the Motor Module must support this function (r0192.9 = 1).
- b) For induction motors (p0300 = 1xx), the DC brake is initiated.
- Activation criterion (one of the following criteria is fulfilled):
- 1 signal via binector input p1230 (DC brake activation).
 - the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).
 - the internal pulse enable is missing (r0046.19 = 0).
- Note:**
ASC: Armature Short-Circuit
IVP: Internal Voltage Protection
UPS: Uninterruptible Power Supply
CSM: Control Supply Module
DC Brake

p1232[0...n]	DC braking, braking current / DCBRK I_brake		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 7017
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the braking current for DC braking.		
Dependency:	Refer to: p1230, p1231, p1233, p1234, r1239		
Note:	A change to the braking current becomes effective the next time that the DC brake is powered up.		

p1233[0...n]	DC braking time / DCBRK time		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 7017
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.0 [s]	Max 3600.0 [s]	Factory setting 1.0 [s]
Description:	Sets the DC braking time (duration).		
Dependency:	Refer to: p1230, p1231, p1232, p1234, r1239		

p1234[0...n]	Speed at the start of DC braking / DCBRK n_start		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: 7017
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 210000.00 [rev/min]
Description:	Sets the starting speed for DC braking. If the actual speed falls below this threshold, then DC braking is activated.		
Dependency:	Refer to: p1230, p1231, p1232, p1233, r1239		
Caution:	If an encoder fault occurs during closed-loop operation with encoder, controlled deceleration of the drive down to the start speed p1234 of the DC current brake. In this case, the DC brake is activated immediately and impresses the braking current p1232 for the braking current time p1233 after demagnetization. The braking current and braking duration must therefore be dimensioned accordingly for this case in order to decelerate the drive down to standstill.		
p1235[0...n]	BI: External armature short-circuit, contactor feedback signal / ASC ext feedback		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the contactor feedback signal for external armature short-circuit.		
Dependency:	Refer to: p1230, p1231, p1236, p1237, r1239		
Notice:	In order that the pulses are not enabled when the contactor is closed, the contactor feedback signal must lag by a sufficiently long time when opening the contactor.		
Note:	1 signal: The contactor is closed. 0 signal: The contactor is open.		
p1236[0...n]	Ext. armature short-cct., contactor feedback signal monit. time / ASC ext t_monit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 200 [ms]
Description:	Sets the monitoring time of the contactor feedback signal for the external armature short-circuit configuration. If the contactor feedback signal (p1235) is parameterized, then the appropriate feedback signal (r1239.1) is expected within this monitoring time after either opening or closing the contactor.		
Dependency:	Refer to: p1230, p1231, p1235, p1237, r1239 Refer to: A07904, F07905		

p1237[0...n]	External armature short-circuit, waiting time when opening / ASC ext t_wait		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 200 [ms]
Description:	Sets the delay time when opening the contactor of the external armature short-circuit. If no contactor feedback signal has been selected (p1235), then the system waits for this time before the pulses are switched in.		
Dependency:	Refer to: p1230, p1231, p1235, p1236, r1239		
Notice:	This delay time must be at least long enough so that the contactor contacts reliably open before the pulses are switched in. The delay time must be greater than the contactor response time. The Motor Module can be damaged if the delay time is too short.		

r1238	CO: Armature short-circuit, external state / EASC state		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: 2610
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: ASM		Expert list: 1
	Min 0	Max 6	Factory setting -
Description:	Displays the state for the external armature short-circuit.		
Value:	0: Powered down 1: Ready 2: Active 3: Active - feedback signal "Closed" OK 4: Active - feedback signal "Closed" missing 5: Prompt to remove the armature short-circuit 6: Active - feedback signal "Open" missing		
Dependency:	Refer to: p1230, p1231, p1235, p1236, p1237, r1239 Refer to: A07904, F07905		

- Note:** Activation criterion (one of the following criteria is fulfilled):
- the signal at BI: p1230 (armature short-circuit activation) is 0.
 - the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).
 - the internal pulse enable is missing (r0046.19 = 0).
- Re state "switched out" (r1238 = 0):
- the external armature short-circuit can be selected with p1231 = 1.
- Re state "ready" (r1238 = 1):
- as soon as the activation criterion is fulfilled, then a transition is made into the state "active" (r1238 = 2).
- Regarding the state "active" (r1238 = 2), "active - feedback signal "Closed" OK" (r1238 = 3), "active - feedback signal "Closed" missing" (r1238 = 4)":
- the control signal to close contactor r1239.0 is set to "1" (closed) and the pulses are suppressed.
 - if a contactor feedback signal is not connected (BI: p1235 = 0 signal), then a transition is immediately made into state 3.
 - if a contactor feedback signal is connected, then a transition is made into state 3 if the feedback signal at BI: p1235 goes to "1" (closed) within the monitoring time (p1236).
 - otherwise, a transition is made into state 4.
- Re state "prompt to remove the armature short-circuit" (r1238 = 5):
- the activation criterion is no longer fulfilled. An attempt is made to again remove the armature short circuit.
 - the control signal to close the contactor r1239.0 is set to "0" (open) and the pulses remain suppressed.
 - if a contactor feedback signal is not connected (BI: p1235 = 0 signal), the system waits for the delay time (p1237) to expire until a transition is made into state 1.
 - if a contactor feedback signal is connected, the system waits until the feedback signal at BI:p1235 goes to "0" (open) until a transition is made into state 1. If this does not occur within the monitoring time (p1236), then a transition is made into state 6.
- Re state "active - feedback signal "Open" missing" (r1238 = 6):
- this error state can be exited by de-selecting the external armature short-circuit (p1231 = 0).

r1239.0...11 CO/BO: Armature short-circuit / DC brake status word / ASC/DC ZSW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word for armature short-circuit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	External armature short-circuit	Active	Inactive	-
	01	External armature short-circuit, contactor feedback signal	Closed	Open	-
	02	External armature short-circuit ready	Yes	No	-
	03	External armature short-circuit with contactor feedback signal	Yes	No	-
	04	Internal armature short-circuit	Active	Inactive	-
	05	Int. armature short-circuit, feedback signal from power unit	Active	Inactive	-
	06	Internal armature short-circuit ready	Yes	No	-
	08	DC brake	Active	Inactive	7017
	10	DC brake ready	Yes	No	7017
	11	Armature short-circuit / DC brake selected	Yes	No	-

Dependency: Refer to: p1230, p1231, p1232, p1233, p1234, p1235, p1236, p1237

- Note:** External armature short-circuit (bits 0 ... 3):
- Re bit 00:
Using this signal, the motor is short-circuited through an external contactor circuit. This means that this BO: p1239.0 must be interconnected e.g. to a digital output.
- Re bit 01:
This signal indicates the state of the contactor to establish the armature short-circuit. To do this, BI: p1235 must be interconnected to a digital input.
- Re bit 02:
The external armature short-circuit configuration is ready and is activated as soon as the activation criterion is fulfilled.
- Re bit 03:
1: A feedback signal from an external contactor was parameterized in BI: p1235.
- Internal voltage protection / internal armature short-circuit (bits 4 ... 6):
- Re bit 04:
a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).
The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.
a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).
The Motor Module decides autonomously whether the armature short-circuit is activated. In this case, the following applies: r1239.4 = r1239.5.
c) Internal armature short-circuit (p1231 = 4) was selected.
The Control Unit issues the command to the Motor Module to short-circuit the motor through the power semiconductors.
- Re bit 05:
The Motor Module signals that the motor is short-circuited in the Motor Module through the power semiconductors.
- Re bit 06:
a) Internal voltage protection (p1231 = 3) was selected and the Motor Module does not support the autonomous internal voltage protection (r0192.10 = 0).
The internal voltage protection is ready and is activated as soon as the activation criterion is fulfilled.
a) Internal voltage protection (p1231 = 3) was selected and the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1).
The internal voltage protection is ready and the Motor Module decides autonomously - using the DC link voltage - whether the short-circuit is activated. In this case, protection is also provided even if the DRIVE-CLiQ connection between the Control Unit and Motor Module was interrupted. The short-circuit is activated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the short-circuit is withdrawn.
c) Internal armature short-circuit (p1231 = 4) was selected.
The internal armature short-circuit is ready and is activated as soon as the activation criterion is fulfilled.
Activation criterion (one of the following criteria is fulfilled):
- the signal at BI: p1230 (armature short-circuit activation) is 1.
- the drive is not in the state "S4: Operation" or in S5x (refer to function diagram 2610).
- the internal pulse enable is missing (r0046.19 = 0).

p1240[0...n] Vdc controller or Vdc monitoring configuration / Vdc_ctrl config			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5650 Unit selection: - Expert list: 1
	Min 0	Max 9	Factory setting 0
Description:	Sets the configuration of the controller or monitoring for the DC link voltage (Vdc).		
Value:	0: Inhib Vdc ctrl 1: Vdc_max controller enable 2: Vdc_min controller (kinetic buffering) enable 3: Vdc_min controller and Vdc_max controller enable 4: Activates Vdc_max monitoring 5: Activates Vdc_min monitoring 6: Activates Vdc_min monitoring and Vdc_max monitoring 7: Vdc_max controller without accelerating enable 8: Vdc_min controller without braking enable 9: Vdc_min and Vdc_max controller w/o braking/accelerating enable		
Dependency:	Refer to: p1244, p1248, p1250, p1532		
Notice:	During a few steps of the rotating measurement (p1960 = 1) the Vdc_min controller and/or Vdc_max controller is disabled.		
Note:	p1240 = 1, 3: When the upper DC link voltage threshold is reached (p1244), then the following applies: - the Vdc_max controller limits the regenerative energy in order that the DC link voltage is kept below the maximum DC link voltage when braking. - when other drives regenerate into the DC link, then the Vdc_max controller causes the motor to accelerate. p1240 = 2, 3: When the lower DC link voltage threshold is reached (p1248), the following applies: - the Vdc_min controller limits the energy taken from the DC link in order to keep the DC link voltage above the minimum DC link voltage when accelerating. - the motor is braked in order to use its kinetic energy to buffer the DC link. p1240 = 4, 5, 6: When the threshold in p1244 or p1248 is reached, the DC link voltage monitoring initiates a fault with a response and therefore reduces additional negative effects on the DC link voltage. p1240 = 7, 9: As for p1240 = 1, 3. However, the motor is prevented from accelerating due to the fact that other drives are regenerating. The effective lower torque limit cannot exceed the offset of the torque limit (p1532). p1240 = 8, 9: As for p1240 = 2, 3. However, the motor is prevented from braking due to the fact that the DC link voltage has been lowered. The effective upper torque limit cannot be less than the offset of the torque limit (p1532).		

p1244[0...n] DC link voltage threshold upper / Vdc upper thresh			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5650 Unit selection: - Expert list: 1
	Min 165 [V]	Max 1200 [V]	Factory setting 750 [V]
Description:	Sets the upper threshold for the DC link voltage. For p1240 = 1, 3, 7, 9, this threshold is used as limit setpoint for the Vdc_max controller. For p1240 = 4, 6, for DC link voltages above this threshold, an appropriate fault is output.		
Dependency:	Refer to: p1240, p1248, p1250		

Note: For $p1244 < 1.07 * \text{"parameterized DC link voltage"}$ input of values is rejected.
 For $p0204.0 = 1$, the following applies:
 "Parameterized DC link voltage" = $p0210$
 For $p0204.0 = 0$, the following applies:
 "Parameterized DC link voltage" = $p0210 * 1.4142$

p1248[0...n]		DC link voltage threshold lower / Vdc lower thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5650 Unit selection: - Expert list: 1	Factory setting 450 [V]
Description:	Sets the lower threshold for the DC link voltage. For $p1240 = 2, 3, 8, 9$, this threshold is used as limit setpoint for the Vdc_min controller. For $p1240 = 5, 6$, for DC link voltages below this threshold, an appropriate fault is output.			
Dependency:	Refer to: p1240, p1244, p1250			
Note:	For $p1248 > 0.93 * \text{"parameterized DC link voltage"}$ input of values is rejected. For $p0204.0 = 1$, the following applies: "Parameterized DC link voltage" = $p0210$ For $p0204.0 = 0$, the following applies: "Parameterized DC link voltage" = $p0210 * 1.4142$			

p1250[0...n]		Vdc controller proportional gain / Vdc_ctrl Kp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 19_1	Access level: 3 Func. diagram: 5650 Unit selection: p0505 Expert list: 1	Factory setting 1.00 [A/V]
Description:	Sets the proportional gain for the Vdc controller (DC link voltage controller).			
Dependency:	Refer to: p1240, p1244, p1248			

p1275		Motor holding brake control word / Brake STW			
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: U, T Data type: Unsigned32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1	Factory setting 0000 bin	
Description:	Sets the control word for the motor holding brake.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Inverting BI: 1219[0]	Yes	No	2707
	01	Inverting BI: 1219[1]	Yes	No	2707
	02	Inverting BI: 1224[0]	Yes	No	2704
	03	Inverting BI: 1224[1]	Yes	No	2704
	05	Brake with feedback	Yes	No	2711

p1276	Motor holding brake, standstill detection, bypass / Brk standst bypass		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2704 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 300.000 [s]	Factory setting 300.000 [s]
Description:	Sets the delay time for closing the brake at standstill. After this time has expired, if the "close brake at standstill" or OFF1/OFF3 is present, the brake is closed and the pulses are suppressed. For p1276 = 300.000 s, the timer is de-activated - this means that the timer output is always zero.		
p1277	Motor holding brake, braking threshold delay exceeded / Del thresh exceed.		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2707 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 300.000 [s]	Factory setting 0.000 [s]
Description:	Sets the delay time for the signal "braking threshold exceeded" (BO: r1229.6).		
Dependency:	Refer to: p1220, p1221, r1229		
p1278	Brake control, diagnostics evaluation / Brake diagnostics		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the brake control type (with or without diagnostics evaluation). Example for brake control with diagnostics evaluation. - brake control in the Motor Modules in booksize format - Safe Brake Relay for AC Drive Example for brake control without diagnostics evaluation. - Brake Relay for AC Drive		
Value:	0: Brake control with diagnostics evaluation 1: Brake control without diagnostics evaluation		
Note:	If the configuration of the motor holding brake (p1215) is set to "no holding brake present" when booting, then an automatic identification of the motor holding brake will be carried out. If a brake control is detected without diagnostics evaluation (e.g. Brake Relay for AC Drive), then the parameter is set to "brake control without diagnostics evaluation". It is not permissible to parameterize "brake control without diagnostics evaluation" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).		

p1279[0...3]	BI: Motor holding brake, OR/AND logic operation / Brake OR AND		
SERVO_S110-CAN (Extended brk), SERVO_S110-DP (Extended brk)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Functions Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 2707 Unit selection: - Expert list: 1 Factory setting: 0
Description:	Sets the signal source for the OR/AND logic operation.		
Dependency:	Refer to: r1229		
Note:	[0]: OR logic operation, input 1 --> the result is displayed in r1229.10. [1]: OR logic operation, input 2 --> the result is displayed in r1229.10. [2]: AND logic operation, input 1 --> the result is displayed in r1229.11. [3]: AND logic operation, input 2 --> the result is displayed in r1229.11.		
p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1), T Data type: Integer16 P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 1590, 1690, 5060, 6300 Unit selection: - Expert list: 1 Factory setting: 21
Description:	Sets the open and closed loop control mode of a drive.		
Value:	20: Speed control (encoderless) 21: Speed control (with encoder) 23: Torque control (with encoder)		
Dependency:	Closed-loop speed or torque control (with encoder) cannot be selected if the encoder type is not entered (p0400). Refer to: p0108, r0108, p0300, p0311, p0400, p1501		
Note:	The closed-loop torque control can only be changed over in operation (p1300 = 20, 21) by selecting the closed-loop speed control (p1501). At the changeover, the setting of p1300 does not change. In this case, the current state is displayed in r1407, bit 2 and bit 3. For encoderless operation (p1404 = 0 or p1300 = 20), the following applies: - The following condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$ - For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.		
p1317[0...n]	V/f control diagnostics activation / Vf diagn act		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5718 Unit selection: - Expert list: 1 Factory setting: 0
Description:	Activates the V/f control with linear characteristic for diagnostic purposes. 0: Operation as set in p1300. 1: Activates the V/f control.		
Value:	0: Off (p1300 eff) 1: On		
Dependency:	Refer to: p1318, p1319, p1326, p1327		

p1318[0...n] V/f control ramp-up/ramp-down time / Uf t_rmp-up_rmp-dn			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: V/f open-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 999999.000 [s]	Factory setting 10.000 [s]
Description:	Sets the ramp-up and ramp-down time for the V/f control. The ramp-function generator requires this time to reach the maximum speed (p1082) from zero.		
Dependency:	Refer to: p1317, p1319, p1326, p1327		
Note:	This ramp is used for stall protection and operates independently of any ramp-function generator that might have been configured.		
p1319[0...n] V/f control voltage at zero frequency / Uf V at f=0 Hz			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300 Unit selection: - Expert list: 1
	Min 0.0 [Vrms]	Max 50.0 [Vrms]	Factory setting 0.0 [Vrms]
Description:	The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. This parameter specifies the voltage for a frequency of 0 Hz.		
Dependency:	Activates the V/f control using p1317. Refer to: p1317, p1326, p1327		
Note:	Linear interpolation is carried out between the points 0 Hz / p1319 and p1326 / p1327.		
p1326[0...n] V/f control programmable characteristic frequency 4 / Vf char f4			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: V/f open-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5300, 6300 Unit selection: - Expert list: 1
	Min 0.00 [Hz]	Max 10000.00 [Hz]	Factory setting 0.00 [Hz]
Description:	In the servo control mode the following applies: The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327. For vector control, the following applies: The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310. This parameter specifies the voltage of the fourth point along the characteristic.		
Dependency:	In the servo control mode the following applies: Activates the V/f control using p1317. For vector control, the following applies: Selects the freely programmable characteristic using p1300 = 3. The following applies to the frequency values: p1320 <= p1322 <= p1324 <= p1326. Otherwise, a standard characteristic is used that contains the rated motor operating point. Refer to: p1317, p1319, p1327		

Note: In the servo control mode the following applies:
 Linear interpolation is carried out between the points 0 Hz / p1319 and p1326 / p1327.
 For vector control, the following applies:
 Linear interpolation is carried out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327. For output frequencies above p1326, the characteristic is extrapolated with the gradient between the characteristic points p1324/p1325 and p1326/p1327.
 The voltage boost when accelerating (p1311) is also applied to the freely programmable V/f characteristic.

p1327[0...n] V/f control programmable characteristic voltage 4 / V/f char U4

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5300, 6300
	P-Group: V/f open-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0 [Vrms]	Max 10000.0 [Vrms]	Factory setting 0.0 [Vrms]

Description: In the servo control mode the following applies:
 The linear characteristic for the V/f control is defined by 0 Hz / p1319 and p1326 / p1327.
 For vector control, the following applies:
 The programmable characteristic for the V/f control is defined using 4 points and 0 Hz/p1310.
 This parameter specifies the voltage of the fourth point along the characteristic.

Dependency: In the servo control mode the following applies:
 Activates the V/f control using p1317.
 For vector control, the following applies:
 Selects the freely programmable characteristic using p1300 = 3.
 Refer to: p1317, p1319, p1326

Note: In the servo control mode the following applies:
 Linear interpolation is carried out between the points 0 Hz / p1319 and p1326 / p1327.
 For vector control, the following applies:
 Linear interpolation is carried out between the points 0 Hz / p1310, p1320 / p1321 ... p1326 / p1327.
 The voltage boost when accelerating (p1311) is also applied to the freely programmable V/f characteristic.

p1400[0...n] Speed control configuration / n_ctrl config

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 1590, 5490
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 0000 0011 1010 0000 bin

Description: Sets the configuration for the closed-loop speed control.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	03	Reference model speed setpoint, I component	On	Off	5030
	04	Torque limiting active in motoring/regenerating mode	Yes	No	-
	05	Kp/Tn adaptation active	Yes	No	-
	07	Interpolation speed pre-control active	Yes	No	-
	08	Interpolation torque setpoint active	Yes	No	-
	09	Damping for encoderless open-loop controlled oper.	Yes	No	-
	10	Speed pre-control	For balancing	For setp_filter 2	-
	11	Encoderless oper. speed actual value starting value	Setpoint	0.0	-
	12	Encoderless operation changeover	Steady-state	When accelerating	-
	13	Motoring/regenerating depending on	Speed setpoint	Actual speed value	-

Note: Re bit 07:
The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and when the master receives a sign-of-life (STW 2.12 ... STW 2.15). Further, for active Dynamic Servo Control (DSC) an additional dead time of one speed controller clock cycle is obtained.

Re bit 11:
If the motor rotates when the pulses are enabled, then we recommend $p1400.11 = 1$ (starting value = setpoint) with the matching sign.
If the motor remains stationary (zero speed) when the pulses are enabled, then we recommend $p1400.11 = 0$ (starting value = 0.0).

Re bit 12:
If a changeover is made from operation with encoder to encoderless operation while accelerating (with the threshold from p1404), then we recommend $p1400.12 = 0$.
If the changeover is made from operation with encoder to encoderless at constant speed/velocity (e.g. with a DDS changeover or if there is an encoder fault via p0491) then we recommend $p1400.12 = 1$.

p1402[0...n] Closed-loop current control and motor model configuration / I_ctrl config

SERVO_S110-CAN, SERVO_S110-DP

Can be changed: T	Calculated: -	Access level: 3
Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: -
P-Group: Closed-loop control	Units group: -	Unit selection: -
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
-	-	0100 bin

Description: Sets the configuration for the closed-loop control and the motor model.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Park encoder for $n_ist > p1404$	Yes	No	-
	02	Current controller adaptation active	Yes	No	-
	04	Torque-speed pre-control with encoder	Yes	No	-

Note: Re bit 01:
When the bit is set, the encoder is parked as soon as the actual speed is greater than the changeover speed (p1404). The encoder state is displayed in r0487.14.

Re bit 02:
The current controller adaptation (p0391 ... p0393) is only calculated when the bit is set.

p1404[0...n] Encoderless operation changeover speed / Encoderl op n_chg

SERVO_S110-CAN, SERVO_S110-DP

Can be changed: T	Calculated: -	Access level: 3
Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 1590, 5060
P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
Not for motor type: -		Expert list: 1
Min	Max	Factory setting
0.0 [rev/min]	210000.0 [rev/min]	210000.0 [rev/min]

Description: Sets the speed to change over between operation with and without encoder.

Above this speed, the drive system is automatically operated in encoderless mode.

Note: The changeover speed applies when changing over between operation with and without encoder.

Separate speed controllers should be set when operating with and without encoder.

Operation with encoder: p1460 (Kp), p1462 (Tn), p1461, p1463, p1457, p1458 (parameters for speed controller adaptation)

Operation without encoder: p1470 (Kp), p1472 (Tn)

For encoderless operation ($p1404 = 0$ or $p1300 = 20$), the following applies:

- The condition must be fulfilled: $p1800 \geq n / (2 * p0115[0])$, $n = 1, 2, \dots$

- For motors with a small power rating (< 300 W) we recommend to set $n \geq 2$.

r1406.8...12 CO/BO: Control word speed controller / STW n_ctrl

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2520
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the control word of the speed controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Travel to fixed stop active	Yes	No	-
	12	Torque control active	Yes	No	-

r1407.0...13 CO/BO: Status word speed controller / ZSW n_ctrl

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2522
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status word of the speed controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	V/f control active	Yes	No	-
	01	Encoderless operation active	Yes	No	-
	02	Torque control active	Yes	No	8010
	04	Speed setpoint from DSC	Yes	No	2522
	05	Speed controller I component frozen	Yes	No	-
	06	Speed controller I component set	Yes	No	-
	07	Torque limit reached	Yes	No	5610
	08	Upper torque limit active	Yes	No	5610
	09	Lower torque limit active	Yes	No	5610
	11	Speed setpoint limited	Yes	No	-
	13	Encoderless operation due to a fault	Yes	No	-

Note: Re bit 04:

The following conditions must be fulfilled to set to 1:

- CI: p1190 and CI: p1191 must be interconnected with a signal source that is not equal to zero.
- it is not permissible that OFF1, OFF3 or STOP2 are active.
- it is not permissible that the motor data identification is active.
- Master control must not be active.

The following conditions can mean that the DSC function is not active in spite of the fact that the bit is set:

- clock-cycle synchronous operation is not selected (r2054 not equal to 4).
- the PROFIBUS is not clock-cycle synchronous (r2064[0] not equal to 1).
- DSC is not switched in on the control side; this means that KPC = 0 is transferred as value at CI: p1191.

r1408.0...9		CO/BO: Status word closed-loop current control / ZSW curr ctrl			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2530, 5040		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: REL		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word of the closed-loop current control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Cl-loop curr ctrl	Active	Not active	-
	04	Limit Vd	Active	Not active	-
	05	Limit Vq	Active	Not active	-
	06	Positive limiting Iq	Active	Not active	-
	07	Negative limiting Iq	Active	Not active	-
	08	Limit iq_set	Active	Not active	-
	09	Limit id_set	Active	Not active	-
Note:	The selected current limit is taken into account by the upstream torque limiting; this is the reason that bits 6, 7 and 8 are only set for overshoots due to the current setpoint filter.				
p1414[0...n]		Speed setpoint filter activation / n_set_filt act			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 5020		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: REL		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Setting for activating/deactivating the speed setpoint filter.				
Recommend.:	If only one filter is required, filter 1 should be activated and filter 2 de-activated, to avoid excessive processing time.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Activate filter 1	Yes	No	-
Dependency:	The individual speed setpoint filters are parameterized as of p1415.				
p1415[0...n]		Speed setpoint filter 1 type / n_set_filt 1 typ			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5020		
	P-Group: Closed-loop control	Units group: -	Unit selection: -		
	Not for motor type: REL		Expert list: 1		
	Min	Max	Factory setting		
	0	2	0		
Description:	Sets the type for speed setpoint filter 1.				
Value:	0: Low pass: PT1 1: Low pass: PT2 2: General 2nd-order filter				
Dependency:	PT1 low pass: p1416 PT2 low pass: p1417, p1418 General filter: p1417 ... p1420				

p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 5000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the time constant for the speed setpoint filter 1 (PT1).		
Dependency:	Refer to: p1414, p1415		
Note:	For SERVO (p0107) the following applies: This parameter is only effective if the speed filter is set as a PT1 low pass.		
p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the denominator natural frequency for speed setpoint filter 1 (PT2, general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		
p1418[0...n]	Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for speed setpoint filter 1 (PT2, general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is parameterized as a PT2 low pass or as general filter.		
p1419[0...n]	Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 2000.0 [Hz]
Description:	Sets the numerator natural frequency for speed setpoint filter 1 (general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is set as a general filter. The filter is only effective if the natural frequency is less than half of the sampling frequency.		

p1420[0...n]	Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5020 Unit selection: - Expert list: 1 Factory setting: 0.700
	Min 0.000	Max 10.000	
Description:	Sets the numerator damping for speed setpoint filter 1 (general filter).		
Dependency:	Refer to: p1414, p1415		
Note:	This parameter is only effective if the speed filter is set as a general filter.		
p1428[0...n]	Speed pre-control balancing dead time / n_prectrBal t_dead		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5030, 5042, 5210, 6031 Unit selection: - Expert list: 1 Factory setting: 0.0
	Min 0.0	Max 2.0	
Description:	Sets the dead time to symmetrize the speed setpoint for active torque pre-control. The selected multiplier refers to the speed controller clock cycle (dead time= p1428 * p0115[1]).		
Dependency:	In conjunction with p1429, this parameter can emulate the characteristics of how the torque is established (dynamic response of closed current control loop). For VECTOR (r0107) the following applies: The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, a fixed dead time is used. Refer to: p1429, p1511		
p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5030, 5042, 5210, 6031 Unit selection: - Expert list: 1 Factory setting: 0.00 [ms]
	Min 0.00 [ms]	Max 10000.00 [ms]	
Description:	Sets the time constant (PT1) for symmetrizing the speed setpoint for active torque pre-control.		
Dependency:	In conjunction with p1428, this parameter can emulate the characteristics of how torque is established (dynamic response of the closed current control loop). For VECTOR (r0107) the following applies: The parameter is only effective if the acceleration model is supplied using external acceleration signals (p1400.2 = 1). For p1400.2 = 0, time constant p1442 (or p1452 for encoderless vector control) is used. Refer to: p1428, p1511		

p1430[0...n]	CI: Speed pre-control / n_prectrl		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 1550, 1590, 5020
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for speed pre-control channel (speed pre-control or torque pre-control).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
r1432	CO: Speed pre-control after symmetrizing / n_prectr after sym		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5030
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed pre-control value after symmetrizing for the torque build-up (emulates the closed current control loop).		
Dependency:	Symmetrizing can be parameterized with p1428 and/or p1429.		
p1433[0...n]	Speed controller reference model natural frequency / n_ctrl RefMod fn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: - Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5030, 6031
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.0 [Hz]	Max 8000.0 [Hz]	Factory setting 0.0 [Hz]
Description:	Sets the natural frequency of a PT2 element for the reference model of the speed controller.		
Recommend.:	The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.		
Dependency:	Together with p1434 and p1435, the characteristics (in the time domain) of the closed-loop speed control (P) can be emulated. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. For encoderless vector control (p1300 = 20) the reference model is disabled in open-loop speed controlled operation (refer to p1755). Refer to: p1434, p1435		
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: - Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5030, 6031
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.000	Max 5.000	Factory setting 1.000
Description:	Sets the damping of a PT2 element for the reference model of the speed controller.		
Recommend.:	The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.		

Dependency: In conjunction with p1433 and p1435, the characteristics (in time) of the P-controlled speed control loop can be emulated.
For VECTOR (r0107) the following applies:
The reference model is activated with p1400.3 = 1.
Refer to: p1433, p1435

p1435[0...n]	Speed controller reference model dead time / n_ctrRefMod t_dead		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00	Max 2.00	Factory setting 0.00
Description:	Sets the "fractional" dead time for the reference model of the speed controller. This parameter emulates the computing dead time of the proportionally controlled speed control loop. The selected multiplier refers to the speed controller clock cycle (dead time= p1435 * p0115[1]).		
Recommend.:	The reference model is correctly set when the characteristics of p1439 (reference model output) and p1445 (actual speed value) are virtually identical when the I-component of the speed controller is disabled.		
Dependency:	In conjunction with p1433 and p1434, the characteristics (in time) of the P-controlled speed control loop can be emulated. For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1. Refer to: p1433, p1434		

r1436	CO: Speed controller reference model speed setpoint output / RefMod n_set outp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5030, 6031
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed setpoint at the output of the reference model.		
Dependency:	For VECTOR (r0107) the following applies: The reference model is activated with p1400.3 = 1.		

r1438	CO: Speed controller, speed setpoint / n_ctrl n_set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 1550, 1590, 1700, 5030, 5040, 5042, 5210, 5300, 5620, 6031, 6040
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed setpoint after setpoint limiting for the P component of the speed controller. For V/f operation, the value that is displayed is of no relevance.		
Dependency:	Refer to: r1439		
Note:	In the standard state (the reference model is de-activated), r1438 = r1439.		

r1439	Speed setpoint, I component / n_set I_comp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5030, 5040, 6031
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed setpoint for the I component of the speed controller (output of the reference model after the setpoint limiting).		
Dependency:	Refer to: r1438		
Note:	In the standard state (the reference model is de-activated), r1438 = r1439.		
p1441[0...n]	Actual speed smoothing time / n_ist T_smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 4710, 4715
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 50.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the smoothing time constant (PT1) for the speed actual value.		
Dependency:	Refer to: r0063		
Note:	The speed actual value should be smoothed for encoders with a low pulse number or for resolvers. After this parameter has been changed, we recommend that the speed controller is adapted and/or the speed controller settings checked Kp (p1460) and Tn (p1462).		
r1444	Speed controller, speed setpoint steady-state (static) / n_ctrl n_set stat		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5030
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the sum of all speed setpoints that are present. The following sources are available for the displayed setpoint: - setpoint at the ramp-function generator input (r1119). - speed setpoint 1 (p1155). - speed setpoint 2 (p1160). - speed setpoint for the speed pre-control (p1430). - setpoint from DSC (for DSC active). - setpoint via PC (for master control active, p3983).		
Dependency:	Refer to: r1119, p1155, p1160, p1430		

r1454	CO: Speed controller system deviation I component / n_ctrl sys dev Tn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5040
	P-Group: Closed-loop control	Units group: 3_1	Unit selection: p0500
	Not for motor type: REL		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the system deviation of the I component of the speed controller. When the reference model is inactive (p1433 = 0 Hz), this parameter corresponds to the system deviation of the complete PI controller (r1454 = r0064).		
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the source for the adaptation signal to additionally adapt the P gain of the speed controller.		
Dependency:	Refer to: p1456, p1457, p1458, p1459		
p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the lower starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1457, p1458, p1459		
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5050
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.00 [%]	Max 400.00 [%]	Factory setting 0.00 [%]
Description:	Sets the upper starting point of the adaptation range for the additional adaptation of the P gain of the speed controller. The values are in % and refer to the set source of the adaptation signal.		
Dependency:	Refer to: p1455, p1456, p1458, p1459		

p1458[0...n]	Adaptation factor, lower / Adapt_factor lower		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the adaptation factor before the adaptation range (0 % ... p1456) to additionally adapt the P gain of the speed/velocity controller.		
Dependency:	Refer to: p1455, p1456, p1457, p1459		
p1459[0...n]	Adaptation factor, upper / Adapt_factor upper		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the adaptation factor after the adaptation range (> p1457) to additionally adapt the P gain of the speed/velocity controller.		
Dependency:	Refer to: p1455, p1456, p1457, p1458		
p1460[0...n]	Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 17_1	Access level: 2 Func. diagram: 5040, 5042 Unit selection: p0505 Expert list: 1
	Min 0.000 [Nms/rad]	Max 999999.000 [Nms/rad]	Factory setting 0.300 [Nms/rad]
Description:	Sets the P gain of the speed controller before the adaptation speed range (0 ... p1464). This value corresponds to the basic setting of the P gain of the speed controller without adaptation (p1461 = 100 %).		
Dependency:	Refer to: p1461, p1464, p1465		
Note:	When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.		
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the P gain of the speed controller for the upper adaptation speed range (> p1465). The entry is made referred to the P gain for the lower adaptation speed range of the speed controller (% referred to p1460).		
Dependency:	Refer to: p1460, p1464, p1465		
Note:	When automatically calculating the speed controller, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0) we recommend that the speed controller gain is checked.		

p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180	Access level: 2 Func. diagram: 1700, 5040, 5042, 6040
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 20.00 [ms]
Description:	Sets the integration time of the speed controller before the adaptation speed range (0 ... p1464). This value corresponds to the basic setting of the integral time of the speed controller without adaptation (p1461 = 100 %).		
Dependency:	Refer to: p1463, p1464, p1465		
p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5050
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.0 [%]	Max 200000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the integral time of the speed controller after the adaptation speed range (> p1465). The entry is made referred to the integral time for the lower adaptation speed range of the speed controller (% referred to p1462).		
Dependency:	Refer to: p1462, p1464, p1465		
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5050
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 0.00 [rev/min]
Description:	Sets the lower adaptation speed of the speed controller. No adaptation is effective below this speed.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1465		
p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5050
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 210000.00 [rev/min]
Description:	Sets the upper adaptation speed of the speed controller. No adaptation is effective above this speed. For P gain, p1460 * p1461 is effective. For the integral time, p1462 * p1463 is effective.		
Dependency:	Refer to: p1460, p1461, p1462, p1463, p1464		

p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 5050 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the signal source for the scaling of the P gain of the speed controller. This also makes the effective P gain (including adaptations) scalable.		
r1468	Speed controller P-gain effective / n_ctrl Kp eff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 17_1	Access level: 3 Func. diagram: 5040, 5042, 5210 Unit selection: p0505 Expert list: 1 Factory setting - [Nms/rad]
Description:	Displays the effective P gain of the speed controller.		
r1469	Speed controller integral time effective / n_ctrl Tn eff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 5040, 5042, 6040 Unit selection: - Expert list: 1 Factory setting - [ms]
Description:	Displays the effective integral time of the speed controller.		
p1470[0...n]	Speed controller encoderless operation P-gain / n_ctrl SLVC Kp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 17_1	Access level: 2 Func. diagram: 5210 Unit selection: p0505 Expert list: 1 Factory setting 0.300 [Nms/rad]
Description:	Sets the P gain for encoderless operation for the speed controller.		
Note:	When the speed controller is automatically calculated, only the motor moment of inertia is taken into account (p0341). For higher load moments of inertia (p0342 > 1 or p1498 > 0), you are advised to check the speed controller gain.		
p1472[0...n]	Speed controller encoderless operation integral time / n_ctrl SLVC Tn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 5210 Unit selection: - Expert list: 1 Factory setting 20.0 [ms]
Description:	Set the integral time for encoderless operation for the speed controller.		

p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 2520, 5040, 5042, 5210, 6040
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to hold the integrator for the speed controller.		
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 2520, 5040, 5042, 5210, 6040
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to set the integrator setting value (p1478).		
Dependency:	Refer to: p1478		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).		
p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5040, 5042, 5210
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the integrator setting value for the velocity controller. The signal to set this integrator setting value is interconnected via p1477.		
Dependency:	Refer to: p1477		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the interface mode "SIMODRIVE 611 universal" (p2038 = 1), p1477 and p1478 are used for the signal STW2.6 (integrator inhibit, speed controller).		
r1480	CO: Speed controller PI torque output / n_ctrl PI-M_output		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1590, 5040, 5042, 5060, 5210, 6060
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the PI speed controller.		

r1481	CO: Speed controller P torque output / n_ctrl P-M_output		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5040, 5042, 5210, 6040
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the P speed controller.		
r1482	CO: Speed controller I torque output / n_ctrl I-M_output		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5040, 5042, 5210, 6030, 6040
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque setpoint at the output of the I speed controller.		
r1493	CO: Moment of inertia, total / M_inertia total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5042, 5210
	P-Group: Closed-loop control Not for motor type: FEM	Units group: 25_1	Unit selection: p0100 Expert list: 1
	Min - [kgm ²]	Max - [kgm ²]	Factory setting - [kgm ²]
Description:	Displays the parameterized total moment of inertia ((p0341 * p0342) + p1498) without evaluation by the scaling via p1497.		
Dependency:	Refer to: p1300, p1402, p1404, p1497		
Note:	The parameterized total moment of inertia, taking into account p1497, influences the torque pre-control. In encoderless operation or when the torque-speed pre-control with encoder (p1402.4 = 1) is activated, then torque-speed pre-control is activated.		
p1494[0...n]	Speed controller integrator feedback time constant / n_ctr integ_fdbk T		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: - Dynamic index: DDS, p0180	Access level: 2 Func. diagram: 5040, 5042, 5210
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the time constant of the PT1 filter for integrator feedback. The integrator of the speed/velocity controller is re-parameterized to become a PT1 filter through a feedback element (1st Order low pass filter characteristics). The following applies: p1494 < 0.25 (2 * p0115[1]) --> the PT1 filter is not active - the pure integrator is effective. p1494 >= 0.25 (2 * p0115[1]) --> the PT1 filter is active and has replaced the pure integrator.		

Note: Applications:
Motion at zero setpoint and dominant stiction can be suppressed but this has a negative impact on the remaining setpoint-actual value difference. This can be used, for example, to avoid oscillation of a position-controlled axis at standstill (stick-slip effect) or overshoot when traversing (moving) in micrometer steps.
Also prevents tension/stressing for axes that are mechanically and rigidly coupled with one another (e.g. for synchronous spindles, master - slave axes).

p1497[0...n]	CI: Moment of inertia, scaling / Mom of inert scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5042, 5210, 6030, 6031
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for scaling the moment of inertia.		

p1498[0...n]	Load moment of inertia / Load mom of inert		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: - Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5042, 5210
	P-Group: Closed-loop control Not for motor type: -	Units group: 25_1	Unit selection: p0100 Expert list: 1
	Min 0.00000 [kgm²]	Max 100000.00000 [kgm²]	Factory setting 0.00000 [kgm²]
Description:	Sets the load moment of inertia.		
Note:	(p0341 * p0342) + p1498 influence the speed/torque pre-control in encoderless operation.		

p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 1700, 2520, 5060, 6060
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for toggling between speed and torque control.		
Dependency:	The input connectors to enter the torque are provided using p1511, p1512 and p1513. Refer to: p1300		
Caution:	If the closed-loop torque control is not activated (p1300) and a change is made to closed-loop torque control (p1501), OFF1 (p0840) does not have its own braking response but pulse suppression when standstill is detected (p1226, p1227).		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	0 signal: Closed-loop speed control 1 signal: Closed-loop torque control		

r1509	CO: Torque setpoint before torque limiting / M_set before M_lim		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1590, 5060, 5610
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the total torque setpoint before the torque limiting (total of the controller output, supplementary torque and if required, the pre-control torque, encoderless operation). In the closed-loop speed controlled mode, r1509 = p1480 + r1515 + pre-controlled torque, encoderless operation. r1509 and r1515 are identical for the closed-loop torque control.		
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5060, 6060
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for supplementary torque 1.		
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5060, 6060
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for scaling the supplementary torque 1.		
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 5060, 6060
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for supplementary torque 2.		
r1515	Supplementary torque total / M_suppl total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 5040, 5060
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the total supplementary torque. The displayed value is the total of supplementary torque values 1 and 2 (p1511, p1512, p1513, p1514).		

p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: - Dynamic index: DDS, p0180	Access level: 3 Func. diagram: 5042, 5210, 6060
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 100.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the smoothing time constant of the accelerating torque.		
Note:	For servo drives, the parameter is only effective in encoderless operation. For vector drives, the acceleration pre-control is inhibited if the smoothing is set to the maximum value.		
r1518[0...1]	CO: Accelerating torque / M_accel		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5042, 5210
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the accelerating torque to pre-control the speed controller for torque-speed pre-control (p1402.4 = 1 or in encoderless operation).		
Index:	[0] = Unsmoothed [1] = Smoothed		
Dependency:	Refer to: p0341, p0342, p1300, p1402, r1493, p1497, p1498		
p1520[0...n]	CO: Torque limit upper/motoring / M_max upper/mot		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180	Access level: 2 Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min -1000000.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the fixed upper torque limit or the torque limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p0500, p1521, p1522, p1523, p1532, r1538, r1539		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values when setting the upper torque limit (p1520 < 0) can result in the motor accelerating in an uncontrollable fashion.		
			
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	For VECTOR the following applies (p0107): The torque limit is limited to 400% of the rated motor torque. When automatically calculating the motor/closed-loop control parameters (p0340), the torque limit is set to match the current limit (p0640).		

p1521[0...n]	CO: Torque limit lower/regenerative / M_max lower/regen		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -20000000.00 [Nm]	Max 1000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the fixed lower torque limit or the torque limit when regenerating.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p0500, p1520, p1522, p1523, p1532		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Positive values when setting the lower torque limit (p1521 < 0) can result in the motor accelerating in an uncontrollable fashion.		
			
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	For VECTOR the following applies (p0107): The torque limit is limited to 400% of the rated motor torque. When the motor/closed-loop control parameters (p0340) are automatically calculated, the torque limit is set to match the current limit (p0640).		
p1522[0...n]	CI: Torque limit upper/motoring / M_max upper/mot		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1520[0]
Description:	Sets the signal source for the upper or torque/force limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1523, p1532		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower) the following applies: Negative values that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.		
			
p1523[0...n]	CI: Torque limit lower/regenerative / M_max lower/regen		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 1610, 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting 1521[0]
Description:	Sets the signal source for the lower or torque/force limit when regenerating.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1522, p1532		

Danger:

For p1400.4 = 0 (torque limiting, upper/lower) the following applies:

Positive values that are obtained as a result of the signal source and the scaling can cause the motor to accelerate in an uncontrollable fashion.

p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -2000.0 [%]	Max 2000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the scaling for the upper torque limit or the torque limit when motoring.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	This parameter can be freely interconnected. The value has the above significance if it is interconnected from connector input p1528.		

p1525[0...n]	CO: Torque limit lower/regenerating scaling / M_max low/gen scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 6630
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -2000.0 [%]	Max 2000.0 [%]	Factory setting 100.0 [%]
Description:	Sets the scaling for the lower torque limit or the torque limit when regenerating.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	This parameter can be freely interconnected. The value has the above significance if it is interconnected from connector input p1528.		

r1526	CO: Torque limit upper/motoring without offset / M_max up. w/o offs		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the upper torque limit of all torque limits without offset.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1522, p1523, p1528, p1529		

r1527	CO: Torque limit lower/regenerative without offset / M_max low w/o offs		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 5620, 5630, 6630, 6640
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the lower torque limit of all torque limits without offset.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating Refer to: p1520, p1521, p1522, p1523, p1528, p1529		
p1528[0...n]	CI: Torque limit upper/motoring scaling / M_max up/mot scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 1610, 3617, 5620, 5630
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1524[0]
Description:	Sets the signal source for the scaling of the upper or motoring torque limit in p1522.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower), the following applies: Negative values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p1529[0...n]	CI: Torque limit lower/regenerating scaling / M_max low/gen scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32	Calculated: - Dynamic index: CDS, p0170	Access level: 3 Func. diagram: 1610, 3617, 5620, 5630
	P-Group: Closed-loop control Not for motor type: REL	Units group: -	Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1525[0]
Description:	Sets the signal source for the scaling of the lower torque limit or the regenerative torque limit in p1523.		
Dependency:	p1400 bit 4 = 0: Upper / lower p1400 bit 4 = 1: Motoring / generating		
Danger:	For p1400.4 = 0 (torque limiting, upper/lower), the following applies: Positive values resulting from the signal source and scaling can cause the motor to accelerate in an uncontrolled manner.		
			
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p1530[0...n]	Power limit motoring / P_max mot		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5640, 6640
	P-Group: Closed-loop control	Units group: 14_5	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min 0.00 [kW]	Max 100000.00 [kW]	Factory setting 0.00 [kW]
Description:	Sets the power limit when motoring.		
Dependency:	Refer to: p0500, p1531		
Note:	For VECTOR the following applies (p0107): The power limit is limited to 300% rated motor power.		
p1531[0...n]	Power limit regenerating / P_max gen		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5640, 6640
	P-Group: Closed-loop control	Units group: 14_5	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -100000.00 [kW]	Max -0.01 [kW]	Factory setting -0.01 [kW]
Description:	Sets the regenerative power limit.		
Dependency:	Refer to: p0500, p1530		
p1532[0...n]	CO: Torque limit offset / M_max offset		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5620, 5630, 5650, 7010, 8012
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505
	Not for motor type: REL		Expert list: 1
	Min -100000.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the torque offset for the torque limit.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
r1533	Current limit torque-generating total / Iq_max total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5640, 5722, 6640
	P-Group: Displays, signals	Units group: 6_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the maximum torque/force generating current as a result if all current limits.		

r1534	CO: Torque limit upper total / M_max upper total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1610, 5620, 5630, 5640
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the upper torque limit of all torque limits.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532		
r1535	CO: Torque limit lower total / M_max lower total		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1610, 5620, 5630, 5640
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the lower torque limit of all torque limits.		
Dependency:	Refer to: p1520, p1521, p1522, p1523, p1528, p1529, p1532		
r1538	CO: Upper effective torque limit / M_max upper eff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the currently effective upper torque limit.		
Note:	The effective upper torque limit is reduced with respect to the upper torque limit p1520, if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased. For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960). The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		
r1539	CO: Lower effective torque limit / M_max lower eff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 2 Func. diagram: 1590, 1610, 1750, 5610, 5650, 5714, 6040, 6060, 6640, 8012
	P-Group: Closed-loop control Not for motor type: REL	Units group: 7_1	Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the currently effective lower torque limit.		
Note:	The effective lower torque limit is reduced with respect to the selected lower torque limit p1521 if the current limit p0640 is reduced or the rated magnetizing current of the induction motor p0320 is increased. For vector drives (refer to p0107), this is possibly the case for rotating measurements (refer to p1960). The torque limit p1520 can be re-calculated using p0340 = 1, 3 or 5.		

p1542[0...n]	CI: Travel to fixed stop torque reduction / TfS M_red		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5610
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the torque/force reduction when traversing to a fixed stop. This value is converted into a factor and is interconnected to the scaling of the torque/force limits.		
Dependency:	Refer to: p1528, p1529, r1543, p1544, p1545		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
r1543	CO: Travel to fixed stop torque scaling / TfS M scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5610
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
Description:	Displays the internally converted factor to interconnect to the scaling of the torque/force limits.		
Dependency:	Refer to: p1528, p1529, p1542, p1544, p1545		
p1544	Travel to fixed stop evaluation torque reduction / TfS M_red eval		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5610
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0 [%]	65535 [%]	100 [%]
Description:	Sets the evaluation for the torque/force reduction when traversing to a fixed stop.		
Dependency:	Refer to: p1528, p1529, p1542, r1543, p1545		
Note:	4000 hex (16384 dec) in the MOMRED control word corresponds to a reduction by the percentage specified in this parameter.		
p1545[0...n]	BI: Activates travel to a fixed stop / TfS activation		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2520, 3617, 8012
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to activate/de-activate the "travel to fixed stop" function 1: Travel to fixed stop is active 0: Travel to fixed stop is inactive		
Dependency:	Refer to: p1542, r1543, p1544		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p1546	Speed threshold motoring/regenerating / n_thresh mot/regen		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.0 [rev/min]	Max 210000.0 [rev/min]	Factory setting 20.0 [rev/min]
Description:	Sets the speed threshold for the motoring/regenerating limit. For speeds where the absolute value is less than p1546, then the following applies: - For p1400.13 = 0: Motoring limit (speed threshold is compared to the speed actual value). - For p1400.13 = 1: Regenerative limiting (speed threshold is compared to the speed setpoint).		
r1549	CO: Stall power actual value / P_stall		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: 14_5	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]
Description:	Displays the instantaneous stall power.		
Dependency:	Refer to: p0326		
p1550[0...n]	BI: Transfer current torque as torque offset / Accept act torque		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 9718.23
Description:	For a positive edge, the current torque (r0079[0]) at this instant in time is used instead of the torque offset from p1532 as long as p1550 remains at 1.		
p1551[0...n]	BI: Torque limit variable/fixed signal source / M_lim var/fixS_src		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 5620, 5630, 6060, 6630 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source to change over the torque limits between variable and fixed torque limit. 1 signal from BI: p1551: The variable torque limit applies (fixed torque limit + scaling). 0 signal from BI: p1551: The fixed torque limit applies. Example: In order that for a Quick Stop (OFF3) the fixed torque limit is effective, BI: p1551 must be interconnected to r0899.5.		

p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up offs scal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the scaling of the upper torque limiting to limit the speed controller output without taking into account the current and power limits.		
p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low offsScal		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 5060, 6060
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the scaling of the lower torque limiting to limit the speed controller output without taking into account the current and power limits.		
p1569[0...n]	CI: Supplementary torque 3 / M_suppl 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7010
	P-Group: Functions	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for supplementary torque 3.		
Notice:	The signal input is after the torque limit (r1538, r1539). For vector drives, the signals that are entered are only limited by the current and power limits.		
Note:	The signal input is preferably used to enter the friction characteristic. The friction compensation is also effective if the speed controller output reaches its torque limits, but the current limits have still not been reached (this only applies to vector drives).		
p1578[0...n]	Flux reduction flux decrease smoothing time / Flux red dec t_sm		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_REG	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5722
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: PEM, REL, FEM		Expert list: 1
	Min	Max	Factory setting
	20 [ms]	5000 [ms]	200 [ms]
Description:	Sets the smoothing time for the flux setpoint when decreasing the flux due to flux reduction (p1581 < 100 %).		
Dependency:	Refer to: p1579, p1581		

p1579[0...n]	Flux reduction flux build-up smoothing time / Flux red up t_sm		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 5000 [ms]	Factory setting 4 [ms]
Description:	Sets the smoothing time for the flux setpoint for the flux build-up due to flux reduction (p1581 < 100 %).		
Dependency:	Refer to: p1578, p1581		
Note:	An excessively long smoothing time extends the time until the maximum torque is reached from the no-load phase.		
p1581[0...n]	Flux reduction factor / Flux red factor		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: PEM, REL, FEM	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 20 [%]	Max 100 [%]	Factory setting 100 [%]
Description:	Sets the factor to which the flux is reduced under no-load conditions. For a value of 100%, the flux reduction is switched out. This parameter refers to the flux saved in the field weakening characteristic. By reducing the flux, the losses in induction motors can be reduced under no-load conditions or at low torques. However, the time it takes to reach the maximum torque is extended.		
Recommend.:	For induction motors with closed rotor slots, we recommend that the integral time of the current controller (p1717) is e.g. increased to three times the value. For stable operation, the maximum field-weakening factor in operation with an encoder must be less than 16 and in operation without an encoder must be less than 4. Lower field weakening factors are recommended. The field weakening factor is calculated as follows: $(p1082 * 100 \% * 600 \text{ V}) / (p0348 * p1581 * p0070)$ In order to reduce losses due to magnetizing and de-magnetizing, we recommend that the smoothing times are adapted for flux decrease (p1578) and flux build-up (p1579). In order to reduce the losses as a result of building-up and reducing the torque, we recommend that the torque setpoint is smoothed (current setpoint filter (p1656 ...) or speed actual value filter (p1441)).		
Dependency:	Refer to: p1578, p1579		
Note:	It only makes sense to activate this function if there are low dynamic requirements placed on the speed controller and there are frequent phases with a low load. In order to avoid oscillations, if required, the speed controller parameters should be adapted (decrease Kp (p1460, p1470), increase Tn (p1462, p1472)). When used without an encoder, flux reduction is not possible for induction motors with closed rotor slots.		
p1585[0...n]	Flux actual value, smoothing time / Flux actVal T_smth		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 0 [ms]
Description:	Sets the smoothing time for the flux actual value.		

p1590[0...n]	Flux controller P gain / Flux controller Kp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0.0 [A/Vs]	Max 999999.0 [A/Vs]	Factory setting 10.0 [A/Vs]
Description:	Sets the proportional gain of the flux controller.		
Note:	For synchronous motors, this parameters has no effect. The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		
p1592[0...n]	Flux controller integral.action time / Flux controller Tn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: PEM, REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5722 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 30 [ms]
Description:	Sets the integral time of the flux controller.		
Note:	For synchronous motors, this parameters has no effect. The value is automatically pre-assigned dependent on the motor when the drive system is first commissioned. When calculating controller parameter (p0340 = 4), this value is re-calculated.		
p1612[0...n]	Current setpoint, open-loop control, encoderless / I_setCtrEncoderI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180 Units group: 6_2	Access level: 2 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.00 [Arms]	Max 10000.00 [Arms]	Factory setting 0.00 [Arms]
Description:	Sets the current setpoint for controlled (open-loop) encoderless operation.		
Note:	The value is effective at speeds less than p1755 and represents a reserve for a possibly existing load torque or torque error in the moment of inertia.		
r1650	Current setpoint torque-generating before filter / Iq_set before filt		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: 6_2	Access level: 3 Func. diagram: 5710 Unit selection: p0505 Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the torque generating current setpoint Iqset after the torque limits and the clock cycle interpolation is ahead of the current setpoint filters.		

r1651	CO: Torque setpoint, function generator / M_set FG			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Closed-loop control	Units group: 7_1	Unit selection: p0505	
	Not for motor type: REL		Expert list: 1	
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]	
Description:	Displays the torque setpoint of the function generator.			
p1656[0...n]	Activates current setpoint filter / I_setp_filt act			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3	
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 5710	
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -	Max -	Factory setting 0001 bin	
Description:	Setting for activating/deactivating the current setpoint filter.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Filter 1	Active	Inactive
	01	Filter 2	Active	Inactive
				FP
				-
				-
Dependency:	The individual current setpoint filters are parameterized as of p1657.			
Note:	If not all of the filters are required, then the filters should be used consecutively starting from filter 1.			
p1657[0...n]	Current setpoint filter 1 type / I_set_filt 1 Typ			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3	
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710	
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: REL		Expert list: 1	
	Min 1	Max 2	Factory setting 1	
Description:	Sets the current setpoint filter 1 as low pass (PT2) or as extended general 2nd-order filter.			
Value:	1: Low pass: PT2 2: General 2nd-order filter			
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.			
Note:	For an extended general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed. The denominator damping can be determined from the equation for the 3 dB bandwidth: $f_{3dB \text{ bandwidth}} = 2 * D_{denominator} * f_{bandstop \text{ frequency}}$			
p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_n			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710	
	P-Group: Closed-loop control	Units group: -	Unit selection: -	
	Not for motor type: REL		Expert list: 1	
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]	
Description:	Sets the denominator natural frequency for current setpoint filter 1 (PT2, general filter).			
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.			

p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_n		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_CON	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for current setpoint filter 1.		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		

p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_z		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 1 (general filter).		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		

p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_z		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for current setpoint filter 1.		
Dependency:	Current setpoint filter 1 is activated via p1656.0 and parameterized via p1657 ... p1661.		

p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 Typ		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 1	Max 2	Factory setting 1
Description:	Sets the current setpoint filter 2 as low pass (PT2) or as extended general 2nd-order filter.		
Value:	1: Low pass: PT2 2: General 2nd-order filter		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		
Note:	For an extended general 2nd-order filter, by inserting the same natural frequency in both the numerator and in the denominator, i.e. bandstop frequency, a bandstop filter is implemented. If the numerator damping of zero is selected, the bandstop frequency is completely suppressed. The denominator damping can be determined from the equation for the 3 dB bandwidth: $f_{3dB} \text{ bandwidth} = 2 * D_{denominator} * f_{bandstop} \text{ frequency}$		

p1663[0...n]	Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_n		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the denominator natural frequency for current setpoint filter 2 (PT2, general filter).		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		
p1664[0...n]	Current setpoint filter 2 denominator damping / I_set_filt 2 D_n		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.001	Max 10.000	Factory setting 0.700
Description:	Sets the denominator damping for current setpoint filter 2.		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		
p1665[0...n]	Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_z		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.5 [Hz]	Max 16000.0 [Hz]	Factory setting 1999.0 [Hz]
Description:	Sets the numerator natural frequency for current setpoint filter 2 (general filter).		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		
p1666[0...n]	Current setpoint filter 2 numerator damping / I_set_filt 2 D_z		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 5710, 6710
	P-Group: Closed-loop control	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min 0.000	Max 10.000	Factory setting 0.700
Description:	Sets the numerator damping for current setpoint filter 2.		
Dependency:	Current setpoint filter 2 is activated via p1656.1 and parameterized via p1662 ... p1666.		

p1699			
Filter data acceptance / Filt data accept			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Activates data acceptance for parameter changes for the filter. p1699 = 0: The new filter data are immediately accepted. p1699 = 1: The new filter data are only accepted when this parameter is reset.		
Dependency:	Refer to: p1414, p1415, p1416, p1417, p1418, p1419, p1420, p1656, p1657, p1658, p1659, p1660, p1661, p1662, p1663, p1664, p1665, p1666		
p1701[0...n]			
Current controller reference model dead time / I_ctrRefMod t_dead			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 5714 Unit selection: - Expert list: 1
	Min 0.0	Max 1.0	Factory setting 1.0
Description:	Sets the fractional dead time for the current controller reference model. This parameter emulates the computing dead time of the proportionally controlled current control loop.		
Note:	Dead time = p1701 * p0115[0]		
p1715[0...n]			
Current controller P gain / I_ctrl Kp			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: 18_1	Access level: 3 Func. diagram: 5714, 7017 Unit selection: p0505 Expert list: 1
	Min 0.000 [V/A]	Max 100000.000 [V/A]	Factory setting 0.000 [V/A]
Description:	Sets the proportional gain of the current controller for the lower adaptation current range. This value is automatically preset using p3900 or p0340 when commissioning has been completed.		
Dependency:	Refer to: p0391, p0392, p0393		
Note:	For p0393 = 100 %, the current controller adaptation is disabled and p1715 is effective over the entire range.		
p1717[0...n]			
Current controller integral-action time / I_ctrl Tn			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 1710, 5714, 6714, 7017 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 2.00 [ms]
Description:	Sets the integral-action time of the current controller.		
Dependency:	Refer to: p1715		

r1732	CO: Direct-axis voltage setpoint / Direct V set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 5714, 6714, 5718
	P-Group: Closed-loop control Not for motor type: REL	Units group: 5_1	Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the direct-axis voltage setpoint Ud.		
r1733	CO: Quadrature-axis voltage setpoint / Quad V set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32	Calculated: - Dynamic index: -	Access level: 3 Func. diagram: 1630, 5714, 5718, 6714, 6719
	P-Group: Closed-loop control Not for motor type: REL	Units group: 5_1	Unit selection: p0505 Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the quadrature-axis component of voltage setpoint Uq.		
p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180	Access level: 3 Func. diagram: -
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min 0.0 [rev/min]	Max 210000.0 [rev/min]	Factory setting 210000.0 [rev/min]
Description:	Sets the speed to change over the motor model for operation with encoder.		
Dependency:	Refer to: p1756		
Note:	Induction motor (ASM): The motor model is influenced for speeds/velocities greater than p1752. Synchronous motor (SRM): A monitoring (F07412) is activated for speeds/velocities greater than p1752. The motor model is additionally influenced when kT adaptation is activated (p1780.3 = 1).		
p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorl		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32	Calculated: CALC_MOD_REG Dynamic index: DDS, p0180	Access level: 3 Func. diagram: -
	P-Group: Closed-loop control Not for motor type: REL	Units group: 3_1	Unit selection: p0505 Expert list: 1
	Min 0.0 [rev/min]	Max 210000.0 [rev/min]	Factory setting 210000.0 [rev/min]
Description:	Sets the speed to change over the motor model to encoderless operation.		
Dependency:	Refer to: p1756		
Note:	The changeover speed applies for the changeover between open-loop and closed-loop control mode.		

p1756	Motor model changeover speed hysteresis / MotMod n_chgov hys		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: CALC_MOD_CON Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 5.0 [%]
Description:	Sets the hysteresis for the changeover speed/velocity of the motor model.		
Dependency:	Refer to: p1752, p1755		
Note:	The value is entered relative to p1404, p1752 or p1755.		
r1778	Motor model flux angle difference / MotMod ang. diff.		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Closed-loop control Not for motor type: REL	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting - [°]
Description:	Induction motor (ASM): Displays the difference between the motor model flux angle and the transformation angle. Permanent magnet synchronous motor (PEM): Displays the difference between the motor model angle and the encoder angle.		
Notice:	The display only makes sense for corrected actual value inversion, encoder pulse number and pole pair number. Example: Moving in encoderless operation at a speed not equal to zero and without load. --> Check the sign of r0061 and r0063. If the sign is not equal, then change p0410.0. --> Check the stationary value of r0061 and r0063. If the value is not equal, change the encoder pulse number (p0408) or pole pair number (p0314).		
p1800[0...n]	Pulse frequency setpoint / Pulse freq setp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Modulation Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 4.000 [kHz]
Description:	Sets the drive converter switching frequency. This parameter is preset to the rated converter value when the drive is first commissioned.		
Dependency:	The pulse frequency can, depending on the current controller sampling time (p0115[0]) assume the following values. a) $p1800 = 1000 / (p0115[0] * n)$ with $n = 2, 3, 4$ b) $p1800 = 1000 * n / p0115[0]$ with $n = 1, 2, 3, 4, \dots$ Example: $p0115[0] = 125 \mu s \rightarrow p1800 = 2, 2.6, 4 \text{ kHz}$ (from equation a) $p0115[0] = 125 \mu s \rightarrow p1800 = 8, 16 \text{ kHz}$ (from equation b) Possible setting values can be taken from r0114 (if p0009 = p0010 = 0). Refer to: p0230		

Note: The maximum possible pulse frequency is also determined by the power unit being used. When the pulse frequency is increased, depending on the particular power unit, the maximum output current can be reduced (de-rating, refer to r0067).
 If p1800 is changed while commissioning (p0009, p0010 > 0), then it is possible that the old value will no longer be able to be set. The reason for this is that the dynamic limits of p1800 have been changed by a parameter that was set when the drive was commissioned (e.g. p1082).
 For encoderless operation (p1404 = 0 or p1300 = 20), the following conditions apply:
 $p1800 = 1 / (2 * p0115[0])$ or
 $p1800 \geq n / p0115[0]$, n = 1, 2, ...
 For motors with a low power rating (< 300 W) we recommend that p1800 is set acc. to the second condition.

p1818	Phase for PWM generation configuration / Ph for PWM config		
CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Modulation	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Sets the phase shift for "offset clocking". For the first active power unit, it is specified whether clocking is to start at 0° (value = 0) or 180° (value = 1). All other active power units are clocked alternately according to the setting made here.		

p1821[0...n]	Dir of rot / Dir of rot		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(3)	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 4704, 4710, 4711, 4715, 5730, 6730, 6731, 6732
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Setting to change the direction of rotation. If the parameter is changed, it reverses the direction of rotation of the motor and the encoder actual value without changing the setpoint.		
Value:	0: Clockwise 1: Counter-clockwise		
Dependency:	Refer to: F07434		
Notice:	An appropriate fault is output for a drive data set changeover where the direction of rotation changes and the pulses are enabled.		
Note:	For operation with the phase sequence U/V/W, the direction of rotation is defined when viewing the face side of the motor output shaft. When changing the direction of rotation, the rotating field direction of the current controller is reversed. The speed actual value (e.g. r0063) is also reversed so that the control sense is kept and internally causing the direction of rotation to be reversed with the same setpoint. Further, the position actual values of the current encoder are reversed (e.g. r0482[0...2]). For VECTOR, the following applies: p1820 can be used to reverse the direction of the motor without reversing the encoder actual value.		

p1909[0...n]		Motor data identification control word / MotID STW			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3		
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -		
	P-Group: Motor identification	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0010 0111 0000 0000 bin		
Description:	Sets the configuration of the motor data identification.				
Recommend.:	For the stationary motor data identification, if a motor holding brake is being used it should be opened and the motor finely synchronized before the measurement. This should only be done if it can be safely carried out and no external forces can act on the motor. This determines the angular commutation offset (p1909.13, p0431).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	08	Measure D inductance	Yes	No	-
	09	Measure Q inductance	Yes	No	-
	10	Magnetizing field inductance and measure rotor resistance	Yes	No	-
	13	Measure commutation angle and direction of rotation	Yes	No	-
	14	Determining the voltage emulation error	Yes	No	-
Dependency:	Refer to: p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951				
Note:	For an induction motor (ASM) the following bits: 8, 9, 10, 13 are effective For a synchronous motor (SRM) the following bits: 8, 9, 13, 14 are effective Re bit 14: - after successfully determining the voltage emulation error, the display of the phase voltage actual values r0089 and the active power actual value r0082 and the torque actual value r0080 are significantly more accurate. - the voltage emulation errors should be identified with the Motor Module in the warm state. - the motor temperature (r0035) should not change significantly (i.e. it should not be identified immediately after a load duty cycle).				
p1910		Motor data identification routine, stationary (standstill) / MotID standstill			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Motor identification	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-3	1	0		
Description:	Setting to control the motor data identification with the motor stationary.				
Value:	-3: Accept identified parameters -2: Acknowledge encoder inversion actual value (F07993) -1: Start motor data identification without acceptance 0: Inactive/inhibit 1: Start motor data identification with acceptance				
Recommend.:	For motors with brakes, the brake should be opened before carrying out the stationary motor data identification routine (p1215 = 2) as long as this can be done without incurring any danger. The commutation angle and the direction of rotation are also determined.				
Dependency:	Refer to: p1909, r1912, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951 Refer to: F07990, A07991, F07993				
Caution:	For motors without brake or with the brake open (p1215 = 2), for the stationary (zero speed) measurement, the motor may rotate slightly.				
					

Note: Motor data identification can only be selected when the pulses of all of the drive objects of the Control Unit have been suppressed. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered up until the motor data identification has been completed or de-selected.
After a started motor identification is ended, the parameter is automatically reset to 0.
A motor data identification that is presently being carried out can be terminated with p1910 = 0.

r1912 Stator resistance identified / R_stator ident

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]

Description: Displays the identified stator resistance.

Dependency: Refer to: p1909, p1910, r1913, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951

r1913 Rotor time constant identified / T_rotor ident

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]

Description: Displays the identified rotor time constant.

Dependency: Refer to: p1909, p1910, r1912, r1915, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951

r1915 Stator inductance identified / L_stator ident

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]

Description: Displays the identified stator inductance.

Dependency: Refer to: p1909, p1910, r1912, r1913, r1925, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951

r1925 Threshold voltage identified / V_threshold ident

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]

Description: Displays the identified threshold voltage of the power unit.

Dependency: Refer to: p1909, p1910, r1912, r1913, r1915, r1927, r1932, r1933, r1934, r1935, r1936, r1950, r1951

r1927	Rotor resistance identified / R_rotor ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Ohm]	Max - [Ohm]	Factory setting - [Ohm]
Description:	Displays the identified rotor resistance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1932, r1933, r1934, r1935, r1936, r1950, r1951		

r1932[0...19]	d inductance identified / Ld ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified (differential) d-inductance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1927, r1933, r1934, r1935, r1936, r1950, r1951		
Note:	The Ld characteristic consists of the value pairs from p1932 and p1933 with the same index. This value corresponds to the value of the total leakage inductance (r0377).		

r1933[0...19]	d inductance identification current / Ld I_ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the identification current of the d inductance.		
Dependency:	Refer to: p1909, p1910, r1912, r1913, r1915, r1925, r1927, r1932, r1934, r1935, r1936, r1950, r1951		
Note:	The Ld characteristic consists of the value pairs from p1932 and p1933 with the same index.		

r1934[0...9]	q inductance identified / Lq ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified (differential) q-inductance.		
Dependency:	Refer to: p1909, p1910, r1932, r1933		
Note:	The Lq characteristic consists of the value pairs from p1934 and p1935 with the same index. This value corresponds to the value of the total leakage inductance (r0377).		

r1935[0...20] Identification current / I_ident			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the identification current for the identification of the q-inductance ([0...9]) as well as the torque constant ([10]) and the torque characteristic ([11...20]).		
Index:	[0] = q inductance identification current measuring point 1 [1] = q inductance identification current measuring point 2 [2] = q inductance identification current measuring point 3 [3] = q inductance identification current measuring point 4 [4] = q inductance identification current measuring point 5 [5] = q inductance identification current measuring point 6 [6] = q inductance identification current measuring point 7 [7] = q inductance identification current measuring point 8 [8] = q inductance identification current measuring point 9 [9] = q inductance identification current measuring point 10 [10] = Torque constant identification current [11] = Torque characteristic identification current measuring point 1 [12] = Torque characteristic identification current measuring point 2 [13] = Torque characteristic identification current measuring point 3 [14] = Torque characteristic identification current measuring point 4 [15] = Torque characteristic identification current measuring point 5 [16] = Torque characteristic identification current measuring point 6 [17] = Torque characteristic identification current measuring point 7 [18] = Torque characteristic identification current measuring point 8 [19] = Torque characteristic identification current measuring point 9 [20] = Torque characteristic identification current measuring point 10		
Dependency:	Refer to: p1909, p1910, r1934, p1959, p1960		
Note:	- the Lq characteristic consists of the value pairs from r1934 and r1935 with the same index. - the torque constant is identified with the current r1935[10] and displayed in r1937[0]. If the reluctance torque constant is identified (p1959.7 = 1), the torque constant is identified with 150% rated current (p0305), otherwise with 100% rated current. - the torque characteristic (r1937[1...10]) is identified in the range between the rated current (p0305) and the maximum current (p0640) (r1935[11...20]).		
r1936 Magnetizing inductance identified / L_H ident			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified magnetizing inductance(gamma equivalent circuit diagram).		
Dependency:	Refer to: p1909, p1910, r1913, r1915, r1927, p1959, p1960, r1962, r1963		
Note:	This value corresponds to the value of the transformed magnetizing inductance (r0382).		

r1937[0...10]	Torque constant identified / kT ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: 28_1	Unit selection: p0100
	Not for motor type: -		Expert list: 1
	Min - [Nm/A]	Max - [Nm/A]	Factory setting - [Nm/A]
Description:	Displays the identified torque constant/torque characteristic over the q current.		
Index:	[0] = Torque constant identified [1] = Torque characteristic identified measuring point 1 [2] = Torque characteristic identified measuring point 2 [3] = Torque characteristic identified measuring point 3 [4] = Torque characteristic identified measuring point 4 [5] = Torque characteristic identified measuring point 5 [6] = Torque characteristic identified measuring point 6 [7] = Torque characteristic identified measuring point 7 [8] = Torque characteristic identified measuring point 8 [9] = Torque characteristic identified measuring point 9 [10] = Torque characteristic identified measuring point 10		
Dependency:	Refer to: r1938, r1939, p1959, p1960, r1969		
Note:	- the value in r1937[0] corresponds to the torque constant (p0316) and was identified with the current in r1935[10]. If the reluctance torque is identified (p1959.7 = 1), the torque constant is identified with 150% rated current (p0305), otherwise with 100% rated current. - if indices r1937[1...10] are not equal to zero, they show the values of the torque characteristic identified for the current in r1935[11...20]. The torque characteristic is identified in the range between rated current (p0305) and maximum current (p0640).		

r1938	Voltage constant identified / kE ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Vrms]	Max - [Vrms]	Factory setting - [Vrms]
Description:	Displays the identified voltage constant.		
Dependency:	Refer to: r1937, r1939, p1959, p1960, r1969		
Note:	This value corresponds to the voltage constant (p0317).		

r1939	Reluctance torque constant identified / kT_reluct ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mH]	Max - [mH]	Factory setting - [mH]
Description:	Displays the identified reluctance torque constant.		
Dependency:	Refer to: r1937, r1938, p1959, p1960, r1969		
Note:	This value corresponds to the reluctance torque constant (p0328).		

r1947	Optimum load angle identified / phi_load ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the identified, optimum load angle.		
Note:	This value corresponds to the optimum load angle (p0327).		
r1948	Magnetizing current identified / I_mag ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [Arms]	Max - [Arms]	Factory setting - [Arms]
Description:	Displays the identified magnetizing current.		
Dependency:	Refer to: r1936, p1959, p1960		
Note:	This value corresponds to the magnetizing current (p0320 / r0331).		
r1950[0...19]	Voltage emulation error voltage values / V_error V_values		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [V]	Max - [V]	Factory setting - [V]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	Refer to: r1951		
r1951[0...19]	Voltage emulation error current values / V_error I_error		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [A]	Max - [A]	Factory setting - [A]
Description:	The identified characteristic of the voltage emulation error is displayed r1950[0...19] and r1951[0...19].		
Dependency:	Refer to: r1950		

p1958[0...n]		Rotating measurement ramp-up/ramp-down time / Rot meas t_r up/dn		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -	
	P-Group: Motor identification	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -1.00 [s]	Max 999999.00 [s]	Factory setting -1.00 [s]	
Description:	Sets the ramp-up/ramp-down time for the rotating measurement. The following applies for negative values: When the function module "extended setpoint channel" is activated (r0108.8 = 1), the maximum of the ramp-up/ramp-down time of the setpoint channel becomes effective. When this function module is inactive, then no ramp-up/ramp-down time is effective. The following applies for positive values: The selected ramp-up/ramp-down time becomes effective.			
Recommend.:	A ramp-up/ramp-down time should not be activated for the motor data identification (p1958 = 0) as long as this can be safely done without incurring any danger. This means that the identification is complete and more accurate. When the ramp-up/ramp-down time is activated, the following steps of the rotating motor data identification are not executed: - p1959.5 (identifying the q inductance) - p1959.7 (identifying the reluctance torque constant)			
Dependency:	Refer to: p1959, p1960			

p1959[0...n]		Rotating measurement configuration / Rot meas config			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3		
	Data type: Unsigned16	Dynamic index: MDS, p0130	Func. diagram: -		
	P-Group: Motor identification	Units group: -	Unit selection: -		
	Not for motor type: REL		Expert list: 1		
	Min -	Max -	Factory setting 0000 1110 1110 0110 bin		
Description:	Sets the configuration of the rotating measurement.				
Recommend.:	A direction inhibit should not be activated for the rotating measurement (p1959.14 = 1 and p1959.15 = 1) as long as this can be done without incurring any danger. This means that the identification is complete and more accurate. When the direction inhibit is activated, the reluctance torque constant (p1959.7) is not identified and the angular commutation offset (p1959.10, p0431) is inaccurately determined. The reluctance torque constant (p1959.7) is also not identified in encoderless operation.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	Identify the saturation characteristic	Yes	No	-
	02	Identify the moment of inertia	Yes	No	-
	05	Identify the q inductance	Yes	No	-
	06	Identify the torque constant	Yes	No	-
	07	Identify the reluctance torque constant	Yes	No	-
	08	Identify the q inductance at the test stand	Yes	No	-
	09	Identify the magnetizing current / magnetizing inductance	Yes	No	-
	10	Identify the commutation angle and direction of rotation	Yes	No	-
	11	Identify rotor resistance	Yes	No	-
	14	Positive direction permitted	Yes	No	-
	15	Negative direction permitted	Yes	No	-
Dependency:	Refer to: p1958, p1960				

- Notice:** The step p1959.8 (identify q inductance on the test stand) may only be selected if the drive can be kept at zero speed or at a fixed speed either using a test stand or other mechanical measures.
During steps p1959.2 (identifying the moment of inertia) and p1959.6 (identifying the torque constant) the Vdc_min controller is disabled (p1240).
During step p1959.7 (identifying the reluctance torque constant) the Vdc_min controller and Vdc_max controller are disabled (p1240).
- Note:** For an induction motor (ASM), the following bits 1, 2, 5, 8, 9, 10, 14, 15 are effective
For a synchronous motor (SRM), the following bits 2, 5, 6, 7, 8, 10, 14, 15 are effective
Re bit 05:
For "motor holding brake the same as sequence control" (p1215 = 1 or 3), the Lq characteristic is only measured up to approximately the rated motor current (p0305) instead of up to the current limit (p0640). Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.
Re bit 10:
If the motor holding brake is set just the same as the sequence control (p1215 = 1 or 3), the commutation angle and the direction of rotation are not measured. Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger.
Re bit 14 and 15:
The following applies for bit 14 and 15 = 0:
When the function module "extended setpoint channel" is activated (r0108.8 = 1), the direction inhibit of the setpoint channel becomes effective. No direction of inhibit is effective if the function module is inactive.
The following applies for minimum bit 14 = 1 or bit 15 = 1:
The direction inhibit set in p1959 becomes effective.

p1960 Rotating measurement selection / Rot meas sel

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-3	1	0

Description: Activates the rotating measurement.

Value:
-3: Accept identified parameters
-2: Acknowledge encoder inversion actual value (F07993)
-1: Start motor data identification without acceptance
0: Inactive/inhibit
1: Start motor data identification with acceptance

Recommend.: Before carrying out the rotation measurement for motors with brake, the brake should be opened (p1215 = 2) - as long as this can be done without incurring any danger. The commutation angle and the direction are also determined.

Dependency: Refer to: r1934, r1935, r1936, r1937, r1938, r1939, r1947, r1948, p1958, p1959, r1962, r1963, r1969
Refer to: F07990, A07991, F07993

Danger:  For the rotating measurement, the motor is accelerated up to the maximum speed. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective.
The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).

Notice: In order to permanently accept the determined settings they must be saved in a non-volatile fashion (p0971, p0977).

Note: The rotating measurement can only be selected when the pulses of all of the drive objects of the Control Unit have been suppressed. After selection, all of the other drive objects of the Control Unit are interlocked so that they cannot be powered up until the rotating measurement has been completed or de-selected.

When the rotating measurement is activated (p1960 = 1), it is not possible to save the parameters (p0971, p0977).

r1962[0...9]	Saturation characteristic magnetizing current identified / Sat_char I_mag		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM, REL		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the magnetizing currents of the identified saturation characteristic. The values are referred to r0331.		
Dependency:	Refer to: p1959, p1960, r1963		
Note:	The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.		
r1963[0...9]	Saturation characteristic stator flux identified / Sat_char flux		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: PEM, REL		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the stator flux of the identified saturation characteristic. The values are referred to the stator flux at the magnetizing current (r0331).		
Dependency:	Refer to: p1959, p1960, r1962		
Note:	The saturation characteristic consists of the value pairs from p1962 and p1963 with the same index.		
r1969	Moment of inertia identified / M_inertia ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: 25_1	Unit selection: p0100
	Not for motor type: REL		Expert list: 1
	Min - [kgm ²]	Max - [kgm ²]	Factory setting - [kgm ²]
Description:	Displays the identified moment of inertia.		
Dependency:	IEC drives (p0100 = 0): unit kg m ² NEMA drives (p0100 = 1): unit lb ft ² Refer to: p0341, p0342, p1498, p1959, p1960		
r1973[0...1]	Encoder, pulse number identified / Pulse No. ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Index 0: Rotating motors: Displays the identified encoder pulse number (per revolution). Linear motors: Encoder pulse number per meter. Grid division = 1/p1973 [meter]. Index 1: Rotating motors: No significance. Linear motors: Identified grid division in nm.		

Index:	[0] = Rotating motor encoder pulse number [1] = Linear motor, grid division in nm
Notice:	Due to the measuring accuracy (approx. 5%) only the approximate value is shown in p1973 and may not be directly transferred into p0407 or p0408. An incorrect pole pair number (r0313, p0314) or pole pair width (p0315) results in an incorrect value in p1973.
Note:	A negative signal indicates an incorrect polarity of the encoder signal.

p1980[0...n] Pole position identification technique / PolID technique

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 99	Factory setting 99

Description: Sets the pole position identification technique.

Value:
0: Saturation-based 1st + 2nd harmonics
1: Saturation-based 1st harmonics
4: Saturation-based, 2-stage
10: Motion-based
99: No technique selected

Dependency: Refer to: p0325, p0329, p1981, p1982, p1983, r1984, r1985, r1987

Notice: If the incorrect technique is applied, this can cause the motor to accelerate in an uncontrolled fashion.

Note: When commissioning a catalog motor, the technique is automatically selected depending on the motor type being used.

The following applies for 1FN3 motors:

A technique with 2nd harmonic may not be used (do not use p1980 = 0, 4).

For 1FN7 motors, the following applies:

A two-stage technique may not be used (do not use p1980 = 4).

The automatically set value in p0329 may not be changed.

p1981[0...n] Pole position identification maximum distance / PolID distance max

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [°]	Max 180 [°]	Factory setting 10 [°]

Description: Sets the maximum distance (electrical angle) when carrying out the pole position identification routine. If this distance (travel) is exceeded, an appropriate fault is output.

Dependency: Refer to: p0325, p0329, p1980, p1982, p1983, r1984, r1985, r1987, p1990

Refer to: F07995

Notice: The value 180° deactivates position monitoring.

p1982[0...n] Pole position identification selection / PolID selection

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 0

Description: Activates the pole position identification routine to determine the commutation angle and to carry out a plausibility check.

Value:	0: Pole position identification off 1: Pole position identification for commutation 2: Pole position identification for plausibility check
Recommend.:	Re p1982 = 1: This is used for synchronous motors with motor encoder without absolute data. The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute encoder or from the pole position identification routine. Re p1982 = 2: This is used for synchronous motor with motor encoder with absolute data to check this data.
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1983, r1984, r1985, r1987, p1990

p1983	Pole position identification, test / PolID test		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description:	Starts the pole position identification routine for test purposes. p1983 = 1: Start of pole position ID is automatically set to zero after being carried out.
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, r1984, r1985, r1987, p1990
Notice:	For p1983 = 1 and if the pulses are not enabled, then the function is only executed the next time that the pulses are enabled.
Note:	When this test is executed, it does not influence the commutation angle.

r1984	Pole position identification, angular difference / PolID ang diff		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [°]	- [°]	- [°]

Description:	Displays the angular difference between the current electrical commutation angle and the angle determined by the pole position identification.
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1985, r1987, p1990
Note:	When the pole position identification routine is executed several times using p1983, the spread of the measured values can be determined using this value. At the same position, the spread should be less than 2 degrees electrical.

r1985	Pole position identification, saturation characteristic / PolID sat_char		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [Arms]	- [Arms]	- [Arms]

Description:	Displays the saturation characteristic of the pole position identification routine. The values for the characteristic of the last saturation-based pole position identification routine are output every 1 ms in order to record signals (e.g. trace).
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1987, p1990

r1987	Pole position identification trigger characteristic / PolID trig_char		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the trigger characteristic of the pole position identification routine. The values for the characteristic of the last pole position identification routine are output every 1 ms in order to record signals (e.g. trace). The values for trigger characteristic and saturation characteristic are always output in synchronism from a time perspective.		
Dependency:	Refer to: p0325, p0329, p1980, p1981, p1982, p1983, r1984, r1985		
Note:	The following information and data can be taken from the trigger characteristic. - the value -100% marks the angle at the start of the measurement. - the value +100 % marks the commutation angle determined from the pole position identification routine.		
p1990	Encoder adjustment, determine angular commutation offset / Enc_adj det ang		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	This function is only required for synchronous motors and can be started when commissioning for the first time or after replacing an encoder. The function acts on the active motor data set. When adjusting the encoder, the angular commutation offset is determined and transferred into p0431. Alarm A07971 is output while the angular commutation offset is being determined. p1990 is automatically set to 0 after the angular commutation offset has been determined. p1990 = 0: De-activated p1990 = 1: Activated with transfer		
Dependency:	Refer to: p0325, p0329, p0431, p1980, p1981, p1982, p1983, r1984, r1985, r1987 Refer to: A07971		
Caution:	In order to prevent an incorrect orientation of the electrical pole position (uncontrolled motor movement), the automatically determined angular commutation offset (p0431) should, for reasons of safety, be checked using one of the following recommendations: Recommendation 1: Set encoderless operation (p1300 = 20 or p1404 = 0), deselect pole position identification (p1982 = 0), operate under no-load conditions with a speed > p1755, correct the actual value inversion (p0410.0) (e.g. r0061 = r0063), read the angular error in r1778; the result in r1778 should be approximately 0, for r1778 > 2 degrees, add the value to p0431 - taking into account the sign - and enter in p0431. Recommendation 2: Set the current limit to 0 (p0640 = 0), activate travel to fixed stop (p1545 = 1), record r0089[0] (phase voltage) and r0093 (electrically normalized pole position) (e.g. trace) while the motor is externally moved; in this case, the rising zero crossover of the phase voltage must coincide with the 360 ° --> 0 ° step (jump) from r0093. Recommendation 3: Measure the phase voltage V (measure phase U with respect to the virtual star point using 3 resistors) and r0093 (electrically normalized pole position); the rising zero crossover of the phase voltage must coincide with the 360 ° --> 0 ° step (jump) of r0093. Recommendation 4: Determine the average value from several results of a pole position identification routine executed as test (p1983) at various electrical angles and add the value to p0431 - taking into account the sign and enter into p0431.		

Notice: For p1990 = 1 and with the pulses not enabled, the function is only executed the next time that the pulses are enabled.

Note: If fault F07414 is present, the following applies:
First set p1990 to 1, then acknowledge the fault and then issue the enable signals.

p1991[0...n]	Motor changeover, angular commutation correction / Ang_com corr		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -180 [°]	Max 180 [°]	Factory setting 0 [°]

Description: Sets the angle that is added to the commutating angle.

Caution: If the angular correction is not correctly set, when changing over and with closed-loop torque control, the motor can accelerate to high speeds in spite of the fact that a setpoint of zero has been entered.



r1992	Pole position identification diagnostics / PolID diag		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays diagnostics information for the pole position identification routine.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Critical encoder fault occurred	Yes	No	-
	02	Enc parking active	Yes	No	-
	05	Encoder fault Class 1	Yes	No	-
	06	Encoder fault Class 2	Yes	No	-
	07	Pole position identification for encoder carried out	Yes	No	-
	08	Fine synchronization carried out	Yes	No	-
	09	Coarse synchronization carried out	Yes	No	-
	10	Commutation information available	Yes	No	-
	11	Speed information available	Yes	No	-
	12	Position information available	Yes	No	-
	15	Zero mark passed	Yes	No	-

p1993[0...n]	Pole position identification current, motion-based / PolID I mot_bas		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_EQU	Access level: 3
	Data type: FloatingPoint32	Dynamic index: MDS, p0130	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [Arms]	Max 20000.00 [Arms]	Factory setting 0.00 [Arms]

Description: Sets the current when executing the motion-based pole position identification.

Dependency: Refer to: p1980, p1982, p1994

p1994[0...n]	Pole position identification rise time motion-based / PolID T mot_bas		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: - Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 2500 [ms]	Factory setting 100 [ms]
Description:	Sets the rise time of the current when executing the motion-based pole position identification.		
Dependency:	Refer to: p1980, p1982, p1993		
p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: 17_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.000 [Nms/rad]	Max 999999.000 [Nms/rad]	Factory setting 0.300 [Nms/rad]
Description:	Sets the gain when executing the motion-based pole position identification.		
p1996[0...n]	Pole position identification, integral time motion-based / PolID Tn mot_bas		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 500.0 [ms]	Factory setting 2.0 [ms]
Description:	Sets the integral time when executing the motion-based pole position identification.		
Note:	The value 0 de-activates the I component.		
p1997[0...n]	Pole position identification, smoothing time motion-based / PolID t_sm mot_bas		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_CON Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 50.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the smoothing time when executing the motion-based pole position identification.		
p2000	Reference speed reference frequency / Ref_n Ref_f		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: FloatingPoint32 P-Group: Communications Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 6.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 3000.00 [rev/min]
Description:	Sets the reference quantity for speed and frequency. All speeds or frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The following applies: Reference frequency (in Hz) = reference speed (in RPM) / 60		
Dependency:	Refer to: p0500, p2001, p2002, p2003, r2004		

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example 1:

The signal of an analog input (e.g. r4055[0]) is connected to a speed setpoint (e.g. p1070[0]). The current percentage input value is cyclically converted into the absolute speed setpoint using the reference speed (p2000).

Example 2:

The setpoint from PROFIBUS (r2050[1]) is connected to a speed setpoint (e.g. p1070[0]). The current input value is cyclically converted into a percentage value via the pre-specified normalization 4000 hex. This percentage value is converted to the absolute speed setpoint via reference speed (p2000).

p2001		Reference voltage / Reference voltage	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 10 [Vrms]	Max 100000 [Vrms]	Factory setting 1000 [Vrms]
Description:	Sets the reference quantity for voltages. All voltages specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity. Example: The actual value of the DC link voltage (r0070) is connected to a test socket (e.g. p0771[0]). The current voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling.		

p2002		Reference current / Reference current	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.10 [Arms]	Max 100000.00 [Arms]	Factory setting 100.00 [Arms]
Description:	Sets the reference quantity for currents. All currents specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Notice:	If various DDS are used with different motor data, then the reference quantities remain the same as these are not changed over with the DDS. The resulting conversion factor should be taken into account (e.g. for trace records). Example: p2002 = 100 A Reference quantity 100 A corresponds to 100 % p305[0] = 100 A Rated motor current 100 A for MDS0 in DDS0 --> 100 % corresponds to 100 % of the rated motor current p305[1] = 50 A Rated motor current 50 A for MDS1 in DDS1 --> 100 % corresponds to 200 % of the rated motor current		

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

For infeed units, the rated line current, that is obtained from the rated power and parameterized rated line supply voltage (p2002 = r0206 / p0210 / 1.73) is pre-assigned as the reference quantity.

Example:
The actual value of a phase current (r0069[0]) is connected to a test socket (e.g. p0771[0]). The actual current value is cyclically converted into a percentage of the reference current (p2002) and output according to the parameterized scaling.

p2003	Reference torque / Reference torque		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: 7_2	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.01 [Nm]	Max 20000000.00 [Nm]	Factory setting 1.00 [Nm]

Description: Sets the reference quantity for torques.

All torques specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.

If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

Example:

The actual value of the total torque (r0079) is connected to a test socket (e.g. p0771[0]). The current torque is cyclically converted into a percentage of the reference torque (p2003) and output according to the parameterized scaling.

r2004	Reference power / Reference power		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: 14_10	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min - [kW]	Max - [kW]	Factory setting - [kW]

Description: Displays the reference quantity for power ratings.

All power ratings specified as relative value are referred to this reference quantity.

The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.

Dependency: This value is calculated as follows:

Infeed: Calculated from voltage times current.

Closed-loop control: Calculated from torque times speed.

Refer to: p2000, p2001, p2002, p2003

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.

The reference power is calculated as follows:

- $2 * \pi * \text{reference speed} / 60 * \text{reference torque (motor)}$

- $\text{reference voltage} * \text{reference current} * \text{root}(3)$ (infeed)

p2005	Reference angle / Reference angle		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 90.00 [°]	Max 180.00 [°]	Factory setting 90.00 [°]
Description:	Sets the reference quantity for angle. All angles specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.		
p2007	Reference acceleration / Ref accel		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.01 [rev/s²]	Max 500000.00 [rev/s²]	Factory setting 0.01 [rev/s²]
Description:	Sets the reference quantity for acceleration rates. All acceleration rates specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex.		
Note:	For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1. If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor. The reference acceleration is calculated as follows: Reference speed (p2000) converted from 1/min to 1/s divided by 1 s --> p2007 = p2000 [rpm] / (60 [s/min] * 1 [s])		
r2019[0...7]	Comm int error statistics / Comm err		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the receive errors at the commissioning interface (RS232).		
Index:	[0] = Number of error-free telegrams [1] = Number of rejected telegrams [2] = Number of framing errors [3] = Number of overrun errors [4] = Number of parity errors [5] = Number of starting character errors [6] = Number of checksum errors [7] = Number of length errors		

r2032		Master control, control word effective / PcCtrl STW eff			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the effective control word 1 (STW1) of the drive for the master control.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	OC / OFF2	Yes	No	-
	02	OC / OFF3	Yes	No	-
	03	Operation enable	Yes	No	-
	04	Ramp-function generator enable	Yes	No	-
	05	Start ramp-function generator	Yes	No	-
	06	Speed setpoint enable	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	08	Jog bit 0	Yes	No	3030
	09	Jog bit 1	Yes	No	3030
	10	Master ctrl by PLC	Yes	No	-
Notice:	The master control only influences control word 1 and speed setpoint 1. Other control words/setpoints can be transferred from another automation device.				
Note:	OC: Operating condition				
p2037		PROFdrive STW1.10 = 0 mode / PD STW1.10=0 mode			
SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0	2	0		
Description:	Sets the processing mode for PROFdrive STW1.10 "master control by PLC". Generally, control word 1 is received with the first receive word (PZD1) (this is in conformance to the PROFdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.				
Value:	0: Freeze setpoints and continue to process sign-of-life 1: Freeze setpoints and sign-of-life 2: Setpoints are not frozen				
Recommend.:	Do not change the setting p2037 = 0.				
Note:	If the STW1 is not transferred according to the PROFdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.				
p2038		PROFdrive STW/ZSW interface mode / PD STW/ZSW IF mode			
SERVO_S110-DP (EPOS, Pos ctrl)	Can be changed: T	Calculated: -	Access level: 3		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0	0	0		
Description:	Displays the interface mode of the PROFdrive control words and status words.				
Value:	0: SINAMICS				
Dependency:	Refer to: p0922, p2079				

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For p0922 (p2079) = 7, 9, 110, 111, p2038 is automatically set to 0 and cannot be changed.

p2038 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode

SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Sets the interface mode of the PROFIdrive control words and status words.

When selecting a telegram via p0922 (p2079), this parameter influences the device-specific assignment of the bits in the control and status words.

Value:
0: SINAMICS
1: SIMODRIVE 611 universal

Dependency: Refer to: p0922, p2079

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For p0922 (p2079) = 100 ... 199, p2038 is automatically set to 1 and p2038 can no longer be changed. This means that for these telegrams, the "SIMODRIVE 611 universal" interface mode is set and cannot be changed.

p2042 PROFIBUS Ident Number / PB Ident No.

CU_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Sets the PROFIBUS Ident Number (PNO-ID).

SINAMICS can be operated with various identities on PROFIBUS. This allows the use of a PROFIBUS GSD that is independent of the device (e.g. PROFIdrive VIK-NAMUR with Ident Number 3AA0 hex).

Value:
0: SINAMICS S/G
1: VIK-NAMUR

Note: Every change only becomes effective after a POWER ON.

r2043.0...1 BO: PROFIdrive PZD state / PD PZD state

CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PROFIdrive PZD state.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Setpoint failure	Yes	No	-
	01	Clock cycle synchronous operation active	Yes	No	-

Dependency: Refer to: p2044

Note: When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.

p2044	PROFdrive fault delay / PD fault delay		
SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1
	Min 0 [s]	Max 100 [s]	Factory setting 0 [s]
Description:	Sets the delay time to initiate fault F01910 after a setpoint failure. The time until the fault is initiated can be used by the application. This means that it is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).		
Dependency:	Refer to: r2043 Refer to: F01910		
p2045	CI: PROFdrive clock-cyc. synchr. master sign-of-life, signal source / PD mast-Sol S_src		
CU_S110-DP, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / Integer16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Connector input for the sign-of-life of the clock synchronous PROFIBUS/PROFINET master. The sign-of-life is expected at bits 12 to 15. Bits 0 to 11 are not evaluated. The sign-of-life signal is normally received in PZD4 (control word 2) from the PROFIBUS/PROFINET master.		
Dependency:	Refer to: p0925, r2065		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p2047	PROFIBUS additional monitoring time / PB suppl t_monit		
CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 2000 [ms]	Factory setting 0 [ms]
Description:	Sets the additional monitoring time to monitor the process data received via PROFIBUS. The additional monitoring time enables compensation for short bus faults. If no process data is received within this time, an appropriate message is output.		
Recommend.:	Do not set the additional monitoring time for clock-synchronous operation.		
Dependency:	Refer to: F01910		
p2048	IF1 PROFdrive PZD sampling time / IF1 PZD t_sample		
CU_S110-DP	Can be changed: C1(3) Data type: FloatingPoint32 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1.00 [ms]	Max 16.00 [ms]	Factory setting 4.00 [ms]
Description:	Sets the sampling time for the cyclic interface 1 (IF1).		
Note:	For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).		

p2048 IF1 PROFIdrive PZD sampling time / IF1 PZD t_sample

CU_S110-CAN	Can be changed: C1(3)	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 4.00 [ms]	Max 16.00 [ms]	Factory setting 4.00 [ms]

Description: Sets the sampling time for the cyclic interface 1 (IF1).

Note: For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

r2050[0...4] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1

r2050[0...15] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2440, 2468
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Connector output to interconnect PZD (setpoints) with word format received from the PROFIBUS master.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: r2060

Note: IF1: Interface 1

p2051[0...14]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	IF1: Interface 1		

p2051[0...18]	CI: IF1 PROFIdrive PZD send word / IF1 PZD send word		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 2470
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with word format to be sent to the PROFIBUS master.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19		
Dependency:	Refer to: p2061		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	IF1: Interface 1		

r2053[0...14]	IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the PZD (actual values) with word format sent to the PROFIBUS master.				
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
Note:	IF1: Interface 1				

r2053[0...18]		IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2450, 2470		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the PZD (actual values) with word format sent to the PROFIBUS master.				
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16 [16] = PZD 17 [17] = PZD 18 [18] = PZD 19				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
Dependency:	Refer to: p2051, p2061				
Note:	IF1: Interface 1				

r2054		PROFIBUS status / PB status	
CU_S110-DP	Can be changed: - Data type: Integer16 P-Group: Communications Not for motor type: - Min 0 Description: Status display for the PROFIBUS interface. Value: 0: Off 1: No connection (search for baud rate) 2: Connection OK (baud rate found) 3: Cyclic connection with master (data exchange) 4: Cyclic data OK Note: Re r2054 = 3: In state 3 (the LED flashes green), a cyclic connection has been established to the PROFIBUS master; however, one of the following prerequisites is missing for cyclic operation: - No setpoints are being received as the PROFIBUS master is in the STOP condition. Only for clock-cycle synchronous operation, the following applies: - The drive is not in synchronism as the global control (GC) has an error. Re r2054 = 4: In the status 4 (LED green), the cyclic connection to the PROFIBUS master has been established and setpoints are being received. The clock cycle synchronization is OK, the global control (GC) is error-free. This state does not provide any statement regarding the quality of the clock cycle synchronous sign-of-life characters on the drive objects.	Calculated: - Dynamic index: - Units group: - Max 4 Factory setting -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1
r2055[0...2]		PROFIBUS diagnostics standard / PB diag standard	
CU_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - Description: Diagnostics display for the PROFIBUS interface. Index: [0] = Master bus address [1] = Master input total length bytes [2] = Master output total length bytes	Calculated: - Dynamic index: - Units group: - Max - Factory setting -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1
r2057		PROFIBUS address switch diagnostics / PB addr diagn	
CU_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - Description: Displays the setting of the PROFIBUS address switch "DP ADDRESS" on the Control Unit. Dependency: Refer to: p0918	Calculated: - Dynamic index: - Units group: - Max - Factory setting -	Access level: 3 Func. diagram: 2410 Unit selection: - Expert list: 1

r2060[0...14] CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 2440, 2468
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output to interconnect PZD (setpoints) with double word format received from the PROFIBUS master.		
Index:	[0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16		
Dependency:	Refer to: r2050		
Note:	IF1: Interface 1		

p2061[0...14] CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 2470
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects the PZD (actual values) with double word format to be sent to the PROFIBUS master.		
Index:	[0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16		
Dependency:	Refer to: p2051		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	IF1: Interface 1		

r2063[0...14]		IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2450, 2470		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the PZD (actual values) with double word format sent to the PROFIBUS/PROFINET master.				
Index:	[0] = PZD 1 + 2 [1] = PZD 2 + 3 [2] = PZD 3 + 4 [3] = PZD 4 + 5 [4] = PZD 5 + 6 [5] = PZD 6 + 7 [6] = PZD 7 + 8 [7] = PZD 8 + 9 [8] = PZD 9 + 10 [9] = PZD 10 + 11 [10] = PZD 11 + 12 [11] = PZD 12 + 13 [12] = PZD 13 + 14 [13] = PZD 14 + 15 [14] = PZD 15 + 16				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
	16	Bit 16	On	Off	-
	17	Bit 17	On	Off	-
	18	Bit 18	On	Off	-
	19	Bit 19	On	Off	-
	20	Bit 20	On	Off	-
	21	Bit 21	On	Off	-
	22	Bit 22	On	Off	-
	23	Bit 23	On	Off	-
	24	Bit 24	On	Off	-
	25	Bit 25	On	Off	-
	26	Bit 26	On	Off	-
	27	Bit 27	On	Off	-
	28	Bit 28	On	Off	-
	29	Bit 29	On	Off	-
	30	Bit 30	On	Off	-
	31	Bit 31	On	Off	-
Note:	IF1: Interface 1				

r2064[0...7]	PROFIdrive diagnostics clock synchronous mode / PD diag clock sync		
CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the last parameter received from the PROFIBUS/PROFINET master for clock synchronism. The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the master to the slave.		
Index:	[0] = Clock synchronous mode activated [1] = Bus cycle time (Tdp) [µs] [2] = Master cycle time (Tmapc) [µs] [3] = Instant of actual value acquisition (Ti) [µs] [4] = Instant of setpoint acquisition (To) [µs] [5] = Data exchange interval (Tdx) [µs] [6] = PLL window (Tpll-w) [1/12 µs] [7] = PLL delay time (Tpll-d) [1/12 µs]		
r2065	PROFIdrive master sign-of-life, diagnostics / PD mast-SoL diag		
CU_S110-DP, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2410
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays how often the sign-of-life from the clock synchronous PROFIBUS/PROFINET master failed. An appropriate fault is output when the tolerance, specified in p0925, is exceeded.		
Dependency:	Refer to: F01912		
p2066	SYNC automatic warm restart / SYNC warm restart		
CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description:	Activates an automatic warm restart after changing the DP clock cycle has been changed. p2066 = 0: An attempt to change the DP clock cycle is rejected, and Alarm A01902 is output with alarm value = 9. In order that the DP clock cycle becomes effective, a warm restart or POWER ON must be carried out. p2066 = 1: When the DP clock cycle is changed, an automatic warm restart is initiated (p0009 = 30, p0976 = 3). After booting the modified DP clock cycle becomes effective. The automatic warm restart is only carried out if for all of the drives the pulses have been suppressed. Otherwise p0009 = 30 cannot be executed and an attempt to change the DP clock cycle is rejected as for p2066 = 0.		
Dependency:	Refer to: A01902		

r2074[0...4]	IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv		
CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5		
Note:	IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 65535: Not occupied		

r2074[0...15]	IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv		
SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the PROFIBUS address of the sender from which the process data (PZD) is received.		
Index:	[0] = PZD 1 [1] = PZD 2 [2] = PZD 3 [3] = PZD 4 [4] = PZD 5 [5] = PZD 6 [6] = PZD 7 [7] = PZD 8 [8] = PZD 9 [9] = PZD 10 [10] = PZD 11 [11] = PZD 12 [12] = PZD 13 [13] = PZD 14 [14] = PZD 15 [15] = PZD 16		
Note:	IF1: Interface 1 Value range: 0 - 125: Bus address of the sender 65535: Not occupied		

r2075[0...4] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 65535: Not occupied

r2075[0...15] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 65535: Not occupied

r2076[0...14] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15

Note: IF1: Interface 1
 Value range:
 0 - 242: Byte offset
 65535: Not occupied

r2076[0...18] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (master output).

Index:
 [0] = PZD 1
 [1] = PZD 2
 [2] = PZD 3
 [3] = PZD 4
 [4] = PZD 5
 [5] = PZD 6
 [6] = PZD 7
 [7] = PZD 8
 [8] = PZD 9
 [9] = PZD 10
 [10] = PZD 11
 [11] = PZD 12
 [12] = PZD 13
 [13] = PZD 14
 [14] = PZD 15
 [15] = PZD 16
 [16] = PZD 17
 [17] = PZD 18
 [18] = PZD 19

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not occupied

p2079		PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
CU_S110-DP	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Communications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	390	999	999	
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.			
Value:	390: SIEMENS telegram 390, PZD-2/2 391: SIEMENS telegram 391, PZD-3/7 999: Free telegram configuration with BICO			

p2079		PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Communications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	999	999	999	
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.			
Value:	999: Free telegram configuration with BICO			
Dependency:	Refer to: p0922			

p2079	PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 7	Max 999	Factory setting 999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.		
Value:	7: Standard telegram 7, PZD-2/2 9: Standard telegram 9, PZD-6/5 110: SIEMENS telegram 110, PZD-12/7 111: SIEMENS telegram 111, PZD-12/12 999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		

p2079	PROFIdrive PZD telegram selection extended / PD PZD telegr ext		
SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 999	Factory setting 999
Description:	Sets the send and receive telegram. Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded. For p0922 < 999 the following applies: p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited. For p0922 = 999 the following applies: p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set. For p0922 = 999 and p2079 < 999 the following applies: The interconnections contained in the telegram are inhibited. However, the telegram can be extended.		
Value:	1: Standard telegram 1, PZD-2/2 2: Standard telegram 2, PZD-4/4 3: Standard telegram 3, PZD-5/9 4: Standard telegram 4, PZD-6/14 102: SIEMENS telegram 102, PZD-6/10 103: SIEMENS telegram 103, PZD-7/15 999: Free telegram configuration with BICO		
Dependency:	Refer to: p0922		

p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1			
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form status word 1.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p2081[0...15] BI: Binector-connector converter status word 2 / Bin/con ZSW2			
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form status word 2.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: For clock synchronous operation, bit 12 to 15 to transfer the sign-of-life are reserved in status word 2 - and may not be freely interconnected.

p2082[0...15]	BI: Binector-connector converter status word 3 / Bin/con ZSW3		
All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form free status word 3.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p2083[0...15]	BI: Binector-connector converter status word 4 / Bin/con ZSW4		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form free status word 4.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		

p2084[0...15] BI: Binector-connector converter status word 5 / Bin/con ZSW5			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2472 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Selects bits to be sent to the PROFIBUS/PROFINET master. The individual bits are combined to form free status word 5.		
Index:	[0] = Bit 0 [1] = Bit 1 [2] = Bit 2 [3] = Bit 3 [4] = Bit 4 [5] = Bit 5 [6] = Bit 6 [7] = Bit 7 [8] = Bit 8 [9] = Bit 9 [10] = Bit 10 [11] = Bit 11 [12] = Bit 12 [13] = Bit 13 [14] = Bit 14 [15] = Bit 15		
Dependency:	Refer to: p2088, r2089		

p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv			
All objects	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2472 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0000 bin
Description:	Setting to invert the individual binector inputs of the binector connector converter.		
Index:	[0] = Status word 1 [1] = Status word 2 [2] = Free status word 3 [3] = Free status word 4 [4] = Free status word 5		

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: Refer to: p2080, p2081, p2082, p2083, r2089

r2089[0...4] CO: Send binector-connector converter status word / Bin/con ZSW send

All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2472
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Connector output to interconnect the status words to a PZD send word.

Index:
 [0] = Status word 1
 [1] = Status word 2
 [2] = Free status word 3
 [3] = Free status word 4
 [4] = Free status word 5

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Dependency: Refer to: p2051, p2080, p2081, p2082, p2083

Note: r2089 together with p2080 to p2083 forms four binector-connector converters.

r2090.0...15 BO: IF1 PROFIBUS PZD1 receive bit-serial / IF1 PZD1 rcv bitw					
All objects	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2468		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIBUS master.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
Note:	IF1: Interface 1				

r2091.0...15 BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 rcv bitw					
All objects	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2468		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Binector output for bit-serial interconnection of PZD2 received from the PROFIBUS master.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
Note:	IF1: Interface 1				

r2092.0...15 BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw

SERVO_S110-CAN, SERVO_S110-DP
Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 2468
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIBUS master.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2093.0...15 BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

SERVO_S110-CAN, SERVO_S110-DP
Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 2468
P-Group: Communications **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min **Max** **Factory setting**
 - - -

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIBUS master.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-

Note: IF1: Interface 1

r2094.0...15 BO: Connector-binector converter binector output / Con/bin outp					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2468		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Binector output for bit-serial onward interconnection of a PZD word received from the PROFIBUS/PROFINET master . The PZD is selected via p2099[0].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
Dependency:	Refer to: p2099				

r2095.0...15 BO: Connector-binector converter binector output / Con/bin outp					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2468		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Binector output for bit-serial interconnection of a PZD word received from the PROFIBUS/PROFINET master. The PZD is selected via p2099[1].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	On	Off	-
	01	Bit 1	On	Off	-
	02	Bit 2	On	Off	-
	03	Bit 3	On	Off	-
	04	Bit 4	On	Off	-
	05	Bit 5	On	Off	-
	06	Bit 6	On	Off	-
	07	Bit 7	On	Off	-
	08	Bit 8	On	Off	-
	09	Bit 9	On	Off	-
	10	Bit 10	On	Off	-
	11	Bit 11	On	Off	-
	12	Bit 12	On	Off	-
	13	Bit 13	On	Off	-
	14	Bit 14	On	Off	-
	15	Bit 15	On	Off	-
Dependency:	Refer to: p2099				

p2098[0...1]		Inverter connector-binector converter binector output / Con/bin outp inv			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2468		
	P-Group: Communications	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Setting to invert the individual binector outputs of the connector-binector converter. Using p2098[0], the signals of CI: p2099[0] are influenced. Using p2098[1], the signals of CI: p2099[1] are influenced.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-
Dependency:	Refer to: r2094, r2095, p2099				

p2099[0...1]		CI: Connector-binector converter signal source / Con/bin S_src		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 2468	
	P-Group: Communications	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for the connector-binector converter. A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).			
Dependency:	Refer to: r2094, r2095			
Note:	From the signal source set via the connector input, the corresponding lower 16 bits are converted. p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters: Connector input p2099[0] to binector output in r2094.0...15 Connector input p2099[1] to binector output in r2095.0...15			

p2100[0...19]	Setting the fault number for fault response / F_no F response		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	[0] 0
			[1] 0
			[2] 0
			[3] 0
			[4] 0
			[5] 0
			[6] 0
			[7] 0
			[8] 0
			[9] 0
			[10] 0
			[11] 0
			[12] 0
			[13] 0
			[14] 0
			[15] 0
			[16] 0
			[17] 0
			[18] 0
			[19] 0
Description:	Selects the faults for which the fault response should be changed		
Dependency:	The fault is selected and the required response is set under the same index. Refer to: p2101		
Notice:	For the following cases, it is not possible to re-parameterize the fault response to a fault: - if there is no existing fault number. - the message type is not "fault" (F). - when a fault is present.		

p2101[0...19] Setting the fault response / Fault responseSERVO_S110-CAN,
SERVO_S110-DP**Can be changed:** U, T**Data type:** Integer16**P-Group:** Messages**Not for motor type:** -**Calculated:** -**Dynamic index:** -**Units group:** -**Access level:** 3**Func. diagram:** 1750, 8075**Unit selection:** -**Expert list:** 1**Min**

0

Max

7

Factory setting

[0] 0

[1] 0

[2] 0

[3] 0

[4] 0

[5] 0

[6] 0

[7] 0

[8] 0

[9] 0

[10] 0

[11] 0

[12] 0

[13] 0

[14] 0

[15] 0

[16] 0

[17] 0

[18] 0

[19] 0

Description: Sets the fault response for the selected fault.**Value:**
0: NONE
1: OFF1
2: OFF2
3: OFF3
4: STOP1 (being developed)
5: STOP2
6: IASC / DC brake
7: ENCODER (p0491)**Dependency:** The fault is selected and the required response is set under the same index.
Refer to: p2100**Notice:** It is not possible to re-parameterize the response to a specific fault for faults that are already present (queued).**Note:**
OFF1:
Braking along the ramp-function generator down ramp followed by a pulse inhibit.
OFF2:
Internal/external pulse inhibit.
OFF3:
Braking along the OFF3 down ramp followed by a pulse inhibit.
STOP2:
n_set = 0
The fault response can only be changed for faults with the appropriate identification.
IASC / DC BRAKE:
a) For synchronous motors (p0300 = 2xx, 4xx), an internal armature short-circuit is executed.
b) For induction motors (p0300 = 1xx)
Example:
F12345 and fault response = NONE (OFF1, OFF2) --> The NONE fault response can be changed to either OFF1 or OFF2.

p2102	BI: Acknowledge all faults / Ackn all faults		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2546, 8060 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to acknowledge all faults at all drive objects of the drive system.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2441, 2442, 2443, 2447, 2475, 2546, 9220, 9677, 9678 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the first signal source to acknowledge faults.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546, 8060 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the second signal source to acknowledge faults.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		
p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546, 8060 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the third signal source to acknowledge faults.		
Note:	A fault acknowledgement is triggered with a 0/1 signal.		

p2106[0...n]	BI: External fault 1 / External fault 1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external fault 1.		
Dependency:	Refer to: F07860		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		
p2107[0...n]	BI: External fault 2 / External fault 2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external fault 2.		
Dependency:	Refer to: F07861		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		
p2108[0...n]	BI: External fault 3 / External fault 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external fault 3. External fault 3 is initiated by the following AND logic operation: - BI: p2108 negated - BI: p3111 - BI: p3112 negated		
Dependency:	Refer to: F07862		
Note:	An external fault is triggered with a 1/0 signal. If this fault is output at the Control Unit, then it is transferred to all existing drive objects.		
r2109[0...63]	Fault time removed in milliseconds / t_flt resolved ms		
All objects	Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 1750, 8060 Unit selection: - Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the system runtime in milliseconds when the fault was removed.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115		
Notice:	The time comprises r2136 (days) and r2109 (milliseconds).		

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r2110[0...63]	Alarm number / Alarm number		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8065 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	This parameter is identical to r2122.		
p2111	Alarm counter / Alarm counter		
All objects	Can be changed: U, T Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 1750, 8065 Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Number of alarms that have occurred after the last reset.		
Dependency:	When p2111 is set to 0, the following is initiated: - all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63]. - the alarm buffer [0...7] is deleted. Refer to: r2110, r2122, r2123, r2124, r2125		
Note:	The parameter is reset to 0 at POWER ON.		
p2112[0...n]	BI: External alarm 1 / External alarm 1		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 2546 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for external alarm 1.		
Dependency:	Refer to: A07850		
Note:	An external alarm is triggered with a 1/0 signal.		
r2114[0...1]	System runtime / System runtime		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the total system runtime for the drive unit. The time comprises r2114[0] (milliseconds) and r2114[1] (days). After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented.		
Index:	[0] = Milliseconds [1] = Days		
Dependency:	Refer to: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146		

Note: The time in r2114 is used to display the fault and alarm times.
When the electronics power supply is switched out, the counter value is saved.
After the drive unit is powered up, the counter continues to run with the value that was saved the last time that the drive unit was powered down.

p2116[0...n]	BI: External alarm 2 / External alarm 2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2546
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external alarm 2.		
Dependency:	Refer to: A07851		
Note:	An external alarm is triggered with a 1/0 signal.		

p2117[0...n]	BI: External alarm 3 / External alarm 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 2546
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for external alarm 3.		
Dependency:	Refer to: A07852		
Note:	An external alarm is triggered with a 1/0 signal.		

p2118[0...19]	Sets the message number for message type. / Msg_no Msg_type		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	0
Description:	Selects faults or alarms for which the message type should be changed.		
Dependency:	Selects the fault or alarm selection and sets the required type of message realized under the same index. Refer to: p2119		
Notice:	It is not possible to re-parameterize the message type in the following cases: - if there is no existing message number. - if a message is present.		

p2119[0...19]	Setting the message type / Message type		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	3	1
Description:	Sets the message type for the selected fault or alarm.		
Value:	1: Fault (F) 2: Alarm (A) 3: No message (N)		

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
Refer to: p2118

Notice: It is not possible to re-parameterize the message type for the existing faults or alarms.

Note: The message type can only be changed for messages with the appropriate identification.
Example:
F12345(A) --> Fault F12345 can be changed to alarm A12345.
In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

r2120 **CO: Sum of fault and alarm buffer changes / Sum buffer changed**

All objects **Can be changed:** - **Calculated:** - **Access level:** 4
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 8065
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the sum of all of the fault and alarm buffer changes in the drive unit.
Dependency: Refer to: r0944, r2121

r2121 **CO: Counter, alarm buffer changes / Alarm buff changed**

All objects **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 8065
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: This counter is incremented every time the alarm buffer changes.
Dependency: Refer to: r2110, r2122, r2123, r2124, r2125

r2122[0...63] **Alarm code / Alarm code**

All objects **Can be changed:** - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** 1750, 8065
P-Group: Messages **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1

Min	Max	Factory setting
-	-	-

Description: Displays the number of alarms that have occurred.
Dependency: Refer to: r2110, r2123, r2124, r2125, r2134, r2145, r2146
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
Alarm buffer structure (general principle):
r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)
...
r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)
When the alarm buffer is full, the alarms that have gone are entered into the alarm history:
r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)
...
r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2123[0...63]	Alarm time received in milliseconds / t_alarm recv ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the system runtime in milliseconds when the alarm occurred.		
Dependency:	Refer to: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146		
Notice:	The time comprises r2145 (days) and r2123 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.		
r2124[0...63]	Alarm value / Alarm value		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays additional information about the active alarm (as integer number).		
Dependency:	Refer to: r2110, r2122, r2123, r2125, r2134, r2145, r2146		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.		
r2125[0...63]	Alarm time removed in milliseconds / t_alarm res ms		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 1750, 8065
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the system runtime in milliseconds when the alarm was cleared.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146		
Notice:	The time comprises r2146 (days) and r2125 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the alarm buffer and the assignment of the indices is shown in r2122.		
p2126[0...19]	Setting fault number for acknowledge mode / Fault_no ackn_mode		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Selects the faults for which the acknowledge mode is to be changed		
Dependency:	Selects the faults and sets the required acknowledge mode realized under the same index Refer to: p2127		

Notice: It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:

- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

p2127[0...19] Sets acknowledgement mode / Acknowledge mode

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 1750, 8075
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	3	1

Description: Sets the acknowledge mode for selected fault.

Value:

- 1: Acknowledgement only using POWER ON
- 2: IMMEDIATE acknowledged after the fault cause has been removed
- 3: Acknowledgement only for PULSE INHIBIT

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index
Refer to: p2126

Notice: It is not possible to re-parameterize the acknowledge mode of a fault in the following cases:

- if there is no existing fault number.
- the message type is not "fault" (F).
- when a fault is present.

Note: The acknowledge mode can only be changed for faults with the appropriate identification.

Example:

F12345 and acknowledge mode = POWER ON (IMMEDIATELY) --> The acknowledge mode can be changed from POWER ON to IMMEDIATELY.

p2128[0...15] Selecting fault/alarm code for trigger / Message trigger

All objects	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1750, 8070
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	0

Description: Selects faults or alarms which can be used as trigger.

Dependency: Refer to: r2129

r2129.0...15		CO/BO: Trigger word for faults and alarms / Trigger word			
All objects	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 8070		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Trigger signal for the selected faults and alarms				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Trigger signal p2128[0]	On	Off	-
	01	Trigger signal p2128[1]	On	Off	-
	02	Trigger signal p2128[2]	On	Off	-
	03	Trigger signal p2128[3]	On	Off	-
	04	Trigger signal p2128[4]	On	Off	-
	05	Trigger signal p2128[5]	On	Off	-
	06	Trigger signal p2128[6]	On	Off	-
	07	Trigger signal p2128[7]	On	Off	-
	08	Trigger signal p2128[8]	On	Off	-
	09	Trigger signal p2128[9]	On	Off	-
	10	Trigger signal p2128[10]	On	Off	-
	11	Trigger signal p2128[11]	On	Off	-
	12	Trigger signal p2128[12]	On	Off	-
	13	Trigger signal p2128[13]	On	Off	-
	14	Trigger signal p2128[14]	On	Off	-
	15	Trigger signal p2128[15]	On	Off	-
Dependency:	If one of the faults or alarms selected in p2128[n] occurs, then the particular bit of this binector output is set. Refer to: p2128				
Note:	CO: r2129 = 0 --> None of the selected messages has occurred. CO: r2129 > 0 --> At least one of the selected messages has occurred.				

r2130[0...63]		Fault time received in days / t_fault recv days		
All objects	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060	
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the system runtime in days when the fault occurred.			
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136, r3115			
Notice:	The time comprises r2130 (days) and r0948 (milliseconds).			
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).			

r2131		CO: Current fault code / Current fault code		
All objects	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060	
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the code of the oldest active fault.			
Note:	0: No fault present.			

r2132	CO: Current alarm code / Current alarm code				
All objects	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8065		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the code of the last alarm that occurred.				
Note:	0: No alarm present.				
r2133[0...63]	Fault value for float values / Fault val float				
All objects	Can be changed: -	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8060		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays additional information about the fault that occurred for float values.				
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2136, r3115				
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).				
r2134[0...63]	Alarm value for float values / Alarm value float				
All objects	Can be changed: -	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 8065		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays additional information about the active alarm for float values.				
Dependency:	Refer to: r2110, r2122, r2123, r2124, r2125, r2145, r2146				
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).				
r2135.0...15	CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2				
All objects	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2548		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the second status word of faults and alarms.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Fault encoder 1	Yes	No	-
	01	Fault encoder 2	Yes	No	-
	10	Fault transformer overtemperature	Yes	No	-
	11	Alarm transformer overtemperature	Yes	No	-
	12	Fault motor overtemperature	Yes	No	-
	13	Fault thermal overload power unit	Yes	No	-
	14	Alarm motor overtemperature	Yes	No	-
	15	Alarm power unit thermal overload	Yes	No	-

r2136[0...63]	Fault time removed in days / t_fit resolv. days		
All objects	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 8060
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the system runtime in days when the fault was removed.		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133, r3115		
Notice:	The time comprises r2136 (days) and r2109 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		

r2138.7...15	CO/BO: Control word faults/alarms / STW fault/alarm				
All objects	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2546		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the control word of the faults and alarms.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	07	Acknowledge fault	Yes	No	-
	10	External alarm 1 (A07850) effective	Yes	No	-
	11	External alarm 2 (A07851) effective	Yes	No	-
	12	External alarm 3 (A07852) effective	Yes	No	-
	13	External fault 1 (F07860) effective	Yes	No	-
	14	External fault 2 (F07861) effective	Yes	No	-
	15	External fault 3 (F07862) effective	Yes	No	-
Dependency:	Refer to: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117				

r2139.0...12	CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1				
All objects	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2548		
	P-Group: Displays, signals	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the first status word of faults and alarms.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Being acknowledged	Yes	No	-
	03	Fault present	Yes	No	-
	05	Safety message present	Yes	No	-
	06	Internal message 1 present	Yes	No	-
	07	Alarm present	Yes	No	-
	08	Internal message 2 present	Yes	No	-
	11	Alarm class bit 0	High	Low	-
	12	Alarm class bit 1	High	Low	-

Note: Re bit 03, 05, 07:
These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. This is the reason that the fault/alarm buffer should only be read if, after "fault present"/"alarm present" has occurred, a change in the buffer was also detected (r0944, r9744, r2121).

Re bit 06, 08:
These status bits are used for internal diagnostic purposes only.

Re bits 11, 12:
These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only for automation systems with SINAMICS functionality (e.g. SINUMERIK).

Bits 12, 11 = 0, 0 --> Alarm class 0
Bits 12, 11 = 0, 1 --> Alarm class A
Bits 12, 11 = 1, 0 --> Alarm class B
Bits 12, 11 = 1, 1 --> Alarm class C

p2140[0...n] Hysteresis speed 2 / n_hysteresis 2

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 300.00 [rev/min]	Factory setting 90.00 [rev/min]

Description: Sets the hysteresis speed (bandwidth) for the following signals:
"|n_act| <= speed threshold value 2" (BO: r2197.1)
"|n_act| > speed threshold value 2" (BO: r2197.2)

Dependency: Refer to: p2155, r2197

p2141[0...n] Speed threshold 1 / n_thresh val 1

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 5.00 [rev/min]

Description: Sets the speed threshold value for the signal "f or n comparison value reached or exceeded" (BO: r2199.1).

Dependency: Refer to: p2142, r2199

p2142[0...n] Hysteresis speed 1 / n_hysteresis 1

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 300.00 [rev/min]	Factory setting 2.00 [rev/min]

Description: Sets the hysteresis speed (bandwidth) for the signal "f or n / v comparison value reached or exceeded" (BO: r2199.1).

Dependency: Refer to: p2141, r2199

p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: - Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 8012 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the negated enable (0 = enable) of the motor stall monitoring.		
Dependency:	Refer to: p2163, p2164, p2166, r2197, r2198 Refer to: F07900		
Note:	If the enable signal is connected to r2197.7 then the stall signal is suppressed if there is no speed setpoint - actual value deviation.		
r2145[0...63]	Alarm time received in days / t_alarm recv days		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the system runtime in days when the alarm occurred.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146		
Notice:	The time comprises r2145 (days) and r2123 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
r2146[0...63]	Alarm time removed in days / t_alarm res days		
All objects	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 8065 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the system runtime in days when the alarm was cleared.		
Dependency:	Refer to: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145		
Notice:	The time comprises r2146 (days) and r2125 (milliseconds).		
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139).		
p2147	Delete fault buffer of all drive objects / Del fault buffer		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: 8060 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Setting to delete the fault buffer of all existing drive objects.		
Value:	0: Inactive 1: Start to delete the fault buffer of all drive objects		
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136		
Note:	p2147 is automatically set to 0 after execution.		

p2148[0...n]	BI: Ramp-function generator active / HLG active				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3		
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 8010		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0		
Description:	Sets the signal source for the signal "ramp-function generator active" for the following signals/messages: "Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4) "Ramp-up/ramp-down completed" (BO: r2199.5)				
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.				
Note:	The binector input is automatically pre-assigned to r1199.2. The following applies for SERVO: The pre-assignment is only made when the function module "setpoint channel" is activated (r0108.8 = 1).				
p2149[0...n]	Monitoring configuration / Monit config				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: 8010, 8013		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Configuration word for signals and monitoring functions.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Enable alarm A07903	Yes	No	8010
	01	Load monitoring only in the 1st quadrants	Yes	No	8013
	03	n_act > p2155 own hysteresis	Yes	No	8010
	15	Automatic parameterization carried out (p0340 = 1, p3900 > 0)	Yes	No	-
Dependency:	Refer to: r2197 Refer to: A07903				
Note:	Re bit 00: Alarm A07903 is output when the bit is set with r2197.7 = 0 (n_set <> n_act). Re bit 01: When the bit is set, the load monitoring is only carried out in the 1st quadrant as a result of the positive characteristic parameters (p2182 ... p2190). Re bit 03: When the bit is set, r2197 bit 1 and bit 2 are determined via separate hystereses. Re bit 15: The bit indicates whether the automatic parameterization (p0340 = 1, p3900 > 0) for the parameters of the extended monitoring functions was carried out. If the bit is not set (e.g. when the configuration is activated (p0108.15)), the parameterization is automatically carried out during booting even if r3925.0 is already 1.				

p2150[0...n]	Hysteresis speed 3 / n_hysteresis 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 300.00 [rev/min]	Factory setting 2.00 [rev/min]
Description:	Sets the hysteresis speed (bandwidth) for the following signals: "n_act < speed threshold value 3" (BO: r2199.0) "n_set >= 0" (BO: r2198.5) "n_act >= 0" (BO: r2197.3)		
Dependency:	Refer to: p2161, r2197, r2199		
p2151[0...n]	CI: Speed setpoint for messages/signals / n_set for msg		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 1438[0]
Description:	Sets the signal source for the speed setpoint for the following messages: "Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7) "Ramp-up/ramp-down completed" (BO: r2199.5) " n_set < p2161" (BO: r2198.4) "n_set > 0" (BO: r2198.5)		
Dependency:	Refer to: r2197, r2198, r2199		
p2153[0...n]	Speed actual value filter time constant / n_act_filt T		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 1000000 [ms]	Factory setting 0 [ms]
Description:	Sets the time constant of the PT1 element to smooth the speed / velocity actual value. The smoothed actual speed/velocity is compared with the threshold values and is only used for messages and signals.		
Dependency:	Refer to: r2169		

p2154[0...n]	CI: Speed setpoint 2 / n_set 2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for speed setpoint 2. The sum of CI: p2151 and CI: p2154 is used for the following messages/signals: "Speed setpoint - actual value deviation within tolerance t_off" (BO: r2197.7) "Speed setpoint - actual value deviation within tolerance t_on" (BO: r2199.4) "Ramp-up/ramp-down completed" (BO: r2199.5)		
Dependency:	Refer to: p2151, r2197, r2199		
p2155[0...n]	Speed threshold 2 / n_thresh val 2		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 8010 Unit selection: p0505 Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 900.00 [rev/min]
Description:	Sets the speed threshold value for the following messages: " n_act <= speed threshold value 2" (BO: r2197.1) " n_act > speed threshold value 2" (BO: r2197.2)		
Dependency:	Refer to: p2140, r2197		
p2156[0...n]	On delay, comparison value reached / t_on cmpr val rchd		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 8010 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 10000.0 [ms]	Factory setting 0.0 [ms]
Description:	Sets the switch-in delay time for the signal "comparison value reached" (BO: r2199.1).		
Dependency:	Refer to: p2141, p2142, r2199		
p2161[0...n]	Speed threshold 3 / n_thresh val 3		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: CALC_MOD_LIM_REF Dynamic index: DDS, p0180 Units group: 3_1	Access level: 3 Func. diagram: 8010 Unit selection: p0505 Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 5.00 [rev/min]
Description:	Sets the speed threshold value for the signal " n_act < speed threshold value 3" (BO: r2199.0).		
Dependency:	Refer to: p2150, r2199		

p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 60000.00 [rev/min]	Factory setting 0.00 [rev/min]
Description:	Sets the hysteresis speed (bandwidth) for the signal "n_act > n_max" (BO: r2197.6).		
Dependency:	Refer to: r1084, r1087, r2197		
Notice:	For p0322 = 0, the following applies: p2162 <= 0.1 * p0311 For p0322 > 0, the following applies: p1082 + p2162 <= 1.02 * p0322 If one of the conditions is violated, p2162 is appropriately and automatically reduced when exiting the commissioning mode.		
Note:	For a negative speed limit (r1087) the hysteresis is effective below the limit value and for a positive speed limit (r1084) above the limit value. If significant overshoot occurs in the maximum speed range (e.g. due to load shedding), you are advised to increase the dynamic response of the speed controller (if possible). If this is insufficient, the hysteresis p2162 can only be increased by more than 10% of the rated speed when the maximum motor speed p0322 is sufficiently greater than the speed limit p1082.		
p2163[0...n]	Speed threshold 4 / n_thresh val 4		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 90.00 [rev/min]
Description:	Sets the speed threshold value for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
Dependency:	Refer to: p2164, p2166, r2197		
p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8010
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 200.00 [rev/min]	Factory setting 2.00 [rev/min]
Description:	Sets the hysteresis speed (bandwidth) for the "speed setpoint - actual value deviation in tolerance t_off" signal/message (BO: r2197.7).		
Dependency:	Refer to: p2163, p2166, r2197		

p2166[0...n]	Off delay $n_{act} = n_{set} / t_{del_off} n_i = n_{so}$		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 8010 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 10000.0 [ms]	Factory setting 200.0 [ms]
Description:	Sets the switch-off delay time for the "speed setpoint - actual value deviation in tolerance t_{off} " signal/message (BO: r2197.7).		
Dependency:	Refer to: p2163, p2164, r2197		
p2167[0...n]	Switch-on delay $n_{act} = n_{set} / t_{on} n_{act} = n_{set}$		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 8010 Unit selection: - Expert list: 1
	Min 0.0 [ms]	Max 10000.0 [ms]	Factory setting 200.0 [ms]
Description:	Sets the switch-on delay for the "speed setpoint - actual value deviation in tolerance t_{on} " signal/message (BO: r2199.4).		
r2169	CO: Speed actual value smoothed signals / n_{act} smth message		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 2 Func. diagram: 1750, 8010, 8012, 8013 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the smoothed actual speed for messages/signals.		
Dependency:	Refer to: p2153		
p2174[0...n]	Torque threshold value 1 / $M_{thresh} val 1$		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 2 Func. diagram: 8012 Unit selection: p0505 Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 5.13 [Nm]
Description:	Sets the torque threshold value for the signal "Torque setpoint < torque threshold value 1" (BO: r2198.10).		
Dependency:	Refer to: p2195, r2198		

p2175[0...n]	Motor locked speed threshold / Mot lock n_thresh		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 120.00 [rev/min]
Description:	Sets the speed threshold for the message "Motor locked" (BO: r2198.6).		
Dependency:	Refer to: p0500, p2177, r2198		

p2177[0...n]	Motor locked delay time / Mot lock t_del		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8012
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [s]	Max 65.000 [s]	Factory setting 1.000 [s]
Description:	Sets the delay time for the message "Motor locked" (BO: r2198.6). If "Motor locked" is identified within this time, then ZSW2.6 is set and an appropriate fault is output.		
Dependency:	Refer to: p0500, p2175, r2198		

p2181[0...n]	Load monitoring response / Load monit resp		
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 6	Factory setting 0
Description:	Sets the response when evaluating the load monitoring.		
Value:	0: Load monitoring disabled 1: A07920 for torque/speed too low 2: A07921 for torque/speed too high 3: A07922 for torque/speed out of tolerance 4: F07923 for torque/speed too low 5: F07924 for torque/speed too high 6: F07925 for torque/speed out of tolerance		
Dependency:	Refer to: p2182, p2183, p2184, p2185, p2186, p2187, p2188, p2189, p2190, p2192, r2198 Refer to: A07920, A07921, A07922, F07923, F07924, F07925		
Note:	The response to the faults F07923 ... F07925 can be set. F07926 is evaluated only if p2181 is not zero.		

p2182[0...n] Load monitoring speed threshold value 1 / n_thresh 1			
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 150.00 [rev/min]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2183, p2184, p2185, p2186 Refer to: A07926		

p2183[0...n] Load monitoring speed threshold value 2 / n_thresh 2			
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 900.00 [rev/min]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2182, p2184, p2187, p2188 Refer to: A07926		

p2184[0...n] Load monitoring speed threshold value 3 / n_thresh 3			
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 3_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 210000.00 [rev/min]	Factory setting 1500.00 [rev/min]
Description:	Sets the speed/torque envelop curve for the load monitoring. The envelope curve (upper and lower envelope curve) is defined as follows based on 3 speed thresholds: p2182 (n_threshold 1) --> p2185 (M_threshold 1, upper), p2186 (M_threshold 1, lower) p2183 (n_threshold 2) --> p2187 (M_threshold 2, upper), p2188 (M_threshold 2, lower) p2184 (n_threshold 3) --> p2189 (M_threshold 3, upper), p2190 (M_threshold 3, lower)		
Dependency:	The following applies: p2182 < p2183 < p2184 Refer to: p2182, p2183, p2189, p2190 Refer to: A07926		

p2185[0...n] Load monitoring torque threshold 1, upper / M_thresh 1 upper			
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 10000000.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2185 > p2186 Refer to: p2182, p2186 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		
<hr/>			
p2186[0...n] Load monitoring torque threshold 1, lower / M_thresh 1 lower			
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2186 < p2185 Refer to: p2182, p2185 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		
<hr/>			
p2187[0...n] Load monitoring torque threshold 2, upper / M_thresh 2 upper			
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8013
	P-Group: Messages	Units group: 7_1	Unit selection: p0505
	Not for motor type: -		Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 10000000.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2187 > p2188 Refer to: p2183, p2188 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		

p2188[0...n]	Load monitoring torque threshold 2, lower / M_thresh 2 lower		
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2188 < p2187 Refer to: p2183, p2187 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		
p2189[0...n]	Load monitoring torque threshold 3, upper / M_thresh 3 upper		
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 10000000.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2189 > p2190 Refer to: p2184, p2190 Refer to: A07926		
Note:	The upper envelope curve is defined by p2185, p2187 and p2189.		
p2190[0...n]	Load monitoring torque threshold 3, lower / M_thresh 3 lower		
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 3 Func. diagram: 8013 Unit selection: p0505 Expert list: 1
	Min 0.00 [Nm]	Max 20000000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets the speed/torque / velocity/force envelope curve for the load monitoring.		
Dependency:	The following applies: p2190 < p2189 Refer to: p2184, p2189 Refer to: A07926		
Note:	The lower envelope curve is defined by p2186, p2188 and p2190.		
p2192[0...n]	Load monitoring delay time / Load monit t_del		
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 8013 Unit selection: - Expert list: 1
	Min 0.00 [s]	Max 65.00 [s]	Factory setting 10.00 [s]
Description:	Sets the delay time to evaluate the load monitoring.		

p2194[0...n]	Torque threshold value 2 / M_thresh val 2				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_LIM_REF	Access level: 2		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8012		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 90.00 [%]		
Description:	Sets the torque/force threshold value for the signal "Torque utilization < torque threshold value 2" (BO: r2199.11). The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.				
Dependency:	Refer to: r0033, p2195, r2199				
p2195[0...n]	Torque utilization switch-off delay / M_util t_off				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 8012		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0.0 [ms]	Max 1000.0 [ms]	Factory setting 800.0 [ms]		
Description:	Sets the switch-off delay time for the negated signal "run-up completed". The message "torque setpoint < p2174" (BO: r2198.10) and "torque utilization < p2194" (BO: r2199.11) are only evaluated after the run-up and the delay time has expired.				
Dependency:	Refer to: p2174, p2194				
r2197.1...7	CO/BO: Status word monitoring 1 / ZSW monitor 1				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2534		
	P-Group: Messages	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the first status word for monitoring functions.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	01	n_act <= speed threshold value 2	Yes	No	8010
	02	n_act > speed threshold value 2	Yes	No	8010
	03	n_act >= 0	Yes	No	8010
	06	n_act > n_max	Yes	No	8010
	07	Speed setp - act val deviation in tolerance t_off	Yes	No	8010
Note:	Re bit 01, 02: The threshold value is set in p2155 and the hysteresis in p2140. Re bit 03: The hysteresis is set in p2150. Re bit 06: The hysteresis is set in p2162. Re bit 07: The threshold value is set in p2163 and the hysteresis is set in p2164.				

r2198.4...12 CO/BO: Status word monitoring 2 / ZSW monitor 2

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2536
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the second status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	04	n_set < p2161	Yes	No	8010
	05	n_set > 0	Yes	No	8010
	06	Motor locked	Yes	No	8012
	07	Motor stalled	Yes	No	8012
	10	M_set < torque threshold value 1	Yes	No	8012
	11	Load monitoring signals an alarm	Yes	No	8013
	12	Load monitoring signals a fault condition	Yes	No	8013

Note: Re bit 07:
For servo drives, bit 07 is not used and is always inactive.
Re bit 10:
The torque threshold value 1 is set in p2174.

r2199.0...11 CO/BO: Status word monitoring 3 / ZSW monitor 3

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 1530, 2537
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the third status word for monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	n_act < speed threshold value 3	Yes	No	8010
	01	f or n comparison value reached or exceeded	Yes	No	8010
	04	Speed setp - act val deviation in tolerance t_on	Yes	No	8010
	05	Ramp-up/ramp-down completed	Yes	No	8010
	06	Current below the zero current threshold	Yes	No	-
	11	Torque utilization < torque threshold value 2	Yes	No	8012

Note: Re bit 00:
The speed threshold value 3 is set in p2161.
Re bit 01:
The comparison value is set in p2141.
Re bit 11:
The torque threshold value 2 is set in p2194.

p2200[0...n]	BI: Technology controller enable / Tec_ctrl enable		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to switch in/switch out the technology controller. The technology controller is switched in with a 1 signal.		

p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val 1		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 10.00 [%]
Description:	Sets the value for fixed value 1 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 20.00 [%]
Description:	Sets the value for fixed value 2 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 30.00 [%]
Description:	Sets the value for fixed value 3 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 40.00 [%]
Description:	Sets the value for fixed value 4 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 50.00 [%]
Description:	Sets the value for fixed value 5 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 60.00 [%]
Description:	Sets the value for fixed value 6 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 70.00 [%]
Description:	Sets the value for fixed value 7 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 80.00 [%]
Description:	Sets the value for fixed value 8 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 90.00 [%]
Description:	Sets the value for fixed value 9 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctrl fix val10		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 100.00 [%]
Description:	Sets the value for fixed value 10 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctrl fix val11		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 110.00 [%]
Description:	Sets the value for fixed value 11 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctrl fix val12		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 120.00 [%]
Description:	Sets the value for fixed value 12 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctrl fix val13		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 130.00 [%]
Description:	Sets the value for fixed value 13 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctrl fix val14		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 140.00 [%]
Description:	Sets the value for fixed value 14 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctrl fix val15		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7950 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 150.00 [%]
Description:	Sets the value for fixed value 15 of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222, p2223, r2224, r2229		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		

p2220[0...n]	BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 7950
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the fixed value of the technology controller.		
Dependency:	Refer to: p2221, p2222, p2223		

p2221[0...n]	BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 7950
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the fixed value of the technology controller.		
Dependency:	Refer to: p2220, p2222, p2223		

p2222[0...n]	BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 7950
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the fixed value of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2223		

p2223[0...n]	BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: CDS, p0170	Func. diagram: 7950
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the fixed value of the technology controller.		
Dependency:	Refer to: p2220, p2221, p2222		

r2224	CO: Technology controller, fixed value effective / Tec_ctr FixVal eff		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 7950
	P-Group: Technology	Units group: 9_1	Unit selection: p0595
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
Description:	Displays the selected and effective fixed value of the technology controller.		
Dependency:	Refer to: r2229		

r2225.0	CO/BO: Technology controller fixed value selection status word / Tec_ctrl FW status		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: Unsigned16 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Status word of the fixed value selection of the technology controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Technology controller fixed value selected	Yes	No	-

r2229	Technology controller current number / Tec_ctrl No. act		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: Unsigned32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7950 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays the number of the selected fixed setpoint of the technology controller.

Dependency: Refer to: r2224

p2230[0...n]	Technology controller motorized potentiometer configuration / Tec_ctr mop config		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 7954 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0110 bin

Description: Sets the configuration for the motorized potentiometer of the technology controller.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Data save active	Yes	No	-
	02	Initial rounding-off active	Yes	No	-
	03	Non-volatile data save active for p2230.0 =	Yes	No	-

Dependency: Refer to: r2231, p2240

Note: Re bit 00:

0: The setpoint for the motorized potentiometer is not saved and after ON is entered using p2240.

1: The setpoint for the motorized potentiometer is saved and after ON is entered using r2231. In order to save in a non-volatile fashion, bit 03 should be set to 1.

Re bit 02:

0: Without initial rounding-off

1: With initial rounding-off. The selected ramp-up/down time is correspondingly exceeded. The initial rounding-off is a sensitive way of specifying small changes (progressive reaction when keys are pressed). The jerk for the initial rounding-off is independent of the ramp-up time and only depends on the selected maximum value (p2237). It is calculated as follows: $r = 0.0001 * \text{MAX}(p2237, |p2238|) [\%] / 0.13^2 [s^2]$. The jerk is effective until the maximum acceleration is reached ($a_{\text{max}} = p2237 [\%] / p2247 [s]$ or $a_{\text{max}} = p2238 [\%] / p2248 [s]$), after which the drive continues to run linearly with constant acceleration. The higher the maximum acceleration (the lower that p2247 is), the longer the ramp-up time increases with respect to the set ramp-up time.

Re bit 03:

0: Non-volatile data save de-activated.

1. The setpoint for the motorized potentiometer is saved in a non-volatile fashion (for p2230.0 = 1).

r2231	Technology controller motorized potentiometer setpoint memory / Tec_ctrl mop mem		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the setpoint memory for the motorized potentiometer of the technology controller. For p2230.0 = 1, the last setpoint that was saved is entered after ON.		
Dependency:	Refer to: p2230		
p2235[0...n]	BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 7954 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to increase the setpoint for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2236		
p2236[0...n]	BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 3 Func. diagram: 7954 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to reduce the setpoint for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2235		
p2237[0...n]	Technology controller motorized potentiometer maximum value / Tec_ctrl mop max		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 100.00 [%]
Description:	Sets the maximum value for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2238		

p2238[0...n]	Technology controller motorized potentiometer minimum value / Tec_ctrl mop min		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting -100.00 [%]
Description:	Sets the minimum value for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2237		
p2240[0...n]	Technology controller motorized potentiometer starting value / Tec_ctrl mop start		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 0.00 [%]
Description:	Sets the starting value for the motorized potentiometer of the technology controller. For p2230.0 = 0, this setpoint is entered after ON.		
Dependency:	Refer to: p2230		
r2245	CO: Technology controller mot. potentiometer setpoint before RFG / Tec_ctrl mop befRFG		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Sets the effective setpoint in front of the internal motorized potentiometer ramp-function generator of the technology controller.		
Dependency:	Refer to: r2250		
p2247[0...n]	Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_r-up		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 7954 Unit selection: - Expert list: 1
	Min 0.0 [s]	Max 1000.0 [s]	Factory setting 10.0 [s]
Description:	Sets the ramp-up time for the internal ramp-function generator for the motorized potentiometer of the technology controller.		
Dependency:	Refer to: p2248		
Note:	The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-up is correspondingly extended.		

p2248[0...n]	Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_rdown			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 2 Func. diagram: 7954 Unit selection: - Expert list: 1	
	Min 0.0 [s]	Max 1000.0 [s]	Factory setting 10.0 [s]	
Description:	Sets the ramp-down time for the internal ramp-function generator for the motorized potentiometer of the technology controller.			
Dependency:	Refer to: p2247			
Note:	The time is referred to 100 %. When the initial rounding-off is activated (p2230.2 = 1) the ramp-down is correspondingly extended.			
r2250	CO: Technology controller motorized potentiometer setpoint after RFG / Tec_ctr mop aftRFG			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7954 Unit selection: p0595 Expert list: 1	
	Min - [%]	Max - [%]	Factory setting - [%]	
Description:	Displays the effective setpoint after the internal ramp-function generator for the motorized potentiometer of the technology controller.			
Dependency:	Refer to: r2245			
p2252	Technology controller configuration / Tec_ctrl config			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned16 P-Group: Modulation Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting 0111 bin	
Description:	Configuration of the technology controller.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Ramp-up/down time independent of set-point sign	Yes	No
	01	Integrator independent of Kp	Yes	No
	02	Output signal without ramp active	Yes	No
Dependency:	Refer to: p2257, p2258, p2280, p2285			

Note:

Re bit 0 = 0:
The ramp-down time (p2258) switches to the ramp-up time (p2257) when the sign for the output signal r2260 changes. When the sign changes, the output signal is kept at zero for one arithmetic cycle.

Re bit 0 = 1:
When r2260 exhibits a positive gradient, the ramp-up time (p2257) is active; when it exhibits a negative gradient, the ramp-down time (p2258) is active. The sign for r2260 does not have any effect on the ramp time.

Re bit 1 = 0:
The integration time of the PID controller is evaluated with the gain factor Kp (p2280) (p2285 = integral time).

Re bit 1 = 1:
The integration time of the PID controller is independent of the gain factor (p2285 = integration time).

Re bit 2 = 0:
When the PID controller is de-activated via p2200, the output signal r2294 is reduced to zero via the ramp-down time p2293.

Re bit 2 = 1:
When the PID controller is de-activated via p2200, the output signal r2294 is set directly to zero.

p2253[0...n] CI: Technology controller setpoint 1 / Tec_ctrl setp 1

SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the setpoint 1 of the technology controller.
Dependency: Refer to: p2254, p2255

p2254[0...n] CI: Technology controller setpoint 2 / Tec_ctrl setp 2

SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: CDS, p0170	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the setpoint 2 of the technology controller.
Dependency: Refer to: p2253, p2256

p2255 Technology controller setpoint 1 scaling / Tec_ctrl set1 scal

SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 7958
	P-Group: Technology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the setpoint 1 of the technology controller.
Dependency: Refer to: p2253

p2256	Technology controller setpoint 2 scaling / Tec_ctrl set2 scal			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1	
	Min 0.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]	
Description:	Sets the scaling for the setpoint 2 of the technology controller.			
Dependency:	Refer to: p2254			
p2257	Technology controller, ramp-up time / Tec_ctrl t_ramp-up			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1	
	Min 0.00 [s]	Max 650.00 [s]	Factory setting 1.00 [s]	
Description:	Sets the ramp-up time of the technology controller.			
Dependency:	Refer to: p2252, p2258			
Note:	The ramp-up time is referred to 100 %.			
p2258	Technology controller ramp-down time / Tec_ctrl t_ramp-dn			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1	
	Min 0.00 [s]	Max 650.00 [s]	Factory setting 1.00 [s]	
Description:	Sets the ramp-down time of the technology controller.			
Dependency:	Refer to: p2252, p2257			
Note:	The ramp-down time is referred to 100 %.			
r2260	CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1	
	Min - [%]	Max - [%]	Factory setting - [%]	
Description:	Sets the setpoint after the ramp-function generator of the technology controller.			
p2261	Technology controller setpoint filter time constant / Tec_ctrl set T			
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1	
	Min 0.00 [s]	Max 60.00 [s]	Factory setting 0.00 [s]	
Description:	Sets the time constant for the setpoint filter (PT1) of the technology controller.			

r2262	CO: Technology controller setpoint after filter / Tec_ctr set aftFlt		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 3 Func. diagram: 7958 Unit selection: p0595 Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the smoothed setpoint after the setpoint filter (PT1) of the technology controller.		
p2263	Technology controller type / Tec_ctrl type		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: T Data type: Integer16 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the technology controller type.		
Value:	0: D component in the actual value signal 1: D component in the fault signal		
p2264[0...n]	CI: Technology controller actual value / Tec_ctrl act val		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the actual value of the technology controller.		
p2265	Technology controller actual value filter time constant / Tec_ctrl act T		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min 0.00 [s]	Max 60.00 [s]	Factory setting 0.00 [s]
Description:	Sets the time constant for the actual value filter (PT1) of the technology controller.		
r2266	CO: Technology controller actual value after filter / Tec_ctr act aftFlt		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the smoothed actual value after the filter (PT1) of the technology controller		

r2273	CO: Technology controller error / Tec_ctrl error		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: 9_1	Access level: 2 Func. diagram: 7958 Unit selection: p0595 Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the error (system deviation) between the setpoint and actual value of the technology controller.		
Dependency:	Refer to: p2263		

p2274	Technology controller differentiation, time constant / Tec_ctrl D comp T		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 60.000 [s]	Factory setting 0.000 [s]
Description:	Sets the time constant for the differentiation (D component) of the technology controller.		
Note:	p2274 = 0: Differentiation is disabled.		

p2280	Technology controller proportional gain / Tec_ctrl Kp		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min 0.000	Max 1000.000	Factory setting 1.000
Description:	Sets the proportional gain (P component) of the technology controller.		
Dependency:	Refer to: p2252		
Note:	p2280 = 0: The proportional gain is disabled.		

p2285	Technology controller integral time / Tec_ctrl Tn		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min 0.000 [s]	Max 60.000 [s]	Factory setting 0.000 [s]
Description:	Sets the integral time (I component, integrating time constant) of the technology controller.		
Dependency:	Refer to: p2252		
Note:	p2285 = 0: The integral time is disabled.		

p2289[0...n]	CI: Technology controller pre-control signal / Tec_ctrl prectrl		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the pre-control signal of the technology controller.		

p2291	CO: Technology controller maximum limiting / Tec_ctrl max_limit		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 100.00 [%]
Description:	Sets the maximum limit of the technology controller.		
Dependency:	Refer to: p2292		
Caution:	The maximum limit must always be greater than the minimum limit (p2291 > p2292).		
			
p2292	CO: Technology controller minimum limiting / Tec_ctrl min_lim		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -200.00 [%]	Max 200.00 [%]	Factory setting 0.00 [%]
Description:	Sets the minimum limit of the technology controller.		
Dependency:	Refer to: p2291		
Caution:	The maximum limit must always be greater than the minimum limit (p2291 > p2292).		
			
p2293	Technology controller ramp-up/ramp-down time / Tec_ctr ramp up/dn		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min 0.00 [s]	Max 100.00 [s]	Factory setting 1.00 [s]
Description:	Sets the ramp-up and ramp-down time for the maximum and minimum limiting (p2291 and p2292) of the technology controller.		
Dependency:	Refer to: p2291, p2292		
Note:	The ramp-up/ramp-down times are referred to 100 %.		
r2294	CO: Technology controller output signal / Tec_ctrl outp_sig		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the output signal of the technology controller.		
Dependency:	Refer to: p2295		

p2295	CO: Technology controller output scaling / Tec_ctrl outp scal		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -100.00 [%]	Max 100.00 [%]	Factory setting 100.00 [%]
Description:	Sets the scaling for the output signal of the technology controller.		

p2296[0...n]	CI: Technology controller output scaling / Tec_ctrl outp scal		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2295[0]
Description:	Sets the signal source for the scaling value of the technology controller.		
Dependency:	Refer to: p2295		

p2297[0...n]	CI: Technology controller maximum limiting / Tec_ctrl max_limit		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2291[0]
Description:	Sets the signal source for the maximum limiting of the technology controller.		
Dependency:	Refer to: p2291		

p2298[0...n]	CI: Technology controller minimum limiting / Tec_ctrl min_lim		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: U, T Data type: Unsigned32 / FloatingPoint32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: CDS, p0170 Units group: -	Access level: 2 Func. diagram: 7958 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2292[0]
Description:	Sets the signal source for the minimum limiting of the technology controller.		
Dependency:	Refer to: p2292		

r2349.0...11		CO/BO: Technology controller status word / Tec_ctrl stat word		
SERVO_S110-CAN (Tech_ctrl), SERVO_S110-DP (Tech_ctrl)	Can be changed: - Data type: Unsigned32 P-Group: Technology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 7958 Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays the status word of the technology controller.			
Bit field:	Bit	Signal name	1 signal	0 signal FP
	00	Technology controller de-activated	Yes	No -
	01	Technology controller limited	Yes	No -
	02	Technology controller, motorized potentiometer limited max.	Yes	No -
	03	Technology controller, motorized potentiometer limited min.	Yes	No -
	10	Technology controller output at the minimum	Yes	No -
	11	Technology controller output at the maximum	Yes	No -
p2502[0...n]		LR encoder assignment / Encoder assignment		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: C2(25) Data type: Integer16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1	
	Min 0	Max 2	Factory setting 1	
Description:	Sets the assigned encoder. The actual value preprocessing and the closed-loop position control are carried out using the assigned encoder.			
Value:	0: No encoder 1: Encoder 1 2: Encoder 2			
Dependency:	Refer to: p0187, p0188			
Notice:	For the setting p2502 = 0 (no encoder), closed-loop position control is not possible. This setting is only practical as supportive measure to implement encoderless closed-loop speed control (e.g. if the motor encoder is defective).			
Note:	The assigned encoder (p2502 = 1, 2) must be allocated an encoder data set (p0187, p0188).			
p2503[0...n]		LR length unit LU per 10 mm / LU per 10 mm		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: C2(25) Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1	
	Min 1 [LU]	Max 2147483647 [LU]	Factory setting 10000 [LU]	
Description:	Sets the neutral length units LU per 10 mm. Therefore, for a linear scale, a reference is established between the physical arrangement and the neutral length units LU used in the drive. Example: Linear scale, 10 mm should be broken down to units of μm (i.e. 1 LU = 1 μm). --> p2503 = 10000			
Note:	The assignment to the grid spacing can be achieved using this for a rotary axis with linear encoder.			

p2504[0...n]	LR motor/load motor revolutions / Mot/load motor rev		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: C2(25) Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: - Min 1	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 1048576	Access level: 1 Func. diagram: 4010, 4704, 4711 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the motor revolutions for the gearbox factor between the motor shaft and load shaft. Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)		
Dependency:	Refer to: p0432, p0433, p2505		
Note:	The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.		
p2505[0...n]	LR motor/load motor revolutions / Mot/load motor rev		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: C2(25) Data type: Integer32 P-Group: Closed loop position control Not for motor type: - Min -1048576	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 1048576	Access level: 1 Func. diagram: 4010, 4704, 4711 Unit selection: - Expert list: 1 Factory setting 1
Description:	Sets the load revolutions for the gearbox factor between the motor shaft and load shaft. Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)		
Dependency:	Refer to: p0432, p0433, p2504		
Note:	The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.		
p2506[0...n]	LR length unit LU per load revolution / LU per load rev		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: C2(25) Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: - Min 1 [LU]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2147483647 [LU]	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1 Factory setting 10000 [LU]
Description:	Sets the neutral length units LU per load revolution. Therefore, for a rotary encoder, a reference is established between the physical arrangement and the neutral length units LU used in the drive. Example: Rotary encoder, ballscrew with 10 mm/revolution, 10 mm should be broken down to units of μm (i.e. 1 LU = 1 μm). --> One load revolution corresponds to 10000 LU --> p2506 = 10000		
Note:	The position controller can only process position setpoints in the interpolator clock cycle (IPO clock cycle) in integer length units (LU, Length Unit). This is the reason that speed setpoints that are not a multiple integer of 1 LU per IPO clock cycle can only be realized as an average. The result speed setpoint steps are especially noticeable for a high loop gain or when the pre-control is active. Increasing p2506 counteracts this behavior.		

p2507[0...n]		LR absolute encoder adjustment status / Abs_enc_adj stat		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: EDS, p0140 Units group: -	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1	Factory setting 1
Description:	Activating the adjustment and display of the status of the adjustment for absolute encoders.			
Value:	0: Error occurred while adjusting 1: Absolute encoder not adjusted 2: Absolute encoder not adjusted and encoder adjustment initiated 3: Absolute encoder adjusted			
Dependency:	Refer to: p2525, p2598, p2599			
Caution:	 For rotating absolute encoders, when adjusting, a range is set up symmetrically around zero with half of the encoder range, within which the position must be re-established after powering down/powering up. In this range, it is only permissible that the encoder overflows. After the adjustment has been completed, it must be guaranteed that the range is not exited. The reason for this is that outside the range, there is no clear reference any longer between the encoder actual value and mechanical system. If the reference point (CI: p2598) lies in this range, then the position actual value is set when adjusting to the reference point. Otherwise, adjustment is canceled with F07443. There is no overflow for linear absolute encoders. This means that after the adjustment, the position can be re-established in the complete traversing range after powering down/powering up. When adjusting, the position actual value is set to the reference point.			
Note:	The encoder adjustment is initiated with p2507 = 2. The status is displayed using the other values. In order to permanently save the determined position offset (p2525) it must be saved in a non-volatile fashion (p0971, p0977). This adjustment can only be initiated for an absolute encoder.			
p2508[0...3]		BI: LR activate reference mark search / Ref_mark act		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1	Factory setting 0
Description:	Sets the signal source for the function "activate reference mark search".			
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved			
Dependency:	Refer to: p0490, p0495, p2502, p2509, r2684 Refer to: A07495			
Notice:	When activating the function "set position actual value" while the function "reference mark search" is activated, then the function "reference mark search" is automatically de-activated.			
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2508[0] = r2684.0 The function can only be activated using a 0/1 signal if no reference function is active (r2526.2). If "reference mark search" and "measuring probe evaluation" are simultaneously activated, then no function is activated and the actual function is interrupted.			

p2509[0...3] BI: LR activating measuring probe evaluation / MT_eval act			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the function "activating the measuring probe evaluation". 0/1 signal: The function "activate measuring probe evaluation" is started.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved		
Dependency:	Refer to: p0488, p0489, p0490, p2502, p2508, p2510, p2511, p2517, p2518 Refer to: A07495		
Notice:	When the "set position actual value" is activated while the function "measuring probe evaluation" is activated, then the function "measuring probe evaluation" is automatically de-activated.		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2509[0] = r2684.1 The function can only be activated using a 0/1 signal if no reference function is active (r2526.2). If "reference mark search" and "measuring probe evaluation" are simultaneously activated, then no function is activated and the actual function is interrupted.		
p2510[0...3] BI: LR selecting measuring probe evaluation / MT_eval select			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3615, 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the measuring probe. 1 signal = measuring probe 2 is activated for BI: p2509 = 0/1 edge. 0 signal = measuring probe 1 is activated for BI: p2509 = 0/1 edge.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved		
Dependency:	Refer to: p2502, p2509, p2511		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2509[0] = r2684.1 The measuring probe is selected at the 0/1 signal transition at r2684.1 (flying referencing active).		
p2511[0...3] BI: LR measuring probe evaluation edge / MT_eval edge			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3615, 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the edge evaluation of the measuring probe. 1 signal = falling edge of the measuring probe (p2510) is activated for BI: p2509 = 0/1 edge. 0 signal = rising edge of the measuring probe (p2510) is activated for BI: p2509 = 0/1 edge.		

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Reserved

Dependency: Refer to: p2502, p2509, p2510

p2512[0...3] BI: LR pos. actual value preprocessing activate corr. value (edge) / ActVal_prepCorrAct

SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010, 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the function "activate position actual value preprocessing, corrective value (edge)".
0/1 signal: The corrective value available through CI: p2513 is activated.

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Reserved

Dependency: Refer to: p2502, p2513, r2684

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2512[0] = r2684.7

p2513[0...3] CI: LR Position actual value preprocessing, corrective value / Act val_prep corr

SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4010, 4015
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the corrective value for position actual value preprocessing.

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Reserved

Dependency: Refer to: p2502, p2512, r2521, r2685

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: CI: p2513[0] = r2685

For BI: p2512[0] = 0/1 signal, the position actual value (CO: r2521[0]) is corrected corresponding to the value via CI: p2513[0]. In so doing, the sign of the corrective value present is taken into account.

p2514[0...3] BI: LR activate position actual value setting / s_act setting act

SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source to activate the function "set position actual value".

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Reserved

Dependency: Refer to: p2502, p2515
Refer to: A07495, A07497

Warning: As long as the position actual value is set, encoder increments that are received are not evaluated. In this state, any position difference cannot be corrected!



Notice: When the function "set position actual value" is activated while the function "reference mark search" or "measuring probe evaluation" is activated, then the corresponding function is de-activated.

Note: BI: p2514 = 1 signal:
The position actual value is set to the setting value in CI: p2515. Alarm A07497 "position setting value activated" is output. Encoder increments that are received in the meantime, are not taken into account.
BI: p2514 = 1/0 signal:
The position actual value preprocessing is activated and is based on the setting value.

p2515[0...3] CI: LR position actual setting, setting value / s_act set setVal

SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the setting value of the function "setting position actual value".

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Reserved

Dependency: Refer to: p2502, p2514

p2516[0...3] CI: LR position offset / Position offset

SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0

Description: Sets the signal source for the position offset.

Index: [0] = Closed-loop position control
[1] = Encoder 1
[2] = Encoder 2
[3] = Reserved

Dependency: Refer to: p2502, r2667

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: CI: p2516[0] = r2667

p2517[0...2]		LR direct measuring probe 1 / Direct MT 1	
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 4010 Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the input terminal for direct measuring probe 1. The direct measuring probe can either be parameterized as non-cyclic (value 1 ... 8) or as cyclic (value 11 ... 18) measuring probe. After it has been activated via BI: p2509 = 0/1 signal, the non-cyclic measuring probe measures once and can be used with EPOS. After it has been activated via the p2509 = 1 signal, the cyclic measuring probe measures cyclically and cannot be used with EPOS. In order to process signals faster, the direct measuring probe bypasses the handshake technique via the encoder control and status word.		
Value:	0: No meas probe 1: DI/DO 9 (X122.10/X132.2) 2: DI/DO 10 (X122.12/X132.3) 3: DI/DO 11 (X122.13/X132.4) 7: DI/DO 8 (X122.9/X132.1) 11: DI/DO 9 cyclic 12: DI/DO 10 cyclic 13: DI/DO 11 cyclic 17: DI/DO 8 cyclic		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0490, p0728, p2509, p2510, p2511		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU305. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	DI/DO: Bidirectional Digital Input/Output The terminal must be set as input (p0728). If parameter change is rejected, it should be checked whether the input terminal is not already being used in p0488, p0489, p0495, p0580 or p0680. Direct measurement via p2517 has a higher priority than measurements via p0488. For the direct measuring probe evaluation, the DP clock cycle must be integer multiple of the position controller clock cycle.		

p2518[0...2]		LR direct measuring probe 2 / Direct MT 2	
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 4010 Unit selection: - Expert list: 1
	Min 0	Max 17	Factory setting 0
Description:	<p>Sets the input terminal for direct measuring probe 2.</p> <p>The direct measuring probe can neither be parameterized as non-cyclic (value 1 ... 6) nor as cyclic (value 11 ... 16) measuring probe.</p> <p>After it has been activated via BI: p2509 = 0/1 signal, the non-cyclic measuring probe measures once and can be used with EPOS.</p> <p>After it has been activated via the p2509 = 1 signal, the cyclic measuring probe measures cyclically and cannot be used with EPOS.</p> <p>In order to process signals faster, the direct measuring probe bypasses the handshake technique via the encoder control and status word.</p>		
Value:	0: No meas probe 1: DI/DO 9 (X122.10/X132.2) 2: DI/DO 10 (X122.12/X132.3) 3: DI/DO 11 (X122.13/X132.4) 7: DI/DO 8 (X122.9/X132.1) 11: DI/DO 9 cyclic 12: DI/DO 10 cyclic 13: DI/DO 11 cyclic 17: DI/DO 8 cyclic		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p0490, p0728, p2509, p2510, p2511		
Notice:	To the terminal designation: The first designation is valid for CU320, the second for CU310. To select the values: For CU310, CX32, NX10 and NX15, only DI/DO 9, 10, 11 can be selected as fast inputs (refer to the Equipment Manual).		
Note:	DI/DO: Bidirectional Digital Input/Output The terminal must be set as input (p0728). If parameter change is rejected, it should be checked whether the input terminal is not already being used in p0488, p0489, p0495, p0580 or p0680. Direct measurement via p2518 has a higher priority than measurements via p0489. For the direct measuring probe evaluation, the DP clock cycle must be integer multiple of the position controller clock cycle.		

p2519[0...n]		LR position actual value preprocessing config. DDS changeover / s_act config DDS																																																														
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1																																																													
	Min 0	Max 5	Factory setting 1																																																													
Description:	Sets the behavior of the position actual value preprocessing for the position controller for a DDS changeover. Re p2519 = 1: In the following cases, for a DDS changeover, the actual position actual value becomes invalid and the reference point is reset: - the EDS effective for the closed-loop position control changes. - the encoder assignment changes (p2502). - the mechanical relationships change (p2503 ... p2506). - the direction of rotation changes (p1821). For absolute encoders, the status of the adjustment (p2507) is also reset if the same absolute encoder remains selected for the closed-loop position control, but the mechanical relationships or the direction of rotation have changed. In the operation state, in addition, a fault (F07494) is generated.																																																															
Notice:	The remaining setting values are intended for expanded functionality.																																																															
Note:	The behavior for a DDS changeover is determined using the value of p2519 in the target data set.																																																															
r2520[0...2]		CO: LR Position actual value preprocessing, encoder control word / ActVal_prep STW																																																														
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: Unsigned16 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4010 Unit selection: - Expert list: 1																																																													
	Min -	Max -	Factory setting -																																																													
Description:	Displays the encoder control word generated by the position actual value preprocessing.																																																															
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved																																																															
Bit field:	<table border="1"> <thead> <tr> <th>Bit</th> <th>Signal name</th> <th>1 signal</th> <th>0 signal</th> <th>FP</th> </tr> </thead> <tbody> <tr><td>00</td><td>Request function 1</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>01</td><td>Request function 2</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>02</td><td>Request function 3</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>03</td><td>Request function 4</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>04</td><td>Request command bit 0</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>05</td><td>Request command bit 1</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>06</td><td>Request command bit 2</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>07</td><td>Mode flying measurement / search for reference</td><td>Flying measurement</td><td>Reference marks</td><td>-</td></tr> <tr><td>13</td><td>Request absolute value cyclic</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>14</td><td>Request parking encoder</td><td>Yes</td><td>No</td><td>-</td></tr> <tr><td>15</td><td>Request acknowledge encoder fault</td><td>Yes</td><td>No</td><td>-</td></tr> </tbody> </table>	Bit	Signal name	1 signal	0 signal	FP	00	Request function 1	Yes	No	-	01	Request function 2	Yes	No	-	02	Request function 3	Yes	No	-	03	Request function 4	Yes	No	-	04	Request command bit 0	Yes	No	-	05	Request command bit 1	Yes	No	-	06	Request command bit 2	Yes	No	-	07	Mode flying measurement / search for reference	Flying measurement	Reference marks	-	13	Request absolute value cyclic	Yes	No	-	14	Request parking encoder	Yes	No	-	15	Request acknowledge encoder fault	Yes	No	-			
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14	Request parking encoder	Yes	No	-																																																												
15	Request acknowledge encoder fault	Yes	No	-																																																												
Dependency:	Refer to: p0480																																																															
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: Cl: p0480[0] = r2520[0], Cl: p0480[1] = r2520[1] and Cl: p0480[2] = r2520[2]																																																															

r2521[0...3] CO: LR position actual value / s_act			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the actual position actual value determined by the position actual value preprocessing.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved		
Dependency:	Refer to: p2502, r2526		
Note:	r2526.0 = 1 --> The position actual value in r2521[0] for the position control is valid. r2527.0 = 1 --> The position actual value in r2521[1] for encoder 1 is valid. r2528.0 = 1 --> The position actual value in r2521[2] for encoder 2 is valid.		
r2522[0...3] CO: LR velocity actual value / v_act			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [1000 LU/min]	Max - [1000 LU/min]	Factory setting - [1000 LU/min]
Description:	Displays the velocity actual value determined by the position actual value preprocessing.		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved		
Dependency:	Refer to: p2502, r2526		
Note:	r2526.0 = 1 --> The velocity actual value in r2522[0] for the position control is valid. r2527.0 = 1 --> The velocity actual value in r2522[1] for encoder 1 is valid. r2528.0 = 1 --> The velocity actual value in r2522[2] for encoder 2 is valid.		
r2523[0...3] CO: LR measured value / Measured value			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 4010
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the value determined by the function "reference mark search" and "measuring probe evaluation".		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved		
Dependency:	Refer to: p2502, r2526		
Note:	r2526.2 = 1 --> The measured value in r2523[0] for the position control is valid. r2527.2 = 1 --> The measured value in r2523[1] for encoder 1 is valid. r2528.2 = 1 --> The measured value in r2523[2] for encoder 2 is valid.		

r2524	CO: LR LU/revolution / LU/revolution				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 4010		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min - [LU]	Max - [LU]	Factory setting - [LU]		
Description:	Displays the internal length units LU/motor revolution.				
Dependency:	Refer to: p0404				
p2525[0...n]	CO: LR encoder adjustment, offset / Enc_adj offset				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: 4010		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0 [LU]	Max 4294967295 [LU]	Factory setting 0 [LU]		
Description:	For the absolute encoder adjustment, a drive determines the position offset.				
Dependency:	Refer to: p0404				
Note:	The position offset is only relevant for absolute encoders. The drive determines it when making the adjustment and the user should not change it.				
r2526.0...9	CO/BO: LR status word / ZSW				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the status word of the position controller.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Position actual value valid	Yes	No	4010, 4015
	01	Referencing active	Yes	No	4010
	02	Measured value valid	Yes	No	3615, 4010
	03	Closed-loop position control active	Yes	No	4015
	04	Fixed stop reached	Yes	No	3617, 4025
	05	Fixed stop outside window	Yes	No	3617, 4025
	06	Position controller output limited	Yes	No	4015
	07	Request tracking mode	Yes	No	-
	08	Clamping active when traveling to fixed stop	Yes	No	4025
	09	Setting value for adjustment valid	Yes	No	-
Dependency:	Refer to: r2521, r2522, r2523				
Note:	Re bit 04: The signal is influenced via p2634. Re bit 05: The signal is influenced via p2635.				

r2527.0...2	CO/BO: LR actual value sensing status word encoder 1 / ActValSensZSW enc1				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word of the position actual value sensing for encoder 1.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Position actual value valid	Yes	No	-
	01	Referencing active	Yes	No	-
	02	Measured value valid	Yes	No	-
r2528.0...2	CO/BO: LR actual value sensing status word encoder 2 / ActValSensZSW enc2				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word of the position actual value sensing for encoder 2.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Position actual value valid	Yes	No	-
	01	Referencing active	Yes	No	-
	02	Measured value valid	Yes	No	-
p2530	CI: LR position setpoint / s_set				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1		
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4015, 4020		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0		
Description:	Sets the signal source for the position setpoint of the position controller.				
Dependency:	Refer to: r2665				
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2530 = r2665				
p2531	CI: LR velocity setpoint / v_set				
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1		
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 4015		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0		
Description:	Sets the signal source for the velocity setpoint of the position controller.				
Dependency:	Refer to: r2666				
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2531 = r2666				

p2532	CI: LR position actual value / s_act			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Closed loop position control Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 4015, 4020, 4025 Unit selection: - Expert list: 1 Factory setting 2521[0]	
Description:	Sets the signal source for the position actual value of the position controller.			
Dependency:	Refer to: r2521			
p2533[0...n]	LR position setpoint filter, time constant / s_set_filt T			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: - Min 0.00 [ms]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 1000.00 [ms]	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1 Factory setting 0.00 [ms]	
Description:	Sets the time constant for the position setpoint filter (PT1).			
Note:	The effective Kv factor (position loop gain) is reduced with the filter. This allows a softer control behavior with improved tolerance with respect to noise/disturbances. Applications: - reduces the pre-control dynamic response. - jerk limiting.			
p2534[0...n]	LR speed pre-control factor / n_prectrl fact			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: - Min 0.00 [%]	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 200.00 [%]	Access level: 1 Func. diagram: 4015, 4025 Unit selection: - Expert list: 1 Factory setting 0.00 [%]	
Description:	Setting to activate and weight the speed pre-control value. Value = 0 % --> The pre-control is de-activated.			
Dependency:	Refer to: p2535, p2536, r2563			
Note:	When the axis control loop is optimally set as well as a precisely determined equivalent time constant of the speed control loop, the pre-control factor is 100%.			
p2535[0...n]	LR speed pre-control balancing filter dead time / n_prectrFlt t_dead			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: - Min 0.00	Calculated: - Dynamic index: DDS, p0180 Units group: - Max 2.00	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1 Factory setting 0.00	
Description:	Sets the "fractional" dead time to emulate the timing behavior of the speed control loop. The selected multiplier refers to the position controller clock cycle (deadtime= p2535 * p0115[4]).			
Dependency:	Refer to: p2536			

- Notice:** When speed pre-control is active (p2534 > 0 %), the following applies:
In addition to the set dead time (p2535), internally two position controller clock cycles are effective.
When speed pre-control is inactive (p2534 = 0 %), the following applies:
No dead time is effective (p2535 and internal).
- Note:** Together with p2536, the timing behavior of the closed-loop control loop can be emulated.

p2536[0...n]	LR speed pre-control, symmetrizing filter PT1 / n_prectrl filt PT1		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 100.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets a PT1 filter to emulate the timing behavior of the closed-speed control loop.		
Dependency:	Refer to: p2535		
Notice:	When speed pre-control is inactive (p2534 = 0 %), the following applies: If a PT1 filter has been set, it is not effective.		
Note:	Together with p2535, the timing behavior of the closed-loop control loop can be emulated.		

p2537	CI: LR position controller adaptation / Adaptation		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the adaptation of the proportional gain of the position controller.		
Dependency:	Refer to: p2538		

p2538[0...n]	LR proportional gain / Kp		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min 0.000 [1000/min]	Max 300.000 [1000/min]	Factory setting 1.000 [1000/min]
Description:	Sets the proportional gain (P gain, position loop gain, Kv factor) of the position controller.		
Dependency:	Refer to: p2537, p2539, p2555, r2557, r2558		
Note:	The proportional gain is used define at which traversing velocity which following error is obtained (without pre-control) Low proportional gain: Slow response to a setpoint - actual value difference, the following error becomes large. High proportional gain: Fast response to the setpoint - actual value difference, the following error becomes small.		

p2539[0...n]	LR integral time / Tn			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1	
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 0.00 [ms]	
Description:	Setting to activate the integral time of the position controller. Value = 0 ms --> The I component of the position controller is de-activated.			
Dependency:	Refer to: p2538, r2559			
p2540	CO: LR position controller output, speed limit / LR_outp limit			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: 4015 Unit selection: p0505 Expert list: 1	
	Min 0.000 [rev/min]	Max 210000.000 [rev/min]	Factory setting 210000.000 [rev/min]	
Description:	Sets the speed limit of the position controller output.			
Dependency:	Refer to: p2541			
p2541	CI: LR position controller output, speed limit signal source / LR_outp lim S_src			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting 2540[0]	
Description:	Sets the signal source for the position controller output limit.			
Dependency:	Refer to: p2540			
p2542	LR standstill window / Standstill window			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4020 Unit selection: - Expert list: 1	
	Min 0 [LU]	Max 2147483647 [LU]	Factory setting 200 [LU]	
Description:	Sets the standstill window for the standstill monitoring function. After the standstill monitoring time expires, it is cyclically checked whether the difference between the setpoint and actual position is located within the standstill window and, if required, an appropriate fault is output. Value = 0 --> The standstill monitoring is de-activated.			
Dependency:	Refer to: p2543, p2544 Refer to: F07450			
Note:	The following applies for the setting of the standstill and positioning window: Standstill window (p2542) >= positioning window (p2544)			

p2543		LR standstill monitoring time / t_standstill monit		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 4020	
	P-Group: Closed loop position control	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 200.00 [ms]	
Description:	Sets the standstill monitoring time for the standstill monitoring function. After the standstill monitoring time expires, it is cyclically checked whether the difference between the setpoint and actual position is located within the standstill window and, if required, an appropriate fault is output.			
Dependency:	Refer to: p2542, p2545 Refer to: F07450			
Note:	The following applies for the setting of the standstill and positioning monitoring time: Standstill monitoring time (p2543) <= positioning monitoring time (p2545)			
p2544		LR positioning window / Pos_window		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 4020	
	P-Group: Closed loop position control	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0 [LU]	Max 2147483647 [LU]	Factory setting 40 [LU]	
Description:	Sets the positioning window for the positioning monitoring function. After the positioning monitoring time expires, it is checked once as to whether the difference between the setpoint and actual position lies within the positioning window and if required an appropriate fault is output. Value = 0 --> The positioning monitoring function is de-activated.			
Dependency:	Refer to: p2542, p2545, r2684 Refer to: F07451			
Note:	The following applies for the setting of the standstill and positioning window: Standstill window (p2542) >= positioning window (p2544)			
p2545		LR positioning monitoring time / t_pos_monit		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 4020	
	P-Group: Closed loop position control	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 1000.00 [ms]	
Description:	Sets the positioning monitoring time for the positioning monitoring. After the positioning monitoring time expires, it is checked once as to whether the difference between the setpoint and actual position lies within the positioning window and if required an appropriate fault is output.			
Dependency:	Refer to: p2543, p2544, r2684 Refer to: F07451			
Note:	The following applies for the setting of the standstill and positioning monitoring time: Standstill monitoring time (p2543) <= positioning monitoring time (p2545)			

p2546[0...n]		LR dynamic following error monitoring tolerance / s_delta_monit tol	
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 1 Func. diagram: 4025 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147483647 [LU]	Factory setting 1000 [LU]
Description:	Sets the tolerance for the dynamic following error monitoring. If the dynamic following error (r2563) exceeds the selected tolerance, then an appropriate fault is output. Value = 0 --> The dynamic following error monitoring is de-activated.		
Dependency:	Refer to: r2563, r2684 Refer to: F07452		
Note:	The tolerance bandwidth is intended to prevent the dynamic following error monitoring incorrectly responding due to operational control sequences (e.g. during load surges).		

p2547		LR cam switching position 1 / Cam position 1	
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4025 Unit selection: - Expert list: 1
	Min -2147483648 [LU]	Max 2147483647 [LU]	Factory setting 0 [LU]
Description:	Sets the cam switching position 1.		
Dependency:	Refer to: p2548, r2683		
Caution:	Only after the axis has been referenced can it be guaranteed that the cam switching signals when output have a "true" position reference.		
			
Note:	Position actual value <= cam switching position 1 --> r2683.8 = 1 signal Position actual value > cam switching position 1 --> r2683.8 = 0 signal		

p2548		LR cam switching position 2 / Cam position 2	
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4025 Unit selection: - Expert list: 1
	Min -2147483648 [LU]	Max 2147483647 [LU]	Factory setting 0 [LU]
Description:	Sets the cam switching position 2.		
Dependency:	Refer to: p2547, r2683		
Caution:	Only after the axis has been referenced can it be guaranteed that the cam switching signals when output have a "true" position reference.		
			
Note:	Position actual value <= cam switching position 2 --> r2683.9 = 1 signal Position actual value > cam switching position 2 --> r2683.9 = 0 signal		

p2549	BI: LR enable 1 / Enable 1		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 899.2
Description:	Sets the signal source for the position controller enable 1.		
Dependency:	Refer to: r0899, p2550		
Note:	The position controller is enabled by ANDing BI: p2549 and BI: p2550.		
p2550	BI: LR enable 2 / Enable 2		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the position controller enable 2.		
Dependency:	Refer to: p2549		
Note:	The position controller is enabled by ANDing BI: p2549 and BI: p2550. When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2550 = 1		
p2551	BI: LR setpoint signal present / Sig s_set pres		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4020 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the "setpoint present" signal. BI: p2551 = 1 signal: The end of the positioning operation on the setpoint side is signaled and the positioning and standstill monitoring activated. BI: p2551 = 0 signal: The start of a positioning operation or tracking mode on the setpoint side is signaled and the positioning and standstill monitoring de-activated.		
Dependency:	Refer to: p2554, r2683		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2551 = r2683.2		

p2552	BI: LR signal travel to fixed stop active / Signal TfS act		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4025
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the signal "travel to fixed stop active". BI: p2552 = 1 signal: The activity associated with travel to fixed stop is signaled and the detection of the fixed stop is started via the maximum following error (p2634).		
Dependency:	Refer to: r2683		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2552 = r2683.14		
p2553	BI: LR signal fixed stop reached / Signal fixed stop		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4025
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the signal "fixed stop reached". BI: p2553 = 1 signal: When the fixed stop is reached, this is signaled and the fixed stop monitoring window is activated.		
Dependency:	Refer to: r2683		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2553 = r2683.12		
p2554	BI: LR signal traversing command active / Sig trav_cmnd act		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 4020
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the signal "traversing command active". BI: p2554 = 1 signal: It is signaled that positioning is active and therefore the positioning monitoring is not activated with the signal "set-point present" (p2551).		
Dependency:	Refer to: p2551, r2684		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established: BI: p2554 = r2684.15		

p2555	CI: LR LU/revolution LU/mm / LU/rev LU/mm		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2524[0]
Description:	Sets the signal source for the reference of the internal length units LU to motor revolution for rotary encoders and to mm for linear encoders.		
Dependency:	Refer to: p0404, r2524		
Note:	The signal value is used to convert the length unit to the speed or velocity setpoint.		
r2556	CO: LR position setpoint after setpoint smoothing / s_set after interp		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the position setpoint after the setpoint smoothing.		
r2557	CO: LR position controller input, system deviation / LR_inp sys dev		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the difference between the position setpoint and the position actual value at the position controller input.		
r2558	CO: LR position controller output, P component / LR_outp P comp		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the P component at the output of the position controller for the speed setpoint.		
r2559	CO: LR position controller output, I component / LR_outp I comp		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the I component at the output of the position controller for the speed setpoint.		

r2560	CO: LR speed setpoint / n_set			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1	
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]	
Description:	Displays the speed setpoint after limiting (CI: p2541).			
r2561	CO: LR speed pre-control value / n_prectrl val			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1	
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]	
Description:	Displays the speed setpoint due to the pre-control.			
r2562	CO: LR total speed setpoint / n_set total			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1	
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]	
Description:	Displays the total speed setpoint This value is obtained from the sum of the speed pre-control and position controller output.			
Dependency:	Refer to: r2560, r2561			
r2563	CO: LR following error dynamic model / Follow error dyn			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4025 Unit selection: - Expert list: 1	
	Min - [LU]	Max - [LU]	Factory setting - [LU]	
Description:	Displays the dynamic following error. This value is the deviation, corrected by the velocity-dependent component, between the position setpoint and the position actual value.			
Note:	For p2534 >= 100 % (pre-control activated) the following applies: The dynamic following error (r2563) corresponds to the system deviation (r2557) at the position controller input. For 0 % < p2534 < 100 % (pre-control activated) or p2534 = 0 % (pre-control de-activated) the following applies: The dynamic following error (r2563) is the deviation between the measured position actual value and a value that is calculated from the position setpoint via a PT1 model. This compensates the system-related velocity-dependent system deviation for a P controller.			

r2564	CO: LR torque pre-control value / M_prectrl val		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 7_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the torque pre-control value.		
Dependency:	Refer to: p1511, p1512		
Note:	The torque pre-control value is the derivation over time of the speed pre-control value and is referred to a moment of inertia of 1 kgm ² /2 PI. When using the pre-control, then this should be evaluated corresponding to the actual moment of inertia.		
r2565	CO: LR current following error / Following err act		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 4015 Unit selection: - Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]
Description:	Displays the current following error.		
	This value is the deviation between the position setpoint - after fine interpolation - and the position actual value.		
Notice:	When speed pre-control is active (p2534 > 0 %), the following applies: To calculate this value, the position setpoint is delayed by two position controller clock cycles. When speed pre-control is inactive (p2534 = 0 %), the following applies: To calculate this value, the position setpoint is delayed by two position controller clock cycles.		
r2566	LR speed input pre-control / n inp prectrl		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: - Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 1 Func. diagram: 4015 Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the speed at the input of the pre-control channel.		
Note:	This display parameter is used for diagnostics even when the pre-control is inactive (p2534 = 0%).		
p2567[0...n]	LR torque pre-control moment of inertia / M_prectr M_inertia		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: 25_1	Access level: 3 Func. diagram: 4015 Unit selection: p0100 Expert list: 1
	Min 0.000000 [kgm ²]	Max 100000.000000 [kgm ²]	Factory setting 0.159155 [kgm ²]
Description:	Sets the moment of inertia for the torque pre-control.		
Dependency:	Refer to: p2534, r2564		

Note: When calculating the torque pre-control value (r2654), the time derivation of the speed pre-control value is multiplied by $2 \text{ PI} * p2567$.
For reasons associated with the compatibility to earlier firmware versions, the factory setting for $p2567 = 1 \text{ kgm}^2/2 \text{ PI}$. This means that CO: r2564 remains as standard the derivation over time of the speed pre-control value and is referred, as before, to a moment of inertia of $1 \text{ kgm}^2/2 \text{ PI}$. For torque pre-control, the moment of inertia can now be directly entered into p2567 (instead of subsequently evaluating the pre-control value).

p2568		BI: EPOS STOP cam activation / STOP cam act	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to activate the function "STOP cam". BI: p2568 = 1 signal --> The evaluation of the STOP cam minus (BI: p2569) and STOP cam plus (BI: p2570) is active.		
Dependency:	Refer to: p2569, p2570		
Note:	The traversing range can also be limited using software limit switches.		

p2569		BI: EPOS STOP cam minus / STOP cam minus	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the STOP cam in the negative direction of travel.		
Recommend.:	Set the OFF3 ramp-down time (p1135), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available. Sets message 07491 as alarm (A07491): Set the maximum deceleration (p2573), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available.		
Dependency:	Refer to: p1135, p2568, p2570, p2573, r2684 Refer to: F07491		
Caution:	The STOP cams are low active. Sets message 07491 as fault (F07491): For a 0 signal, the axis is stopped with the OFF3 ramp-down time (p1135), status signal r2684.13 is set to 1, saved and the appropriate fault is output. After the fault has been acknowledged, only motion moving away from the STOP cam is permitted. For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.13 is set to 0. Sets message 07491 as alarm (A07491): For a 0 signal, the axis is stopped with the maximum deceleration (p2573), status signal r2684.13 is set to 1, saved and the appropriate alarm is output. Only motion away from the STOP cam is permitted. For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.13 is set to 0 and the alarm is deleted.		



p2570		BI: EPOS STOP cam plus / STOP cam plus	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the STOP cam in the positive direction of travel.		
Recommend.:	Set the OFF3 ramp-down time (p1135), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available. Sets message 07492 as alarm (A07492): Set the maximum deceleration (p2573), so that the axis, after reaching the STOP cam at the maximum velocity, does not move through a higher braking travel than is actually available.		
Dependency:	Refer to: p1135, p2568, p2569, p2573, r2684 Refer to: F07492		
Caution:	The STOP cams are low active. Sets message 07492 as fault (F07492): For a 0 signal, the axis is stopped with the OFF3 ramp-down time (p1135), status signal r2684.14 is set to 1, saved and the appropriate fault is output. After the fault has been acknowledged, only motion moving away from the STOP cam is permitted. For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.14 is set to 0. Sets message 07492 as alarm (A07492): For a 0 signal, the axis is stopped with the maximum deceleration (p2573), status signal r2684.14 is set to 1, saved and the appropriate alarm is output. Only motion away from the STOP cam is permitted. For a 0/1 signal and valid travel direction, when the stop cam is exited, this is detected and the status signal r2684.14 is set to 0 and the alarm is deleted.		

p2571		EPOS maximum velocity / v_max	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1 [1000 LU/min]	40000000 [1000 LU/min]	30000 [1000 LU/min]
Description:	Sets the maximum velocity for the function module "basic positioner" (r0108.4).		
Dependency:	Refer to: r1084, r1087, p2503, p2504, p2505, p2506		
Note:	The maximum velocity is active in all of the operating modes of the basic positioner. The maximum velocity for the basic positioner should be aligned with the maximum speed/velocity of the speed/velocity controller: Rotary encoders: $p2571[1000 \text{ LU/min}] = \min(r1084 , r1087)[1/\text{min}] \times p2505/p2504 \times p2506/1000$ Linear encoders: $p2571[1000 \text{ LU/min}] = \min(r1084 , r1087)[\text{m/min}] \times p2503/10[\text{m}]$		

p2572	EPOS maximum acceleration / a_max		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min 1 [1000 LU/s ²]	Max 2000000 [1000 LU/s ²]	Factory setting 100 [1000 LU/s ²]
Description:	Sets the maximum acceleration for the function module "basic positioner" (r0108.4).		
Dependency:	Refer to: p2619, p2644		
Note:	The maximum acceleration appears to exhibit jumps (without jerk). "Traversing blocks" operating mode: The programmed acceleration override (p2619) acts on the maximum acceleration. "Direct setpoint input/MDI" mode: The acceleration override is effective (p2644, 4000 hex = 100 %). "Jog" and "search for reference" modes No acceleration override is active. The axis starts with the maximum acceleration.		
p2573	EPOS maximum deceleration / -a_max		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630 Unit selection: - Expert list: 1
	Min 1 [1000 LU/s ²]	Max 2000000 [1000 LU/s ²]	Factory setting 100 [1000 LU/s ²]
Description:	Sets the maximum deceleration for the function module "basic positioner" (r0108.4).		
Dependency:	Refer to: p2620, p2645		
Note:	The maximum deceleration appears to exhibit jumps (without jerk). "Traversing blocks" operating mode: The programmed deceleration override (p2620) acts on the maximum deceleration. "Direct setpoint input/MDI" mode: The deceleration override is effective (p2645, 4000 hex = 100 %). "Jog" and "search for reference" modes No deceleration override is effective. The axis breaks with the maximum deceleration.		
p2574	EPOS jerk limiting / Jerk lim		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1
	Min 1 [1000 LU/s ³]	Max 100000000 [1000 LU/s ³]	Factory setting 10000 [1000 LU/s ³]
Description:	Sets the jerk limiting		
Dependency:	Refer to: p2572, p2573, p2575		

Note: The jerk limiting is internally converted into a jerk time as follows:

$$\text{Jerk time } T_r = \max(p2572, p2573) / p2574$$
The jerk time is internally limited to 1000 ms and is rounded-off to an integer multiple of the sampling time positioning (p0115[5]).
The jerk time is valid for the acceleration and deceleration phases also for unequal maximum acceleration (p2572) and maximum deceleration (p2573).
For unequal maximum acceleration and maximum deceleration, the motion is not optimal from a time perspective as the jerk limit cannot be used for the lower of the two values.
If, in the traversing profile, the acceleration time without jerk limiting is less than the jerk time T_r , then the motion with jerk limiting is not optimum from a time perspective.
For traversing motion with a direct transition between acceleration and deceleration (i.e. jerk time is greater than the constant velocity phase), jerk can increase up to twice the parameterized jerk.
CONTINUE_FLYING with direction reversal acts internally just like a CONTINUE_WITH_STOP without the "position reached" being set. Without jerk limiting, this behavior can hardly be noticed as, when reversing, the position setpoint is only kept at zero for one interpolator clock cycle.
For block change enable CONTINUE_WITH_STOP, jerk limiting results in a longer delay time.

p2575	BI: EPOS jerk limiting activation / Jerk limit act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to activate the jerk limiting. Activating/de-activating: - using BI: p2575 = 1 signal or 0 signal. - using the command JERK in the traversing block (only for BI: p2575 = 0 signal).		
Dependency:	Refer to: p2574		
Note:	A change of the signal state at the binector input is only accepted at zero speed.		
p2576	EPOS modulo correction, modulo range / Modulo corr range		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1
	Min 1 [LU]	Max 2147482647 [LU]	Factory setting 360000 [LU]
Description:	Sets the modulo range for axes with modulo correction.		
Dependency:	Refer to: p2577		
p2577	BI: EPOS modulo correction activation / Modulo corr act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3630, 3635 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to activate modulo correction.		
Dependency:	Refer to: p2576		

Note: When the signal state changes at the binector input, this only becomes effective in the "ready to power-up" state.
 Selecting modulo correction:
 The current position setpoint in the modulo range is corrected. The position actual value differs from the position setpoint by the following error and can also leave the modulo range.
 De-selecting modulo correction:
 It is based on the current position actual value.

p2578	CI: EPOS software limit switch minus signal source / SW limSw Min S_src		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2580[0]

Description: Sets the signal source for the software limit switch minus.

Dependency: Refer to: p2579, p2580, p2581, p2582
 Refer to: A07469, A07477, A07479, F07481

Notice: A change to the software limit switch becomes immediately effective.

If the software limit switch is changed, then this results in the positions in the traversing blocks being checked.

Note: The following applies for the setting of the software limit switch:
 Software limit switch minus < software limit switch plus

p2579	CI: EPOS software limit switch plus signal source / SW limSwPlus S_src		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2581[0]

Description: Sets the signal source for the software limit switch plus.

Dependency: Refer to: p2578, p2580, p2581, p2582
 Refer to: A07470, A07478, A07480, F07482

Notice: A change to the software limit switch becomes immediately effective.

If the software limit switch is changed, then this results in the positions in the traversing blocks being checked.

Note: The following applies for the setting of the software limit switch:
 Software limit switch minus < software limit switch plus

p2580	CO: EPOS software limit switch minus / SW limSwitch minus		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-2147482648 [LU]	2147482647 [LU]	-2147482648 [LU]

Description: Sets the software limit switch in the negative direction of travel.

Dependency: Refer to: p2578, p2579, p2581, p2582

p2581			
CO: EPOS software limit switch plus / SW lim switch plus			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 2147482647 [LU]
Description:	Sets the software limit switch in the positive direction of travel.		
Dependency:	Refer to: p2578, p2579, p2580, p2582		
<hr/>			
p2582			
BI: EPOS software limit switch activation / SW lim sw act			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to activate the "software limit switch".		
Dependency:	Refer to: p2578, p2579, p2580, p2581		
Caution:	Software limit switch effective:		
	- axis is referenced (r2684.11 = 1) and BI: p2582 = 1 signal.		
	Software limit switch ineffective:		
	- modulo correction active (BI: p2577 = 1 signal).		
	- search for reference is executed.		
Notice:	Target position for relative positioning outside software limit switch:		
	The traversing block is started and the axis comes to a standstill at the software limit switch. An appropriate alarm is output and the traversing block is interrupted. Traversing blocks with valid position can be activated.		
	Target position for absolute positioning outside software limit switch:		
	In the "traversing blocks" mode, the traversing block is not started and an appropriate fault is output.		
	Axis outside the valid traversing range:		
	If the axis is already outside the valid traversing range, then an appropriate fault is output. The fault can be acknowledged at standstill. Traversing blocks with valid position can be activated.		
Note:	The traversing range can also be limited using STOP cams.		
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p2583			
EPOS backlash compensation / Backlash comp			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -200000 [LU]	Max 200000 [LU]	Factory setting 0 [LU]
Description:	Sets the amount of play (backlash) for positive or negative play.		
	0: The backlash compensation is de-activated.		
	> 0: Positive backlash (normal case)		
	When the direction is reversed, the encoder actual value leads the actual value.		
	< 0: Negative backlash		
	When the direction is reversed, the actual value leads the encoder actual value.		

Dependency: If a stationary axis is referenced by setting the reference point, or an adjusted with absolute encoder is powered up, then the setting of p2604 is relevant for entering the compensation value.
p2604 = 1:
Traveling in the positive direction -> A compensation value is immediately entered.
Traveling in the negative direction -> A compensation value is not entered
p2604 = 0:
Traveling in the positive direction -> A compensation value is not entered
Traveling in the negative direction -> A compensation value is immediately entered.
When again setting the reference point (a referenced axis) or for "flying referencing", p2604 is not relevant but instead the history of the axis.
Refer to: p2604, r2667

p2585 EPOS jog 1 setpoint velocity / Jog 1 v_set

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3610
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -40000000 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting -300 [1000 LU/min]

Description: Sets the setpoint velocity for jog 1.
Dependency: Refer to: p2587, p2589, p2591

p2586 EPOS jog 2 setpoint velocity / Jog 2 v_set

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3610
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -40000000 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 300 [1000 LU/min]

Description: Sets the setpoint velocity for jog 2.
Dependency: Refer to: p2588, p2590, p2591

p2587 EPOS jog 1 traversing distance / Jog 1 distance

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3610
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 1000 [LU]

Description: Sets the traversing distance for incremental jog 1.
Dependency: Refer to: p2585, p2589, p2591
Note: Incremental jog 1 is started with BI: p2591 = 1 signal and BI: p2589 = 0/1 signal.
With BI: p2589 = 0 signal, incremental jog is interrupted.

p2588	EPOS jog 2 traversing distance / Jog 2 distance		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 1000 [LU]
Description:	Sets the traversing distance for incremental jog 2.		
Dependency:	Refer to: p2586, p2590, p2591		
Note:	Incremental jog 2 is started with BI: p2591 = 1 signal and BI: p2590 = 0/1 signal. With BI: p2590 = 0 signal, incremental jogging is interrupted.		
p2589	BI: EPOS jog 1 signal source / Jog 1 S_src		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610, 3625 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jog 1.		
Dependency:	When jogging, the axis is accelerated or braked with the maximum acceleration/deceleration (p2572/p2573). BI: p2591 = 0 signal The axis endlessly moves with the setpoint velocity, jog 1 (p2585). BI: p2591 = 1 signal The axis traverses through a parameterized distance (p2585) with the setpoint velocity, jog 1 (p2587). Refer to: p2572, p2573, p2585, p2587, p2591		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p2590	BI: EPOS jog 2 signal source / Jog 2 S_src		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610, 3625 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jog 2.		
Dependency:	When jogging, the axis is accelerated or braked with the maximum acceleration/deceleration (p2572/p2573). BI: p2591 = 0 signal The axis endlessly moves with the setpoint velocity, jog 2 (p2586). BI: p2591 = 1 signal The axis traverses through a parameterized distance (p2586) with the setpoint velocity, jog 2 (p2588). Refer to: p2572, p2573, p2586, p2588, p2591		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

p2591	BI: EPOS jogging incremental / Jog incr		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3610 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for jogging incremental.		
Dependency:	Refer to: p2585, p2586, p2587, p2588, p2589, p2590		
p2593	CI: EPOS LU/revolution LU/mm / LU/rev LU/mm		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2524[0]
Description:	Sets the signal source for the reference of the internal length units LU to motor revolution for rotary encoders and to mm for linear encoders.		
Dependency:	Refer to: p0404, r2524, p2594		
Note:	The signal value is used to convert the length unit to the speed or velocity setpoint.		
p2594	CI: EPOS Maximum velocity externally limited / v_Max ext lim		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the externally limited maximum velocity.		
Dependency:	Refer to: r2524, p2571, p2593		
Warning:	In order that the externally limited velocity can be effective for the EPOS operating modes, connector input p2593 must be correctly interconnected.		
			
p2595	BI: EPOS referencing start / Ref start		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612, 3625, 3614 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to start the "search for reference" or "flying referencing". BI: p2595 = 0/1 signal Referencing is started. BI: p2595 = 1/0 signal Referencing is interrupted.		
Dependency:	Refer to: p2597, p2598, p2599, r2684		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: Search for reference (BI: p2597 = 0 signal):
 The reference point approach can only be activated (0/1 edge) after traversing motion that is being processed has been completed.
 With the start, where relevant, the state signal "reference point set" (r2684.11) is reset.
 Flying referencing (BI: p2597 = 1 signal):
 With the start, the state signal "reference point set" (r2684.11) is not reset.

p2596	BI: EPOS set reference point / Set ref_pt		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1 Factory setting 0
	Min -	Max -	
Description:	Sets the signal source for the "set reference point".		
Dependency:	Refer to: p2598, p2599, r2684		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Reference point setting is effective in the following operating states: - in the basic state. - for FIXED STOP with progress condition END (corresponds to the initial state). - for traversing block interrupted via BI: p2640 = 0 signal (intermediate stop). - for EPOS not enabled (BI: p2656 = 0 signal) and position actual value valid (BI: p2658 = 1 signal).		

p2597	BI: EPOS referencing type selection / Ref_typ select		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612, 3614, 3625 Unit selection: - Expert list: 1 Factory setting 0
	Min -	Max -	
Description:	Sets the signal source to select referencing type. 1 signal: Flying referencing 0 signal: Search for reference		
Dependency:	Refer to: p2595		
Note:	Referencing is activated as follows: - Select the referencing type (BI: p2597) - Start referencing (BI: p2595 = 0/1 signal)		

p2598[0...3]	CI: EPOS reference point coordinate, signal source / Ref_pt coord S_src		
SERVO_S110-CAN (EPOS, Pos ctrl), SERVO_S110-DP (EPOS, Pos ctrl)	Can be changed: T Data type: Unsigned32 / Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612, 3614 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting [0] 2599[0] [1] 0 [2] 0 [3] 0
Description:	Sets the signal source for the reference point coordinate. This value is used as reference for the following referencing operations: - search for reference - set reference point - flying referencing - absolute value adjustment		
Index:	[0] = Closed-loop position control [1] = Encoder 1 [2] = Encoder 2 [3] = Reserved		
Dependency:	Refer to: p2502, p2507, p2595, p2596, p2597, p2599		
Note:	When the function module "basic positioner" (r0108.4 = 1) is activated, the following applies: Incremental measuring system: After the reference point is reached, the drive accepts the current axis position from the position received via the connector input CI: p2598[0]. Absolute encoder: When adjusting the encoder, the position received via the connector input is set as the current axis position. The position offset to the actual encoder value is displayed in p2525.		
p2599	CO: EPOS reference point coordinate value / Ref_pt coord val		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Integer32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the position value for the reference point coordinate. This value is set as the current axis position after referencing or adjustment.		
Dependency:	Refer to: p2507, p2525, p2595, p2596, p2597, p2598		
p2600	EPOS search for reference, reference point offset / Ref_pt offset		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the reference point offset for search for reference.		
Dependency:	Refer to: p2598		

p2601	EPOS flying referencing, inner window / Inner window		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3614 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the inner window for flying referencing. Value = 0: The evaluation of the inner window is de-activated.		
Dependency:	Refer to: p2597, p2602, r2684		
Notice:	The inner window must be set so that it is smaller than the outer window.		
Note:	If the difference between the reference point coordinate and detected actual position is less than the inner window, then no correction is executed for a referenced axis. If the difference between the reference point coordinate and detected actual position is greater than the inner window and less than the outer window (p2602), then a correction is executed for a referenced axis.		
p2602	EPOS flying referencing, outer window / Outer window		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3614 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the outer window for flying referencing. Value = 0: The evaluation of the outer window is de-activated.		
Dependency:	Refer to: p2597, r2684 Refer to: A07489		
Notice:	The inner window must be set so that it is smaller than the outer window.		
Note:	If the difference between the reference point coordinate and detected actual position is greater than the outer window, then no correction is executed for the referenced axis. Further, an appropriate message is output and r2684.3 is set to 1.		
p2603	EPOS flying referencing, positioning mode, relative / Pos_mode relative		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Sets the relative positioning mode for flying referencing. Value = 1: The corrected setpoint is not calculated into the traversing distance. Value = 0: The corrected setpoint is calculated into the traversing distance.		
Dependency:	Refer to: p2597, p2623, p2648		
Caution:	For p2603 = 0 the direction can change.		

p2604	BI: EPOS search for reference, start direction / Srch for ref dir		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal sources for the start direction of the search for reference. 1 signal: Start in the negative direction. 0 signal: Start in the positive direction.		
Dependency:	Refer to: p2583, p2595, p2597		
p2605	EPOS search for reference, approach velocity, reference cam / v_appr ref_cam		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 5000 [1000 LU/min]
Description:	Sets the approach velocity to the reference cam for the search for reference.		
Dependency:	The search for reference only starts with the approach velocity to the reference cam when there is a reference cam (p2607 = 1). Refer to: p2595, p2597, p2604, p2606, p2607		
Note:	When traversing to the reference cam, the velocity override is effective. If, at the start of the search for reference, the axis is already at the reference cam, then the axis immediately starts to traverse to the zero mark.		
p2606	EPOS search for reference, reference cam, maximum distance / Ref_cam max s		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 2147482647 [LU]
Description:	Sets the maximum distance after the start of the search for reference when traversing to the reference cam.		
Dependency:	Refer to: p2595, p2597, p2604, p2605, p2607 Refer to: F07458		
Note:	When using a reversing cam, the maximum distance must be set appropriately long.		
p2607	EPOS search for reference, reference cam present / Ref_cam pres		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned8 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Sets whether or not a reference cam is present for the search for reference. Value = 1: Reference cam present. Value = 0: No reference cam present.		
Dependency:	Refer to: p2595, p2597, p2604, p2605, p2606		

p2608	EPOS search for reference, approach velocity, zero mark / v_appr ref_ZM		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 300 [1000 LU/min]
Description:	Sets the approach velocity after detecting the reference cam to search for the zero mark for the the search for reference.		
Dependency:	If there is no reference cam (p2607 = 0), the search for reference immediately starts with the axis traversing to the zero mark. Refer to: p2595, p2597, p2604, p2607, p2609, p2610		
Caution:	If the reference cam is not adjusted so that at each search for reference the same zero mark for synchronization is detected, then an "incorrect" axis reference point is obtained. After the reference cam has been left, the search for the zero mark is activated with a time delay due to internal factors. This is the reason that the reference cam should be adjusted in this center between two zero marks and the approach velocity should be adapted to the distance between two zero marks.		
			
Note:	The velocity override is not effective when traversing to the zero mark.		
p2609	EPOS search for reference, max. distance ref. cam and zero mark / Max s ref_cam ZM		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 20000 [LU]
Description:	Sets the maximum distance after leaving the reference cam when traversing to the zero mark.		
Dependency:	Refer to: p2595, p2597, p2604, p2607, p2608, p2610 Refer to: F07459		
p2610	EPOS search for ref., tol. bandwidth for distance to zero mark / Tol_band to ZM		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 2147482647 [LU]
Description:	Sets the tolerance bandwidth for the distance to the zero mark The zero mark is evaluated within the maximum distance between the reference cam and zero mark (p2609) minus the tolerance bandwidth for the distance to the zero mark (p2610).		
Dependency:	Refer to: p2609		

p2611	EPOS search for reference, approach velocity, reference point / v_appr ref_pt		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 300 [1000 LU/min]
Description:	Sets the approach velocity after detecting the zero mark to approach the reference point.		
Dependency:	Refer to: p2595, p2597, p2604, p2607, p2609, p2610		
Note:	When traversing to the reference point, the velocity override is not effective.		
p2612	BI: EPOS search for reference, reference cam / Ref_cam		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the reference cam.		
Dependency:	Refer to: p2607		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
p2613	BI: EPOS search for reference reversing cam minus / Rev minus		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the reversing cam in the negative direction of travel. 1 signal: Reversing cam not reached. 0 signal: Reversing cam reached.		
Dependency:	Refer to: p2614		
Note:	If, during the search for reference from the reversing cam minus and plus, a 0 signal is detected, then the axis remains stationary (at standstill).		
p2614	BI: EPOS search for reference reversing cam plus / Rev plus		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3612 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source for the reversing cam in the negative direction of travel. 1 signal: Reversing cam not reached. 0 signal: Reversing cam reached.		
Dependency:	Refer to: p2613		
Note:	If, during the search for reference from the reversing cam minus and plus, a 0 signal is detected, then the axis remains stationary (at standstill).		

p2615	EPOS maximum number of traversing blocks / Trav_block qty max		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: C2(17) Data type: Unsigned8 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min 1	Max 16	Factory setting 16
Description:	Sets the maximum number of traversing blocks that are available.		
Dependency:	Refer to: p2616, p2617, p2618, p2619, p2620, p2621, p2622, p2623, p2624		

p2616[0...n]	EPOS traversing block, block number / Trav_blk, blkNo.		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min -1	Max 63	Factory setting -1
Description:	Sets a block number. -1: Invalid block number. These blocks are not taken into account. 0 ... 63: Valid block number.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2617, p2618, p2619, p2620, p2621, p2622, p2623, p2624		

p2617[0...n]	EPOS traversing block position / Trav_block pos		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets the target position for the traversing block.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2618, p2619, p2620, p2621, p2622, p2623, p2624		
Note:	The target position is approached in either relative or absolute terms depending on p2623.		

p2618[0...n]	EPOS traversing block velocity / Trav_block v		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 600 [1000 LU/min]
Description:	Sets the velocity for the traversing block.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2619, p2620, p2621, p2622, p2623, p2624, p2646		
Note:	The velocity can be influenced using the velocity override (p2646).		

p2619[0...n]	EPOS traversing block acceleration override / Trav_block a_over		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min 1.0 [%]	Max 100.0 [%]	Factory setting 100.0 [%]
Description:	Sets the acceleration override for the traversing block. The override refers to the maximum acceleration (p2572).		
Dependency:	The number of indices depends on p2615. Refer to: p2572, p2615, p2616, p2617, p2618, p2620, p2621, p2622, p2623, p2624		
p2620[0...n]	EPOS traversing deceleration override / Trav_block -a_over		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min 1.0 [%]	Max 100.0 [%]	Factory setting 100.0 [%]
Description:	Sets the deceleration override for the traversing block. The override refers to the maximum deceleration (p2573).		
Dependency:	The number of indices depends on p2615. Refer to: p2573, p2615, p2616, p2617, p2618, p2619, p2621, p2622, p2623, p2624		
Notice:	If, when calculating the traversing profile, it is identified that the target position of the next block with the programmed deceleration override will not be reached without direction reversal (flying block change), then the old (current) deceleration override remains effective.		
p2621[0...n]	EPOS traversing block task / Trav_block task		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min 1	Max 9	Factory setting 1
Description:	Sets the required task for the traversing block.		
Value:	1: POSITIONING 2: FIXED STOP 3: ENDLESS_POS 4: ENDLESS_NEG 5: WAITING 6: GOTO 7: SET_O 8: RESET_O 9: JERK		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2622, p2623, p2624		

p2622[0...n]		EPOS traversing block task parameter / Trav_blk task_par	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting: 0
	Min -2147483648	Max 2147483647	
Description:	Sets additional information/data of the appropriate task for the traversing block.		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2621, p2623, p2624		
Note:	The following should be set depending on the task: FIXED STOP: Clamping torque and clamping force (rotary 0...65536 [0.01 Nm], linear 0...65536 [N]) WAIT: Delay time [ms] GOTO: Block number SET_O: 1, 2 or 3 - set direct output 1, 2 or 3 (both) RESET_O: 1, 2 or 3 - set direct output 1, 2 or 3 (both) JERK: 0 - de-activate, 1 - activate		
p2623[0...n]		EPOS traversing block, task mode / Trav_block mode	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: p2615 Units group: -	Access level: 1 Func. diagram: 3515, 3616 Unit selection: - Expert list: 1 Factory setting: 0
	Min 0	Max 65535	
Description:	Sets the influence of the task for the traversing block. Value = 0000 cccc bbbb aaaa cccc: Positioning mode cccc = 0000 --> ABSOLUTE cccc = 0001 --> RELATIVE cccc = 0010 --> ABS_POS (only for a rotary axis with modulo correction) cccc = 0011 --> ABS_NEG (only for a rotary axis with modulo correction) bbbb: Progression condition bbbb = 0000 --> END bbbb = 0001 --> CONTINUE WITH STOP bbbb = 0010 --> CONTINUE FLYING bbbb = 0011 --> CONTINUE EXTERNAL bbbb = 0100 --> CONTINUE EXTERNAL WAIT bbbb = 0101 --> CONTINUE EXTERNAL ALARM aaaa: IDs aaaa = 0001 --> Skip block		
Dependency:	The number of indices depends on p2615. Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2621, p2622, p2624		

p2624	EPOS traversing block, sorting / Trav_block sort		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned16 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the traversing blocks for sorting corresponding to their block number. p2624 = 0 --> 1: The sorting is started and the parameters are automatically reset to 0 after the sorting operation has been completed.		
Dependency:	Refer to: p2615, p2616, p2617, p2618, p2619, p2620, p2621, p2622, p2623		
Note:	After sorting, the traversing blocks are written at the beginning of the memory in increasing sequence without any gaps.		
p2625	BI: EPOS traversing block selection, bit 0 / Trav_blk sel bit 0		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616, 3640 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 0.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2626, p2627, p2628, p2629, p2630		
p2626	BI: EPOS traversing block selection, bit 1 / Trav_blk sel bit 1		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616, 3640 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 1.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2627, p2628, p2629, p2630		
p2627	BI: EPOS traversing block selection, bit 2 / Trav_blk sel bit 2		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616, 3640 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source to select the traversing block, bit 2.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2628, p2629, p2630		

p2628	BI: EPOS traversing block selection, bit 3 / Trav_blk sel bit 3		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3640
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the traversing block, bit 3.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2627, p2629, p2630		
p2629	BI: EPOS traversing block selection, bit 4 / Trav_blk sel bit 4		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3640
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the traversing block, bit 4.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2627, p2628, p2630		
p2630	BI: EPOS traversing block selection, bit 5 / Trav_blk sel bit 5		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3640
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to select the traversing block, bit 5.		
Dependency:	Binector inputs p2625, p2626, p2627, p2628, p2629 and p2630 are used to select one of the maximum of 64 traversing blocks. Refer to: p2625, p2626, p2627, p2628, p2629		
p2631	BI: EPOS activate traversing task (0 -> 1) / Trav_task act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3625
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for "activating traversing task". BI: p2631 = 0/1 signal The traversing task, selected using BI: p2625 ... p2630, is started.		
Dependency:	Refer to: p2625, p2626, p2627, p2628, p2629, p2630, p2640, p2641		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: To start a traversing block, the axis must be referenced (r2684.11 = 1).
The status signal r2684.12 = 0/1 signal is used for acknowledgement.
A traversing task can be influenced using the following signals:
- intermediate stop via BI: p2640.
- reject traversing task via BI: p2641.

p2632		EPOS external block change evaluation / Ext BickChg eval	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: 3615, 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the mode to evaluate "external block change".		
Value:	0: External block change via the measuring probe 1: External block change via BI: p2633		
Dependency:	Refer to: p2623, p2633, r2677, r2678		
Note:	In the mode "external block change via measuring probe (p2632 = 0), the following applies: When starting a traversing block with the block change enable CONTINUE_EXTERNAL, CONTINUE_EXTERNAL_WAIT and CONTINUE_EXTERNAL_ALARM an activated "flying referencing" is interrupted. After ending the block, "flying referencing" must be re-activated via BI: p2595 = 0/1 signal.		

p2633		BI: EPOS external block change (0 -> 1) / Ext BickChg (0->1)	
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3615
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for "external block change". BI: p2633 = 0/1 signal		
Dependency:	The evaluation of the signal is only active p2632 = 1. Refer to: p2623, p2632, p2640, p2641, r2677, r2678		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	A 0/1 edge initiates a flying block change in the subsequent traversing block. When the external block change is identified, the actual position is saved in r2678. A traversing task can be influenced using the following signals: - intermediate stop via BI: p2640. - reject traversing task via BI: p2641.		

p2634[0...n]		EPOS fixed stop maximum following error / Following err max	
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: 3617, 4025
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 1000 [LU]
Description:	Sets the following error to detect the "fixed stop reached" state (r2526.4).		
Dependency:	Refer to: r2526, p2621, r2675		
Note:	The state "fixed stop reached" is detected if the following error exceeds the theoretically calculated following error value by p2634.		

p2635	EPOS fixed stop monitoring window / Fixed stop monit		
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: U, T Data type: Unsigned32 P-Group: Closed loop position control Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3617, 4025 Unit selection: - Expert list: 1
	Min 0 [LU]	Max 2147482647 [LU]	Factory setting 100 [LU]
Description:	Sets the monitoring window of the actual position after the fixed stop is reached.		
Dependency:	Refer to: r2526, r2683 Refer to: F07484		
Note:	If, after the fixed stop is reached, the end stop shifts in either the positive or negative direction by more than the value set here, then BO: r2526.5 is set to 1 and an appropriate message is output.		
p2637	BI: EPOS fixed stop reached / Fixed stop reached		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3616, 3617 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2526.4
Description:	Sets the signal source for the feedback signal "fixed stop reached". BI: p2637 = 1 signal Fixed stop is reached. BI: p2637 = 0 signal Fixed stop is not reached.		
Dependency:	Refer to: r2526, p2634		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The identification of "fixed stop reached" is, for the factory setting, dependent on the signal BO: r2526.4 (fixed stop reached). This signal is influenced via p2634 (EPOS fixed stop, maximum following error).		
p2638	BI: EPOS fixed stop outside the monitoring window / Fixed stop outside		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 3616, 3617 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 2526.5
Description:	Sets the signal source for the feedback signal "fixed stop outside the monitoring window". BI: p2638 = 1 signal Fixed stop is located outside the monitoring window. BI: p2638 = 0 signal Fixed stop is inside the monitoring window.		
Dependency:	Refer to: r2526, p2635		
Note:	The identification of "fixed stop outside the monitoring window" is, for the factory setting, dependent on signal BO: r2526.5 (fixed stop outside window). This signal is influenced via p2635 (EPOS fixed stop monitoring window).		

p2639	BI: EPOS torque limit reached / M_limit reached		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1407.7
Description:	Sets the signal source for the feedback signal "torque limit reached" when traversing to fixed stop. BI: p2639 = 1 signal Torque limit is reached. BI: p2639 = 0 signal Torque limit is not reached.		
Dependency:	Refer to: r1407		
Note:	The feedback signal from "torque limit reached" is, for the factory setting, dependent on the signal BO: r1407.7 (torque limit reached).		
p2640	BI: EPOS intermediate stop (0 signal) / Intermediate stop		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3620, 3625
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the "no intermediate stop/intermediate stop". BI: p2640 = 1 signal No intermediate stop. BI: p2640 = 0 signal Intermediate stop.		
Dependency:	Refer to: p2631, p2641, p2647, p2649		
Caution:	For BI: p2649 = 1 signal, the following applies: Motion starts without any explicit control signal.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	This signal is only effective in the modes "traversing blocks" and "direct setpoint input/MDI". When activating the intermediate stop, the axis brakes with the parameterized deceleration (p2620 or p2645).		
p2641	BI: EPOS reject traversing task (0 signal) / Trav_task reject		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3616, 3620, 3625
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for "do not reject traversing task/reject traversing task". BI: p2641 = 1 signal Do not reject traversing task. BI: p2641 = 0 signal Reject traversing task.		
Dependency:	Refer to: p2631, p2640, p2647, p2649		

- Caution:** For BI: p2649 = 1 signal, the following applies:
Motion starts without any explicit control signal.
- Notice:** The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
- Note:** This signal is only effective in the modes "traversing blocks" and "direct setpoint input/MDI".
When activating reject traversing tasks, then the axis brakes with the maximum deceleration (p2573).

p2642	CI: EPOS direct setpoint input/MDI position setpoint / MDI s_set		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2690[0]
Description:	Sets the signal source for the position setpoint in the mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2648, p2649, p2650, p2690		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the position setpoint is either transferred continuously or edge-triggered. The position setpoint input is interpreted as length unit [LU].		

p2643	CI: EPOS direct setpoint input/MDI velocity setpoint / MDI v_set		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2691[0]
Description:	Sets the signal source for the velocity setpoint in the "direct setpoint input/MDI mode".		
Dependency:	Refer to: p2649, p2650, p2691		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the velocity setpoint is either transferred continuously or edge-triggered. The velocity setpoint input is interpreted as [1000 LU/min].		

p2644	CI: EPOS direct setpoint input/MDI acceleration override / MDI a_over		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2692[0]
Description:	Sets the signal source for the acceleration override in the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2649, p2650, p2692		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the acceleration override is either transferred continuously or edge-triggered. The signal value 4000 hex (16384 dec) corresponds to 100 %.		

p2645	CI: EPOS direct setpoint input/MDI deceleration override / MDI -a_over		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 3618
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2693[0]
Description:	Sets the signal source for the deceleration override in the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2649, p2650, p2693		
Notice:	If, when calculating the traversing profile, it is identified that the target position with the programmed deceleration override cannot be reached without reversing the direction, then when accepting the dynamic values, the larger deceleration override is accepted and becomes effective. The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	Depending on p2649, the deceleration override is either transferred continuously or edge-triggered. The signal value 4000 hex (16384 dec) corresponds to 100 %.		
p2646	CI: EPOS velocity override / v_over		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / FloatingPoint32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	1
Description:	Sets the signal source for the velocity override. This velocity override is effective in the following operating modes "direct setpoint input/MDI", "traversing blocks", "jogging" and "search for reference" (when approaching the reference cam).		
Dependency:	Refer to: p2571, p2585, p2586, p2605, p2618, p2643, r2681		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	The effective override (r2681) can differ from the specified override due to limits (e.g. maximum velocity).		
p2647	BI: EPOS direct setpoint input/MDI selection / MDI selection		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620, 3625, 3640
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for selecting the operating mode "direct setpoint input/MDI".		
Dependency:	Refer to: p2640, p2641, p2642, p2643, p2644, p2645, p2646, p2648, p2649, p2650, p2651, p2652, p2653		
Note:	In this mode, using BI: p2653 it is possible to make a flying changeover between setting-up and positioning. In this mode, even if the axis is not referenced (r2684.11 = 0) relative positioning is possible.		

p2648	BI: EPOS direct setpoint input/MDI positioning type / MDI pos_type		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the positioning type in the mode "direct setpoint input/MDI". BI: p2648 = 1 signal Absolute positioning is selected. BI: p2648 = 0 signal Relative positioning is selected.		
Dependency:	Refer to: p2649, p2650, p2654 Refer to: A07461, F07488		
Notice:	Absolute positioning: To traverse, the reference point must be set (r2684.11 = 1). Relative positioning: To traverse, it is not necessary that the reference point is set.		
Note:	Depending on p2649, the positioning type is either transferred continuously or edge-triggered.		
p2649	BI: EPOS direct setpoint input/MDI transfer type selection / MDI trans_type sel		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to define how values are transferred in the operating mode "direct setpoint input/MDI". BI: p2649 = 1 signal Values are continually transferred (refer to parameter under dependency). BI: p2649 = 0 signal The values are transferred for BI: p2650 = 0/1 signal.		
Dependency:	Refer to: p2642, p2643, p2644, p2645, p2648, p2650, p2651, p2652		
Caution:	For BI: p2649 = 1 signal, the following applies: Motion starts without any explicit control signal.		
Note:	Parameter p2649 can only be changed when p0922 (p2079) = 999.		
p2650	BI: EPOS direct setpoint input/MDI setpoint acceptance edge / MDI setp_accept		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source to accept the values for edge-triggered selection (BI: p2649 = 0 signal) in the operating mode "direct setpoint input/MDI". BI: p2650 = 0/1 signal and BI: p2649 = 0 signal Values are accepted, edge-triggered (refer to parameter under dependency).		
Dependency:	Refer to: p2640, p2641, p2642, p2643, p2644, p2645, p2648, p2649, p2651, p2652, r2684		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

Note: The status signal r2684.12 = 0/1 signal is used for acknowledgement.
 The operating mode "direct setpoint input/MDI" can be influenced via the following signals:
 - intermediate stop via BI: p2640.
 - reject traversing task via BI: p2641.

p2651		BI: EPOS direct setpoint input/MDI direction selection, positive / MDI dir_sel pos		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for the positive direction selection in the operating mode "direct setpoint input/MDI".			
Dependency:	Refer to: p2576, p2648, p2649, p2650, p2652, p2653, p2654			
Note:	The following applies for "setting-up": - the traversing direction can be entered using this binector input. - if both directions (p2651, p2652) are selected, then the axis remains stationary (zero speed). - if both directions (p2651, p2652) are de-selected, then the axis remains stationary (zero speed). The following applies for "positioning": Using binector inputs p2651 and p2652, when the modulo correction (BI: p2577 = 1 signal) is activated and for absolute positioning (BI: p2648 = 1 signal), the traversing direction is specified as follows: BI: p2651 / BI: p2652 0 signal / 0 signal: Absolute positioning through the shortest distance. 1 signal / 0 signal: Absolute positioning in the positive direction. 0 signal / 1 signal: Absolute positioning in the negative direction. 1 signal / 1 signal: Absolute positioning through the shortest distance.			

p2652		BI: EPOS direct setpoint input/MDI direction selection, negative / MDI dir_sel neg		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for the negative direction selection in the operating mode "direct setpoint input/MDI".			
Dependency:	Refer to: p2576, p2648, p2649, p2650, p2651, p2653, p2654			
Note:	The following applies for "setting-up": - the traversing direction can be entered using this binector input. - if both directions (p2651, p2652) are selected, then the axis remains stationary (zero speed). - if both directions (p2651, p2652) are de-selected, then the axis remains stationary (zero speed). The following applies for "positioning": Using binector inputs p2651 and p2652, when the modulo correction (BI: p2577 = 1 signal) is activated and for absolute positioning (BI: p2648 = 1 signal), the traversing direction is specified as follows: BI: p2651 / BI: p2652 0 signal / 0 signal: Absolute positioning through the shortest distance. 1 signal / 0 signal: Absolute positioning in the positive direction. 0 signal / 1 signal: Absolute positioning in the negative direction. 1 signal / 1 signal: Absolute positioning through the shortest distance.			

p2653		BI: EPOS direct setpoint input/MDI setting-up selection / MDI setting-up sel		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3620	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for setting-up in the operating mode "direct setpoint input/MDI". BI: p2653 = 1 signal Setting-up selected. BI: p2653 = 0 signal Positioning selected.			
Dependency:	Refer to: p2651, p2652			
Note:	In the operating mode "direct setpoint input/MDI", it is possible to make a flying changeover between setting-up and positioning. For "setup" (BI: p2653 = 1 signal), the following applies: A traversing direction must be selected via binector inputs p2651 and p2652.			
p2654		CI: EPOS direct setpoint input/MDI mode adaptation / MDI mode adapt		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1	
	Data type: Unsigned32 / Integer16	Dynamic index: -	Func. diagram: 3620	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source to interconnect the MDI mode to the operating mode "direct setpoint input MDI" via PROFIBUS telegram 110. CI: p2654 = 0 The binector inputs listed below are evaluated. CI: p2654 > 0 The following binector inputs are not evaluated: - BI: p2648 (positioning type) - BI: p2651 (direction selection, positive) - BI: p2652 (direction selection, negative) In this case, the following definitions apply: Signal via CI: p2654 = xx0x hex -> absolute Signal via CI: p2654 = xx1x hex -> relative Signal via CI: p2654 = xx2x hex -> abs_pos (only for modulo correction) Signal via CI: p2654 = xx3x hex -> abs_neg (only for modulo correction)			
Dependency:	Refer to: p2648, p2651, p2652			

p2655[0...1]	BI: EPOS select tracking mode / Sel tracking mode		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	[0] 1 [1] 2526.7
Description:	Sets the signal source to select tracking mode. BI: p2655[0] or BI: p2655[1] = 1 signal Tracking mode after withdrawing the enable signal from EPOS (BI: p2656 = 0 signal). BI: p2655[0] and BI: p2655[1] = 0 signal No tracking mode after withdrawing the enable signal from EPOS (BI: p2656 = 0 signal).		
Dependency:	Refer to: p2656		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		
Note:	For the following events, independent of the signal that is present, tracking mode is selected: - after booting. - after a 0/1 signal at BI: p2658 (EPOS position actual value, valid feedback signal). - while a fault is present.		
p2656	BI: EPOS enable basic positioner / EPOS enable		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2526.3
Description:	Sets the signal source to enable the basic positioner. BI: p2656 = 1 signal The basic positioner is enabled. BI: p2656 = 0 signal The basic positioner is not enabled.		
Dependency:	Refer to: r2526, p2655		
p2657	CI: EPOS position actual value/position setting value / Pos act/set value		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3610, 3616, 3620, 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2521[0]
Description:	Sets the signal source for the position actual value/position setting value.		
Dependency:	Refer to: r2521, p2658		
Note:	In the tracking mode, the position setpoint is taken from this connector input.		

p2658	BI: EPOS pos. actual value valid, feedback signal / Pos valid feedback		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2526.0
Description:	Sets the signal source for the feedback signal "position actual value is valid". BI: p2658 = 1 signal The position actual value received via CI: p2657 is valid. BI: p2658 = 0 signal The position actual value received via CI: p2657 is invalid.		
Dependency:	Refer to: r2526, p2657		
Note:	While a 0 signal is present, the position setpoint (p2665) is held at the value of 0.		
p2659	BI: EPOS referencing active feedback signal / Ref act fdbk		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 3612
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2526.1
Description:	Sets the signal source for the feedback signal "referencing active". BI: p2659 = 1 signal Referencing is active. BI: p2659 = 0 signal Referencing is not active.		
Dependency:	Refer to: r2526		
p2660	CI: EPOS measured value referencing / Meas val ref		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: 3612, 3614
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	2523[0]
Description:	Sets the signal source for the measured value for the function "referencing".		
Dependency:	Refer to: r2523		

p2661	BI: EPOS measured value valid, feedback signal / MeasVal valid fdbk		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3612, 3614, 3615 Unit selection: - Expert list: 1 Factory setting 2526.2
Description:	Sets the signal source for the feedback signal "measured value valid". BI: p2661 = 1 signal The measured value received via CI: p2660 is valid. BI: p2661 = 0 signal The measured value received via CI: p2660 is invalid.		
Dependency:	Refer to: r2526, p2660		
p2662	BI: EPOS adjustment value valid feedback signal / Adj val valid FS		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 2526.9
Description:	Sets the signal source for the feedback signal "adjustment value valid". BI: p2662 = 1 signal The adjustment value received via CI: p2660 is valid. BI: p2662 = 0 signal The adjustment value received via CI: p2660 is not valid.		
Dependency:	Refer to: r2526, p2660		
p2663	BI: EPOS clamping active feedback signal / Clamping active FS		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: T Data type: Unsigned32 / Binary P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting 2526.8
Description:	Sets the signal source for the feedback signal "clamping active for travel to fixed stop". BI: p2663 = 1 signal Clamping is active BI: p2663 = 0 signal Clamping is not active.		
Dependency:	Refer to: r2526		
Note:	The feedback signal from "terminals active" is, for the factory setting, dependent on the signal BO: r2526.8 (terminals active when moving to a fixed stop).		

r2665	CO: EPOS position setpoint / s_set			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1	
	Min - [LU]	Max - [LU]	Factory setting - [LU]	
Description:	Displays the current absolute position setpoint.			
Dependency:	Refer to: p2530			
Note:	As standard, the following BICO interconnection is established: CI: p2530 = r2665			
r2666	CO: EPOS velocity setpoint / v_set			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1	
	Min - [1000 LU/min]	Max - [1000 LU/min]	Factory setting - [1000 LU/min]	
Description:	Displays the current velocity setpoint.			
Dependency:	Refer to: p2531			
Note:	As standard, the following BICO interconnection is established: CI: p2531 = r2666			
r2667	CO: EPOS backlash compensation value / Backlash value			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3635 Unit selection: - Expert list: 1	
	Min - [LU]	Max - [LU]	Factory setting - [LU]	
Description:	Displays the currently effective value for backlash compensation.			
Dependency:	Refer to: p2516			
Note:	As standard, the following BICO interconnection is established: CI: p2516 = r2667			
r2669	CO: EPOS current operating mode / Op mode act			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3625, 3630 Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays the current active operating mode. Value = 00 hex -> no operating mode active Value = 01 hex -> jogging active Value = 02 hex -> search for reference active Value = 04 hex -> traversing blocks active Value = 08 hex -> Positioning for direct setpoint input/MDI active Value = 10 hex -> Setting-up for direct setpoint input/MDI active Value = 20 hex -> flying referencing active			
Dependency:	Refer to: p2589, p2590, p2595, p2631, p2647, p2653			

r2670.0...15		CO/BO: EPOS status word, active traversing block / ZSW act trav_block			
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 3615, 3625, 3650		
	P-Group: Basic positioner	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the status word for the active traversing block. r2670.0: Active traversing block, bit 0 ... r2670.5: Active traversing block, bit 5 r2670.15: MDI active				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Active traversing block, bit 0	Active	Not active	-
	01	Active traversing block, bit 1	Active	Not active	-
	02	Active traversing block, bit 2	Active	Not active	-
	03	Active traversing block, bit 3	Active	Not active	-
	04	Active traversing block, bit 4	Active	Not active	-
	05	Active traversing block, bit 5	Active	Not active	-
	15	MDI active	Active	Not active	-
Dependency:	Refer to: p2631, p2647				
Note:	Re bit 00 ... 05: Displays the active traversing block in the traversing blocks operating mode. Re bit 15: For a 1 signal, the operating mode - direct setpoint input/MDI - is active				

r2671		CO: EPOS current position setpoint / s_set act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Integer32	Dynamic index: -	Func. diagram: 3610, 3616, 3620	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [LU]	- [LU]	- [LU]	
Description:	Displays the position setpoint presently being processed.			
Note:	A position of zero is displayed for non position-related tasks (e.g. ENDLESS_POS, ENDLESS_NEG).			

r2672		CO: EPOS current velocity setpoint / v_set act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Integer32	Dynamic index: -	Func. diagram: 3610, 3612, 3616, 3620	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [1000 LU/min]	- [1000 LU/min]	- [1000 LU/min]	
Description:	Displays the velocity setpoint presently being processed.			

r2673	CO: EPOS current acceleration override / a_over act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 1 Func. diagram: 3610, 3612, 3616, 3620 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the acceleration override presently being processed.		
Note:	An override of 100% is effective in the "jogging" and "search for reference" operating modes.		
r2674	CO: EPOS current deceleration override / -a_over act		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: - Min - [%]	Calculated: - Dynamic index: - Units group: - Max - [%]	Access level: 1 Func. diagram: 3610, 3612, 3616, 3620 Unit selection: - Expert list: 1 Factory setting - [%]
Description:	Displays the deceleration override presently being processed.		
Note:	An override of 100% is effective in the "jogging" and "search for reference" operating modes.		
r2675	CO: EPOS current task / Task cur		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: Integer16 P-Group: Basic positioner Not for motor type: - Min 0	Calculated: - Dynamic index: - Units group: - Max 9	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the task that is presently being processed.		
Value:	0: Inactive 1: POSITIONING 2: FIXED STOP 3: ENDLESS_POS 4: ENDLESS_NEG 5: WAITING 6: GOTO 7: SET_O 8: RESET_O 9: JERK		
Dependency:	Refer to: p2621		
r2676	CO: EPOS current task parameter / Task para cur		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: Integer32 P-Group: Basic positioner Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 1 Func. diagram: 3616 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the task parameter presently being processed in the "traversing blocks" operating mode.		
Dependency:	Refer to: p2622		

Note: The following is displayed depending on the task:
 FIXED STOP: Clamping torque (0 ... 65536 [0.01 Nm]) or clamping force (0 ... 65536 [N])
 WAIT: Delay time [ms]
 GOTO: Block number
 SET_O: 1, 2, 3 --> direct output 1, 2 or 3 (both) is set
 RESET_O: 1, 2, 3 --> direct output 1, 2 or 3 (both) is set
 JERK: 0 --> deactivate, 1 --> activate

r2677 **CO: EPOS current task mode / Task mode cur**

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 3616
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the task mode presently being processed.
Dependency: Refer to: p2623

r2678 **CO: EPOS external block change / Ext BlckChg s_act**

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3615, 3616, 3620
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [LU]	- [LU]	- [LU]

Description: Displays the actual position for the following events:
 - external block change via measuring probe (p2632 = 0, BI: p2661 = 0/1 signal).
 - external block change via BI: p2633 (p2632 = 1, BI: p2633 = 0/1 signal).
 - activate traversing task (BI: p2631 = 0/1 signal).
Dependency: Refer to: p2631, p2632, p2633, p2661

r2680 **CO: EPOS clearance, reference cam and zero mark / Clearance cam/ZM**

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3612
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [LU]	- [LU]	- [LU]

Description: Displays the clearance determined between the reference cam and zero mark in the search for reference.

r2681 **CO: EPOS velocity override effective / v_over effective**

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 3630
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [%]	- [%]	- [%]

Description: Displays the currently effective velocity override.
Dependency: Refer to: p2571, p2646
Note: The effective override can differ from the specified override due to limits (e.g. p2571, maximum velocity).

r2682 CO: EPOS residual distance to go / Residual distance

SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Integer32	Dynamic index: -	Func. diagram: 3635
	P-Group: Basic positioner	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [LU]	Max - [LU]	Factory setting - [LU]

Description: Displays the current residual distance.

The remaining distance is the distance to still to be moved through up to the end of the current positioning task.

Dependency: Refer to: r2665, r2671, r2678

r2683.0...14 CO/BO: EPOS status word 1 / POS_ZSW1

SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 3645
	P-Group: Closed loop position control	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: Displays status word 1 for the basic positioner (EPOS).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Tracking mode active	Yes	No	3635, 4020
	01	Velocity limiting active	Yes	No	3630
	02	Setpoint available	Yes	No	3635
	03	Target position reached	Yes	No	3635
	04	Axis moves forwards	Yes	No	3635
	05	Axis moves backwards	Yes	No	3635
	06	Software limit switch minus reached	Yes	No	3635
	07	Software limit switch plus reached	Yes	No	3635
	08	Position actual value <= cam switching position 1	Yes	No	4025
	09	Position actual value <= cam switching position 2	Yes	No	4025
	10	Direct output 1 via traversing block	Yes	No	3616
	11	Direct output 2 via traversing block	Yes	No	3616
	12	Fixed stop reached	Yes	No	3616, 3617
	13	Fixed stop clamping torque reached	Yes	No	3616, 3617
	14	Travel to fixed stop active	Yes	No	3616, 3617

Dependency: Refer to: r2684

Note: Re bit 02, 04, 05, 06, 07:

This signals designate the state after jerk limiting.

Re bit 08, 09:

These signals are generated in the "closed-loop position control" function module.

r2684.0...15		CO/BO: EPOS status word 2 / POS_ZSW2			
SERVO_S110-CAN (Pos ctrl), SERVO_S110-DP (Pos ctrl)	Can be changed: -	Calculated: -	Access level: 1		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 3646		
	P-Group: Closed loop position control	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays status word 2 for the basic positioner (EPOS).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Search for reference active	Active	Not active	3612
	01	Flying referencing active	Active	Not active	3614
	02	Referencing active	Active	Not active	-
	03	Printing mark outside outer window	Yes	No	3614
	04	Axis accelerating	Yes	No	3635
	05	Axis decelerating	Yes	No	3635
	06	Jerk limiting active	Yes	No	3635
	07	Activate correction	Yes	No	3635
	08	Following error in tolerance	Yes	No	4025
	09	Modulo correction active	Yes	No	-
	10	Target position reached	Yes	No	4020
	11	Reference point set	Yes	No	3612, 3614, 3630
	12	Acknowledgement, traversing block activated	Yes	No	3616, 3620
	13	STOP cam minus active	Yes	No	3630
	14	STOP cam plus active	Yes	No	3630
	15	Traversing command active	Yes	No	3635
Note:	Re bit 02: The "referencing active" signal is an OR logic operation of "search for reference active" and "flying referencing active". Re bit 00 ... 07 and 11 ... 14: These signals are generated in the function module "basic positioner". Re bit 08: The signal is generated in the "closed-loop position control" function module.				

r2685		CO: EPOS corrective value / Corrective value		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Integer32	Dynamic index: -	Func. diagram: 3635	
	P-Group: Basic positioner	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [LU]	- [LU]	- [LU]	
Description:	Displays the corrective value for the position actual value.			
Dependency:	Refer to: r2684			
Note:	As standard, the following BICO interconnection is established: CI: p2513 = r2685 Using this value, e.g. modulo corrections are carried out.			

r2686[0...1]	CO: EPOS torque limiting effective / M_limit eff		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 3616, 3617 Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the effective torque limiting. r2686[0]: Displays the effective upper torque limiting when traversing to fixed stop (referred to CI: p1522, CI: p1523). r2686[1]: Displays the effective lower torque limiting when traversing to fixed stop (referred to CI: p1522, CI: p1523).		
Dependency:	Refer to: p1520, p1521, p1522, p1523, r2676		
Note:	As standard, the following BICO interconnections are established: CI: p1528 = r2686[0] CI: p1529 = r2686[1]		
r2687	CO: EPOS torque setpoint / M_set		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: - Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 3616, 3617 Unit selection: - Expert list: 1
	Min - [Nm]	Max - [Nm]	Factory setting - [Nm]
Description:	Displays the effective torque setpoint when reaching the fixed stop (referred to CI: p1522, CI: p1523).		
Dependency:	Refer to: p1520, p1521, p1522, p1523, r2676		
p2690	CO: EPOS position fixed setpoint / Pos fixed value		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Integer32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3618 Unit selection: - Expert list: 1
	Min -2147482648 [LU]	Max 2147482647 [LU]	Factory setting 0 [LU]
Description:	Sets a fixed setpoint for the position.		
Dependency:	Refer to: p2642, p2648		
Note:	As standard, the following BICO interconnection is established: CI: p2642 = r2690		
p2691	CO: EPOS velocity fixed setpoint / v fixed value		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: Unsigned32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3618 Unit selection: - Expert list: 1
	Min 1 [1000 LU/min]	Max 40000000 [1000 LU/min]	Factory setting 600 [1000 LU/min]
Description:	Sets a fixed setpoint for the velocity.		
Dependency:	Refer to: p2643		
Note:	As standard, the following BICO interconnection is established: CI: p2643 = r2691		

p2692	CO: EPOS acceleration override, fixed setpoint / a_over fixed val		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3618 Unit selection: - Expert list: 1
	Min 0.100 [%]	Max 100.000 [%]	Factory setting 100.000 [%]
Description:	Sets a fixed setpoint for the acceleration override.		
Dependency:	Refer to: p2572, p2644		
Note:	As standard, the following BICO interconnection is established: CI: p2644 = r2692 The percentage value refers to the maximum acceleration (p2572).		
p2693	CO: EPOS deceleration override, fixed setpoint / -a_over fixed val		
SERVO_S110-CAN (EPOS), SERVO_S110-DP (EPOS)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Basic positioner Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: 3618 Unit selection: - Expert list: 1
	Min 0.100 [%]	Max 100.000 [%]	Factory setting 100.000 [%]
Description:	Sets a fixed setpoint for the deceleration override.		
Dependency:	Refer to: p2573, p2645		
Note:	As standard, the following BICO interconnection is established: CI: p2645 = r2693 The percentage value refers to the maximum deceleration (p2573).		
r2700	CO: Reference speed/reference frequency / Ref_n/Ref_f		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Connector output for the reference quantity for speed and frequency p2000. All speeds or frequencies specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The following applies: Reference frequency (in Hz) = reference speed (in RPM) / 60 This parameter has the unit rpm.		
Dependency:	Refer to: p2000		
Note:	This parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.		

r2701		CO: Reference voltage / Reference voltage		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Connector output of the reference quantity for voltages p2001. All voltages specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. This parameter has the unit Vrms.			
Dependency:	Refer to: p2001			
Note:	This parameter provides the numerical value of the reference quantity p2001 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.			
r2702		CO: Reference current / Reference current		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Connector output of the reference quantity for currents p2002. All currents specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. This parameter has the unit Arms.			
Dependency:	Refer to: p2002			
Note:	This parameter provides the numerical value of the reference quantity p2002 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.			
r2703		CO: Reference torque / Reference torque		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Connector output of the reference quantity p2003 for torque (r0108.12 = 0) or force (r0108.12 = 1). All torques specified as relative values (r0108.12 = 0) or forces (r0108.12 = 1) are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The unit of this parameter is the same as the unit selected for p2003.			
Dependency:	p0505, r0108.12 Refer to: p2003			
Note:	This parameter provides the numerical value of the reference quantity p2003 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.			

r2704	CO: Reference power / Reference power		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output of the reference quantity for powers p2004. All power ratings specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The unit of this parameter is the same as the unit selected for p2004.		
Dependency:	This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls. Refer to: r2004		
Note:	This parameter provides the numerical value of the reference quantity p2004 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC. The reference power is calculated as follows: - $2 * \text{Pi} * \text{reference speed} / 60 * \text{reference torque (motor)}$ - $\text{reference voltage} * \text{reference current} * \text{root}(3) \text{ (infeed)}$		
r2705	CO: Reference angle / Reference angle		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output of the reference quantity for angles p2005. All angles specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. This parameter has the unit degree.		
Dependency:	Refer to: p2005		
Note:	This parameter provides the numerical value of the reference quantity p2005 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.		
r2706	CO: Reference temperature / Reference temp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Connector output of the reference quantity for temperatures. All temperatures specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. This parameter has the unit degree Celsius.		
Note:	This parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.		

r2707	CO: Reference acceleration / Reference acceler				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Connector output of the reference quantity for accelerations p2007. All acceleration rates specified as relative value are referred to this reference quantity. The reference quantity in this parameter corresponds to 100% or 4000 hex or 4000 0000 hex. The unit of this parameter is the same as the unit selected for p2007.				
Dependency:	r0108.12, p0505 Refer to: p2007				
Note:	This parameter provides the numerical value of the reference quantity p2007 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value in the currently selected unit can be adopted unchanged from this connector output in DCC.				
p2720[0...n]	Load gear configuration / Load gear config				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 4)	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the configuration for position tracking of a load gear.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Load gear, activate position tracking	Yes	No	-
	01	Axis type	Linear axis	Rotary axis	-
	02	Load gear, reset position	Yes	No	-
Note:	For the following events, the non-volatile, saved position values are automatically reset: - when an encoder replacement has been identified. - when changing the configuration of the Encoder Data Set (EDS). - when adjusting the absolute encoder again				
p2721[0...n]	Load gear, rotary absolute gearbox, revolutions, virtual / Abs rot rev				
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 4)	Calculated: -	Access level: 1		
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -		
	P-Group: Encoder	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0	4194303	0		
Description:	Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gear.				
Dependency:	This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gear (p2720.0 = 1).				
Note:	The resolution that is set must be able to be represented using r2723. For rotary axes/modulo axes, the following applies: This parameter is preset with p0421 and can be changed. For linear axes, the following applies: This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.				

p2722[0...n] Load gear, position tracking tolerance window / Pos track tol			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1, 4) Data type: FloatingPoint32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: - Min 0.00 Max 4294967300.00	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0.00
Description:	Sets a tolerance window for position tracking. After the system is powered up, the difference between the saved position and the current position is determined, and depending on this, the following is initiated: Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value. Difference outside the tolerance window --> An appropriate message is output.		
Dependency:	Refer to: F07449		
Caution:	Rotation, e.g. through a complete encoder range is not detected.		
			
Note:	The value is entered in integer (complete) encoder pulses. For p2720.0 = 1, the value is automatically pre-assigned quarter of the encoder range. Example: Quarter of the encoder range = (p0408 * p0421) / 4 It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).		
r2723[0...n] CO: Load gear absolute value / Load gear abs_val			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: - Min - Max -	Access level: 1 Func. diagram: 4010, 4704 Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the absolute value after the load gear.		
Notice:	The encoder position actual value must be requested using the encoder control word Gn_STW.13.		
Note:	The increments are displayed in the format the same as r0483.		
r2724[0...n] CO: Load gear position difference / Load gear pos diff			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Integer32 P-Group: Encoder Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: - Min - Max -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the position difference before the load gear between powering down and powering up.		
Note:	The increments are displayed in the same format as for r0483/r2723. If the measuring gear of the motor encoder is not activated, the position difference should be read in encoder increments. If the measuring gear of the motor encoder is activated, the position difference is converted using the measuring gear factor.		

p2810[0...1]	BI: AND logic operation inputs / AND inputs			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2634	
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal sources for the inputs of the AND logic operation.			
Dependency:	Refer to: r2811			
Note:	[0]: AND logic operation, input 1 --> the result is displayed in r2811.0. [1]: AND logic operation, input 2 --> the result is displayed in r2811.0.			
r2811.0	CO/BO: AND logic operation result / AND result			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2634	
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the result of the AND logic operation			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	AND logic operation result	Yes	No
Dependency:	Refer to: p2810			
p2816[0...1]	BI: OR logic operation inputs / OR inputs			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 2	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 2634	
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal sources for the inputs of the OR logic operation.			
Dependency:	Refer to: r2817			
Note:	[0]: OR logic operation, input 1 --> the result is displayed in r2817.0. [1]: OR logic operation, input 2 --> the result is displayed in r2817.0.			
r2817.0	CO/BO: OR logic operation result / OR result			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2634	
	P-Group: Functions	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the result of the OR logic operation.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	OR logic operation result	Yes	No
Dependency:	Refer to: p2816			

p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 1021
	P-Group: Free function blocks	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -10000.00 [%]	Max 10000.00 [%]	Factory setting 0.00 [%]
Description:	Sets a fixed percentage.		
Dependency:	Refer to: p2901, p2930		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	The value can be used to interconnect a scaling function (e.g. scaling of the main setpoint)		

p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: DDS, p0180	Func. diagram: 1021
	P-Group: Free function blocks	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -10000.00 [%]	Max 10000.00 [%]	Factory setting 0.00 [%]
Description:	Sets a fixed percentage.		
Dependency:	Refer to: p2900, p2930		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)		

r2902[0...14]	CO: Fixed values [%] / Fixed values [%]		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 1021
	P-Group: Free function blocks	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Signal sources for frequently used percentage values.		
Index:	[0] = Fixed value +0 % [1] = Fixed value +5 % [2] = Fixed value +10 % [3] = Fixed value +20 % [4] = Fixed value +50 % [5] = Fixed value +100 % [6] = Fixed value +150 % [7] = Fixed value +200 % [8] = Fixed value -5 % [9] = Fixed value -10 % [10] = Fixed value -20 % [11] = Fixed value -50 % [12] = Fixed value -100 % [13] = Fixed value -150 % [14] = Fixed value -200 %		
Dependency:	Refer to: p2900, p2901, p2930		
Note:	The signal sources can, for example, be used to interconnect scalings.		

p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Free function blocks Not for motor type: REL	Calculated: - Dynamic index: DDS, p0180 Units group: 7_1	Access level: 3 Func. diagram: 1021 Unit selection: p0505 Expert list: 1
	Min -100000.00 [Nm]	Max 100000.00 [Nm]	Factory setting 0.00 [Nm]
Description:	Sets a fixed value for torque.		
Dependency:	Refer to: p2900, p2901		
Notice:	A BICO interconnection to a parameter that belongs to a drive object always acts on the effective data set.		
Note:	The value can, for example, be used to interconnect a supplementary torque.		
p3016	Motld torque constant identified / kT ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 28_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00 [Nm/A]	Max 100.00 [Nm/A]	Factory setting 0.00 [Nm/A]
Description:	Torque constant for the synchronous motor determined by the motor data identification. This torque constant can be changed after the identification and accepted in p0316 with p1910/p1960 = -3.		
Dependency:	Refer to: p0316, r0334, r1937, p1960		
p3017	Motld voltage constant identified / kE ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: ASM, REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [Vrms]	Max 10000.0 [Vrms]	Factory setting 0.0 [Vrms]
Description:	Voltage constant for a synchronous motor determined by the motor data identification. This voltage constant can be changed after the identification and accepted in p0317 with p1910/p1960 = -3. Units for rotating synchronous motors: Vrms/(1000 RPM), phase-to-phase		
Dependency:	Refer to: r1938, p1960		
p3020	Motld magnetizing current identified / I_mag ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL, FEM	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [Arms]	Max 5000.000 [Arms]	Factory setting 0.000 [Arms]
Description:	Magnetizing current for an induction motor determined by the motor data identification. This magnetizing current can be changed after the identification and accepted in p0320 with p1910/p1960 = -3.		
Dependency:	Refer to: p0320, r0331, p1910, r1948, p1960		

p3027	Motld optimum load angle identified / phi_load opt ident			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Motor identification	Units group: -	Unit selection: -	
	Not for motor type: ASM, REL, FEM		Expert list: 1	
	Min 0.0 [°]	Max 135.0 [°]	Factory setting 0.0 [°]	
Description:	Optimum load angle for a synchronous motor determined by the motor data identification. This optimum load angle can be changed after the identification and accepted in p0327 with p1910/p1960 = -3.			
Dependency:	Refer to: p0327, r1947, p1960			
p3028	Motld reluctance torque constant identified / kT_reluct ident			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Motor identification	Units group: -	Unit selection: -	
	Not for motor type: ASM, REL, FEM		Expert list: 1	
	Min -1000.00 [mH]	Max 1000.00 [mH]	Factory setting 0.00 [mH]	
Description:	Reluctance torque constant for a synchronous motor determined by the motor data identification. This reluctance torque constant can be changed after the identification and accepted in p0328 with p1910/p1960 = -3.			
Dependency:	Refer to: p0328, r1939, p1960			
p3030	Motld angular commutation offset identified / Ang_com offset			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Motor identification	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -180.00 [°]	Max 180.00 [°]	Factory setting 0.00 [°]	
Description:	Angular commutation offset for a synchronous motor determined by the motor data identification. This angular commutation offset can be changed after the identification and accepted in p0431 with p1910/p1960 = -3.			
Dependency:	Refer to: p0431, p1910, p1960, r1984			
p3031	Motld encoder inversion actual value identified / EnclnvActVal ident			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: CALC_MOD_ALL	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -	
	P-Group: Motor identification	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -	Max -	Factory setting 0000 bin	
Description:	Inversion of the encoder actual value determined by the motor data identification. This inversion can be changed after the identification and accepted in p0410 with p1910/p1960 = -3.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Invert speed actual value	Yes	No
	01	Invert position actual value	Yes	No
				FP 4710, 4715 4704
Dependency:	Refer to: p0410, p1910, p1960			

p3041	Motld moment of inertia identified / M_inertia ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 25_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.000000 [kgm ²]	Max 100000.000000 [kgm ²]	Factory setting 0.000000 [kgm ²]
Description:	Motor moment of inertia determined by the motor data identification. This motor moment of inertia can be changed after the identification and accepted in p0341 with p1910/p1960 = -3.		
Dependency:	Refer to: p0341, p1960, r1969		
p3042	Motld load moment of inertia identified / Load mom ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 25_1	Access level: 3 Func. diagram: - Unit selection: p0100 Expert list: 1
	Min 0.00000 [kgm ²]	Max 100000.00000 [kgm ²]	Factory setting 0.00000 [kgm ²]
Description:	Load moment of inertia determined by the motor data identification. This load moment of inertia can be changed after the identification and accepted in p1498 with p1910/p1960 = -3.		
Dependency:	Refer to: p0342, p1498, p1960, r1969		
Note:	For p1910/p1960 = -3, p0342 is set to 1 (ratio between the total and motor).		
p3049[0...n]	Motld Speed at start of field weakening identified / ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00000 [rev/min]	Max 210000.00000 [rev/min]	Factory setting 0.00000 [rev/min]
Description:	Speed at the start of field weakening determined by the motor data identification. This start speed can be changed after the identification and accepted in p0348 with p1910/p1960 = -3.		
Dependency:	Refer to: p0348, p1910, p1960		
p3050[0...n]	Motorld stator resistance identified / R_stator ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 16_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [Ohm]	Max 2000.00000 [Ohm]	Factory setting 0.00000 [Ohm]
Description:	Stator resistance determined by the motor data identification. This stator resistance can be changed after the identification and accepted in p0350 with p1910/p1960 = -3.		
Dependency:	Refer to: p0350, p1910, r1912		

p3054[0...n]	Motld rotor resistance identified / R_rotor ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 16_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [Ohm]	Max 300.00000 [Ohm]	Factory setting 0.00000 [Ohm]
Description:	Rotor resistance for an induction motor determined by the motor data identification. This stator resistance can be changed after the identification and accepted in p0354 with p1910/p1960 = -3.		
Dependency:	Refer to: p0354, p0625, p1910, r1927, p1960		
Note:	The parameter is not used for synchronous motors (p0300 = 2xx).		
p3056[0...n]	Motld stator leakage inductance identified / L_stator leak		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Stator leakage inductance determined by the motor data identification. This stator leakage inductance can be changed after the identification and accepted in p0356 with p1910/p1960 = -3.		
Dependency:	Refer to: p0356, p1910, r1932		
p3058[0...n]	Motld rotor leakage inductance identified / L_rotor leak		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 1000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Rotor leakage induction for an induction motor determined by the motor data identification. This rotor leakage inductance can be changed after the identification and accepted in p0358 with p1910/p1960 = -3.		
Dependency:	Refer to: p0358, p1910, r1932		
p3060[0...n]	Motld magnetizing inductance identified / Motld Lh ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: MDS, p0130 Units group: 15_1	Access level: 3 Func. diagram: - Unit selection: p0349 Expert list: 1
	Min 0.00000 [mH]	Max 10000.00000 [mH]	Factory setting 0.00000 [mH]
Description:	Magnetizing inductance for an induction motor determined by the motor data identification. This magnetizing inductance can be changed after the identification and accepted in p0360 with p1910/p1960 = -3.		
Dependency:	Refer to: p0360, p1910, r1936, p1960		

p3080	Motld flux controller P gain identified / Flux ctrl Kp ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0 [A/Vs]	Max 999999.0 [A/Vs]	Factory setting 0.0 [A/Vs]
Description:	P gain of the flux controller for an induction motor determined by the motor data identification. This P gain can be changed after the identification and accepted in p1590 with p1910/p1960 = -3.		
Dependency:	Refer to: p1590, p1910		
p3081	Motld flux controller integral time identified / Flux ctrl Tn ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: PEM, REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 0 [ms]
Description:	Integral time of the flux controller for an induction motor determined by the motor data identification. This integral time can be changed after the identification and accepted in p1592 with p1910/p1960 = -3.		
Dependency:	Refer to: p1592, p1910		
p3082	Motld current controller P gain identified / I_ctrl Kp ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: 18_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min 0.000 [V/A]	Max 100000.000 [V/A]	Factory setting 0.000 [V/A]
Description:	P gain of the current controller determined by the motor data identification. This P gain can be changed after the identification and accepted in p1715 with p1910/p1960 = -3.		
Dependency:	Refer to: p1715, p1910		
p3083	Motld current controller integral time identified / I_ctrl Tn ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: REL	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 1000.00 [ms]	Factory setting 0.00 [ms]
Description:	Integral time of the current controller determined by the motor data identification. This integral time can be changed after the identification and accepted in p1717 with p1910/p1960 = -3.		
Dependency:	Refer to: p1717, p1910		

p3088	MotId Motor model changeover speed operation with encoder ident. / MotMod n_chgSnsorI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Motor identification Not for motor type: -	Calculated: CALC_MOD_ALL Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00000 [rev/min]	Max 210000.00000 [rev/min]	Factory setting 0.00000 [rev/min]
Description:	Changeover speed for the motor model with encoder determined by the motor data identification. This changeover speed can be changed after the identification and accepted in p1752 with p1910/p1960 = -3.		
Dependency:	Refer to: p1752, p1910		
p3100	RTC time stamp mode / RTC t_stamp mode		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the mode for the time stamp p3100 = 0: Time stamp, operating hours p3100 = 1: Time stamp, UTC format		
Note:	RTC: Real Time Clock UTC: Universal Time Coordinates The UTC time started, according to the definition on 01.01.1970 at 00:00:00 and is output in days and milliseconds.		
p3101[0...1]	RTC set UTC time / RTC set UTC		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min 0	Max 4294967295	Factory setting 0
Description:	Setting the UTC time. This means that the drive system is synchronized to the time specified by the time master. To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted. p3101[0]: Milliseconds p3101[1]: Days		
r3102[0...1]	RTC read UTC time / RTC read UTC		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the current UTC time in the drive system. p3102[0]: Milliseconds p3102[1]: Days		

p3103	RTC synchronization source / RTC sync_source		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	Sets the synchronization source/technique.		
Value:	0: PROFIBUS 1: PROFINET 2: PPI 3: PROFINET PTP		

p3104	BI: RTC real time synchronization PING / RTC PING		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the PING event to set the UTC time.		
Notice:	The parameter may be protected as a result of p0922 or p2079 and cannot be changed.		

r3108[0...1]	RTC last synchronization deviation / RTC sync_dev		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the last synchronization deviation that was determined. r3108[0]: Milliseconds r3108[1]: Days		

p3109	RTC real time synchronization, tolerance window / RTC sync tol		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 1000 [ms]	Factory setting 100 [ms]
Description:	Sets the tolerance window for time synchronization. When this tolerance window is exceeded, an appropriate alarm is output.		
Dependency:	Refer to: A01099		

r3114.9...11	CO/BO: Messages status word global / Msg ZSW global			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -	
	P-Group: Displays, signals	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the global status word for messages. The appropriate bit is set if at least one message is present at the drive objects.			
Bit field:	Bit	Signal name	1 signal	0 signal
	09	Alarm present	Yes	No
	10	Fault present	Yes	No
	11	Safety message present	Yes	No
				FP
				8065
				8060
				-
Note:	The status bits are displayed with delay.			
r3115[0...63]	Fault drive object initiating / F DO initiating			
All objects	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Integer32	Dynamic index: -	Func. diagram: 1750, 8060	
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the drive object number of the initiating drive object for this fault as integer number. Value = 63: The fault was initiated by the drive object itself.			
Dependency:	Refer to: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136			
Note:	The buffer parameters are cyclically updated in the background (refer to status signal in r2139). The structure of the fault buffer and the assignment of the indices is shown in r0945.			
p3116	BI: Acknowledgement automatically suppressed / Ackn suppress			
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: 8060	
	P-Group: Messages	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0	
Description:	Sets the signal source for the automatic acknowledgement on the device drive object. BI: p3116 = 1 signal Faults present are not automatically acknowledged on the device drive object. BI: p3116 = 0 signal Faults present are automatically acknowledged on the device drive object.			
Dependency:	Refer to: p2102, p2103, p2104, p2105, p3981			
Note:	When selecting a standard telegram, the BICO interconnection for control signal STW1.10 (master control by PLC) is automatically established.			

p3233[0...n]	Torque actual value filter, time constant / M_act_filt T		
SERVO_S110-CAN (Extended msg), SERVO_S110-DP (Extended msg)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: DDS, p0180 Units group: -	Access level: 3 Func. diagram: 8013 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 1000000 [ms]	Factory setting 0 [ms]
Description:	Sets the time constant of the PT1 element to smooth the torque actual value. The smoothed actual torque is compared with the threshold values and is only used for messages and signals.		

p3290	Variable signaling function start / Var sig start			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 5301 Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting 0010 bin	
Description:	Settings for start/stop and the comparison type for the variable signaling function.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Activate function	Active	Not active
	01	Comparison with sign	With sign	Without sign

p3291	CI: Variable signaling function signal source / Var sig S_src		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 / Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 5301 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 0
Description:	Sets the signal source for the variable signaling function.		
Dependency:	Refer to: p3292, p3293		
Note:	Re p3291 = 1: In this case, the signal source is defined using p3292 and p3293.		

p3292	Variable signaling function signal source address / Var sig S_src addr		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: 5301 Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the address of the signal source for the variable signaling function.
Dependency: Refer to: p3291
Caution: If an incorrect address and data type are set, then this can cause the software to crash.



Note: This parameter should only be set for p3291 = 1.

p3293		Variable signaling function signal source data type / Var sig S_src type		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4	
	Data type: Integer16	Dynamic index: -	Func. diagram: 5301	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	7	0	

Description: Sets the data type of the signal source for the variable signaling function.

Value:

0:	Unknown
1:	U8, Unsigned8
2:	I8, Signed8
3:	U16, Unsigned16
4:	I16, Signed16
5:	U32, Unsigned32
6:	I32, Signed32
7:	Float, FloatingPoint32

Dependency: Refer to: p3291

Caution: If an incorrect address and data type are set, then this can cause the software to crash.



Note: This parameter should only be set for p3291 = 1.

r3294		BO: Variable signaling function output signal / Var sig outp_sig		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: 5301	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	

Description: Displays the output signal for the variable signaling function.

Dependency: Refer to: p3290, p3291, p3295, p3296, p3297, p3298

p3295		Variable signaling function threshold value / Var sig thresh_val		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5301	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-340.28235E36	340.28235E36	0.000	

Description: Sets the threshold value for the variable signaling function.

p3296		Variable signaling function hysteresis / Var sig hyst		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 5301	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0.000	340.28235E36	0.000	

Description: Sets the hysteresis for the variable signaling function.

p3297	Variable signaling function pickup delay / Var sig t_pickup		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 5301 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 0 [ms]
Description:	Sets the pickup delay for the variable signaling function.		
Note:	The output signal is set if the condition for the 1 signal is fulfilled for longer than the selected time.		
p3298	Variable signaling function dropout delay / Var sig t_dropout		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 5301 Unit selection: - Expert list: 1
	Min 0 [ms]	Max 10000 [ms]	Factory setting 0 [ms]
Description:	Sets the dropout delay for the variable signaling function.		
Note:	The output signal is reset if the condition for the 0 signal is fulfilled for longer than the selected time.		
p3900	Completion of quick commissioning / Compl quick_comm		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(1) Data type: Integer16 P-Group: Displays, signals Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	<p>Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning.</p> <p>p3900 = 1 initially includes a parameter reset (factory setting, the same as p0970 = 1) for all parameters of the drive object; however, without overwriting the entries made during the quick commissioning.</p> <p>The interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 are re-established and all of the dependent motor, open-loop and control-loop control parameters are calculated (corresponding to p0340 = 1).</p> <p>p3900 = 2 includes the restoration of the interconnections of PROFIBUS PZD telegram selection (p0922) and the interconnections via p0700, p1000 and p1500 and the calculations corresponding to p0340 = 1.</p> <p>p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.</p>		
Value:	<p>0: No quick parameterization</p> <p>1: Quick parameterization after parameter reset</p> <p>2: Quick parameterization (only) for BICO and motor parameters</p> <p>3: Quick parameterization for motor parameters (only)</p>		
Note:	<p>When the calculations have been completed, p3900 and p0010 are automatically reset to a value of 0.</p> <p>When calculating motor, open-loop and closed-loop control parameters (such as for p0340 = 1) parameters associated with a selected Siemens list motor are not overwritten.</p>		

r3925[0...n] Identification final display / Ident final_disp

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the commissioning steps that have been carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor/control parameters calculated (p0340 = 1, p3900 > 0)	Yes	No	-
	02	Motor data identification carried out at standstill (p1910 = 1)	Yes	No	-
	03	Rotating measurement carried out (p1960 = 1, 2)	Yes	No	-
	04	Motor encoder adjustment carried out (p1960 = 1, p1990 = 1)	Yes	No	-
	05	Motor encoder manually adjusted	Yes	No	-
	15	Motor equivalent circuit diagram parameters changed	Changed	Not changed	-

Note: The individual bits are only set if the appropriate action has been initiated and successfully completed.
When motor rating plate parameters are changed, the final display is reset.
When setting the individual bits, all of the most significant bits are reset.

r3927[0...n] Motor data identification induction motor data determined / MotID ASM dat det

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the data of an induction motor determined and accepted from the stationary motor data identification or rotating measurement.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p0350 accepted	Yes	No	-
	01	p0354 accepted	Yes	No	-
	02	p0356 accepted	Yes	No	-
	03	p0358 accepted	Yes	No	-
	04	p0360 accepted	Yes	No	-
	05	p0320 accepted	Yes	No	-
	06	p0410 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	14	p1590 accepted	Yes	No	-
	15	p1592 accepted	Yes	No	-
	22	p0341 accepted	Yes	No	-
	24	p0348 accepted	Yes	No	-
	25	p1752 accepted	Yes	No	-

Dependency: Refer to: r3925

r3928[0...n] Motor data identification synchronous motor data determined / MotId PEM dat det

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: CALC_MOD_ALL	Access level: 3
	Data type: Unsigned32	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: Motor identification	Units group: -	Unit selection: -
	Not for motor type: REL		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Successfully completed component of the last rotating measurement carried out.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	p0350 accepted	Yes	No	-
	02	p0356 accepted	Yes	No	-
	06	p0410 accepted	Yes	No	-
	07	p0431 accepted	Yes	No	-
	08	p1952 accepted	Yes	No	-
	09	p1953 accepted	Yes	No	-
	12	p1715 accepted	Yes	No	-
	13	p1717 accepted	Yes	No	-
	18	p0316 accepted	Yes	No	-
	19	p0317 accepted	Yes	No	-
	20	p0327 accepted	Yes	No	-
	21	p0328 accepted	Yes	No	-
	22	p0341 accepted	Yes	No	-
	23	kT characteristic parameter accepted	Yes	No	-
	24	p0348 accepted	Yes	No	-

Dependency: Refer to: r3925

p3950 Service parameter / Service parameter

CU_S110-CAN, CU_S110-DP	Can be changed: C1, U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: For service personnel only.

r3977 BICO counter, topology / BICO counter topo

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Commands	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the BICO interconnections that have been parameterized in the complete (overall) topology. The counter is incremented by one for each modified BICO interconnection.

Dependency: Refer to: r3978

r3978	BICO CounterDevice / BICO CounterDevice		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Commands Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	For each modified BICO interconnection of this device, the counter is incremented by one. Displays this counter.		
p3981	Faults, acknowledge drive object / Faults ackn DO		
All objects	Can be changed: U, T Data type: Unsigned8 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: 8060 Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Setting to acknowledge all active faults of a drive object.		
Note:	Parameter should be set from 0 to 1 to acknowledge. After acknowledgement, the parameter is automatically reset to 0.		
p3985	Master control mode selection / PcCtrl mode select		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Setpoints Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the mode to change over the master control / LOCAL mode.		
Value:	0: Change master control for STW1.0 = 0 1: Change master control in operation		
Danger:	When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.		
			
r3986	Parameter count / Parameter count		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of parameters for this drive unit. The number comprises the device-specific and the drive-specific parameters.		
Dependency:	Refer to: r0980, r0981, r0989		

r3988[0...1]	Boot state / Boot state		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	10800	-
Description:	Index 0: Displays the boot state.		
	Index 1: Displays the partial boot state		
Value:	0: Not active 1: Fatal fault 10: Fault 20: Reset all parameters 30: Drive object modified 40: Download using commissioning software 50: Parameter download using commissioning software 90: Reset Control Unit and delete drive objects 100: Start initialization 110: Instantiate Control Unit basis 150: Wait until actual topology determined 160: Evaluate topology 170: Instantiate Control Unit rest 180: Initialization YDB configuration information 200: First commissioning 210: Create drive packages 250: Wait for topology acknowledge 325: Wait for input of drive type 350: Determine drive type 360: Write into topology-dependent parameters 370: Wait until p0009 = 0 is set 380: Check topology 550: Call conversion functions for parameter 625: Wait non-cyclic starting DRIVE-CLiQ 650: Start cyclic operation 660: Evaluate drive commissioning status 670: Autom. FW update DRIVE-CLiQ components 680: Wait for CU LINK slaves 690: Wait non-cyclic starting DRIVE-CLiQ 700: Save parameters 725: Wait until DRIVE-CLiQ cyclic 740: Check the ability to operate 745: Start of the time slices 750: Interrupt enable 800: Initialization finished 10050: Wait for synchronization 10100: Wait for CU LINK slaves 10150: Wait until actual topology determined 10200: Evaluation component status 10250: Call conversion functions for parameter 10300: Preparation cyclic operation 10350: Autom. FW update DRIVE-CLiQ components 10400: Wait for slave properties 10450: Check CX/NX status 10500: Wait until DRIVE-CLiQ cyclic 10550: Carry out warm start 10600: Evaluate, encoder status 10800: Partial boot completed		

Index: [0] = System
[1] = Partial boot

r3998[0...n] First drive commissioning / First drv_comm

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: DDS, p0180	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting -

Description: Displays whether the drive still has to be commissioned for the first time.
0 = Yes
2 = No

p4680[0...n] Zero mark monitoring tolerance permissible / ZM_monit tol perm

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1000	Factory setting 4

Description: Sets the permissible tolerance in encoder pulses for the zero mark monitoring.

Note: The zero mark monitoring is activated using p0437.1 = 1.

p4681[0...n] Zero mark monitoring, tolerance window limit 1 positive / ZM tol lim 1 pos

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1000	Factory setting 2

Description: Sets the positive tolerance window in encoder pulses for limit 1 for the zero mark monitoring.

Dependency: Refer to: p0437, p4680, p4682, p4683, p4684

Note: The zero mark monitoring is activated using p0437.2 = 1.

p4682[0...n] Zero mark monitoring, tolerance window limit 1 negative / ZM tol lim 1 neg

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1001	Max 0	Factory setting -1001

Description: Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

Dependency: Refer to: p4681

Note: The zero mark monitoring is activated using p0437.2 = 1.

For a set value = -1001, the negated value of p4681 is effective.

p4683[0...n] Zero mark monitoring, tolerance window limit 2 positive / ZM tol lim 2 pos

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 100000	Factory setting 0

Description: Sets the positive tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

Dependency: Refer to: p0437, p4680, p4681, p4682, p4684

Note: The zero mark monitoring is activated using p0437.2 = 1.

p4684[0...n] Zero mark monitoring, tolerance window limit 2 negative / ZM tol lim 2 neg

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -100001	Max 0	Factory setting -100001

Description: Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.

Dependency: Refer to: p4683

Note: The zero mark monitoring is activated using p0437.2 = 1.
For a set value = -100001, the negated value of p4683 is effective.

p4685[0...n] Changeover, average value generation / Average value mode

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 20	Factory setting 0

p4686[0...n] Zero mark minimum length / ZM min length

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2(4)	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: EDS, p0140	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 10	Factory setting 0

Description: Sets the minimum length for the zero mark.

Dependency: Refer to: p0425

Note: The value for the minimum length of the zero mark must be set less than p0425.

r4688[0...2]	Zero mark monitoring, differential pulse count / ZM diff_pulse qty		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of differential pulses for the zero mark monitoring that have accumulated.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		
Dependency:	Refer to: p4681, p4682		

r4689[0...2]	CO: Squarewave encoder, diagnostics / Sq-wave enc diag		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Encoder	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the encoder status according to PROFIdrive for a squarewave encoder.		
Index:	[0] = Encoder 1 [1] = Encoder 2 [2] = Reserved		

p4690	SMI component number / SMI comp_no		
CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 1
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	399	0
Description:	Sets the component number for the Sensor Module Integrated (SMI) for which data should be saved or downloaded.		
Dependency:	Refer to: p4691, p4692		
Note:	SMI: SINAMICS Sensor Module Integrated Only component numbers that correspond to a Sensor Module Integrated can be entered.		

p4691	Save/download SMI data / Save/DL SMI data		
CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	15	0
Description:	Setting to save/download the data for the Sensor Module Integrated (SMI) specified in p4690. Procedure: p4690 = set component number p4691 = 1, 2 set the required procedure (save/download) p4691 = 0 --> automatically after the procedure has been successfully completed p4691 = 11, 12, 13, 14, 15 --> error vales if the procedure was not able to be executed		

Value:

- 0: Inactive
- 1: Save SMI data
- 2: Download SMI data
- 3: Import SMI data from MMC
- 11: SMI data for selected component not found
- 12: Component with the selected component number not available.
- 13: Insufficient memory space
- 14: Incorrect format of the saved data
- 15: Data not able to be downloaded into SMI

Dependency: Refer to: p4690, p4692

Note: SMI: SINAMICS Sensor Module Integrated

Help for error value = 11:
Save the data for the original SMI on the MMC.

Help for error value = 12:
Set the correct component number.

Help for error value = 13:
Use an MMC with a large memory.

Help for error value = 15:
Use an SMI card that is empty.

p4692 Save SMI data of all SMI / Save SMI data

CU_S110-CAN, CU_S110-DP	Can be changed: T	Calculated: -	Access level: 1
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Displays, signals	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	13	0

Description: Setting to save data of all existing Sensor Module Integrated (SMI) on the CompactFlash card.

Value:

- 0: Inactive
- 1: Save data of all SMIs
- 13: Insufficient memory space

Dependency: Refer to: p4690, p4691

Note: SMI: SINAMICS Sensor Module Integrated

p4692 is automatically set to 0 at the end of the data save procedure.

The procedure must be repeated if the data save operation was interrupted (e.g. if the power supply voltage failed).

p4700[0...1] Trace control / Trace control

CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0	1	0

Value:

- 0: Stop trace
- 1: Start trace

Index:

- [0] = Trace 0
- [1] = Trace 1

p4701	Measuring function, control / Meas fct ctrl		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0	Max 2	Factory setting 0
Value:	0: Stop measuring function 1: Start measuring function 2: Measuring function, check parameterization		

r4705[0...1]	Trace status / Trace status		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0	Max 4	Factory setting -
Description:	Displays the current status of the trace.		
Value:	0: Trace inactive 1: Trace is recording presamples 2: Trace is waiting for trigger event 3: Trace is recording 4: Recording (trace) ended		
Index:	[0] = Trace 0 [1] = Trace 1		

r4706	Measuring function, status / Meas fct status		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0	Max 5	Factory setting -
Value:	0: Measurement function inactive 1: Measuring function, parameterization checked 2: Measuring function waits for stabilizing time 3: Measuring function recording (tracing) 4: Measuring function, trace ended with error 5: Measuring function, trace successfully completed		

r4708[0...1]	Trace memory space required / Trace mem required		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the required memory in bytes for the current parameterization.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Refer to: r4799		

p4710[0...1]		Trace trigger condition / Trace Trig_cond	
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 1	Max 7	Factory setting 2
Description:	Sets the trigger condition for the trace.		
Value:	1: Immediate start 2: Positive edge 3: Negative edge 4: Entry to hysteresis band 5: Leaving hysteresis band 6: Trigger at bit mask 7: Start with function generator		
Index:	[0] = Trace 0 [1] = Trace 1		
p4711[0...5]		Trace trigger signal / Trace trig_signal	
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting 0
Description:	Selects the trigger signal for the trace.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
Dependency:	Only effective when p4710 does not equal 1.		
Note:	It only makes sense to trace the PINs using the commissioning software. For index 2(4) and 3(5) equal to zero, index 0(1) can only be written and vice versa. Re index 0 ... 1: Here, the trigger signal for trace 0 or 1 is entered as parameter in the BICO format. For trace with a physical address (p4789), the data type of the trigger signal is set here. Re index 2 ...3: The triggering PIN for trace 0 is entered here. Index 2 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart Index 3 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN Re index 4 ... 5: The triggering PIN for trace 1 is entered here. Index 4 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart Index 5 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN		

p4712[0...1]	Trace trigger threshold / Trace trig_thresh		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.00
Description:	Sets the trigger threshold for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 2, 3.		
p4713[0...1]	Trace tolerance band trigger threshold / Trace trig thresh		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.00
Description:	Sets the first trigger threshold for trigger via tolerance band.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 4, 5.		
p4714[0...1]	Trace tolerance band trigger threshold / Trace trig thresh		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -340.28235E36	Max 340.28235E36	Factory setting 0.00
Description:	Sets the second trigger threshold for trigger via tolerance band		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 4, 5.		
p4715[0...1]	Trace bit mask trigger, bit mask / Trace trig mask		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0	Max 4294967295	Factory setting 0
Description:	Sets the bit mask for the bit mask trigger.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 6.		

p4716[0...1]	Trace, bit mask trigger, trigger condition / Trace Trig_cond		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min 0	Max 4294967295	Factory setting 0
Description:	Sets the trigger condition for bit mask trigger.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only effective when p4710 = 6.		
p4717	Measuring function, number of averaging operations / Meas fct avg qty		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min 0	Max 255	Factory setting 0
p4718	Measuring function, number of stabilizing periods / MeasFct StabPerQty		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned8 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min 0	Max 255	Factory setting 0
r4719[0...1]	Trace trigger index / Trace Trig_index		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the trigger index in the trace buffer. The trigger event occurred at this point.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		
p4720[0...1]	Trace recording cycle / Trace record_cyc		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min 0.000 [ms]	Max 60000.000 [ms]	Factory setting 1.000 [ms]
Description:	Sets the recording cycle for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4721[0...1]	Trace recording time / Trace record_time		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0.000 [ms]	Max 3600000.000 [ms]	Factory setting 1000.000 [ms]
Description:	Sets the recording time for the trace.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4722[0...1]	Trace trigger delay / Trace trig_delay		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -3600000.000 [ms]	Max 3600000.000 [ms]	Factory setting 0.000 [ms]
Description:	Sets the trigger delay for the trace. Trigger delay < 0: Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs. Trigger delay > 0: Post trigger: Tracing does not start until the set time after the trigger event.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4723[0...1]	Time slice cycle for trace / Trace cycle		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0.03125 [ms]	Max 4.00000 [ms]	Factory setting 0.12500 [ms]
Description:	Sets the time slice cycle in which the trace is called.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4724[0...1]	Trace average in the time range / Trace average		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 0001 bin	Factory setting 0000 bin
Index:	[0] = Trace 0 [1] = Trace 1		

r4725[0...1]	Trace, data type 1 traced / Trace rec type 1		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4726[0...1]	Trace, data type 2 traced / Trace rec type 2		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4727[0...1]	Trace, data type 3 traced / Trace rec type 3		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4728[0...1]	Trace, data type 4 traced / Trace rec type 4		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4729[0...1]	Trace number of recorded values / Trace rec values		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of traced values for each signal.		
Index:	[0] = Trace 0 [1] = Trace 1		
Dependency:	Only valid when p4705 = 4.		

p4730[0...5]	Trace record signal 0 / Trace record sig 0		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	Selects the first signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
p4731[0...5]	Trace record signal 1 / Trace record sig 1		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	Selects the second signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
p4732[0...5]	Trace record signal 2 / Trace record sig 2		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	0
Description:	Selects the third signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		

p4733[0...5]	Trace record signal 3 / Trace record sig 3		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting 0
Description:	Selects the fourth signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
p4734[0...5]	Trace record signal 4 / Trace record sig 4		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting 0
Description:	Selects the fifth signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
p4735[0...5]	Trace record signal 5 / Trace record sig 5		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting 0
Description:	Selects the sixth signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		

p4736[0...5]	Trace record signal 6 / Trace record sig 6		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting 0
Description:	Selects the seventh signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
p4737[0...5]	Trace record signal 7 / Trace record sig 7		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting 0
Description:	Selects the eighth signal to be traced.		
Index:	[0] = Trace 0 parameter in BICO format [1] = Trace 1 parameter in BICO format [2] = Trace 0 PINx with DO Id and chart Id [3] = Trace 0 PINx with block Id and PIN Id [4] = Trace 1 PINy with DO Id and chart Id [5] = Trace 1 PINy with block Id and PIN Id		
r4740[0...16383]	Trace 0 trace buffer signal 0 floating point / Trace 0 trace sig0		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the trace buffer (record buffer) for trace 0 and signal 0. The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks. Example A: The first 16384 values of signal 0, trace 0 are to be read out. In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read out using r4740[0] to r4740[16383]. Example B: The values 16385 to 32768 from signal 0, trace 0 are to be read out. In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].		
Dependency:	Refer to: p4795		

r4741[0...16383] Trace 0 trace buffer signal 1 floating point / Trace 0 trace sig1

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.
Dependency: Refer to: r4740, p4795

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 trace sig2

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.
Dependency: Refer to: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 trace sig3

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.
Dependency: Refer to: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 trace sig4

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.
Dependency: Refer to: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 trace sig5

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.
Dependency: Refer to: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 trace sig6

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 trace sig7

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace 1 trace sig0

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.

Dependency: Refer to: r4740, p4795

r4751[0...16383] Trace 1 trace buffer signal 1 floating point / Trace 1 trace sig1

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.

Dependency: Refer to: r4740, p4795

r4752[0...16383] Trace 1 trace buffer signal 2 floating point / Trace 1 trace sig2

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.

Dependency: Refer to: r4740, p4795

r4753[0...16383] Trace 1 trace buffer signal 3 floating point / Trace 1 trace sig3

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.

Dependency: Refer to: r4740, p4795

r4754[0...16383] Trace 1 trace buffer signal 4 floating point / Trace 1 trace sig4

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.

Dependency: Refer to: r4740, p4795

r4755[0...16383] Trace 1 trace buffer signal 5 floating point / Trace 1 trace sig5

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4740, p4795

r4756[0...16383] Trace 1 trace buffer signal 6 floating point / Trace 1 trace sig6

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: Refer to: r4740, p4795

r4757[0...16383] Trace 1 trace buffer signal 7 floating point / Trace 1 trace sig7

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: Refer to: r4740, p4795

r4760[0...16383] Trace 0 trace buffer signal 0 / Trace 0 trace sig0

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0 as integer number.

Note: For signals, data type I32 or U32, the trace buffer is assigned as follows:

r4760[0] = value 0

r4760[1] = value 1

...

r4760[8191] = value 8191

For signals, data type I16 or U16, the trace buffer is assigned as follows:

r4760[0] = value 0 (bit 31 ... 16) and value 1 (bit 15 ... 0)

r4760[1] = value 2 (bit 31 ... 16) and value 3 (bit 15 ... 0)

...

r4760[8191] = value 16382 (bit 31 ... 16) and value 16383 (bit 15 ... 0)

For signals, data type I8 or U8, the trace buffer is assigned as follows:

r4760[0] = value 0 (bit 31 ... 24) value 1 (bit 23 ... 16) value 2 (bit 15 ... 8) value 3 (bit 7 ... 0)

r4760[1] = value 4 (bit 31 ... 24) value 5 (bit 23 ... 16) value 6 (bit 15 ... 8) value 7 (bit 7 ... 0)

...

r4760[8191] = value 32764 (bit 31 ... 24) value 32765 (bit 23 ... 16) value 32766 (bit 15 ... 8) value 32767 (bit 7 ... 0)

r4761[0...16383] Trace 0 trace buffer signal 1 / Trace 0 trace sig1

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: Refer to: r4760

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 trace sig2

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: Refer to: r4760

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 trace sig3

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: Refer to: r4760

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 trace sig4

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.

Dependency: Refer to: r4760

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 trace sig5

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.

Dependency: Refer to: r4760

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 trace sig6

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.

Dependency: Refer to: r4760

r4767[0...16383] Trace 0 trace buffer signal 7 / Trace 0 trace sig7

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.

Dependency: Refer to: r4760

r4770[0...16383] Trace 1 trace buffer signal 0 / Trace 1 trace sig0

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.**Dependency:** Refer to: r4760**r4771[0...16383] Trace 1 trace buffer signal 1 / Trace 1 trace sig1**

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.**Dependency:** Refer to: r4760**r4772[0...16383] Trace 1 trace buffer signal 2 / Trace 1 trace sig2**

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.**Dependency:** Refer to: r4760**r4773[0...16383] Trace 1 trace buffer signal 3 / Trace 1 trace sig3**

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.**Dependency:** Refer to: r4760**r4774[0...16383] Trace 1 trace buffer signal 4 / Trace 1 trace sig4**

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.**Dependency:** Refer to: r4760

r4775[0...16383] Trace 1 trace buffer signal 5 / Trace 1 trace sig5

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.

Dependency: Refer to: r4760

r4776[0...16383] Trace 1 trace buffer signal 6 / Trace 1 trace sig6

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: Refer to: r4760

r4777[0...16383] Trace 1 trace buffer signal 7 / Trace 1 trace sig7

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: Refer to: r4760

p4780[0...1] Trace physical address signal 0 / Trace PhyAddr Sig0

CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the first signal to be traced.

The data type is defined using p4730.

Index: [0] = Trace 0
[1] = Trace 1

p4781[0...1]	Trace physical address signal 1 / Trace PhyAddr Sig1		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the second signal to be traced. The data type is defined using p4731.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4782[0...1]	Trace physical address signal 2 / Trace PhyAddr Sig2		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the third signal to be traced. The data type is defined using p4732.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4783[0...1]	Trace physical address signal 3 / Trace PhyAddr Sig3		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the fourth signal to be traced. The data type is defined using p4733.		
Index:	[0] = Trace 0 [1] = Trace 1		
p4784[0...1]	Trace physical address signal 4 / Trace PhyAddr Sig4		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin
Description:	Sets the physical address for the fifth signal to be traced. The data type is defined using p4734.		
Index:	[0] = Trace 0 [1] = Trace 1		

p4785[0...1]	Trace physical address signal 5 / Trace PhyAddr Sig5		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin

Description: Sets the physical address for the sixth signal to be traced.
The data type is defined using p4735.

Index: [0] = Trace 0
[1] = Trace 1

p4786[0...1]	Trace physical address signal 6 / Trace PhyAddr Sig6		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin

Description: Sets the physical address for the seventh signal to be traced.
The data type is defined using p4736.

Index: [0] = Trace 0
[1] = Trace 1

p4787[0...1]	Trace physical address signal 7 / Trace PhyAddr Sig7		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 bin	Max 1111 1111 1111 1111 1111 1111 1111 1111 bin	Factory setting 0000 bin

Description: Sets the physical address for the eighth signal to be traced.
The data type is defined using p4737.

Index: [0] = Trace 0
[1] = Trace 1

p4789[0...1]	Trace physical address trigger signal / Trace PhyAddr Trig		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the physical address for the trigger signal.
The data type is defined by making the appropriate selection in p4711.

Index: [0] = Trace 0
[1] = Trace 1

r4790[0...1]	Trace, data type 5 traced / Trace rec type 5		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4791[0...1]	Trace, data type 6 traced / Trace rec type 6		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4792[0...1]	Trace, data type 7 traced / Trace rec type 7		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
r4793[0...1]	Trace, data type 8 traced / Trace rec type 8		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Index:	[0] = Trace 0 [1] = Trace 1		
p4795	Trace memory bank changeover / Trace mem changeov		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	0	500	0
Description:	Changes over the memory bank to read out the contents of the trace buffer.		
Dependency:	Refer to: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753		

r4799	Trace memory location free / Trace mem free		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the free memory for the trace in bytes.		
Dependency:	Refer to: r4708		

p4800	Function generator control / FG control		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	3	0
Description:	The function generator is started with p4800 = 1. The signal is only generated for a 1 signal of binector input p4819.		
Value:	0: Stop function generator 1: Start function generator 2: Check function generator parameterization 3: Start function generator without enable signals		
Dependency:	Refer to: p4819		

r4805	Function generator status / FG status		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	6	-
Description:	Displays the current status of the function generator.		
Value:	0: Inactive 1: Generate accelerating ramp to offset 2: Generate parameterized signal shape 3: Generate braking ramp 4: Function generator stopped due to missing enable signals 5: Function generator waits for BI: p4819 6: Function generator parameterization has been checked		
Dependency:	Refer to: p4800, p4819		

r4806.0		BO: Function generator status signal / FG status signal		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the status of the function generator. 0 signal: Function generator inactive 1 signal: Function generator running			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Bit 0	On	Off
				FP
				-

p4810		Function generator mode / FG operating mode		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	99	0	
Description:	Sets the operating mode of the function generator.			
Value:	0: Connection at connector output r4818 1: Connection at current setpoint after filter and r4818 2: Connection as disturbing torque and r4818 3: Connection at speed setpoint after filter and r4818 4: Connection at current setpoint before filter and r4818 5: Connection at speed setpoint before filter and r4818 99: Connection at physical address and r4818			

p4812		Function generator physical address / FG phys address		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	4294967295	0	
Description:	Sets the physical address where the function generator is to be connected.			
Dependency:	Only effective when p4810 = 99.			

p4813		Function generator physical address reference value / FG phys addr ref		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Trace and function generator	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	1.00	1000000.00	1.00	
Description:	Sets the reference value for 100 % for referred inputs.			
Dependency:	Only effective when p4810 = 99.			

p4815[0...2]	Function generator drive number / FG drive number		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Selects the required drive where the function generator is to be connected.		
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection		
Dependency:	Only effective when p4810 = 1, 2, 3, 4 or 5.		
Note:	For the function generator, only type SERVO or VECTOR drives can be used.		
r4818	CO: Function generator output signal / FG output signal		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the output signal for the function generator.		
Dependency:	Refer to: p4810		
Note:	The value is displayed independently of the function generator mode. The signal is available as connector output for an ongoing interconnection.		
p4819	BI: Function generator control / FG control		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned32 / Binary P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting 1
Description:	Sets the signal source to control the function generator. When the function generator is running, signal generation is stopped with a 0 signal from BI: p4819 and p4800 is set to 0.		
Dependency:	Refer to: p4800		
p4820	Function generator signal shape / FG signal shape		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 5	Factory setting 1
Description:	Sets the signal to be generated for the function generator.		
Value:	1: Square-wave 2: Staircase 3: Delta 4: Binary noise - PRBS (Pseudo Random Binary Signal) 5: Sine-wave		

p4821	Function generator period / FG period duration		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 60000.00 [ms]	Factory setting 1000.00 [ms]
Description:	Sets the period of the signal to be generated for the function generator.		
Dependency:	Ineffective when p4820 = 4 (PRBS).		
p4822	Function generator pulse width / FG pulse width		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 60000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the pulse width for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 1 (square-wave).		
p4823	Function generator bandwidth / FG bandwidth		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0025 [Hz]	Max 16000.0000 [Hz]	Factory setting 4000.0000 [Hz]
Description:	Sets the bandwidth for the signal to be generated for the function generator.		
Dependency:	Only effective when p4820 = 4 (PRBS). Refer to: p4830 Refer to: A02041		
p4824	Function generator amplitude / FG amplitude		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Trace and function generator Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 5.00 [%]
Description:	Sets the amplitude for the signal to be generated for the function generator.		
Dependency:	Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).		

p4825	Function generator 2nd amplitude / FG 2nd amplitude		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 7.00 [%]
Description:	Sets the second amplitude for the signal to be generated for the function generator.		
Dependency:	Only effective for p4820 = 2 (staircase). Units are dependent on p4810. If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current). If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).		
p4826	Function generator offset / FG offset		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1600.00 [%]	Max 1600.00 [%]	Factory setting 0.00 [%]
Description:	Sets the offset (DC component) of the signal to be generated for the function generator.		
Dependency:	Units are dependent on p4810. If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current). If p4810 = 3, 5: The offset is referred to p2000 (reference speed). If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint.		
p4827	Function generator ramp-up time to offset / FG ramp-up offset		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 100000.00 [ms]	Factory setting 32.00 [ms]
Description:	Sets the ramp-up time to the offset for the function generator.		
p4828	Function generator lower limit / FG lower limit		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -10000.00 [%]	Max 0.00 [%]	Factory setting -100.00 [%]
Description:	Sets the lower limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		

p4829	Function generator upper limit / FG upper limit		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [%]	Max 10000.00 [%]	Factory setting 100.00 [%]
Description:	Sets the upper limit for the function generator.		
Dependency:	For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).		

p4830	Function generator time slice cycle / FG time slice		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.03125 [ms]	Max 2.00000 [ms]	Factory setting 0.12500 [ms]
Description:	Sets the time slice cycle in which the function generator is called.		

p4831	Function generator amplitude scaling / FG amplitude scal		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00000 [%]	Max 200.00000 [%]	Factory setting 100.00000 [%]
Description:	Sets the scaling for the amplitude of the signal waveforms for all output channels. The value can be changed while the function generator is running.		

p4832[0...2]	Function generator amplitude scaling / FG amplitude scal		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -340.28235E36 [%]	Max 340.28235E36 [%]	Factory setting 100.00000 [%]
Description:	Sets the scaling for the amplitude of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running.		
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection		

p4833[0...2]	Function generator offset scaling / FG offset scal		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Trace and function generator	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -340.28235E36 [%]	Max 340.28235E36 [%]	Factory setting 100.00000 [%]
Description:	Sets the scaling for the offset of the signal waveforms separately for each output channel. The value cannot be changed while the function generator is running.		
Index:	[0] = First drive for connection [1] = Second drive for connection [2] = Third drive for connection		

p7820	DRIVE-CLiQ component component number / DLQ comp_no		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed.		
Dependency:	Refer to: p7821, p7822, r7823		

p7821	DRIVE-CLiQ component parameter number / DLQ para_no		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the parameter number to access a parameter of a DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7822, r7823		

p7822	DRIVE-CLiQ component parameter index / DLQ para_index		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the parameter index to access a parameter of a DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7821, r7823		

r7823	DRIVE-CLiQ component read parameter value / Read DLQ value		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the parameter value read from the DRIVE-CLiQ component.		
Dependency:	Refer to: p7820, p7821, p7822		

r7825[0...1]	DRIVE-CLiQ component version / DLQ version		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the firmware versions of the DRIVE-CLiQ component selected using p7828[1].		
Index:	[0] = Reference firmware version [1] = Actual firmware version		
Note:	Reference firmware version: Version on the memory card. Current firmware version: Actual version of the DRIVE-CLiQ component.		

r7827	Firmware update progress display / FW update progress		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [%]	- [%]	- [%]
Description:	Displays the progress when updating the firmware of the DRIVE-CLiQ components.		

p7830	Diagnostics telegram selection / Diag telegram		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	3	0
Description:	Selects a telegram whose contents should be shown in p7831 ... p7836.		
Value:	0: Reserved 1: First cyclic receive telegram sensor 1 2: First cyclic receive telegram sensor 2 3: First cyclic receive telegram sensor 3		
Dependency:	Refer to: r7831, r7832, r7833, r7834, r7835, r7836		

r7831[0...15] Telegram diagnostics signals / Tel diag signals			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	10790	-
Description:	Displays the signals contained in the selected telegram (p7830).		
Value:	0: UNUSED 1: UNKNOWN 102: SAPAR_ID_DSA_ALARM 110: SAPAR_ALARMBITS_FLOAT_0 111: SAPAR_ALARMBITS_FLOAT_1 112: SAPAR_ALARMBITS_FLOAT_2 113: SAPAR_ALARMBITS_FLOAT_3 114: SAPAR_ALARMBITS_FLOAT_4 115: SAPAR_ALARMBITS_FLOAT_5 10500: ENC_ID_TIME_PRETRIGGER 10501: ENC_ID_TIME_SEND_TELEG_1 10502: ENC_ID_TIME_CYCLE_FINISHED 10503: ENC_ID_TIME_DELTA_FUNMAN 10504: ENC_ID_SUBTRACE_CALCTIMES 10505: ENC_ID_SYNO_PERIOD 10516: ENC_ID_ADC_TRACK_A 10517: ENC_ID_ADC_TRACK_B 10518: ENC_ID_ADC_TRACK_C 10519: ENC_ID_ADC_TRACK_D 10520: ENC_ID_ADC_TRACK_A_SAFETY 10521: ENC_ID_ADC_TRACK_B_SAFETY 10523: ENC_ID_ADC_TEMP_1 10524: ENC_ID_ADC_TRACK_R 10532: ENC_ID_TRACK_AB_X 10533: ENC_ID_TRACK_AB_Y 10534: ENC_ID_OFFSET_CORR_AB_X 10535: ENC_ID_OFFSET_CORR_AB_Y 10536: ENC_ID_AB_ABS_VALUE 10537: ENC_ID_TRACK_CD_X 10538: ENC_ID_TRACK_CD_Y 10539: ENC_ID_TRACK_CD_ABS 10542: ENC_ID_AB_RAND_X 10543: ENC_ID_AB_RAND_Y 10544: ENC_ID_AB_RAND_ABS_VALUE 10545: ENC_ID_SUBTRACE_ABS_ARRAY 10546: ENC_ID_PROC_OFFSET_0 10547: ENC_ID_PROC_OFFSET_4 10564: ENC_SELFTEMP_ACT 10565: ENC_ID_MOTOR_TEMP_TOP 10566: ENC_ID_MOTOR_TEMP_1 10580: ENC_ID_RESISTANCE_1 10596: ENC_ID_AB_ANGLE 10597: ENC_ID_CD_ANGLE 10598: ENC_ID_MECH_ANGLE_HI 10599: ENC_ID_RM_POS_PHI_COMMU 10600: ENC_ID_PHI_COMMU 10612: ENC_ID_DIFF_CD_INC 10613: ENC_ID_RM_POS_PHI_COMMU_RFG 10628: ENC_ID_MECH_ANGLE 10629: ENC_ID_MECH_RM_POS 10644: ENC_ID_INIT_VECTOR 10645: FEAT_INIT_VEKTOR		

10660: ENC_ID_SENSOR_STATE
 10661: ENC_ID_BASIC_SYSTEM
 10662: ENC_ID_REFMARK_STATUS
 10663: ENC_ID_DSA_STATUS1_SENSOR
 10664: ENC_ID_DSA_RMSTAT_HANDSHAKE
 10665: ENC_ID_DSA_CONTROL1_SENSOR
 10676: ENC_ID_COUNTCORR_SAW_VALUE
 10677: ENC_ID_COUNTCORR_ABS_VALUE
 10678: ENC_ID_SAWTOOTH_CORR
 10692: ENC_ID_RESISTANCE_CALIB_INSTANT
 10693: ENC_ID_SERPROT_POS
 10724: ENC_ID_ACT_FUNMAN_FUNCTION
 10725: ENC_ID_SAFETY_COUNTER_CRC
 10740: ENC_ID_POS_ABSOLUTE
 10741: ENC_ID_POS_REFMARK
 10742: ENC_ID_SAWTOOTH
 10743: ENC_ID_SAFETY_PULSE_COUNTER
 10756: ENC_ID_DSA_ACTUAL_SPEED
 10757: ENC_ID_SPEED_DEV_ABS
 10772: ENC_ID_DSA_POS_XIST1
 10788: ENC_ID_AB_CROSS_CORR
 10789: ENC_ID_AB_GAIN_Y_CORR
 10790: ENC_ID_AB_PEAK_CORR

Index:

[0] =
 [1] =
 [2] =
 [3] =
 [4] =
 [5] =
 [6] =
 [7] =
 [8] =
 [9] =
 [10] =
 [11] =
 [12] =
 [13] =
 [14] =
 [15] =

r7832[0...15] Telegram diagnostics numerical format / tel diag format

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -1	Max 14	Factory setting -

Description: Indicates the original numerical format of the signals contained in the telegram.
 The associated signal number is represented at the appropriate index in r7831.

Value:	-1: Unknown
	0: Boolean
	1: Signed 1 byte
	2: Signed 2 byte
	3: Signed 4 byte
	4: Signed 8 byte
	5: Unsigned 1 byte
	6: Unsigned 2 byte
	7: Unsigned 4 byte
	8: Unsigned 8 byte
	9: Float 4 byte
	10: Double 8 byte
	11: mm dd yy HH MM SS MS DOW
	12: ASCII string
	13: SIMUMERIK frame type
	14: SIMUMERIK axis type
Index:	[0] =
	[1] =
	[2] =
	[3] =
	[4] =
	[5] =
	[6] =
	[7] =
	[8] =
	[9] =
	[10] =
	[11] =
	[12] =
	[13] =
	[14] =
	[15] =

r7833[0...15] Telegram diagnostics unsigned / Tel diag unsigned

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Parameter to display a DSA signal in the unsigned-integer format.
The associated signal number is represented at the appropriate index in r7831.

Index:	[0] =
	[1] =
	[2] =
	[3] =
	[4] =
	[5] =
	[6] =
	[7] =
	[8] =
	[9] =
	[10] =
	[11] =
	[12] =
	[13] =
	[14] =
	[15] =

r7834[0...15] Telegram diagnostics signed / Tel diag signed			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Parameter to display a DSA signal in the signed-integer format. The associated signal number is represented at the appropriate index in r7831.		
Index:	[0] = [1] = [2] = [3] = [4] = [5] = [6] = [7] = [8] = [9] = [10] = [11] = [12] = [13] = [14] = [15] =		

r7835[0...15] Telegram diagnostics real / Tel diag real			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Parameter to display a DSA signal in the float format. The associated signal number is represented at the appropriate index in r7831.		
Index:	[0] = [1] = [2] = [3] = [4] = [5] = [6] = [7] = [8] = [9] = [10] = [11] = [12] = [13] = [14] = [15] =		

r7836[0...15] Telegram diagnostics unit / Tel diag unit		Access level: 4
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -
	Data type: Integer16	Dynamic index: -
	P-Group: -	Units group: -
	Not for motor type: -	Unit selection: -
		Expert list: 1
	Min	Max
	-1	147
		Factory setting
		-
Description:	Parameter to display the units of a DSA signal. The associated signal number is represented at the appropriate index in r7831.	
Value:	-1: Unknown 0: None 1: Millimeter or degrees 2: Millimeter 3: Degrees 4: mm/min or RPM 5: Millimeter / min 6: Revolutions / min 7: m/sec ² or V/sec ² 8: m/sec ² 9: V/sec ² 10: m/sec ³ or V/sec ³ 11: m/sec ³ 12: V/sec ³ 13: Sec 14: 16.667 / sec 15: mm/revolution 16: ACX_UNIT_COMPENSATION_CORR 18: Newton 19: Kilogram 20: Kilogram meter ^2 21: Percent 22: Hertz 23: Volt peak-to-peak 24: Amps peak-to-peak 25: Degrees Celsius 26: Degrees 28: Millimeter or degrees 29: Meters / minute 30: Meters / second 31: Ohm 32: Millihenry 33: Newton meter 34: Newton meter / Amps 35: Volt / Amp 36: Newton meter second / rad 38: 31.25 microseconds 39: Microseconds 40: Milliseconds 42: Kilowatt 43: Micro amps peak-to-peak 44: Volt seconds 45: Microvolt seconds 46: Micro Newton meter 47: Amps / Volt seconds 48: Per mille 49: Hertz / second 53: Micrometer or millidegrees 54: Micrometer 55: Millidegrees 59: Nanometer	

List of parameters

61:	Newton/Amps
62:	Volt seconds / meter
63:	Newton seconds / meter
64:	Micronewton
65:	Liters / minute
66:	Bar
67:	Cubic centimeters
68:	Millimeters / Volt minute
69:	Newton/Volt
80:	Millivolts peak-to-peak
81:	Volt rms
82:	Millivolts rms
83:	Amps rms
84:	Micro amps rms
85:	Micrometers / revolution
90:	Tenths of a second
91:	Hundredths of a second
92:	10 microseconds
93:	Pulses
94:	256 pulses
95:	Tenth of a pulse
96:	Revolutions
97:	100 revolutions / minute
98:	10 revolutions / minute
99:	0.1 revolutions / minute
100:	Thousandth revolution / minute
101:	Pulses / second
102:	100 pulses / second
103:	10 revolutions / (minute * second)
104:	10000 pulses/second^2
105:	0.1 Hertz
106:	0.01 Hertz
107:	0.1 / seconds
108:	Factor 0.1
109:	Factor 0.01
110:	Factor 0.001
111:	Factor 0.0001
112:	0.1 Volt peak-to-peak
113:	0.1 Volt peak-to-peak
114:	0.1 amps peak-to-peak
115:	Watt
116:	100 Watt
117:	10 Watt
118:	0.01 percent
119:	1 / second ^3
120:	0.01 percent/millisecond
121:	Pulses / revolution
122:	Microfarads
123:	Milliohm
124:	0.01 Newton meter
125:	Kilogram millimeter ^2
126:	Rad / (seconds newton meter)
127:	Henry
128:	Kelvin
129:	Hours
130:	Kilohertz
131:	Milliamperes peak-to-peak
132:	Millifarads
133:	Meter
135:	Kilowatt hours
136:	Percent
137:	Amps / Volt
138:	Volt
139:	Millivolts

- 140: Microvolts
- 141: Amps
- 142: Milliampere
- 143: Micro amp
- 144: Milliampere rms
- 145: Millimeter
- 146: Nanometer
- 147: Joules

Index:

- [0] =
- [1] =
- [2] =
- [3] =
- [4] =
- [5] =
- [6] =
- [7] =
- [8] =
- [9] =
- [10] =
- [11] =
- [12] =
- [13] =
- [14] =
- [15] =

r7843[0...20]	Memory card serial number / Mem_card ser.no		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the current serial number of the memory card.
The individual characters of the serial number are displayed in the ASCII code in the indices.

Dependency: Refer to: p9920, p9921

Notice: An ASCII table (excerpt) can be found, for example, in the following List Manual:

Note: Example: displaying the serial number for a memory card:
r7843[0] = 49 dec --> ASCII characters = "1" --> serial number, character 1
r7843[1] = 49 dec --> ASCII characters = "1" --> serial number, character 2
r7843[2] = 49 dec --> ASCII characters = "1" --> serial number, character 3
r7843[3] = 57 dec --> ASCII characters = "9" --> serial number, character 4
r7843[4] = 50 dec --> ASCII characters = "2" --> serial number, character 5
r7843[5] = 51 dec --> ASCII characters = "3" --> serial number, character 6
r7843[6] = 69 dec --> ASCII characters = "E" --> serial number, character 7
r7843[7] = 0 dec --> ASCII characters = " " --> serial number, character 8
...
r7843[19] = 0 dec --> ASCII characters = " " --> serial number, character 20
r7843[20] = 0 dec
Serial number = 111923E

r7844	Memory card, firmware version / Mem_crd FW vers		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the version of the firmware stored on the memory card.		
Note:	Example: The value 1010100 should be interpreted as V01.01.01.00.		
r7850[0...15]	Drive object operational/not operational / DO ready for oper		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -32786	Max 32767	Factory setting -
Description:	Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed). 0: Drive object not ready for operation 1: Drive object ready for operation		
p7852	Number of indices for r7853 / Qty indices r7853		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 200	Factory setting 1
Description:	Displays the number of indices for r7853[0...n]. This corresponds to the number of DRIVE-CLiQ components that are in the target topology.		
Dependency:	Refer to: r7853		
r7853[0...n]	Component available/not available / Comp present		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: p7852 Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF hex	Factory setting -
Description:	Displays the component and whether this component is currently present. High byte: Component number Low byte: 0/1 (not available/available)		
Dependency:	Refer to: p7852		

p7857	Sub-boot mode / Sub-boot mode		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 1	Factory setting 1
Description:	Sets the mode for the sub-boot.		
Value:	0: Sub-boot manual 1: Sub-boot automatic		
Note:	For p7857 = 0 (manual sub-boot) the following applies: The parameter should be set to 1 to start the sub-boot.		
p7859[0...199]	Component number global / Comp_nr global		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 0
	Min -32786	Max 32767	Factory setting 0
Description:	Sets the global and unique component number in a drive system with several Control Units. Each index of the parameter corresponds to a possible local component number on the corresponding Control Unit. The indices are allocated to the global component numbers as follows: p7859[0]: Not used p7859[1]: Sets the global component number for the local component number 1 p7859[2]: Sets the global component number for the local component number 2 ... p7859[199]: Sets the global component number for the local component number 199		
Notice:	This parameter is preferably set via suitable commissioning software (e.g. UpdateAgent, STARTER, SCOUT). Changing the parameter via the AOP (Advanced Operator Panel) or BOP (Basic Operator Panel) can destroy a valid unique setting.		
r7867	Status/configuration changes global / Changes global		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays status and configuration changes of all of the drive objects in the complete unit. When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented.		
Dependency:	Refer to: r7868, r7869, r7870		

r7868[0...16]	Configuration changes drive object reference / Config_chng DO ref		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Reference to the drive objects whose configuration has changed.
Index 0:
When changing one of the following indices, then the value in this index is increased.
Index 1...n:
The drive object with object number in p0101[n-1] has changed its configuration.
Example:
r7868[3] was incremented since the last time it was read.
--> the configuration of the drive object with object number in p0101[2] was changed.

Index:
[0] = Sum of the following indices
[1] = Object number in p0101[0]
[2] = Object number in p0101[1]
[3] = Object number in p0101[2]
[4] = Object number in p0101[3]
[5] = Object number in p0101[4]
[6] = Object number in p0101[5]
[7] = Object number in p0101[6]
[8] = Object number in p0101[7]
[9] = Object number in p0101[8]
[10] = Object number in p0101[9]
[11] = Object number in p0101[10]
[12] = Object number in p0101[11]
[13] = Object number in p0101[12]
[14] = Object number in p0101[13]
[15] = Object number in p0101[14]
[16] = Object number in p0101[15]

Dependency: Refer to: p0101, r7867, r7871

r7869[0...16]	Status changes drive object reference / Status_chng DO ref		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Reference to the drive objects whose status has changed.
Index 0:
When changing one of the following indices, then the value in this index is increased.
Index 1...n:
The drive object with object number in p0101[n-1] has changed its status.
Example:
r7869[3] was incremented since the last time it was read.
--> the status of the drive object with object number in p0101[2] was changed.

Index:	[0] = Sum of the following indices [1] = Object number in p0101[0] [2] = Object number in p0101[1] [3] = Object number in p0101[2] [4] = Object number in p0101[3] [5] = Object number in p0101[4] [6] = Object number in p0101[5] [7] = Object number in p0101[6] [8] = Object number in p0101[7] [9] = Object number in p0101[8] [10] = Object number in p0101[9] [11] = Object number in p0101[10] [12] = Object number in p0101[11] [13] = Object number in p0101[12] [14] = Object number in p0101[13] [15] = Object number in p0101[14] [16] = Object number in p0101[15]
Dependency:	Refer to: p0101, r7867, r7872

r7870[0...7]	Configuration changes global / Config_chng global		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the configuration changes of all of the drive objects in the complete unit.

Index:	[0] = Sum of the following indices [1] = r7871[0] of a drive object [2] = p0101 or r0102 [3] = PROFIBUS configuration (p0978) [4] = DRIVE-CLiQ actual topology (r9900 or r9901) [5] = DRIVE-CLiQ target topology (r9902 or r9903) [6] = DRIVE-CLiQ ports (p0109) [7] = OA applications
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Dependency: Refer to: r7867, r7871

Note:	Index 0: When changing one of the following indices, then the value in this index is incremented.
	Index 1: Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented.
	Index 2: Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented.
	Index 3: PROFIBUS configuration unit. When changing p0978, the value in this index is incremented.
	Index 4: DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented.
	Index 5: DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented.
	Index 6: DRIVE-CLiQ ports. When changing p0109, the value in this index is incremented.
	Index 7: OA applications. When changing OA applications, the value in this index is incremented.

r7871[0...9]	Configuration changes drive object / Config_chng DO		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the configuration changes on the drive object.		
Index:	[0] = Sum of the following indices [1] = r0107 or r0108 [2] = Drive object name (p0199) [3] = Structure-relevant parameters (e.g. p0180) [4] = BICO interconnections [5] = Activate/de-activate drive object [6] = Data back-up required [7] = Reserved [8] = Reference or changeover parameters (e.g. p2000) [9] = Parameter count through Drive Control Chart (DCC)		
Dependency:	Refer to: r7868, r7870		
Note:	Index 0: When changing one of the following indices, then the value in this index is incremented. Index 1: Drive object configuration. When changing p0010, p0107 or p0108, the value in this index is incremented. Index 2: Drive object name. When changing p0199, the value in this index is incremented. Index 3: Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented. Index 4: Drive object BICO interconnections. When changing r3977, the value in this index is incremented. Index 6: Drive object, data save. 0: There are not parameter changes to save. 1: There are parameter changes to save. Index 8: Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented. Index 9: Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.		

r7871[0...15] Configuration changes drive object / Config_chng DO

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: - Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
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Description: Displays the configuration changes on the drive object.

Index:

- [0] = Sum of the following indices
- [1] = p0010, p0107 or p0108
- [2] = Drive object name (p0199)
- [3] = Structure-relevant parameters (e.g. p0180)
- [4] = BICO interconnections
- [5] = Activate/de-activate drive object
- [6] = Data back-up required
- [7] = Activate/de-activate component
- [8] = Reference or changeover parameters (e.g. p2000)
- [9] = Parameter count through Drive Control Chart (DCC)
- [10] = Reserved
- [11] = Reserved
- [12] = Reserved
- [13] = Reserved
- [14] = Reserved
- [15] = SERVO or VECTOR (e.g. p0300)

Dependency: Refer to: r7868, r7870

Note:

Index 0:
When changing one of the following indices, then the value in this index is incremented.

Index 1:
Drive object configuration. When changing p0010, p0107 or p0108, the value in this index is incremented.

Index 2:
Drive object name. When changing p0199, the value in this index is incremented.

Index 3:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.

Index 4:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.

Index 6:
Drive object, data save.
0: There are not parameter changes to save.
1: There are parameter changes to save.

Index 8:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304 ...), the value in this index is incremented.

Index 9:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.

Index 15:
SERVO/VECTOR configuration. When changing p0300, p0301 or p0400, the value in this index is incremented.

r7872[0...3] Status changes drive object / Status_chng DO			
All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the status changes on the drive object.		
	Index 0: When changing one of the following indices, then the value in this index is incremented.		
	Index 1: Drive object faults. When changing r0944, the value in this index is incremented.		
	Index 2: Drive object alarms. When changing r2121, the value in this index is incremented.		
	Index 3: Drive object safety messages. When changing r9744, the value in this index is incremented.		
Index:	[0] = Sum of the following indices [1] = Faults (r0944) [2] = Alarms (r2121) [3] = Safety messages (r9744)		
Dependency:	Refer to: r7869		
p7900[0...15] Drive objects priority / DO priority			
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	65535	0
Description:	Sets the priority for processing the existing drive objects in the system.		
	The parameter enables a free sequence to be set for processing the drive objects. For this purpose all the drive object numbers existing in the system have to be written in the desired sequence into the corresponding indices of the parameter. After re-booting this sequence will be effective without a plausibility check.		
	With the factory setting the following priorities regarding processing are applicable:		
	- The drive objects are pre-sorted according to their type as follows: CONTROL UNIT, INFEED, SERVO, VECTOR, TM, HUB, CU-LINK		
	- If they are of the same type, they are sorted in ascending order according to their drive object number, i.e. the lower the number, the higher the priority for processing.		
Index:	[0] = Drive object number Control Unit [1] = Drive object number object 1 [2] = Drive object number object 2 [3] = Drive object number object 3 [4] = Drive object number object 4 [5] = Drive object number object 5 [6] = Drive object number object 6 [7] = Drive object number object 7 [8] = Drive object number object 8 [9] = Drive object number object 9 [10] = Drive object number object 10 [11] = Drive object number object 11 [12] = Drive object number object 12 [13] = Drive object number object 13 [14] = Drive object number object 14 [15] = Drive object number object 15		

Notice: This parameter may only be used by qualified service personnel.
Note: If the same drive object numbers are used and if the existing drive object numbers in the system are entered incompletely, the content of this parameter is ignored entirely. The behavior as with factory setting will then become effective.

r7901[0...33]	Time slice cycle times / Time slices t_cyc		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [µs]

Description: Displays the current cycle times for all existing time slices.
 For r7901[x] = 0, the following applies: The time slice is not active.

r7903	No. HW samp. times that can still be assigned / no t_slice free		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -

Description: This parameter shows the number of hardware sampling times that have yet to be assigned. These free sampling times can be used by OA applications such as DCC or FBLOCKS.

p8500[0...7]	BI: Data transfer 0 bitwise / Transfer 0 bit		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting 0

Description: Sets the signal source for bitwise data transfer.
 These signals are available in BO: r8510.0 ... 7 for further interconnection.

Index: [0] = Send signal to BO: r8510.0
 [1] = Send signal to BO: r8510.1
 [2] = Send signal to BO: r8510.2
 [3] = Send signal to BO: r8510.3
 [4] = Send signal to BO: r8510.4
 [5] = Send signal to BO: r8510.5
 [6] = Send signal to BO: r8510.6
 [7] = Send signal to BO: r8510.7

Dependency: Refer to: r8510

p8501[0...15]	BI: Data transfer 1 bitwise / Transfer 1 bit		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for bitwise data transfer. These signals are available in BO: r8511.0 ... 15 for further interconnection.		
Index:	[0] = Send signal to BO: r8511.0 [1] = Send signal to BO: r8511.1 [2] = Send signal to BO: r8511.2 [3] = Send signal to BO: r8511.3 [4] = Send signal to BO: r8511.4 [5] = Send signal to BO: r8511.5 [6] = Send signal to BO: r8511.6 [7] = Send signal to BO: r8511.7 [8] = Send signal to BO: r8511.8 [9] = Send signal to BO: r8511.9 [10] = Send signal to BO: r8511.10 [11] = Send signal to BO: r8511.11 [12] = Send signal to BO: r8511.12 [13] = Send signal to BO: r8511.13 [14] = Send signal to BO: r8511.14 [15] = Send signal to BO: r8511.15		
Dependency:	Refer to: r8511		
p8502	CI: Data transfer 0 wordwise / Transfer 0 word		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is available in CO: r8512 for further interconnection.		
Dependency:	Refer to: r8512		
p8503	CI: Data transfer 1 wordwise / Transfer 1 word		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is available in CO: r8513 for further interconnection.		
Dependency:	Refer to: r8513		

p8504	CI: Data transfer 2 wordwise / Transfer 2 word				
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0		
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is available in CO: r8514 for further interconnection.				
Dependency:	Refer to: r8514				
p8505	CI: Data transfer 3 wordwise / Transfer 3 word				
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2		
	Data type: Unsigned32 / Integer32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0		
Description:	Sets the signal source for the wordwise data transfer (process signal). This signal value is available in CO: r8515 for further interconnection.				
Dependency:	Refer to: r8515				
r8510.0...7	BO: Data transfer 0 receive bitwise / Trans 0 recv bit				
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the signals of the bitwise received data. These signals were interconnected and transferred via BI: p8500[0...7].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8500	On	Off	-
	01	Receive signal from BI: p8500	On	Off	-
	02	Receive signal from BI: p8500	On	Off	-
	03	Receive signal from BI: p8500	On	Off	-
	04	Receive signal from BI: p8500	On	Off	-
	05	Receive signal from BI: p8500	On	Off	-
	06	Receive signal from BI: p8500	On	Off	-
	07	Receive signal from BI: p8500	On	Off	-
Dependency:	Refer to: p8500				

r8511.0...15		BO: Data transfer 1 receive bitwise / Trans 1 recv bit			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the signals of the bitwise received data. These signals were interconnected and transferred via BI: p8501[0...15].				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Receive signal from BI: p8501	On	Off	-
	01	Receive signal from BI: p8501	On	Off	-
	02	Receive signal from BI: p8501	On	Off	-
	03	Receive signal from BI: p8501	On	Off	-
	04	Receive signal from BI: p8501	On	Off	-
	05	Receive signal from BI: p8501	On	Off	-
	06	Receive signal from BI: p8501	On	Off	-
	07	Receive signal from BI: p8501	On	Off	-
	08	Receive signal from BI: p8501	On	Off	-
	09	Receive signal from BI: p8501	On	Off	-
	10	Receive signal from BI: p8501	On	Off	-
	11	Receive signal from BI: p8501	On	Off	-
	12	Receive signal from BI: p8501	On	Off	-
	13	Receive signal from BI: p8501	On	Off	-
	14	Receive signal from BI: p8501	On	Off	-
	15	Receive signal from BI: p8501	On	Off	-
Dependency:	Refer to: p8501				

r8512		CO: Data transfer 0 receive wordwise / Trans 0 recv word		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [%]	- [%]	- [%]	
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8502.			
Dependency:	Refer to: p8502			

r8513		CO: Data transfer 1 receive wordwise / Trans 1 recv word		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [%]	- [%]	- [%]	
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8503.			
Dependency:	Refer to: p8503			

r8514	CO: Data transfer 2 receive wordwise / Trans 2 recv word		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8504.		
Dependency:	Refer to: p8504		

r8515	CO: Data transfer 3 receive wordwise / Trans 3 recv word		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the signals of the wordwise received data (process signal). This signal value is interconnected and transferred via CI: p8505.		
Dependency:	Refer to: p8505		

p8550	AOP LOCAL/REMOTE / AOP LOCAL/REMOTE				
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 1001 bin		
Description:	Is used to save the current configuration of the Advanced Operator Panels (AOP).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	LOCAL save	Yes	No	-
	01	Start in LOCAL	Yes	No	-
	02	Change in oper.	Yes	No	-
	03	OFF acts like OFF1	Yes	No	-
	04	OFF acts like OFF2	Yes	No	-
	05	OFF acts like OFF3	Yes	No	-
	07	CW/CCW active	Yes	No	-
	08	Jog active	Yes	No	-
	09	Save speed setpoint	Yes	No	-
	14	Inhibit operation	Yes	No	-
	15	Inhibit parameterization	Yes	No	-

r8571[0...39]	Macro Binector Input (BI) / Macro BI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8572[0...39]	Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8573[0...39]	Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	Displays the ACX file saved in the appropriate directory in the non-volatile memory.		
Note:	For a value = 9999999, the following applies: The read operation is still running.		

r8600	CAN device type / Device type		
CU_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays all of the devices connected to the CAN bus after run-up. r8600 = 00000000 hex: No drive recognized. = 00020192 hex: 1 Servo drive		
Note:	Corresponds to the CANopen object 1000 hex. For each detected drive, the device type is displayed in object 67FF hex.		

r8601	CAN error register / Error register		
CU_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the error register for CANopen. Bit 0: Generic error 0 signal: No error present 1 signal: Generic error present Bit 1 ... 3: Not supported (always a 0 signal) Bit 4: Communications error 0 signal: There is no message in the range 8700 ... 8799 1 signal: There is at least one message (fault or alarm) in the range 8700 ... 8799 Bit 5 ... 6: Not supported (always a 0 signal) Bit 7; Fault outside the range 8700 ... 8799 0 signal: There is no fault outside the range 8700 ... 8799 1 signal: There is at least one fault outside the range 8700 ... 8799		
Note:	Corresponds to the CANopen object 1001 hex.		
p8602	CAN SYNC object / SYNC object		
CU_S110-CAN	Can be changed: C1(1), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0080 hex
Description:	Sets the SYNC object parameter for the following CANopen objects: - 1005 hex: COB-ID		
Note:	SINAMICS operates as SYNC load. COB-ID: CAN object identification		
p8603	CAN COB ID Emergency Message / COB ID EMCY Msg		
CU_S110-CAN	Can be changed: C1(1), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Sets the COB ID of the emergency message (error telegram). It corresponds to the CANopen objects: - 1014 hex: COB-ID		
Note:	If, when downloading, the pre-set value 0 is downloaded, then the CANopen pre-set value 80 hex + Node-ID is automatically set. Online, the value 0 is rejected as, according to the CANopen Standard, COB ID 0 is not permitted here. The changeover of the node ID using the hardware switch at the CU or per software has no effect on the COB-ID EMCY. The saved value remains effective.		

p8604[0...1]	CAN node guarding / Node guarding		
CU_S110-CAN	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Sets the node guarding parameter for the following CANopen objects: - 100C hex: Guard Time - 100D hex: Life Time Factor The life time is derived by multiplying guard time by the life time factor.		
Index:	[0] = Time interval [ms] for new node guarding telegram [1] = Factor for failure of the node guarding telegram		
Dependency:	Only adjustable if heartbeat time = 0 (heartbeat is disabled). Refer to: p8606		
Note:	For p8604[0] = 0 and/or p8604[1] = 0, the node guarding protocol is not used. Either node guarding or heartbeat can be used.		
p8606	CAN Producer Heartbeat Time / Prod Heartb Time		
CU_S110-CAN	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0 [ms]	Max 65535 [ms]	Factory setting 0 [ms]
Description:	Sets the time [ms] to cyclically send heartbeat telegrams. The smallest cycle time is 100 ms. When a 0 is written, then heartbeat telegrams are not sent.		
Dependency:	Only adjustable if guard time = 0 (node guarding disabled). Refer to: p8604		
Note:	Corresponds to the CANopen object 1017 hex. Either node guarding or heartbeat can be used.		
r8607[0...3]	CAN Identity Object / Identity object		
CU_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	General device information display.		
Index:	[0] = Vendor ID [1] = Product code [2] = Revision number [3] = Serial number		
Note:	Corresponds to the CANopen object 1018 hex.		

p8608	CAN Clear Bus Off Error / Clear bus off err		
CU_S110-CAN	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	For a bus off error, the CAN bus is restarted with p8608 = 1 after the cause of the error has been removed.		
Value:	0: Inactive 1: Start CAN controller		
Note:	This parameter is automatically reset to 0 after start.		
p8609[0...1]	CAN Error Behaviour / Error behavior		
CU_S110-CAN	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 2	Factory setting 1
Description:	Sets the behavior of the CAN node referred to the communications error or equipment fault.		
Value:	0: Pre-operational 1: No change 2: Stopped		
Index:	[0] = Behavior for communication errors [1] = Behavior for device faults		
Note:	Corresponds to the CANopen object 1029 hex.		
r8610[0...1]	CAN First Server SDO / First server SDO		
CU_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the identifier (client/server and server/client) of the SDO channel.		
Index:	[0] = Displays the COB ID from client to server [1] = Displays the COB ID from server to client		
Note:	Corresponds to the CANopen object 1200 hex. SDO: Service Data Object		

p8611[0...82]	CAN Pre-defined Error Field / Pre_def err field		
CU_S110-CAN	Can be changed: U, T Data type: Unsigned32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF 1000 hex	Factory setting 0000 hex
Description:	<p>Displays the Pre-defined Error Field of the CAN node.</p> <p>It includes the number of all errors that have occurred, the number of errors that have occurred for each drive and the errors according to their history.</p> <p>The first 16 bits represent the CANopen error code and the second 16 bits the SINAMICS error code.</p> <p>Index 1 has the same structure - however, the drive object ID is in the second 16 bits instead of the SINAMICS error code.</p> <p>CANopen error code:</p> <p>0000 hex: No error present</p> <p>8110 hex: Alarm A08751 present</p> <p>8120 hex: Alarm A08752 present</p> <p>8130 hex: Alarm A08700(F) with alarm value = 2 present</p> <p>1000 hex: Generic error 1 present (there is at least one fault outside the range 8700 ... 8799)</p> <p>1001 hex: Generic error 2 present (there is at least one alarm in the range 8700 ... 8799 with the exception of A08751, A08752, A08700)</p>		
Index:	<p>[0] = Number of all faults in the drive unit</p> <p>[1] = Most recent drive number / fault number</p> <p>[2] = Number of faults drive 1</p> <p>[3] = Fault 1/ drive 1</p> <p>[4] = Fault 2/ drive 1</p> <p>[5] = Fault 3/ drive 1</p> <p>[6] = Fault 4/ drive 1</p> <p>[7] = Fault 5/ drive 1</p> <p>[8] = Fault 6/ drive 1</p> <p>[9] = Fault 7/ drive 1</p> <p>[10] = Fault 8/ drive 1</p> <p>[11] = Number of faults drive 2</p> <p>[12] = Fault 1/ drive 2</p> <p>[13] = Fault 2/ drive 2</p> <p>[14] = Fault 3/ drive 2</p> <p>[15] = Fault 4/ drive 2</p> <p>[16] = Fault 5/ drive 2</p> <p>[17] = Fault 6/ drive 2</p> <p>[18] = Fault 7/ drive 2</p> <p>[19] = Fault 8/ drive 2</p> <p>[20] = Number of faults drive 3</p> <p>[21] = Fault 1/ drive 3</p> <p>[22] = Fault 2/ drive 3</p> <p>[23] = Fault 3/ drive 3</p> <p>[24] = Fault 4/ drive 3</p> <p>[25] = Fault 5/ drive 3</p> <p>[26] = Fault 6/ drive 3</p> <p>[27] = Fault 7/ drive 3</p> <p>[28] = Fault 8/ drive 3</p>		

[29] = Number of faults drive 4
[30] = Fault 1/ drive 4
[31] = Fault 2/ drive 4
[32] = Fault 3/ drive 4
[33] = Fault 4/ drive 4
[34] = Fault 5/ drive 4
[35] = Fault 6/ drive 4
[36] = Fault 7/ drive 4
[37] = Fault 8/ drive 4
[38] = Number of faults drive 5
[39] = Fault 1/ drive 5
[40] = Fault 2/ drive 5
[41] = Fault 3/ drive 5
[42] = Fault 4/ drive 5
[43] = Fault 5/ drive 5
[44] = Fault 6/ drive 5
[45] = Fault 7/ drive 5
[46] = Fault 8/ drive 5
[47] = Number of faults drive 6
[48] = Fault 1/ drive 6
[49] = Fault 2/ drive 6
[50] = Fault 3/ drive 6
[51] = Fault 4/ drive 6
[52] = Fault 5/ drive 6
[53] = Fault 6/ drive 6
[54] = Fault 7/ drive 6
[55] = Fault 8/ drive 6
[56] = Number of faults drive 7
[57] = Fault 1/ drive 7
[58] = Fault 2/ drive 7
[59] = Fault 3/ drive 7
[60] = Fault 4/ drive 7
[61] = Fault 5/ drive 7
[62] = Fault 6/ drive 7
[63] = Fault 7/ drive 7
[64] = Fault 8/ drive 7
[65] = Number of faults drive 8
[66] = Fault 1/ drive 8
[67] = Fault 2/ drive 8
[68] = Fault 3/ drive 8
[69] = Fault 4/ drive 8
[70] = Fault 5/ drive 8
[71] = Fault 6/ drive 8
[72] = Fault 7/ drive 8
[73] = Fault 8/ drive 8
[74] = Number of faults Control Unit
[75] = Fault 1/Control Unit
[76] = Fault 2/Control Unit
[77] = Fault 3/Control Unit
[78] = Fault 4/Control Unit
[79] = Fault 5/Control Unit
[80] = Fault 6/Control Unit
[81] = Fault 7/Control Unit
[82] = Fault 8/Control Unit

Note: Corresponds to the CANopen object 1003 hex.

p8620		CAN Node-ID / Node ID	
CU_S110-CAN	Can be changed: T Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 126	Factory setting 126
Description:	Display or setting of the CANopen Node ID. The Node ID can be set as follows: 1) Using the DIP switch on the Control Unit. --> p8620 can then only be read and displays the selected Node ID. --> A change only becomes effective after a POWER ON. --> CANopen Node ID and PROFIBUS address are identical. 2) Using p8620 --> only if all of the DIP switches - from S1 to S7 - are either set to ON or OFF. --> the Node ID is set as standard to 126. --> A change only becomes effective after save and POWER ON.		
Note:	Every node ID change only becomes effective after a POWER ON. The parameter value is not influenced by a factory setting. It is only possible to independently set CANopen node ID and the PROFIBUS address using p0918 and p8620 (pre-requisite: For DIP switches, all of the switches from S1 to S7 are either set to ON or OFF).		
p8622		CAN baud rate / Baud rate	
CU_S110-CAN	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 7	Factory setting 6
Description:	Setting the baud rate for the CAN bus. The appropriate bit timings are selected that are defined in p8623 in the associated sub-index. Example: Baud rate = 20 kbit/s --> p8622 = 6 --> associated bit timing is in p8623[6].		
Value:	0: 1 Mbit/s 1: 800 kbit/s 2: 500 kbit/s 3: 250 kbit/s 4: 125 kbit/s 5: 50 kbit/s 6: 20 kbit/s 7: 10 kbit/s		
Dependency:	Refer to: p8623		
Note:	The parameter value is not influenced by a factory setting.		

p8623[0...7]	CAN Bit Timing selection / Bit timing select		
CU_S110-CAN	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 000F 7FFF hex	Factory setting [0] 1405 hex [1] 1605 hex [2] 1C05 hex [3] 1C0B hex [4] 1C17 hex [5] 1C3B hex [6] 0002 1C15 hex [7] 0004 1C2B hex
Description:	<p>Sets the bit timing for the C_CAN controller to the associated and selected baud rate (p8622). Bits are distributed to the following parameters of the C_CAN controller in p8623[0...7]:</p> <p>Bit 0 ... 5: BRP (Baud Rate Prescaler)</p> <p>Bit 6 ... 7: SJW (Synchronization Jump Width)</p> <p>Bit 8 ... 11: TSEG1 (Time Segment 1, before the sampling point)</p> <p>Bit 12 ... 14: TSEG2 (Time Segment 2, after the sampling point)</p> <p>Bit 15: Reserved</p> <p>Bit 16 ... 19: BRPE (Baud Rate Prescaler Extension)</p> <p>Bit 20 ... 31: Reserved</p> <p>Example:</p> <p>Baud rate = 20 kbit/s -> p8622 = 6 -> associated bit timing is in p8623[6] -> 0001 2FB6</p>		
Recommend.:	<p>Recommendation:</p> <p>Use the factory setting when setting the bit timing.</p>		
Index:	<p>[0] = 1 Mbit/s [1] = 800 kbit/s [2] = 500 kbit/s [3] = 250 kbit/s [4] = 125 kbit/s [5] = 50 kbit/s [6] = 20 kbit/s [7] = 10 kbit/s</p>		
Dependency:	Refer to: p8622		
Note:	The parameter value is not influenced by a factory setting.		

p8630[0...2] CAN virtual objects / Virtual objects	
CU_S110-CAN	Can be changed: U, T Data type: Unsigned16 P-Group: Communications Not for motor type: - Min 0 Max 65535 Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0
Description:	Sets the drive object selection (index 0), the sub-index area (index 1) and the parameter area (index 2) when using virtual objects. This means that it is possible to access all SINAMICS parameters via CAN. Index 0 (drive object selection): 0: Not possible to access virtual CANopen objects 1: Device 2 ... 65535: Drive 1 ... 8 Index 1 (sub-index area): 0: 0 ... 255 1: 256 ... 511 2: 512 ... 767 3: 768 ... 1023 Index 2 (parameter area): 0: 1 ... 9999 1: 10000 ... 19999 2: 20000 ... 29999 3: 30000 ... 39999
Index:	[0] = Drive object selection [1] = Sub-index range [2] = Parameter range
p8641 CAN Abort Connection Option Code / Abort con opt code	
SERVO_S110-CAN	Can be changed: T Data type: Integer16 P-Group: - Not for motor type: - Min 0 Max 3 Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 3
Description:	Sets the drive behavior if a CAN communication error occurs.
Value:	0: No response 1: OFF1 2: OFF2 3: OFF3
Dependency:	Refer to: F08700
r8680[0...36] CAN Diagnosis Hardware / Diagnostics HW	
CU_S110-CAN	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min - Max - Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting -
Description:	Displays the register of the CAN controller C_CAN: Register, Message Interface Register and Message Handler Register - referred to the CAN protocol.

Index:	[0] = Control register
	[1] = Status register
	[2] = Error counter
	[3] = Bit timing register
	[4] = Interrupt register
	[5] = Test register
	[6] = Baud rate prescaler extension register
	[7] = Interface 1 command request register
	[8] = Interface 1 command mask register
	[9] = Interface 1 mask 1 register
	[10] = Interface 1 mask 2 register
	[11] = Interface 1 arbitration 1 register
	[12] = Interface 1 arbitration 2 register
	[13] = Interface 1 message control register
	[14] = Interface 1 data A1 register
	[15] = Interface 1 data A2 register
	[16] = Interface 1 data B1 register
	[17] = Interface 1 data B2 register
	[18] = Interface 2 command request register
	[19] = Interface 2 command mask register
	[20] = Interface 2 mask 1 register
	[21] = Interface 2 mask 2 register
	[22] = Interface 2 arbitration 1 register
	[23] = Interface 2 arbitration 2 register
	[24] = Interface 2 message control register
	[25] = Interface 2 data A1 register
	[26] = Interface 2 data A2 register
	[27] = Interface 2 data B1 register
	[28] = Interface 2 data B2 register
	[29] = Transmission request 1 register
	[30] = Transmission request 2 register
	[31] = New data 1 register
	[32] = New data 2 register
	[33] = Interrupt pending 1 register
	[34] = Interrupt pending 2 register
	[35] = Message valid 1 register
	[36] = Message valid 2 register

Note: A description of the individual registers of the C_CAN controller can be taken from "C_CAN User's Manual".

p8684		CAN NMT state after booting / NMT state boot	
CU_S110-CAN	Can be changed: T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	4	127	127
Description:	Sets the CANopen NMT state that is effective after booting.		
Value:	4: Stopped 5: Operational 127: Pre-operational		
Dependency:	Refer to: p8685		
Note:	Bootting in the NMT state pre-operational corresponds to the CANopen standard		

p8685			
CAN NMT states / NMT states			
CU_S110-CAN	Can be changed: C1(1), U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	129	127
Description:	Sets and displays the CANopen NMT state.		
Value:	0: Initializing 4: Stopped 5: Operational 127: Pre-operational 128: Reset node 129: Reset Communication		
Note:	The value 0 (initialization) is only displayed and cannot be set.		
<hr/>			
p8700[0...1]			
CAN Receive PDO 1 / Receive PDO 1			
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 1 (RPDO 1).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1400 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		
<hr/>			
p8701[0...1]			
CAN Receive PDO 2 / Receive PDO 2			
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	8000 06DF hex	[0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 2 (RPDO 2).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1401 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8702[0...1]	CAN Receive PDO 3 / Receive PDO 3		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 8000 06DF hex	Factory setting [0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 3 (RPDO 3).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1402 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8703[0...1]	CAN Receive PDO 4 / Receive PDO 4		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 8000 06DF hex	Factory setting [0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 4 (RPDO 4).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1403 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8704[0...1]	CAN Receive PDO 5 / Receive PDO 5		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 8000 06DF hex	Factory setting [0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 5 (RPDO 5).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1404 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8705[0...1]	CAN Receive PDO 6 / Receive PDO 6		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 8000 06DF hex	Factory setting [0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 6 (RPDO 6).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1405 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8706[0...1]	CAN Receive PDO 7 / Receive PDO 7		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 8000 06DF hex	Factory setting [0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 7 (RPDO 7).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1406 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8707[0...1]	CAN Receive PDO 8 / Receive PDO 8		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 8000 06DF hex	Factory setting [0] 8000 06DF hex [1] 00FE hex
Description:	Sets the communication parameters for CANopen Receive Process Data Object 8 (RPDO 8).		
Index:	[0] = PDO COB-ID [1] = PDO transmission type		
Dependency:	A valid COB-ID can only be set for the available (existing) channel.		
Note:	Corresponds to the CANopen object 1407 hex + 40 hex * x (x: Drive number 0 ... 7). Transmission types 0, 1, FE and FF can be set. PDO: Process Data Object		

p8710[0...3] CAN Receive Mapping für RPDO 1 / Mapping RPDO 1

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 1 (RPDO 1).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1600 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8711[0...3] CAN Receive Mapping für RPDO 2 / Mapping RPDO 2

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 2 (RPDO 2).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1601 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8712[0...3] CAN Receive Mapping für RPDO 3 / Mapping RPDO 3

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 3 (RPDO 3).

Index: [0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1602 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8713[0...3] CAN Receive Mapping für RPDO 4 / Mapping RPDO 4

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204, 9206
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 4 (RPDO 4).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1603 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8714[0...3] CAN Receive Mapping für RPDO 5 / Mapping RPDO 5

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 5 (RPDO 5).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1604 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8715[0...3] CAN Receive Mapping für RPDO 6 / Mapping RPDO 6

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 6 (RPDO 6).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1605 hex + 40 hex * x (x: Drive number 0 ... 7).
Dummy mapping not supported.
The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8716[0...3] CAN Receive Mapping für RPDO 7 / Mapping RPDO 7

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 7 (RPDO 7).

Index:
 [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1606 hex + 40 hex * x (x: Drive number 0 ... 7).
 Dummy mapping not supported.
 The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8717[0...3] CAN Receive Mapping für RPDO 8 / Mapping RPDO 8

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9204
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Receive Process Data Object 8 (RPDO 8).

Index:
 [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1607 hex + 40 hex * x (x: Drive number 0 ... 7).
 Dummy mapping not supported.
 The parameter can only be written online when the associated COB ID in p870x is set as invalid.

p8720[0...4] CAN Transmit PDO 1 / Transmit PDO 1

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 1 (TPDO 1).

Index:
 [0] = PDO COB-ID
 [1] = PDO transmission type
 [2] = Inhibit time (in 100 µs)
 [3] = Reserved
 [4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:
 A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1800 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8721[0...4] CAN Transmit PDO 2 / Transmit PDO 2

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 2 (TPDO 2).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1801 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8722[0...4] CAN Transmit PDO 3 / Transmit PDO 3

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 3 (TPDO 3).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1802 hex + 40 hex * x (x: Drive number 0 ... 7).
Transmission types 0, 1 ... F0, FE and FF can be set.
PDO: Process Data Object

p8723[0...4] CAN Transmit PDO 4 / Transmit PDO 4

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 4 (TPDO 4).

Index:
 [0] = PDO COB-ID
 [1] = PDO transmission type
 [2] = Inhibit time (in 100 µs)
 [3] = Reserved
 [4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:
 A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1803 hex + 40 hex * x (x: Drive number 0 ... 7).
 Transmission types 0, 1 ... F0, FE and FF can be set.
 PDO: Process Data Object

p8724[0...4] CAN Transmit PDO 5 / Transmit PDO 5

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 5 (TPDO 5).

Index:
 [0] = PDO COB-ID
 [1] = PDO transmission type
 [2] = Inhibit time (in 100 µs)
 [3] = Reserved
 [4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:
 A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1804 hex + 40 hex * x (x: Drive number 0 ... 7).
 Transmission types 0, 1 ... F0, FE and FF can be set.
 PDO: Process Data Object

p8725[0...4] CAN Transmit PDO 6 / Transmit PDO 6

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 6 (TPDO 6).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1805 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process Data Object

p8726[0...4] CAN Transmit PDO 7 / Transmit PDO 7

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 7 (TPDO 7).

Index:
[0] = PDO COB-ID
[1] = PDO transmission type
[2] = Inhibit time (in 100 µs)
[3] = Reserved
[4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1806 hex + 40 hex * x (x: Drive number 0 ... 7).

Transmission types 0, 1 ... F0, FE and FF can be set.

PDO: Process Data Object

p8727[0...4] CAN Transmit PDO 8 / Transmit PDO 8

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max C000 06DF hex	Factory setting [0] C000 06DF hex [1] 00FE hex [2] 0000 hex [3] 0000 hex [4] 0000 hex

Description: Sets the communication parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

Index:
 [0] = PDO COB-ID
 [1] = PDO transmission type
 [2] = Inhibit time (in 100 µs)
 [3] = Reserved
 [4] = Event timer (in ms)

Dependency: A valid COB-ID can only be set for the available (existing) channel.

Notice: For inhibit time and even timer, the following apply:

A value that is not a multiple integer of CANopen (4 ms) is rounded-off.

Note: Corresponds to the CANopen object 1807 hex + 40 hex * x (x: Drive number 0 ... 7).
 Transmission types 0, 1 ... F0, FE and FF can be set.
 PDO: Process Data Object

p8730[0...3] CAN Transmit Mapping for TPDO 1 / Mapping TPDO 1

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 1 (TPDO 1).

Index:
 [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1A00 hex + 40 hex * x (x: Drive number 0 ... 7).
 The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8731[0...3] CAN Transmit Mapping for TPDO 2 / Mapping TPDO 2

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 2 (TPDO 2).

Index:
 [0] = Mapped object 1
 [1] = Mapped object 2
 [2] = Mapped object 3
 [3] = Mapped object 4

Note: Corresponds to the CANopen object 1A01 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8732[0...3] CAN Transmit Mapping for TPDO 3 / Mapping TPDO 3

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 3 (TPDO 3).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A02 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8733[0...3] CAN Transmit Mapping for TPDO 4 / Mapping TPDO 4

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208, 9210
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 4 (TPDO 4).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A03 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8734[0...3] CAN Transmit Mapping for TPDO 5 / Mapping TPDO 5

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 5 (TPDO 5).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A04 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8735[0...3] CAN Transmit Mapping for TPDO 6 / Mapping TPDO 6

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 6 (TPDO 6).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A05 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8736[0...3] CAN Transmit Mapping for TPDO 7 / Mapping TPDO 7

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 7 (TPDO 7).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A06 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

p8737[0...3] CAN Transmit Mapping for TPDO 8 / Mapping TPDO 8

SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 9208
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex

Description: Sets the mapping parameters for CANopen Transmit Process Data Object 8 (TPDO 8).

Index:
[0] = Mapped object 1
[1] = Mapped object 2
[2] = Mapped object 3
[3] = Mapped object 4

Note: Corresponds to the CANopen object 1A07 hex + 40 hex * x (x: Drive number 0 ... 7).
The parameter can only be written online when the associated COB ID in p872x is set as invalid.

r8743[0...7] CAN assignment drive/drive ID / Drive ID			
CU_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the drive ID associated with each drive.		
Index:	[0] = Drive ID for 1st drive [1] = Drive ID for 2nd drive [2] = Drive ID for 3rd drive [3] = Drive ID for 4th drive [4] = Drive ID for 5th drive [5] = Drive ID for 6th drive [6] = Drive ID for 7th drive [7] = Drive ID for 8th drive		
p8744 CAN PDO mapping configuration / PDO Mapping conf.			
SERVO_S110-CAN	Can be changed: C2, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: 9204, 9206, 9208, 9210
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	2	2
Description:	Selector switch for the PDO mapping. Sets the mapping for download or in the online mode after acknowledging with p8741.		
Value:	1: Predefined Connection Set 2: Free PDO Mapping		

r8750[0...15] CAN mapped 16-bit receive objects / RPDO 16 mapped

SERVO_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the mapped 16-bit receive CANopen objects in the process data buffer.

Example:

If, e.g. the control word is mapped in an RPDO, then r8750 indicates the position of the control word in the process data buffer.

Index:

[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

r8751[0...15] CAN mapped 16-bit transmit objects / TPDO 16 mapped

SERVO_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays mapped 16-bit transmit CANopen objects in the process data buffer.

Index:

[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: Refer to: r8750

r8760[0...14] CAN mapped 32-bit receive objects / RPDO 32 mapped

SERVO_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the mapped 32-bit receive CANopen objects in the process data buffer.

Index:

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

r8761[0...14] CAN mapped 32-bit transmit objects / TPDO 32 mapped

SERVO_S110-CAN	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays mapped 32-bit transmit CANopen objects in the process data buffer.

Index:

- [0] = PZD 1 + 2
- [1] = PZD 2 + 3
- [2] = PZD 3 + 4
- [3] = PZD 4 + 5
- [4] = PZD 5 + 6
- [5] = PZD 6 + 7
- [6] = PZD 7 + 8
- [7] = PZD 8 + 9
- [8] = PZD 9 + 10
- [9] = PZD 10 + 11
- [10] = PZD 11 + 12
- [11] = PZD 12 + 13
- [12] = PZD 13 + 14
- [13] = PZD 14 + 15
- [14] = PZD 15 + 16

r8784		CO: CAN status word / Status word			
SERVO_S110-CAN	Can be changed: - Data type: Unsigned16 P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: 8010 Unit selection: - Expert list: 1 Factory setting -		
Description:	Displays the CANopen status word.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Ready for sw on	Yes	No	-
	01	Ready	Yes	No	-
	02	Operation enabled	Yes	No	-
	03	Fault present	Yes	No	-
	04	No coasting active	Yes	No	-
	05	No Quick Stop active	Yes	No	-
	06	Switching on inhibited active	Yes	No	-
	07	Alarm present	Yes	No	-
	08	Can be freely interconnected (Bl: p8785)	High	Low	-
	09	Control request	Yes	No	-
	10	Target reached	Yes	No	-
	11	Torque limit reached	Yes	No	-
	12	Velocity equal to zero	Yes	No	-
	14	Can be freely interconnected (Bl: p8786)	High	Low	-
	15	Can be freely interconnected (Bl: p8787)	High	Low	-
Note:	Corresponds to the CANopen object 6041 hex + 800 hex * x (x: Drive number 0 ... 7). Re bit 10: When the ramp-function generator is activated, the interconnection from Cl: p2151 = r1119 can be changed, so that to evaluate bit 10, the setpoint can be retrieved (taken) from in front of the ramp-function generator. Re bit 10, 12: When braking, the two bits must indicate the same state. This is the reason that the following parameters must be set the same: p2161 (speed threshold value 3, for r2199.0) = p2163 (speed threshold value 4, for r2197.7) p2150 (hysteresis speed 3, for r2199.0) = p2164 (hysteresis speed 4, for r2197.7)				
p8785		BI: CAN status word bit 8 / Status word bit 8			
SERVO_S110-CAN	Can be changed: T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0		
Description:	Binector input for CANopen status word bit 8.				
Dependency:	Refer to: r8784				
p8786		BI: CAN status word bit 14 / Status word bit 14			
SERVO_S110-CAN	Can be changed: T Data type: Unsigned32 / Binary P-Group: Communications Not for motor type: - Min -	Calculated: - Dynamic index: - Units group: - Max -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1 Factory setting 0		
Description:	Binector input for CANopen status word bit 14.				
Dependency:	Refer to: r8784				

p8787	BI: CAN status word bit 15 / Status word bit 15		
SERVO_S110-CAN	Can be changed: T	Calculated: -	Access level: 3
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0
Description:	Binector input for CANopen status word bit 15.		
Dependency:	Refer to: r8784		
p8790	CAN control word - auto interconnection / STW interconn auto		
SERVO_S110-CAN	Can be changed: C1(3), T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Communications	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0
Description:	Sets the automatic BICO interconnection of the CANopen control word.		
Value:	0: No interconn 1: Interconnection		
Dependency:	Refer to: r2050, r2090, r2091, r2092, r2093, r8750, r8795		
Note:	The following BICO interconnections are automatically established if the CANopen control word is mapped at one of the locations x = 0 ... 3 in the receive process data buffer. For SINAMICS S120 with CBC10, the PZD interface IF2 is used: BI: p0840.0 = r889x.0 BI: p0844.0 = r889x.1 BI: p0848.0 = r889x.2 BI: p0852.0 = r889x.3 BI: p2103.0 = r889x.7 For SINAMICS S110, the PZD interface IF1 is used: BI: p0840.0 = r209x.0 BI: p0844.0 = r209x.1 BI: p0848.0 = r209x.2 BI: p0852.0 = r209x.3 BI: p2103.0 = r209x.7 The write access is rejected if a CANopen control word is not mapped at one of these locations. This also causes the project download of the commissioning software to be canceled.		

r8795 CAN control word / Control word

SERVO_S110-CAN **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Access to the CANopen control word using SDO transfer.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	ON/OFF1	Yes	No	-
	01	Do not activate coast down	Yes	No	-
	02	Do not activate a Quick Stop	Yes	No	-
	03	Operation enable	Yes	No	-
	07	Acknowledge fault	Yes	No	-
	11	Freely interconn	High	Low	-
	12	Freely interconn	High	Low	-
	13	Freely interconn	High	Low	-
	14	Freely interconn	High	Low	-
	15	Freely interconn	High	Low	-

Dependency: Refer to: p8790

Note: Corresponds to the CANopen object 6040 hex + 800 hex * x (x: Drive number 0 ... 7).

r8796 CAN Target Velocity / Target velocity

SERVO_S110-CAN **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Integer32 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Access to the CANopen object target velocity using the SDO transfer.

The value is displayed in increments/second as standard.

Note: Corresponds to the CANopen object 60FF hex + 800 hex * x (x: Drive number 0 ... 7).

The displayed value is calculated as follows:

$$r8796 = n_set [RPM] / 60 s * p0408 * 2^p0418 * p8798[1] / p8798[0]$$

r8797 CAN Target Torque / Target torque

SERVO_S110-CAN **Can be changed:** - **Calculated:** - **Access level:** 3
Data type: Integer16 **Dynamic index:** - **Func. diagram:** -
P-Group: - **Units group:** - **Unit selection:** -
Not for motor type: - **Expert list:** 1
Min **Max** **Factory setting**
 - - -

Description: Access to the CANopen object target torque using SDO transfer.

The value is displayed as per mille (1/1000) as standard.

Note: Corresponds to the CANopen object 6071 hex + 800 hex * x (x: Drive number 0 ... 7).

The displayed value is calculated as follows:

$$r8797 [per mille] = M_set [Nm] / p0333 [Nm] * 1000$$

p8798[0...1]		CAN speed conversion factor / n_conv_factor			
SERVO_S110-CAN	Can be changed: T	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: -	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 1	Max 4294967295	Factory setting 1		
Description:	The factor converts the required velocity units into the internal velocity units (V/s). With the factor setting, for CANopen, the velocity units are increments/second. The parameter corresponds to the CANopen object 6094 hex. The internal velocity is calculated as follows: $n_set_internal = object\ 6094.1 / object\ 6094.2 * 1 / (p0408 * 2^{p0418}) * n_set_bus$				
Index:	[0] = Counter [1] = Denominator				
p9300		SI Motion monitoring clock cycle (Motor Module) / SI Mtn clock MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 500.00 [µs]	Max 25000.00 [µs]	Factory setting 12000.00 [µs]		
Description:	Sets the monitoring clock cycle for safe motion monitoring.				
Dependency:	Refer to: p9500 Refer to: F01652				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	The monitoring clock cycle must be a multiple of the position controller clock cycle.				
p9301		SI Motion enable safety functions (Motor Module) / SI Mtn enable MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting 0000 bin		
Description:	Sets the enable signals for the safe motion monitoring.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SOS/SLS enable	Enable	Inhibit	-
	16	Enable NX Hys Fil	Enable	Inhibit	-
Dependency:	Refer to: p9501 Refer to: F01682, F01683				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop SLS: Safely Limited Speed				

p9302		SI Motion axis type (Motor Module) / SI Mtn AxisType MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0	1	0		
Description:	Sets the axis type (linear axis or rotary axis/spindle).				
Value:	0: Linear axis 1: Rot axis/spindle				
Dependency:	Refer to: p9502				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload. A change only becomes effective after a POWER ON.				
p9311		SI Motion clock cycle actual value sensing (Motor Module) / SI Mtn pos cyc MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	2000.00 [µs]	8000.00 [µs]	2000.00 [µs]		
Description:	Sets the clock cycle time of the actual value sensing for safe motion monitoring. The slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for the safe actual value sensing. The maximum permissible velocity, which when exceeded can mean that errors occur in the safe actual value sensing, is displayed in parameter r9730. For a default value of 0 ms, the actual value sensing of the isochronous PROFIBUS clock cycle is used as clock cycle time or 1 ms if isochronous operation is not being used.				
Dependency:	Refer to: p9300, p9511 Refer to: F01652				
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.				
Note:	The parameter is only active for drive-based motion monitoring functions (p9801, bit 2 = 1). The monitoring clock cycle from p9300 must be an integer multiple of this parameter. The clock cycle time of the actual value sensing must be an integer multiple of the current controller clock cycle and be at least a factor of 4 slower than the current control clock cycle.				
p9315		SI Motion coarse position value configuration (MM) / SI Mtn s config MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the encoder configuration for the redundant coarse position value.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Incrementer	Yes	No	-
	01	Encoder CRC least significant byte first	Yes	No	-
	02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
	16	DRIVE-CLiQ encoder	Yes	No	-

Dependency: Refer to: r0474, p9515
Note: A change only becomes effective after a POWER ON.

p9316 SI Motion encoder configuration, safety functions (Motor Module) / SI Mtn enc_cfg MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description: Sets the configuration for the encoder and position actual value.
The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder rotating/linear	Linear	Rotating:	-
	01	Position actual value, sign change	Yes	No	-

Dependency: Refer to: p0404, p0410, p9516
Note: A change only becomes effective after a POWER ON.

p9317 SI Motion linear scale grid division (Motor Module) / SI Mtn grid MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0.00 [nm]	250000000.00 [nm]	10000.00 [nm]

Description: Sets the grid division for a linear encoder.
The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.

Dependency: Refer to: p9316
Note: A change only becomes effective after a POWER ON.

p9318 SI Motion encoder pulses per revolution (Motor Module) / SI Mtn p/rev MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	100000	2048

Description: Sets the number of encoder pulses per revolution for rotary encoders.
The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.

Dependency: Refer to: p0408, p9316
Note: A change only becomes effective after a POWER ON.

p9319	SI Motion fine resolution G1_XIST1 (Motor Module) / SI Mtn G1_XIST1 MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 2	Max 18	Factory setting 11
Description:	Sets the fine resolution for G1_XIST1 in bits. For safe functions that are not enabled (p9301 = 0), the following applies: p9319 is automatically set the same as p0418 at run-up. For safety functions that are enabled (p9301 > 0), the following applies: p9319 is checked to see that it matches p0418. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Dependency:	Refer to: p0418 Refer to: F01670, F01671		
Note:	A change only becomes effective after a POWER ON. G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)		
p9320	SI Motion spindle pitch (Motor Module) / SI Mtn sp_pitch MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.1000 [mm]	Max 8388.0000 [mm]	Factory setting 10.0000 [mm]
Description:	Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Dependency:	Refer to: p9520		
Notice:	The fourth decimal point can be rounded-off depending on the size of the entered number (from three places before the decimal point).		
Note:	A change only becomes effective after a POWER ON.		
p9321[0...7]	SI Motion gearbox encoder/load denominator (Motor Module) / SI Mtn denom MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the denominator for the gearbox between the encoder and load. The current gearbox stage is selected via safety-relevant inputs (SGE). The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: Refer to: p9322

Note: A change only becomes effective after a POWER ON.

p9322[0...7] SI Motion gearbox encoder/load numerator (Motor Module) / SI Mtn numer MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	1	2147000000	1

Description: Sets the numerator for the gearbox between the encoder and load.
 The current gearbox stage is selected via safety-relevant inputs (SGE).
 The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.

Index: [0] = Gearbox 1
 [1] = Gearbox 2
 [2] = Gearbox 3
 [3] = Gearbox 4
 [4] = Gearbox 5
 [5] = Gearbox 6
 [6] = Gearbox 7
 [7] = Gearbox 8

Dependency: Refer to: p9321

Note: A change only becomes effective after a POWER ON.

p9323 SI Motion redundant coarse pos. value valid bits (MM) / Valid bits MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	16	9

Description: Sets the number of valid bits of the redundant coarse position value.
 The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.

Dependency: Refer to: r0470, p9523

Note: A change only becomes effective after a POWER ON.

p9324		SI Motion redundant coarse pos. value fine resolution bits (MM) / SI Mtn fine bit MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -16	Max 16	Factory setting -2	
Description:	Sets the number of valid bits for the fine resolution of the redundant coarse position value. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.			
Dependency:	Refer to: r0471, p9524			
Note:	A change only becomes effective after a POWER ON.			
p9325		SI Motion redundant coarse pos. value relevant bits (MM) / Relevant bits MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0	Max 16	Factory setting 16	
Description:	Sets the number of relevant bits for the redundant coarse position value. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.			
Dependency:	Refer to: p0414, r0472, p9525			
Note:	A change only becomes effective after a POWER ON.			
p9326		SI Motion encoder assignment (Motor Module) / SI Mtn encoder MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 1	Max 3	Factory setting 1	
Description:	Sets the number of the encoder that the Motor Module uses for safe motion monitoring functions.			
Dependency:	For the safe motion monitoring functions, the redundant safety position actual value sensing must be activated in the appropriate encoder data set (p0430.19 = 1). Refer to: p0187, p0188, p0430			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note:	For p9326 = 1 the following applies: Motor Module uses an encoder for closed-loop speed control, it involves a 1-encoder system. A change only becomes effective after a POWER ON.			

p9328[0...11]	SI Motion Sensor Module Node Identifier (Motor Module) / SI Mtn SM Ident MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned8 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max 00FF hex	Factory setting 0000 hex
Description:	Sets the node identifier of the Sensor Module that is used by the Motor Module for the motion monitoring functions.		
Dependency:	Refer to: r9881		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
p9329	SI Motion Gx_XIST1 Safe most significant bit (MM) / Gx_XIST1 MSB MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 31	Factory setting 14
Description:	Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position. The encoder that is used for the safe motion monitoring functions on the Motor Module must be parameterized in this parameter.		
Dependency:	Refer to: p0415, r0475, p9529		
Note:	A change only becomes effective after a POWER ON. MSB: Most Significant Bit		
p9330	SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [°]	Max 100.000 [°]	Factory setting 1.000 [°]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: p9530 Refer to: C01707		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop		
p9330	SI Motion standstill tolerance (Motor Module) / SI Mtn SOS Tol MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.000 [mm]	Max 100.000 [mm]	Factory setting 1.000 [mm]
Description:	Sets the tolerance for the function "Safe Operating Stop" (SOS).		
Dependency:	Refer to: p9530 Refer to: C01707		

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.
Note: A change only becomes effective after a POWER ON.
 SOS: Safe Operational Stop

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [rev/min]	Max 1000000.00 [rev/min]	Factory setting 2000.00 [rev/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9363, p9531 Refer to: C01714		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed		

p9331[0...3]	SI Motion SLS limit values (Motor Module) / SI Mtn SLS lim MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 2000.00 [mm/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9363, p9531 Refer to: C01714		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed		

p9342	SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn act tol MM		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [°]	Max 360.0000 [°]	Factory setting 0.1000 [°]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: p9542 Refer to: C01711		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON.		

p9342	SI Motion act val comparison tol (crosswise) (Motor Module) / SI Mtn act tol MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [mm]	Max 360.0000 [mm]	Factory setting 0.1000 [mm]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: p9542 Refer to: C01711		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON.		
p9345	SI Motion SSM filter time (Motor Module) / SI Mtn SSM filt MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 100000.00 [µs]	Factory setting 0.00 [µs]
Description:	Sets the filter time for the SSM feedback signal to detect standstill.		
Note:	A change only becomes effective after a POWER ON. The filter time is effective only if the function is enabled (p9300/p9500 Bit 16 = 1). The parameter is included in the data cross-check of the two monitoring channels. SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		
p9346	SI Motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 1000000.00 [rev/min]	Factory setting 20.00 [rev/min]
Description:	Sets the velocity limit for the SSM feedback signal to detect standstill ($n < n_x$). When this limit value is undershot, the signal "SSM feedback signal active" is set.		
Dependency:	Refer to: p9546		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.		
			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

p9346		SI Motion SSM velocity limit (Motor Module) / SI Mtn SSM v_limMM	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 20.00 [mm/min]
Description:	Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx). When this limit value is undershot, the signal "SSM feedback signal active" is set.		
Dependency:	Refer to: p9546		
Caution:	The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.		
			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

p9347		SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM	
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [rev/min]	Max 500.0000 [rev/min]	Factory setting 10.0000 [rev/min]
Description:	Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON. The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1). The parameter is included in the data cross-check of the two monitoring channels. SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

p9347		SI Motion SSM velocity hysteresis (Motor Module) / SI Mtn SSM Hyst MM	
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [mm/min]	Max 500.0000 [mm/min]	Factory setting 10.0000 [mm/min]
Description:	Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON. The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1). The parameter is included in the data cross-check of the two monitoring channels. SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)		

p9348	SI Motion SBR actual velocity tolerance (Motor Module) / SI Mtn SBR Tol MM		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [rev/min]	Max 120000.00 [rev/min]	Factory setting 300.00 [rev/min]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: p9548 Refer to: C01706		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor		
p9348	SI Motion SBR actual velocity tolerance (Motor Module) / SI Mtn SBR Tol MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 120000.00 [mm/min]	Factory setting 300.00 [mm/min]
Description:	Sets the velocity tolerance for the "Safe Acceleration Monitor".		
Dependency:	Refer to: p9548 Refer to: C01706		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	A change only becomes effective after a POWER ON. SBR: Safe Acceleration Monitor		
p9349	SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [rev/min]	Max 6000.00 [rev/min]	Factory setting 6.00 [rev/min]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in cross-check between the Control Unit and the Motor Module.		
Dependency:	Refer to: p9301, p9342, p9549		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.		
Note:	If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		

p9349		SI Motion slip velocity tolerance (Motor Module) / SI Mtn slip MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 6.00 [mm/min]	
Description:	Sets the velocity tolerance that is used for a 2-encoder system in cross-check between the Control Unit and the Motor Module.			
Dependency:	Refer to: p9301, p9342, p9549			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note:	If the "actual value synchronization" is not enabled (p9301.3 = 0), then the value parameterized in p9342 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.			
p9351		SI Motion SLS changeover delay time (Motor Module) / SI Mtn SLS t MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]	
Description:	Sets the delay time for the SLS changeover or for the changeover from SLS to SOS for the function "Safely-Limited Speed" (SLS). When transitioning from a higher to a lower safely-limited velocity/speed stage or to the safe operating stop (SOS), within this delay time, the "old" velocity stage remains active. Even if SLS or SOS is activated from non safety-related operation, then this delay is still applied.			
Dependency:	Refer to: p9551			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note:	A change only becomes effective after a POWER ON. SLS: Safely Limited Speed SOS: Safe Operating Stop			
p9352		SI Motion transition time STOP C to SOS (Motor Module) / SI Mtn t C->SOS MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]	
Description:	Sets the transition time from STOP C to "Safe Operating Stop" (SOS).			
Dependency:	Refer to: p9552			
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive.			
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operational Stop			

p9353 SI Motion transition time STOP D to SOS (Motor Module) / SI Mtn t D->SOS MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the transition time from STOP D to "Safe Operating Stop" (SOS).

Dependency: Refer to: p9553

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.
SOS: Safe Operating Stop

p9355 SI Motion transition time STOP F to STOP B (Motor Module) / SI Mtn t F->B MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 0.00 [µs]

Description: Sets the transition time from STOP F to STOP B.

Dependency: Refer to: C01711

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

p9356 SI Motion pulse suppression delay time (Motor Module) / SI Mtn IL t_del MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 600000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the delay time for the safe pulse suppression after STOP B / SS1.

Dependency: Refer to: p9360, p9556
Refer to: C01701

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.
SS1: Safe Stop 1

p9357 SI Motion pulse suppression test time (Motor Module) / SI Mtn IL t MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 10000000.00 [µs]	Factory setting 100000.00 [µs]

Description: Sets the time after which the pulses must have been suppressed when initiating the test stop.

Dependency: Refer to: p9557
Refer to: C01798

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

p9358 SI Motion acceptance test mode time limit (Motor Module) / SI Mtn acc t MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 5000000.00 [µs]	Max 100000000.00 [µs]	Factory setting 40000000.00 [µs]

Description: Sets the maximum time for the acceptance test mode.

If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

Dependency: Refer to: p9558

Refer to: C01799

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

p9360 SI Motion pulse suppression shutdown speed (Motor Module) / SI Mtn IL n_shutMM

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 6000.00 [rev/min]	Factory setting 0.00 [rev/min]

Description: Sets the shutdown speed for the pulse suppression.

Below this speed "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).

Dependency: Refer to: p9356, p9560

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

SS1: Safe Stop 1

p9360 SI Motion pulse suppression shutdown velocity (Motor Module) / SI Mtn IL v_shutMM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 0.00 [mm/min]

Description: Sets the shutdown velocity for pulse suppression.

Below this velocity "standstill" is assumed and for STOP B / SS1, the pulses are suppressed (by changing to STOP A).

Dependency: Refer to: p9356, p9560

Notice: This parameter is overwritten by the copy function of the safety functions integrated in the drive.

Note: A change only becomes effective after a POWER ON.

SS1: Safe Stop 1

p9363[0...3]	SI Motion SLS stop response (Motor Module) / SI Mtn SLS Stop MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 14	Factory setting 2
Description:	Sets the stop response for the function "safely reduced speed" (SLS). These settings apply to the individual limit values for SLS.		
Value:	0: STOP A 1: STOP B 2: STOP C 3: STOP D 4: STOP E 10: STOP A with delayed pulse suppression when the bus fails 11: STOP B with delayed pulse suppression when the bus fails 12: STOP C with delayed pulse suppression when the bus fails 13: STOP D with delayed pulse suppression when the bus fails 14: STOP E with delayed pulse suppression when the bus fails		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9331, p9380, p9563		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive. Values 10 to 14 are being prepared and are presently ineffective.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9370	SI Motion acceptance test mode (Motor Module) / SI Mtn acc_mod MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting 0000 hex
Description:	Setting to select and de-select the acceptance test mode.		
Value:	0: [00 hex] De-select the acceptance test mode 172: [AC hex] Select the acceptance test mode		
Dependency:	Refer to: p9358, r9371 Refer to: C01799		

r9371	SI Motion acceptance test status (Motor Module) / SI Mtn acc_stat MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting -
Description:	Displays the status of the acceptance test mode.		
Value:	0: [00 hex] Acc_mode inactive 12: [0C hex] Acc_mode not possible due to POWER ON fault 13: [0D hex] Acc_mode not possible due to incorrect ID in p9370 15: [0F hex] Acc_mode not possible due to expired Acc_timer 172: [AC hex] Acc_mode active		
Dependency:	Refer to: p9358, p9370 Refer to: C01799		
p9380	SI Motion pulse suppression delay bus failure (Motor Module) / SI Mtn t to IL MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 800000.00 [µs]	Factory setting 0.00 [µs]
Description:	Sets the delay time after which the pulses are safely suppressed after a bus failure.		
Dependency:	Refer to: p9363		
Notice:	This parameter is overwritten by the copy function of the safety functions integrated in the drive. The parameter is being prepared and is presently ineffective.		
Note:	A change only becomes effective after a POWER ON.		
r9390[0...3]	SI Motion version safety motion monitoring (Motor Module) / SI Mtn Version MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the Safety Integrated version for the safety motion monitoring functions on the Motor Module.		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch) [3] = Safety Version (hotfix)		
Dependency:	Refer to: r9590, r9770, r9890		
Note:	Example: r9390[0] = 2, r9390[1] = 60, r9390[2] = 1, r9390[3] = 0 --> SI Motion version V02.60.01.00		

r9398[0...1]	SI Motion actual checksum SI parameters (Motor Module) / SI Mtn act CRC MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the checksum for the checked Safety Integrated parameters of the motion monitoring function (actual checksum) on the Motor Module.		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters with hardware reference		
Dependency:	Refer to: p9399		
Note:	SI: Safety Integrated		
p9399[0...1]	SI Motion reference checksum SI parameters (Motor Module) / SI Mtn ref CRC MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the checksum for the checked Safety Integrated parameters of the motion monitoring functions (reference checksum) on the Motor Module.		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters with hardware reference		
Dependency:	Refer to: r9398		
Note:	SI: Safety Integrated		
r9406[0...19]	PS file parameter number parameter not transferred / PS parameter No.		
All objects	Can be changed: - Data type: Unsigned16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the non-volatile memory (e.g. memory card). r9406[0] = 0 --> All of the parameter values were able to be transferred error-free. r9406[0...x] > 0 --> Displays the parameter number whose value was not able to be completely transferred or for an indexed parameter, for at least 1 index, was not able to be transferred. The first index that is not transferred is displayed in r9407.		
Dependency:	Refer to: r9407, r9408		
Note:	All indices from r9406 to r9408 designate the same parameter. r9406[x] parameter number, parameter not accepted r9407[x] parameter index, parameter not accepted r9408[x] fault code, parameter not accepted		

r9407[0...19] PS file parameter index parameter not transferred / PS parameter index			
All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	<p>Displays the first index of the parameters that could not be transferred when the parameter backup files (PS files) were read from the non-volatile memory (e.g. memory card).</p> <p>If, from an indexed parameter, at least one index was not able to be transferred, then the parameter number is displayed in r9406[n] and the first index that was not transferred is displayed in r9407[n].</p> <p>r9406[0] = 0</p> <p>--> All of the parameter values were able to be transferred error-free.</p> <p>r9406[n] > 0</p> <p>--> Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.</p>		
Dependency:	Refer to: r9406, r9408		
Note:	<p>All indices from r9406 to r9408 designate the same parameter.</p> <p>r9406[x] parameter number, parameter not accepted</p> <p>r9407[x] parameter index, parameter not accepted</p> <p>r9408[x] fault code, parameter not accepted</p>		

r9408[0...19] PS file fault code parameter not transferred / PS fault code			
All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Only for internal Siemens service purposes.		
Dependency:	Refer to: r9406, r9407		
Note:	<p>All indices from r9406 to r9408 designate the same parameter.</p> <p>r9406[x] parameter number, parameter not accepted</p> <p>r9407[x] parameter index, parameter not accepted</p> <p>r9408[x] fault code, parameter not accepted</p>		

r9409 Number of parameters to be saved / Qty par to save			
All objects	Can be changed: -	Calculated: -	Access level: 4
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of modified parameters and those that have still not be saved for this drive object.		
Dependency:	Refer to: p0971, p0977		
Note:	The modified parameters that still need to be saved are internally listed in r9410 ... r9419.		

r9450[0...29]		Reference value change parameter with unsuccessful calculation / Ref_chg par n poss		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the parameters for which the re-calculation was unsuccessful after an internal system reference value change.			
Dependency:	Refer to: F07086			

r9451[0...29]		Units changeover adapted parameters / Unit_chngov par		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 1	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: -	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the parameters whose parameter would have to be changed during a units changeover.			
Dependency:	Refer to: F07088			

p9500		SI Motion monitoring clock cycle (Control Unit) / SI Mtn mon_clk_cyc		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0.50 [ms]	25.00 [ms]	12.00 [ms]	
Description:	Sets the monitoring clock cycle for safe motion monitoring.			
Dependency:	Refer to: F01652			
Note:	The monitoring clock cycle must be a multiple of the position controller clock cycle.			

p9501		SI Motion enable safety functions (Control Unit) / SI Mtn enab fct		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	0000 bin	
Description:	Sets the enable signals for the safe motion monitoring.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	SOS/SLS (SBH/SG) enable	Enable	Inhibit
	16	Enable NX Hys Fil	Enable	Inhibit
Dependency:	Refer to: F01682, F01683			
Note:	A change only becomes effective after a POWER ON.			
	Re bit 06:			
	For the motion monitoring functions integrated in the drive, the enable for the external stops is of no significance.			
	ESR: Extended Stopping and Retraction			
	SCA: Safe Cam / SN: Safe software cam			
	SLP: Safely-Limited Position / SE: Safe software limit switches			
	SLS: Safely-Limited Speed / SG: Safely reduced speed			
	SOS: Safe Operating Stop / SBH: Safe operating stop			
p9502		SI Motion axis type (Control Unit) / SI Mtn axis type		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0	1	0	
Description:	Sets the axis type (linear axis or rotary axis/spindle).			
Value:	0: Linear axis			
	1: Rot axis/spindle			
Note:	For the commissioning software, after changing over the axis type, the units dependent on the axis type are only updated after a project upload.			
	A change only becomes effective after a POWER ON.			

p9503		SI Motion SCA (SN) enable (Control Unit) / SI Mtn SCA enab			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Setting to enable the function "Safe Cam" (SCA).				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SCA1 (SN1) enable	Enable	Inhibit	-
	01	SCA2 (SN2) enable	Enable	Inhibit	-
	02	SCA3 (SN3) enable	Enable	Inhibit	-
	03	SCA4 (SN4) enab	Enable	Inhibit	-
	04	SCA5 (SN5) enab	Enable	Inhibit	-
	05	SCA6 (SN6) enable	Enable	Inhibit	-
	06	SCA7 (SN7) enable	Enable	Inhibit	-
	07	SCA8 (SN8) enable	Enable	Inhibit	-
	08	SCA9 (SN9) enable	Enable	Inhibit	-
	09	SCA10 (SN10) enable	Enable	Inhibit	-
	10	SCA11 (SN11) enable	Enable	Inhibit	-
	11	SCA12 (SN12) enable	Enable	Inhibit	-
	12	SCA13 (SN13) enable	Enable	Inhibit	-
	13	SCA14 (SN14) enable	Enable	Inhibit	-
	14	SCA15 (SN15) enable	Enable	Inhibit	-
	15	SCA16 (SN16) enable	Enable	Inhibit	-
	16	ESCA17 (SN17) enable	Enable	Inhibit	-
	17	SCA18 (SN18) enable	Enable	Inhibit	-
	18	SCA19 (SN19) enable	Enable	Inhibit	-
	19	SCA20 (SN20) enable	Enable	Inhibit	-
	20	SCA21 (SN21) enable	Enable	Inhibit	-
	21	SCA22 (SN22) enable	Enable	Inhibit	-
	22	SCA23 (SN23) enable	Enable	Inhibit	-
	23	SCA24 (SN24) enable	Enable	Inhibit	-
	24	SCA25 (SN25) enable	Enable	Inhibit	-
	25	SCA26 (SN26) enable	Enable	Inhibit	-
	26	SCA27 (SN27) enable	Enable	Inhibit	-
	27	SCA28 (SN28) enable	Enable	Inhibit	-
	28	SCA29 (SN29) enable	Enable	Inhibit	-
	29	SCA30 (SN30) enable	Enable	Inhibit	-
Dependency:	Refer to: p9501 Refer to: F01686				
Note:	The "Safe Cam" function (SCA) can either be enabled using p9501 or p9503. A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam				

p9505		SI Motion SCA (SN) modulo value (Control Unit) / SI Mtn SCA modulo		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	0 [°]	737280 [°]	0 [°]	
Description:	Sets the modulo range of the safe position actual value in degrees for the function "Safe Cam" (SCA) for rotary axes.			
Dependency:	Refer to: p9536, p9537			

Note: A change only becomes effective after a POWER ON.
SCA: Safe Cam / SN: Safe software cam

p9510 SI Motion clock-cycle synchronous PROFIBUS master / SI Mtn sync master

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Setting for the clock-cycle synchronous PROFIBUS master.
The parameter must be set if the safety-relevant motion monitoring functions integrated in the drive are enabled and there is a clock-cycle synchronous PROFIBUS master.
This is, for example, the case when using the following controls:
- clock-cycle synchronous control for the motion control (e.g. SIMOTION).
- clock-cycle synchronous PROFIsafe master (e.g. SIMATIC S7-400F).

Value:
0: No clock-cycle synchronous PROFIBUS master
1: Clock-cycle synchronous PROFIBUS master present

Dependency: Refer to: C01711, A01796

Notice: As of firmware V2.6, the parameter has no effect.

Note: A change only becomes effective after a POWER ON.

p9511 SI Motion clock cycle actual value sensing (Control Unit) / SI Mtn pos clk cyc

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	2.00 [ms]	8.00 [ms]	2.00 [ms]

Description: Sets the clock cycle time of the actual value sensing for safe motion monitoring.
The slower clock cycle time reduces the maximum permissible velocity - however, it ensures a lower load of the Control Unit for the safe actual value sensing.
The maximum permissible velocity, which when exceeded can mean that errors occur in the safe actual value sensing, is displayed in parameter r9730.
For a default value of 0 ms, the actual value sensing of the isochronous PROFIBUS clock cycle is used as clock cycle time or 1 ms if isochronous operation is not being used.

Dependency: Refer to: F01652

Note: The parameter is only active for drive-based motion monitoring functions (p9601, bit 2 = 1).

The monitoring clock cycle from p9500 must be an integer multiple of this parameter.

The clock cycle time of the actual value sensing must be an integer multiple of the current controller clock cycle and be at least a factor of 4 slower than the current control clock cycle.

The clock cycle time of the actual value sensing should not be set to more than 8 ms.

p9515		SI Motion encoder coarse position value configuration (CU) / SI Mtn s config CU			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the encoder configuration for the redundant coarse position value.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Incrementer	Yes	No	-
	01	Encoder CRC least significant byte first	Yes	No	-
	02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
	16	DRIVE-CLiQ encoder	Yes	No	-
Dependency:	Refer to: r0474, p9315				
Note:	A change only becomes effective after a POWER ON. For safe functions that are not enabled (p9501 = 0), the following applies: - p9515 is automatically set the same as p0474 when the system boots. For safety functions that are enabled (p9501 > 0), the following applies: - p9515 is checked to see that it matches p0474.				
p9516		SI Motion motor encoder config., safety-relevant functions (CU) / SI Mtn enc_config			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the configuration for the motor encoder and position actual value.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Motor encoder, rotating/linear	Linear	Rotating:	-
	01	Position actual value, sign change	Yes	No	-
Dependency:	Refer to: p0404, p0410 Refer to: F01671				
Note:	For safe functions that are not enabled (p9501 = 0), the following applies: - p9516.0 is automatically set when booting as for p0410.1. When booting, p9516.1 is automatically set as for p0404.0. For safety functions that are enabled (p9501 > 0), the following applies: - p9516.1 is checked to identify whether it coincides with p0404.0. A change only becomes effective after a POWER ON.				
p9517		SI Motion linear scale grid division (Control Unit) / SI Mtn grid			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0.00 [nm]	250000000.00 [nm]	10000.00 [nm]		
Description:	Sets the grid division for a linear motor encoder.				
Dependency:	Refer to: p9516 Refer to: F01671				

Note: For safety functions that have not been enabled (p9501 = 0), the following applies: When booting p9517 is automatically set the same as p0407.
For safety functions that are enabled (p9501 > 0), the following applies: p9517 is checked whether it coincides with p0407.
A change only becomes effective after a POWER ON.

p9518 SI Motion encoder pulses per revolution (Control Unit) / SI Mtn pulses/rev

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 100000	Factory setting 2048

Description: Sets the number of encoder pulses per revolution for rotary motor encoders.

Dependency: Refer to: p0408, p9516

Refer to: F01671

Note: For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9518 is automatically set the same as p0408.
For safety functions that are enabled (p9501 > 0), the following applies: p9518 is checked whether it coincides with p0408.
A change only becomes effective after a POWER ON.

p9519 SI Motion fine resolution G1_XIST1 (Control Unit) / SI Mtn G1_XIST1

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 2	Max 18	Factory setting 11

Description: Sets the fine resolution for G1_XIST1 in bits.

Dependency: Refer to: p0418

Refer to: F01671

Note: For safety functions that have not been enabled (p9501 = 0), the following applies: When booting, p9519 is automatically set the same as p0418.
For safety functions that are enabled (p9501 > 0), the following applies: p9519 is checked whether it coincides with p0418.
A change only becomes effective after a POWER ON.
G1_XIST1: Encoder 1 position actual value 1 (PROFIdrive)

p9520 SI Motion spindle pitch (Control Unit) / SI Mtn Sp_pitch

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.1000 [mm]	Max 8388.0000 [mm]	Factory setting 10.0000 [mm]

Description: Sets the gear ratio between the encoder and load in mm/revolution for a linear axis with rotary encoder.

Notice: The fourth decimal point can be rounded-off depending on the size of the entered number (from three places before the decimal point).

Note: A change only becomes effective after a POWER ON.

p9521[0...7]	SI Motion gearbox encoder/load denominator (Control Unit) / SI Mtn gear denom		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the denominator for the gearbox between the encoder and load. The current gearbox stage is selected via safety-relevant inputs (SGE).		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	Refer to: p9522		
Note:	A change only becomes effective after a POWER ON.		
p9522[0...7]	SI Motion gearbox encoder/load numerator (Control Unit) / SI Mtn gear numer		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1	Max 2147000000	Factory setting 1
Description:	Sets the numerator for the gearbox between the encoder and load. The current gearbox stage is selected via safety-relevant inputs (SGE).		
Index:	[0] = Gearbox 1 [1] = Gearbox 2 [2] = Gearbox 3 [3] = Gearbox 4 [4] = Gearbox 5 [5] = Gearbox 6 [6] = Gearbox 7 [7] = Gearbox 8		
Dependency:	Refer to: p9521		
Note:	A change only becomes effective after a POWER ON.		
p9523	SI Motion redundant coarse pos. value valid bits (CU) / Valid bits CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 16	Factory setting 9
Description:	Sets the number of valid bits of the redundant coarse position value. The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.		
Dependency:	Refer to: r0470, p9323		

Note: A change only becomes effective after a POWER ON.
 For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9523 is automatically set the same as r0470 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9523 is checked to see that it matches r0470.

p9524 SI Motion Redundant coarse pos. value fine resolution bits (CU) / SI Mtn fine bit CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -16	Max 16	Factory setting -2

Description: Sets the number of valid bits for the fine resolution of the redundant coarse position value.
 The encoder that is used for the safe motion monitoring functions on the Control Unit must be parameterized in this parameter.

Dependency: Refer to: r0471, p9324

Note: A change only becomes effective after a POWER ON.
 For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9524 is automatically set the same as r0471 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9524 is checked to see that it matches r0471.

p9525 SI Motion Redundant coarse pos. value relevant bits (CU) / Relevant bits CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 16	Factory setting 16

Description: Sets the number of relevant bits for the redundant coarse position value.

Dependency: Refer to: p0414, r0472, p9325

Note: A change only becomes effective after a POWER ON.
 For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9525 is automatically set the same as r0472 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9525 is checked to see that it matches r0472.

p9529 SI Motion Gx_XIST1 Safe most significant bit (CU) / Gx_XIST1 MSB CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 31	Factory setting 14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Dependency: Refer to: p0415, r0475, p9329

Note: A change only becomes effective after a POWER ON.
 For safe functions that are not enabled (p9501 = 0), the following applies:
 - p9529 is automatically set the same as r0475 when the system boots.
 For safety functions that are enabled (p9501 > 0), the following applies:
 - p9529 is checked to see that it matches r0475.
 MSB: Most Significant Bit

p9530 **SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol**

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [°]	Max 100.000 [°]	Factory setting 1.000 [°]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).
Dependency: Refer to: C01707
Note: A change only becomes effective after a POWER ON.
 SOS: Safe Operating Stop / SBH: Safe operating stop

p9530 **SI Motion standstill tolerance (Control Unit) / SI Mtn standst_tol**

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [mm]	Max 100.000 [mm]	Factory setting 1.000 [mm]

Description: Sets the tolerance for the function "Safe Operating Stop" (SOS).
Dependency: Refer to: C01707
Note: A change only becomes effective after a POWER ON.
 SOS: Safe Operating Stop / SBH: Safe operating stop

p9531[0...3] **SI Motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU**

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 1000000.00 [rev/min]	Factory setting 2000.00 [rev/min]

Description: Sets the limit values for the function "Safely-Limited Speed" (SLS).
Index: [0] = Limit value SLS1
 [1] = Limit value SLS2
 [2] = Limit value SLS3
 [3] = Limit value SLP4
Dependency: Refer to: p9532, p9561, p9563
 Refer to: C01714
Note: A change only becomes effective after a POWER ON.
 SLS: Safely-Limited Speed / SG: Safely reduced speed

p9531[0...3] SI Motion SLS (SG) limit values (Control Unit) / SI Mtn SLS lim CU			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 2000.00 [mm/min]
Description:	Sets the limit values for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9532, p9561, p9563 Refer to: C01714		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed		
p9532[0...15] SI Motion SLS (SG) override factor (Control Unit) / SI Mtn SLS over			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [%]	Max 100.000 [%]	Factory setting 100.000 [%]
Description:	Sets the override factor for the limit value for SLS2 and SLS4 for the function "Safely-Limited Speed" (SLS).		
Index:	[0] = SLS (SG) override factor 0 [1] = SLS (SG) override factor 1 [2] = SLS (SG) override factor 2 [3] = SLS (SG) override factor 3 [4] = SLS (SG) override factor 4 [5] = SLS (SG) override factor 5 [6] = SLS (SG) override factor 6 [7] = SLS (SG) override factor 7 [8] = SLS (SG) override factor 8 [9] = SLS (SG) override factor 9 [10] = SLS (SG) override factor 10 [11] = SLS (SG) override factor 11 [12] = SLS (SG) override factor 12 [13] = SLS (SG) override factor 13 [14] = SLS (SG) override factor 14 [15] = SLS (SG) override factor 15		
Dependency:	Refer to: p9501, p9531		
Note:	The current override factor for SLS2 and SLS4 is selected using the safety-relevant inputs (SGE). A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed		

p9533	SI Motion SLS setpoint velocity limiting (Control Unit) / SI Mtn SLS set_lim		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.000 [%]	Max 100.000 [%]	Factory setting 80.000 [%]
Description:	This is an evaluation factor to define the setpoint limit from the selected actual speed limit. The active SLS limit value is evaluated with this factor and is made available as setpoint limit in r9733: $r9733 = p9533 * p9531[0...3]$		
Dependency:	This parameter only has to be parameterized for the motion monitoring functions integrated in the drive (p9601.2 = 1) Refer to: p9501, p9531, p9601		
Note:	The active actual speed limit is selected via safety-relevant inputs (SGE). When selecting SOS or a STOP A ... D, setpoint 0 is specified in r9733. A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed		
p9534[0...1]	SI Motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting 100000.000 [°]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	Refer to: p9501, p9535, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		
p9534[0...1]	SI Motion SLP (SE) upper limit values (Control Unit) / SI Mtn SLP up lim		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting 100000.000 [mm]
Description:	Sets the upper limit for the function "Safely-Limited Position" (SLP).		
Index:	[0] = Limit value SLP1 (SE1) [1] = Limit value SLP2 (SE2)		
Dependency:	Refer to: p9501, p9535, p9562		
Note:	For the setting of these limit values, the following applies: p9534 > p9535 A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9535[0...1] SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
-2147000.000 [°]	2147000.000 [°]	-100000.000 [°]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9534, p9562

Note: For the setting of these limit values, the following applies: p9534 > p9535
A change only becomes effective after a POWER ON.
SLP: Safely-Limited Position / SE: Safe software limit switches

p9535[0...1] SI Motion SLP (SE) lower limit values (Control Unit) / SI Mtn SLP low lim

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1

Min	Max	Factory setting
-2147000.000 [mm]	2147000.000 [mm]	-100000.000 [mm]

Description: Sets the lower limit for the function "Safely-Limited Position" (SLP).

Index:
[0] = Limit value SLP1 (SE1)
[1] = Limit value SLP2 (SE2)

Dependency: Refer to: p9501, p9534, p9562

Note: For the setting of these limit values, the following applies: p9534 > p9535
A change only becomes effective after a POWER ON.
SLP: Safely-Limited Position / SE: Safe software limit switches

p9536[0...29]		SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+	
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting 10.000 [°]
Description:	Sets the plus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15) [15] = Cam position SCA16 (SN16) [16] = Cam position SCA17 (SN17) [17] = Cam position SCA18 (SN18) [18] = Cam position SCA19 (SN19) [19] = Cam position SCA20 (SN20) [20] = Cam position SCA21 (SN21) [21] = Cam position SCA22 (SN22) [22] = Cam position SCA23 (SN23) [23] = Cam position SCA24 (SN24) [24] = Cam position SCA25 (SN25) [25] = Cam position SCA26 (SN26) [26] = Cam position SCA27 (SN27) [27] = Cam position SCA28 (SN28) [28] = Cam position SCA29 (SN29) [29] = Cam position SCA30 (SN30)		
Dependency:	Refer to: p9501, p9503, p9537		
Note:	A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam		

p9536[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA+			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting 10.000 [mm]
Description:	Sets the plus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15) [15] = Cam position SCA16 (SN16) [16] = Cam position SCA17 (SN17) [17] = Cam position SCA18 (SN18) [18] = Cam position SCA19 (SN19) [19] = Cam position SCA20 (SN20) [20] = Cam position SCA21 (SN21) [21] = Cam position SCA22 (SN22) [22] = Cam position SCA23 (SN23) [23] = Cam position SCA24 (SN24) [24] = Cam position SCA25 (SN25) [25] = Cam position SCA26 (SN26) [26] = Cam position SCA27 (SN27) [27] = Cam position SCA28 (SN28) [28] = Cam position SCA29 (SN29) [29] = Cam position SCA30 (SN30)		
Dependency:	Refer to: p9501, p9503, p9537		
Note:	A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam		

p9537[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-			
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -2147000.000 [°]	Max 2147000.000 [°]	Factory setting -10.000 [°]
Description:	Sets the minus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15) [15] = Cam position SCA16 (SN16) [16] = Cam position SCA17 (SN17) [17] = Cam position SCA18 (SN18) [18] = Cam position SCA19 (SN19) [19] = Cam position SCA20 (SN20) [20] = Cam position SCA21 (SN21) [21] = Cam position SCA22 (SN22) [22] = Cam position SCA23 (SN23) [23] = Cam position SCA24 (SN24) [24] = Cam position SCA25 (SN25) [25] = Cam position SCA26 (SN26) [26] = Cam position SCA27 (SN27) [27] = Cam position SCA28 (SN28) [28] = Cam position SCA29 (SN29) [29] = Cam position SCA30 (SN30)		
Dependency:	Refer to: p9501, p9503, p9536		
Note:	A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam		

p9537[0...29] SI Motion SCA (SN) plus cam position (Control Unit) / SI Mtn SCA-			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -2147000.000 [mm]	Max 2147000.000 [mm]	Factory setting -10.000 [mm]
Description:	Sets the minus cam position for the function "Safe Cam" (SCA).		
Index:	[0] = Cam position SCA1 (SN1) [1] = Cam position SCA2 (SN2) [2] = Cam position SCA3 (SN3) [3] = Cam position SCA4 (SN4) [4] = Cam position SCA5 (SN5) [5] = Cam position SCA6 (SN6) [6] = Cam position SCA7 (SN7) [7] = Cam position SCA8 (SN8) [8] = Cam position SCA9 (SN9) [9] = Cam position SCA10 (SN10) [10] = Cam position SCA11 (SN11) [11] = Cam position SCA12 (SN12) [12] = Cam position SCA13 (SN13) [13] = Cam position SCA14 (SN14) [14] = Cam position SCA15 (SN15) [15] = Cam position SCA16 (SN16) [16] = Cam position SCA17 (SN17) [17] = Cam position SCA18 (SN18) [18] = Cam position SCA19 (SN19) [19] = Cam position SCA20 (SN20) [20] = Cam position SCA21 (SN21) [21] = Cam position SCA22 (SN22) [22] = Cam position SCA23 (SN23) [23] = Cam position SCA24 (SN24) [24] = Cam position SCA25 (SN25) [25] = Cam position SCA26 (SN26) [26] = Cam position SCA27 (SN27) [27] = Cam position SCA28 (SN28) [28] = Cam position SCA29 (SN29) [29] = Cam position SCA30 (SN30)		
Dependency:	Refer to: p9501, p9503, p9536		
Note:	A change only becomes effective after a POWER ON. SCA: Safe Cam / SN: Safe software cam		

p9538[0...29] SI Motion SCA (SN) cam track assignment (Control Unit) / SI Mtn SCA assign.

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 100	Max 414	Factory setting [0] 100 [1] 101 [2] 102 [3] 103 [4] 104 [5] 105 [6] 106 [7] 107 [8] 108 [9] 109 [10] 110 [11] 111 [12] 112 [13] 113 [14] 114 [15] 200 [16] 201 [17] 202 [18] 203 [19] 204 [20] 205 [21] 206 [22] 207 [23] 208 [24] 209 [25] 210 [26] 211 [27] 212 [28] 213 [29] 214

Description: Assigns the individual cams to the maximum of 4 cam tracks and defines the numerical value for the SGA "cam range".

p9538[0...29] = CBA dec
C = Assignment of the cam to the cam track.
Valid values are 1, 2, 3, 4.
BA = Numerical value for the SGA "cam range".
If the position lies in the range of this cam, the value BA is signaled to the safety-relevant logic via the SGA "cam range" of the cam track set using C.
Valid values are 0 ... 14. Each numerical value may only be used once for each cam track.

Examples:
p9538[0] = 207
Cam 1 (index 0) is assigned cam track 2. If the position lies within the range of this cam, a value of 7 is entered in the SGA "cam range" of the second cam track.
p9538[5] = 100
Cam 6 (index 5) is assigned cam track 1. If the position lies within the range of this cam, a value of 0 is entered in the SGA "cam range" of the first cam track.

Index:

- [0] = Track assignment SCA1
- [1] = Track assignment SCA2
- [2] = Track assignment SCA3
- [3] = Track assignment SCA4
- [4] = Track assignment SCA5
- [5] = Track assignment SCA6
- [6] = Track assignment SCA7
- [7] = Track assignment SCA8
- [8] = Track assignment SCA9
- [9] = Track assignment SCA10
- [10] = Track assignment SCA11
- [11] = Track assignment SCA12
- [12] = Track assignment SCA13
- [13] = Track assignment SCA14
- [14] = Track assignment SCA15
- [15] = Track assignment SCA16
- [16] = Track assignment SCA17
- [17] = Track assignment SCA18
- [18] = Track assignment SCA19
- [19] = Track assignment SCA20
- [20] = Track assignment SCA21
- [21] = Track assignment SCA22
- [22] = Track assignment SCA23
- [23] = Track assignment SCA24
- [24] = Track assignment SCA25
- [25] = Track assignment SCA26
- [26] = Track assignment SCA27
- [27] = Track assignment SCA28
- [28] = Track assignment SCA29
- [29] = Track assignment SCA30

Dependency: Refer to: p9501, p9503

Refer to: F01681

Note: A change only becomes effective after a POWER ON.

SCA: Safe Cam / SN: Safe software cam

p9540 **SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol**

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [°]	Max 10.0000 [°]	Factory setting 0.1000 [°]

Description: Sets the tolerance for the function "Safe Cam" (SCA).

Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.

Note: A change only becomes effective after a POWER ON.

p9540 **SI Motion SCA (SN) tolerance (Control Unit) / SI Mtn SCA tol**

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [mm]	Max 10.0000 [mm]	Factory setting 0.1000 [mm]

Description: Sets the tolerance for the function "Safe Cam" (SCA).

Within this tolerance, both monitoring channels may signal different signal states of the same safe cam.

Note: A change only becomes effective after a POWER ON.

p9542	SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act val tol		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [°]	Max 360.0000 [°]	Factory setting 0.1000 [°]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9542	SI Motion act val comparison tol (crosswise) (Control Unit) / SI Mtn act val tol		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0010 [mm]	Max 360.0000 [mm]	Factory setting 0.1000 [mm]
Description:	Sets the tolerance for the cross-check of the actual position between the two monitoring channels.		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9544	SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: U, T Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0000 [°]	Max 36.0000 [°]	Factory setting 0.0100 [°]
Description:	Sets the tolerance to check the actual values after referencing (incremental encoder) or when powering up (absolute encoder).		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		
p9544	SI Motion actual value comparison tolerance (referencing) (CU) / SI Mtn ref tol		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.0000 [mm]	Max 36.0000 [mm]	Factory setting 0.0100 [mm]
Description:	Sets the tolerance to check the actual values after referencing (incremental encoder) or when powering up (absolute encoder).		
Dependency:	Refer to: C01711		
Note:	A change only becomes effective after a POWER ON.		

p9545 SI Motion SSM (SGA n < nx) filter time (Control Unit) / SI Mtn SSM filt CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 100.00 [ms]	Factory setting 0.00 [ms]

Description: Sets the filter time for the SSM feedback signal to detect standstill.

Note: A change only becomes effective after a POWER ON.
The filter time is effective only if the function is enabled (p9300/p9500 Bit 16 = 1).
The parameter is included in the data cross-check of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9546 SI Motion SSM (SGA n < nx) velocity limit (CU) / SI Mtn SSM v_limCU

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 1000000.00 [rev/min]	Factory setting 20.00 [rev/min]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).

When this limit value is undershot, the signal "SSM feedback signal active" (SGA n < n_x) is set.

Caution: The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.



Note: A change only becomes effective after a POWER ON.
F-DO: Failsafe Digital Output / SGA: Safety-related output
SBR: Safe Acceleration Monitor
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

p9546 SI Motion SSM (SGA n < nx) velocity limit (CU) / SI Mtn SSM v_limCU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 1000000.00 [mm/min]	Factory setting 20.00 [mm/min]

Description: Sets the velocity limit for the SSM feedback signal to detect standstill (n < nx).

When this limit value is undershot, the signal "SSM feedback signal active" (SGA n < n_x) is set.

Caution: The function "Safe Acceleration Monitor" (SBR) is switched out after the selected threshold value is undershot.



Note: A change only becomes effective after a POWER ON.
F-DO: Failsafe Digital Output / SGA: Safety-related output
SBR: Safe Acceleration Monitor
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring) / SGA n < nx: Safety-related output n < nx

p9547 SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [rev/min]	Max 500.0000 [rev/min]	Factory setting 10.0000 [rev/min]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency: Refer to: C01711

Note: A change only becomes effective after a POWER ON.
The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1).
The parameter is included in the data cross-check of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9547 SI Motion SSM (SGA n < nx) velocity hysteresis (CU) / SI Mtn SSM hyst CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.0010 [mm/min]	Max 500.0000 [mm/min]	Factory setting 10.0000 [mm/min]

Description: Sets the velocity hysteresis for the SSM feedback signal to detect standstill (n < nx).

Dependency: Refer to: C01711

Note: A change only becomes effective after a POWER ON.
The velocity hysteresis is effective only if the function is enabled (p9300/p9500 Bit 16 = 1).
The parameter is included in the data cross-check of the two monitoring channels.
SSM: Safe Speed Monitor (safety-relevant feedback signal from the velocity monitoring)

p9548 SI Motion SBR actual velocity tolerance (Control Unit) / SI Mtn SBR tol

SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 120000.00 [rev/min]	Factory setting 300.00 [rev/min]

Description: Sets the velocity tolerance for the "Safe Acceleration Monitor".

Dependency: Refer to: C01706

Note: A change only becomes effective after a POWER ON.
SBR: Safe Acceleration Monitor

p9548 SI Motion SBR actual velocity tolerance (Control Unit) / SI Mtn SBR tol

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 120000.00 [mm/min]	Factory setting 300.00 [mm/min]

Description: Sets the velocity tolerance for the "Safe Acceleration Monitor".

Dependency: Refer to: C01706

Note: A change only becomes effective after a POWER ON.
SBR: Safe Acceleration Monitor

p9549	SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [rev/min]	Max 6000.00 [rev/min]	Factory setting 6.00 [rev/min]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.		
Dependency:	Refer to: p9501, p9542		
Note:	If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		

p9549	SI Motion slip velocity tolerance (Control Unit) / SI Mtn slip tol		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 6.00 [mm/min]
Description:	Sets the velocity tolerance that is used for a 2-encoder system in crosswise comparison between the two monitoring channels.		
Dependency:	Refer to: p9501, p9542		
Note:	If the "actual value synchronization" is not enabled (p9501.3 = 0), then the value parameterized in p9542 is used as tolerance in the data cross-check. A change only becomes effective after a POWER ON.		

p9550	SI Motion SGE changeover tolerance time (Control Unit) / SI Mtn SGE_chg tol		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the tolerance time for the changeover of the safety-related inputs (SGE).		
Note:	A change only becomes effective after a POWER ON.		

p9551	SI Motion SLS (SG) changeover delay time (Control Unit) / SI Mtn SLS t CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the delay time for the SLS changeover or for the changeover from SLS to SOS for the function "Safely-Limited Speed" (SLS). When transitioning from a higher to a lower safely-limited velocity/speed stage or to the safe operating stop (SOS), within this delay time, the "old" velocity stage remains active. Even if SLS or SOS is activated from non safety-related operation, then this delay is still applied.		
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed SOS: Safe Operating Stop / SBH: Safe operating stop		
p9552	SI Motion transition time STOP C to SOS (SBH) (Control Unit) / SI Mtn t C->SOS CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the transition time from STOP C to "Safe Operating Stop" (SOS).		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		
p9553	SI Motion transition time STOP D to SOS (SBH) (Control Unit) / SI Mtn t D->SOS CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the transition time from STOP D to "Safe Operating Stop" (SOS).		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		
p9554	SI Motion transition time STOP E to SOS (SBH) (Control Unit) / SI Mtn time E->SOS		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]
Description:	Sets the transition time from STOP E to "Safe Operating Stop" (SOS).		
Note:	A change only becomes effective after a POWER ON. SOS: Safe Operating Stop / SBH: Safe operating stop		

p9555 SI Motion transition time STOP F to STOP B (Control Unit) / SI Mtn t F->B CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 0.00 [ms]

Description: Sets the transition time from STOP F to STOP B.

Dependency: Refer to: C01711

Note: A change only becomes effective after a POWER ON.

p9556 SI Motion pulse suppression delay time (Control Unit) / SI Mtn IL t_del CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2825
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 600000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the delay time for the safe pulse suppression after STOP B.

Dependency: Refer to: p9560

Refer to: C01701

Note: A change only becomes effective after a POWER ON.

p9557 SI Motion pulse suppression test time (Control Unit) / SI Mtn IL t_test

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 10000.00 [ms]	Factory setting 100.00 [ms]

Description: Sets the time after which the pulses must have been suppressed when initiating the test stop.

Dependency: Refer to: C01798

Note: A change only becomes effective after a POWER ON.

p9558 SI Motion acceptance test mode time limit (Control Unit) / SI Mtn t_accept

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 5000.00 [ms]	Max 100000.00 [ms]	Factory setting 40000.00 [ms]

Description: Sets the maximum time for the acceptance test mode.

If the acceptance test mode takes longer than the selected time limit, then the mode is automatically terminated.

Dependency: Refer to: C01799

Note: A change only becomes effective after a POWER ON.

p9559	SI Motion forced checking procedure timer (Control Unit) / SI Mtn dyn timer		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [h]	Max 9000.00 [h]	Factory setting 8.00 [h]
Description:	Sets the time to carry out the forced checking procedure and test the safety motion monitoring functions integrated in the drives. Within the parameterized time, the safety functions must have been tested at least once including de-selecting the function "Safe Torque Off". The monitoring time is reset each time that the test is carried out. The signal source to initiate the forced checking procedure is parameterized in p9705.		
Dependency:	Refer to: p9705 Refer to: C01798		
Note:	A change only becomes effective after a POWER ON.		
p9560	SI Motion pulse suppression shutdown speed (Control Unit) / SI Mtn IL n_shutCU		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [rev/min]	Max 6000.00 [rev/min]	Factory setting 0.00 [rev/min]
Description:	Sets the shutdown speed for the pulse suppression. Below this speed "standstill" is assumed and for STOP B, the pulses are suppressed by changing to STOP A).		
Dependency:	Refer to: p9556		
Note:	A change only becomes effective after a POWER ON.		
p9560	SI Motion pulse suppression shutdown velocity (Control Unit) / SI Mtn IL v_shutCU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [mm/min]	Max 6000.00 [mm/min]	Factory setting 0.00 [mm/min]
Description:	Sets the shutdown velocity for pulse suppression. Below this velocity "standstill" is assumed and for STOP B, the pulses are suppressed (by changing to STOP A).		
Dependency:	Refer to: p9556		
Note:	A change only becomes effective after a POWER ON.		
p9561	SI Motion SLS (SG) stop response (Control Unit) / SI Mtn SLS resp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 14	Factory setting 5
Description:	Sets the stop response for the function "Safely-Limited Speed" (SLS). This setting applies for all SLS limit values. An input value of less than 5 signifies personnel protection, from 10 and upwards, machine protection.		

Value:	0: STOP A
	1: STOP B
	2: STOP C
	3: STOP D
	4: STOP E
	5: Sets the stop response via p9563 (SLS-specific)
	10: STOP A with delayed pulse suppression when the bus fails
	11: STOP B with delayed pulse suppression when the bus fails
	12: STOP C with delayed pulse suppression when the bus fails
	13: STOP D with delayed pulse suppression when the bus fails
	14: STOP E with delayed pulse suppression when the bus fails
Dependency:	Refer to: p9531, p9563, p9580
Note:	A change only becomes effective after a POWER ON. SLS: Safely-Limited Speed / SG: Safely reduced speed

p9562	SI Motion SLP (SE) stop response (Control Unit) / SI Mtn SLP resp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	2	4	2
Description:	Sets the stop response for the function "Safely-Limited Position" (SLP).		
Value:	2: STOP C		
	3: STOP D		
	4: STOP E		
Dependency:	Refer to: p9534, p9535		
Note:	A change only becomes effective after a POWER ON. SLP: Safely-Limited Position / SE: Safe software limit switches		

p9563[0...3]	SI Motion SLS (SG)-specific stop response (Control Unit) / SI Mtn SLS stop		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	14	2
Description:	Sets the SLS-specific stop response for the function "Safely-Limited Speed" (SLS). These settings apply to the individual limit values for SLS.		
Value:	0: STOP A		
	1: STOP B		
	2: STOP C		
	3: STOP D		
	4: STOP E		
	10: STOP A with delayed pulse suppression when the bus fails		
	11: STOP B with delayed pulse suppression when the bus fails		
	12: STOP C with delayed pulse suppression when the bus fails		
	13: STOP D with delayed pulse suppression when the bus fails		
	14: STOP E with delayed pulse suppression when the bus fails		
Index:	[0] = Limit value SLS1 [1] = Limit value SLS2 [2] = Limit value SLS3 [3] = Limit value SLP4		
Dependency:	Refer to: p9531, p9561, p9580		

Notice: Values 10 to 14 are being prepared and are presently ineffective.
Note: A change only becomes effective after a POWER ON.
 SLS: Safely-Limited Speed / SG: Safely reduced speed

p9570	SI Motion acceptance test mode (Control Unit) / SI Mtn Acc_mode		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting 0000 hex
Description:	Setting to select and de-select the acceptance test mode.		
Value:	0: [00 hex] De-select the acceptance test mode 172: [AC hex] Select the acceptance test mode		
Dependency:	Refer to: p9558, r9571 Refer to: C01799		

r9571	SI Motion acceptance test status (Control Unit) / SI Mtn acc_status		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting -
Description:	Displays the status of the acceptance test mode.		
Value:	0: [00 hex] Acc_mode inactive 12: [0C hex] Acc_mode not possible due to POWER ON fault 13: [0D hex] Acc_mode not possible due to incorrect ID in p9570 15: [0F hex] Acc_mode not possible due to expired Acc_timer 172: [AC hex] Acc_mode active		
Dependency:	Refer to: p9558, p9570 Refer to: C01799		

p9580	SI Motion pulse suppression delay time after bus failure (CU) / SI Mtn t to IL		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 4
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 800.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the delay time after which the pulses are safely suppressed after a bus failure.		
Dependency:	Refer to: p9561, p9563		
Note:	A change only becomes effective after a POWER ON.		

r9590[0...3]		SI Motion version safety motion monitoring (Control Unit) / SI Mtn version		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting -	
Description:	Displays the Safety Integrated version for the safety motion monitoring functions on the Control Unit.			
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch) [3] = Safety Version (hotfix)			
Dependency:	Refer to: r9770, r9890			
Note:	Example: r9590[0] = 2, r9590[1] = 60, r9590[2] = 1, r9590[3] = 0 --> SI Motion version V02.60.01.00			
p9601		SI enable, functions integrated in the drive (Control Unit) / SI enable fct CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1	
	Min -	Max -	Factory setting 0000 bin	
Description:	Sets the enable signals for safety functions on the Control Unit that are integrated in the drive.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	STO (SH) via terminals (Control Unit) enable	Enable	Inhibit
	02	Motion monitoring functions integr. in the drive (Control Unit)	Enable	Inhibit
	03	PROFIsafe (Control Unit) enable	Enable	Inhibit
Dependency:	Refer to: p9801			
Note:	For p9601.2 = 1 and p9601.3 = 0 the following apply: It is assumed that the motion monitoring functions integrated in the drive are controlled via the Terminal Module 54F (TM54F). CU: Control Unit STO: Safe Torque Off / SH: Safe standstill SI: Safety Integrated SMM: Safe Motion Monitoring			
p9602		SI enable Safe Brake Control (Control Unit) / SI enable SBC CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2814 Unit selection: - Expert list: 1	
	Min 0	Max 1	Factory setting 0	
Description:	Sets the enable signal for the function "Safe Brake Control" (SBC) on the Control Unit.			
Value:	0: Inhibit SBC 1: SBC enable			
Dependency:	Refer to: p9802			

Note: The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9601 not equal to 0).
 The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = p9802 = 1) is not practical if there is no motor holding brake.
 The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical.
 It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1).
 CU: Control Unit
 SBC: Safe Brake Control
 SI: Safety Integrated

p9610	SI PROFIsafe address (Control Unit) / SI PROFIsafe CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFE hex	Factory setting 0000 hex
Description:	Sets the PROFIsafe address of the Control Unit.		
Dependency:	Refer to: p9810		

p9650	SI SGE changeover tolerance time (Control Unit) / SI SGE_chg tol CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2810
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [ms]	Max 2000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the tolerance time to change over the safety-related inputs (SGE) on the Control Unit. An SGE changeover is not simultaneously effective due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a data cross-check during this tolerance time.		
Dependency:	Refer to: p9850		
Note:	For a data cross-check between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SGE: Safety-related input (e.g. STO terminals)		

p9652	SI Safe Stop 1 delay time (Control Unit) / SI Stop 1 t_del CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [s]	Max 300.00 [s]	Factory setting 0.00 [s]
Description:	Sets the delay time of the pulse suppression for the function "Safe Stop 1" (SS1) on the Control Unit to brake along the OFF3 down ramp (p1135).		
Dependency:	Refer to: p1135, p9852		
Note:	For a data cross-check between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)		

p9658	SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2802 Unit selection: - Expert list: 1
	Min 0.00 [ms]	Max 30000.00 [ms]	Factory setting 0.00 [ms]
Description:	Sets the transition period from STOP F to STOP A on the Control Unit.		
Dependency:	Refer to: r9795, p9858 Refer to: F01611		
Note:	For a data cross-check between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. STOP F: Defect in a monitoring channel (error in the data cross-check) STOP A: Pulse suppression via the safety shutdown path		
p9659	SI forced checking procedure timer / SI FrcdCkProcTimer		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2810 Unit selection: - Expert list: 1
	Min 0.00 [h]	Max 9000.00 [h]	Factory setting 8.00 [h]
Description:	Sets the time to carry out the dynamic update and testing the safety shutdown paths (forced checking procedure). Within the parameterized time, STO must have been de-selected at least once. The monitoring time is reset each time that STO is de-selected.		
Dependency:	Refer to: A01699		
Note:	STO: Safe Torque Off / SH: Safe standstill		
p9700	SI Motion copy function / SI Mtn copy fct		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2, U, T Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max 00D0 hex	Factory setting 0000 hex
Description:	Setting to start the required copy function. After starting, the appropriate parameters are copied from the Control Unit to the Motor Module. After completing copying, parameters are automatically reset to 0.		
Value:	0: [00 hex] Copy function ended 29: [1D hex] Start copy function node identifier 87: [57 hex] Start copy function SI parameters 208: [D0 hex] Start copy function SI basic parameters		
Note:	Re value = 57 hex and D0 hex: The value can only be set if the safety commissioning mode is set and the Safety Integrated password was entered. Re value = D0 hex: The following parameters are copied after starting the copy function: p9601/p9801, p9602/p9802, p9610/9810, p9650/p9850, p9652/p9852, p9658/p9858 SI: Safety Integrated		

p9701		Acknowledge SI Motion data / Ackn SI Mtn dat		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2, U, T	Calculated: -	Access level: 3	
	Data type: Integer16	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min 0000 hex	Max 00EC hex	Factory setting 0000 hex	
Description:	Setting to transfer the reference checksums from the associated actual checksums after changes (SI parameters, hardware). After transferring the reference checksums, parameters are automatically reset to 0.			
Value:	0: [00 hex] Data unchanged 172: [AC hex] Acknowledge data change complete 220: [DC hex] Acknowledge SI basic parameter change 236: [EC hex] Acknowledge hardware CRC			
Dependency:	Refer to: r9398, p9399, r9728, p9729, r9798, p9799, r9898, p9899			
Note:	Re value = AC and DC hex: These values can only be set if the safety commissioning mode is set and the Safety Integrated password was entered. SI: Safety Integrated			

p9705		BI: SI Motion: Test stop signal source / SI Mtn test stop		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3	
	Data type: Unsigned32 / Binary	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min -	Max -	Factory setting 0	
Description:	Sets the signal source for the test stop of the safety-relevant motion monitoring functions.			

r9710[0...1]		SI Motion diagnostics result list 1 / SI Mtn res_list 1			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays result list 1 that, for the data cross-check between the monitoring channels, led to the fault.				
Index:	[0] = Result list, second channel [1] = Result list, drive				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit SOS	Yes	No	-
	01	Actual value > lower limit SOS	Yes	No	-
	02	Actual value > upper limit, SE1	Yes	No	-
	03	Actual value > lower limit, SE1	Yes	No	-
	04	Actual value > upper limit, SE2	Yes	No	-
	05	Actual value > lower limit, SE2	Yes	No	-
	06	Actual value > upper limit, SG1	Yes	No	-
	07	Actual value > lower limit, SG1	Yes	No	-
	08	Actual value > upper limit, SG2	Yes	No	-
	09	Actual value > lower limit, SG2	Yes	No	-
	10	Actual value > upper limit, SG3	Yes	No	-

11	Actual value > lower limit, SG3	Yes	No	-
12	Actual value > upper limit, SG4	Yes	No	-
13	Actual value > lower limit, SG4	Yes	No	-
16	Actual value > upper limit, SBR	Yes	No	-
17	Actual value > lower limit, SBR	Yes	No	-

Dependency: Refer to: C01711

r9711[0...1] SI Motion diagnostics result list 2 / SI Mtn res_list 2

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays result list 2 that, for the data cross-check between the monitoring channels, led to the fault.

Index: [0] = Result list, second channel
[1] = Result list, drive

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN1+	Yes	No	-
	01	Actual value > lower limit, SN1+	Yes	No	-
	02	Actual value > upper limit, SN1-	Yes	No	-
	03	Actual value > lower limit, SN1-	Yes	No	-
	04	Actual value > upper limit, SN2+	Yes	No	-
	05	Actual value > lower limit, SN2+	Yes	No	-
	06	Actual value > upper limit, SN2-	Yes	No	-
	07	Actual value > lower limit, SN2-	Yes	No	-
	08	Actual value > upper limit, SN3+	Yes	No	-
	09	Actual value > lower limit, SN3+	Yes	No	-
	10	Actual value > upper limit, SN3-	Yes	No	-
	11	Actual value > lower limit, SN3-	Yes	No	-
	12	Actual value > upper limit, SN4+	Yes	No	-
	13	Actual value > lower limit, SN4+	Yes	No	-
	14	Actual value > upper limit, SN4-	Yes	No	-
	15	Actual value > lower limit, SN4-	Yes	No	-
	16	Actual value > upper limit, n_x+	Yes	No	-
	17	Actual value > lower limit, n_x+	Yes	No	-
	18	Actual value > upper limit, n_x-	Yes	No	-
	19	Actual value > lower limit, n_x-	Yes	No	-
	20	Actual value > upper limit, modulo	Yes	No	-
	21	Actual value > lower limit, modulo	Yes	No	-

Dependency: Refer to: C01711

r9712 SI Motion diagnostics position action value motor side / SI Mtn s_act mot

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the current motor-side position actual value for the motion monitoring functions on the Control Unit.

r9713[0...3]		SI Motion diagnostics position action value load side / SI Mtn s_act load			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the current load-side actual values of both monitoring channels and their difference.				
Index:	[0] = Load-side actual value on the Control Unit [1] = Load-side actual value on the second channel [2] = Load-side actual value difference Control Unit - second channel [3] = Load-side max. actual value difference CU - 2nd channel				
Dependency:	Refer to: r9724				
Note:	Re r9713[0]: The display of the load-side position actual value on the Control Unit is updated in the monitoring clock cycle. Re r9713[1]: The display of the load-side position actual value on the second channel is updated in the DCC clock cycle (r9724) and delayed by one DCC clock cycle. Re r9713[2]: The difference between the load-side position actual value on the Control Unit and load-side position actual value in the second channel is updated in the DCC clock cycle (r9724) and delayed by one DCC clock cycle. Re r9713[3]: The maximum difference between the load-side position actual value on the Control Unit and the load-side position actual value on the second channel DCC: Data cross-check				
r9714		SI Motion diagnostics velocity actual value load side / SI Mtn v_act load			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Integer32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the current load-side velocity actual value for the motion monitoring functions on the Control Unit.				
Note:	For a linear axis, the following units apply: Micrometers per monitoring clock cycle (p9500) For a rotary axis, the following units apply: Milldegrees per monitoring clock cycle (p9500)				
r9718.23		CO/BO: SI Motion control signals 1 / SI Mtn ctrl_sig 1			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 4		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Control signal 1 for safety-relevant motion monitoring functions.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	23	Set offset for TfS to the current torque	Set	Reset	-
Note:	TfS: Traverse to fixed stop				

r9719.0...31 CO/BO: SI Motion control signals 2 / SI Mtn ctrl_sig 2

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Control signal 2 for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	De-select SOS/SLS (SBH/SG)	Yes	No	-
	01	De-select SOS (SBH)	Yes	No	-
	03	Select SLS (SG) bit 0	Set	Not set	-
	04	Select SLS (SG) bit 1	Set	Not set	-
	08	Gearbox selection, bit 0	Set	Not set	-
	09	Gearbox selection, bit 1	Set	Not set	-
	10	Gearbox selection, bit 2	Set	Not set	-
	12	Select SLP (SE)	SLP2 (SE2)	SLP1 (SE1)	-
	13	Close brake from control	Yes	No	-
	15	Select test stop	Yes	No	-
	16	SGE valid	Yes	No	-
	18	De-select external STOP A	Yes	No	-
	19	De-select external STOP C	Yes	No	-
	20	De-select external STOP D	Yes	No	-
	21	De-select external STOP E	Yes	No	-
	28	SLS (SG) override bit 0	Set	Not set	-
	29	SLS (SG) override bit 1	Set	Not set	-
	30	SLS (SG) override bit 2	Set	Not set	-
	31	SLS (SG) override bit 3	Set	Not set	-

Note: Re r9719.0 and r9719.1:
 These two bits must be considered together.
 - if SOS/SLS (SBH/SG) is de-selected using bit 0, then assignment of bit 1 is irrelevant.
 - if SOS/SLS (SBH/SG) is selected using bit 0, then a changeover is made between SOS (SBH) and SLS (SG) using bit 1.
 SLP: Safely-Limited Position / SE: Safe software limit switches
 SLS: Safely-Limited Speed / SG: Safely reduced speed
 SOS: Safe Operating Stop / SBH: Safe operating stop

r9720.0...10 CO/BO: SI Motion control signals integrated in the drive / SI Mtn integ STW

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2840, 2855
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Control signals for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	De-select STO	Yes	No	-
	01	De-select SS1	Yes	No	-
	02	De-select SS2	Yes	No	-
	03	De-select SOS	Yes	No	-
	04	De-select SLS	Yes	No	-
	07	Acknowledgement	Signal edge active	No	-
	09	Select SLS bit 0	Set	Not set	-
	10	Select SLS bit 1	Set	Not set	-

r9721.0...15 CO/BO: SI Motion status signals / SI Mtn stat_sig

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Status signal for safety-relevant motion monitoring functions.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	SOS or SLS active	Yes	No	-
	01	SOS active	Yes	No	-
	02	Pulse enable	Deleted	Enabled	-
	03	Active SLS stage bit 0	Set	Not set	-
	04	Active SLS stage bit 1	Set	Not set	-
	05	Velocity below limit value n_x	Yes	No	-
	06	Status signals valid	Yes	No	-
	07	Safely referenced	Yes	No	-
	12	STOP A or B active	Yes	No	-
	13	STOP C active	Yes	No	-
	14	STOP D active	Yes	No	-
	15	STOP E active	Yes	No	-

r9722.0...15 CO/BO: SI Motion status signals integrated in the drive / SI Mtn integ stat

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2840, 2855
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Status signal for safety-relevant motion monitoring functions integrated in the drive.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO active	Yes	No	-
	01	SS1 active	Yes	No	-
	02	SS2 active	Yes	No	-
	03	SOS active	Yes	No	-
	04	SLS active	Yes	No	-
	07	Internal event	No	Yes	-
	09	Active SLS stage bit 0	Set	Not set	-
	10	Active SLS stage bit 1	Set	Not set	-
	11	SOS selected	Yes	No	-
	15	SSM (speed below limit value)	Yes	No	-

Notice: Re bit 07:

The signal state behaves in an opposite way to the PROFIsafe Standard.

Note: Re bit 07:

An internal even is displayed if a STOP A ... F is active.

r9723.0	CO/BO: SI Motion diagnostic signals integrated in the drive / SI Mtn integ diag			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the diagnostic signals for safety-relevant motion monitoring functions integrated in the drive.			
Bit field:	Bit	Signal name	1 signal	0 signal
	00	Forced checking procedure required	Yes	No
				FP
				-
r9724	SI Motion crosswise comparison clock cycle / SI Mtn DCC clk cyc			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [ms]	- [ms]	- [ms]	
Description:	Displays the crosswise comparison clock cycle (clock cycle time with which each individual DCC value is compared between both monitoring channels).			
Dependency:	Refer to: p9500			
Note:	Crosswise comparison clock cycle = monitoring clock cycle (p9500) * number of data to be crosswise compared DCC: Data cross-check			
r9725[0...2]	SI Motion, diagnostics STOP F / SI Mtn Diag STOP F			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Re r9725[0]: Displays the message value that resulted in the STOP F on the drive. Value = 0 means: The Control Unit signaled a STOP F. Value = 1 ... 999 means: Number of the incorrect cross-checked data between the Control Unit and second channel. Value >= 1000 means: Additional diagnostic values of the drive. Re r9725[1]: Displays the value of the CU that resulted in the STOP F. Re r9725[2]: Displays the value of the 2nd channel that resulted in the STOP F.			
Index:	[0] = DCC error number [1] = Control Unit DCC act value [2] = Components DCC act val			
Dependency:	Refer to: C01711			
Note:	The significance of the individual values is described in message C01711.			

p9726	SI Motion, user agreement selection/de-selection / SI Mtn UserAgr sel		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max 00AC hex	Factory setting 0000 hex
Description:	Setting to select and de-select the user agreement.		
Value:	0: [00 hex] De-select user agreement 172: [AC hex] Select user agreement		
Dependency:	Refer to: r9727		
r9727	SI Motion user agreement, inside the drive / SI Mtn UserAgr int		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Integer16 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the internal state of the user agreement. Value = 0: User agreement is not set. Value = AC hex: User agreement is set.		
Dependency:	Refer to: p9726		
r9728[0...2]	SI Motion actual checksum, SI parameters / SI Mtn act CRC		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the checksum over the checked Safety Integrated parameters of the motion monitoring functions (actual checksum).		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters for actual values [2] = Checksum over SI parameters for HW		
Dependency:	Refer to: p9729 Refer to: F01680		

p9729[0...2]	SI Motion reference checksum, SI parameters / SI Mtn ref CRC		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the checksum using the checksum-tested Safety Integrated parameters for motion monitoring functions (reference checksum).		
Index:	[0] = Checksum over SI parameters for motion monitoring [1] = Checksum over SI parameters for actual values [2] = Checksum over SI parameters for HW		
Dependency:	Refer to: r9728 Refer to: F01680		

r9730	SI Motion Safe maximum velocity / SI mtn safe v_Max		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the safe maximum velocity (on the load side) that is permissible for the safe motion monitoring functions as a result of the actual value sensing.		
Note:	If the value displayed is exceeded, message C01711 is output indicating relevant subsequent faults.		

r9730	SI Motion Safe maximum velocity / SI mtn safe v_Max		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [mm/min]	Max - [mm/min]	Factory setting - [mm/min]
Description:	Displays the safe maximum velocity (on the load side) that is permissible for the safe motion monitoring functions as a result of the actual value sensing.		
Note:	If the value displayed is exceeded, message C01711 is output indicating relevant subsequent faults.		

r9731	SI Motion safe position accuracy / SI Mtn pos acc		
SERVO_S110-CAN (Safety rot), SERVO_S110-DP (Safety rot)	Can be changed: - Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [°]	Max - [°]	Factory setting - [°]
Description:	Displays the safe position accuracy (on the load side) that can be achieved as a maximum for the safe motion monitoring functions as a result of the actual value sensing.		
r9731	SI Motion safe position accuracy / SI Mtn pos acc		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [mm]	Max - [mm]	Factory setting - [mm]
Description:	Displays the safe position accuracy (on the load side) that can be achieved as a maximum for the safe motion monitoring functions as a result of the actual value sensing.		
r9733[0...1]	CO: SI Motion effective setpoint speed limiting / SI Mtn setp limit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: 3_1	Access level: 3 Func. diagram: - Unit selection: p0505 Expert list: 1
	Min - [rev/min]	Max - [rev/min]	Factory setting - [rev/min]
Description:	Displays the necessary setpoint speed limit as a result of the selected SI Motion monitoring functions. Contrary to the parameterization of the SI limit values, this parameter specifies the motor-side limit value and not the load-side limit value.		
Index:	[0] = Setpoint limiting positive [1] = Setpoint limiting negative		
Dependency:	r9733[0] = p9531[x] * p9533; x = selected SLS stage r9733[1] = - p9531[x] * p9533; x = selected SLS stage Refer to: p9531, p9533		
Notice:	If r9733[0] is interconnected to p1085, then r9733[1] must also be interconnected to p1088. If only the absolute value of the setpoint velocity limiting is required, r9733[0] is sufficient.		
Note:	The units changeover between linear and rotary axis units is not realized via the safety changeover (p9502), but by the linear motor changeover.		

r9735[0...1] SI Motion diagnostics result list 3 / SI Mtn res_list 3					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays result list 3, that for the data cross-check with the control, led to the fault.				
Index:	[0] = Result list, second channel [1] = Result list, drive				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN1+	Yes	No	-
	01	Actual value > lower limit, SN1+	Yes	No	-
	02	Actual value > upper limit, SN1-	Yes	No	-
	03	Actual value > lower limit, SN1-	Yes	No	-
	04	Actual value > upper limit, SN2+	Yes	No	-
	05	Actual value > lower limit, SN2+	Yes	No	-
	06	Actual value > upper limit, SN2-	Yes	No	-
	07	Actual value > lower limit, SN2-	Yes	No	-
	08	Actual value > upper limit, SN3+	Yes	No	-
	09	Actual value > lower limit, SN3+	Yes	No	-
	10	Actual value > upper limit, SN3-	Yes	No	-
	11	Actual value > lower limit, SN3-	Yes	No	-
	12	Actual value > upper limit, SN4+	Yes	No	-
	13	Actual value > lower limit, SN4+	Yes	No	-
	14	Actual value > upper limit, SN4-	Yes	No	-
	15	Actual value > lower limit, SN4-	Yes	No	-
	16	Actual value > upper limit, SN5+	Yes	No	-
	17	Actual value > lower limit, SN5+	Yes	No	-
	18	Actual value > upper limit, SN5-	Yes	No	-
	19	Actual value > lower limit, SN5-	Yes	No	-
	20	Actual value > upper limit, SN6+	Yes	No	-
	21	Actual value > lower limit, SN6+	Yes	No	-
	22	Actual value > upper limit, SN6-	Yes	No	-
	23	Actual value > lower limit, SN6-	Yes	No	-
Dependency:	Refer to: C01711				

r9736[0...1] SI Motion diagnostics result list 4 / SI Mtn res_list 4					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays result list 4, that for the data cross-check with the control, led to the fault.				
Index:	[0] = Result list, second channel [1] = Result list, drive				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN7+	Yes	No	-
	01	Actual value > lower limit, SN7+	Yes	No	-
	02	Actual value > upper limit, SN7-	Yes	No	-
	03	Actual value > lower limit, SN7-	Yes	No	-
	04	Actual value > upper limit, SN8+	Yes	No	-
	05	Actual value > lower limit, SN8+	Yes	No	-
	06	Actual value > upper limit, SN8-	Yes	No	-
	07	Actual value > lower limit, SN8-	Yes	No	-
	08	Actual value > upper limit, SN9+	Yes	No	-
	09	Actual value > lower limit, SN9+	Yes	No	-
	10	Actual value > upper limit, SN9-	Yes	No	-
	11	Actual value > lower limit, SN9-	Yes	No	-
	12	Actual value > upper limit, SN10+	Yes	No	-
	13	Actual value > lower limit, SN10+	Yes	No	-
	14	Actual value > upper limit, SN10-	Yes	No	-
	15	Actual value > lower limit, SN10-	Yes	No	-
	16	Actual value > upper limit, SN11+	Yes	No	-
	17	Actual value > lower limit, SN11+	Yes	No	-
	18	Actual value > upper limit, SN11-	Yes	No	-
	19	Actual value > lower limit, SN11-	Yes	No	-
	20	Actual value > upper limit, SN12+	Yes	No	-
	21	Actual value > lower limit, SN12+	Yes	No	-
	22	Actual value > upper limit, SN12-	Yes	No	-
	23	Actual value > lower limit, SN12-	Yes	No	-
Dependency:	Refer to: C01711				

r9737[0...1] SI Motion diagnostics result list 5 / SI Mtn res_list 5					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays result list 5, that for the data cross-check with the control, led to the fault.				
Index:	[0] = Result list, second channel [1] = Result list, drive				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN13+	Yes	No	-
	01	Actual value > lower limit, SN13+	Yes	No	-
	02	Actual value > upper limit, SN13-	Yes	No	-
	03	Actual value > lower limit, SN13-	Yes	No	-
	04	Actual value > upper limit, SN14+	Yes	No	-
	05	Actual value > lower limit, SN14+	Yes	No	-
	06	Actual value > upper limit, SN14-	Yes	No	-
	07	Actual value > lower limit, SN14-	Yes	No	-
	08	Actual value > upper limit, SN15+	Yes	No	-
	09	Actual value > lower limit, SN15+	Yes	No	-
	10	Actual value > upper limit, SN15-	Yes	No	-
	11	Actual value > lower limit, SN15-	Yes	No	-
	12	Actual value > upper limit, SN16+	Yes	No	-
	13	Actual value > lower limit, SN16+	Yes	No	-
	14	Actual value > upper limit, SN16-	Yes	No	-
	15	Actual value > lower limit, SN16-	Yes	No	-
	16	Actual value > upper limit, SN17+	Yes	No	-
	17	Actual value > lower limit, SN17+	Yes	No	-
	18	Actual value > upper limit, SN17-	Yes	No	-
	19	Actual value > lower limit, SN17-	Yes	No	-
	20	Actual value > upper limit, SN18+	Yes	No	-
	21	Actual value > lower limit, SN18+	Yes	No	-
	22	Actual value > upper limit, SN18-	Yes	No	-
	23	Actual value > lower limit, SN18-	Yes	No	-
Dependency:	Refer to: C01711				

r9738[0...1] SI Motion diagnostics result list 6 / SI Mtn res_list 6					
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays result list 5, that for the data cross-check with the control, led to the fault.				
Index:	[0] = Result list, second channel [1] = Result list, drive				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Actual value > upper limit, SN19+	Yes	No	-
	01	Actual value > lower limit, SN19+	Yes	No	-
	02	Actual value > upper limit, SN19-	Yes	No	-
	03	Actual value > lower limit, SN19-	Yes	No	-
	04	Actual value > upper limit, SN20+	Yes	No	-
	05	Actual value > lower limit, SN20+	Yes	No	-
	06	Actual value > upper limit, SN20-	Yes	No	-
	07	Actual value > lower limit, SN20-	Yes	No	-
	08	Actual value > upper limit, SN21+	Yes	No	-
	09	Actual value > lower limit, SN21+	Yes	No	-
	10	Actual value > upper limit, SN21-	Yes	No	-
	11	Actual value > lower limit, SN21-	Yes	No	-
	12	Actual value > upper limit, SN22+	Yes	No	-
	13	Actual value > lower limit, SN22+	Yes	No	-
	14	Actual value > upper limit, SN22-	Yes	No	-
	15	Actual value > lower limit, SN22-	Yes	No	-
	16	Actual value > upper limit, SN23+	Yes	No	-
	17	Actual value > lower limit, SN23+	Yes	No	-
	18	Actual value > upper limit, SN23-	Yes	No	-
	19	Actual value > lower limit, SN23-	Yes	No	-
	20	Actual value > upper limit, SN24+	Yes	No	-
	21	Actual value > lower limit, SN24+	Yes	No	-
	22	Actual value > upper limit, SN24-	Yes	No	-
	23	Actual value > lower limit, SN24-	Yes	No	-
Dependency:	Refer to: C01711				

r9739[0...1] SI Motion diagnostics result list 7 / SI Mtn res_list 7SERVO_S110-CAN,
SERVO_S110-DP**Can be changed:** -**Calculated:** -**Access level:** 3**Data type:** Unsigned32**Dynamic index:** -**Func. diagram:** -**P-Group:** Safety Integrated**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays result list 7, that for the data cross-check with the control, led to the fault.

Index:

[0] = Result list, second channel

[1] = Result list, drive

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Actual value > upper limit, SN25+	Yes	No	-
01	Actual value > lower limit, SN25+	Yes	No	-
02	Actual value > upper limit, SN25-	Yes	No	-
03	Actual value > lower limit, SN25-	Yes	No	-
04	Actual value > upper limit, SN26+	Yes	No	-
05	Actual value > lower limit, SN26+	Yes	No	-
06	Actual value > upper limit, SN26-	Yes	No	-
07	Actual value > lower limit, SN26-	Yes	No	-
08	Actual value > upper limit, SN27+	Yes	No	-
09	Actual value > lower limit, SN27+	Yes	No	-
10	Actual value > upper limit, SN27-	Yes	No	-
11	Actual value > lower limit, SN27-	Yes	No	-
12	Actual value > upper limit, SN28+	Yes	No	-
13	Actual value > lower limit, SN28+	Yes	No	-
14	Actual value > upper limit, SN28-	Yes	No	-
15	Actual value > lower limit, SN28-	Yes	No	-
16	Actual value > upper limit, SN29+	Yes	No	-
17	Actual value > lower limit, SN29+	Yes	No	-
18	Actual value > upper limit, SN29-	Yes	No	-
19	Actual value > lower limit, SN29-	Yes	No	-
20	Actual value > upper limit, SN30+	Yes	No	-
21	Actual value > lower limit, SN30+	Yes	No	-
22	Actual value > upper limit, SN30-	Yes	No	-
23	Actual value > lower limit, SN30-	Yes	No	-

Dependency:

Refer to: C01711

r9744 SI message buffer changes, counter / SI msg_buffer chngSERVO_S110-CAN,
SERVO_S110-DP**Can be changed:** -**Calculated:** -**Access level:** 3**Data type:** Unsigned16**Dynamic index:** -**Func. diagram:** -**P-Group:** Messages**Units group:** -**Unit selection:** -**Not for motor type:** -**Expert list:** 1**Min****Max****Factory setting**

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Description:

Displays the changes of the safety message buffer. This counter is incremented every time that the safety message buffer changes.

Recommend.:

This is used to check whether the safety message buffer has been read out consistently.

Dependency:

Refer to: r9747, r9748, r9749, p9752, r9753, r9754, r9755, r9756

r9747[0...63] SI message code / SI msg_code			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the numbers of safety messages that have occurred.		
Dependency:	Refer to: r9744, r9748, r9749, p9752, r9753, r9754, r9755, r9756		
Note:	The messages type "safety message" (Cxxxx) are entered in the message fault buffer. Message buffer structure (principle): r9747[0], r9748[0], r9749[0], r9753[0], r9754[0], r9755[0], r9756[0] --> Current message case, safety message 1 ... r9747[7], r9748[7], r9749[7], r9753[7], r9754[7], r9755[7], r9756[7] --> Current message case, safety message 8 r9747[8], r9748[8], r9749[8], r9753[8], r9754[8], r9755[8], r9756[8] --> 1st acknowledged message case, safety message 1 ... r9747[15], r9748[15], r9749[15], r9753[15], r9754[15], r9755[15], r9756[15] --> 1st acknowledged message case, safety message 8 ... r9747[56], r9748[56], r9749[56], r9753[56], r9754[56], r9755[56], r9756[56] --> 7th acknowledged message case, safety message 1 ... r9747[63], r9748[63], r9749[63], r9753[63], r9754[63], r9755[63], r9756[63] --> 7th acknowledged message case, safety message 8		

r9748[0...63] SI message time received in milliseconds / SI t_msg rcv ms			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message occurred.		
Dependency:	Refer to: r9744, r9747, r9749, p9752, r9753, r9754, r9755, r9756		

r9749[0...63] SI message value / SI msg_value			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the additional information about the safety message that occurred (as integer number).		
Dependency:	Refer to: r9744, r9747, r9748, p9752, r9753, r9754, r9755, r9756		

p9752	SI message cases, counter / SI msg_cases count		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: U, T	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 65535	Factory setting 0
Description:	Number of safety messages that have occurred since the last reset.		
Dependency:	The safety message buffer is cleared by resetting the parameter to 0. Refer to: r9744, r9747, r9748, r9749, r9753, r9754, r9755, r9756		
Note:	The parameter is reset to 0 at POWER ON.		

r9753[0...63]	SI message value for float values / SI msg_val float		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays additional information about the safety message that has occurred for float values.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9754, r9755, r9756		

r9754[0...63]	SI message time received in days / SI t_msg rcv days		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the relative system runtime in days when the safety message occurred.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9755, r9756		

r9755[0...63]	SI message time removed in milliseconds / SI t_msg rem ms		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Messages	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [ms]	Max - [ms]	Factory setting - [ms]
Description:	Displays the relative system runtime in milliseconds when the safety message was removed.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9756		

r9756[0...63]	SI message time removed in days / SI t_msg rem days		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Messages Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the relative system runtime in days when the safety message was removed.		
Dependency:	Refer to: r9744, r9747, r9748, r9749, p9752, r9753, r9754, r9755		
p9761	SI password input / SI password inp		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C1, T Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2800 Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Enters the Safety Integrated password.		
Dependency:	Refer to: F01659		
Note:	It is not permissible to change Safety Integrated parameter settings until the Safety Integrated password has been entered.		
p9762	SI password new / SI password new		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2800 Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Enters a new Safety Integrated password.		
Dependency:	A change made to the Safety Integrated password must be acknowledged in the following parameter: Refer to: p9763		
p9763	SI password acknowledgement / SI ackn password		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2800 Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Acknowledges the new Safety Integrated password.		
Dependency:	Refer to: p9762		
Note:	The new password entered into p9762 must be re-entered in order to acknowledge. p9762 = p9763 = 0 is automatically set after the new Safety Integrated password has been successfully acknowledged.		

r9770[0...3] SI vers. safety fcts that run indep. in the drive (Control Unit) / SI version Drv CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated version for the safety functions that run independently in the drive on the Control Unit.

Index:
 [0] = Safety Version (major release)
 [1] = Safety Version (minor release)
 [2] = Safety Version (baselevel or patch)
 [3] = Safety Version (hotfix)

Dependency: Refer to: r9890

Note: Example:
 r9770[0] = 2, r9770[1] = 60, r9770[2] = 1, r9770[3] = 0 --> Safety version V02.60.01.00

r9771 SI common functions (Control Unit) / SI common fct CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated monitoring functions supported on the Control Unit and Motor Module. The Control Unit determines this display.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	01	SBC supported	Yes	No	2804
	02	SI Motion supported	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	PROFIsafe supported	Yes	No	-
	05	Drive-based motion monitoring functions supported	Yes	No	-

Dependency: Refer to: r9871

Note: CU: Control Unit
 SBC: Safe Brake Control
 SI: Safety Integrated
 SS1: Safe Stop 1
 STO: Safe Torque Off / SH: Safe standstill

r9772.0...19 CO/BO: SI status (Control Unit) / SI stat CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated status on the Control Unit.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected on Control Unit	Yes	No	2810
	01	STO active on Control Unit	Yes	No	2810
	02	SS1 active on Control Unit	Yes	No	2810
	04	SBC requested	Yes	No	2814
	09	STOP A cannot be acknowledged, active	Yes	No	2802
	10	STOP A active	Yes	No	2802
	15	STOP F active	Yes	No	2802
	16	STO cse: Safety comm. mode	Yes	No	-
	17	STO cause: selection via terminal	Yes	No	-
	18	STO cause: selection via SMM	Yes	No	-
	19	STO cause: parking axis	Yes	No	-

Dependency: Refer to: r9872

Note: Re bit 00:

When STO is selected, the cause is displayed in bits 16 ... 19.

Re bit 18:

When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F).

SMM: Safe Motion Monitoring

r9773.0...31 CO/BO: SI status (Control Unit + Motor Module) / SI stat CU+MM

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the Safety Integrated status on the drive (Control Unit + Motor Module).

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in drive	Yes	No	2804
	01	STO active in drive	Yes	No	2804
	02	SS1 active in drive	Yes	No	2804
	04	SBC requested	Yes	No	2804
	31	Shutdown paths must be tested	Yes	No	2810

Note: This status is formed from the AND operation of the relevant status of the two monitoring channels.

r9774.0...31 CO/BO: SI status (group STO) / SI stat group STO

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2804
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the status for Safety Integrated of the group to which this drive belongs.
These signals are an AND logic operation of the individual status signals of the drives included in this group.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO selected in group	Yes	No	2804
	01	STO active in group	Yes	No	2804
	02	SS1 active in group	Yes	No	-
	04	SBC requested in group	Yes	No	2804
	31	Shutdown paths of the group must be tested	Yes	No	2804

Dependency: Refer to: r9773

Notice: If a drive belonging to a group is de-activated via p0105, then the signals in r9774 can no longer be correctly displayed (Remedy: Before de-activating, remove this drive from the group).

Note: A group is formed by appropriately grouping the terminals for the function "Safe Torque Off" (STO).
The status of a group of n drives is, for drives 1 to n - 1 displayed with a delay of one monitoring clock cycle; this is a system-related effect.

r9780 SI monitoring clock cycle (Control Unit) / SI monitor_clk CU

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	- [ms]	- [ms]	- [ms]

Description: Displays the clock cycle time for the Safety Integrated Basic Functions on the Control Unit.

Dependency: Refer to: r9880

r9781[0...1] SI checksum to check changes (Control Unit) / SI checksum chg CU

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Additional check sum that is formed to check changes (fingerprint for the safety logbook functionality) to safety parameters (that are relevant for checksums).

Index: [0] = Safety change tracking checksum functional
[1] = Safety change tracking checksum hardware dependent

Dependency: Refer to: p9601, p9729, p9799
Refer to: F01690

r9782[0...1]	SI time stamp to check changes (Control Unit) / SI TimeStamp CU		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min - [h]	Max - [h]	Factory setting - [h]
Description:	Time stamp for the checksum that is saved in parameters p9781[0] and p9781[1] to track changes (fingerprint for the safety logbook functionality) made to safety parameters.		
Index:	[0] = SI time stamp change tracking checksum functional [1] = SI time stamp change tracking checksum hardware-dependent		
Dependency:	Refer to: p9601, p9729, p9799 Refer to: F01690		
r9794[0...19]	SI crosswise comparison list (Control Unit) / SI DCC_list CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of the data that are being presently compared crosswise on the Control Unit. Example: r9794[0] = 1 (monitoring clock cycle) r9794[1] = 2 (enable safety-related functions) r9794[2] = 3 (SGE changeover, tolerance time) r9794[3] = 4 (transition time, STOP F to STOP A) ... The list of crosswise compared data is obtained dependent on the particular application.		
Dependency:	Refer to: r9894		
Note:	The complete list of numbers for data cross-check is listed in Fault F01611.		
r9795	SI diagnostics STOP F (Control Unit) / SI diag STOP F CU		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the number of the cross-checked data which has caused STOP F on the Control Unit.		
Dependency:	Refer to: r9895 Refer to: F01611		
Note:	The complete list of numbers for data cross-check is listed in Fault F01611.		

r9798		SI actual checksum SI parameters (Control Unit) / SI act_checksum CU			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the checksum over the checked Safety Integrated parameters on the Control Unit (actual checksum).				
Dependency:	Refer to: p9799, r9898				
p9799		SI reference checksum SI parameters (Control Unit) / SI set_checksum CU			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2800		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0000 hex	FFFF FFFF hex	0000 hex		
Description:	Sets the checksum for the checked Safety Integrated parameters on the Control Unit (reference checksum).				
Dependency:	Refer to: r9798, p9899				
p9801		SI enable, functions integrated in the drive (Motor Module) / SI enable fct MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the enable signals for safety functions on the Motor Module that are integrated in the drive.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO (SH) via terminals (Motor Module) enable	Enable	Inhibit	2810
	02	Motion monitoring functions integr. in the drive (Motor Module)	Enable	Inhibit	-
	03	PROFIsafe (Motor Module) enable	Enable	Inhibit	-
Dependency:	Refer to: p9601				
Note:	For p9801.2 = 1 and p9801.3 = 0 the following applies: It is assumed that the motion monitoring functions integrated in the drive are controlled via the Terminal Module 54F (TM54F). MM: Motor Module SI: Safety Integrated SMM: Safe Motion Monitoring STO: Safe Torque Off / SH: Safe standstill				

p9802	SI enable Safe Brake Control (Motor Module) / SI enable SBC MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer32	Dynamic index: -	Func. diagram: 2814
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 1	Factory setting 0
Description:	Sets the enable signal for the "Safe Brake Control" function (SBC) on the Motor Module. 0: Inhibit SBC 1: SBC enable		
Dependency:	Refer to: p9602		
Note:	The "Safe Brake Control" function is not activated until at least one safety monitoring function has been enabled (i.e. p9501 not equal to 0 and/or p9801 not equal to 0). The parameterization "no motor holding brake available" and "Safe Brake Control" enabled (p1215 = 0, p9602 = p9802 = 1) is not practical if there is no motor holding brake. The parameterization "motor holding brake the same as sequence control, connection via BICO" and "Safe Brake Control" enabled (p1215 = 3, p9602 = 1, p9802 = 1) is not practical. It is not permissible to parameterize "motor holding brake without feedback signals" and also enable "safe brake control" (p1278 = 1, p9602 = 1, p9802 = 1). MM: Motor Module SBC: Safe Brake Control SI: Safety Integrated		
p9810	SI PROFIsafe address (Motor Module) / SI PROFIsafe MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0000 hex	Max FFFE hex	Factory setting 0000 hex
Description:	Sets the PROFIsafe address of the Motor Module.		
p9850	SI SGE changeover tolerance time (Motor Module) / SI SGE_chg tol MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2810
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0.00 [µs]	Max 2000000.00 [µs]	Factory setting 500000.00 [µs]
Description:	Sets the tolerance time to change over the safety-related inputs (SGE) on the Motor Module. An SGE changeover is not simultaneously effective due to the different runtimes in the two monitoring channels. After an SGE changeover, dynamic data is not subject to a data cross-check during this tolerance time.		
Dependency:	Refer to: p9650		
Note:	For a data cross-check between p9650 and p9850, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SGE: Safety-related input (e.g. STO terminals)		

p9852		SI Safe Stop 1 delay time (Motor Module) / SI Stop 1 t_del MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0.00 [ms]	Max 300000.00 [ms]	Factory setting 0.00 [ms]		
Description:	Sets the delay time of the pulse suppression for the function "Safe Stop 1" (SS1) on the Motor Module to brake along the OFF3 down ramp (p1135).				
Dependency:	Refer to: p1135, p9652				
Note:	For a data cross-check between p9652 and p9852, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)				
p9858		SI transition time STOP F to STOP A (Control Unit) / SI STOP F->A MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2802		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min 0.00 [µs]	Max 30000000.00 [µs]	Factory setting 0.00 [µs]		
Description:	Sets the transition period from STOP F to STOP A on the Motor Module.				
Dependency:	Refer to: p9658, r9895 Refer to: F30611				
Note:	For a data cross-check between p9658 and p9858, a difference of one Safety monitoring clock cycle is tolerated. The parameterized time is internally rounded-off to an integer multiple of the monitoring clock cycle. STOP F: Defect in a monitoring channel (error in the data cross-check) STOP A: Pulse suppression via the safety shutdown path				
r9871		SI common functions (Motor Module / SI general fct MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2804		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min -	Max -	Factory setting -		
Description:	Displays the Safety Integrated monitoring functions supported on the Control Unit and Motor Module. The Motor Module determines this display.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO supported via terminals	Yes	No	2804
	01	SBC supported	Yes	No	2804
	02	SI Motion supported	Yes	No	2804
	03	SS1 supported	Yes	No	2804
	04	PROFIsafe supported	Yes	No	-
	05	Drive-based motion monitoring functions supported	Yes	No	-
Dependency:	Refer to: r9771				
Note:	MM: Motor Module SBC: Safe Brake Control SI: Safety Integrated SS1: Safe Stop 1 STO: Safe Torque Off / SH: Safe standstill				

r9872.0...18		CO/BO: SI status list (Motor Module) / SI status MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2804		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	-		
Description:	Displays the Safety Integrated status on the Motor Module.				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	STO on Motor Module selected	Yes	No	2810
	01	STO on Motor Module active	Yes	No	2810
	02	SS1 on Motor Module active	Yes	No	2810
	04	SBC requested	Yes	No	2814
	09	STOP A cannot be acknowledged, active	Yes	No	2802
	10	STOP A active	Yes	No	2802
	15	STOP F active	Yes	No	2802
	16	STO cse: Safety comm. mode	Yes	No	-
	17	STO cause: selection via terminal	Yes	No	-
	18	STO cause: selection via SMM	Yes	No	-
Dependency:	Refer to: r9772				
Notice:	If communication between the Control Unit and the Motor Module is interrupted (e.g. by switching off the Motor Module), the status of the Motor Module is no longer updated in r9872. The last transferred status of the Motor Module is displayed.				
Note:	Re bit 00: When STO is selected, the cause is displayed in bits 16 ... 18. Re bit 18: When the bit is set, STO is selected via PROFIsafe or Terminal Module 54F (TM54F). SMM: Safe Motion Monitoring				

r9880		SI monitoring clock cycle (Motor Module) / SI monitor_clk MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2802	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	- [ms]	- [ms]	- [ms]	
Description:	Displays the clock cycle time for the Safety Integrated Basic Functions on the Motor Module.			
Dependency:	Refer to: r9780			

r9881[0...11]		SI Motion Sensor Module Node Identifier second channel / SI Mtn SM Ident		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3	
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -	
	P-Group: Safety Integrated	Units group: -	Unit selection: -	
	Not for motor type: -		Expert list: 1	
	Min	Max	Factory setting	
	-	-	-	
Description:	Displays the Node Identifier of the Sensor Module that the second channel uses for the motion monitoring functions.			

r9890[0...2] SI version (Sensor Module) / SI version SM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the Safety Integrated version on the Sensor Module.		
Index:	[0] = Safety Version (major release) [1] = Safety Version (minor release) [2] = Safety Version (baselevel or patch)		
Dependency:	Refer to: r9770		
Note:	Example: r9890[0] = 2, r9890[1] = 3, r9890[2] = 1 --> Safety-Version V02.03.01		
r9894[0...19] SI crosswise comparison list (Motor Module) / SI DCC_list MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of the data that are being presently compared crosswise on the Motor Module. Example: r9894[0] = 1 (monitoring clock cycle) r9894[1] = 2 (enable safety-related functions) r9894[2] = 3 (SGE changeover, tolerance time) r9894[3] = 4 (transition time, STOP F to STOP A) ... The list of crosswise compared data is obtained dependent on the particular application.		
Dependency:	Refer to: r9794		
Note:	The complete list of numbers for data cross-check is listed in Fault F30611.		
r9895 SI diagnostics STOP F (Motor Module) / SI diag STOP F MM			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2802
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the number of the cross-checked data which has caused STOP F on the Motor Module.		
Dependency:	Refer to: r9795 Refer to: F30611		
Note:	The complete list of numbers for data cross-check is listed in Fault F30611.		

r9898	SI actual checksum SI parameters (Motor Module) / SI act_checksum MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: - Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2800 Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Displays the checksum for the checked Safety Integrated parameters on the Motor Module (actual checksum).		
Dependency:	Refer to: r9798, p9899		
p9899	SI reference checksum SI parameters (Motor Module) / SI set_checksum MM		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2 Data type: Unsigned32 P-Group: Safety Integrated Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: 2800 Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	Sets the checksum for the checked Safety Integrated parameters on the Motor Module (reference checksum).		
Dependency:	Refer to: p9799, r9898		
r9900	Actual topology number of indices / Act topo indices		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: Unsigned16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 0
	Min -	Max -	Factory setting -
Description:	Displays the number of indices of the actual topology.		
Dependency:	Refer to: r9901		
Note:	Only for internal Siemens use. The parameter is not displayed for the STARTER commissioning software.		

r9901[0...n] Actual topology / Act topo			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: r9900	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	-	-	-
Description:	<p>Displays the actual topology of the drive unit.</p> <p>The actual topology is sub-divided into several sections. Each of the following data is saved under an index.</p> <p>General data on the topology:</p> <ul style="list-style-type: none"> - version - attribute to compare the actual topology and target topology - number of components <p>Data on a component:</p> <ul style="list-style-type: none"> - type component of the node ID of the component - number of DRIVE-CLiQ sockets in the Node Identifier - manufacturer and version of the Node Identifier - serial number of the Node Identifier (4 indices) - index of the component - order number (8 indices) - attribute to compare the actual topology and target topology of the component - communications address - number of port types - port type - number of ports of the port type - communications address of the associated/linked component - number of the associated/linked port - communications address of the associated/linked component - number of the associated/linked port - etc. <p>Data on the next component:</p> <ul style="list-style-type: none"> - etc. 		
Dependency:	Refer to: r9900		
Note:	<p>Only for internal Siemens use.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p>		

p9902 Target topology number of indices / TargetTopo indices			
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: -	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min	Max	Factory setting
	1	65535	1
Description:	Sets the number of target topology indices.		
Dependency:	Refer to: p9903		
Note:	<p>Only for internal Siemens use.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p>		

p9903[0...n]	Target topology / Target topology		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned16	Dynamic index: p9902	Func. diagram: -
	P-Group: Topology	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 0
	Min 0000 hex	Max FFFF hex	Factory setting 0000 hex
Description:	<p>Sets the target topology of the drive unit.</p> <p>The target topology is sub-divided into several sections. Each of the following data is saved under an index.</p> <p>General data on the topology:</p> <ul style="list-style-type: none"> - version - attribute to compare the actual topology and target topology - number of components <p>Data on a component:</p> <ul style="list-style-type: none"> - type component of the Node Identifier of the component - number of DRIVE-CLiQ sockets in the Node Identifier - manufacturer and version of the Node Identifier - serial number of the Node Identifier (4 indices) - index of the component - order number (8 indices) - attribute to compare the actual topology and target topology of the component - component number - number of port types - port type - number of ports of the port type - component number of the associated/linked component - number of the associated/linked port - component number of the associated/linked component - number of the associated/linked port - etc. <p>Data on the next component:</p> <ul style="list-style-type: none"> - etc. 		
Dependency:	Refer to: p9902		
Note:	<p>The target topology can only be modified using the commissioning software.</p> <p>Only for internal Siemens use.</p> <p>The parameter is not displayed for the STARTER commissioning software.</p> <p>Changes do not become effective until they have been accepted with p9428 = 1, or on change of status from p0009 = 101 to 0 or 111.</p>		

p9904 Topology comparison, acknowledge differences / Topo_compare ackn			
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max FFFF FFFF hex	Factory setting 0000 hex
Description:	<p>If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.</p> <p>Differences that can be acknowledged:</p> <ul style="list-style-type: none"> - topology comparison, component shifted - topology comparison, serial number of a component has been detected to be different (byte 3 = 1) - topology comparison shows one component that is connected differently <p>The following parameter values are available:</p> <p>p9904 = 1 --> the procedure is started.</p> <p>p9904 = 0 after starting --> the procedure has been successfully completed.</p> <p>p9904 = 1 after starting --> the procedure has not been successfully completed.</p> <p>The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.</p> <p>Byte 2: Number of structural differences.</p> <p>Byte 3: Number of differences that can be acknowledged (p9904).</p> <p>Byte 4: Number of differences. These differences can be resolved as follows:</p> <ul style="list-style-type: none"> - sets the topology comparison (p9906 or p9907/p9908). - change over the actual topology. <p>The appropriate action should be selected corresponding to the message that is displayed/output.</p>		
Note:	In order to permanently accept the acknowledgement of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).		
p9905 Device specialization / Specialization			
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Unsigned16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 2	Factory setting 0
Description:	<p>With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started..</p> <p>For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.</p> <p>With p9905 = 2, the serial numbers, the hardware versions and the order numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started..</p> <p>For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and order numbers.</p>		
Note:	<p>p9905 is automatically set to 0 at the end of the operation.</p> <p>In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).</p>		

p9910	Transfer additional components into the target topology / Transfer comp		
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Integer16 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 1 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 6	Factory setting 0
Description:	Transfer additional inserted DRIVE-CLiQ components into the target topology and add the appropriate drive objects to the project.		
Value:	0: No selection 1: Drive object type SERVO 2: Drive object type VECTOR 3: SINAMICS GM (DFEMV & VECTORMV) 4: SINAMICS SM (AFEMV & VECTORMV) 5: SINAMICS GL (VECTORGL) 6: SINAMICS SL (VECTORSL)		
p9915	DRIVE-CLiQ data transfer error shutdown threshold master / DLQ fault master		
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max 0007 07FF hex	Factory setting 0007 02FF hex
Description:	Only for internal Siemens service purposes.		
p9916	DRIVE-CLiQ data transfer error shutdown threshold slave / DLQ fault slave		
CU_S110-CAN, CU_S110-DP	Can be changed: C1(1) Data type: Unsigned32 P-Group: Topology Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0000 hex	Max 0007 07FF hex	Factory setting 0007 02FF hex
Description:	Only for internal Siemens service purposes.		
p9920[0...19]	Licensing, enter license key / Enter license key		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Unsigned8 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 2 Func. diagram: - Unit selection: - Expert list: 1
	Min -	Max -	Factory setting -
Description:	Enters the license key for this drive unit. Example of the license key: EACZ-QBCA = 69 65 67 90 45 81 66 67 65 dec (ASCII characters) Index 0 = license key character 1 (e.g. 69 dec) Index 1 = license key character 2 (e.g. 65 dec) ... Index 19 = license key character 20 (e.g. 0 dec) With the STARTER commissioning software, ASCII characters are not entered coded, i.e. the characters of the license key can be entered as printed in the Certificate of License. In this case, STARTER codes the characters.		

Dependency: Refer to: r7843, p9921
Refer to: A13000, A13001

Notice: An ASCII table (excerpt) can be found, for example, in the following List Manual:

Note: Only the ASCII characters, contained in a license key can be entered.
When changing p9920[x] to the value 0, all of the following indices are also set to 0.
After entering the license key, the license key must be activated (p9921).
If the licensing is not adequate, then the following alarm is displayed together with LED:
- A13000 --> licensing not sufficient
- LED READY --> flashes green/red with 0.5 Hz

p9921 **Licensing, activate license key / Act license key**

CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 2
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	1	0

Description: Activates the entered license key.
The following is executed when activating the license key.
- the checksum of the entered license key is checked.
- the entered license key is saved in a non-volatile fashion on the memory card.
- re-enter the license key.

Value: 0: Inactive
1: Activate start license key

Dependency: Refer to: p9920
Refer to: A13000, A13001

Note: Before activation, the license key entered using parameter p9920 is checked. If this check identifies an error, activation is rejected. In this case, writing a 1 to p9921 is rejected.
When the license key has been activated, p9921 is automatically set to 0.

r9925[0...99] **Firmware file incorrect / FW file incorr**

CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description: Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.

Dependency: Refer to: r9926
Refer to: A01016

Note: The directory and name of the file is displayed in the ASCII code.

r9926	Firmware check status / FW check status		
CU_S110-CAN, CU_S110-DP	Can be changed: -	Calculated: -	Access level: 2
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-
Description:	Displays the status when the firmware is checked when the system is booted. 0: Firmware not yet checked. 1: Check running. 2: Check successfully completed. 3: Check indicates an error.		
Dependency:	Refer to: r9925 Refer to: A01016		

p9930[0...8]	System logbook activation / SYSLOG activation		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Only for service purposes.		
Index:	[0] = System logbook stage (0: Not active) [1] = COM2/COM1 (0: COM2, 1: COM1) [2] = Activate file write (0: Not active) [3] = Display time stamp (0: Not displayed) [4] = Reserved [5] = Reserved [6] = Reserved [7] = Reserved [8] = System logbook file size (stages, each 10 kB)		
Notice:	Before powering down the Control Unit, ensure that the system logbook is switched out (p9930[0] = 0).		

p9931[0...99]	System logbook module selection / SYSLOG mod select.		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0000 hex	FFFF FFFF hex	0000 hex
Description:	Only for service purposes.		

p9932	Save system logbook EEPROM / SYSLOG EEPROM save		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T	Calculated: -	Access level: 4
	Data type: Unsigned8	Dynamic index: -	Func. diagram: -
	P-Group: -	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Only for service purposes.		

p9950	Runtime measurement control / Runtime_meas ctrl		
CU_S110-CAN, CU_S110-DP	Can be changed: U, T Data type: Integer16 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 4 Func. diagram: - Unit selection: - Expert list: 1
	Min 0	Max 3	Factory setting 0
Description:	Setting to control the runtime measurement.		
Value:	0: Stop runtime measurement 1: Start runtime meas (internal) 2: Clear trace buffer (internal) 3: Activate calculation of remaining computing time		
Dependency:	Refer to: r9976		
r9976[0...7]	System load / Sys_load		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [%]	Max - [%]	Factory setting - [%]
Description:	Displays the system load. Determining the system load is automatically started after booting.		
Index:	[0] = RESERVED [1] = Computation time load [2] = RESERVED [3] = RESERVED [4] = RESERVED [5] = Peak load [6] = RESERVED [7] = RESERVED		
Dependency:	Refer to: A01052, A01053, F01054, F01205		
r9979	Sampling time, critical time slice / t_sample crit		
CU_S110-CAN, CU_S110-DP	Can be changed: - Data type: FloatingPoint32 P-Group: - Not for motor type: -	Calculated: - Dynamic index: - Units group: -	Access level: 3 Func. diagram: - Unit selection: - Expert list: 1
	Min - [µs]	Max - [µs]	Factory setting - [µs]
Description:	Displays the sampling time of the time slice in which it was identified that the peak load was exceeded.		
Dependency:	Refer to: r9976 Refer to: F01054		

p10002	SI discrepancy monitoring time / SI discrep t_monit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2850, 2851
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.00 [ms]	Max 2000.00 [ms]	Factory setting 500.00 [ms]
Description:	Sets the monitoring time for the discrepancy for the digital inputs. The signal states at the two associated digital inputs (F-DI) must assume the same state within this monitoring time.		
Note:	F-DI: Failsafe Digital Input		
p10006	SI acknowledgement internal event input terminal / SI ackn int event		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Select a safety-relevant digital input for the signal "acknowledge internal event" (internal fault). The signal is transferred to the corresponding control signal of all drives. The falling edge at this input resets the status "internal event" in the drives.		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
p10022	SI STO input terminal / SI STO DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Sets the input terminal for STO (operating mode "control interface").		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
Note:	STO: Safe Torque Off Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10023	SI SS1 input terminal / SI SS1 DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Assignment of the input terminals for input SS1 (operating mode = control interface) Description, refer to P10022		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
Note:	SS1: Safe Stop 1 Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10024	SI SS2 input terminal / SI SS2 DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Assignment of the input terminals for input SS2 (operating mode = control interface) Description, refer to P10022		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
Note:	SS2: Safe Stop 2 Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10025	SI SOS input terminal / SI SOS DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0
Description:	Assignment of the input terminals for input SOS (operating mode = control interface) Description, refer to P10022		

Value: 0: Statically active
 1: F-DI 0
 2: F-DI 1
 3: F-DI 2
 255: Statically inactive

Note: SOS: Safe Operating Stop
 Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.

p10026 SI SLS input terminal / SI SLS DI

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Assignment of the input terminals for input SLS (operating mode = control interface)
 Description, refer to P10022

Value: 0: Statically active
 1: F-DI 0
 2: F-DI 1
 3: F-DI 2
 255: Statically inactive

Note: SLS: Safely-Limited Speed
 Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.

p10027 SI SLS_Limit(1) input terminal / SI SLS_Limit(1) DI

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Sets the input terminal for SLS_Limit bit 0 (operating mode "control interface").

Value: 0: Statically active
 1: F-DI 0
 2: F-DI 1
 3: F-DI 2
 255: Statically inactive

Note: SLS: Safely-Limited Speed
 Re value = 0:
 No terminal assigned, selection bit remains statically at "0".
 Re value = 255:
 No terminal assigned, selection bit remains statically at "1".

p10028		SI SLS_Limit(2) input terminal / SI SLS_Limit(2) DI			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0	255	0		
Description:	Sets the input terminal for SLS_Limit bit 1 (operating mode "control interface").				
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive				
Note:	SLS: Safely-Limited Speed Re value = 0: No terminal assigned, selection bit remains statically at "0". Re value = 255: No terminal assigned, selection bit remains statically at "1".				
p10039		SI Safe State signal selection / SI Safe State Sel			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2856		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0001 bin		
Description:	Sets the signals for the drive group specific signal "Safe State". Bit 0 = Power_removed Bit 1 = SS1_active Bit 2 = SS2_active Bit 3 = SOS_active Bit 4 = SLS_active Bit 5 = Reserved				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power_removed	Selected	Not selected	-
	01	SS1_active	Selected	Not selected	-
	02	SS2_active	Selected	Not selected	-
	03	SOS_active	Selected	Not selected	-
	04	SLS_active	Selected	Not selected	-
Note:	Bit = 0 signal --> not selected Bit = 1 signal --> selected The selected signals (high-active) are OR'ed The result of the logic operation results in the status "Safe State".				

p10040 SI F-DI input mode / SI F-DI inp_mode

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description:

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 1 (X130.2)	NO contact	NC contact	2850
	01	F-DI 2 (X130.5)	NO contact	NC contact	2850
	02	F-DI 3 (X131.2)	NO contact	NC contact	2850

p10042[0...5] SI F-DO 0 signal sources / SI F-DO 0 S_src

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2857
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	11	0

Description:

Sets the signal sources for F-DO 0 (X131.5).

The 6 signal sources in p10042[0...5] are AND'ed and the result is output at F-DO 0.

Value:

0:	No function
1:	Pulses suppressed
2:	SS1 active
3:	SS2 active
4:	SOS active
5:	SLS active
6:	SSM feedback signal active
7:	Safestate
8:	SOS selected
9:	Internal event
10:	Active SLS stage bit 0
11:	Active SLS stage bit 1

Index:

[0]	= AND logic operation input 1
[1]	= AND logic operation input 2
[2]	= AND logic operation input 3
[3]	= AND logic operation input 4
[4]	= AND logic operation input 5
[5]	= AND logic operation input 6

Note:

F-DO: Failsafe Digital Output

r10052.0 CO/BO: SI digital outputs status / SI DO status

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description:

Displays the status of digital output F-DO 0 (X131.5) at the CU305.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0	High	Low	2853

Note:

F-DO: Failsafe Digital Output

p10102	SI discrepancy monitoring time (2nd channel) / SI discrep t_monit		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: FloatingPoint32	Dynamic index: -	Func. diagram: 2850, 2851
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 1.00 [ms]	Max 2000.00 [ms]	Factory setting 12.00 [ms]
Description:	Sets the monitoring time for the discrepancy for the digital inputs. The signal states at the two associated digital inputs (F-DI) must assume the same state within this monitoring time.		
Note:	F-DI: Failsafe Digital Input		
p10106	SI acknowledgement internal event input terminal (2nd channel) / SI ackn int event		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Select a safety-relevant digital input for the signal "acknowledge internal event" (internal fault). The signal is transferred to the corresponding control signal of all drives. The falling edge at this input resets the status "internal event" in the drives.		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
p10122	SI STO input terminal (2nd channel) / SI STO DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Sets the input terminal for STO (operating mode "control interface").		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
Note:	STO: Safe Torque Off Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10123	SI SS1 input terminal (2nd channel) / SI SS1 DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Assignment of the input terminals for input SS1 (operating mode = control interface) Description, refer to P10022		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
Note:	SS1: Safe Stop 1 Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10124	SI SS2 input terminal (2nd channel) / SI SS2 DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Assignment of the input terminals for input SS2 (operating mode = control interface) Description, refer to P10022		
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive		
Note:	SS2: Safe Stop 2 Re value = 0: No terminal assigned, safety function always active. Re value = 255: No terminal assigned, safety function always inactive.		

p10125	SI SOS input terminal (2nd channel) / SI SOS DI		
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min 0	Max 255	Factory setting 0
Description:	Assignment of the input terminals for input SOS (operating mode = control interface) Description, refer to P10022		

Value: 0: Statically active
 1: F-DI 0
 2: F-DI 1
 3: F-DI 2
 255: Statically inactive

Note: SOS: Safe Operating Stop
 Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.

p10126 SI SLS input terminal (2nd channel) / SI SLS DI

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Assignment of the input terminals for input SLS (operating mode = control interface)
 Description, refer to P10022

Value: 0: Statically active
 1: F-DI 0
 2: F-DI 1
 3: F-DI 2
 255: Statically inactive

Note: SLS: Safely-Limited Speed
 Re value = 0:
 No terminal assigned, safety function always active.
 Re value = 255:
 No terminal assigned, safety function always inactive.

p10127 SI SLS_Limit(1) input terminal (2nd channel) / SI SLS_Limit(1) DI

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	255	0

Description: Sets the input terminal for SLS_Limit bit 0 (operating mode "control interface").

Value: 0: Statically active
 1: F-DI 0
 2: F-DI 1
 3: F-DI 2
 255: Statically inactive

Note: SLS: Safely-Limited Speed
 Re value = 0:
 No terminal assigned, selection bit remains statically at "0".
 Re value = 255:
 No terminal assigned, selection bit remains statically at "1".

p10128		SI SLS_Limit(2) input terminal (2nd channel) / SI SLS_Limit(2) DI			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Integer16	Dynamic index: -	Func. diagram: -		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	0	255	0		
Description:	Sets the input terminal for SLS_Limit bit 1 (operating mode "control interface").				
Value:	0: Statically active 1: F-DI 0 2: F-DI 1 3: F-DI 2 255: Statically inactive				
Note:	SLS: Safely-Limited Speed Re value = 0: No terminal assigned, selection bit remains statically at "0". Re value = 255: No terminal assigned, selection bit remains statically at "1".				
p10139		SI Safe State signal selection (2nd channel) / SI Safe State Sel			
SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3		
	Data type: Unsigned32	Dynamic index: -	Func. diagram: 2856		
	P-Group: Safety Integrated	Units group: -	Unit selection: -		
	Not for motor type: -		Expert list: 1		
	Min	Max	Factory setting		
	-	-	0000 bin		
Description:	Sets the signals for the drive group specific signal "Safe State". Bit 0 = Power_removed Bit 1 = SS1_active Bit 2 = SS2_active Bit 3 = SOS_active Bit 4 = SLS_active Bit 5 = Reserved				
Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	Power_removed	Selected	Not selected	-
	01	SS1_active	Selected	Not selected	-
	02	SS2_active	Selected	Not selected	-
	03	SOS_active	Selected	Not selected	-
	04	SLS_active	Selected	Not selected	-
Note:	Bit = 0 signal --> not selected Bit = 1 signal --> selected The selected signals (high-active) are OR'ed The result of the logic operation results in the status "Safe State".				

p10140 SI F-DI input mode (2nd channel) / SI F-DI inp_mode

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	0000 bin

Description:

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	F-DI 1 (X130.2)	NO contact	NC contact	2850
	01	F-DI 2 (X130.5)	NO contact	NC contact	2850
	02	F-DI 3 (X131.2)	NO contact	NC contact	2850

p10142[0...5] SI F-DO 0 signal sources (2nd channel) / SI F-DO 0 S_src

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: C2	Calculated: -	Access level: 3
	Data type: Integer16	Dynamic index: -	Func. diagram: 2857
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	0	11	0

Description:

Sets the signal sources for F-DO 0 (X131.6).

The 6 signal sources in p10142[0...5] are AND'ed and the result is output at F-DO 0.

Value:

- 0: No function
- 1: Pulses suppressed
- 2: SS1 active
- 3: SS2 active
- 4: SOS active
- 5: SLS active
- 6: SSM feedback signal active
- 7: Safestate
- 8: SOS selected
- 9: Internal event
- 10: Active SLS stage bit 0
- 11: Active SLS stage bit 1

Index:

- [0] = AND logic operation input 1
- [1] = AND logic operation input 2
- [2] = AND logic operation input 3
- [3] = AND logic operation input 4
- [4] = AND logic operation input 5
- [5] = AND logic operation input 6

Note:

F-DO: Failsafe Digital Output

r10152.0 CO/BO: SI digital output status (2nd channel) / SI DO status

SERVO_S110-CAN, SERVO_S110-DP	Can be changed: -	Calculated: -	Access level: 3
	Data type: Unsigned32	Dynamic index: -	Func. diagram: -
	P-Group: Safety Integrated	Units group: -	Unit selection: -
	Not for motor type: -		Expert list: 1
	Min	Max	Factory setting
	-	-	-

Description:

Displays the status of digital output F-DO 0 (X131.6) at the CU305.

Bit field:	Bit	Signal name	1 signal	0 signal	FP
	00	DO 0	High	Low	2853

Note:

F-DO: Failsafe Digital Output

1.3 Parameters for data sets

1.3.1 Parameters for Command Data Sets (CDS)

Note:

References: /FH3/ SINAMICS S110 Function Manual
Chapter "Data sets"

The following list contains the command-data-set-dependent parameters.

Product: SINAMICS S110, Version: 4101500, Language: eng, Type: CDS

p0820[0...n]	BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0
p0828[0...n]	BI: Motor changeover, feedback signal / Mot_chng fdbk sig
p0840[0...n]	BI: ON/OFF1 / ON/OFF1
p0844[0...n]	BI: 1. OFF2 / 1. OFF2
p0845[0...n]	BI: 2. OFF2 / 2. OFF2
p0848[0...n]	BI: 1. OFF3 / 1. OFF3
p0849[0...n]	BI: 2. OFF3 / 2. OFF3
p0852[0...n]	BI: Operation enable / Operation enable
p0854[0...n]	BI: Master ctrl by PLC / Master ctrl by PLC
p0855[0...n]	BI: Unconditionally release holding brake / Uncond open brake
p0856[0...n]	BI: Speed controller enable / n_ctrl enable
p0858[0...n]	BI: Unconditionally close holding brake / Uncond close brake
p1020[0...n]	BI: Fixed speed setpoint selection Bit 0 / n_set_fixed Bit 0
p1021[0...n]	BI: Fixed speed setpoint selection Bit 1 / n_set_fixed Bit 1
p1022[0...n]	BI: Fixed speed setpoint selection Bit 2 / n_set_fixed Bit 2
p1023[0...n]	BI: Fixed speed setpoint selection Bit 3 / n_set_fixed Bit 3
p1035[0...n]	BI: Motorized potentiometer setpoint raise / Mop raise
p1036[0...n]	BI: Motorized potentiometer lower setpoint / Mop lower
p1039[0...n]	BI: Motorized potentiometer inversion / Mop inversion
p1041[0...n]	BI: Motorized potentiometer manual/automatic / Mop manual/auto
p1042[0...n]	CI: Motorized potentiometer automatic setpoint / Mop auto setpoint
p1043[0...n]	BI: Motorized potentiometer accept setpoint / Mop accept set val
p1044[0...n]	CI: Motorized potentiometer setting value / Mop set val
p1055[0...n]	BI: Jog bit 0 / Jog bit 0
p1056[0...n]	BI: Jog bit 1 / Jog bit 1
p1070[0...n]	CI: Main setpoint / Main setpoint
p1071[0...n]	CI: Main setpoint scaling / Main setp scal
p1075[0...n]	CI: Supplementary setpoint / Suppl setpoint
p1076[0...n]	CI: Supplementary setpoint scaling / Suppl setp scal
p1085[0...n]	CI: Speed limit in positive direction of rotation / n_limit pos
p1088[0...n]	CI: Speed limit negative direction of rotation / n_limit neg
p1110[0...n]	BI: Inhibit negative direction / Inhib neg dir
p1111[0...n]	BI: Inhibit positive direction / Inhib pos dir
p1113[0...n]	BI: Setpoint inversion / Setp inv
p1122[0...n]	BI: Bypass ramp-function generator / Bypass RFG
p1140[0...n]	BI: Ramp-function generator enable / RFG enable
p1141[0...n]	BI: Start ramp-function generator / Start RFG

p1142[0...n]	BI: Speed setpoint enable / n_set enable
p1143[0...n]	BI: Ramp-function generator, accept setting value / Accept RFG set val
p1144[0...n]	CI: Ramp-function generator setting value / RFG setting value
p1155[0...n]	CI: Speed controller speed setpoint 1 / n_ctrl n_set 1
p1160[0...n]	CI: Speed controller speed setpoint 2 / n_ctrl n_set 2
p1230[0...n]	BI: Armature short-circuit / DC brake activation / ASC act
p1235[0...n]	BI: External armature short-circuit, contactor feedback signal / ASC ext feedback
p1430[0...n]	CI: Speed pre-control / n_prectrl
p1455[0...n]	CI: Speed controller P gain adaptation signal / n_ctrl Adpt_sig Kp
p1466[0...n]	CI: Speed controller P-gain scaling / n_ctrl Kp scal
p1476[0...n]	BI: Speed controller hold integrator / n_ctrl integ stop
p1477[0...n]	BI: Speed controller set integrator value / n_ctrl integ set
p1478[0...n]	CI: Speed controller integrator setting value / n_ctr integ_setVal
p1497[0...n]	CI: Moment of inertia, scaling / Mom of inert scal
p1501[0...n]	BI: Change over between closed-loop speed/torque control / Changeov n/M_ctrl
p1511[0...n]	CI: Supplementary torque 1 / M_suppl 1
p1512[0...n]	CI: Supplementary torque 1 scaling / M_suppl 1 scal
p1513[0...n]	CI: Supplementary torque 2 / M_suppl 2
p1522[0...n]	CI: Torque limit upper/motoring / M_max upper/mot
p1523[0...n]	CI: Torque limit lower/regenerative / M_max lower/regen
p1528[0...n]	CI: Torque limit upper/motoring scaling / M_max up/mot scal
p1529[0...n]	CI: Torque limit lower/regenerating scaling / M_max low/gen scal
p1542[0...n]	CI: Travel to fixed stop torque reduction / TfS M_red
p1545[0...n]	BI: Activates travel to a fixed stop / TfS activation
p1550[0...n]	BI: Transfer current torque as torque offset / Accept act torque
p1551[0...n]	BI: Torque limit variable/fixed signal source / M_lim var/fixS_src
p1552[0...n]	CI: Torque limit upper scaling without offset / M_max up offs scal
p1554[0...n]	CI: Torque limit lower scaling without offset / M_max low offsScal
p1569[0...n]	CI: Supplementary torque 3 / M_suppl 3
p2103[0...n]	BI: 1. Acknowledge faults / 1. Acknowledge
p2104[0...n]	BI: 2. Acknowledge faults / 2. Acknowledge
p2105[0...n]	BI: 3. Acknowledge faults / 3. Acknowledge
p2106[0...n]	BI: External fault 1 / External fault 1
p2107[0...n]	BI: External fault 2 / External fault 2
p2108[0...n]	BI: External fault 3 / External fault 3
p2112[0...n]	BI: External alarm 1 / External alarm 1
p2116[0...n]	BI: External alarm 2 / External alarm 2
p2117[0...n]	BI: External alarm 3 / External alarm 3
p2144[0...n]	BI: Motor stall monitoring enable (negated) / Mot stall enab neg
p2148[0...n]	BI: Ramp-function generator active / HLG active
p2151[0...n]	CI: Speed setpoint for messages/signals / n_set for msg
p2154[0...n]	CI: Speed setpoint 2 / n_set 2
p2200[0...n]	BI: Technology controller enable / Tec_ctrl enable
p2220[0...n]	BI: Technology controller fixed value selection bit 0 / Tec_ctrl sel bit 0
p2221[0...n]	BI: Technology controller fixed value selection bit 1 / Tec_ctrl sel bit 1
p2222[0...n]	BI: Technology controller fixed value selection bit 2 / Tec_ctrl sel bit 2
p2223[0...n]	BI: Technology controller fixed value selection bit 3 / Tec_ctrl sel bit 3
p2235[0...n]	BI: Technology controller motorized potentiometer raise setpoint / Tec_ctrl mop raise
p2236[0...n]	BI: Technology controller motorized potentiometer lower setpoint / Tec_ctrl mop lower
p2253[0...n]	CI: Technology controller setpoint 1 / Tec_ctrl setp 1
p2254[0...n]	CI: Technology controller setpoint 2 / Tec_ctrl setp 2
p2264[0...n]	CI: Technology controller actual value / Tec_ctrl act val

p2289[0...n]	CI: Technology controller pre-control signal / Tec_ctrl prectrl
p2296[0...n]	CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n]	CI: Technology controller maximum limiting / Tec_ctrl max_limit
p2298[0...n]	CI: Technology controller minimum limiting / Tec_ctrl min_lim

1.3.2 Parameters for Drive Data Sets (DDS)

Note:

References: /FH3/ SINAMICS S110 Function Manual
Chapter "Data sets"

The following list contains the drive-data-set-dependent parameters.

Product: SINAMICS S110, Version: 4101500, Language: eng, Type: DDS

p0186[0...n]	Motor Data Sets (MDS) number / MDS number
p0187[0...n]	Encoder 1 encoder data set number / Enc 1 EDS number
p0188[0...n]	Encoder 2 encoder data set number / Enc 2 EDS number
p0340[0...n]	Automatic calculation, motor/control parameters / Calc auto par
p0572[0...n]	Activate inhibit list / Act inhib list
p0578[0...n]	Calculate parameters that are dependent on the technology/units / Calc tec par
p0640[0...n]	Current limit / Current limit
p0642[0...n]	Encoderless operation current reduction / Encoderl op I_red
p1001[0...n]	CO: Fixed speed setpoint 1 / n_set_fixed 1
p1002[0...n]	CO: Fixed speed setpoint 2 / n_set_fixed 2
p1003[0...n]	CO: Fixed speed setpoint 3 / n_set_fixed 3
p1004[0...n]	CO: Fixed speed setpoint 4 / n_set_fixed 4
p1005[0...n]	CO: Fixed speed setpoint 5 / n_set_fixed 5
p1006[0...n]	CO: Fixed speed setpoint 6 / n_set_fixed 6
p1007[0...n]	CO: Fixed speed setpoint 7 / n_set_fixed 7
p1008[0...n]	CO: Fixed speed setpoint 8 / n_set_fixed 8
p1009[0...n]	CO: Fixed speed setpoint 9 / n_set_fixed 9
p1010[0...n]	CO: Fixed speed setpoint 10 / n_set_fixed 10
p1011[0...n]	CO: Fixed speed setpoint 11 / n_set_fixed 11
p1012[0...n]	CO: Fixed speed setpoint 12 / n_set_fixed 12
p1013[0...n]	CO: Fixed speed setpoint 13 / n_set_fixed 13
p1014[0...n]	CO: Fixed speed setpoint 14 / n_set_fixed 14
p1015[0...n]	CO: Fixed speed setpoint 15 / n_set_fixed 15
p1030[0...n]	Motorized potentiometer configuration / Mop configuration
p1037[0...n]	Motorized potentiometer maximum speed / Mop n_max
p1038[0...n]	Motorized potentiometer minimum speed / Mop n_min
p1040[0...n]	Motorized potentiometer starting value / Mop start value
p1047[0...n]	Motorized potentiometer ramp-up time / Mop ramp-up time
p1048[0...n]	Motorized potentiometer ramp-down time / Mop ramp-down time
p1058[0...n]	Jog 1 speed setpoint / Jog 1 n_set
p1059[0...n]	Jog 2 speed setpoint / Jog 2 n_set
p1063[0...n]	Speed limit setpoint channel / n_limit setp
p1080[0...n]	Minimum speed / Minimum speed
p1082[0...n]	Maximum speed / Maximum speed
p1083[0...n]	CO: Speed limit in positive direction of rotation / n_limit pos
p1086[0...n]	CO: Speed limit negative direction of rotation / n_limit neg

p1091[0...n]	Skip speed 1 / n_skip 1
p1092[0...n]	Skip speed 2 / n_skip 2
p1093[0...n]	Skip speed 3 / n_skip 3
p1094[0...n]	Skip speed 4 / n_skip 4
p1101[0...n]	Skip speed bandwidth / n_skip bandwidth
p1120[0...n]	Ramp-function generator ramp-up time / RFG ramp-up time
p1121[0...n]	Ramp-function generator ramp-down time / RFG ramp-down time
p1130[0...n]	Ramp-function generator initial rounding-off time / RFG t_start_round
p1131[0...n]	Ramp-function generator final rounding-off time / RFG t_end_delay
p1134[0...n]	Ramp-function generator rounding-off type / RFG round-off type
p1135[0...n]	OFF3 ramp-down time / RFG OFF3 t_ramp-dn
p1136[0...n]	OFF3 initial rounding-off time / RFGOFF3 t_strt_rnd
p1137[0...n]	OFF3 final rounding-off time / RFG OFF3 t_end_del
p1145[0...n]	Ramp-function generator tracking intensity. / RFG track intens
p1148[0...n]	Ramp-function gen., tolerance for ramp-up and ramp-down active / RFG tol HL/RL act
p1151[0...n]	Ramp-function generator configuration / RFG config
p1189[0...n]	Speed setpoint configuration / n_ctrl config
p1192[0...n]	DSC enc selection / DSC enc selection
p1193[0...n]	DSC encoder adaptation factor / DSC encodAdaptFact
p1226[0...n]	Threshold for zero speed detection / n_standst n_thresh
p1240[0...n]	Vdc controller or Vdc monitoring configuration / Vdc_ctrl config
p1244[0...n]	DC link voltage threshold upper / Vdc upper thresh
p1248[0...n]	DC link voltage threshold lower / Vdc lower thresh
p1250[0...n]	Vdc controller proportional gain / Vdc_ctrl Kp
p1300[0...n]	Open-loop/closed-loop control operating mode / Op/cl-lp ctrl_mode
p1317[0...n]	V/f control diagnostics activation / Vf diagn act
p1318[0...n]	V/f control ramp-up/ramp-down time / Vf t_rmp-up_rmp-dn
p1319[0...n]	V/f control voltage at zero frequency / Vf V at f=0 Hz
p1326[0...n]	V/f control programmable characteristic frequency 4 / Vf char f4
p1327[0...n]	V/f control programmable characteristic voltage 4 / Vf char U4
p1400[0...n]	Speed control configuration / n_ctrl config
p1402[0...n]	Closed-loop current control and motor model configuration / l_ctrl config
p1404[0...n]	Encoderless operation changeover speed / Encoderl op n_chg
p1414[0...n]	Speed setpoint filter activation / n_set_filt act
p1415[0...n]	Speed setpoint filter 1 type / n_set_filt 1 typ
p1416[0...n]	Speed setpoint filter 1 time constant / n_set_filt 1 T
p1417[0...n]	Speed setpoint filter 1 denominator natural frequency / n_set_filt 1 fn_d
p1418[0...n]	Speed setpoint filter 1 denominator damping / n_set_filt 1 D_d
p1419[0...n]	Speed setpoint filter 1 numerator natural frequency / n_set_filt 1 fn_n
p1420[0...n]	Speed setpoint filter 1 numerator damping / n_set_filt 1 D_n
p1428[0...n]	Speed pre-control balancing dead time / n_prectrBal t_dead
p1429[0...n]	Speed pre-control balancing time constant / n_prectr bal T
p1433[0...n]	Speed controller reference model natural frequency / n_ctrl RefMod fn
p1434[0...n]	Speed controller reference model damping / n_ctrl RefMod D
p1435[0...n]	Speed controller reference model dead time / n_ctrRefMod t_dead
p1441[0...n]	Actual speed smoothing time / n_ist T_smooth
p1456[0...n]	Speed controller P gain adaptation lower starting point / n_ctrl AdaptKpLow.
p1457[0...n]	Speed controller P gain adaptation upper starting point / n_ctrl AdaptKp up.
p1458[0...n]	Adaptation factor, lower / Adapt_factor lower
p1459[0...n]	Adaptation factor, upper / Adapt_factor upper
p1460[0...n]	Speed controller P gain adaptation speed, lower / n_ctrl Kp n lower
p1461[0...n]	Speed controller Kp adaptation speed, upper scaling / n_ctrl Kp n upper
p1462[0...n]	Speed controller integral time adaptation speed lower / n_ctrl Tn n lower

p1463[0...n]	Speed controller Tn adaptation speed, upper scaling / n_ctrl Tn n upper
p1464[0...n]	Speed controller adaptation speed, lower / n_ctrl n lower
p1465[0...n]	Speed controller adaptation speed, upper / n_ctrl n upper
p1470[0...n]	Speed controller encoderless operation P-gain / n_ctrl SLVC Kp
p1472[0...n]	Speed controller encoderless operation integral time / n_ctrl SLVC Tn
p1494[0...n]	Speed controller integrator feedback time constant / n_ctr integ_fdbk T
p1498[0...n]	Load moment of inertia / Load mom of inert
p1517[0...n]	Accelerating torque smoothing time constant / M_accel T_smooth
p1520[0...n]	CO: Torque limit upper/motoring / M_max upper/mot
p1521[0...n]	CO: Torque limit lower/regenerative / M_max lower/regen
p1524[0...n]	CO: Torque limit upper/motoring scaling / M_max up/mot scal
p1525[0...n]	CO: Torque limit lower/regenerating scaling / M_max low/gen scal
p1530[0...n]	Power limit motoring / P_max mot
p1531[0...n]	Power limit regenerating / P_max gen
p1532[0...n]	CO: Torque limit offset / M_max offset
p1578[0...n]	Flux reduction flux decrease smoothing time / Flux red dec t_sm
p1579[0...n]	Flux reduction flux build-up smoothing time / Flux red up t_sm
p1581[0...n]	Flux reduction factor / Flux red factor
p1585[0...n]	Flux actual value, smoothing time / Flux actVal T_smth
p1590[0...n]	Flux controller P gain / Flux controller Kp
p1592[0...n]	Flux controller integral.action time / Flux controller Tn
p1612[0...n]	Current setpoint, open-loop control, encoderless / I_setCtrEncoderI
p1656[0...n]	Activates current setpoint filter / I_setp_filt act
p1657[0...n]	Current setpoint filter 1 type / I_set_filt 1 Typ
p1658[0...n]	Current setpoint filter 1 denominator natural frequency / I_set_filt 1 fn_n
p1659[0...n]	Current setpoint filter 1 denominator damping / I_set_filt 1 D_n
p1660[0...n]	Current setpoint filter 1 numerator natural frequency / I_set_filt 1 fn_z
p1661[0...n]	Current setpoint filter 1 numerator damping / I_set_filt 1 D_z
p1662[0...n]	Current setpoint filter 2 type / I_set_filt 2 Typ
p1663[0...n]	Current setpoint filter 2 denominator natural frequency / I_set_filt 2 fn_n
p1664[0...n]	Current setpoint filter 2 denominator damping / I_set_filt 2 D_n
p1665[0...n]	Current setpoint filter 2 numerator natural frequency / I_set_filt 2 fn_z
p1666[0...n]	Current setpoint filter 2 numerator damping / I_set_filt 2 D_z
p1701[0...n]	Current controller reference model dead time / I_ctrRefMod t_dead
p1715[0...n]	Current controller P gain / I_ctrl Kp
p1717[0...n]	Current controller integral-action time / I_ctrl Tn
p1752[0...n]	Motor model changeover speed operation with encoder / MotMod n_chgov enc
p1755[0...n]	Motor model changeover speed encoderless operation / MotMod n_chgSnsorI
p1800[0...n]	Pulse frequency setpoint / Pulse freq setp
p1821[0...n]	Dir of rot / Dir of rot
p2140[0...n]	Hysteresis speed 2 / n_hysteresis 2
p2141[0...n]	Speed threshold 1 / n_thresh val 1
p2142[0...n]	Hysteresis speed 1 / n_hysteresis 1
p2149[0...n]	Monitoring configuration / Monit config
p2150[0...n]	Hysteresis speed 3 / n_hysteresis 3
p2153[0...n]	Speed actual value filter time constant / n_act_filt T
p2155[0...n]	Speed threshold 2 / n_thresh val 2
p2156[0...n]	On delay, comparison value reached / t_on cmpr val rchd
p2161[0...n]	Speed threshold 3 / n_thresh val 3
p2162[0...n]	Hysteresis speed n_act > n_max / Hyst n_act>n_max
p2163[0...n]	Speed threshold 4 / n_thresh val 4
p2164[0...n]	Hysteresis speed 4 / n_hysteresis 4
p2166[0...n]	Off delay n_act = n_set / t_del_off n_i=n_so

p2167[0...n]	Switch-on delay $n_{act} = n_{set} / t_{on}$ $n_{act}=n_{set}$
p2174[0...n]	Torque threshold value 1 / M_{thresh} val 1
p2175[0...n]	Motor locked speed threshold / Mot lock n_{thresh}
p2177[0...n]	Motor locked delay time / Mot lock t_{del}
p2181[0...n]	Load monitoring response / Load monit resp
p2182[0...n]	Load monitoring speed threshold value 1 / n_{thresh} 1
p2183[0...n]	Load monitoring speed threshold value 2 / n_{thresh} 2
p2184[0...n]	Load monitoring speed threshold value 3 / n_{thresh} 3
p2185[0...n]	Load monitoring torque threshold 1, upper / M_{thresh} 1 upper
p2186[0...n]	Load monitoring torque threshold 1, lower / M_{thresh} 1 lower
p2187[0...n]	Load monitoring torque threshold 2, upper / M_{thresh} 2 upper
p2188[0...n]	Load monitoring torque threshold 2, lower / M_{thresh} 2 lower
p2189[0...n]	Load monitoring torque threshold 3, upper / M_{thresh} 3 upper
p2190[0...n]	Load monitoring torque threshold 3, lower / M_{thresh} 3 lower
p2192[0...n]	Load monitoring delay time / Load monit t_{del}
p2194[0...n]	Torque threshold value 2 / M_{thresh} val 2
p2195[0...n]	Torque utilization switch-off delay / M_{util} t_{off}
p2201[0...n]	CO: Technology controller, fixed value 1 / Tec_ctrl fix val 1
p2202[0...n]	CO: Technology controller, fixed value 2 / Tec_ctrl fix val 2
p2203[0...n]	CO: Technology controller, fixed value 3 / Tec_ctrl fix val 3
p2204[0...n]	CO: Technology controller, fixed value 4 / Tec_ctrl fix val 4
p2205[0...n]	CO: Technology controller, fixed value 5 / Tec_ctrl fix val 5
p2206[0...n]	CO: Technology controller, fixed value 6 / Tec_ctrl fix val 6
p2207[0...n]	CO: Technology controller, fixed value 7 / Tec_ctrl fix val 7
p2208[0...n]	CO: Technology controller, fixed value 8 / Tec_ctrl fix val 8
p2209[0...n]	CO: Technology controller, fixed value 9 / Tec_ctrl fix val 9
p2210[0...n]	CO: Technology controller, fixed value 10 / Tec_ctrl fix val10
p2211[0...n]	CO: Technology controller, fixed value 11 / Tec_ctrl fix val11
p2212[0...n]	CO: Technology controller, fixed value 12 / Tec_ctrl fix val12
p2213[0...n]	CO: Technology controller, fixed value 13 / Tec_ctrl fix val13
p2214[0...n]	CO: Technology controller, fixed value 14 / Tec_ctrl fix val14
p2215[0...n]	CO: Technology controller, fixed value 15 / Tec_ctrl fix val15
p2230[0...n]	Technology controller motorized potentiometer configuration / Tec_ctr mop config
p2237[0...n]	Technology controller motorized potentiometer maximum value / Tec_ctrl mop max
p2238[0...n]	Technology controller motorized potentiometer minimum value / Tec_ctrl mop min
p2240[0...n]	Technology controller motorized potentiometer starting value / Tec_ctrl mop start
p2247[0...n]	Technology controller motorized potentiometer ramp-up time / Tec_ctr mop t_{r-up}
p2248[0...n]	Technology controller motorized potentiometer ramp-down time / Tec_ctrMop t_{r-down}
p2502[0...n]	LR encoder assignment / Encoder assignment
p2503[0...n]	LR length unit LU per 10 mm / LU per 10 mm
p2504[0...n]	LR motor/load motor revolutions / Mot/load motor rev
p2505[0...n]	LR motor/load motor revolutions / Mot/load motor rev
p2506[0...n]	LR length unit LU per load revolution / LU per load rev
p2519[0...n]	LR position actual value preprocessing config. DDS changeover / s_{act} config DDS
p2533[0...n]	LR position setpoint filter, time constant / s_{set_filt} T
p2534[0...n]	LR speed pre-control factor / n_{prectr} fact
p2535[0...n]	LR speed pre-control balancing filter dead time / $n_{prectrFlt}$ t_{dead}
p2536[0...n]	LR speed pre-control, symmetrizing filter PT1 / n_{prectr} filt PT1
p2538[0...n]	LR proportional gain / K_p
p2539[0...n]	LR integral time / T_n
p2546[0...n]	LR dynamic following error monitoring tolerance / s_{delta_monit} tol
p2567[0...n]	LR torque pre-control moment of inertia / M_{prectr} $M_{inertia}$
p2634[0...n]	EPOS fixed stop maximum following error / Following err max

p2720[0...n]	Load gear configuration / Load gear config
p2721[0...n]	Load gear, rotary absolute gearbox, revolutions, virtual / Abs rot rev
p2722[0...n]	Load gear, position tracking tolerance window / Pos track tol
r2723[0...n]	CO: Load gear absolute value / Load gear abs_val
r2724[0...n]	CO: Load gear position difference / Load gear pos diff
p2900[0...n]	CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n]	CO: Fixed value 2 [%] / Fixed value 2 [%]
p2930[0...n]	CO: Fixed value M [Nm] / Fixed value M [Nm]
p3233[0...n]	Torque actual value filter, time constant / M_act_filt T
r3925[0...n]	Identification final display / Ident final_disp
r3927[0...n]	Motor data identification induction motor data determined / MotID ASM dat det
r3928[0...n]	Motor data identification synchronous motor data determined / MotID PEM dat det
r3998[0...n]	First drive commissioning / First drv_comm

1.3.3 Parameters for Encoder Data Sets (EDS)

Note:

References: /FH3/ SINAMICS S110 Function Manual
Chapter "Data sets"

The following list contains the encoder-data-set-dependent parameters.

Product: SINAMICS S110, Version: 4101500, Language: eng, Type: EDS

p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no
p0142[0...n]	Encoder component number / Encoder comp_no
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0145[0...n]	Activate/de-activate encoder interface / Enc_intf act/deact
r0146[0...n]	Encoder interface active/inactive / Enc_intf act/inact
r0147[0...n]	Sensor Module EPROM data version / SM EEPROM version
r0148[0...n]	Sensor Module firmware version / SM FW version
p0400[0...n]	Encoder type selection / Enc_typ sel
p0401[0...n]	Encoder type, OEM selection / Enc type OEM sel
p0404[0...n]	Encoder configuration effective / Enc_config eff
p0405[0...n]	Square-wave encoder track A/B / Sq-wave enc A/B
p0408[0...n]	Rotary encoder pulse No. / Rot enc pulse No.
p0410[0...n]	Encoder inversion actual value / Enc inv act value
p0414[0...n]	Redundant coarse position value relevant bits (identified) / Relevant bits
p0415[0...n]	Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB
p0418[0...n]	Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1
p0419[0...n]	Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2
p0421[0...n]	Absolute encoder rotary multiturn resolution / Enc abs multiturn
p0423[0...n]	Absolute encoder rotary singleturn resolution / Enc abs singleturn
p0425[0...n]	Encoder, rotary zero mark distance / Enc rot dist ZM
p0427[0...n]	Encoder SSI baud rate / Enc SSI baud rate
p0428[0...n]	Encoder SSI monoflop time / Enc SSI t_monoflop
p0429[0...n]	Encoder SSI configuration / Enc SSI config
p0430[0...n]	Sensor Module configuration / SM config
p0431[0...n]	Angular commutation offset / Ang_com offset
p0432[0...n]	Gearbox factor, encoder revolutions / Grbx_fact enc_rev
p0433[0...n]	Gearbox factor, motor/load revolutions / Grbx_fact mot_rev

p0434[0...n]	Encoder SSI error bit / Enc SSI error bit
p0435[0...n]	Encoder SSI alarm bit / Enc SSI alarm bit
p0436[0...n]	Encoder SSI parity bit / Enc SSI parity bit
p0437[0...n]	Sensor Module configuration extended / SM config ext
p0438[0...n]	Squarewave encoder filter time / Enc t_filt
p0440[0...n]	Copy encoder serial number / Copy enc ser_no
p0441[0...n]	Encoder commissioning serial number part 1 / Enc comm ser_no 1
p0442[0...n]	Encoder commissioning serial number part 2 / Enc comm ser_no 2
p0443[0...n]	Encoder commissioning serial number part 3 / Enc comm ser_no 3
p0444[0...n]	Encoder commissioning serial number part 4 / Enc comm ser_no 4
p0445[0...n]	Encoder commissioning serial number part 5 / Enc comm ser_no 5
p0446[0...n]	Encoder SSI number of bits before the absolute value / Enc SSI bit before
p0447[0...n]	Encoder SSI number of bits absolute value / Enc SSI bit val
p0448[0...n]	Encoder SSI number of bits after the absolute value / Enc SSI bit after
p0449[0...n]	Encoder SSI number of bits, filler bits / Enc SSI fill bits
p2507[0...n]	LR absolute encoder adjustment status / Abs_enc_adj stat
p2525[0...n]	CO: LR encoder adjustment, offset / Enc_adj offset
p4680[0...n]	Zero mark monitoring tolerance permissible / ZM_monit tol perm
p4681[0...n]	Zero mark monitoring, tolerance window limit 1 positive / ZM tol lim 1 pos
p4682[0...n]	Zero mark monitoring, tolerance window limit 1 negative / ZM tol lim 1 neg
p4683[0...n]	Zero mark monitoring, tolerance window limit 2 positive / ZM tol lim 2 pos
p4684[0...n]	Zero mark monitoring, tolerance window limit 2 negative / ZM tol lim 2 neg
p4685[0...n]	Changeover, average value generation / Average value mode
p4686[0...n]	Zero mark minimum length / ZM min length

1.3.4 Parameters for Motor Data Sets (MDS)

Note:

References: /FH3/ SINAMICS S110 Function Manual
Chapter "Data sets"

The following list contains the motor-data-set-dependent parameters.

Product: SINAMICS S110, Version: 4101500, Language: eng, Type: MDS

p0131[0...n]	Motor component number / Mot comp_no
p0300[0...n]	Motor type selection / Mot type sel
p0301[0...n]	Motor code number selection / Mot code No. sel
r0302[0...n]	Motor code number of motor with DRIVE-CLiQ / Motor code Mot DLQ
r0303[0...n]	Motor status word of motor with DRIVE-CLiQ / Mot ZSW Mot DLQ
p0304[0...n]	Rated motor voltage / Mot V_rated
p0305[0...n]	Rated motor current / Mot I_rated
p0307[0...n]	Rated motor power / Mot P_rated
p0308[0...n]	Rated motor power factor / Mot cos_phi_rated
p0310[0...n]	Rated motor frequency / Mot f_rated
p0311[0...n]	Rated motor speed / Mot n_rated
p0312[0...n]	Rated motor torque / Mot M_rated
r0313[0...n]	Motor pole pair number, current (or calculated) / Mot PolePairNo cur
p0314[0...n]	Motor pole pair number / Mot pole pair No.
p0316[0...n]	Motor torque constant / Mot kT
p0318[0...n]	Motor stall current / Mot I_standstill

p0319[0...n]	Motor stall torque / Mot M_standstill
p0320[0...n]	Motor rated magnetizing current/short-circuit current / Mot I_mag_rated
p0322[0...n]	Maximum motor speed / Mot n_max
p0323[0...n]	Maximum motor current / Mot I_max
p0325[0...n]	Motor pole position identification current, 1st phase / Mot PolID I 1st ph
p0326[0...n]	Motor stall torque correction factor / Mot M_stall_corr
p0327[0...n]	Optimum motor load angle / Mot phi_load opt
p0328[0...n]	Motor reluctance torque constant / Mot kT_reluctance
p0329[0...n]	Motor pole position identification current / Mot PolID current
r0330[0...n]	Rated motor slip / Mot slip_rated
r0331[0...n]	Current motor magnetizing current/short-circuit current / Mot I_mag_rtd cur
r0332[0...n]	Rated motor power factor / Mot cos_phi_rated
r0333[0...n]	Rated motor torque / Mot M_rated
r0334[0...n]	Current motor-torque constant / Mot kT cur
p0335[0...n]	Motor cooling type / Motor cooling type
r0336[0...n]	Current rated motor frequency / Mot f_rated cur
r0337[0...n]	Rated motor EMF / Mot EMF_rated
p0338[0...n]	Motor limit current / Mot I_limit
r0339[0...n]	Rated motor voltage / Mot V_rated
p0341[0...n]	Motor moment of inertia / Mot M_mom of inert
p0342[0...n]	Ratio between the total and motor moment of inertia / Mot MomInert Ratio
p0344[0...n]	Motor weight (for the thermal motor model) / Mot weight th mod
p0347[0...n]	Motor de-excitation time / Mot t_de-excitat.
p0348[0...n]	Speed at the start of field weakening Vdc = 600 V / Mot n_field weaken
p0350[0...n]	Motor stator resistance, cold / Mot R_stator cold
p0352[0...n]	Cable resistance / Mot R_cable cold
p0353[0...n]	Motor series inductance / Mot L_series
p0354[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd
p0356[0...n]	Motor stator leakage inductance / Mot L_stator leak.
p0358[0...n]	Motor rotor leakage inductance / damping inductance, d axis / Mot L_r leak / LDd
p0360[0...n]	Motor magnetizing inductance/magn. inductance, d axis saturated / Mot Lh/Lh d sat
r0370[0...n]	Motor stator resistance, cold / Mot R_stator cold
r0373[0...n]	Motor rated stator resistance / Mot R_stator rated
r0374[0...n]	Motor rotor resistance cold / damping resistance d axis / Mot R_r cold / RDd
r0376[0...n]	Rated motor rotor resistance / Mot R_rotor rated
r0377[0...n]	Motor leakage inductance, total / Mot L_leak total
r0382[0...n]	Motor magnetizing inductance transformed / Lh d axis saturated / Mot L_m tr/Lhd sat
r0384[0...n]	Motor rotor time constant / damping time constant d axis / Mot T_rotor/T_Dd
r0386[0...n]	Motor stator leakage time constant / Mot T_stator leak
p0391[0...n]	Current controller adaptation, starting point KP / I_adapt pt KP
p0392[0...n]	Current controller adaptation, starting point KP adapted / I_adapt pt KP adap
p0393[0...n]	Current controller adaptation p gain adaptation / I_adapt Kp adapt
r0395[0...n]	Current stator resistance / R_stator cur
r0396[0...n]	Current rotor resistance / R_rotor cur
p0600[0...n]	Motor temperature sensor for monitoring / Mot temp_sensor
p0601[0...n]	Motor temperature sensor type / Mot_temp_sens type
p0604[0...n]	Motor overtemperature alarm threshold / Mot TempAlmThresh
p0605[0...n]	Motor overtemperature fault threshold / MotTempFaultThresh
p0606[0...n]	Motor overtemperature timer / Mot TempTimeStage
p0607[0...n]	Temperature sensor fault timer / Sensor fault time
p0611[0...n]	I2t motor model thermal time constant / I2t mot_mod T
p0612[0...n]	Thermal motor model configuration / Therm Mot_mod conf
p0615[0...n]	I2t motor model fault threshold / I2t mot_mod thresh

p0616[0...n]	Motor overtemperature alarm threshold 1 / Mot temp alarm 1
p0620[0...n]	Thermal adaptation, stator and rotor resistance / Mot therm_adapt R
p0624[0...n]	Motor Temperature Offset PT100 / Mot T_offset PT100
p0625[0...n]	Motor ambient temperature / Mot T_ambient
p0626[0...n]	Motor overtemperature, stator core / Mot T_over core
p0627[0...n]	Motor overtemperature, stator winding / Mot T_over stator
p0628[0...n]	Motor overtemperature rotor winding / Mot T_over rotor
r0630[0...n]	Motor temperature model ambient temperature / MotTMod T_amb.
r0631[0...n]	Motor temperature model, stator core temperature / MotTMod T_core
r0632[0...n]	Motor temperature model, stator winding temperature / MotTMod T_copper
r0633[0...n]	Motor temperature model, rotor temperature / MotTMod T_rotor
p0643[0...n]	Overvoltage protection for synchronous motors / Overvolt_protect
p0650[0...n]	Actual motor operating hours / Mot t_oper act
p0651[0...n]	Motor operating hours maintenance interval / Mot t_op maint
p0826[0...n]	Motor changeover, motor number / Mot_chng mot No.
p0827[0...n]	Motor changeover status word bit number / Mot_chg ZSW bitNo.
p1231[0...n]	Armature short-circuit / DC brake configuration / ASC config
p1232[0...n]	DC braking, braking current / DCBRK I_brake
p1233[0...n]	DC braking time / DCBRK time
p1234[0...n]	Speed at the start of DC braking / DCBRK n_start
p1236[0...n]	Ext. armature short-cct., contactor feedback signal monit. time / ASC ext t_monit
p1237[0...n]	External armature short-circuit, waiting time when opening / ASC ext t_wait
p1909[0...n]	Motor data identification control word / MotID STW
p1958[0...n]	Rotating measurement ramp-up/ramp-down time / Rot meas t_r up/dn
p1959[0...n]	Rotating measurement configuration / Rot meas config
p1980[0...n]	Pole position identification technique / PolID technique
p1981[0...n]	Pole position identification maximum distance / PolID distance max
p1982[0...n]	Pole position identification selection / PolID selection
p1991[0...n]	Motor changeover, angular commutation correction / Ang_com corr
p1993[0...n]	Pole position identification current, motion-based / PolID I mot_bas
p1994[0...n]	Pole position identification rise time motion-based / PolID T mot_bas
p1995[0...n]	Pole position identification gain, motion-based / PolID kp mot_bas
p1996[0...n]	Pole position identification, integral time motion-based / PolID Tn mot_bas
p1997[0...n]	Pole position identification, smoothing time motion-based / PolID t_sm mot_bas
p3049[0...n]	MotId Speed at start of field weakening identified / ident
p3050[0...n]	Motord stator resistance identified / R_stator ident
p3054[0...n]	MotId rotor resistance identified / R_rotor ident
p3056[0...n]	MotId stator leakage inductance identified / L_stator leak
p3058[0...n]	MotId rotor leakage inductance identified / L_rotor leak
p3060[0...n]	MotId magnetizing inductance identified / MotId Lh ident

1.3.5 Parameters for Power unit Data Sets (PDS)

Note:

References: /FH3/ SINAMICS S110 Function Manual
Chapter "Data sets"

The following list contains the parameters that are dependent on the Power unit Data Sets.

Product: SINAMICS S110, Version: 4101500, Language: eng, Type: PDS

p0121[0...n]	Power unit component number / PU comp_no
r0127[0...n]	Power unit version EPROM data / PU EPROM version
r0128[0...n]	Power unit, firmware version / PU FW version
r0200[0...n]	Power unit current code number / PU code no. act
p0201[0...n]	Power unit code number / PU code no
r0203[0...n]	Current power unit type / PU current type
r0204[0...n]	Power unit hardware properties / PU HW property
p0251[0...n]	Operating hours counter power unit fan / PU fan t_oper

Function diagrams

2

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2.2 Explanations for the function diagrams

Function diagrams

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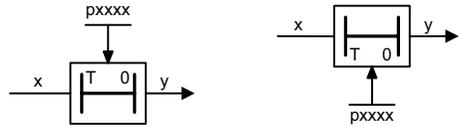
<p>Pre-assigned binectors and connectors Fixed percentage values</p> <p>-10 000.00...10 000.00 [%] p2900[D] (0.00) → Fixed value 1</p> <p>-10 000.00...10 000.00 [%] p2901[D] (0.00) → Fixed value 2</p> <p>[8] = Fixed value -5 % [9] = Fixed value -10 % [10] = Fixed value -20 % [11] = Fixed value -50 % [12] = Fixed value -100 % [13] = Fixed value -150 % [14] = Fixed value -200 %</p> <p>r2902[0...14] (0.00) → r2902[0...14]</p>	<p>Symbols for logic functions</p> <p> Logical inversion</p> <p> AND element with logical inversion of an input signal</p> <p> R/S flip-flop S = setting input R = reset input Q = non-inverted output Q̄ = inverted output</p> <p> Exclusiv-OR/XOR $y = 1$ for $x_1 \neq x_2$</p>	<p>Symbols for computational and closed-loop control functions</p> <p> Threshold value switch 1/0 Outputs at y a logical "1" if $x < S$.</p> <p> Threshold value switch 0/1 Outputs at y a logical "1" if $x > S$.</p> <p> Threshold value 1/0 with hysteresis Outputs a logical "1" at y if $x < S$. If $x \geq S + H$ then y returns to 0.</p> <p> Threshold value 0/1 with hysteresis Outputs a logical "1" at y if $x > S$. If $x \leq S - H$ then y returns to 0.</p> <p> Limiter x is limited to the upper limit LU and the lower limit LL and output at y. The digital signals MLU and MLL have the value "1", if the upper or lower limit is active.</p> <p> Sample & Hold element Sample and hold element. $y = x$ if SET = 1 (not retentively saved at POWER OFF)</p>
<p>Pre-assigned binectors and connectors Fixed speed values</p> <p>-210 000.000...210 000.000 [1/min] p1001[D] (0.000) → n_set_fixed 1</p> <p>...</p> <p>-210 000.000...210 000.000 [1/min] p1015[D] (0.000) → n_set_fixed 15</p>	<p>Symbols for computational and closed-loop control functions</p> <p> Sign reversal $y = -x$</p> <p> Absolute value generator $y = x$</p> <p> Divider $y = \frac{x_1}{x_2}$</p> <p> Comparator Output y = a logical "1", if the analog signal $x > 0$, i.e. is positive.</p> <p> Differentiator $y = \frac{dx}{dt}$</p>	
<p>Pre-assigned binectors and connectors Fixed torque values</p> <p>-100 000.00...100 000.00 [Nm] p2930[D] (0.00) → Fixed value M [Nm]</p>	<p>Symbol for monitoring</p> <p> Monitoring Axxxxx or Fxxxxx In the bottom right-hand corner of the diagram.</p>	
<p>Switch symbol</p> <p> Simple changeover switch The switch position is shown according to the factory setting (in this case, switch position 1 in the default state on delivery).</p>		

1	2	3	4	5	6	7	8
DO: All objects					fp_1021_98_eng.vsd	Function diagram	
Explanations for the function diagrams - Explanation of the symbols (Part 2)					25.05.08 V04.01.00	SINAMICS S110	
- 1021 -							

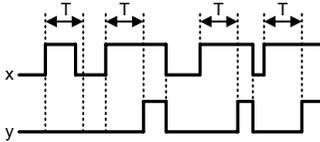
Figure 2-2 1021 – Explanation of the symbols (part 2)

Figure 2-3 1024 – Explanation of the symbols (part 3)

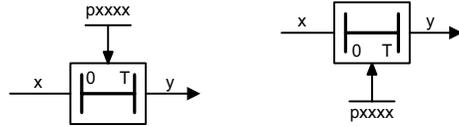
Switch-on delay



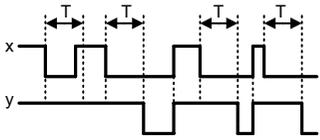
The digital signal x must have the value "1" without any interruption during the time T before output y changes to "1".



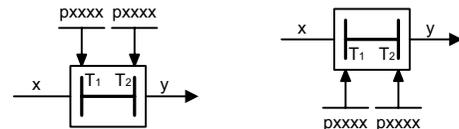
Switch-off delay



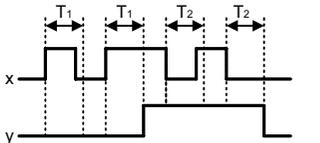
The digital signal x must have the value "0" without interruption during the time T before output y changes to "0".



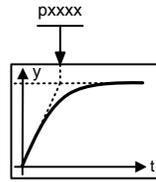
Delay (switch-on and switch-off)



The digital signal x must have the value "1" without interruption during time T₁ or must have the value "0" during time T₂ before output y changes its signal state.



PT1 element

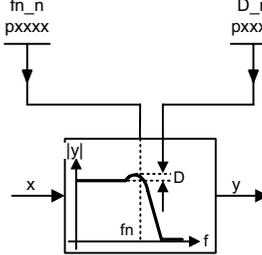


Delay element, first order.

pxxxx = time constant

PT2 low pass

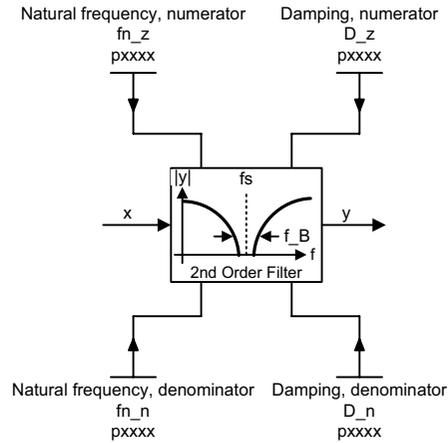
Natural frequency, denominator Damping, denominator



Transfer function

$$H(s) = \frac{1}{\left(\frac{s}{2\pi f_{n_n}}\right)^2 + \frac{2 \cdot D_n}{2\pi f_{n_n}} \cdot s + 1}$$

2nd-order filter (bandstop/general filter)



Used as bandstop filter

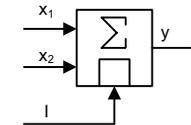
- center frequency f_s: f_{n_z} = f_s
f_{n_n} = f_s

- bandwidth f_B: D_z = 0
D_n = $\frac{f_B}{2 \cdot f_s}$

Transfer function when used as general filter

$$H(s) = \frac{\left(\frac{s}{2\pi f_{n_z}}\right)^2 + \frac{2 \cdot D_z}{2\pi f_{n_z}} \cdot s + 1}{\left(\frac{s}{2\pi f_{n_n}}\right)^2 + \frac{2 \cdot D_n}{2\pi f_{n_n}} \cdot s + 1}$$

Analog adder can be activated



The following applies to I = 1 signal: y = x₁ + x₂

The following applies to I = 0 signal: y = x₁

DO: All objects

Explanations for the function diagrams - Explanation of the symbols (Part 3)

fp_1024_98_eng.vsd

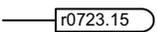
Function diagram

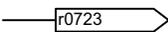
08.05.07 V04.01.00

SINAMICS S110

- 1024 -

Handling BICO technology

Binector:  Binectors are binary signals that can be freely interconnected (BO = Binector Output). They represent a bit of a "BO:" display parameter (e.g. bit 15 from r0723).

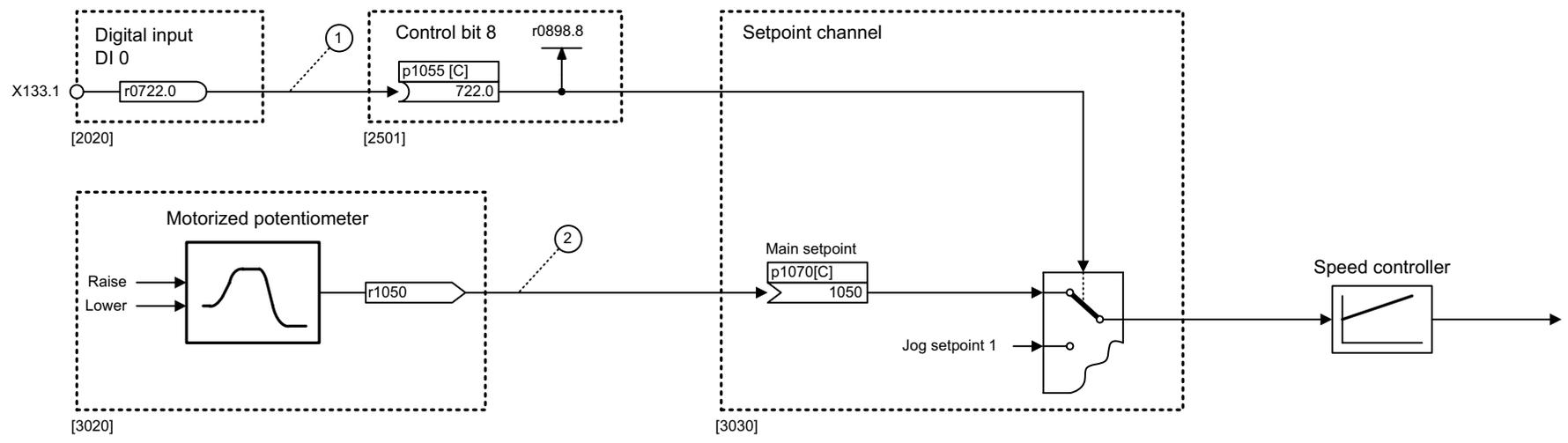
Connector:  Connectors are "analog signals" that can be freely interconnected (e.g. percentage variables, speeds or torques). Connectors are also "CO:" display parameters (CO = Connector Output).

Parameterization:

At the signal destination, the required binector or connector is selected using appropriate parameters:
 "BI:" parameter for binectors (BI = Binector Input)
 or
 "CI:" parameter for connectors (CI = Connector Input)

Example:

The main setpoint for the speed controller (CI: p1070) should be received from the output of the motorized potentiometer (CO: r1050) and the "jog" command (BI: p1055) from digital input DI 0 (BO: r0722.0, X133.1 terminal) on the CU305.



Parameterizing steps:

- ① p1055[0] = 722.0 Terminal X133.1 acts as "Jog bit 0".
- ② p1070[0] = 1050 The output of the motorized potentiometer acts as main setpoint for the speed controller.

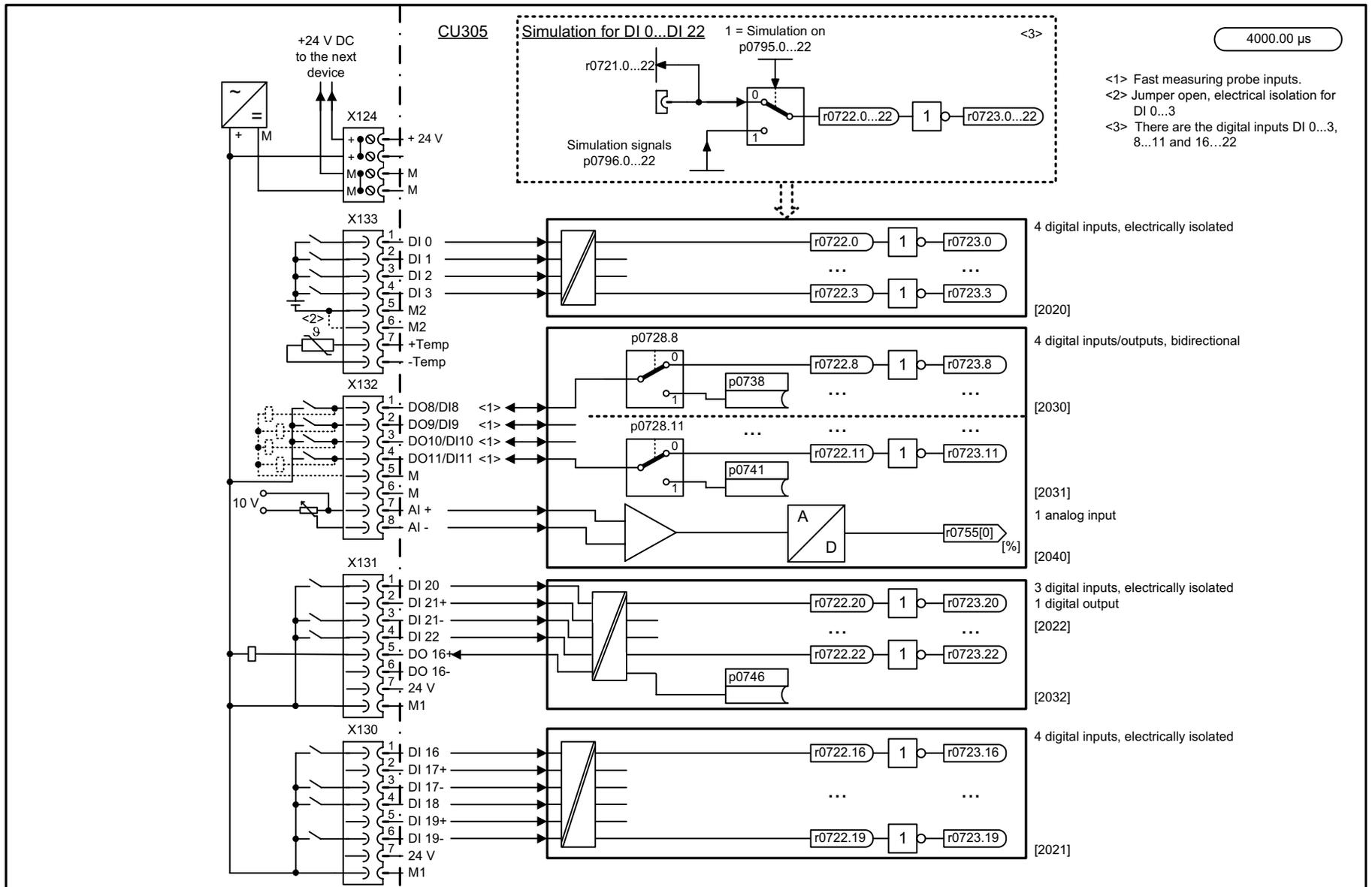
1	2	3	4	5	6	7	8
DO: All objects					fp_1025_98_eng.vsd	Function diagram	
Explanations for the function diagrams - Handling BICO technology					14.02.08 V04.01.00	SINAMICS S110	
							- 1025 -

Figure 2-4 1025 – Using BICO technology

2.3 Overviews

Function diagrams

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1590 – Servo control speed control and V/f control	2-627
1610 – Servo control generation of the torque limits	2-628
1630 – Servo controller current control	2-629
1750 – Monitoring, faults, alarms	2-630



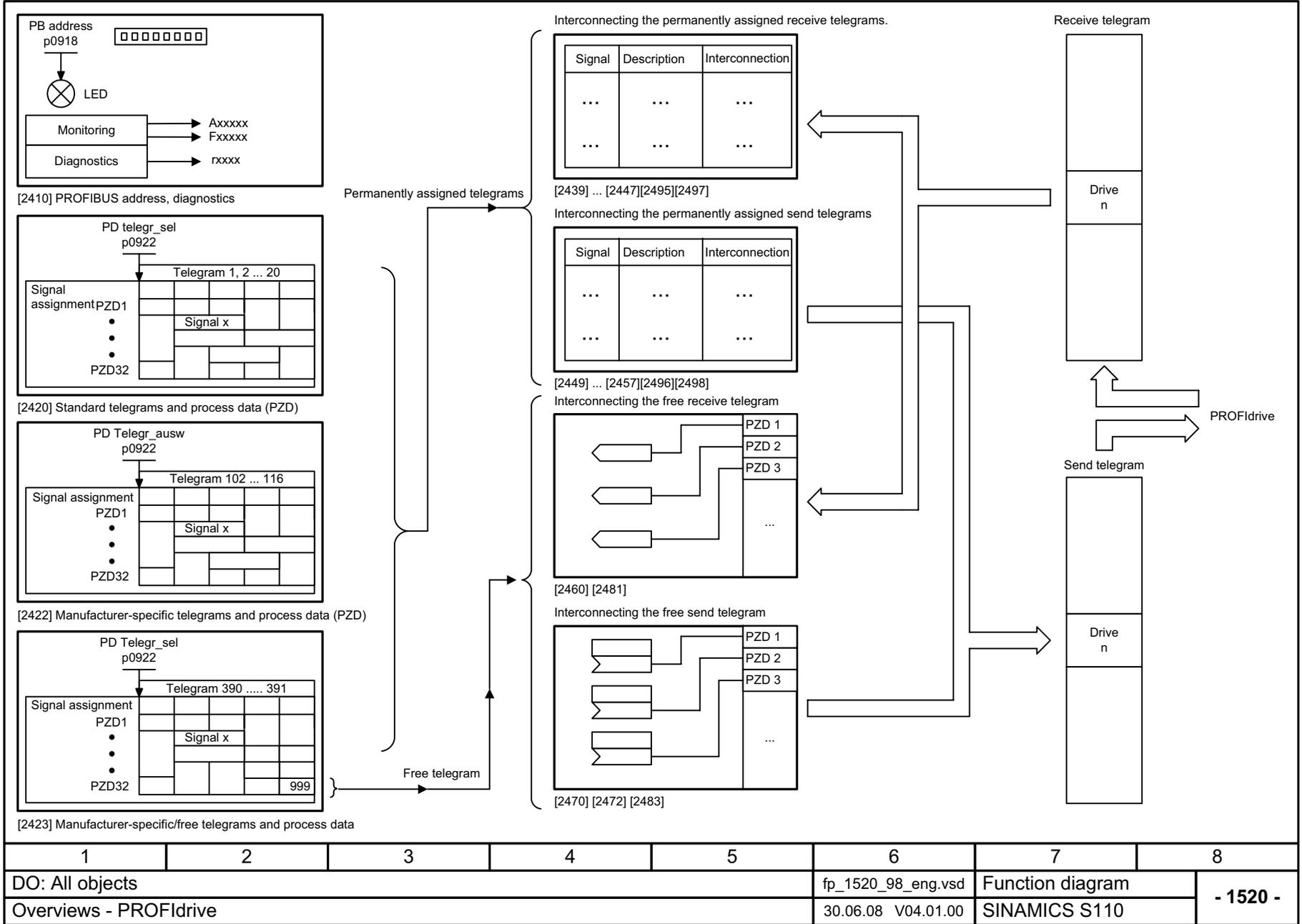
4000.00 µs

<1> Fast measuring probe inputs.
 <2> Jumper open, electrical isolation for DI 0...3
 <3> There are the digital inputs DI 0...3, 8...11 and 16...22

1	2	3	4	5	6	7	8
DO: CU_S110					fp_1510_98_eng.vsd	Function diagram	
Overviews - CU305 input/output terminals					07.04.08 V04.01.00	SINAMICS S110	
							- 1510 -

Figure 2-5 1510 – CU305 input/output terminals

Figure 2-6 1520 – PROFIdrive



1	2	3	4	5	6	7	8
DO: All objects					fp_1520_98_eng.vsd	Function diagram	
Overviews - PROFIdrive					30.06.08 V04.01.00	SINAMICS S110	
							- 1520 -

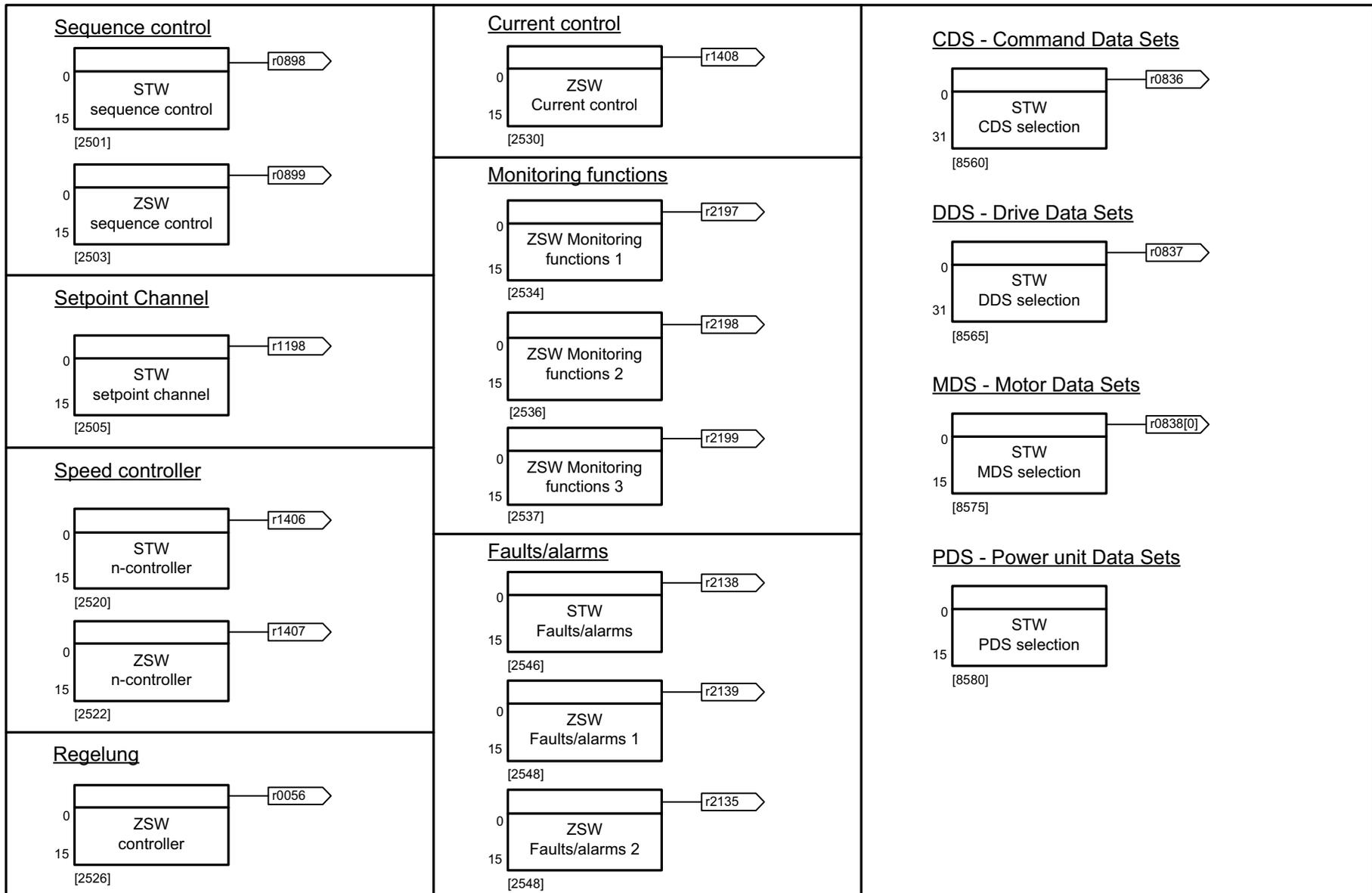
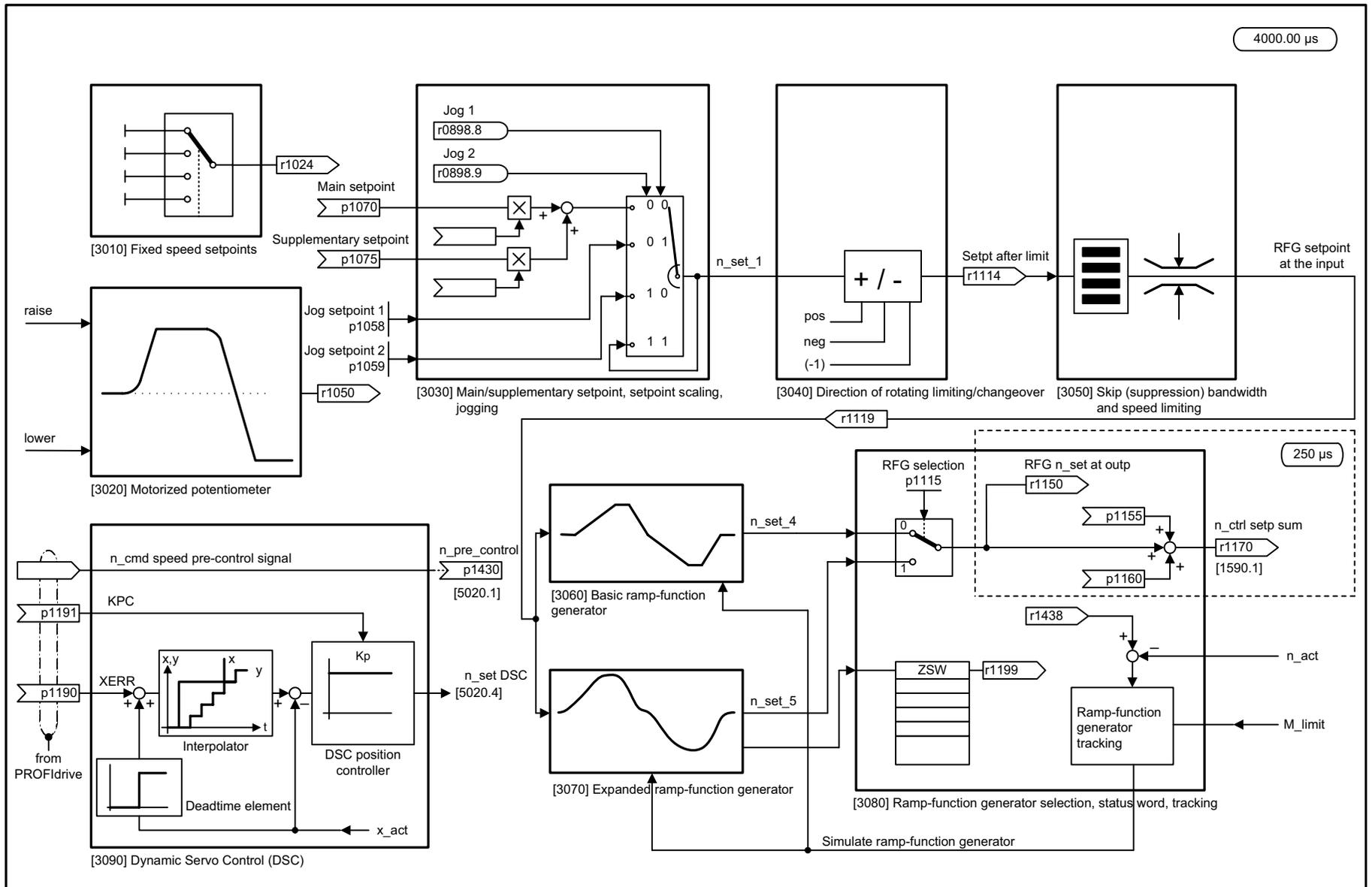


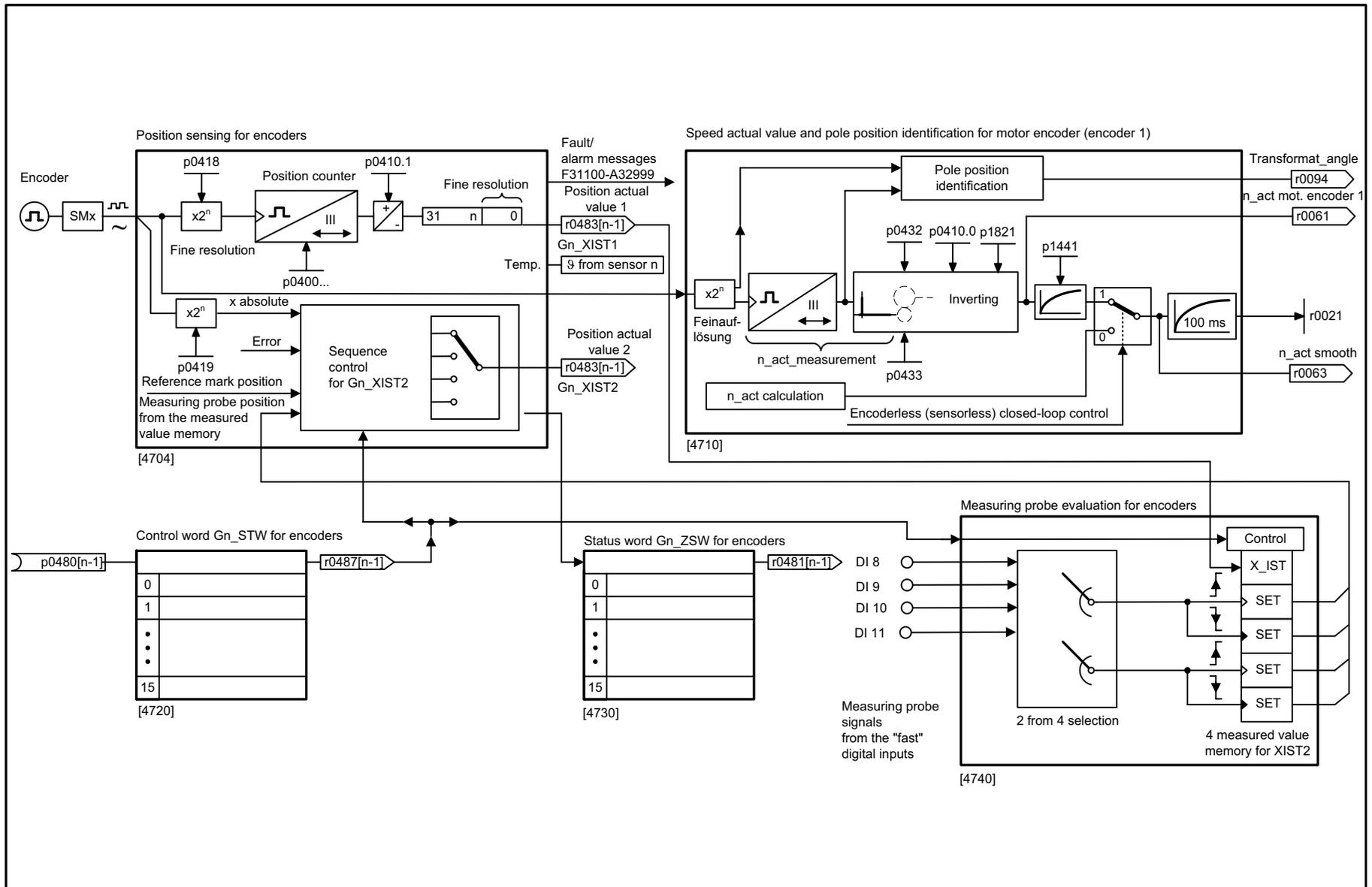
Figure 2-7 1530 – Internal control/status words, data sets

1	2	3	4	5	6	7	8
DO: All objects					fp_1530_98_eng.vsd	Function diagram	
Overviews - Internal control/status words, data sets					27.03.08 V04.01.00	SINAMICS S110	
							- 1530 -



1	2	3	4	5	6	7	8
DO: SERVO					fp_1550_98_eng.vsd	Function diagram	
Overviews - Setpoint channel					27.10.08 V04.01.00	SINAMICS S110	

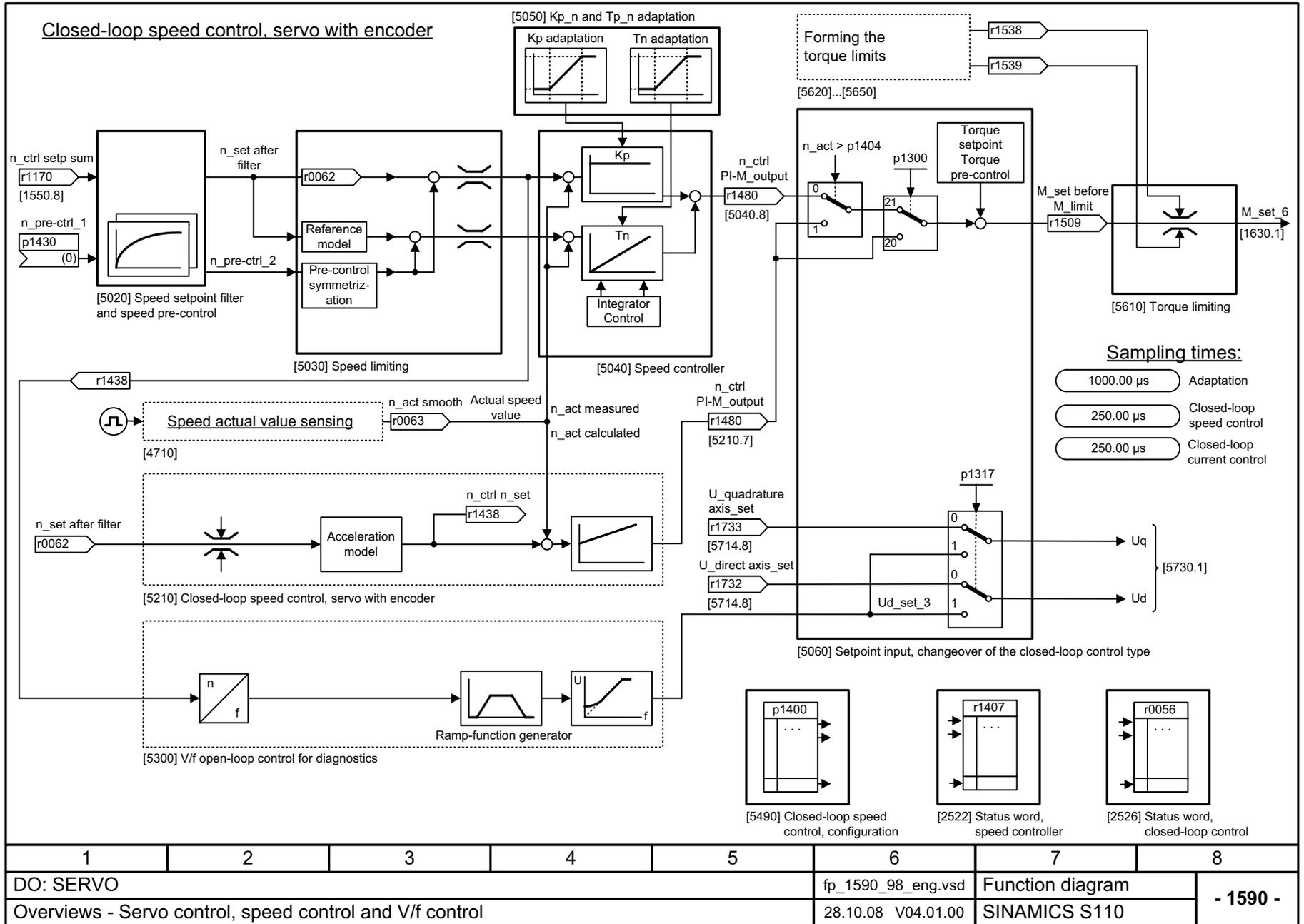
Figure 2-8 1550 – Setpoint channel



1	2	3	4	5	6	7	8
DO: SERVO					fp_1580_98_eng.vsd	Function diagram	
Overviews - Servo control, encoder evaluations (position, speed, temperature)					27.10.08 V04.01.00	SINAMICS S110	
							- 1580 -

Figure 2-9 1580 – Servo control encoder evaluations (position, speed, temperature)

Figure 2-10 1590 – Servo control speed control and V/f control



1	2	3	4	5	6	7	8
DO: SERVO					fp_1590_98_eng.vsd	Function diagram	
Overviews - Servo control, speed control and V/f control					28.10.08 V04.01.00	SINAMICS S110	
							- 1590 -

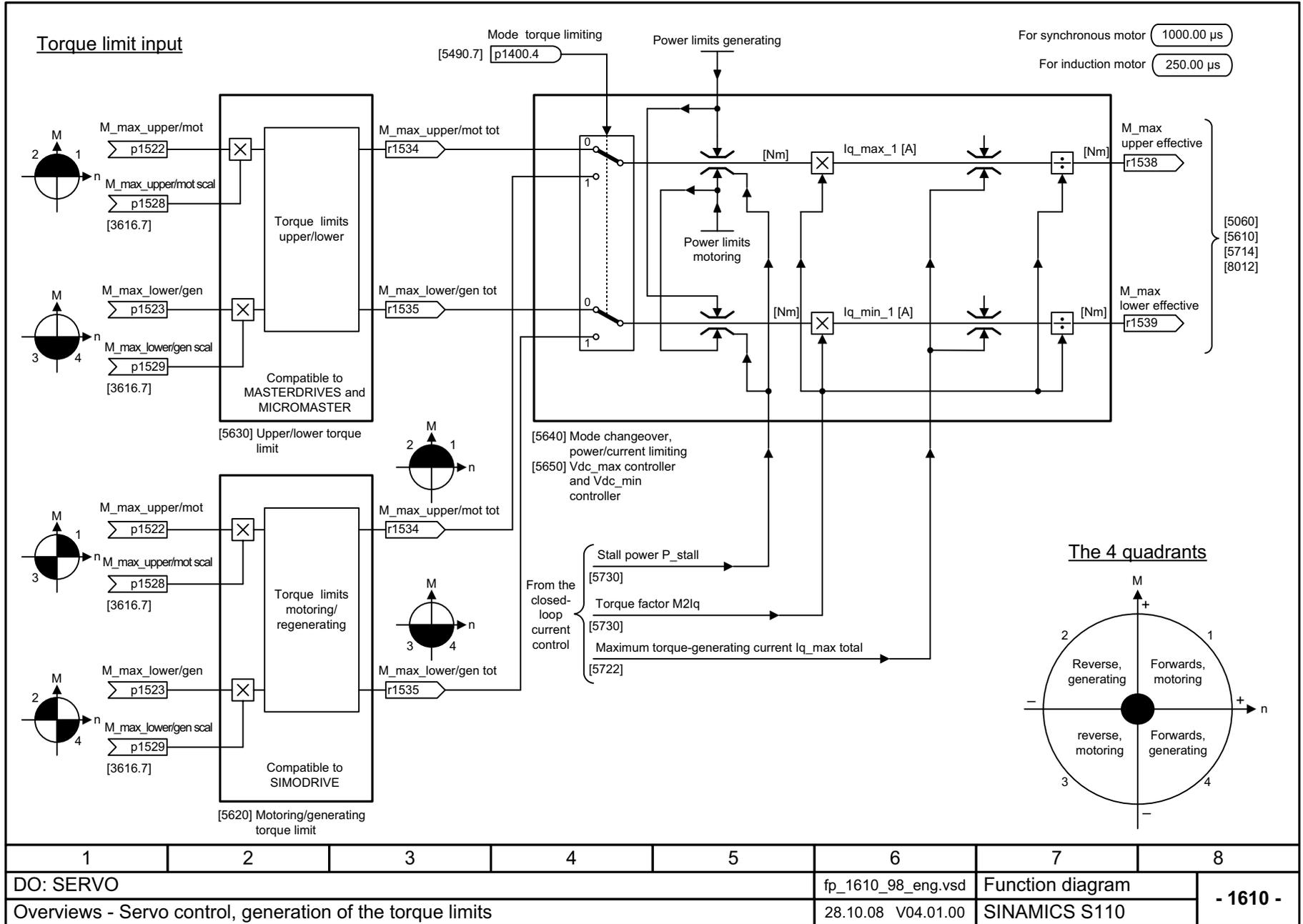


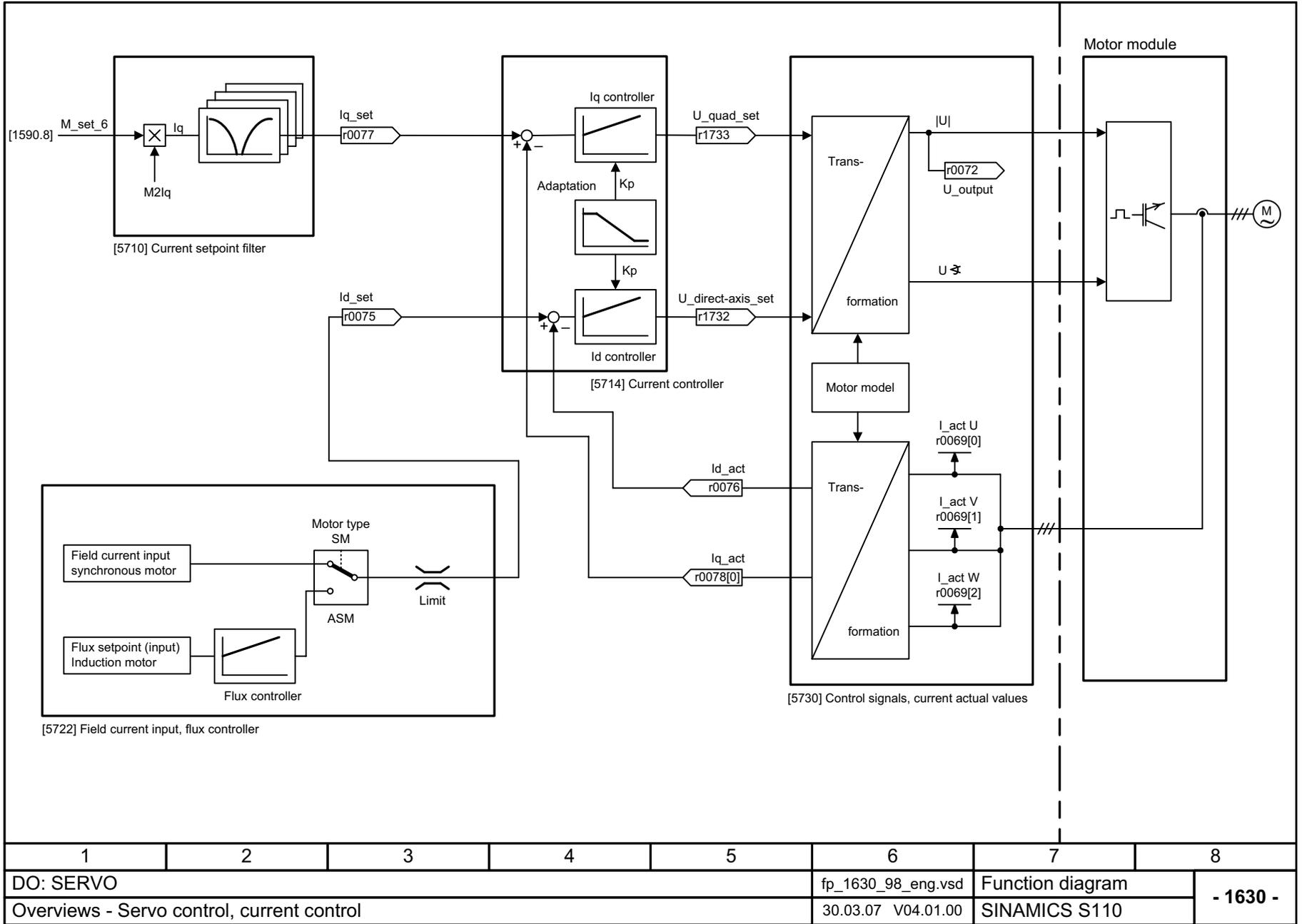
Figure 2-11 1610 – Servo control generation of the torque limits

2-628

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1	2	3	4	5	6	7	8
DO: SERVO					fp_1610_98_eng.vsd	Function diagram	
Overviews - Servo control, generation of the torque limits					28.10.08 V04.01.00	SINAMICS S110	
							- 1610 -

Figure 2-12 1630 – Servo controller current control



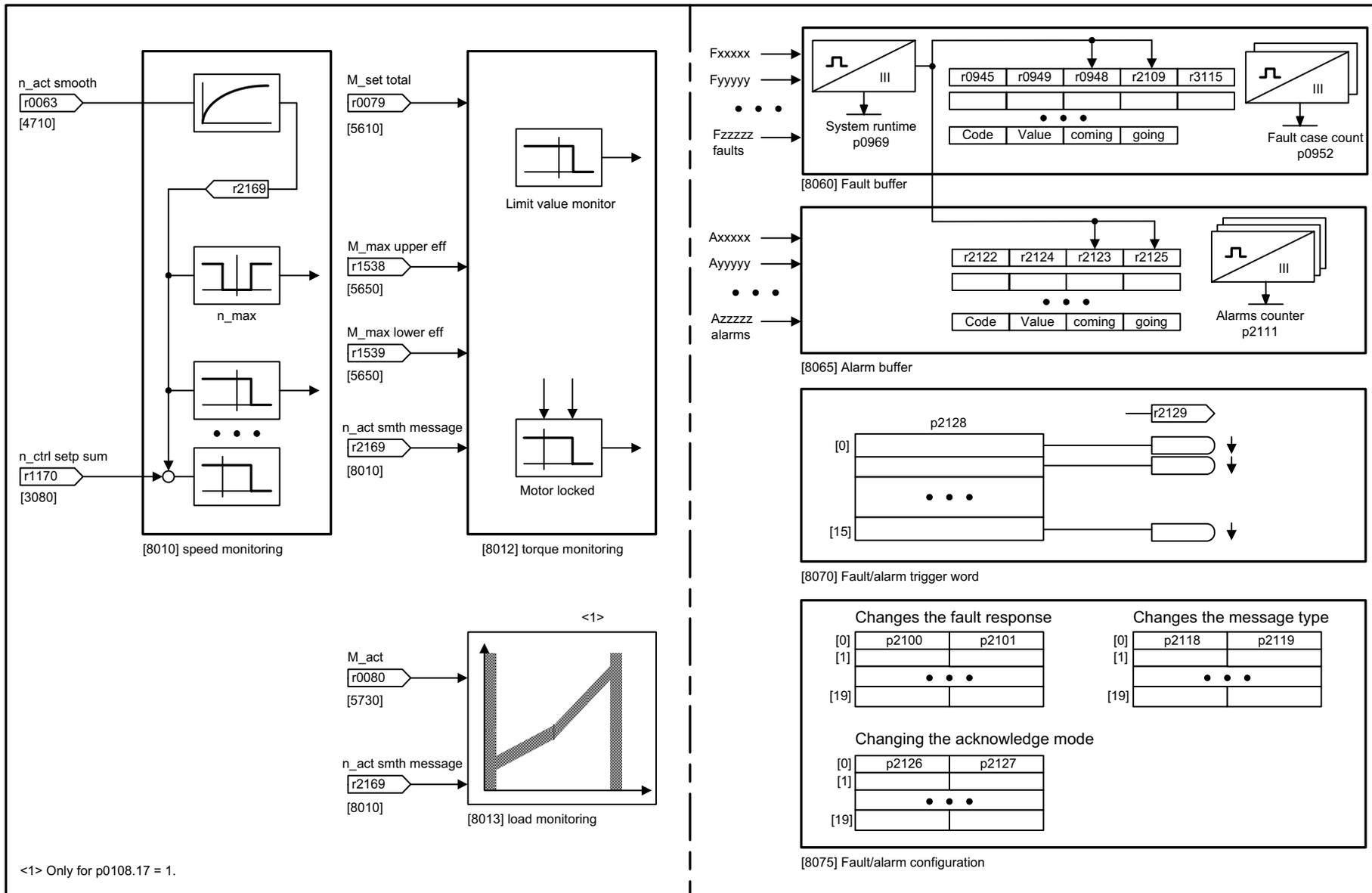


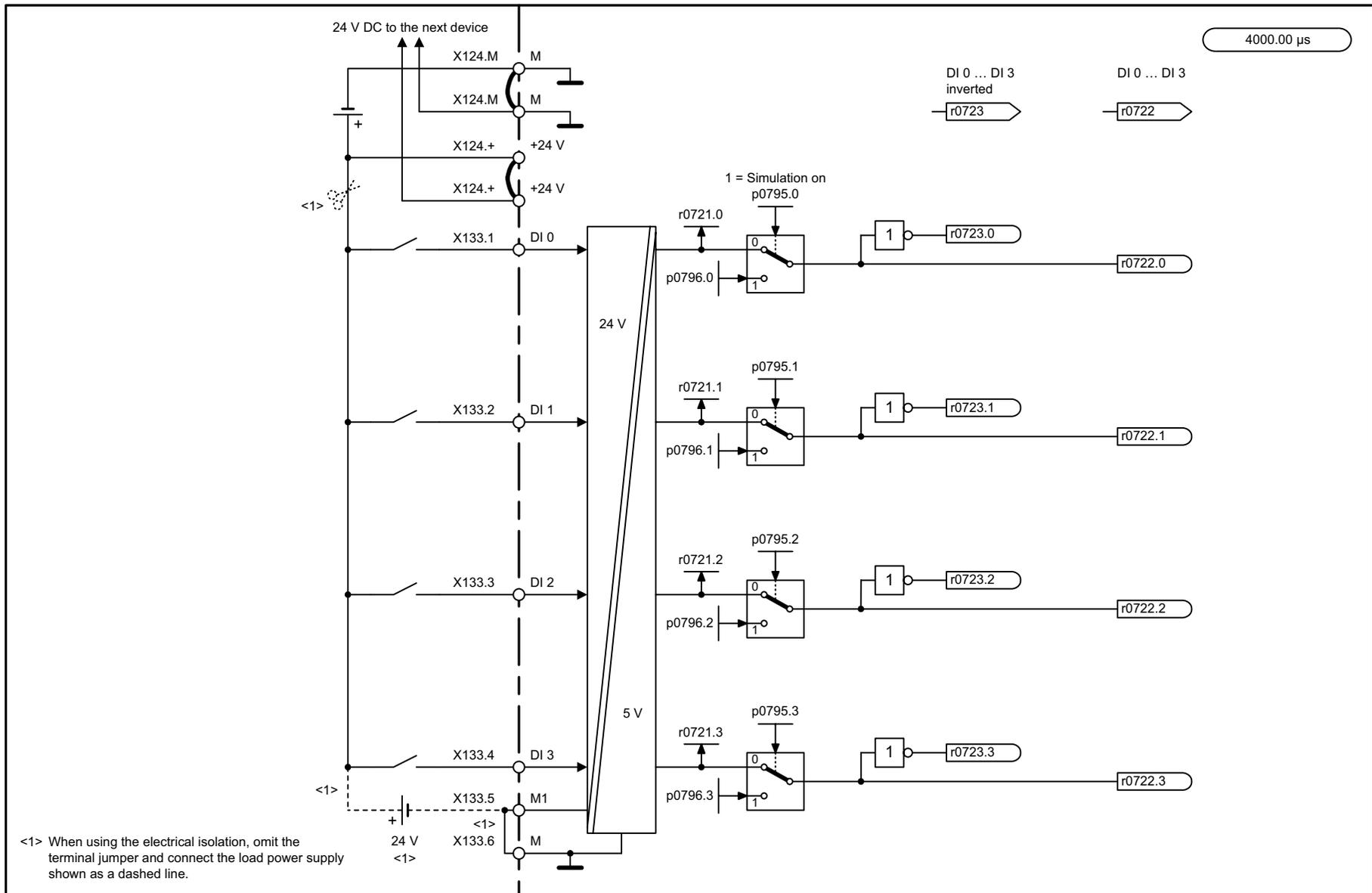
Figure 2-13 1750 – Monitoring, faults, alarms

1	2	3	4	5	6	7	8
DO: All objects					fp_1750_98_eng.vsd	Function diagram	
Overviews - Monitoring functions, faults, alarms					15.08.08 V04.01.00	SINAMICS S110	
- 1750 -							

2.4 CU305 input/output terminals

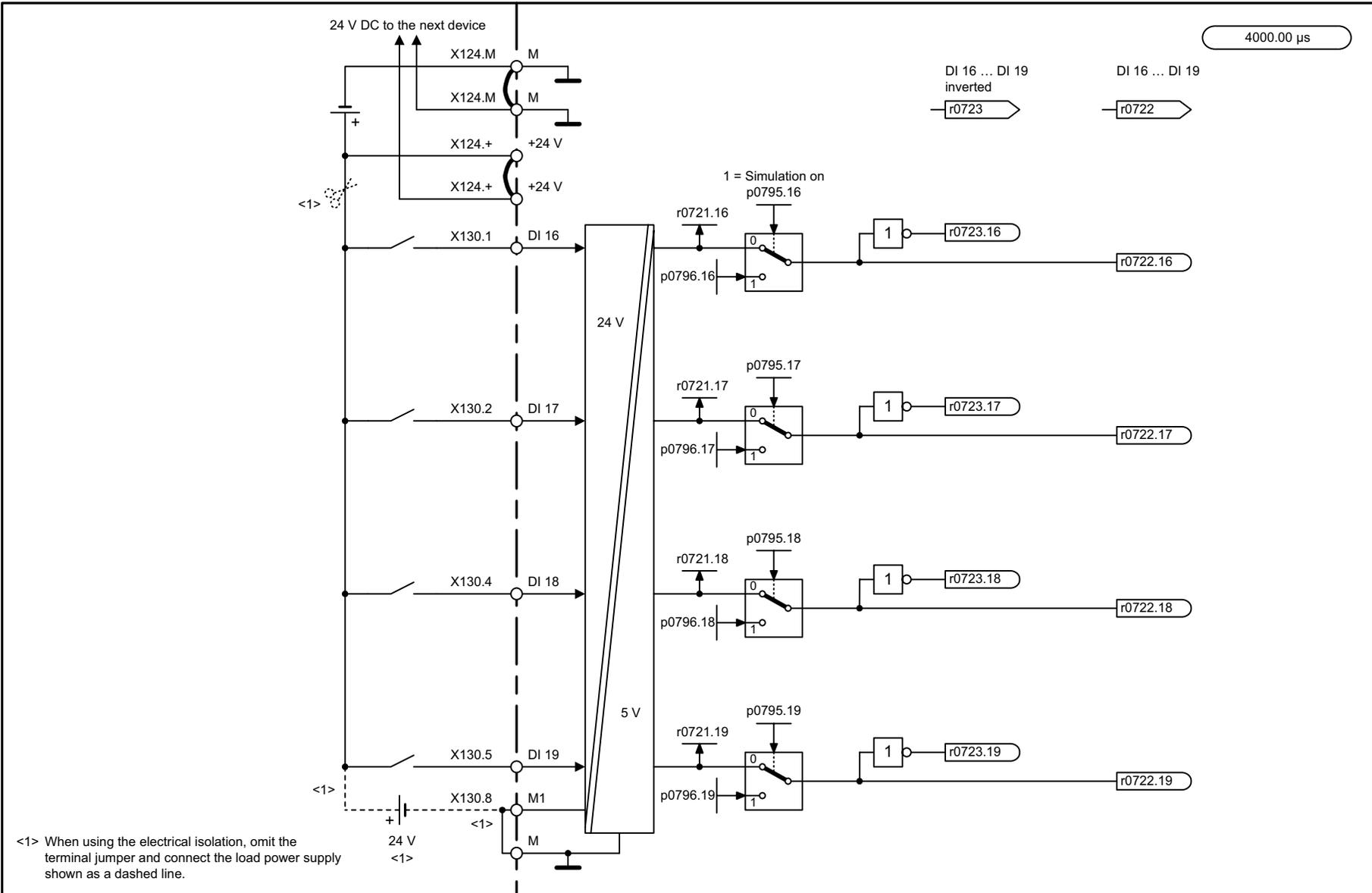
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2031 – Digital inputs/outputs, bi-directional (DI/DO 10 ... DI/DO 11)	2-636
2032 – Digital output (DO 16)	2-637
2040 – Analog input (AI)	2-638



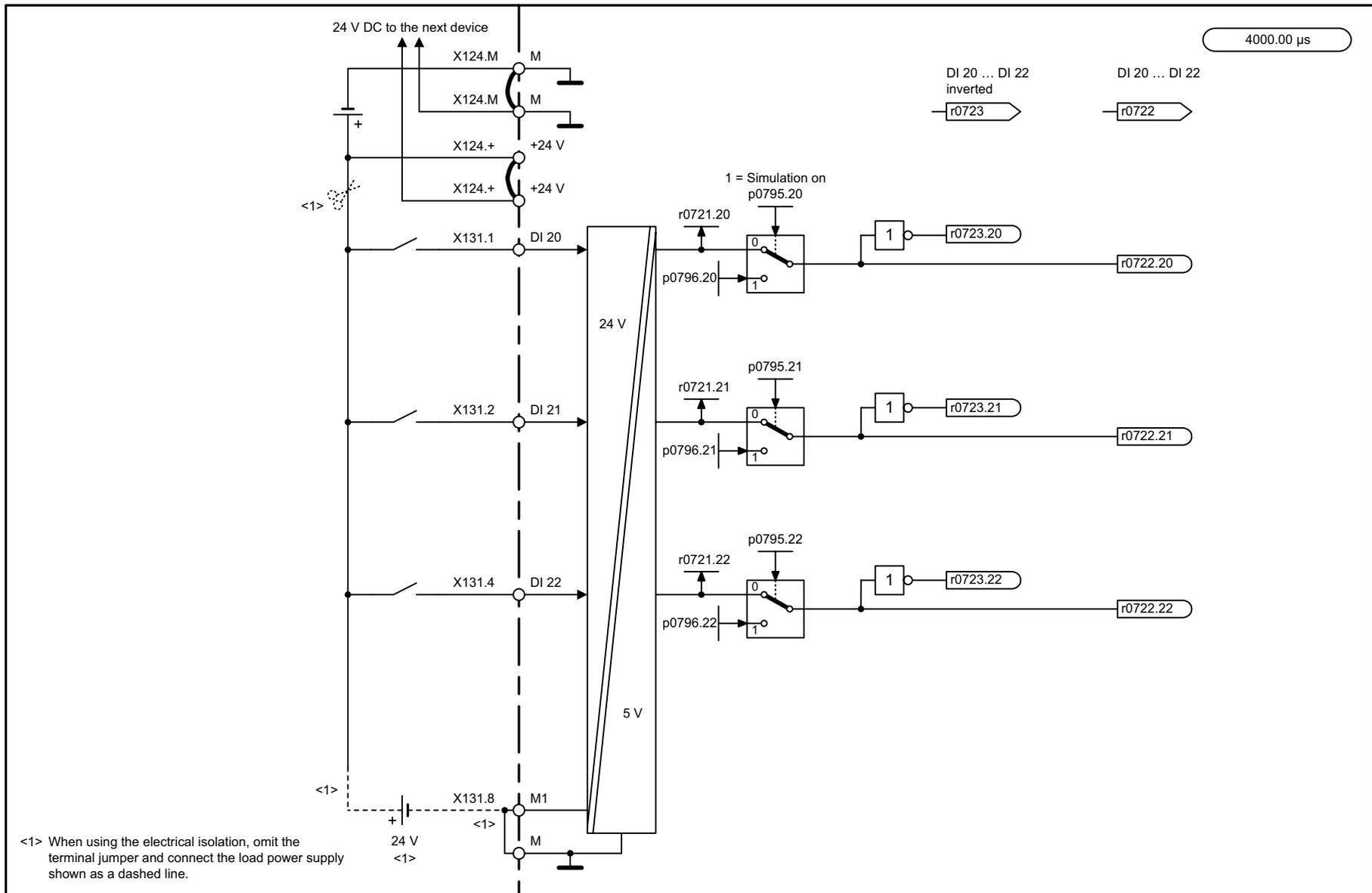
1	2	3	4	5	6	7	8
DO: CU_S110					fp_2020_98_eng.vsd	Function diagram	
CU305 input/output terminals - Digital inputs, electrically isolated (DI 0 ... DI 3)					26.11.08 V04.01.00	SINAMICS S110	
							- 2020 -

Figure 2-14 2020 – Digital inputs, electrically isolated (DI 0 ... DI 3)



1	2	3	4	5	6	7	8
DO: CU_S110					fp_2021_98_eng.vsd	Function diagram	
CU305 input/output terminals - Digital inputs, electrically isolated (DI 16 ... DI 19)					26.11.08 V04.01.00	SINAMICS S110	
							- 2021 -

Figure 2-15 2021 – Digital inputs, electrically isolated (DI 16 ... DI 19)



<1> When using the electrical isolation, omit the terminal jumper and connect the load power supply shown as a dashed line.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2022_98_eng.vsd	Function diagram	
CU305 input/output terminals - Digital inputs, electrically isolated (DI 20 ... DI 22)					26.11.08 V04.01.00	SINAMICS S110	
							- 2022 -

Figure 2-16 2022 – Digital inputs, electrically isolated (DI 20 ... DI 22)

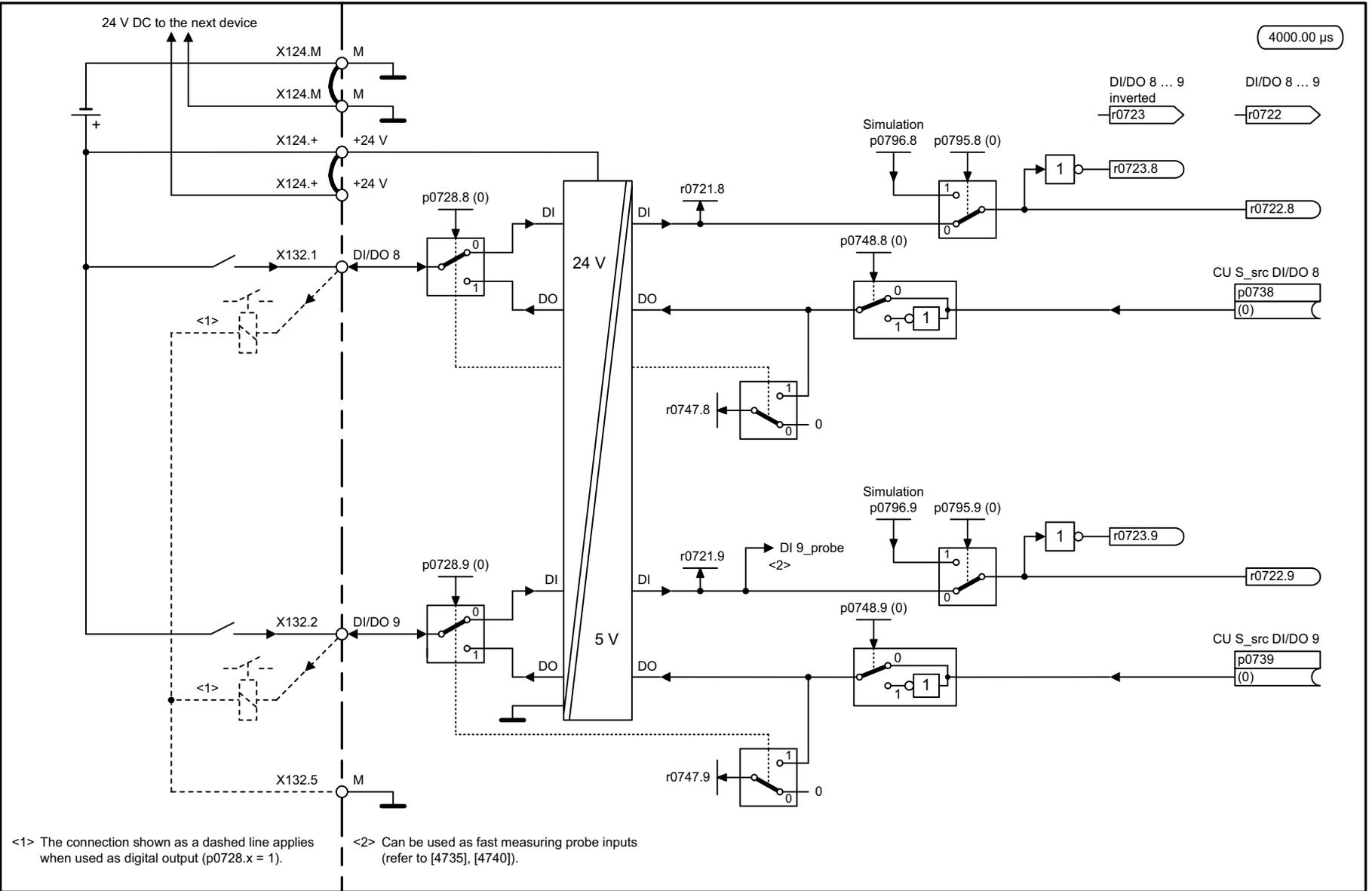
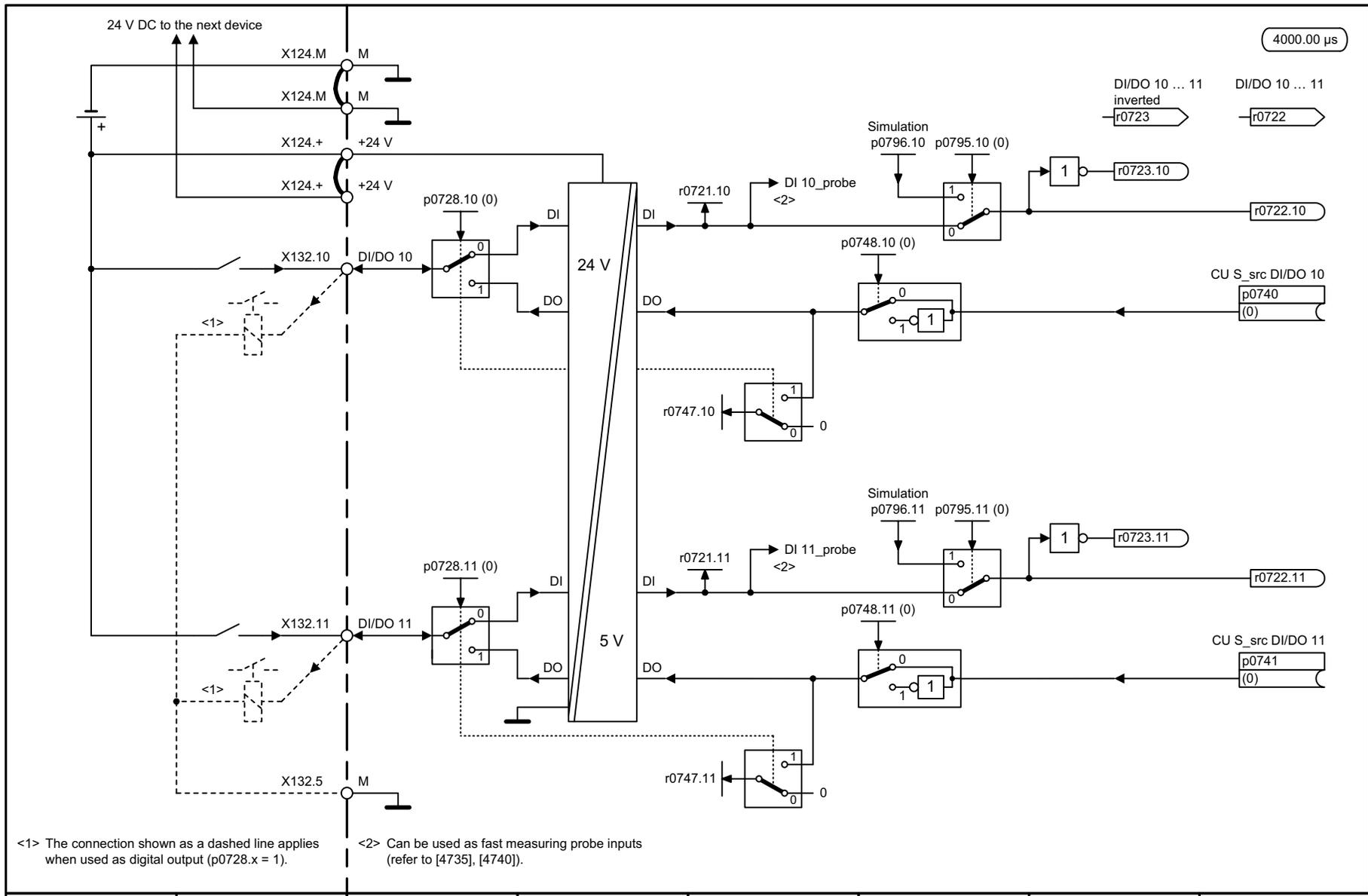


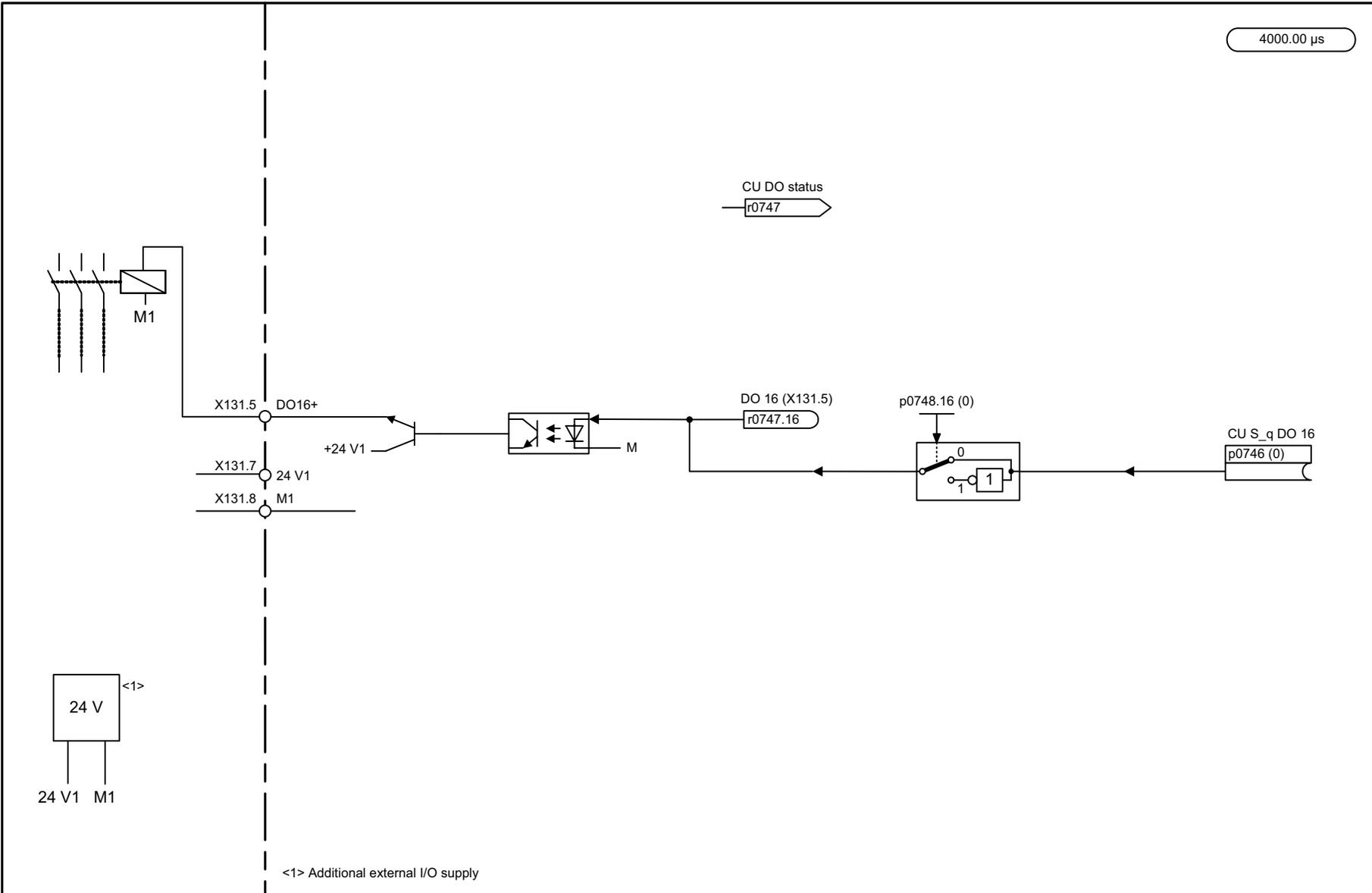
Figure 2-17 2030 – Digital inputs/outputs, bi-directional (DI/DO 8 ... DI/DO 9)

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2030_98_eng.vsd	Function diagram	
CU305 input/output terminals - Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)					20.11.08 V04.01.00	SINAMICS S110	
							- 2030 -



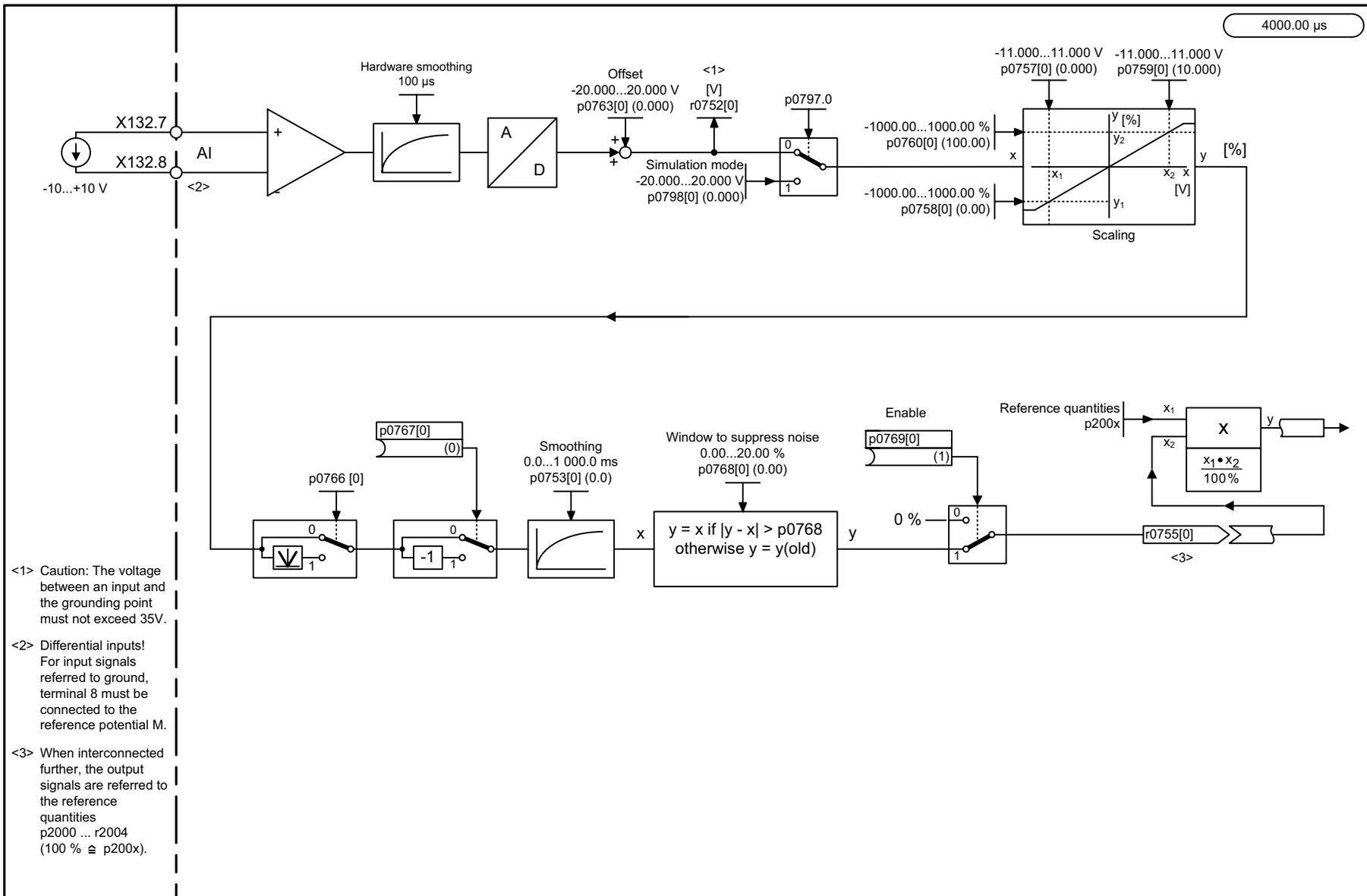
1	2	3	4	5	6	7	8
DO: CU_S110					fp_2031_98_eng.vsd	Function diagram	
CU305 input/output terminals - Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)					20.11.08 V04.01.00	SINAMICS S110	
							- 2031 -

Figure 2-18 2031 – Digital inputs/outputs, bi-directional (DI/DO 10 ... DI/DO 11)



1	2	3	4	5	6	7	8
DO: CU_S110					fp_2032_98_eng.vsd	Function diagram	
CU305 input/output terminals - Digital output (DO 16)					26.11.08 V04.01.00	SINAMICS S110	
							- 2032 -

Figure 2-19 2032 – Digital output (DO 16)



- <1> Caution: The voltage between an input and the grounding point must not exceed 35V.
- <2> Differential inputs! For input signals referred to ground, terminal 8 must be connected to the reference potential M.
- <3> When interconnected further, the output signals are referred to the reference quantities p2000 ... r2004 (100 % ≙ p200x).

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2040_98_eng.vsd	Function diagram	
CU305 - Analog input (AI)					24.04.08 V04.01.00	SINAMICS	
							- 2040 -

Figure 2-20 2040 – Analog input (AI)

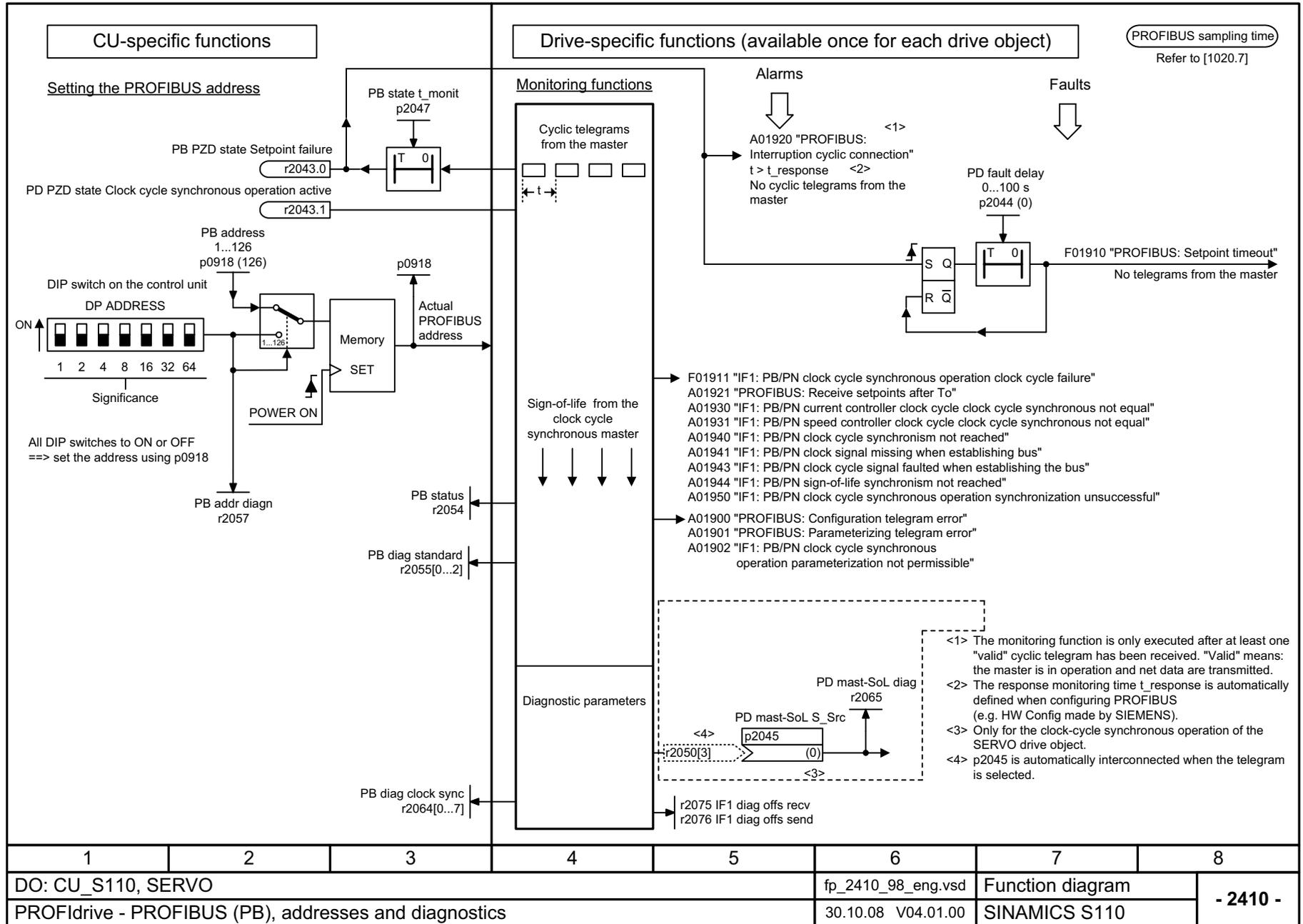
2.5 PROFIdrive

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Figure 2-21 2410 – PROFIBUS (PB), addresses and diagnostics



1	2	3	4	5	6	7	8
DO: CU_S110, SERVO					fp_2410_98_eng.vsd	Function diagram	
PROFIdrive - PROFIBUS (PB), addresses and diagnostics					30.10.08 V04.01.00	SINAMICS S110	
							- 2410 -

PROFdrive sampling time
Refer to [1020.7]

<1> <2> <3>
PD Telegram select
p0922 (999)

Interconnection is made according to [2440] [2450] automatically

Telegram	1		2		3		4		7		9	
Appl.- Class	1		1		1, 4		1, 4		3		3	
PZD 1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1
PZD 2	NSOLL_A	NIST_A	NSOLL_B	NIST_B	NSOLL_B	NIST_B	NSOLL_B	NIST_B	SATZANW	AKTSATZ	SATZANW	AKTSATZ
PZD 3											STW2	ZSW2
PZD 4			STW2	ZSW2	STW2	ZSW2	STW2	ZSW2				
PZD 5					G1_STW	G1_ZSW	G1_STW	G1_ZSW			MDI_TARPOS	XIST_A
PZD 6												
PZD 7						G1_XIST1	G2_STW	G1_XIST1			MDI_VELOCITY	
PZD 8												MDI_ACC
PZD 9						G1_XIST2		G1_XIST2				MDI_DEC
PZD 10									G2_ZSW			MDI_MOD
PZD 11												
PZD 12									G2_XIST1			
PZD 13												
PZD 14									G2_XIST2			
PZD 15												
PZD 16												
PZD 17												
PZD 18												
PZD 19												
PZD 20												
PZD 21												
PZD 22												
PZD 23												
PZD 24												
PZD 25												
PZD 26												
PZD 27												
PZD 28												
PZD 29												
PZD 30												
PZD 31												
PZD 32												

Receive telegram from PROFdrive (upward arrow)
Send telegram to PROFdrive (downward arrow)

<1> Depending on the drive object, only specific telegrams can be used.
 <2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2420] - [2423].
 If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2420] - [2423].
 <3> The maximum number of PZD words depends on the drive object type.
 [] = Position encoder signal

1	2	3	4	5	6	7	8
DO: SERVO					fp_2420_98_eng.vsd	Function diagram	
PROFdrive - Standard telegrams and Process Data (PZD)					17.10.08 V04.01.00	SINAMICS S110	
							- 2420 -

Figure 2-22 2420 – Standard telegrams and process data (PZD)

Figure 2-23 2422 – Manufacturer-specific telegrams and process data (PZD)

<1> <2> <4> PD Telegr_select p0922 (999)										PROFdrive sampling time Refer to [1020.7]
Interconnection is made according to										[2440] [2450] automatically
Telegramm	102		103		110		111			
Appl.- Class	1, 4		1, 4		3		3			
PZD 1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1	STW1	ZSW1		
PZD 2	NSOLL_B		NIST_B		SATZANW		AKTSATZ		POS_STW1	POS_ZSW1
PZD 3	NSOLL_B		NIST_B		PosSTW	PosZSW	POS_STW2	POS_ZSW2		
PZD 4	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2	STW2	ZSW2		
PZD 5	MOMRED	MELDW	MOMRED	MELDW	OVERVERRIDE	MELDW	OVERVERRIDE	MELDW		
PZD 6	G1_STW	G1_ZSW	G1_STW	G1_ZSW	MDI_TARPOS	Xist_A	MDI_TARPOS	XIST_A		
PZD 7		G1_XIST1	G2_STW	G1_XIST1	MDI_VELOCITY		MDI_VELOCITY	NIST_B		
PZD 8		G1_XIST1		G1_XIST1	MDI_ACC		MDI_ACC	FAULT_CODE		
PZD 9		G1_XIST2		G1_XIST2	MDI_DEC		MDI_DEC	WARN_CODE		
PZD 10					MDI_MODE		<3>	<3>		
PZD 11			G2_ZSW							
PZD 12			G2_XIST1							
PZD 13										
PZD 14			G2_XIST2							
PZD 15										
PZD 16										
PZD 17										
PZD 18										
PZD 19										
PZD 20										
PZD 21										
PZD 22										
PZD 23										
PZD 24										
PZD 25										
PZD 26										
PZD 27										
PZD 28										
PZD 29										
PZD 30										
PZD 31										
PZD 32										

<1> Depending on the drive object, only specific telegrams can be used.
 <2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2420] - [2423].
 If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2420] - [2423]!
 <3> Can be freely connected.
 <4> The maximum number of PZD words depends on the drive object type.

= Position encoder signal

1	2	3	4	5	6	7	8
DO: SERVO					fp_2422_98_eng.vsd	Function diagram	
PROFdrive – Herstellerspezifische Telegramme und Prozessdaten (PZD)					17.10.08 V04.01.00	SINAMICS S110	
							- 2422 -

PROFdrive sampling time
Refer to [1020.7]

<1> <2> <4>
PD Telegram select
p0922 (999)

Interconnection is made according to	[2440] [2450] automatically				[2481] [2483]	
Telegram	390		391		999	
Appl.- Class	-		-		-	
PZD 1	CU_STW1	CU_ZSW1	CU_STW1	CU_ZSW1	STW1 <3> ZSW1 <3>	
PZD 2	A_DIGITAL	E_DIGITAL	A_DIGITAL	E_DIGITAL	Receive telegram length freely selectable via central PROFdrive configuration in the master	
PZD 3			MT_STW	MT_ZSW		
PZD 4			MT1_ZS_F			
PZD 5			MT1_ZS_S			
PZD 6			MT2_ZS_F			
PZD 7			MT2_ZS_S			
PZD 8						
PZD 9						
PZD 10						
PZD 11						
PZD 12						
PZD 13						
PZD 14						
PZD 15						
PZD 16						
PZD 17						
PZD 18						
PZD 19						
PZD 20						
PZD 21						
PZD 22						
PZD 23						
PZD 24						
PZD 25						
PZD 26						
PZD 27						
PZD 28						
PZD 29						
PZD 30						
PZD 31						
PZD 32						

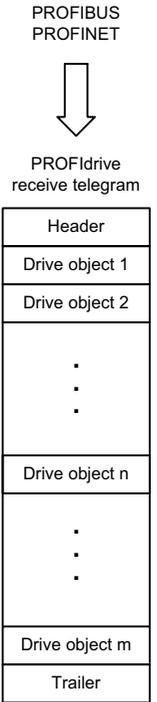
- <1> Depending on the drive object, only specific telegrams can be used.
- <2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2420] - [2423].
If p0922 ≠ 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2420] - [2423]!
- <3> In order to comply with the PROFdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).
p2037 = 2 should be set if STW1 is not transferred with PZD1 as specified in the PROFdrive profile.
- <4> The maximum number of PZD words depends on the drive object type.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2423_98_eng.vsd	Function diagram	
PROFdrive - Manufacturer-specific/free telegrams and Process Data (PZD)					13.08.08 V04.01.00	SINAMICS S110	
							- 2423 -

Figure 2-24 2423 – Manufacturer-specific/free telegrams and process data (PZD)

PROFdrive sampling time
Refer to [1020.7]

Signal receivers for PZD receive signals		<1>		<2>		
Signal	Meaning	PROFdrive Signal No.	Interconnection parameter	Function diagram	Data type	Normalization
STW1	Control word 1	1	(bit-by-bit)	[2442][2443] [2475]	U16	-
STW2	Control word 2	3	(bit-by-bit)	[2444] [2445]	U16	-
NSOLL_A	Speed setpoint A (16-bit)	5	p1070 (Enw. Soll.) p1155	[3030.2] [3080.4]	I16	4000 hex $\hat{=}$ p2000
NSOLL_B	Speed setpoint B (32-bit)	7	p1070 (Enw. Soll.) p1155 p1430 (DSC)	[3030.2] [3080.4] [3090.8]	I32	4000 0000 hex $\hat{=}$ p2000
G1_STW	Encoder 1 control word	9	p0480[0]	[4720]	U16	-
G2_STW	Encoder 2 control word	13	p0480[1]	[4720]	U16	-
A_DIGITAL	Digital output (16-bit)	22	(bit-by-bit)	[2497]	U16	-
SATZANW	Pos block selection	32	(bit-by-bit)	[2476]	I32	-
MDI_TARPOS	MDI position	34	p2642	[3618]	I32	1 hex $\hat{=}$ 1 LU
MDI_VELOCITY	MDI velocity	35	p2643	[3618]	I32	1 hex $\hat{=}$ 1000 LU/min
MDI_ACC	MDI acceleration override	36	p2644	[3618]	I16	4000 hex $\hat{=}$ 100%
MDI_DEC	MDI deceleration override	37	p2645	[3618]	I16	4000 hex $\hat{=}$ 100%
MDI_MOD	MDI mode	38	(bit-by-bit)			-



[2468], [2481]
r2090...r2095 bit
r2050[0...n] WORD
r2060[0...30] DWORD

↑ ... ↑

Telegram assignment according to p0922 [2420]

Figure 2-25 2439 – PZD receive signals interconnection profile specific

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS0 are automatically set.
 <2> Data type according to the PROFdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.

1	2	3	4	5	6	7	8
DO: CU_S110, SERVO					fp_2439_98_eng.vsd	Function diagram	
PROFdrive - PZD receive signals, connection of profile-specific					03.11.08 V04.01.00	SINAMICS S110	
							- 2439 -

PROFdrive sampling time
Refer to [1020.7]

Signal receivers for PZD receive signals		<1>		<2>		
Signal	Meaning	PROFdrive Signal No.	Interconnection parameter	Function diagram	Data type	Normalization
MOMRED	Torque reduction	101	p1542	[5610.2]	I16	4000 hex $\hat{=}$ p2003
MT_STW	Measuring probe control word	130	p0682	-	U16	
POS_STW	Pos control word	203	(bitwise)	[2462]	U16	
OVERRIDE	Pos velocity override	205	p2646	[3630]	I16	4000 hex $\hat{=}$ 100%
POS_STW1	Pos control word 1	220	(bitwise)	[2463]	U16	
POS_STW2	Pos control word 2	222	(bitwise)	[2464]	U16	
MDI_MOD	Pos MDI mode	229	p2654	[3620]	U16	
CU_STW1	Control word 1 for Control Unit	500	(bitwise)	[2495]	U16	

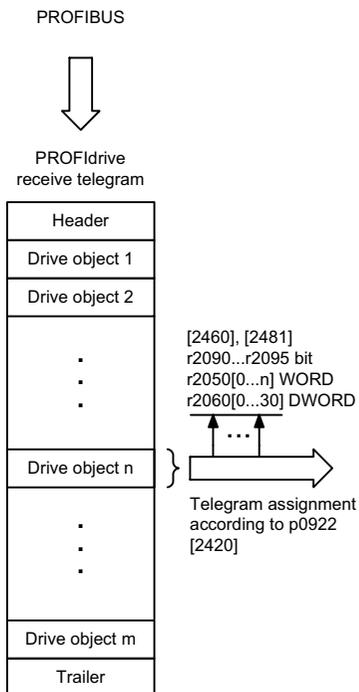


Figure 2-26 2440 – PZD receive signals interconnection manufacturer specific

<1> When selecting a standard telegram or a manufacturer-specific telegram via p0922, these interconnection parameters of the command data set CDS0 are automatically set.
 <2> Data type according to the PROFdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.

1	2	3	4	5	6	7	8
DO: CU_S110, SERVO					fp_2440_98_eng.vsd	Function diagram	
PROFdrive - PZD receive signals interconnection manufacturer-specific					13.08.08 V04.01.00	SINAMICS S110	
- 2440 -							

Figure 2-27 2442 – STW1 control word interconnection (p2038 = 0)

Signal targets for STW1 in Interface Mode SINAMICS (p2038 = 0)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
STW1.0	ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse cancellation and ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-	
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-	
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-	
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-	
STW1.4	1 = Operating condition (the ramp-function generator can be enabled) 0 = inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-	
STW1.5	1 = Enable the ramp-function generator 0 = stop the ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-	
STW1.6	1 = Enable setpoint 0 = inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-	
STW1.7	Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-	
STW1.8	Reserved	-	-	-	-	
STW1.9	Reserved	-	-	-	-	
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-	
STW1.11	1 = Direction reversal <3>	p1113[0] = r2090.11	[2505.3]	[3040]	-	
STW1.12	Reserved	-	-	-	-	
STW1.13	1 = Motorized potentiometer, setpoint, raise <3>	p1035[0] = r2090.13	[2505.3]	[3020]	-	
STW1.14	1 = Motorized potentiometer, setpoint, lower <3>	p1036[0] = r2090.14	[2505.3]	[3020]	-	
STW1.15	Reserved	-	-	-	-	

PROFIdrive sampling time
 Refer to [1020.7]

<1> Used in telegrams 1, 2, 3, 4, 7, 9, 110, 111.

<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).

<3> Only for "expanded setpoint channel" and "extended ramp-function generator".

1	2	3	4	5	6	7	8
DO: SERVO					fp_2442_98_eng.vsd	Function diagram	
PROFIdrive - STW1 control word interconnection (p2038 = 0)					17.10.08 V04.01.00	SINAMICS S110	
							- 2442 -

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW1 in Interface Mode SIMODRIVE 611 universal (p2038 = 1)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
STW1.0	= ON (pulses can be enabled) 0 = OFF1 (braking with ramp-function generator, then pulse cancellation, ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-	
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-	
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-	
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-	
STW1.4	1 = Operating condition (the ramp-function generator can be enabled) 0 = Inhibit ramp-function generator (set the ramp-function generator output to zero)	p1140[0] = r2090.4	[2501.3]	[3060] [3070] [3080]	-	
STW1.5	1 = Enable the ramp-function generator 0 = Stop the ramp-function generator (freeze the ramp-function generator output)	p1141[0] = r2090.5	[2501.3]	[3060] [3070]	-	
STW1.6	1 = Enable setpoint 0 = Inhibit setpoint (set the ramp-function generator input to zero)	p1142[0] = r2090.6	[2501.3]	[3060] [3070] [3080]	-	
STW1.7	= Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-	
STW1.8	Reserved	-	-	-	-	
STW1.9	Reserved	-	-	-	-	
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-	
STW1.11	1 = Ramp-function generator active	p2148[0] = r2090.11	-	[8010]	-	
STW1.12	1 = Unconditionally open the holding brake	p0855[0] = r2090.12	[2501.3]	[2701]	-	
STW1.13	Reserved	-	-	-	-	
STW1.14	1 = Closed-loop torque control active 0 = Closed-loop speed control active	p1501[0] = r2090.14	[2520.3]	[5060]	-	
STW1.15	Reserved	-	-	-	-	

<1> Used in telegrams 1, 2, 3, 4, 102, 103.
<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).

1	2	3	4	5	6	7	8
DO: SERVO					fp_2443_98_eng.vsd	Function diagram	
PROFdrive - STW1 control word interconnection (p2038 = 1)					17.10.08 V04.01.00	SINAMICS S110	
							- 2443 -

Figure 2-28 2443 – STW1 control word interconnection (p2038 = 1)

Figure 2-29 2444 – STW2 control word interconnection (p2038 = 0)

Signal targets for STW2 in Interface Mode SINAMICS (p2038 = 0)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	PROFIdrive sampling time Refer to [1020.7]
STW2.0	Drive data set selection DDS, bit 0	p0820[0] = r2093.0	-	[8565]	-	
STW2.1	Reserved	-	-	-	-	
STW2.2	Reserved	-	-	-	-	
STW2.3	Reserved	-	-	-	-	
STW2.4	Reserved	-	-	-	-	
STW2.5	Reserved	-	-	-	-	
STW2.6	Reserved	-	-	-	-	
STW2.7	1 = Parking axis	p0897 = r2093.7	-	-	-	
STW2.8	1 = Traverse to fixed endstop <2>	p1545[0] = r2093.8	[2520.2]	[8012]	-	
STW2.9	Reserved	-	-	-	-	
STW2.10	Reserved	-	-	-	-	
STW2.11	1 = Motor changeover, feedback Signal	p0828 = r2093.11	-	-	-	
STW2.12	Master sign-of-life, bit 0	p2045 = r2050[3]	-	[2410]	-	
STW2.13	Master sign-of-life, bit 1					
STW2.14	Master sign-of-life, bit 2					
STW2.15	Master sign-of-life, bit 3					

<1> Used in telegrams 2, 3, 4, 7, 9, 110 and 111. <2> Not for telegrams 9, 110, and 111.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2444_98_eng.vsd	Function diagram	
PROFIdrive - STW2 control word interconnection (p2038 = 0)					17.10.08 V04.01.00	SINAMICS S110	

- 2444 -

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW2 in Interface Mode SIMODRIVE 611 universal (p2038 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
STW2.0	Drive data set selection DDS, bit 0	p0820[0] = r2093.0	-	[8565]	-
STW2.1	Reserved	-	-	-	-
STW2.2	Reserved	-	-	-	-
STW2.3	Reserved	-	-	-	-
STW2.4	1 = Bypass ramp-function generator <3>	p1122[0] = r2093.4	-	[3060] [3070]	-
STW2.5	Reserved	-	-	-	-
STW2.6	1 = Integrator inhibit, speed controller <2>	p1477[0] = r2093.6	-	[5040] [5210]	-
STW2.7	1 = Parking axis selection	p0897 = r2093.7	-	-	-
STW2.8	1 = Traverse to fixed endstop	p1545[0] = r2093.8	[2520.2]	[8012]	-
STW2.9	Reserved	-	-	-	-
STW2.10	Reserved	-	-	-	-
STW2.11	 Motor changeover, feedback signal	p0828 = r2093.11	-	-	-
STW2.12	Master sign-of-life, bit 0	p2045 = r2050[3]	-	[2410]	-
STW2.13	Master sign-of-life, bit 1				
STW2.14	Master sign-of-life, bit 2				
STW2.15	Master sign-of-life, bit 3				

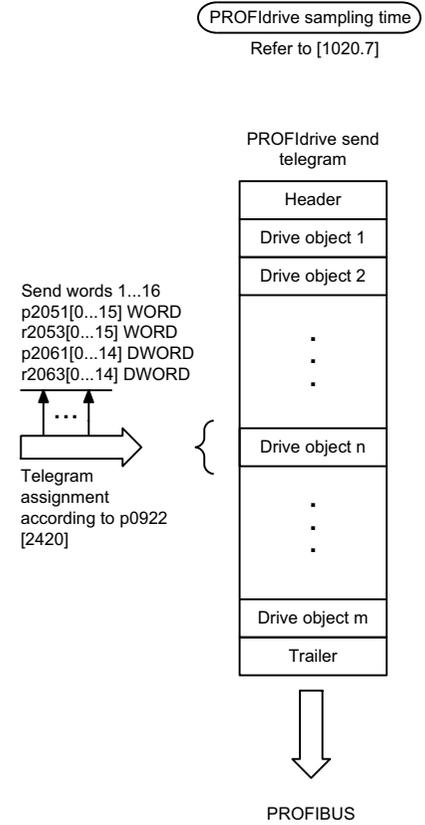
<1> Used in telegrams 2, 3, 4, 102, 103.
 <2> For a 1 signal, the integral component of the speed controller is cleared and the integrator is inhibited.
 <3> Only if the function module "extended setpoint channel" is active (r0108.8 = 1).

1	2	3	4	5	6	7	8
DO: SERVO					fp_2445_98_eng.vsd	Function diagram	
PROFdrive - STW2 control word interconnection (p2038 = 1)					17.10.08 V04.01.00	SINAMICS S110	
							- 2445 -

Figure 2-30 2445 – STW2 control word interconnection (p2038 = 1)

Figure 2-31 2449 – PZD send signals interconnection profile specific

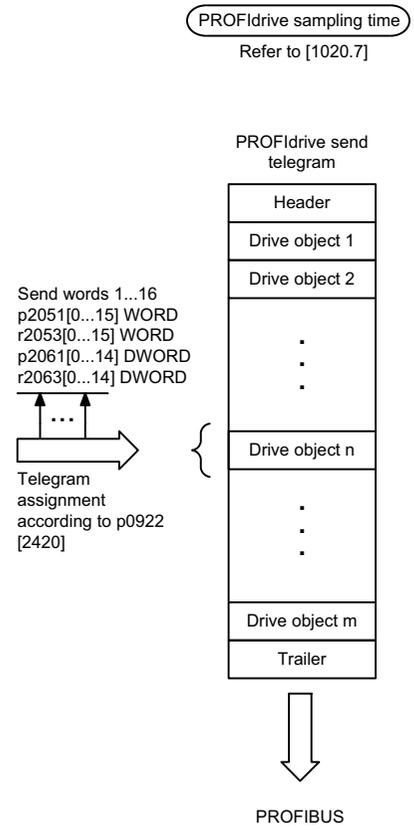
Signal sources for PZD send signals <1>						
Signal	Description	PROFdrive Signal No.	Interconnection parameter	Function diagram	Data type	Normalization
ZSW1	Status word 1	2	r2089[0]	[2452][2453][2479] <2>	U16	-
ZSW2	Status word 2	4	r2089[1]	[2454][2455] <2>	U16	-
NIST_A	Speed setpoint A (16 bit)	6	r0063	[4710]	I32 I16	4000 hex ≙ p2000 4000 0000 hex ≙ p2000
NIST_B	Speed setpoint B (32 bit)	8				
G1_ZSW	Encoder 1 status word	10	r0481[0]	[4730]	U16	
G1_XIST1	Encoder 1 actual position 1	11	r0482[0]	[4704]	U32	
G1_XIST2	Encoder 1 actual position 2	12	r0483[0]	[4704]	U32	
G2_ZSW	Encoder 2 status word	14	r0481[1]	[4730]	U16	
G2_XIST1	Encoder 2 actual position 1	15	r0482[1]	[4704]	U32	
G2_XIST2	Encoder 2 actual position 2	16	r0483[1]	[4704]	U32	
E_DIGITAL	Digital inputs	21	r2089[2]	[2459]	U16	
XIST_A	Position actual value A	28	r2521[0]	[4010]	I32	1 hex ≙ 1 LU
AKTSATZ	Pos selected block	33	r2670	[3650]	U16	



<1> Data type according to the PROFdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32

1	2	3	4	5	6	7	8
DO: SERVO					fp_2449_98_eng.vsd	Function diagram	
PROFdrive - PZD send signals connection profile-specific					03.11.08 V04.01.00	SINAMICS S110	
							- 2449 -

Signal sources for PZD send signals <1>						
Signal	Description	PROFdrive Signal No.	Interconnection parameter	Function diagram	Data type	Normalization
MELDW	Message word	102	r2089[2]	[2456]	U16	-
MT_ZSW	Measuring probe status word	131	r0688	-	U16	-
MT1_ZS_F	Measuring probe 1 measuring time, falling edge	132	r0687[0]	-	U16	-
MT1_ZS_S	Measuring probe 1 measuring time, rising edge	133	r0686[0]	-	U16	-
MT2_ZS_F	Measuring probe 2 measuring time, falling edge	134	r0687[1]	-	U16	-
MT2_ZS_S	Measuring probe 2 measuring time, rising edge	135	r0686[1]	-	U16	-
POS_ZSW	Pos status word	204	r2683	[3645]	U16	-
POS_ZSW1	Pos status word 1	221	r2089[3]	[2466]	U16	-
POS_ZSW2	Pos status word 2	223	r2089[4]	[2467]	U16	-
FAULT_CODE	Fault code	301	r2131	[8060]	U16	-
WARN_CODE	Alarm code	303	r2132	[8065]	U16	-
CU_ZSW1	Status word 1 for Control Unit	501	r2089[1]	[2496]	U16	-



<1> Data type according to the PROFdrive profile: I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32

1	2	3	4	5	6	7	8
DO: SERVO					fp_2450_98_eng.vsd	Function diagram	
PROFdrive - PZD send signals interconnection manufacturer-specific					03.11.08 V04.01.00	SINAMICS S110	
							- 2450 -

Figure 2-32 2450 – PZD send signals interconnection manufacturer specific

Figure 2-33 2452 – ZSW1 status word interconnection (p2038 = 0)

Signal sources for ZSW1 im Interface Mode SINAMICS (p2038 = 0)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>	
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-	
ZSW1.1	1 = Ready to operate	p2080[1] = r0899.1	[2503.7]	[2610]	-	
ZSW1.2	1 = Operation enabled	p2080[2] = r0899.2	[2503.7]	[2610]	-	
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-	
ZSW1.4	1 = No coast down active (OFF2 inactive)	p2080[4] = r0899.4	[2503.7]	[2610]	-	
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	[2610]	-	
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-	
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-	
ZSW1.8	1 = Speed setpoint - actual value deviation within tolerance t _{off}	p2080[8] = r2197.7	[2534.7]	[8010]	-	
ZSW1.9	1 = Control requested <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-	
ZSW1.10	1 = f or n comparison value reached/exceeded	p2080[10] = r2199.1	[2536.7]	[8010]	-	
ZSW1.11	1 = I, M, or P limit not reached	p2080[11] = r1407.7	[2522.7]	[5610]	✓	
ZSW1.12	1 = Open holding brake	p2080[12] = r0899.12	[2503.7]	[2701]	-	
ZSW1.13	1 = No motor overtemperature alarm	p2080[13] = r2135.14	[2548.7]	[8016]	✓	
ZSW1.14	1 = Motor rotates forwards (n _{act} ≥ 0) 0 = Motor rotates backwards (n _{act} < 0)	p2080[14] = r2197.3	[2534.7]	[8010]	-	
ZSW1.15	1 = No alarm, thermal overload, power unit	p2080[15] = r2135.15	[2548.7]	[8014]	✓	

PROFdrive Abtastzeit
siehe [1020.7]

<1> Used in telegrams 1, 2, 3, 4, 7, 9, 110, 111.

<2> The ZSW1 is generated using the binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...p2088[0].15)

<3> The drive object is ready to accept data.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2452_98_eng.vsd	Function diagram	
PROFdrive - ZSW1 status word interconnection (p2038 = 0)					17.10.08 V04.01.00	SINAMICS S110	
							- 2452 -

PROFdrive sampling time
Refer to [1020.7]

Signal sources for ZSW1 in Interface Mode SIMODRIVE 611 universal (p2038 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] Signal source	Inverted
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	1 = Ready to operate	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	1 = Operation enabled	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	1 = No coast down active	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	1 = No fast stop active	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	1 = Speed setpoint - actual value deviation within tolerance t_off	p2080[8] = r2197.7	[2534.7]	[8010]	-
ZSW1.9	1 = Control requested <2>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	1 = f or n comparison value reached/exceeded	p2080[10] = r2199.1	[2536.7]	[8010]	-
ZSW1.11	1 = Alarm class bit 0	p2080[11] = r2139.11	-	-	-
ZSW1.12	1 = Alarm class bit 1	p2080[12] = r2139.12	-	-	-
ZSW1.13	Reserved	-	-	-	-
ZSW1.14	1 = Closed-loop torque control active	p2080[14] = r1407.2	[2522.7]	[2522]	-
ZSW1.15	Reserved	-	-	-	-

<1> Used in telegrams 1, 2, 3, 4, 102, 103.
<2> The drive object is ready to accept data.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2453_98_eng.vsd	Function diagram	
PROFdrive - ZSW1 status word interconnection (p2038 = 1)					17.10.08 V04.01.00	SINAMICS S110	
							- 2453 -

Figure 2-34 2453 – ZSW1 status word interconnection (p2038 = 1)

Figure 2-35 2454 – ZSW2 status word interconnection (p2038 = 0)

Signal sources for ZSW2 in Interface Mode SINAMICS (p2038 = 0)						<1>	
Signal	Meaning	Interconnection parameters	[Function diagram] internal status word	[Function diagram] signal source	Inverted	PROFdrive sampling time Refer to [1020.7]	
ZSW2.0	1 = Drive data set DDS effective, bit 0	p2081[0] = r0051.0	-	[8565]	-		
ZSW2.1	Reserved	-	-	-	-		
ZSW2.2	Reserved	-	-	-	-		
ZSW2.3	Reserved	-	-	-	-		
ZSW2.4	Reserved	-	-	-	-		
ZSW2.5	1 = Alarm class bit 0	p2081[5] = r2139.11	-	-	-		
ZSW2.6	1 = Alarm class bit 1	p2081[6] = r2139.12	-	-	-		
ZSW2.7	1 = Parking axis active	p2081[7] = r0896.0	-	-	-		
ZSW2.8	1 = Traverse to fixed endstop	p2081[8] = r1406.8	-	[2520]	-		
ZSW2.9	Reserved	-	-	-	-		
ZSW2.10	1 = Pulses enabled	p2082[13] = r0899.11	-	-	-		
ZSW2.11	1 = Data set changeover active	p2081[11] = r0835.0	-	-	-		
ZSW2.12	Slave sign-of-life bit 0	Implicitly interconnected	-	-	-		
ZSW2.13	Slave sign-of-life bit 1						
ZSW2.14	Slave sign-of-life bit 2						
ZSW2.15	Slave sign-of-life bit 3						
<1> Used in telegrams 2, 3, 4, 7, 110, 111. <2> These signals are automatically interconnected for clock-cycle synchronous operation.							
1	2	3	4	5	6	7	8
DO: SERVO				fp_2454_98_eng.vsd	Function diagram		- 2454 -
PROFdrive - ZSW2 status word interconnection (p2038 = 0)				17.10.08 V04.01.00	SINAMICS S110		

PROFdrive sampling time
Refer to [1020.7]

Signal sources for ZSW2 in Interface Mode SIMODRIVE 611 universal (p2038 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] Signal source	Inverted
ZSW2.0	1 = Drive data set DDS effective, bit 0	p2081[0] = r0051.0	-	[8565]	-
ZSW2.1	Reserved	-	-	-	-
ZSW2.2	Reserved	-	-	-	-
ZSW2.3	Reserved	-	-	-	-
ZSW2.4	1 = Ramp-function generator inactive <3>	p2081[4] = r1199.2	-	[3060] [3080]	✓
ZSW2.5	1 = Holding brake open	p2081[5] = r0899.12	[2503.7]	[2701]	-
ZSW2.6	1 = Integrator inhibit, speed controller	p2081[6] = r2093.6	-	[5040] [5210]	-
ZSW2.7	1 = Parking axis active	p2081[7] = r0896.0	-	-	-
ZSW2.8	1 = Traverse to fixed endstop	p2081[8] = r1406.8	-	[2520]	-
ZSW2.9	Reserved	-	-	-	-
ZSW2.10	Reserved	-	-	-	-
ZSW2.11	1 = Data set changeover active	p2081 [11] = r0835.0	-	-	-
ZSW2.12	Slave sign-of-life bit 0	Implicitly interconnected	-	-	-
ZSW2.13	Slave sign-of-life bit 1				
ZSW2.14	Slave sign-of-life bit 2				
ZSW2.15	Slave sign-of-life bit 3				

<1> Used in telegrams 2, 3, 4, 102, 103.
 <2> These signals are automatically interconnected for clock-cycle synchronous operation.
 <3> Only if the function module "extended setpoint channel" is active (r0108.8 = 1).

1	2	3	4	5	6	7	8
DO: SERVO					fp_2455_98_eng.vsd	Function diagram	
PROFdrive - ZSW2 status word interconnection (p2038 = 1)					17.10.08 V04.01.00	SINAMICS S110	
							- 2455 -

Figure 2-36 2455 – ZSW2 status word interconnection (p2038 = 1)

Figure 2-37 2456 – MELDW status word interconnection

Signal sources for MELDW						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>	
MELDW.0	1 = Ramp-up/ramp-down completed 0 = Ramp-function generator active	p2082[0] = r2199.5	[2537.7]	[8010]	-	
MELDW.1	1 = Torque utilization [%] < torque threshold value 2 (p2194)	p2082[1] = r2199.11	[2537.7]	[8012]	-	
MELDW.2	1 = n_act < speed threshold value 3 (p2161)	p2082[2] = r2199.0	[2537.7]	[8010]	-	
MELDW.3	1 = n_act □ speed threshold value 2 (p2155)	p2082[3] = r2197.1	[2534.7]	[8010]	-	
MELDW.4	Reserved	-	-	-	-	
MELDW.5	Variable signaling function	p2082[5] = r3294	-	[5301]	-	
MELDW.6	1 = No motor overtemperature alarm	p2082[6] = r2135.14	[2548.7]	[8016]	✓	
MELDW.7	1 = No alarm, thermal overload, power unit	p2082[7] = r2135.15	[2548.7]	[8014]	✓	
MELDW.8	1 = Speed setpoint - actual value deviation within tolerance t_on	p2082[8] = r2199.4	[2537.7]	[8010]	-	
MELDW.9	Reserved	-	-	-	-	
MELDW.10	Reserved	-	-	-	-	
MELDW.11	1 = Controller enable	p2082[11] = r0899.8	[2503.7]	[2610]	-	
MELDW.12	1 = Drive ready	p2082[12] = r0899.7	[2503.7]	[2610]	-	
MELDW.13	1 = Pulses enabled	p2082[13] = r0899.11	[2503.7]	[2610]	-	
MELDW.14	Reserved	-	-	-	-	
MELDW.15	Reserved	-	-	-	-	

<1> Used in telegrams 102, 103, 110 and 111.

<2> The status word is generated using the binector-connector converter p2088[2].

PROFIdrive sampling time

Refer to [1020.7]

1	2	3	4	5	6	7	8
DO: SERVO					fp_2456_98_eng.vsd	Function diagram	
PROFIdrive - MELDW status word interconnection					17.10.08 V04.01.00	SINAMICS S110	
							- 2456 -

PROFdrive sampling time
Refer to [1020.7]

Signal targets for POS_STW (positioning mode, r0108.4 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
POS_STW.0	1 = Tracking mode active 0 = No tracking mode active	p2655[0] = r2092.0	-	[3635]	-
POS_STW.1	1 = Set home position 0 = Do not set home position	p2596 = r2092.1	-	[3612]	-
POS_STW.2	1 = Reference cam active	p2612 = r2092.2	-	[3612]	-
POS_STW.3	Reserved	-	-	-	-
POS_STW.4	Reserved	-	-	-	-
POS_STW.5	1 = Jogging, incremental active 0 = Jogging, velocity active	p2591 = r2092.5	-	[3610]	-
POS_STW.6	Reserved	-	-	-	-
POS_STW.7	Reserved	-	-	-	-
POS_STW.8	Reserved	-	-	-	-
POS_STW.9	Reserved	-	-	-	-
POS_STW.10	Reserved	-	-	-	-
POS_STW.11	Reserved	-	-	-	-
POS_STW.12	Reserved	-	-	-	-
POS_STW.13	Reserved	-	-	-	-
POS_STW.14	Reserved	-	-	-	-
POS_STW.15	Reserved	-	-	-	-

<1> Used in telegram 110, 999.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2462_98_eng.vsd	Function diagram	
PROFdrive - POS_STW-Pos control word interconnection (r0108.4 = 1)					08.10.08 V04.01.00	SINAMICS S110	
							- 2462 -

Figure 2-38 2462 – PosSTW pos control word interconnection (r0108.4 = 1)

PROFdrive Abtastzeit
siehe [1020.7]

Signal targets for POS_STW1 (positioning mode, r0108.4 = 1)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
POS_STW1.0	Traversing block selection, bit 0	p2625 = r2091.0	-	-	-	
POS_STW1.1	Traversing block selection, bit 1	p2626 = r2091.1	-	-	-	
POS_STW1.2	Traversing block selection, bit 2	p2627 = r2091.2	-	-	-	
POS_STW1.3	Traversing block selection, bit 3	p2628 = r2091.3	-	-	-	
POS_STW1.4	Traversing block selection, bit 4	p2629 = r2091.4	-	-	-	
POS_STW1.5	Traversing block selection, bit 5	p2630 = r2091.5	-	-	-	
POS_STW1.6	Reserved	-	-	-	-	
POS_STW1.7	Reserved	-	-	-	-	
POS_STW1.8	1 = Absolute positioning is selected. 0 = Relative positioning is selected.	p2648 = r2091.8	-	-	-	
POS_STW1.9	1 = Absolute positioning/MDI direction selection, positive. 2 = Absolute positioning/MDI direction selection, negative. 3 = Absolute positioning through the shortest distance. 0 = Absolute positioning through the shortest distance.	p2651 = r2091.9	-	-	-	
POS_STW1.10		p2652 = r2091.10	-	-	-	
POS_STW1.11	Reserved	-	-	-	-	
POS_STW1.12	0 = MDI-Satzwechsel mit  von Fahrauftrag aktivieren (POS_STW1.12) 1 = Stetige Übernahme	p2649 = r2091.12	-	-	-	
POS_STW1.13	Reserved	-	-	-	-	
POS_STW1.14	1 = signal setting-up selected 0 = signal positioning selected.	p2653 = r2091.14	-	-	-	
POS_STW1.15	1 = MDI selection	p2647 = r2091.15	-	-	-	

<1> Used in telegram 111.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2463_98_eng.vsd	Function diagram	
PROFdrive – POS_STW1-Pos control word 1 interconnection (r0108.4 = 1)					08.10.08 V04.01.00	SINAMICS S110	
							- 2463 -

Function diagrams
PROFdrive

Figure 2-39 2463 – POS_STW1 positioning control word 1 interconnection (r0108.4 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal targets for POS_STW2 (positioning mode, r0108.4 = 1) <1>

Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
POS_STW2.0	1 = Tracking mode active	p2655 = r2092.0	-	[3635]	-
POS_STW2.1	1 = Set reference point	p2596 = r2092.1	-	[3612]	-
POS_STW2.2	1 = Reference cam active	p2612 = r2092.2	-	[3612]	-
POS_STW2.3	Reserved	-	-	-	-
POS_STW2.4	Reserved	-	-	-	-
POS_STW2.5	1 = Jogging, incremental active 0 = Jogging, velocity active	p2591 = r2092.5	-	[3610]	-
POS_STW2.6	Reserved	-	-	-	-
POS_STW2.7	Reserved	-	-	-	-
POS_STW2.8	1 = Referencing type selection for flying referencing 0 = Referencing type selection for search for reference	p2597 = r2092.8	-	-	-
POS_STW2.9	1 = Start the search for reference in the negative direction 0 = Start the search for reference in the positive direction.	p2604 = r2092.9	-	-	-
POS_STW2.10	1 = Measuring probe 2 is activated 0 = Measuring probe 1 is activated	p2510[0] = r2092.10	-	-	-
POS_STW2.11	1 = Falling edge of the measuring probe 0 = Rising edge of the measuring probe	p2511[0] = r2092.11	-	-	-
POS_STW2.12	Reserved	-	-	-	-
POS_STW2.13	Reserved	-	-	-	-
POS_STW2.14	1 = Software limit switch activation	p2582 = r2092.14	-	-	-
POS_STW2.15	1 = STOP cam activ	p2568 = r2092.15	-	-	-

<1> Used in telegram 111.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2464_98_eng.vsd	Function diagram	
PROFdrive – POS_STW2-POS control word 2 Verschaltung (r0108.4 = 1)					08.10.08 V04.01.00	SINAMICS S110	
- 2464 -							

Figure 2-40 2464 – POS_STW2 positioning control word 2 interconnection (r0108.4 = 1)

Figure 2-41 2466 – POS_ZSW1 positioning status word 1 interconnection (r0108.4 = 1)

Signal targets for POS_ZSW1 (positioning mode, r0108.4 = 1)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
POS_ZSW1.0	Active Traversing Block Bit 0 (2 ⁰)	p2083[0] = r2670[0]	-	-	-	
POS_ZSW1.1	Active Traversing Block Bit 1 (2 ¹)	p2083[1] = r2670[1]	-	-	-	
POS_ZSW1.2	Active Traversing Block Bit 2 (2 ²)	p2083[2] = r2670[2]	-	-	-	
POS_ZSW1.3	Active Traversing Block Bit 3 (2 ³)	p2083[3] = r2670[3]	-	-	-	
POS_ZSW1.4	Active Traversing Block Bit 4 (2 ⁴)	p2083[4] = r2670[4]	-	-	-	
POS_ZSW1.5	Active Traversing Block Bit 5 (2 ⁵)	p2083[5] = r2670[5]	-	-	-	
POS_ZSW1.6	Reserved	-	-	-	-	
POS_ZSW1.7	Reserved	-	-	-	-	
POS_ZSW1.8	1 = STOP cam minus active	p2083[08] = r2684[13]	-	-	-	
POS_ZSW1.9	1 = STOP cam plus aktiv	p2083[09] = r2684[14]	-	-	-	
POS_ZSW1.10	1 = Jogging active	p2083[10] = r2094[0]	-	-	-	
POS_ZSW1.11	1 = Reference point approach active	p2083[11] = r2094[1]	-	-	-	
POS_ZSW1.12	1 = Flying referencing active	p2083[12] = r2684[1]	-	-	-	
POS_ZSW1.13	1 = Traversing Block active	p2083[13] = r2094[2]	-	-	-	
POS_ZSW1.14	1 = Set-up active	p2083[14] = r2094[4]	-	-	-	
POS_ZSW1.15	1 = MDI active 0 = MDI inactive	p2083[15] = r2670[15]	-	-	-	

PROFIdrive sampling time
 Refer to [1020.7]

<1> Used in telegram 111.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2466_98_eng.vsd	Function diagram	
PROFIdrive – POS_ZSW1-Pos status word 1 interconnection (r0108.4 = 1)					08.10.08 V04.01.00	SINAMICS S110	
							- 2466 -

PROFdrive Abtastzeit
siehe [1020.7]

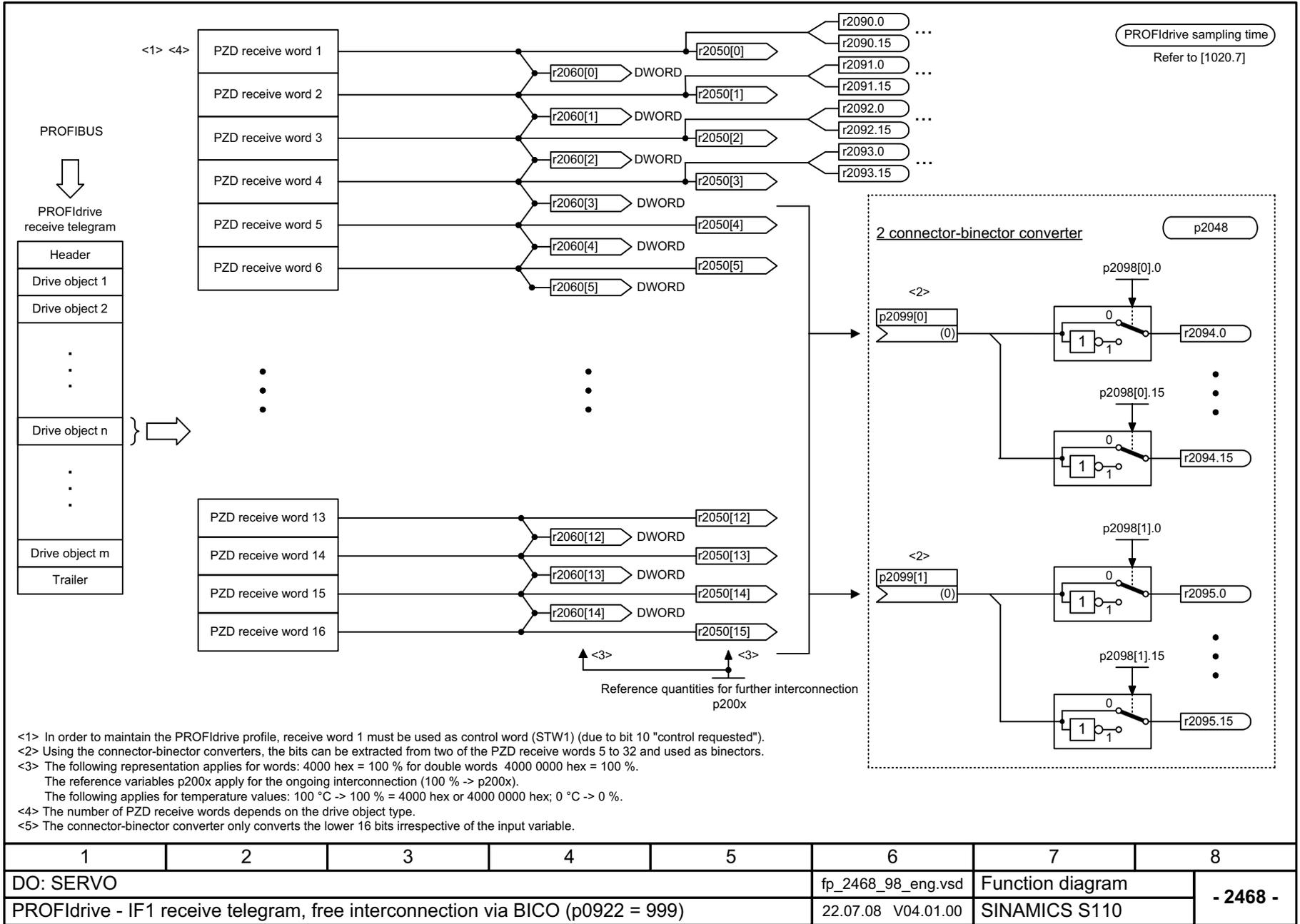
Signal targets for POS_ZSW2 (positioning mode, r0108.4 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
POS_ZSW2.0	1 = Tracking mode active	p2084[0] = r2683.0	-	-	-
POS_ZSW2.1	1 = Velocity limiting active	p2084[1] = r2683.1	-	-	-
POS_ZSW2.2	1 = Setpoint available	p2084[2] = r2683.2	-	-	-
POS_ZSW2.3	1 = Printing mark outside outer window	p2084[3] = r2684.3	-	-	-
POS_ZSW2.4	1 = Axis moves forward	p2084[4] = r2683.4	-	-	-
POS_ZSW2.5	1 = Axis moves backwards	p2084[5] = r2683.5	-	-	-
POS_ZSW2.6	1 = Software limit switch minus reached	p2084[6] = r2683.6	-	-	-
POS_ZSW2.7	1 = Software limit switch plus reached	p2084[7] = r2683.7	-	-	-
POS_ZSW2.8	1 = Position actual value <= cam switching position 1	p2084[8] = r2683.8	-	-	-
POS_ZSW2.9	1 = Position actual value <= cam switching position 2	p2084[9] = r2683.9	-	-	-
POS_ZSW2.10	1 = Direct output 1 via traversing block	p2084[10] = r2683.10	-	-	-
POS_ZSW2.11	1 = Direct output 2 via traversing block	p2084[11] = r2683.11	-	-	-
POS_ZSW2.12	1 = Fixed stop reached	p2084[12] = r2683.12	-	-	-
POS_ZSW2.13	1 = Fixed stop clamping torque reached	p2084[13] = r2683.13	-	-	-
POS_ZSW2.14	1 = Travel to fixed stop active	p2084[14] = r2683.14	-	-	-
POS_ZSW2.15	1 = Traversing command active	p2084[15] = r2684.15	-	-	-

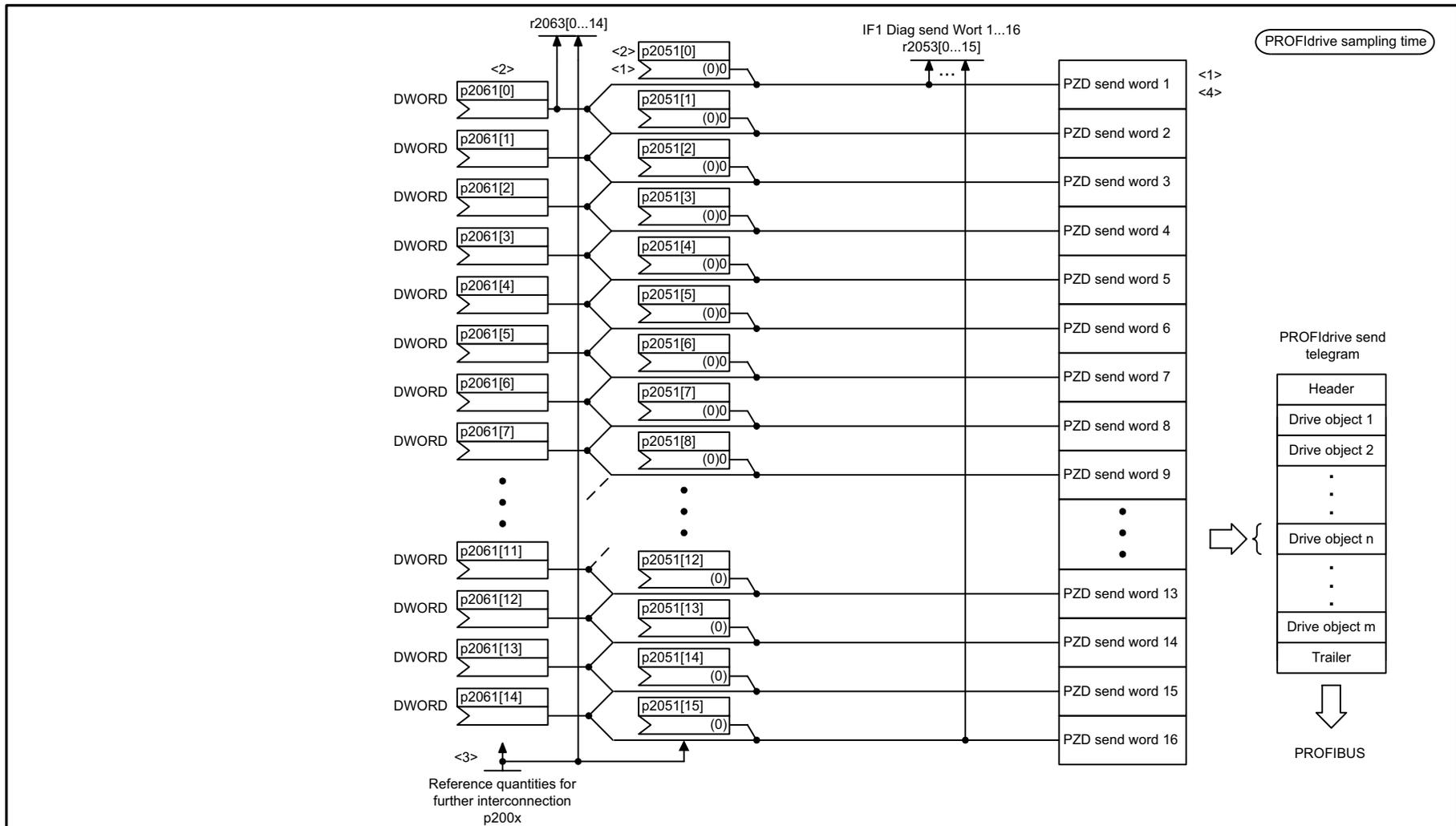
<1> Verwendung in Telegramm 111.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2467_98_eng.vsd	Function diagram	
PROFdrive – POS_ZSW2-Pos status word 2 interconnection (r0108.4 = 1)					08.10.08 V04.01.00	SINAMICS S110	
							- 2467 -

Figure 2-42 2467 – POS_ZSW2 positioning status word 2 interconnection (r0108.4 = 1)

Figure 2-43 2468 – IF1 Receive telegram, free interconnection via BICO (p0922 = 999)

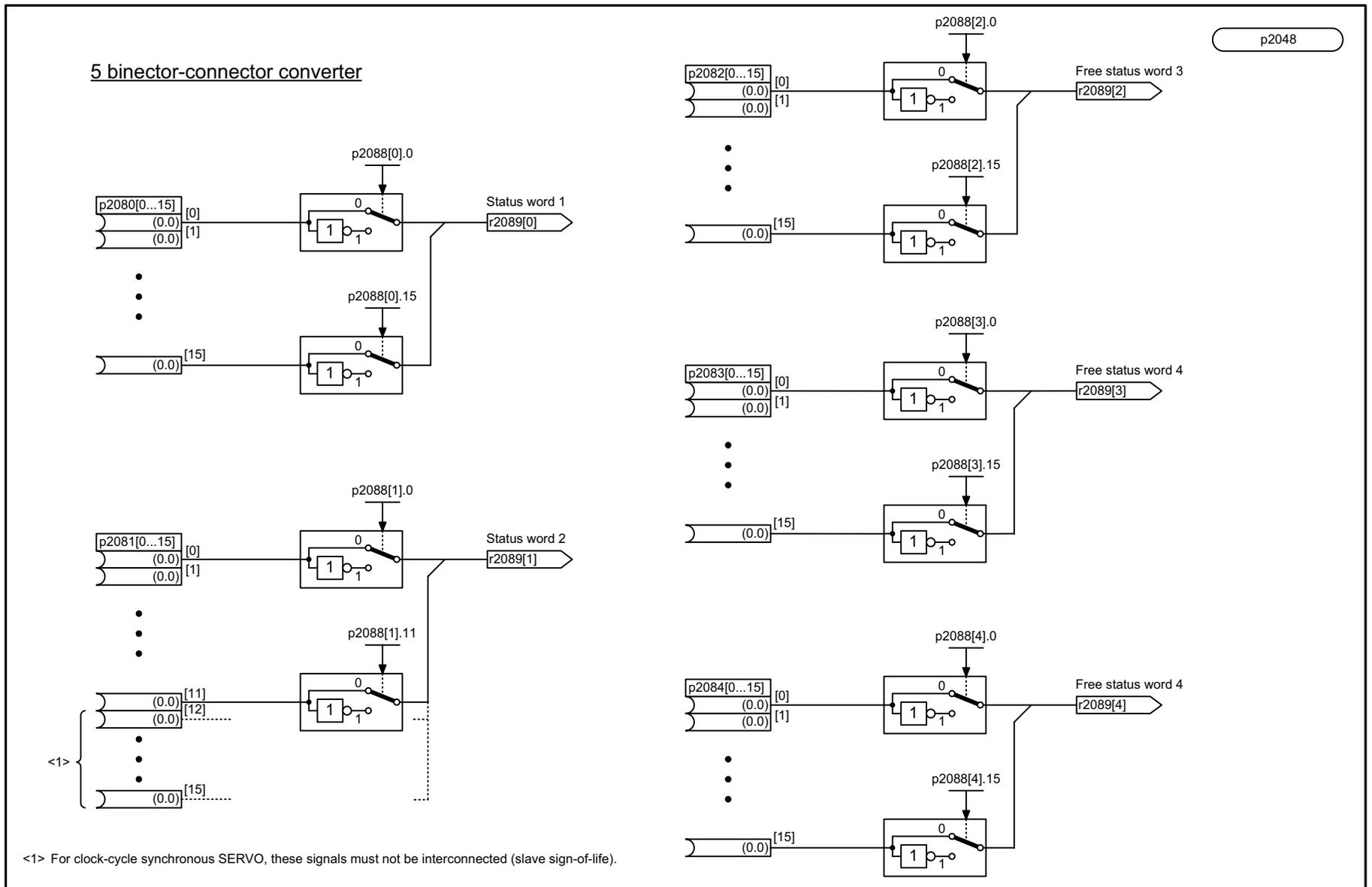




<1> To comply with the PROFdrive profile, send word 1 must be used as status word 1 (ZSW1), not as DWORD.
 <2> Every PZD word can be assigned a word or a double word. Only one of the 2 interconnection parameters p2051 or p2061 may have a value ≠ 0 for a PZD word.
 <3> Physical word and double word values are inserted in the telegram as referenced variables. p200x apply as reference variables (telegram contents = 4000 hex or 4000 0000 hex in the case of double words, if the input variable has the value p200x).
 The following applies for temperature values: 100° C -> 100 % = 4000 hex or 4000 0000 hex; 0° C -> 0%.
 <4> The number of PZD send words depends on the drive object type.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2470_98_eng.vsd	Function diagram	
PROFdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999)					16.06.08 V04.01.00	SINAMICS S110	
							- 2470 -

Figure 2-44 – IF1 Send telegram, free interconnection via BICO (p0922 = 999)



5 binector-connector converter

Figure 2-45 2472 – IF1 Status words, free interconnection

1	2	3	4	5	6	7	8
DO: CU_S110, SERVO					fp_2472_98_eng.vsd	Function diagram	
PROFdrive - IF1 status words, free interconnection					15.08.08 V02.06.00	SINAMICS S110	
							- 2472 -

PROFdrive sampling time
Refer to [1020.7]

Signal targets for STW1 (positioning mode, r0108.4 = 1)						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
STW1.0	= ON (pulses can be enabled) 0 = OFF1 (braking with ramp-funct. generator, then pulse cancellation and ready-to-power-up)	p0840[0] = r2090.0	[2501.3]	[2610]	-	
STW1.1	1 = No OFF2 (enable is possible) 0 = OFF2 (immediate pulse cancellation and power-on inhibit)	p0844[0] = r2090.1	[2501.3]	[2610]	-	
STW1.2	1 = No OFF3 (enable possible) 0 = OFF3 (braking with the OFF3 ramp p1135, then pulse cancellation and power-on inhibit)	p0848[0] = r2090.2	[2501.3]	[2610]	-	
STW1.3	1 = Enable operation (pulses can be enabled) 0 = Inhibit operation (cancel pulses)	p0852[0] = r2090.3	[2501.3]	[2610]	-	
STW1.4	1 = Do not reject traversing task 0 = Reject traversing task (ramp-down with the maximum deceleration)	p2641 = r2090.4	-	[3616.5] [3625]	-	
STW1.5	1 = No intermediate stop 0 = Intermediate stop	p2640 = r2090.5	-	[3616.5] [3625]	-	
STW1.6	= Activate traversing task	<3>p2631 = r2090.6 p2650 = r2090.6	-	[3620.1] [3625]	-	
STW1.7	= Acknowledge faults	p2103[0] = r2090.7	[2546.1]	[8060]	-	
STW1.8	1 = Jog 1 ON 0 = Jog 1 OFF	p2589 = r2090.8	-	[3610.1] [3625]	-	
STW1.9	1 = Jog 2 ON 0 = Jog 2 OFF	p2590 = r2090.9	-	[3610.1] [3625]	-	
STW1.10	1 = Control via PLC <2>	p0854[0] = r2090.10	[2501.3]	[2501]	-	
STW1.11	1 = Start homing 0 = Stop homing	p2595 = r2090.11	-	[3612.1] [3625]	-	
STW1.12	Reserved	-	-	-	-	
STW1.13	= External block change	p2633 = r2090.13	-	[3615]	-	
STW1.14	Reserved	-	-	-	-	
STW1.15	Reserved	-	-	-	-	

<1> Used in telegrams 7, 9, 110, 111.

<3> The interconnection p2649 = 0 is made additionally only in Telegram 7,9 and 110.

<2> STW1.10 must be set to ensure that the drive object accepts the process data (PZD).

1	2	3	4	5	6	7	8
DO: SERVO			fp_2475_98_eng.vsd			Function diagram	
PROFdrive - STW1 control word 1 interconnection (r0108.4 = 1)			08.10.08 V04.01.00			SINAMICS S110	
							- 2475 -

Figure 2-46 2475 – STW1 control word 1 interconnection (r0108.4 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal targets for SATZANW (positioning mode, r0108.4 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
SATZANW.0	1 = Block selection, bit 0	p2625 = r2091.0	-	[3640]	-
SATZANW.1	1 = Block selection, bit 1	p2626 = r2091.1	-	[3640]	-
SATZANW.2	1 = Block selection, bit 2	p2627 = r2091.2	-	[3640]	-
SATZANW.3	1 = Block selection, bit 3	p2628 = r2091.3	-	[3640]	-
SATZANW.4	1 = Block selection, bit 4	p2629 = r2091.4	-	[3640]	-
SATZANW.5	1 = Block selection, bit 5	p2630 = r2091.5	-	[3640]	-
SATZANW.6	Reserved	-	-	-	-
SATZANW.7	Reserved	-	-	-	-
SATZANW.8	Reserved	-	-	-	-
SATZANW.9	Reserved	-	-	-	-
SATZANW.10	Reserved	-	-	-	-
SATZANW.11	Reserved	-	-	-	-
SATZANW.12	Reserved	-	-	-	-
SATZANW.13	Reserved	-	-	-	-
SATZANW.14	Reserved	-	-	-	-
SATZANW.15	1 = Activate MDI 0 = Deactivate MDI	p2647 = r2091.15	-	[3625] [3640]	-

<1> Used in telegrams 7, 9 und 110.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2476_98_eng.vsd	Function diagram	
PROFdrive - SATZANW Pos Block Selection interconnection (r0108.4 = 1)					08.10.08 V04.01.00	SINAMICS S110	
							- 2476 -

Figure 2-47 2476 – SATZANW-Pos block selection interconnection (r0108.4 = 1)

PROFdrive sampling time
Refer to [1020.7]

Signal sources for ZSW1 (positioning mode, r0108.4 = 1) <1>					
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted <2>
ZSW1.0	1 = Ready to power-up	p2080[0] = r0899.0	[2503.7]	[2610]	-
ZSW1.1	1 = Ready to operate (DC link loaded, pulses blocked)	p2080[1] = r0899.1	[2503.7]	[2610]	-
ZSW1.2	1 = Operation enabled (drive follows n_set)	p2080[2] = r0899.2	[2503.7]	[2610]	-
ZSW1.3	1 = Fault present	p2080[3] = r2139.3	[2548.7]	[8060]	-
ZSW1.4	1 = No coast down active (OFF2 inactive)	p2080[4] = r0899.4	[2503.7]	[2610]	-
ZSW1.5	1 = No fast stop active (OFF3 inactive)	p2080[5] = r0899.5	[2503.7]	[2610]	-
ZSW1.6	1 = Power-on inhibit active	p2080[6] = r0899.6	[2503.7]	[2610]	-
ZSW1.7	1 = Alarm present	p2080[7] = r2139.7	[2548.7]	[8065]	-
ZSW1.8	1 = Following error within tolerance	p2080[8] = r2684.8	[3646.7]	[4025]	-
ZSW1.9	1 = Control requested <3>	p2080[9] = r0899.9	[2503.7]	[2503]	-
ZSW1.10	1 = Target position reached	p2080[10] = r2684.10	[3646.7]	[4020] [3625]	-
ZSW1.11	1 = Home position set	p2080[11] = r2684.11	[3646.7]	[3612] [3614]	-
ZSW1.12	 = Acknowledgement traversing block activated	p2080[12] = r2684.12	[3646.7]	[3616] [3620]	-
ZSW1.13	1 = Drive at standstill	p2080[13] = r2199.0	[2537.7]	[8010] [3625]	-
ZSW1.14	1 = Axis accelerated <4>	p2080[14] = r2684.4	[3646.7]	[3635]	-
ZSW1.15	1 = Axis decelerated <4>	p2080[15] = r2684.5	[3646.7]	[3635]	-

<1> Used in telegrams 7, 9, 110, 111. <3> The drive object is ready to accept data.
 <2> The status word is generated using the binector-connector converter p2088[0]. <4> Only for telegram 111.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2479_98_eng.vsd	Function diagram	
PROFdrive - ZSW1-Status Word 1 interconnection (r0108.4 = 1)					12.08.08 V04.01.00	SINAMICS S110	
							- 2479 -

Figure 2-48 2479 – ZSW1 status word 1 interconnection (r0108.4 = 1)

Figure 2-49 2480 – MDI/Mode interconnection (r0108.4 = 1)

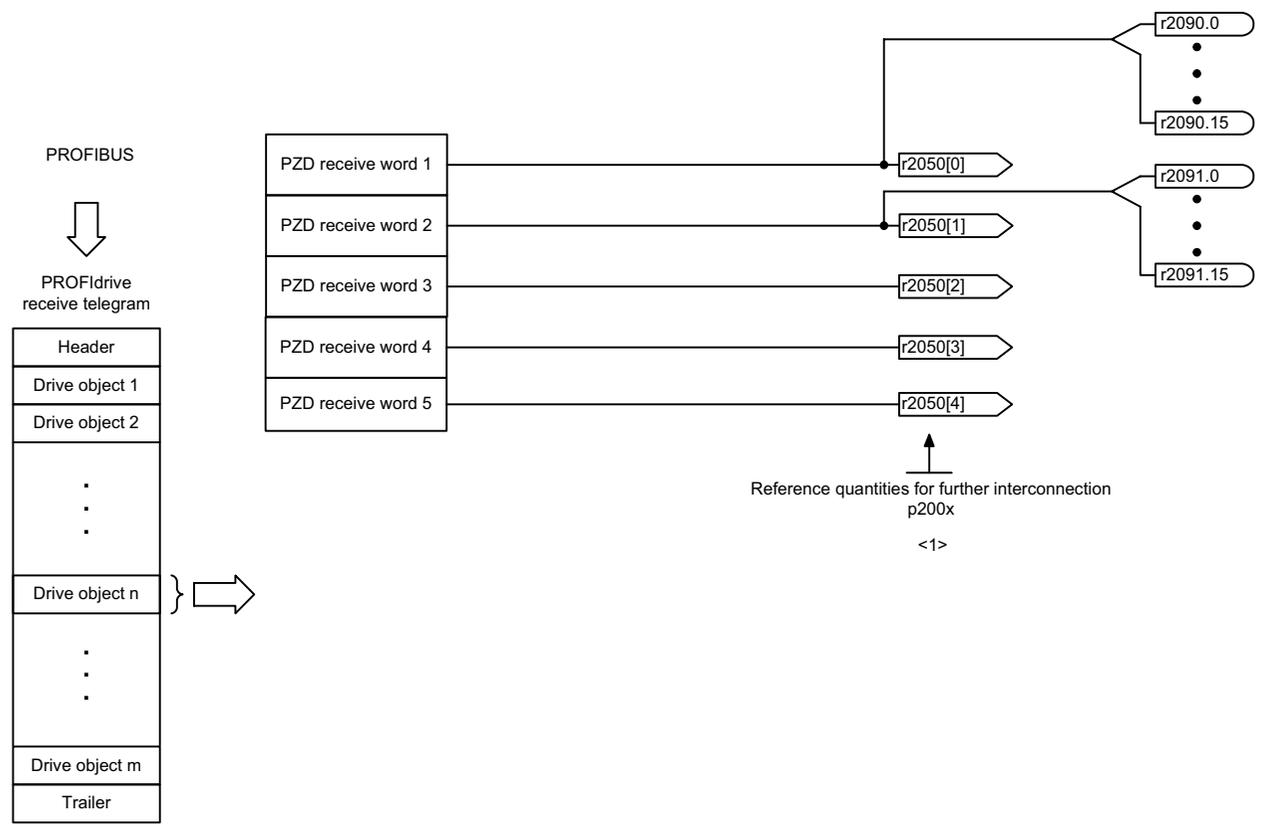
Signal targets for MDI_MOD (positioning mode, r0108.4 = 1)						<1>		
Signal	Meaning				Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted
MDI_MOD.0	Reserved				p2648 = r2094.0	-	-	-
MDI_MOD.1	0 = Absolute positioning for modulo axis, along the shortest path	1 = Absolute positioning for modulo axis, in positive direction	2 = Absolute positioning for modulo axis, in negative direction	3 = Absolute positioning for modulo axis, along the shortest path	p2651 = r2094.1	-	-	-
MDI_MOD.2					p2652 = r2094.2	-	-	-
MDI_MOD.3	Reserved				-	-	-	-
MDI_MOD.4	Reserved				-	-	-	-
MDI_MOD.5	Reserved				-	-	-	-
MDI_MOD.6	Reserved				-	-	-	-
MDI_MOD.7	Reserved				-	-	-	-
MDI_MOD.8	Reserved				-	-	-	-
MDI_MOD.9	Reserved				-	-	-	-
MDI_MOD.10	Reserved				-	-	-	-
MDI_MOD.11	Reserved				-	-	-	-
MDI_MOD.12	Reserved				-	-	-	-
MDI_MOD.13	Reserved				-	-	-	-
MDI_MOD.14	Reserved				-	-	-	-
MDI_MOD.15	Reserved				-	-	-	-

<1> Used in telegram 9.

1	2	3	4	5	6	7	8
DO: SERVO					fp_2480_98_eng.vsd	Function diagram	
PROFIdrive – MDI_MOD-MDI Mode interconnection (r0108.4 = 1)					17.10.08 V04.01.00	SINAMICS S110	

PROFIdrive sampling time
 Refer to [1020.7]

PROFdrive sampling time
Refer to [1020.7]

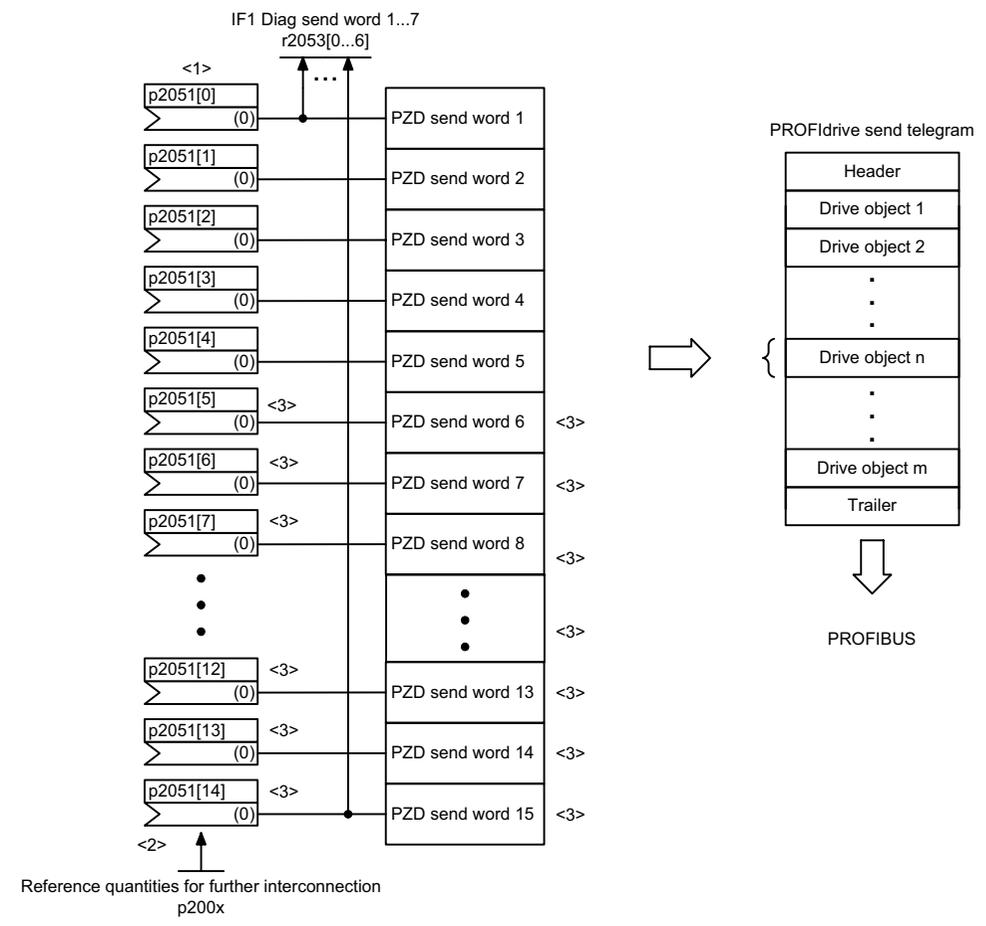


<1> The following representation applies for words: 4000 hex = 100 %.
 The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
 The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2481_98_eng.vsd	Function diagram	
PROFdrive - IF1 receive telegram, free interconnection via BICO (p0922 = 999)					28.10.08 V04.01.00	SINAMICS S110	
							- 2481 -

Figure 2-50 2481 – IF1 Receive telegram, free interconnection via BICO (p0922 = 999)

PROFdrive Abtastzeit
Refer to [1020.7]



<1> Using the binector/connector converters at [2472], bits of 4 send words can be interconnected with any binectors.
 <2> The following representation applies for words: 4000 hex = 100 %.
 The reference variables p200x apply for the ongoing interconnection (100 % -> p200x).
 The following applies for temperature values: 100 °C -> 100 % = 4000 hex; 0 °C -> 0 %.
 <3> Valid for CU_S110.

Figure 2-51 2483 – IF1 Send telegram, free interconnection via BICO (p0922 = 999)

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2483_98_eng.vsd	Function diagram	
PROFdrive - IF1 send telegram, free interconnection via BICO (p0922 = 999)					16.06.08 V04.01.00	SINAMICS S110	
							- 2483 -

PROFdrive sampling time
Refer to [1020.7]

Signal targets for CU_STW1						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] internal control word	[Function diagram] signal target	Inverted	
CU_STW.0	Synchronization	p0681[0] = r2090.0	-	-	-	
CU_STW.1	RTC PING	p3104 = r2090.1	-	-	-	
CU_STW.2	Reserved	-	-	-	-	
CU_STW.3	Reserved	-	-	-	-	
CU_STW.4	Reserved	-	-	-	-	
CU_STW.5	Reserved	-	-	-	-	
CU_STW.6	Reserved	-	-	-	-	
CU_STW.7	Acknowledge faults	p2103[0] = r2090.7	-	-	-	
CU_STW.8	Reserved	-	-	-	-	
CU_STW.9	Reserved	-	-	-	-	
CU_STW.10	To assume control	p3116 = r2090.10	-	-	-	
CU_STW.11	Reserved	-	-	-	-	
CU_STW.12	Master sign-of-life bit 0	p2045 = r2050[3]	-	-	-	
CU_STW.13	Master sign-of-life bit 1					
CU_STW.14	Master sign-of-life bit 2					
CU_STW.15	Master sign-of-life bit 3					

<1> Used in telegrams 390 and 391.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2495_98_eng.vsd	Function diagram	
PROFdrive - CU_STW1 control word Control Unit interconnection					31.10.08 V04.01.00	SINAMICS S110	
- 2495 -							

Figure 2-52 2495 – CU_STW control word Control Unit interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal sources for CU_ZSW1						<1>
Signal	Meaning	Interconnection parameters	[Function diagram] Internal status word	[Function diagram] signal source	Inverted	
CU_ZSW1.0	Reserviert	-	-	-	-	
CU_ZSW1.1	Reserviert	-	-	-	-	
CU_ZSW1.2	Reserviert	-	-	-	-	
CU_ZSW1.3	1 = Fault present	p2081[3] = r2139.3	-	-	-	
CU_ZSW1.4	Reserviert	-	-	-	-	
CU_ZSW1.5	Reserviert	-	-	-	-	
CU_ZSW1.6	1 = Not ready to be powered-up	p2081[6] = r0899.0	-	-	✓	
CU_ZSW1.7	1 = Alarm present	p2081[7] = r2139.7	-	-	-	
CU_ZSW1.8	Synchronisation (SYNC)	p2081[8] = r0899.8	-	-	-	
CU_ZSW1.9	1 = Alarm is not present	p2081[9] = r3114.9	-	-	✓	
CU_ZSW1.10	1 = Fault not present	p2081[10] = r3114.10	-	-	✓	
CU_ZSW1.11	1 = Safety-Message/signal not present	p2081[11] = r3114.11	-	-	✓	
CU_ZSW1.12	Slave-Lebenszeichen Bit 0	Implizit verschaltet	-	-	-	
CU_ZSW1.13	Slave-Lebenszeichen Bit 1					
CU_ZSW1.14	Slave-Lebenszeichen Bit 2					
CU_ZSW1.15	Slave-Lebenszeichen Bit 3					

<1> Used in telegrams 390 and 391.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2496_98_eng.vsd	Function diagram	
PROFdrive - CU_ZSW1 status word 1 Control Unit interconnection					14.11.08 V04.01.00	SINAMICS S110	
							- 2496 -

Figure 2-53 2496 – CU_ZSW status word Control Unit Interconnection

PROFdrive sampling time
Refer to [1020.7]

Signal targets for A_DIGITAL <1>					
Signal	Meaning	Interconnection parameters <3>	[Function diagram] internal status word	[Function diagram] signal target	Inverted
A_DIGITAL.0	Digital output 8 (DI/DO 8) <2>	p0738[0] = r2091[0]	-	-	-
A_DIGITAL.1	Digital output 9 (DI/DO 9) <2>	p0739[0] = r2091[1]	-	-	-
A_DIGITAL.2	Digital output 10 (DI/DO 10) <2>	p0740[0] = r2091[2]	-	-	-
A_DIGITAL.3	Digital output 11 (DI/DO 11) <2>	p0741[0] = r2091[3]	-	-	-
A_DIGITAL.4	Reserved	-	-	-	-
A_DIGITAL.5	Reserved	-	-	-	-
A_DIGITAL.6	Reserved	-	-	-	-
A_DIGITAL.7	Reserved	-	-	-	-
A_DIGITAL.8	Reserved	-	-	-	-
A_DIGITAL.9	Reserved	-	-	-	-
A_DIGITAL.10	Reserved	-	-	-	-
A_DIGITAL.11	Reserved	-	-	-	-
A_DIGITAL.12	Reserved	-	-	-	-
A_DIGITAL.13	Reserved	-	-	-	-
A_DIGITAL.14	Reserved	-	-	-	-
A_DIGITAL.15	Reserved	-	-	-	-

<1> Used in telegrams 390 and 391. <2> Can be set via p0728 as input (DI) or output (DO). <3> Pre-assignment, can be freely changed.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2497_98_eng.vsd	Function diagram	
PROFdrive - A_DIGITAL interconnection					17.10.08 V04.01.00	SINAMICS S110	
- 2497 -							

Figure 2-54 2497 – A_DIGITAL interconnection

Figure 2-55 2498 – E_DIGITAL interconnection

Signal targets for E_DIGITAL						<1>
Signal	Meaning		Interconnection parameters <3>	[Function diagram] Internal status word	[Function diagram] signal target	Inverted
E_DIGITAL.0	Digital input 8 (DI/DO 8)	<2>	p2082[0] = r0722[8]	-	-	-
E_DIGITAL.1	Digital input 9 (DI/DO 9)	<2>	p2082[1] = r0722[9]	-	-	-
E_DIGITAL.2	Digital input 10 (DI/DO 10)	<2>	p2082[2] = r0722[10]	-	-	-
E_DIGITAL.3	Digital input 11 (DI/DO 11)	<2>	p2082[3] = r0722[11]	-	-	-
E_DIGITAL.4	Reserved		-	-	-	-
E_DIGITAL.5	Reserved		-	-	-	-
E_DIGITAL.6	Reserved		-	-	-	-
E_DIGITAL.7	Reserved		-	-	-	-
E_DIGITAL.8	Digital input 0 (DI 0)		p2082[8] = r0722[0]	-	-	-
E_DIGITAL.9	Digital input 1 (DI 1)		p2082[9] = r0722[1]	-	-	-
E_DIGITAL.10	Digital input 2 (DI 2)		p2082[10] = r0722[2]	-	-	-
E_DIGITAL.11	Digital input 3 (DI 3)		p2082[11] = r0722[3]	-	-	-
E_DIGITAL.12	Reserved		-	-	-	-
E_DIGITAL.13	Reserved		-	-	-	-
E_DIGITAL.14	Reserved		-	-	-	-
E_DIGITAL.15	Reserved		-	-	-	-

PROFdrive sampling time
Refer to [1020.7]

<1> Used in telegrams 390 and 391.
 <2> Can be set via p0728 as input (DI) or output (DO).
 <3> Pre-assignment, can be freely changed.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2498_98_eng.vsd	Function diagram	
PROFdrive - E_DIGITAL interconnection					31.10.08 V04.01.00	SINAMICS S110	

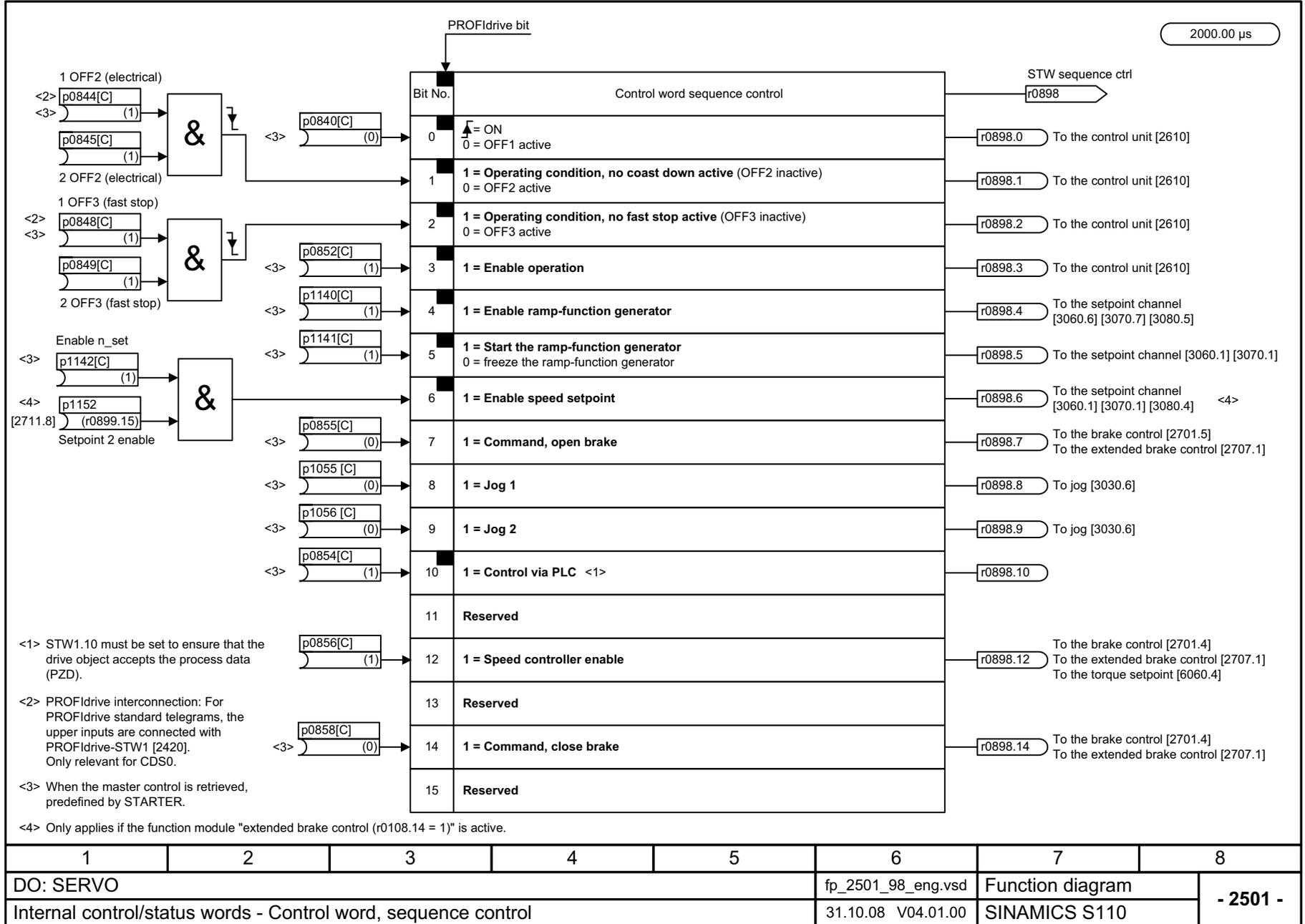
- 2498 -

2.6 Internal control/status words

Function diagrams

2501 – Control word sequential control	2-677
2503 – Status word sequential control	2-678
2505 – Control word setpoint channel	2-679
2520 – Control word speed controller	2-680
2522 – Status word speed controller	2-681
2526 – Status word control	2-682
2530 – Status word current control	2-683
2534 – Status word, monitoring 1	2-684
2536 – Status word, monitoring 2	2-685
2537 – Status word, monitoring 3	2-686
2546 – Control word faults/alarms	2-687
2548 – Status word, faults/warnings 1 and 2	2-688

Figure 2-56 2501 – Control word sequential control



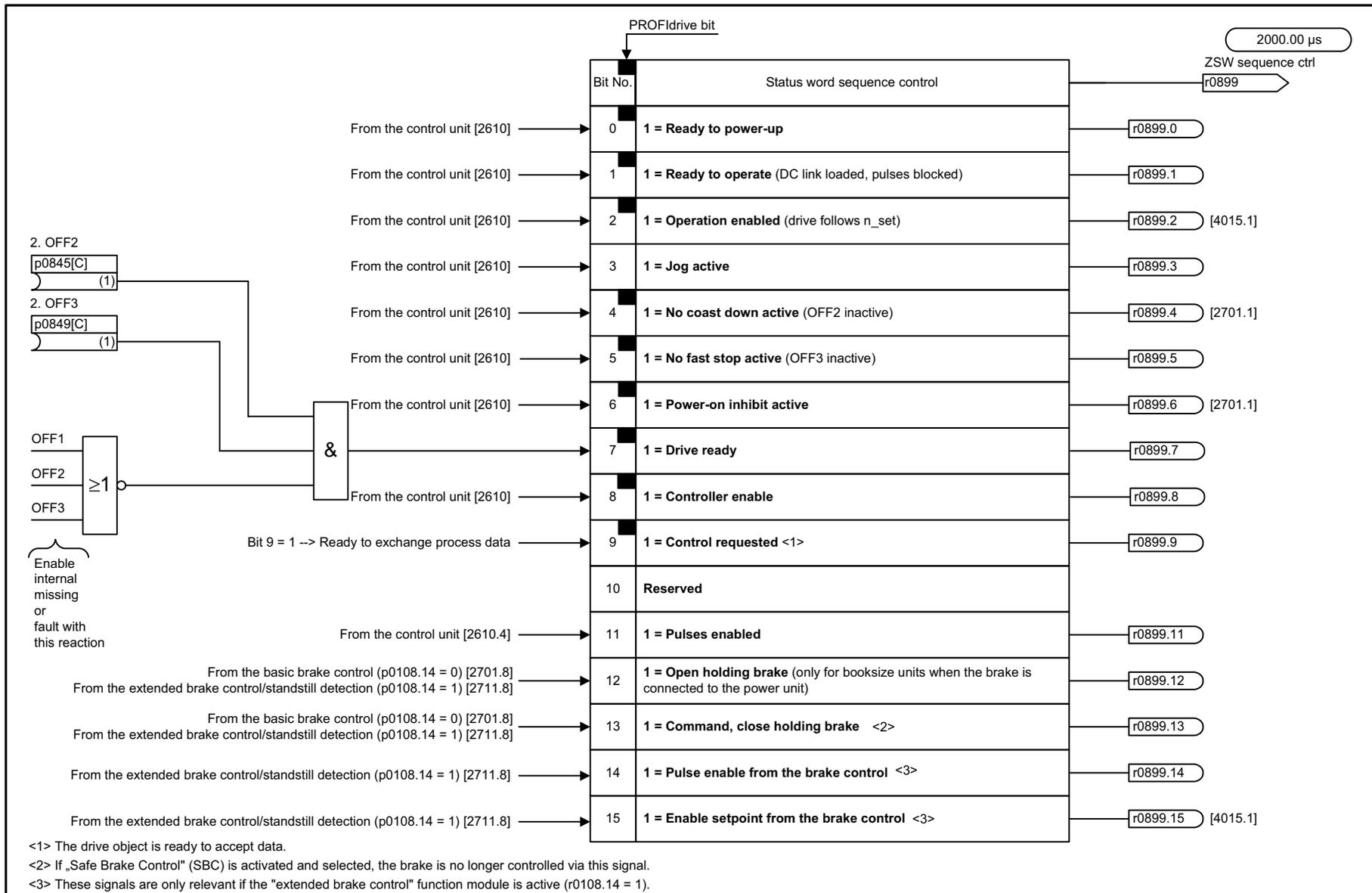


Figure 2-57 2503 – Status word sequential control

1	2	3	4	5	6	7	8
DO: SERVO					fp_2503_98_eng.vsd	Function diagram	
Internal control/status words - Status word, sequence control					31.10.08 V04.01.00	SINAMICS S110	
							- 2503 -

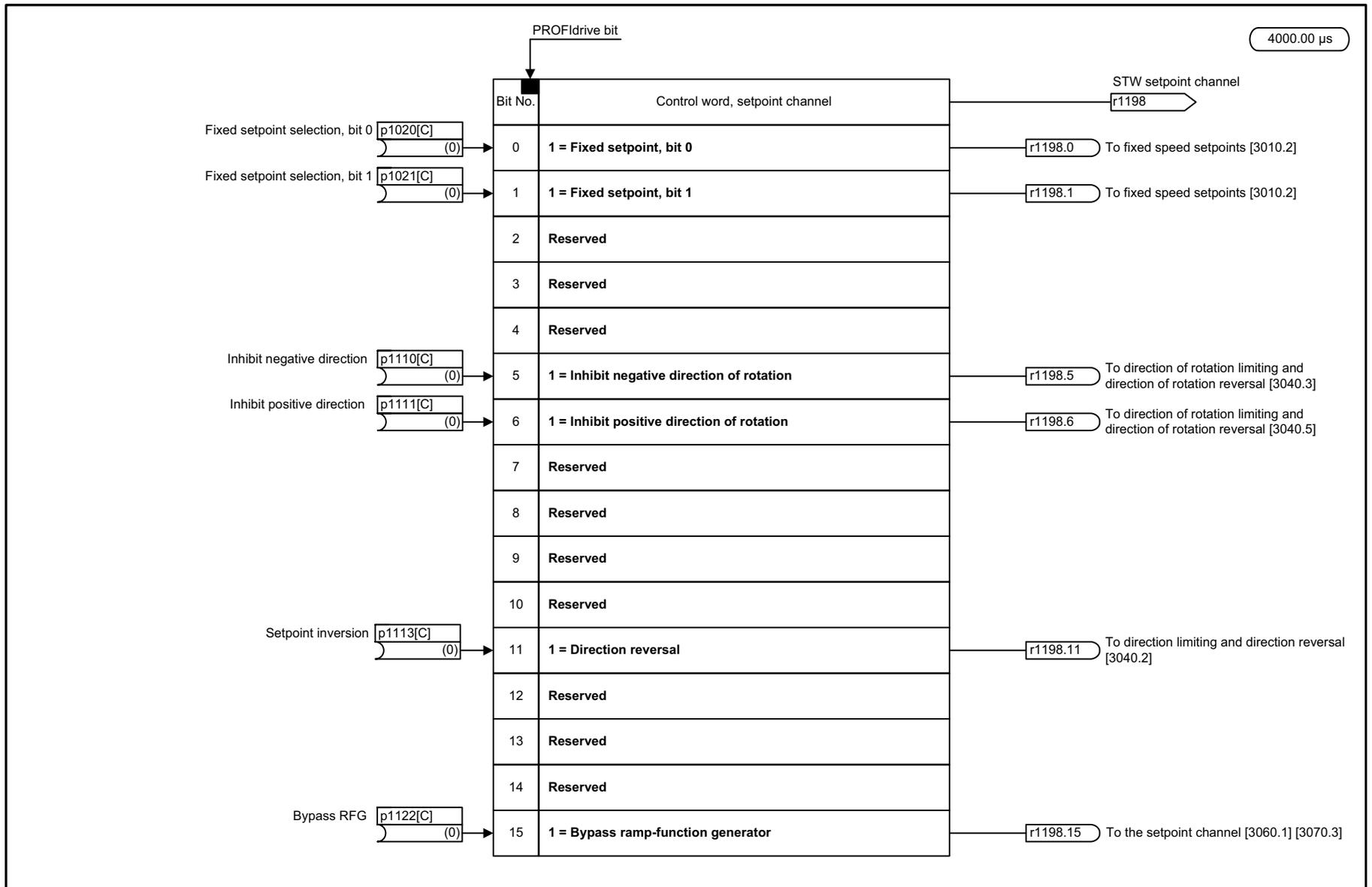


Figure 2-58 2505 – Control word setpoint channel

1	2	3	4	5	6	7	8
DO: SERVO					fp_2505_98_eng.vsd	Function diagram	
Internal control/status words - Control word, setpoint channel					28.10.08 V04.01.00	SINAMICS S110	
							- 2505 -

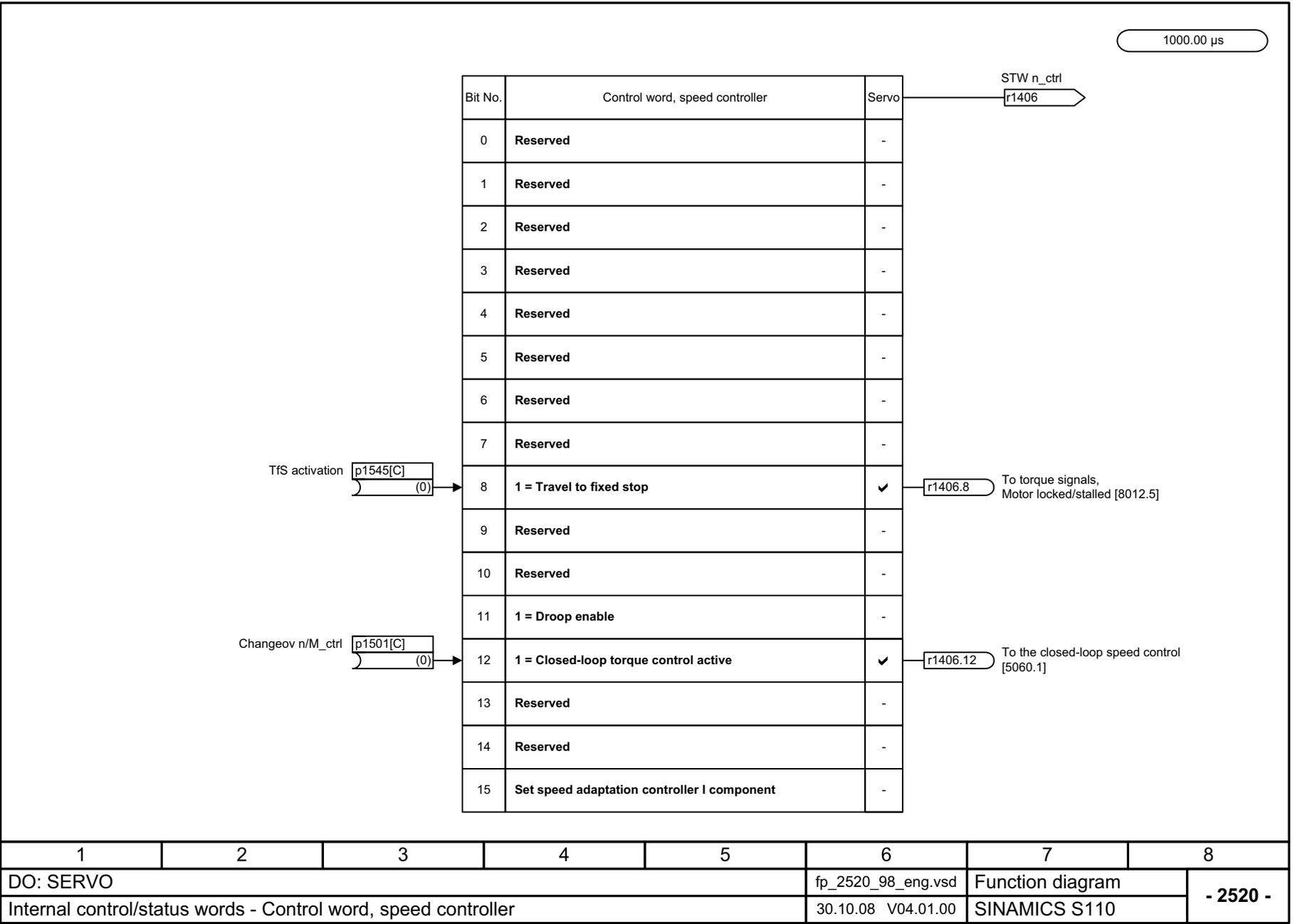


Figure 2-59 2520 – Control word speed controller

1	2	3	4	5	6	7	8
DO: SERVO					fp_2520_98_eng.vsd	Function diagram	
Internal control/status words - Control word, speed controller					30.10.08 V04.01.00	SINAMICS S110	
- 2520 -							

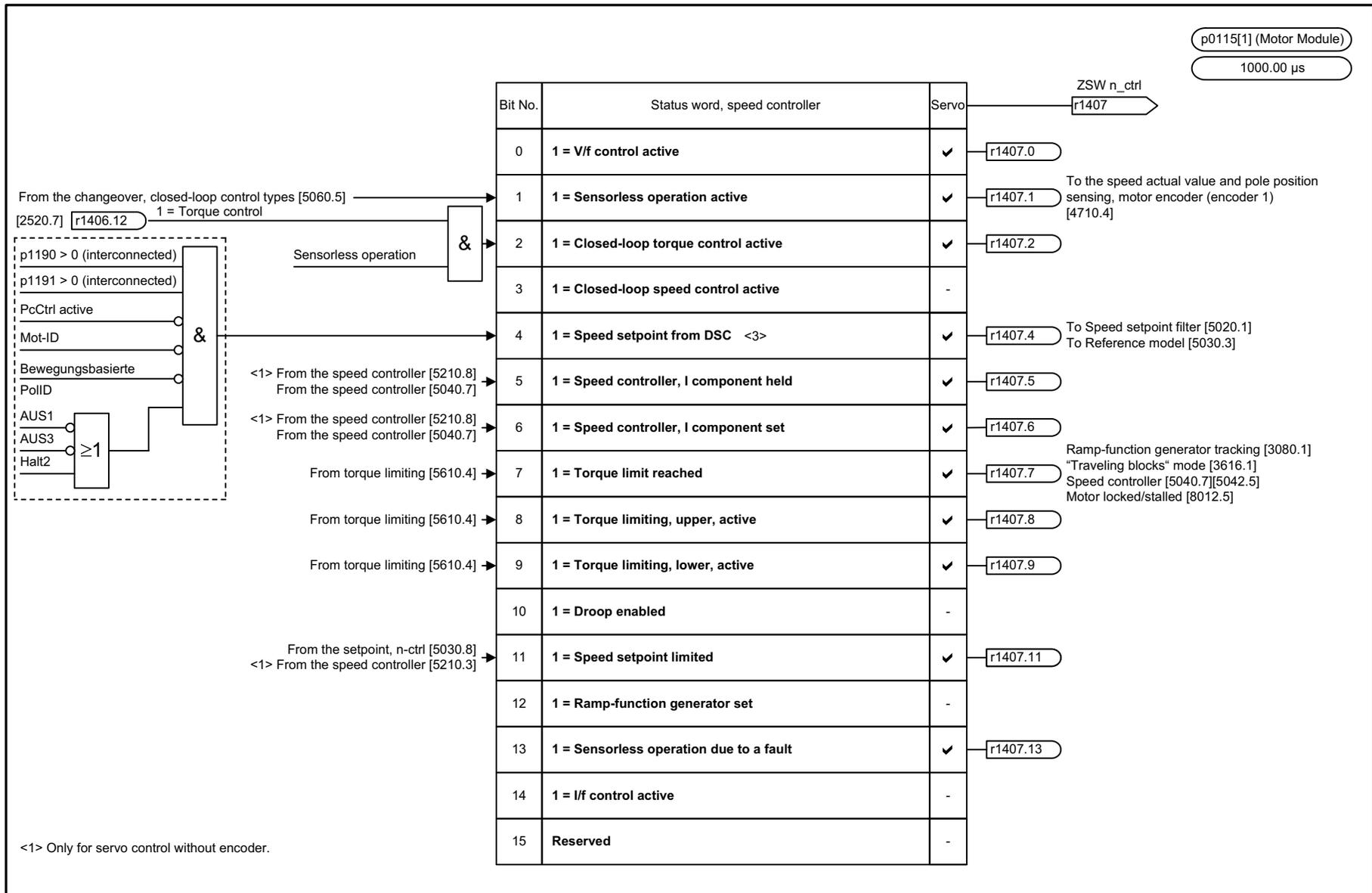


Figure 2-60 2522 – Status word speed controller

1	2	3	4	5	6	7	8
DO: SERVO					fp_2522_98_eng.vsd	Function diagram	
Internal control/status words - Status word, speed controller					04.03.08 V04.01.00	SINAMICS S110	
							- 2522 -

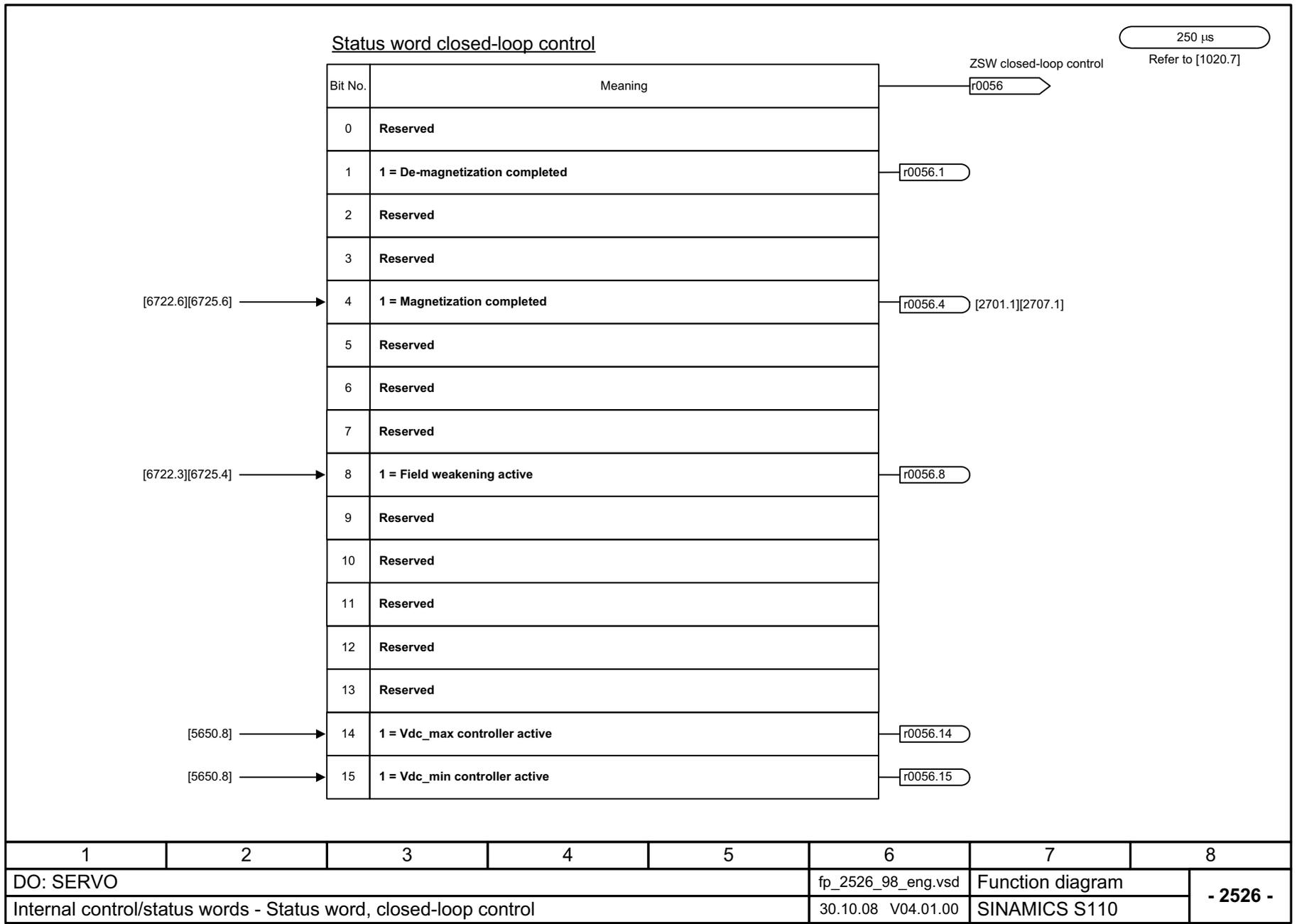


Figure 2-61 2526 – Status word control

Status word closed-loop current control

Bit No.	Meaning
0	1 = Closed-loop current control active
1	Reserved
2	Reserved
3	Reserved
4	1 = Limiting Ud active
5	1 = Limiting Uq active
6	1 = Pos. limit. Iq active
7	1 = Neg. limit. Iq active
8	1 = Iq setpoint limit. active
9	1 = Id setpoint limit. active
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved

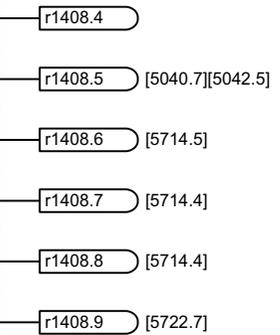
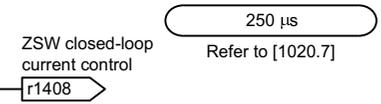
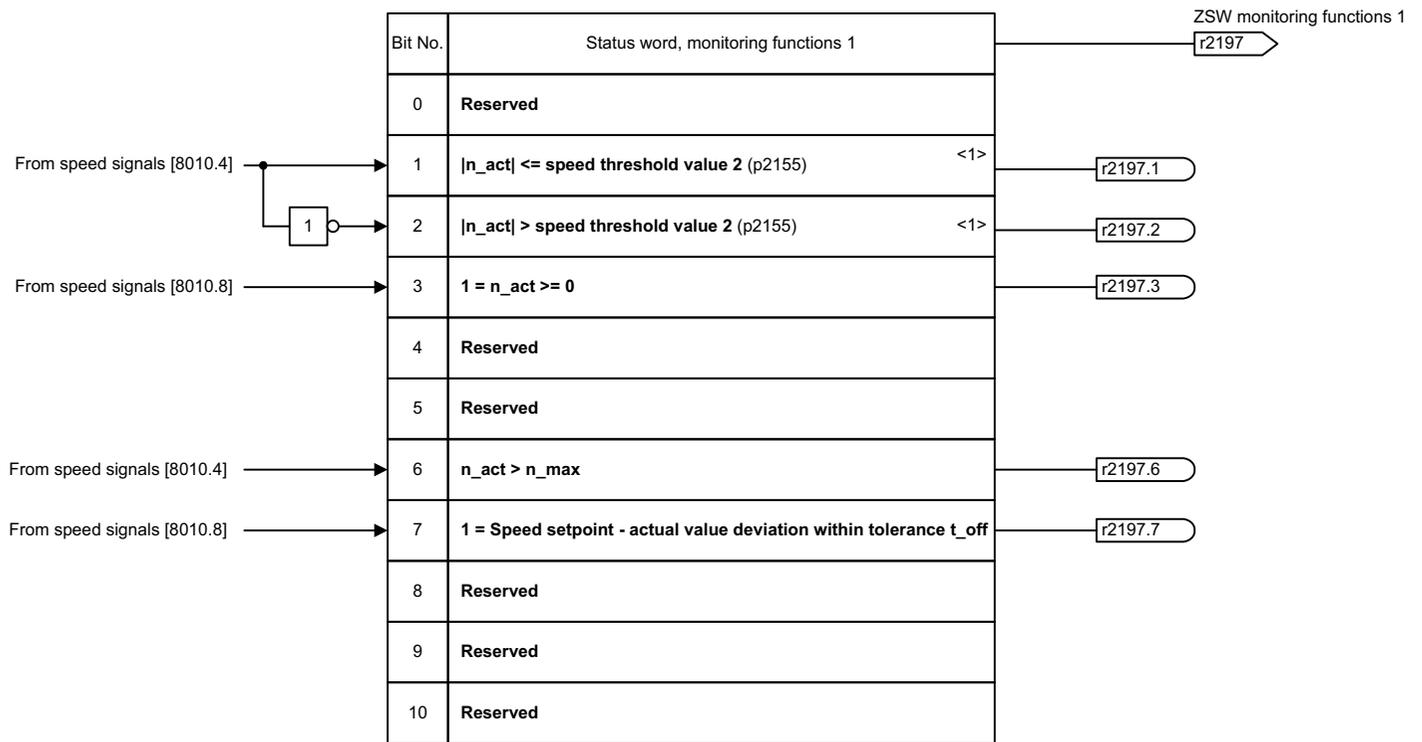


Figure 2-62 2530 – Status word current control

1	2	3	4	5	6	7	8
DO: SERVO					fp_2530_98_eng.vsd	Function diagram	
Internal control/status words - Status word, current control					30.10.08 V04.01.00	SINAMICS S110	
							- 2530 -

4000.00 μs



<1> n_{act} = smoothed speed actual value r2169 [8010.2].

1	2	3	4	5	6	7	8
DO: SERVO					fp_2534_98_eng.vsd	Function diagram	
Internal control/status words - Status word, monitoring functions 1					27.10.08 V04.01.00	SINAMICS S110	

Figure 2-63 2534 – Status word, monitoring 1

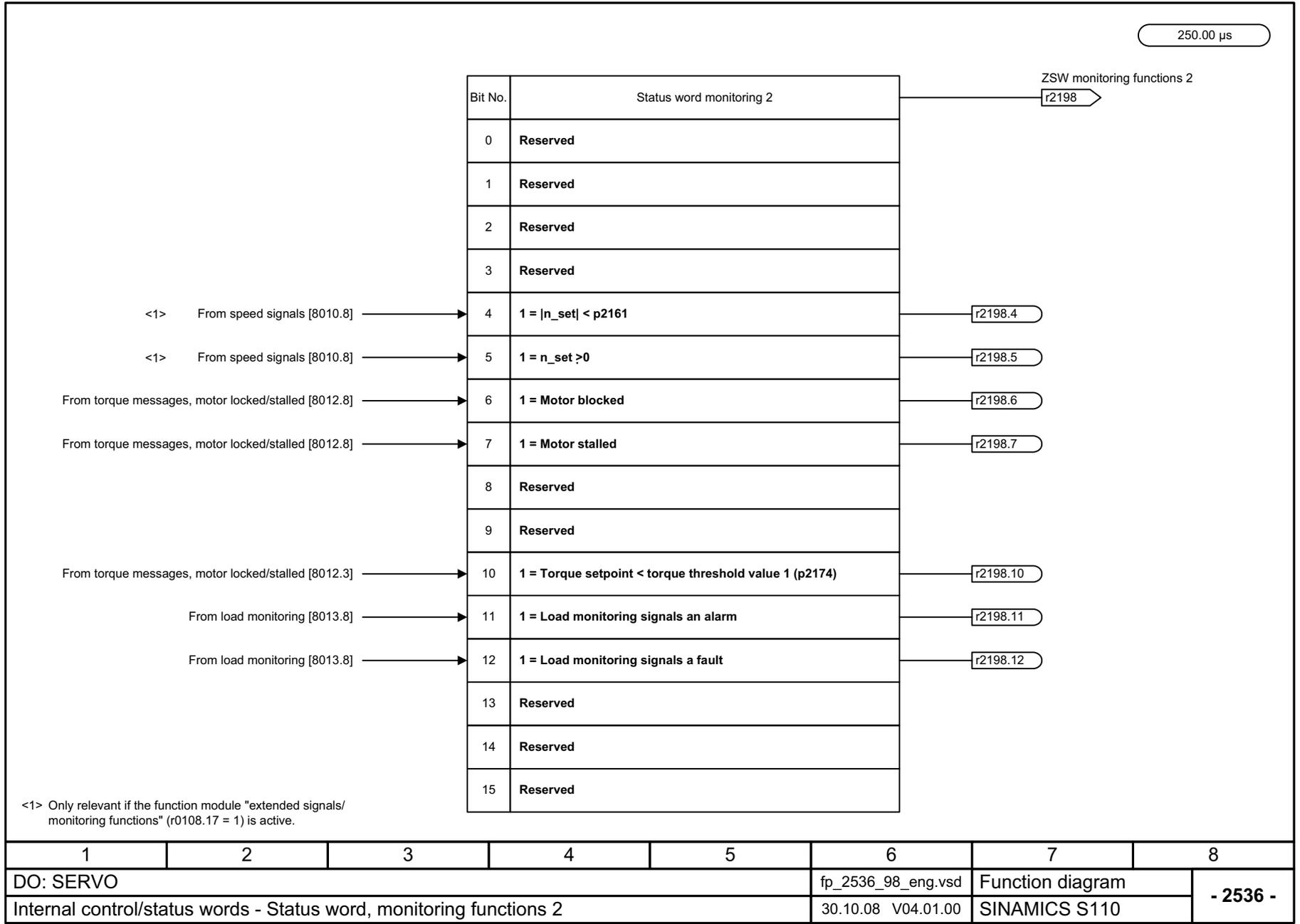
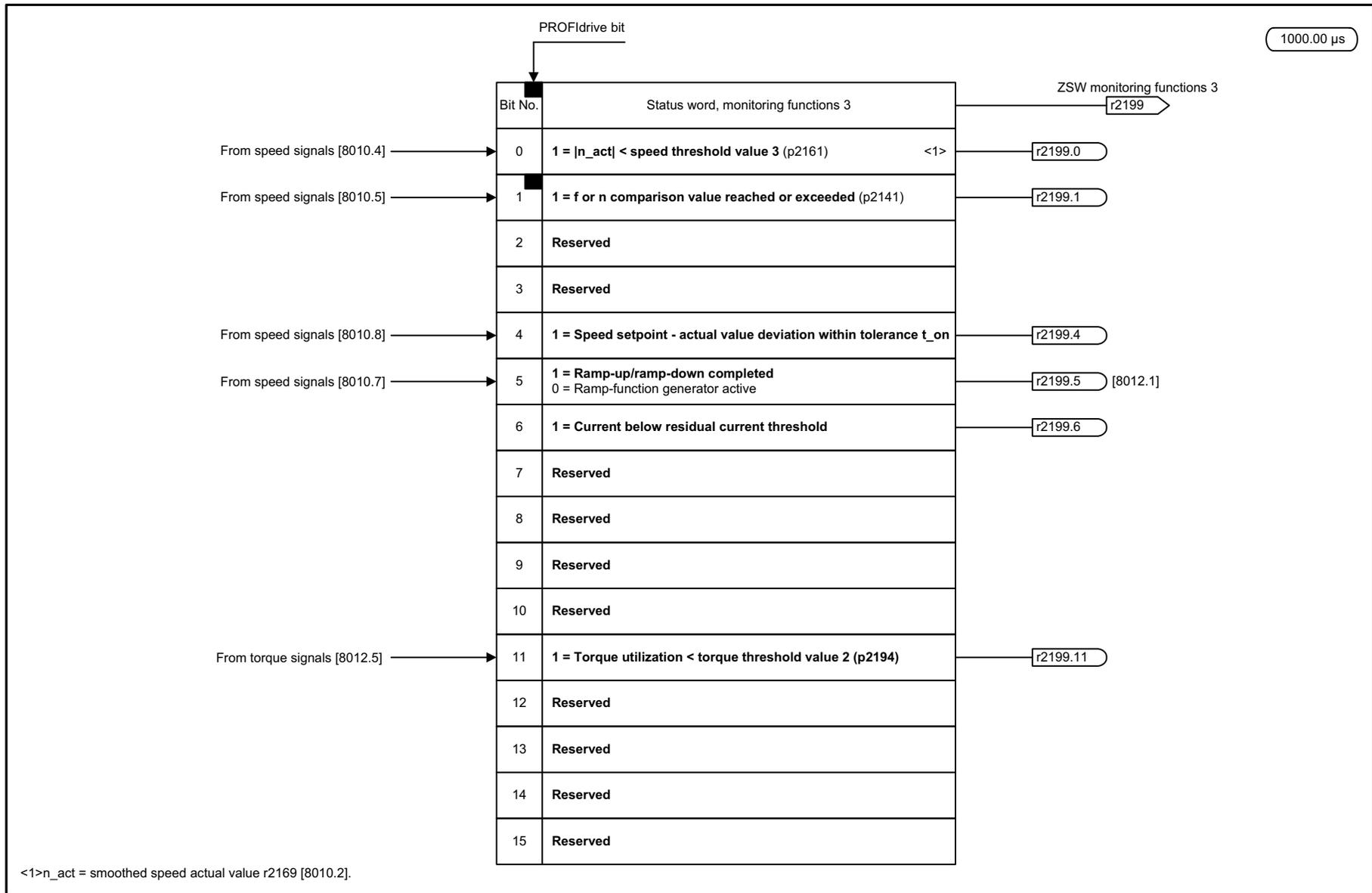


Figure 2-64 2536 – Status word, monitoring 2



1	2	3	4	5	6	7	8
DO: SERVO					fp_2537_98_eng.vsd	Function diagram	
Internal control/status words - Status word, monitoring functions 3					04.04.08 V04.01.00	SINAMICS S110	

1000.00 μs

Figure 2-65 2537 – Status word, monitoring 3

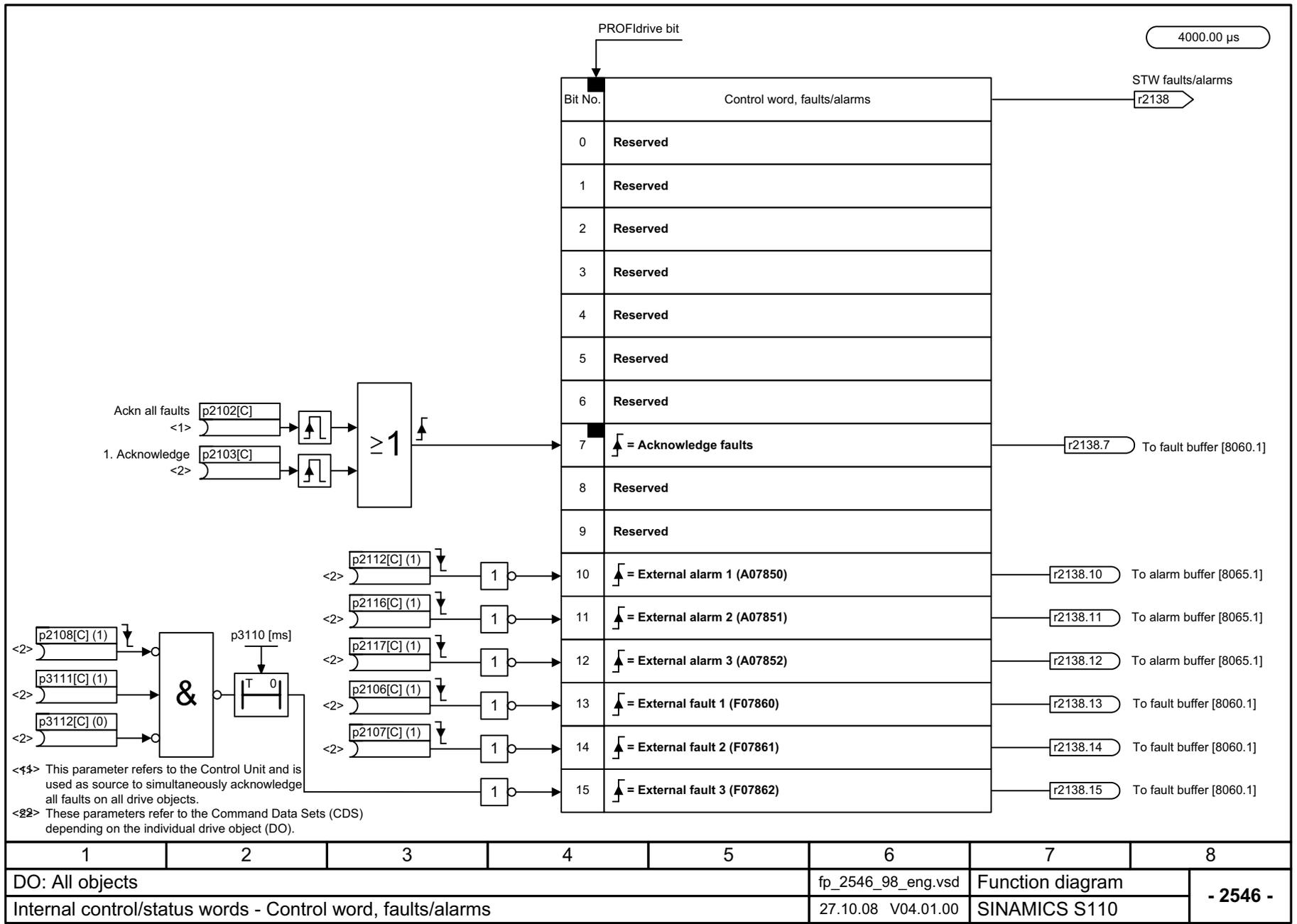


Figure 2-66 2546 – Control word faults/alarms

1	2	3	4	5	6	7	8
DO: All objects					fp_2546_98_eng.vsd	Function diagram	
Internal control/status words - Control word, faults/alarms					27.10.08 V04.01.00	SINAMICS S110	
							- 2546 -

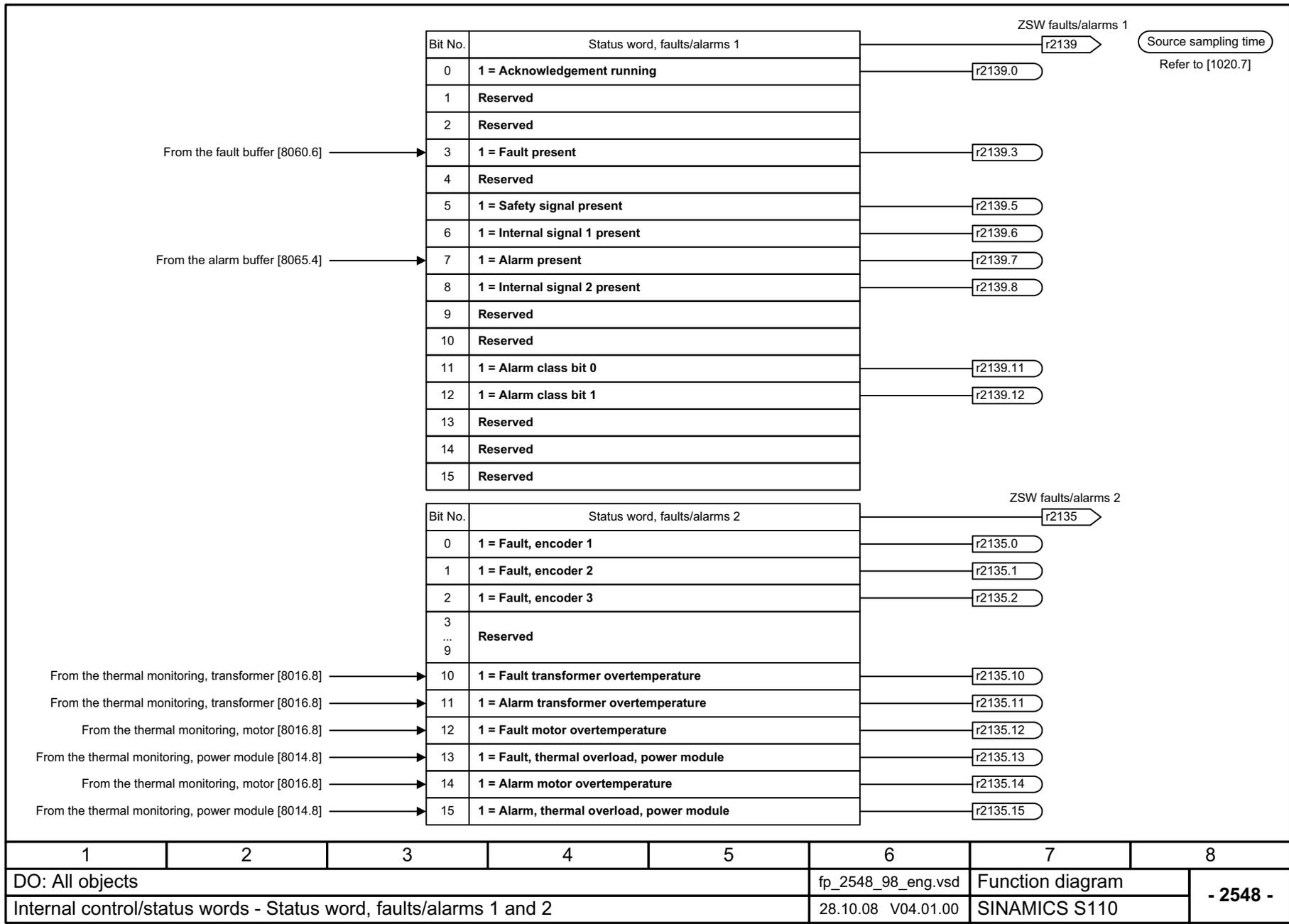


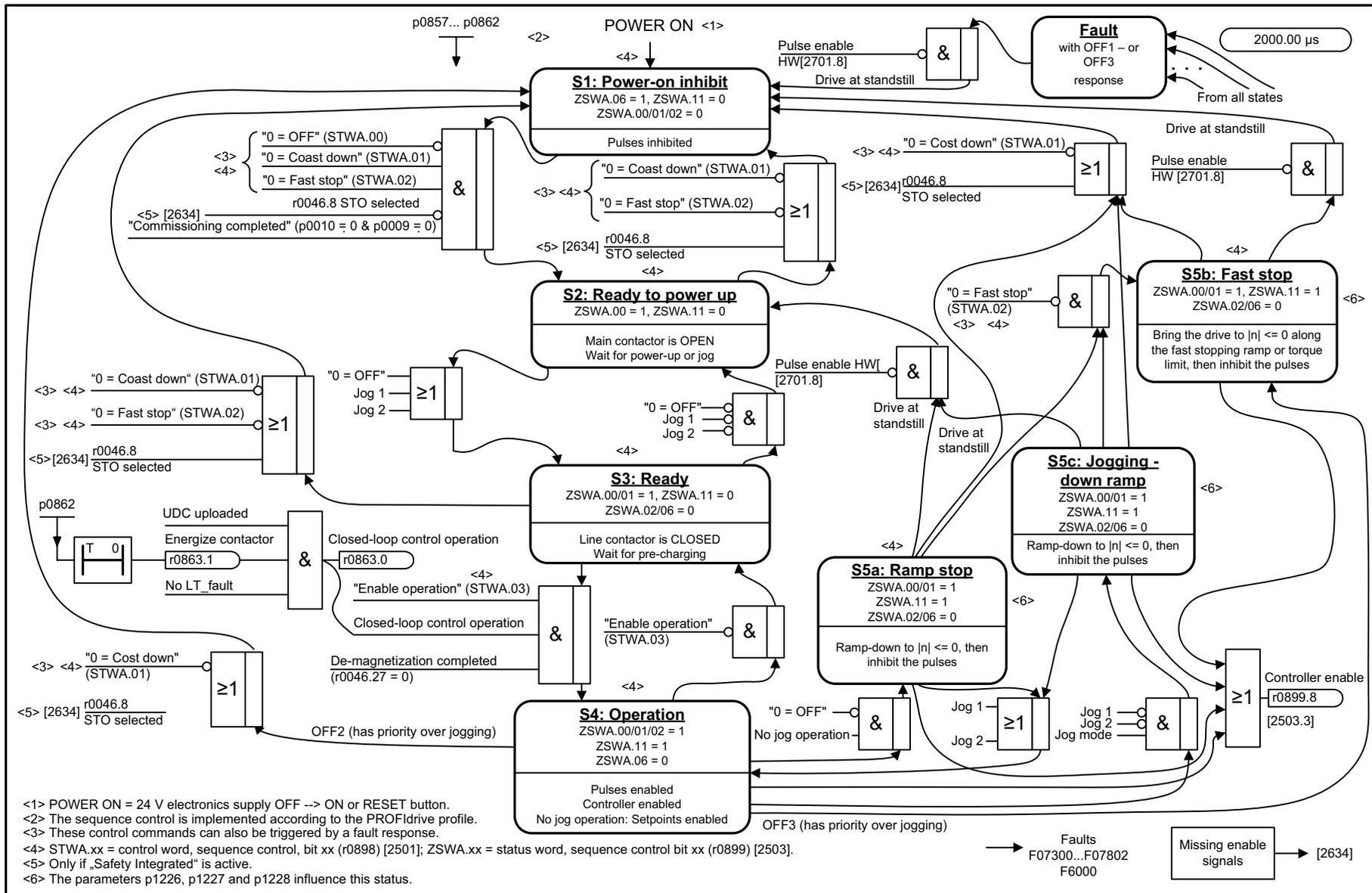
Figure 2-67 2548 – Status word, faults/warnings 1 and 2

1	2	3	4	5	6	7	8
DO: All objects					fp_2548_98_eng.vsd	Function diagram	
Internal control/status words - Status word, faults/alarms 1 and 2					28.10.08 V04.01.00	SINAMICS S110	
- 2548 -							

2.7 Sequential control

Function diagrams

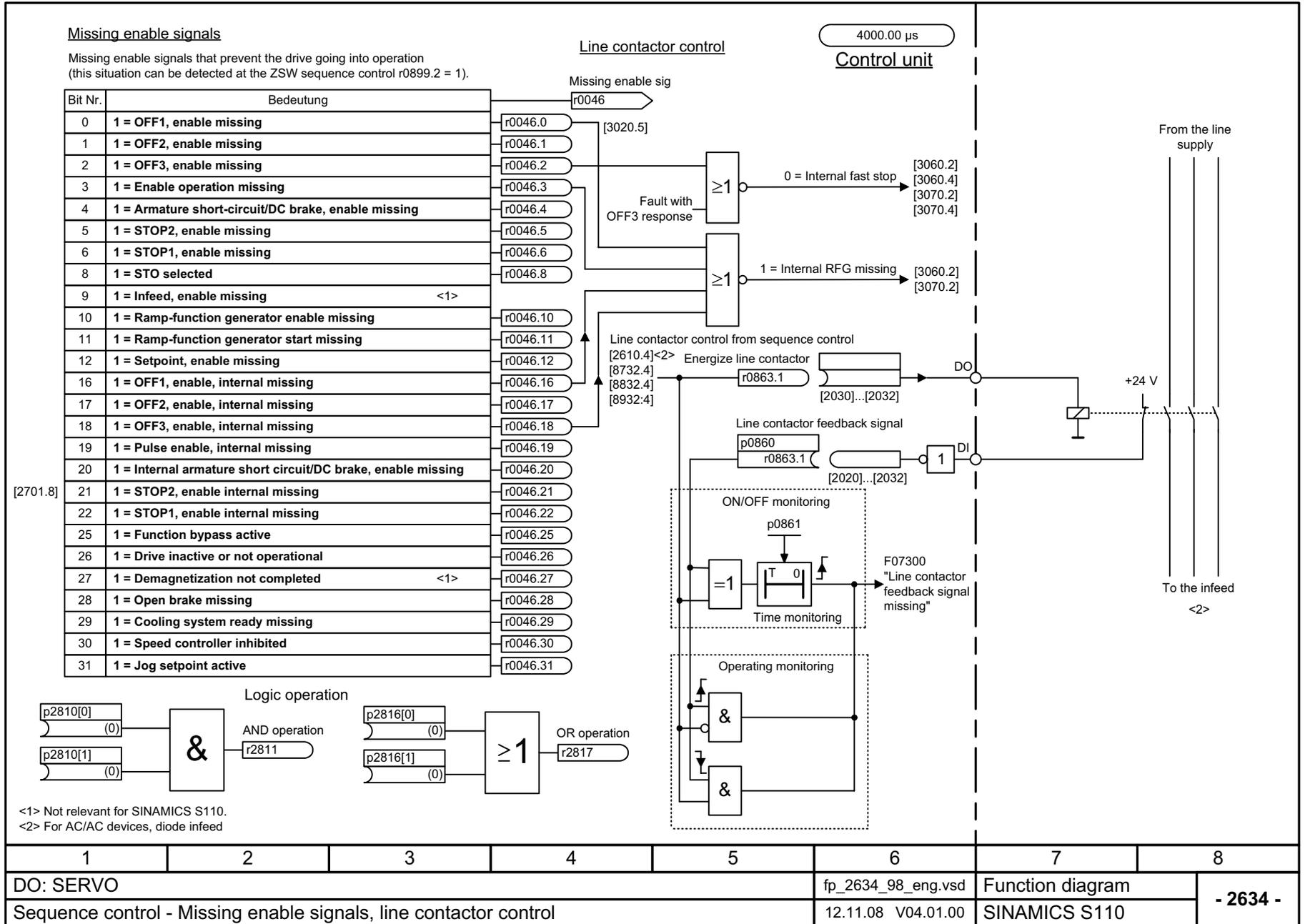
2610 – Processor	2-690
2634 – Missing enable signals, line contactor control	2-691



1	2	3	4	5	6	7	8
DO: SERVO					fp_2610_98_eng.vsd	Function diagram	
Sequence control - Sequencer					28.10.08 V04.01.00	SINAMICS S110	
							- 2610 -

Figure 2-68 2610 – Processor

Figure 2-69 2634 – Missing enable signals, line contactor control



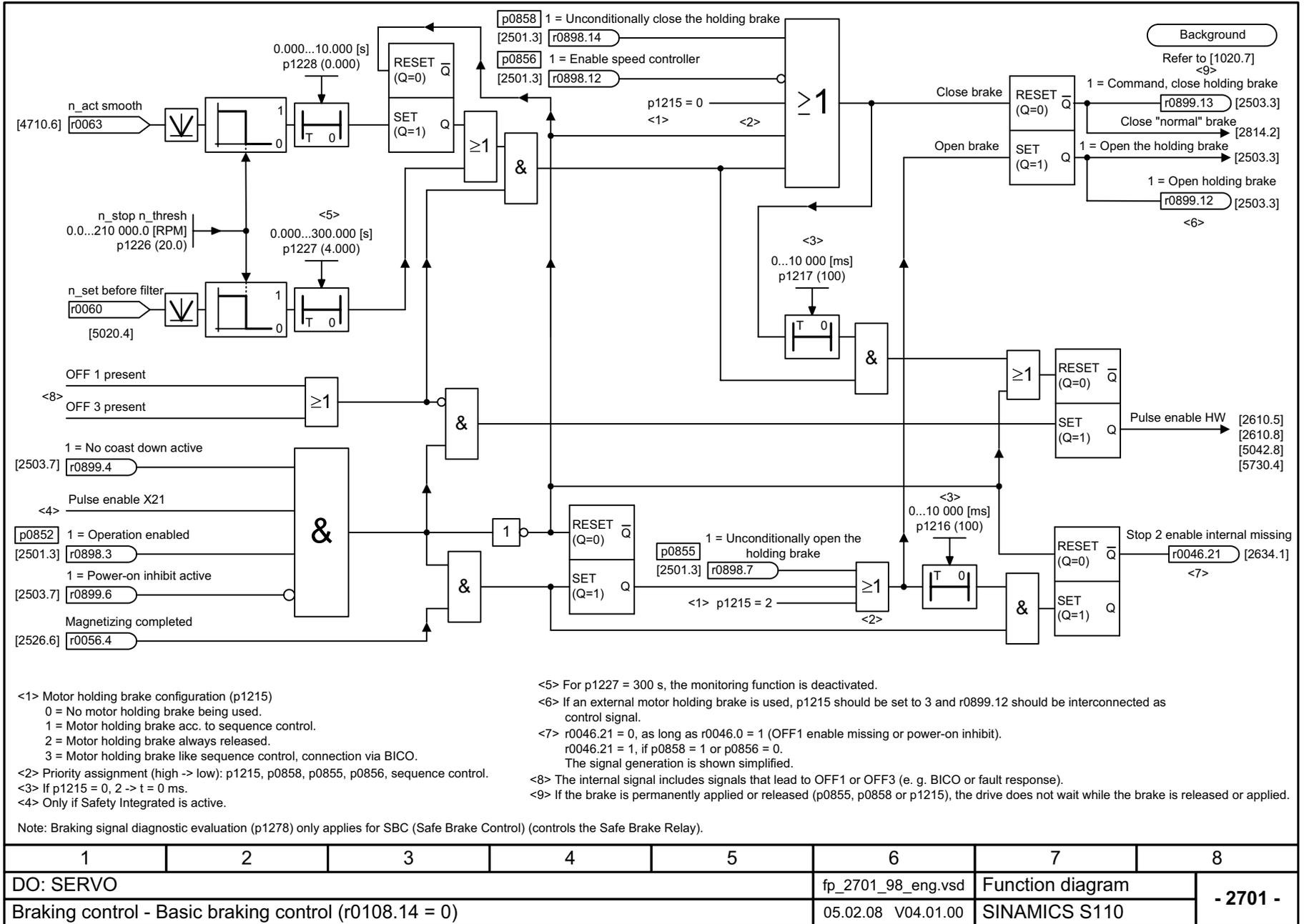
Function diagrams
 Sequential control

2.8 Brake control

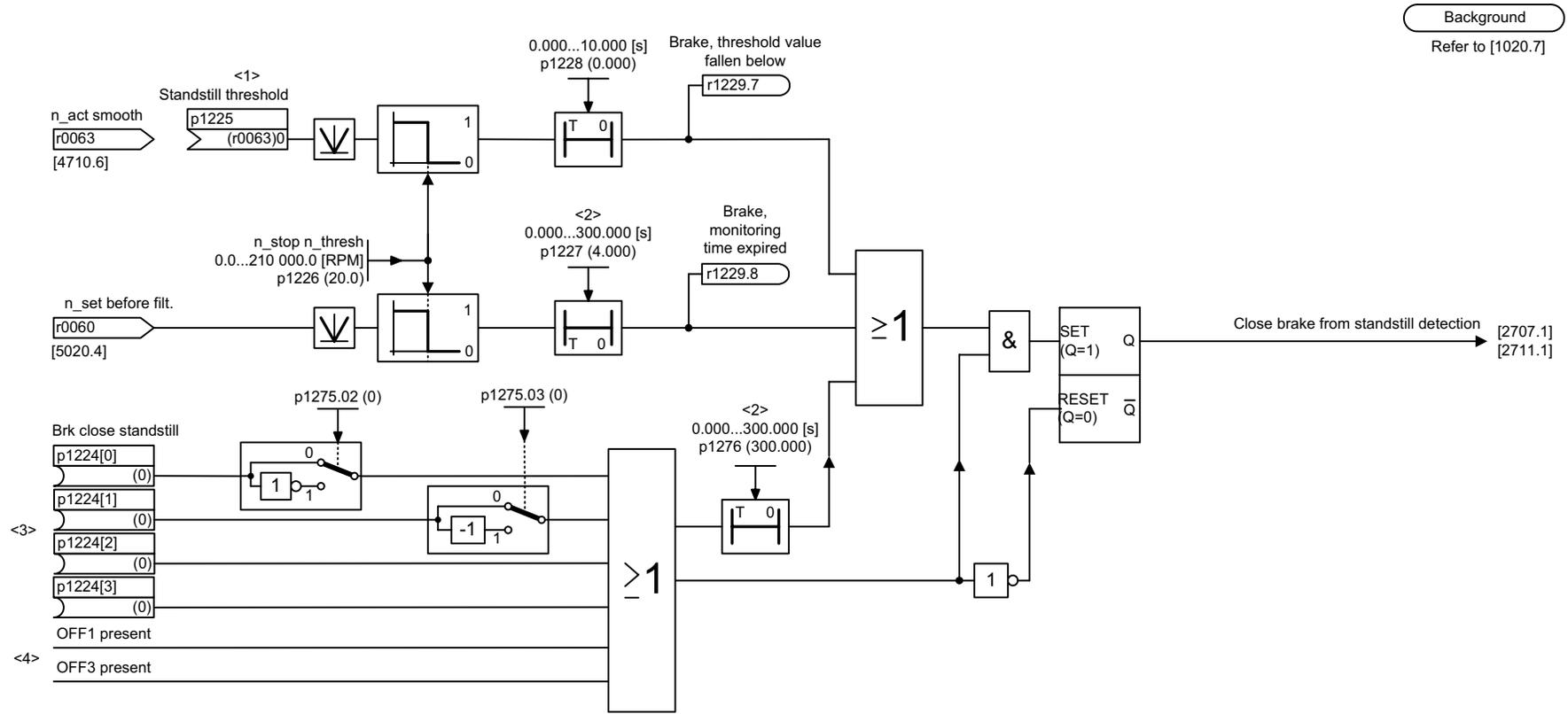
Function diagrams

2701 – Simple brake control (r0108.14 = 0)	2-693
2704 – Extended brake control, zero speed detection (r0108.14 = 1)	2-694
2707 – Extended braking control, open/close brake (r0108.14 = 1)	2-695
2711 – Extended brake control, signal outputs (r0108.14 = 1)	2-696

Figure 2-70 2701 – Simple brake control (r0108.14 = 0)



Background
Refer to [1020.7]

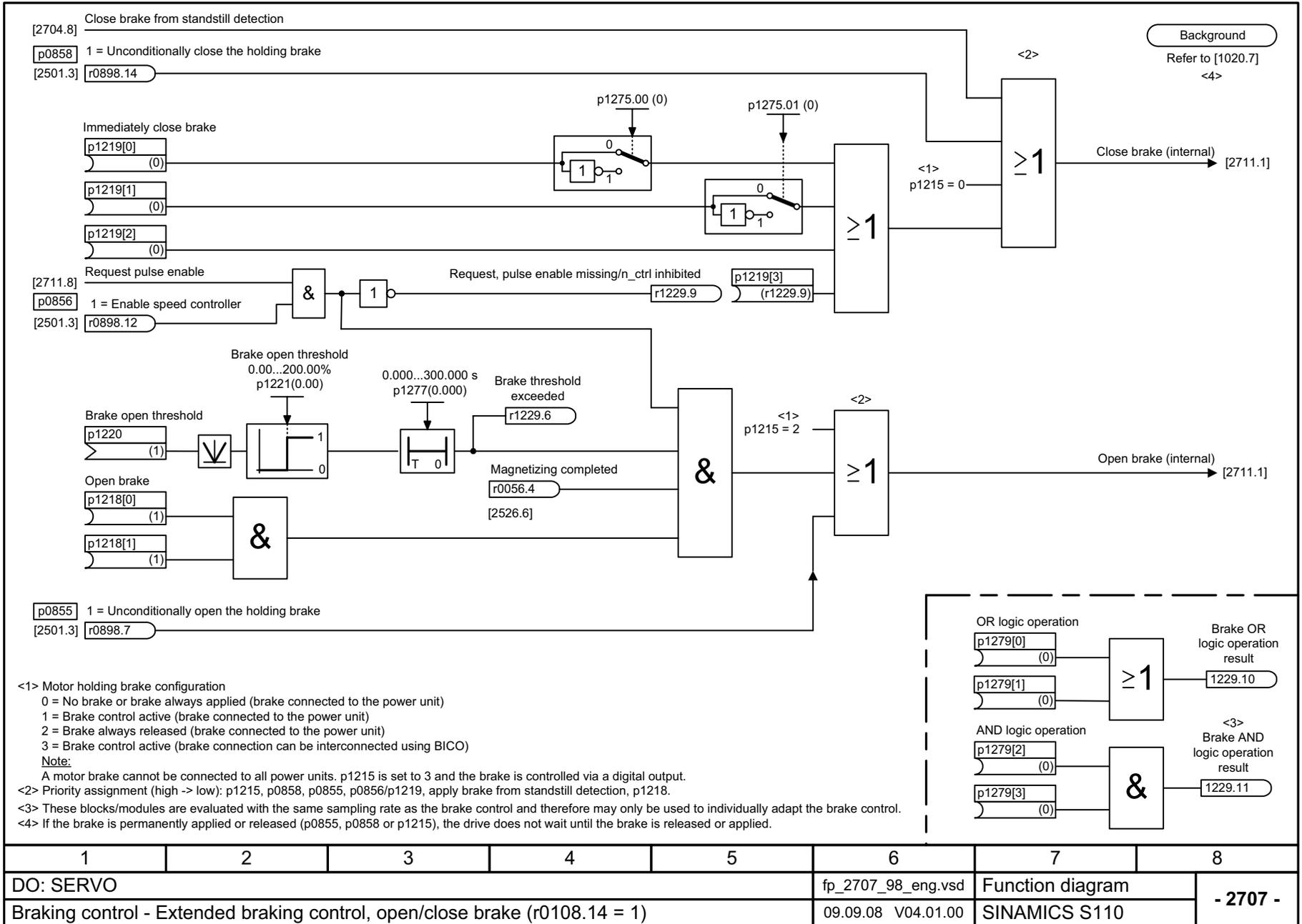


- <1> Shutdown threshold of the standstill detection. In this case (e.g. when using a brake), another criterion than the speed actual value can be selected to clear the pulses. Otherwise, we recommend to keep the factory setting.
- <2> For p1276 = 300.000 s, the timer is deactivated, i.e. the timer output is always 0. Note: When operating a motor with a brake which must not be applied while the motor is rotating, the monitoring time of both timers must be set to 300 s.
- <3> For operation without brake, p1224[0...3] must be 0 (factory setting) in order to avoid undesirable interaction with the sequence control.
- <4> The internal signal comprises signals that lead to OFF1 or OFF3, e.g. BICO or fault response.

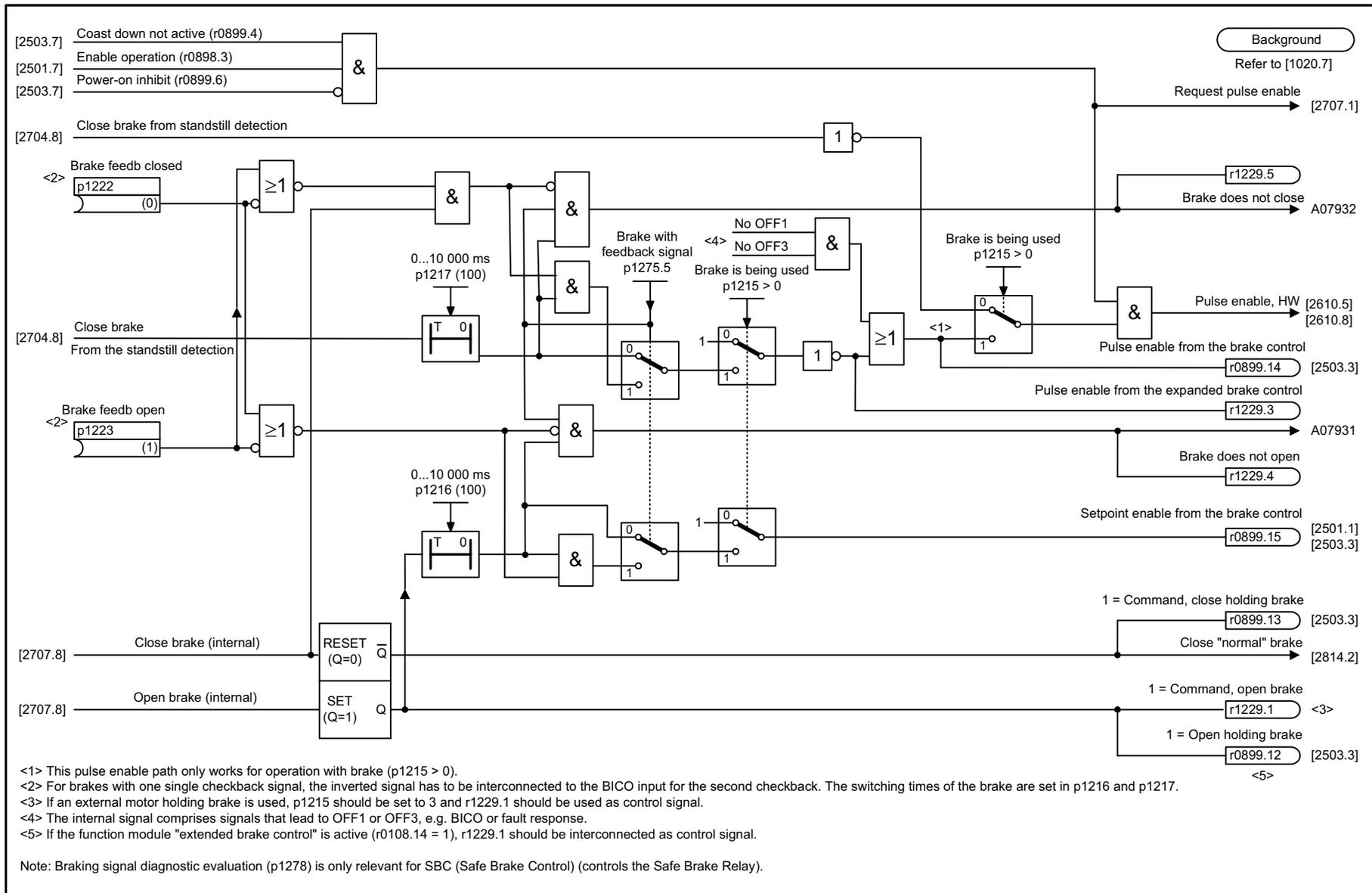
1	2	3	4	5	6	7	8
DO: SERVO					fp_2704_98_eng.vsd	Function diagram	
Braking control - Extended braking control, zero-speed detection (r0108.14 = 1)					26.05.08 V04.01.00	SINAMICS S110	
							- 2704 -

Figure 2-71 2704 – Extended brake control, zero speed detection (r0108.14 = 1)

Figure 2-72 2707 – Extended braking control, open/close brake (r0108.14 = 1)



1	2	3	4	5	6	7	8
DO: SERVO					fp_2707_98_eng.vsd	Function diagram	
Braking control - Extended braking control, open/close brake (r0108.14 = 1)					09.09.08 V04.01.00	SINAMICS S110	
							- 2707 -



<1> This pulse enable path only works for operation with brake (p1215 > 0).
 <2> For brakes with one single checkback signal, the inverted signal has to be interconnected to the BICO input for the second checkback. The switching times of the brake are set in p1216 and p1217.
 <3> If an external motor holding brake is used, p1215 should be set to 3 and r1229.1 should be used as control signal.
 <4> The internal signal comprises signals that lead to OFF1 or OFF3, e.g. BICO or fault response.
 <5> If the function module "extended brake control" is active (r0108.14 = 1), r1229.1 should be interconnected as control signal.

Note: Braking signal diagnostic evaluation (p1278) is only relevant for SBC (Safe Brake Control) (controls the Safe Brake Relay).

Figure 2-73 2711 – Extended brake control, signal outputs (r0108.14 = 1)

1	2	3	4	5	6	7	8
DO: SERVO					fp_2711_98_eng.vsd	Function diagram	
Braking control - Extended braking control, signal outputs (r0108.14 = 1)					30.10.08 V04.01.00	SINAMICS S110	
							- 2711 -

2.9 Safety Integrated

Function diagrams

2800 – Basic functions, parameter manager	2-698
2802 – Basic functions, monitoring and faults/alarms	2-699
2804 – Basic functions, status words	2-700
2810 – Basic Functions, STO (Safe Torque Off)/SS1 (Safe Stop 1)	2-701
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2825 – Extended functions, SS1, SS2, SOS, internal STOP B, C, D, F	2-703
2840 – Extended functions, control word and status word	2-704
2846 – Extended functions, parameter manager	2-705
2850 – Extended functions (F-DI 0 ... F-DI 2)	2-706
2853 – Extended functions (F-DO 0)	2-707
2855 – Extended functions, control interface	2-708
2856 – Extended functions, safe state selection	2-709
2857 – Extended functions, assignment (F-DO 0)	2-710

Figure 2-75 2802 – Basic functions, monitoring and faults/alarms

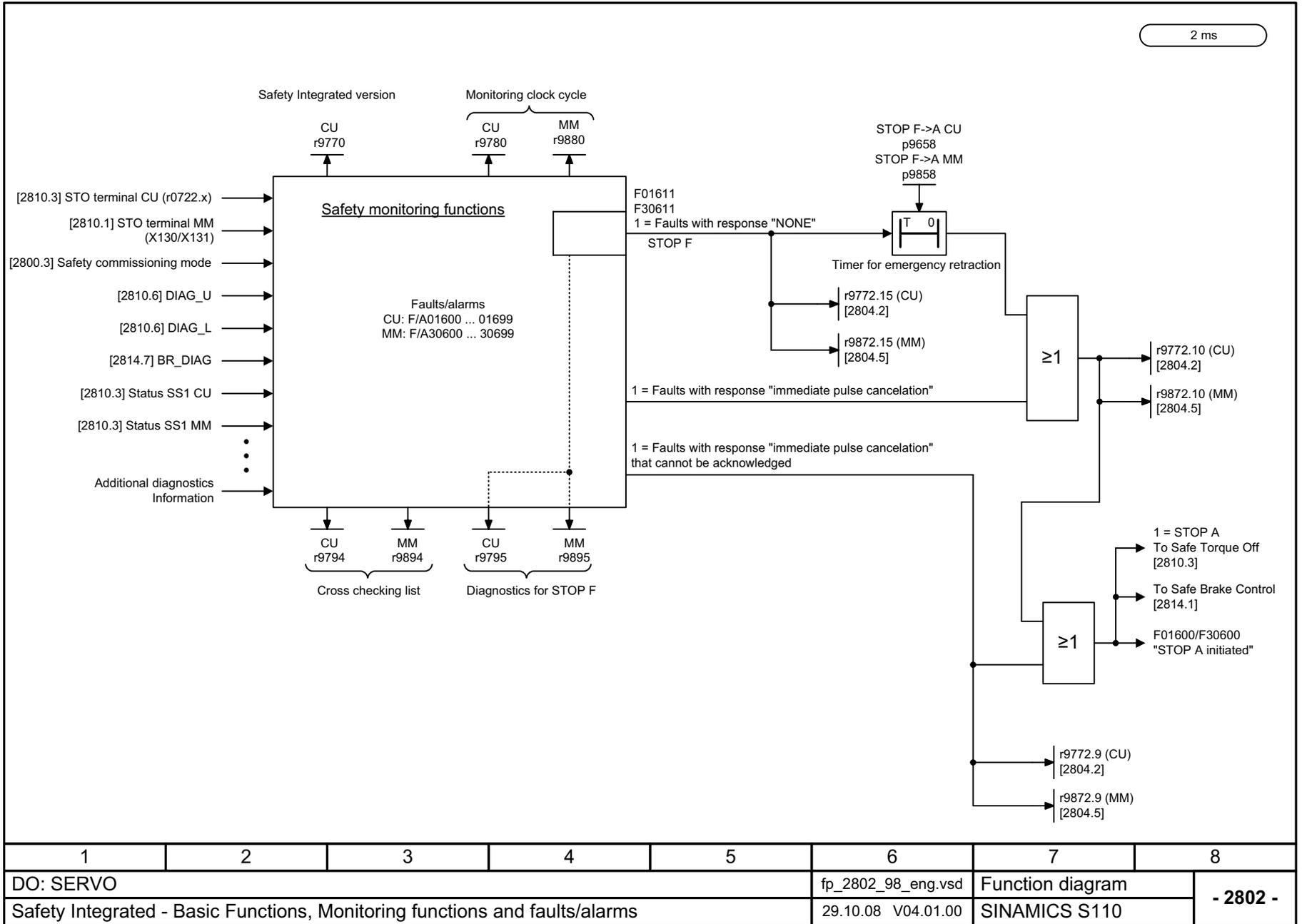


Figure 2-76 2804 – Basic functions, status words

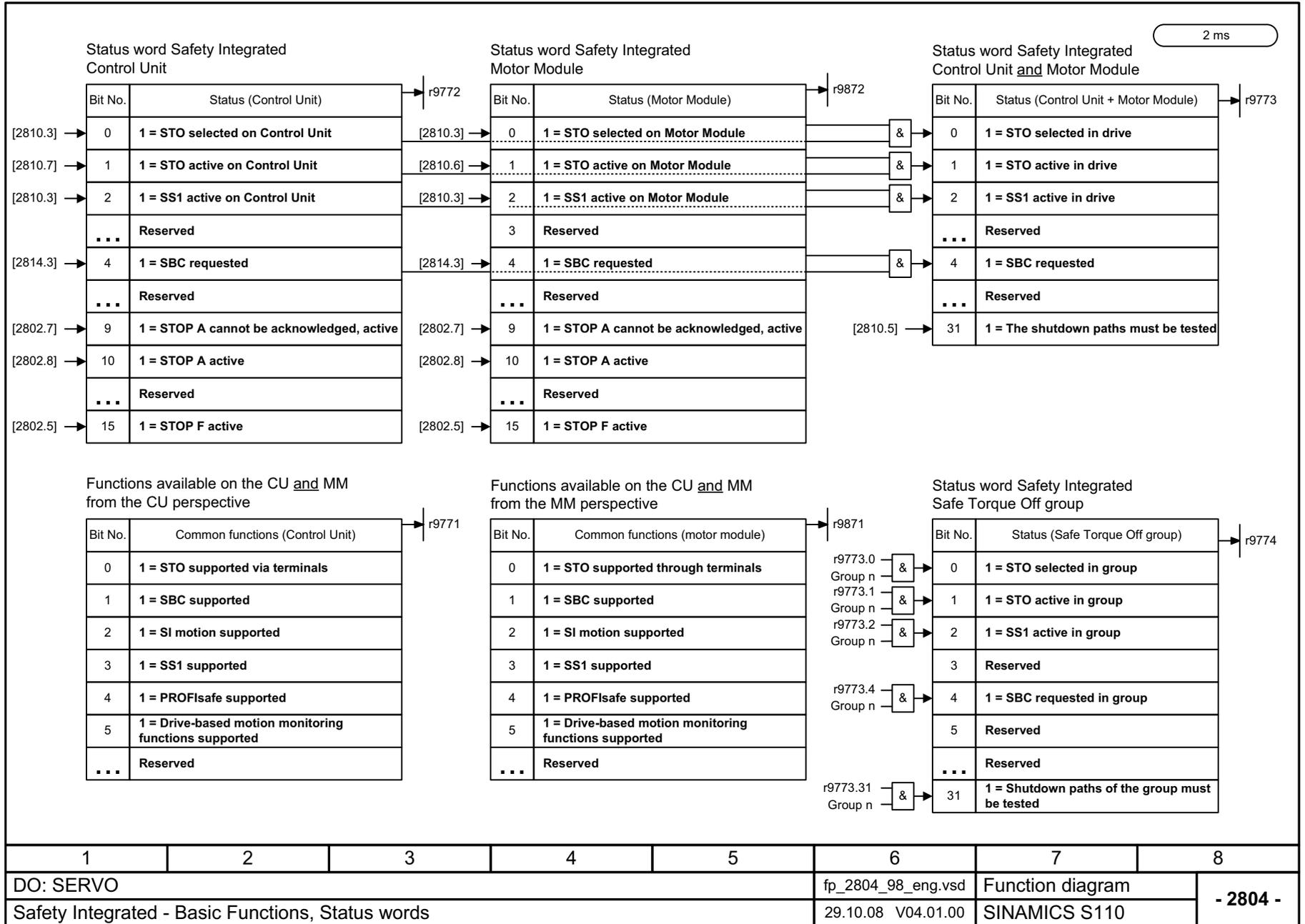
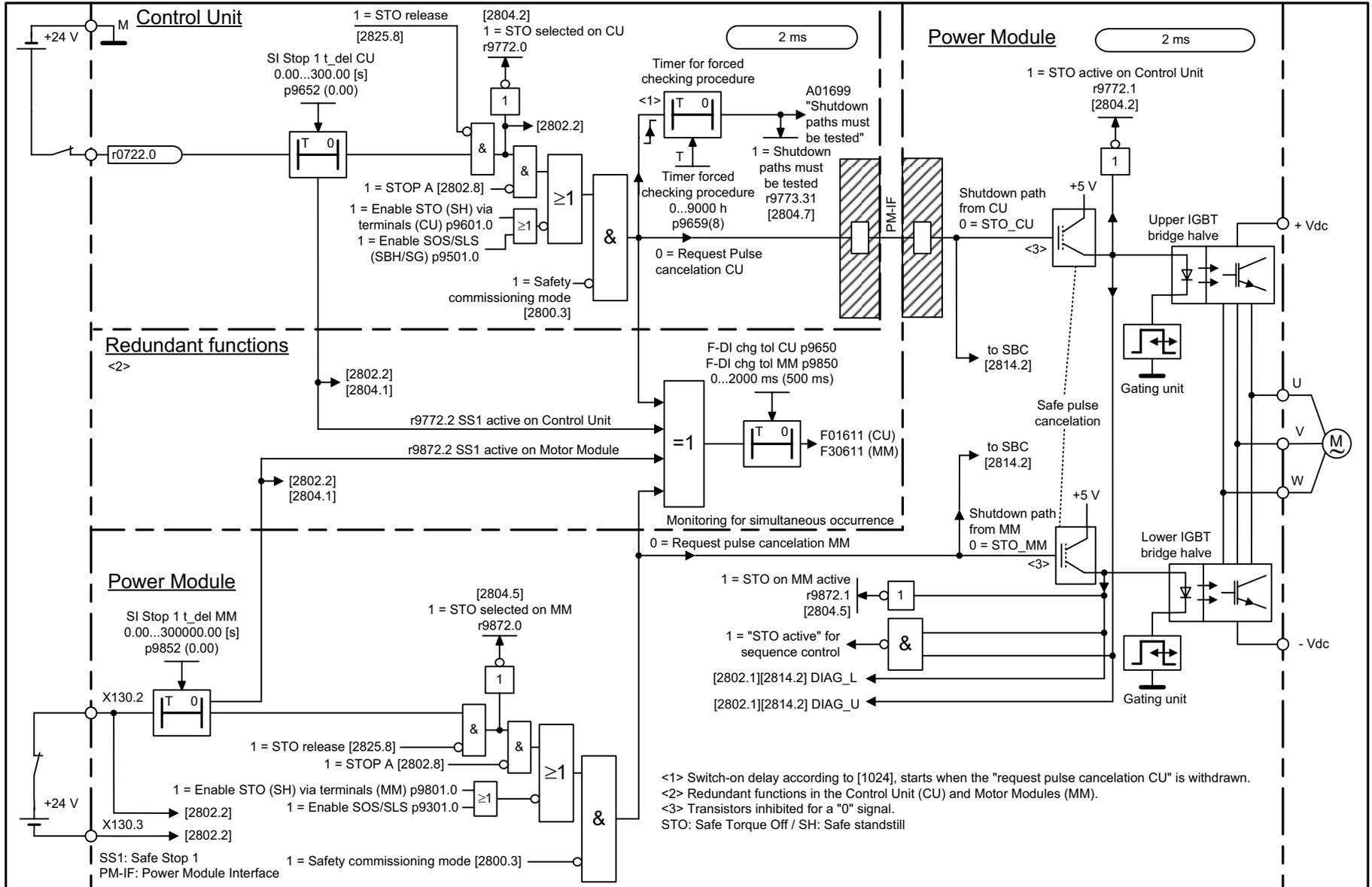
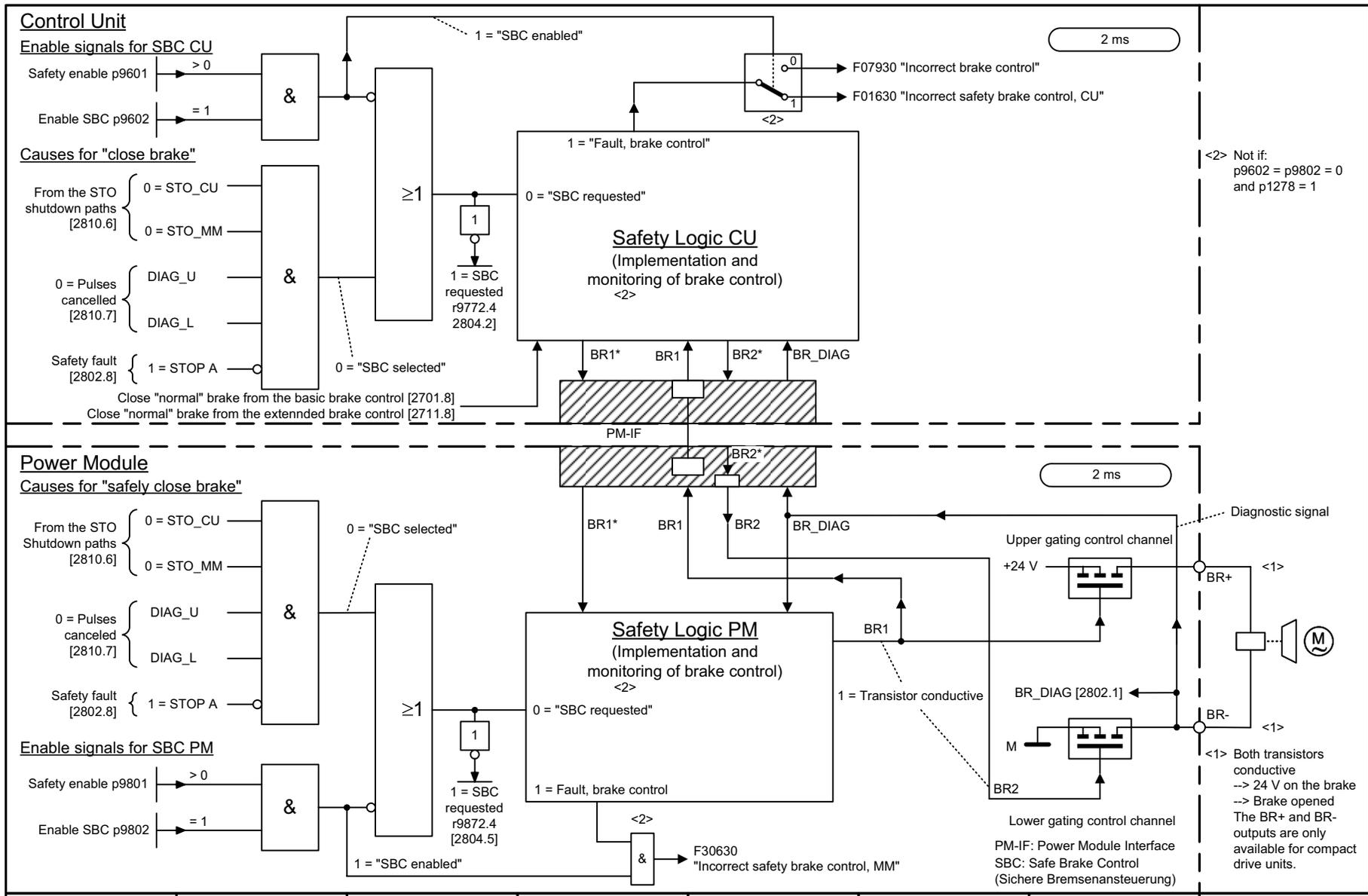


Figure 2-77 2810 – Basic Functions, STO (Safe Torque Off)/SS1 (Safe Stop 1)



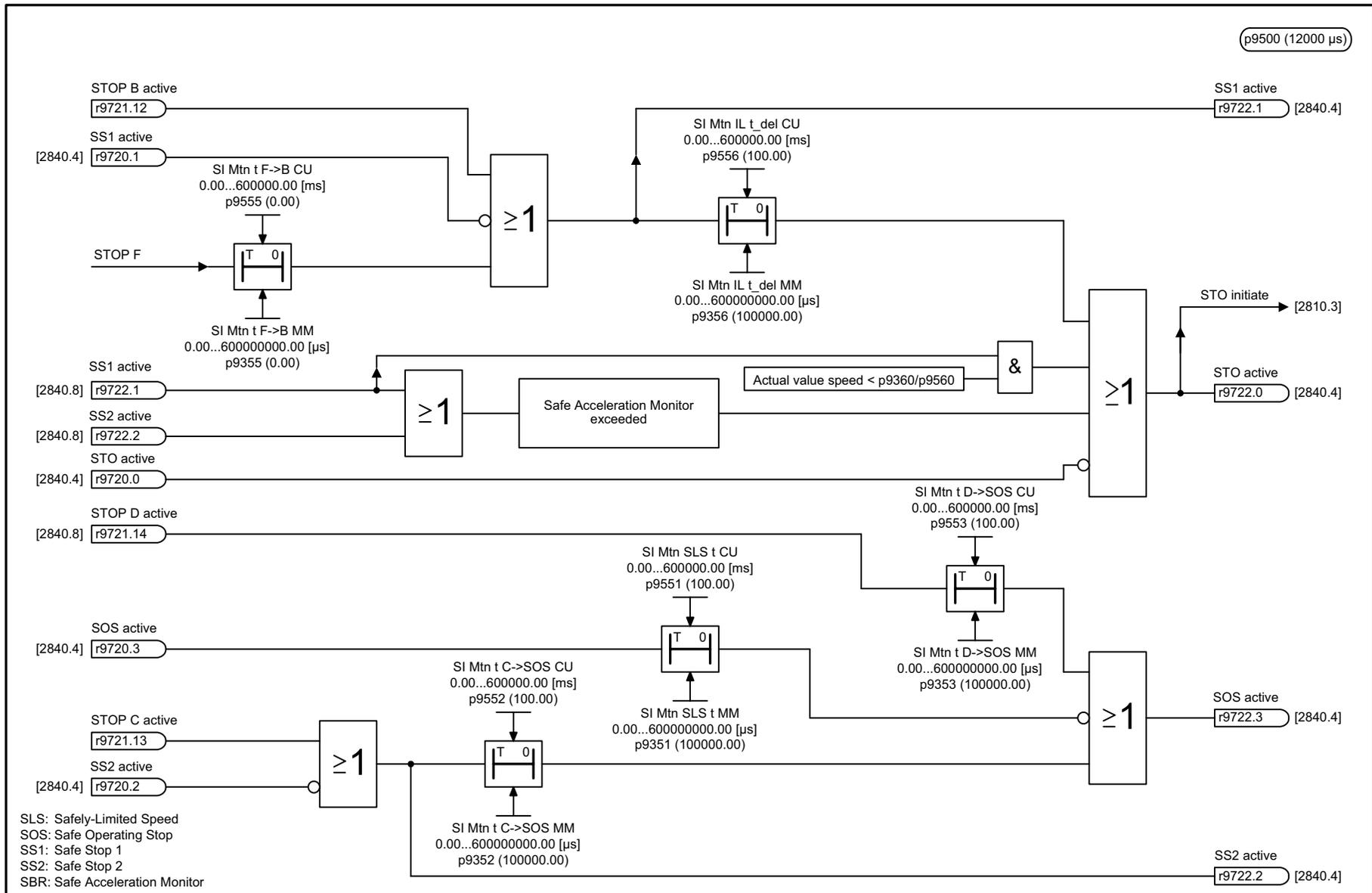
1	2	3	4	5	6	7	8
DO: SERVO					fp_2810_98_eng.vsd	Function diagram	
Safety Integrated - Basic Functions, STO (Safe Torque Off)/SS1 (Safe Stop 1)					29.10.08 V04.01.00	SINAMICS S110	
							- 2810 -



1	2	3	4	5	6	7	8
DO: SERVO					fp_2814_98_eng.vsd	Function diagram	
Safety Integrated - Basic Functions, SBC (Safe Brake Control)					29.10.08 V04.01.00	SINAMICS S110	
							- 2814 -

Figure 2-78 2814 – Basic functions, SBC (Safe Brake Control)

2-702



1	2	3	4	5	6	7	8
DO: SERVO					fp_2825_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions, SS1, SS2, SOS, Internal STOP B, C, D, F					29.06.07 V04.01.00	SINAMICS S110	
							- 2825 -

Figure 2-79 2825 – Extended functions, SS1, SS2, SOS, internal STOP B, C, D, F

p9500 (12.00 ms)

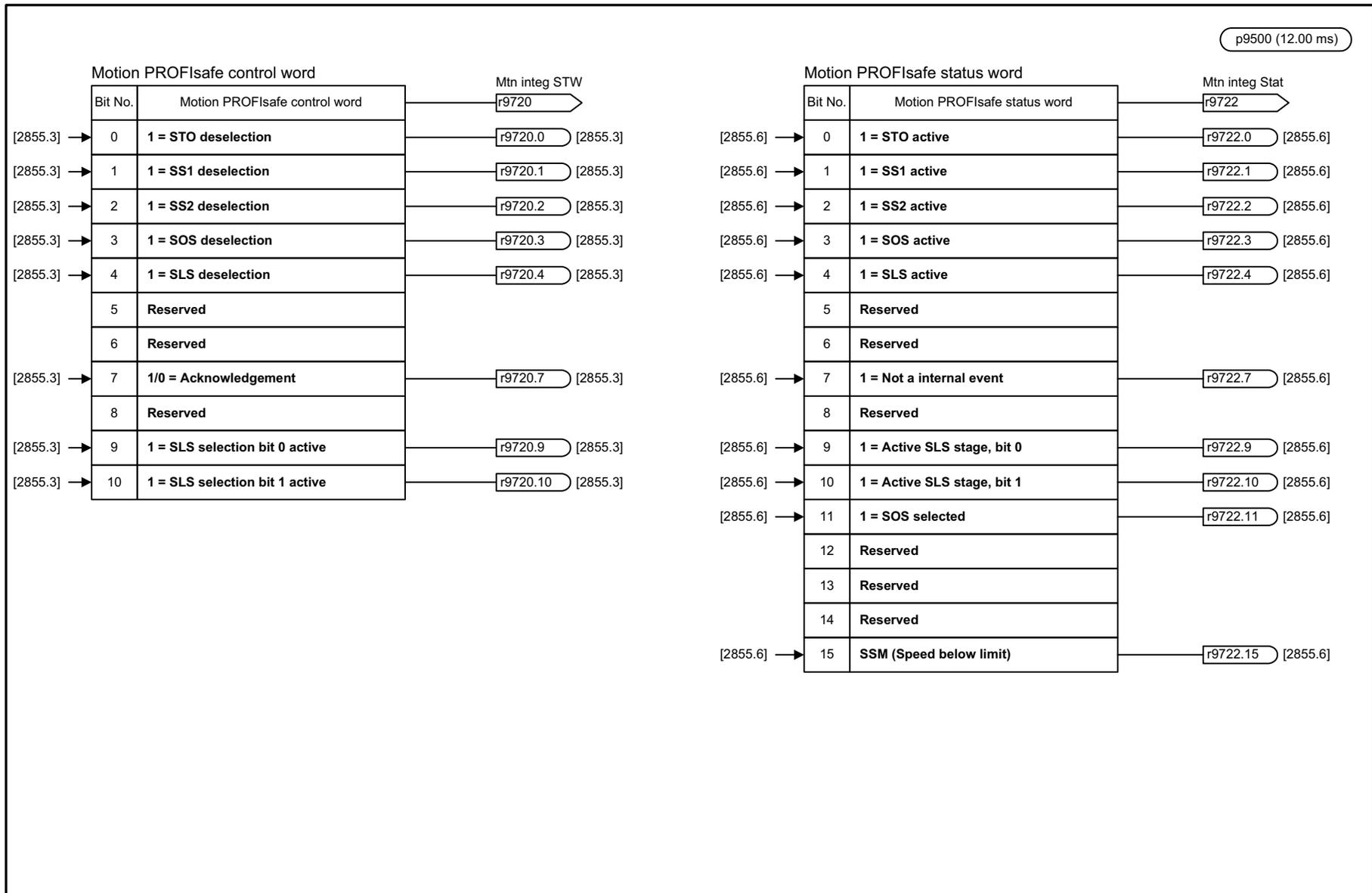
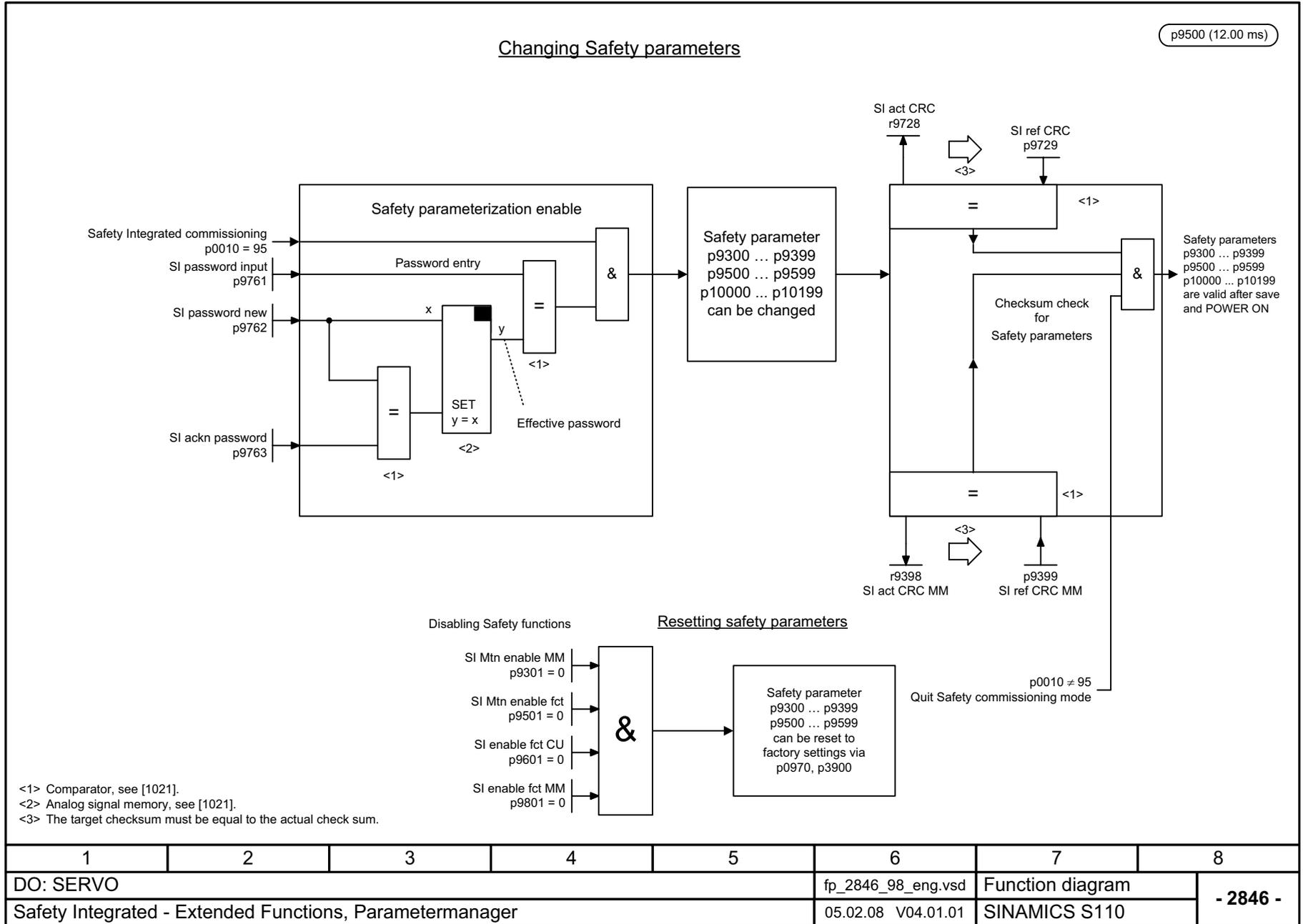


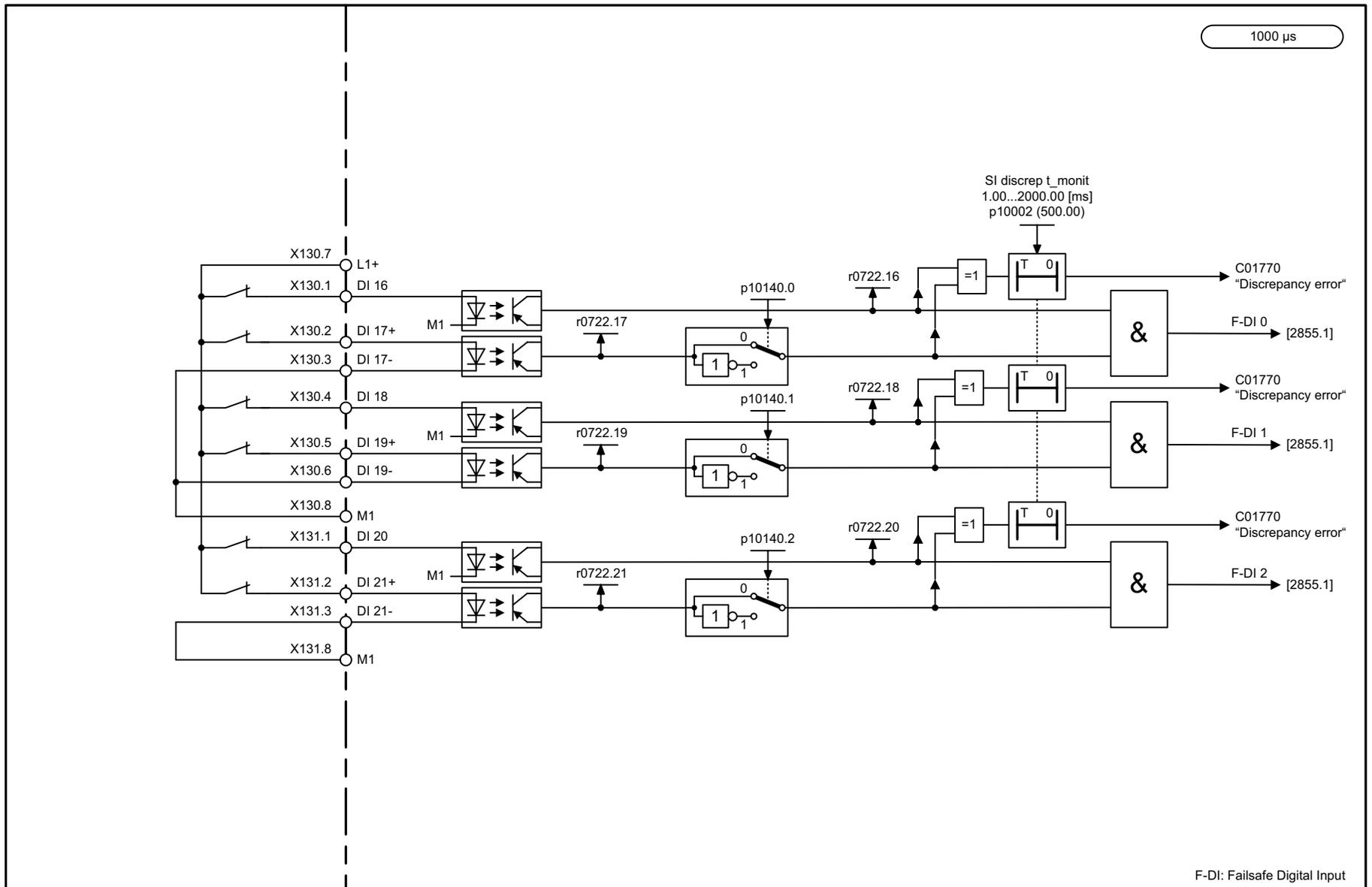
Figure 2-80 2840 – Extended functions, control word and status word

2-704

1	2	3	4	5	6	7	8
DO: SERVO					fp_2840_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions, Control word and Status word					04.07.07 V04.01.00	SINAMICS S110	
							- 2840 -

Figure 2-81 2846 – Extended functions, parameter manager

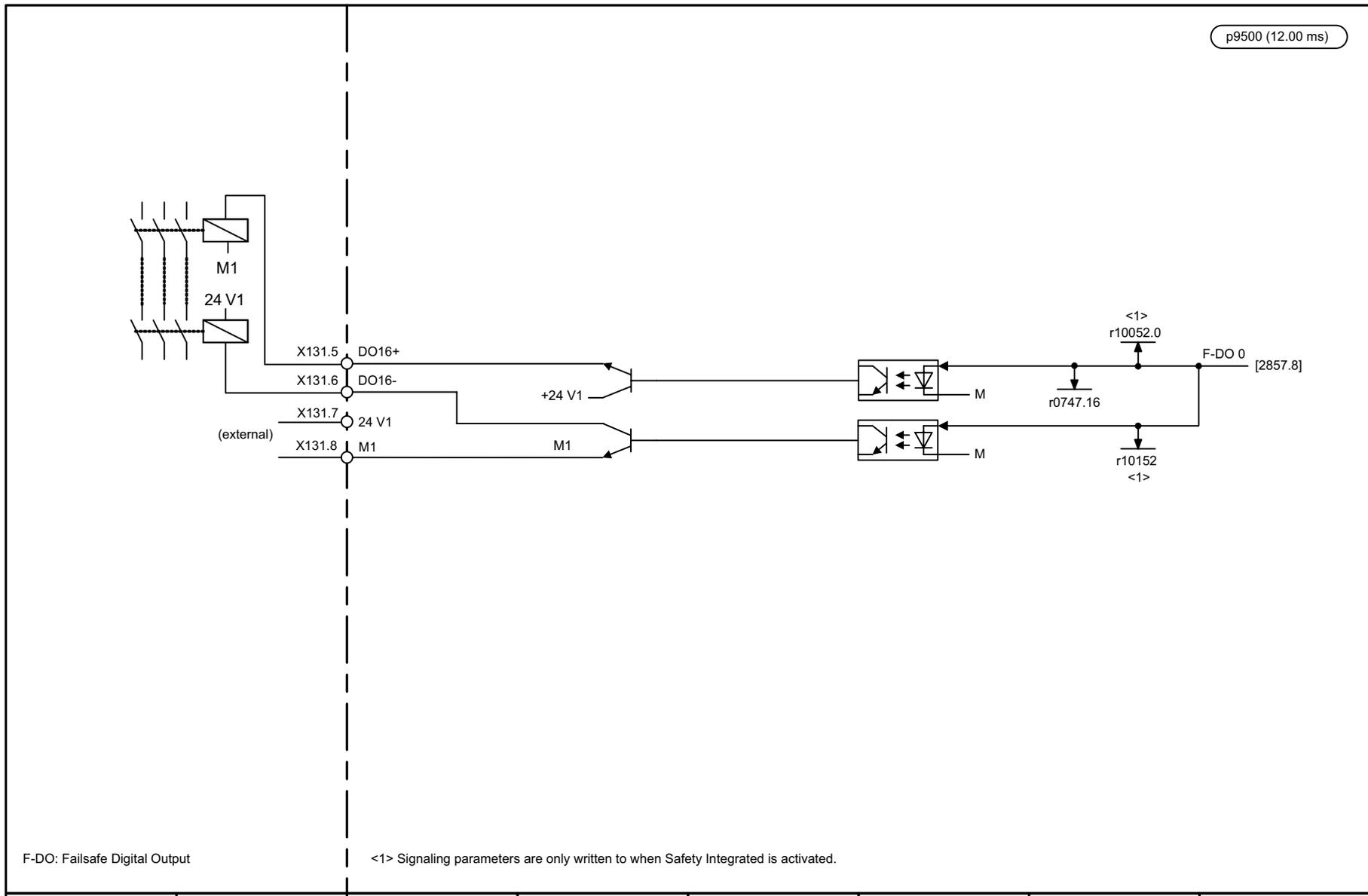




F-DI: Failsafe Digital Input

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2850_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions (F-DI 0 ... F-DI 2)					29.10.08 V04.01.00	SINAMICS S110	
							- 2850 -

Figure 2-82 2850 – Extended functions (F-DI 0 ... F-DI 2)



p9500 (12.00 ms)

F-DO: Failsafe Digital Output

<1> Signaling parameters are only written to when Safety Integrated is activated.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2853_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions (F-DO 0)					29.10.08 V04.01.00	SINAMICS S110	
							- 2853 -

Figure 2-83 2853 – Extended functions (F-DO 0)

p9500/p9300 (12.00 ms)

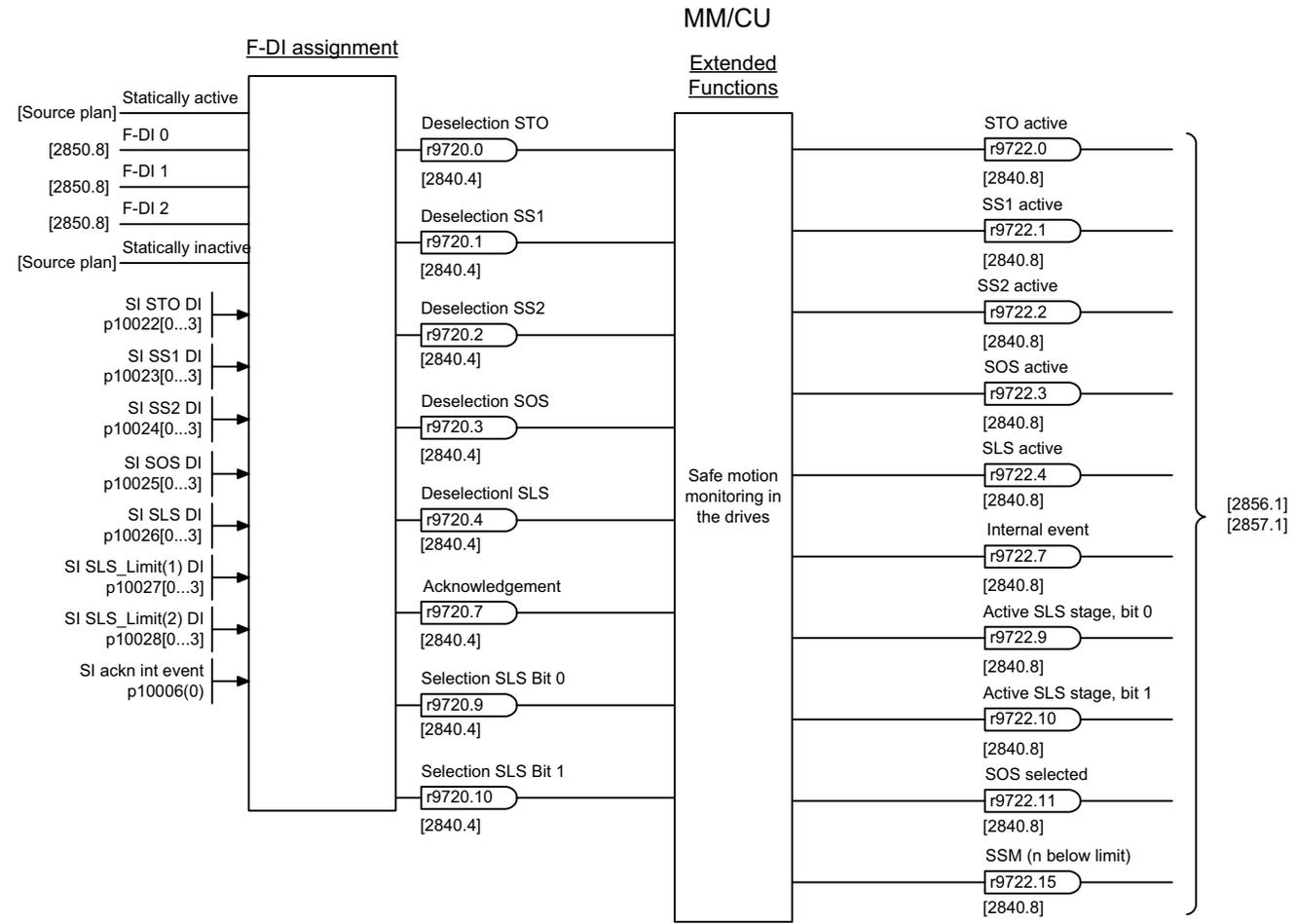


Figure 2-84 2855 – Extended functions, control interface

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2855_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions, control interface					29.10.08 V04.01.00	SINAMICS S110	
							- 2855 -

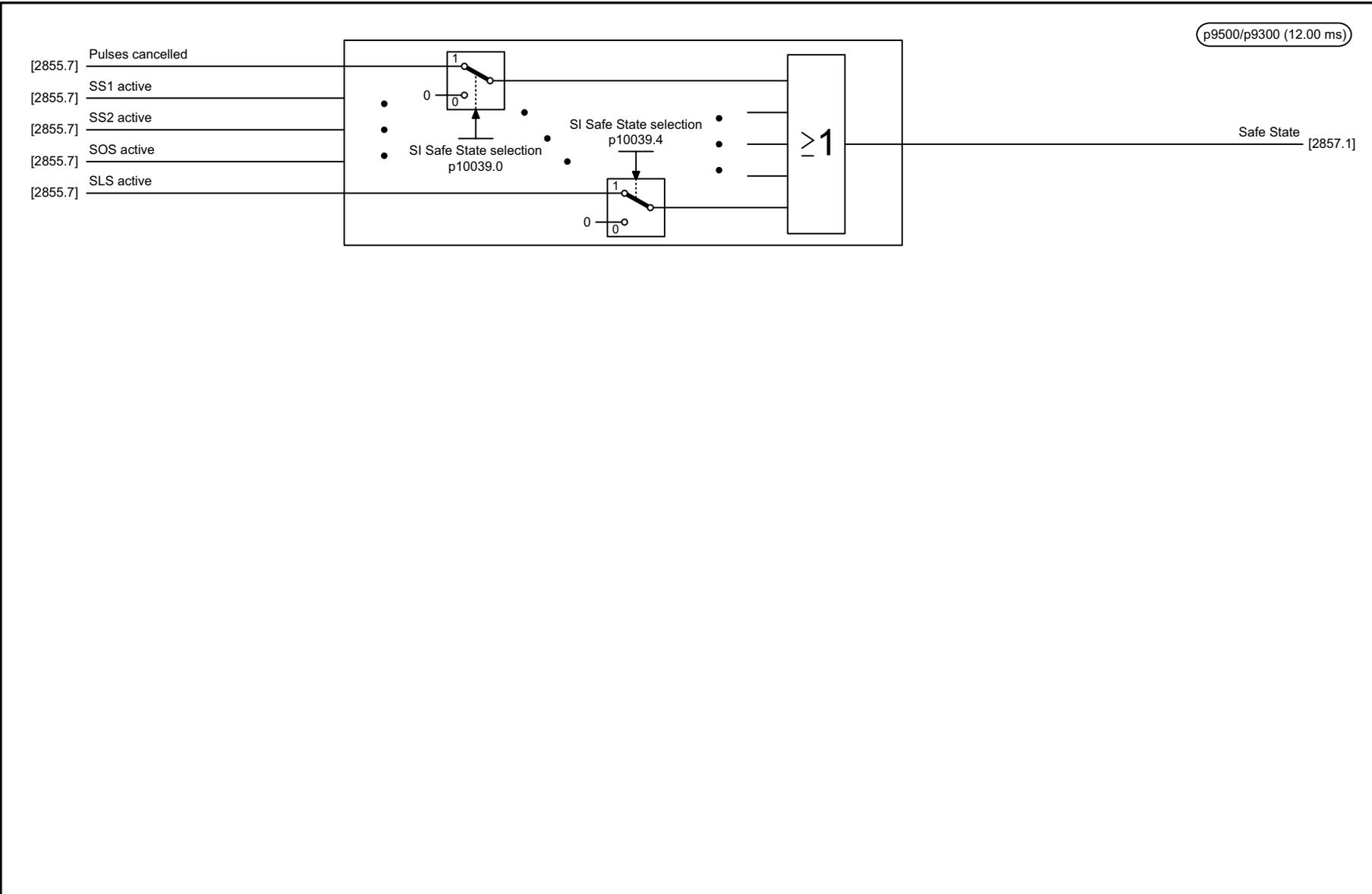


Figure 2-85 2856 – Extended functions, safe state selection

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2856_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions, Safe State selection					29.05.08 V04.01.00	SINAMICS S110	
- 2856 -							

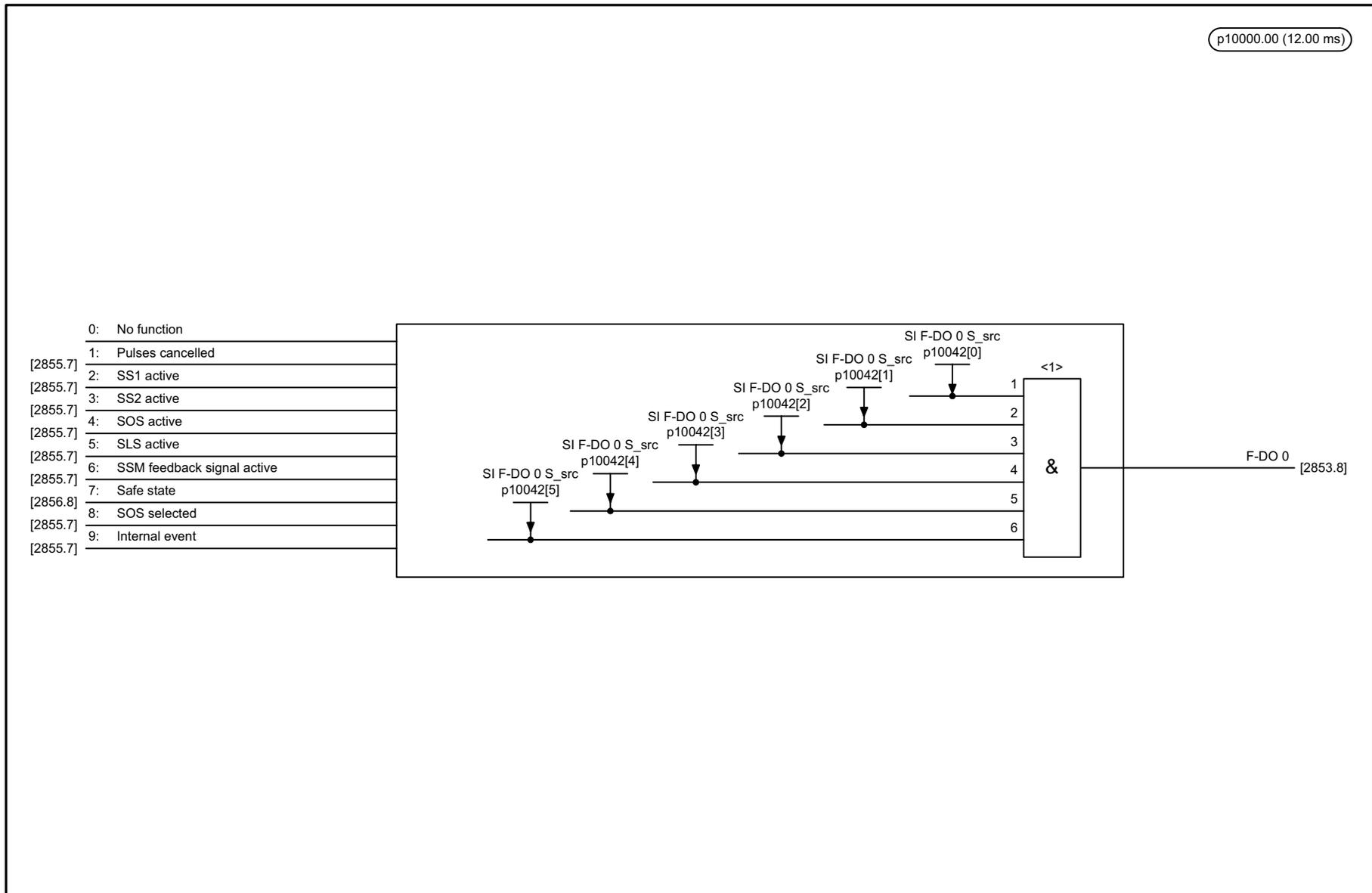


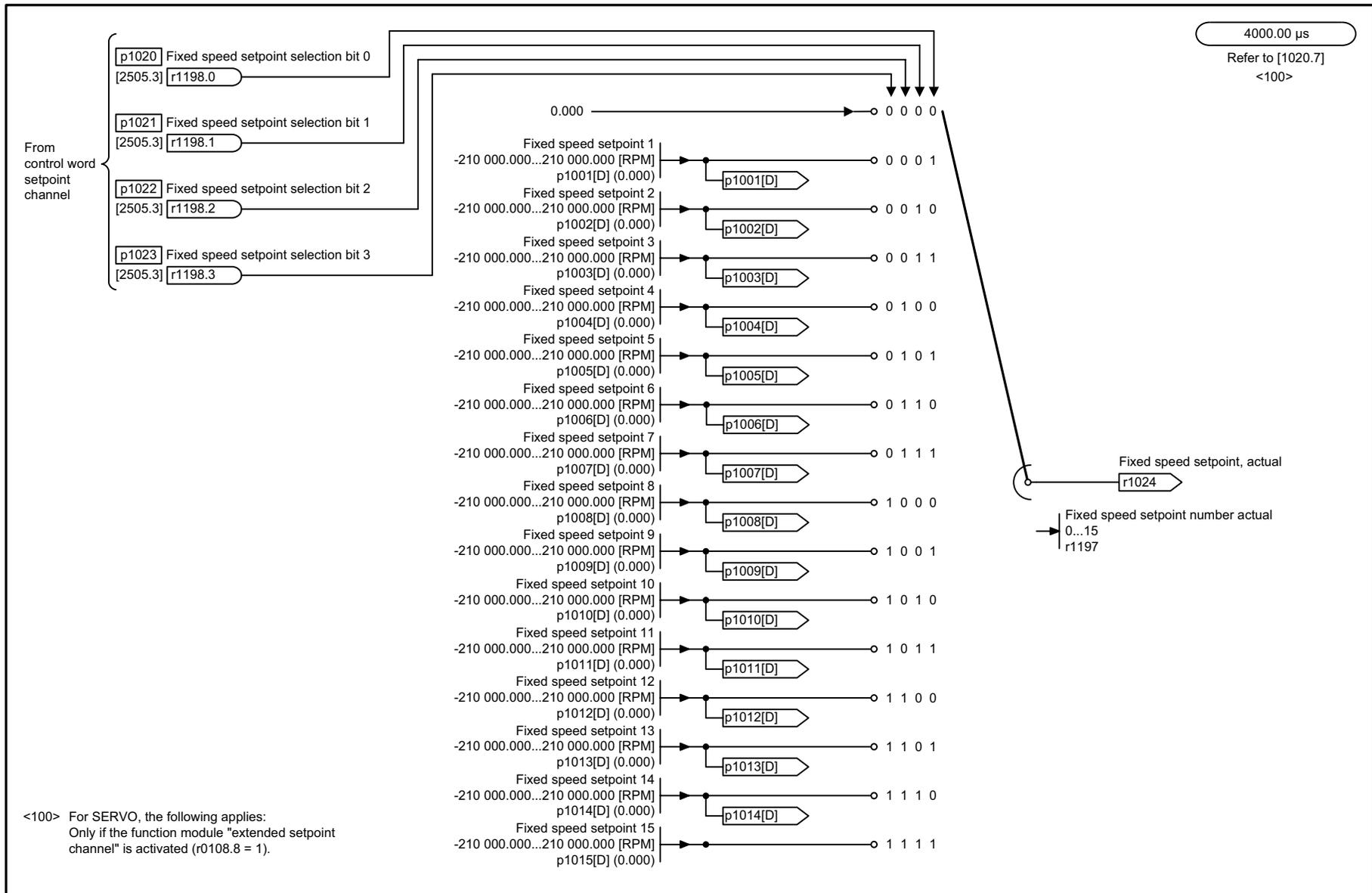
Figure 2-86 2857 – Extended functions, assignment (F-DO 0)

1	2	3	4	5	6	7	8
DO: CU_S110					fp_2857_98_eng.vsd	Function diagram	
Safety Integrated - Extended Functions, Assignment of F-DO 0					05.02.08 V04.01.00	SINAMICS S110	
							- 2857 -

2.10 Setpoint channel

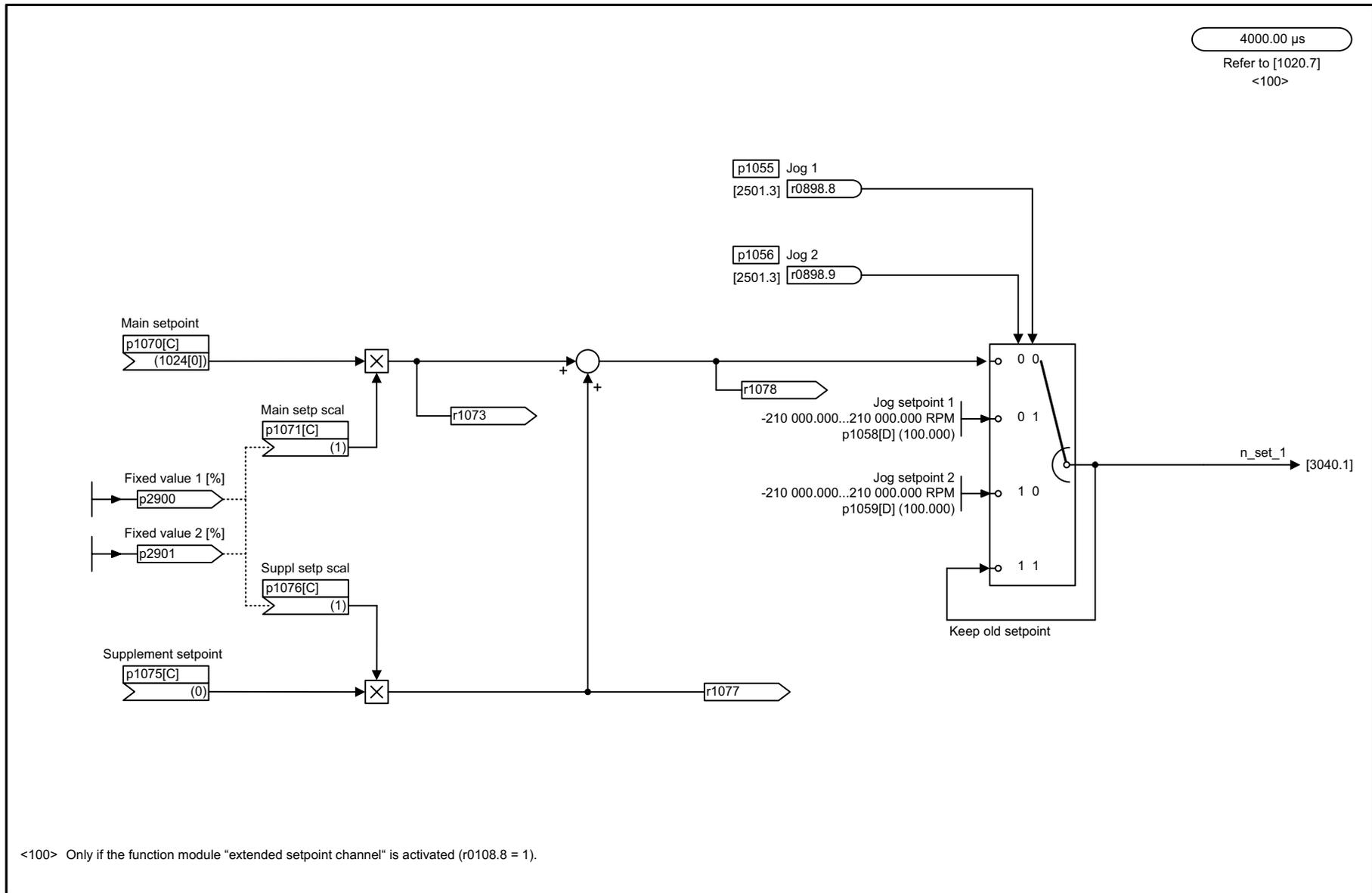
Function diagrams

3010 – Fixed speed setpoints	2-712
3030 – Main/added setpoint, setpoint scaling, jogging	2-713
3040 – Direction limiting and direction reversal	2-714
3050 – Suppression bandwidth and speed limiting	2-715
3060 – Simple ramp-function generator	2-716
3070 – Extended ramp-function generator	2-717
3080 – Ramp-function generator selection, status word, tracking	2-718
3090 – Dynamic Servo Control (DSC)	2-719



1	2	3	4	5	6	7	8
DO: SERVO					fp_3010_98_eng.vsd	Function diagram	
Setpoint channel - Fixed speed setpoints					28.10.08 V04.01.00	SINAMICS S110	
- 3010 -							

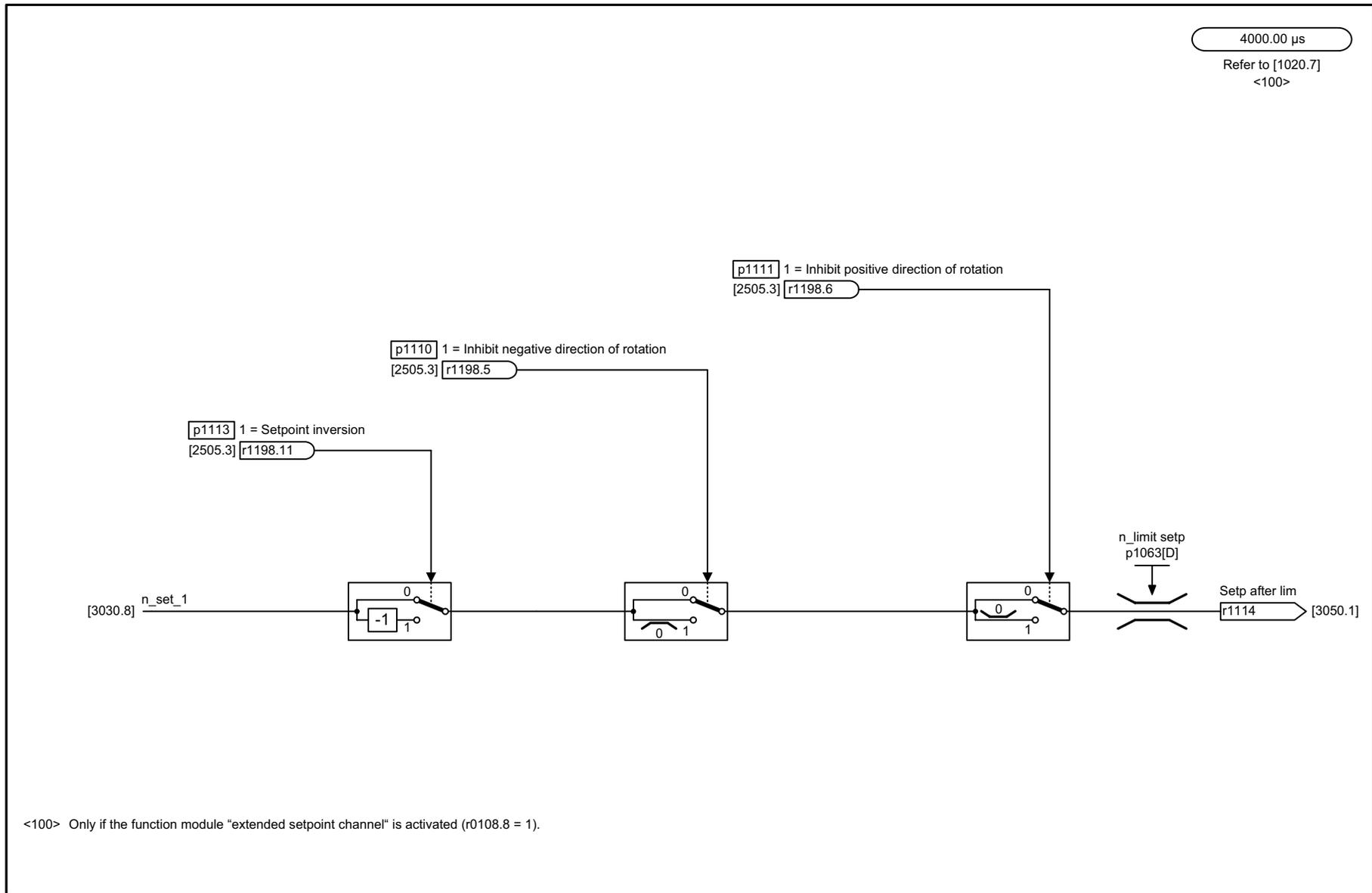
Figure 2-87 3010 – Fixed speed setpoints



<100> Only if the function module "extended setpoint channel" is activated (r0108.8 = 1).

1	2	3	4	5	6	7	8
DO: SERVO					fp_3030_98_eng.vsd	Function diagram	
Setpoint channel - Main/supplementary setpoint, setpoint scaling, jogging					04.04.08 V04.01.00	SINAMICS S110	
							- 3030 -

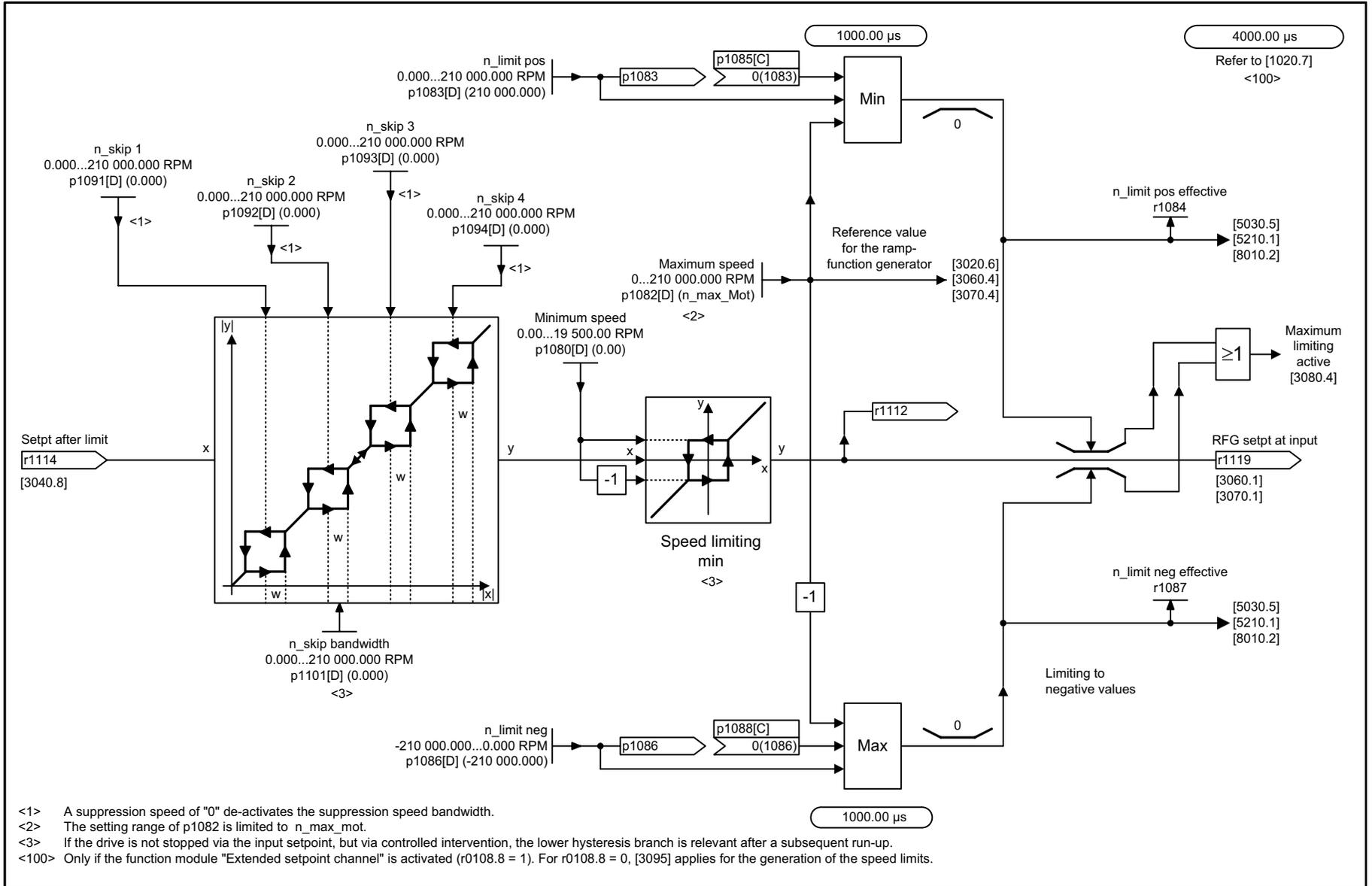
Figure 2-88 3030 – Main/added setpoint, setpoint scaling, jogging



1	2	3	4	5	6	7	8
DO: SERVO					fp_3040_98_eng.vsd	Function diagram	
Setpoint channel - Direction limitation and direction reversal					03.07.08 V04.01.00	SINAMICS S110	
							- 3040 -

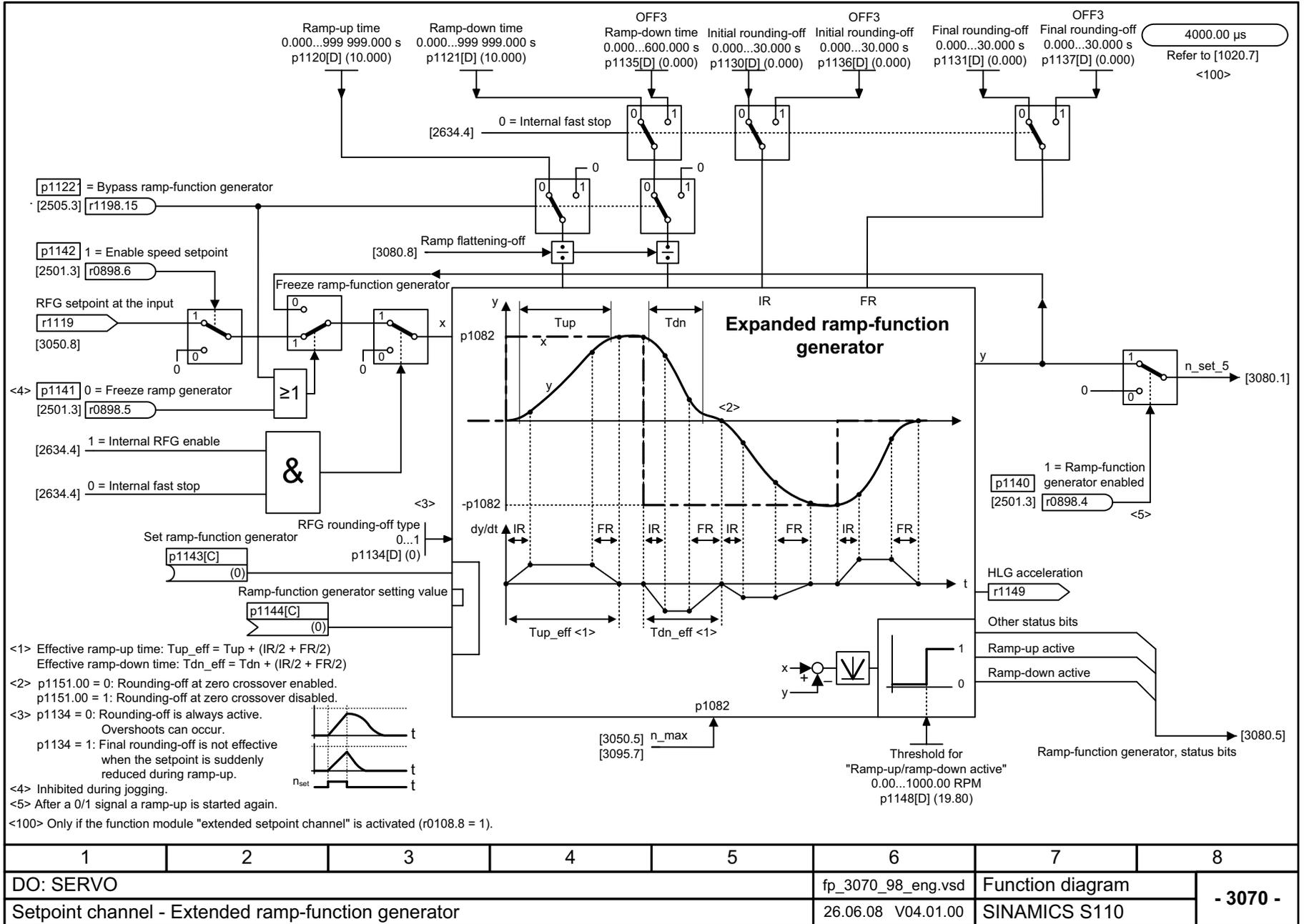
Figure 2-89 3040 – Direction limiting and direction reversal

Figure 2-90 3050 – Suppression bandwidth and speed limiting



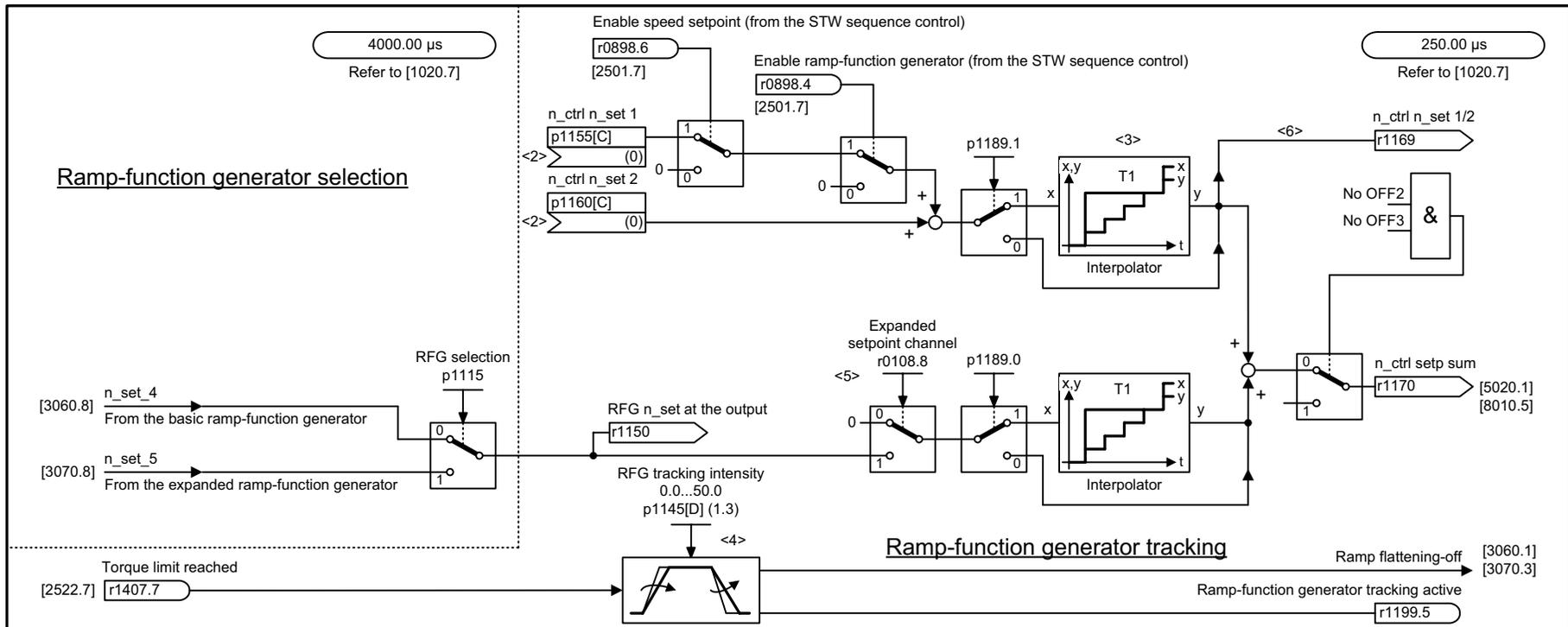
1	2	3	4	5	6	7	8
DO: SERVO					fp_3050_98_eng.vsd	Function diagram	
Setpoint channel - Skip frequency bands and speed limitations					31.01.08 V04.01.00	SINAMICS S110	
							- 3050 -

Figure 2-92 3070 – Extended ramp-function generator



Function diagrams
 Setpoint channel

1	2	3	4	5	6	7	8
DO: SERVO					fp_3070_98_eng.vsd	Function diagram	
Setpoint channel - Extended ramp-function generator					26.06.08 V04.01.00	SINAMICS S110	
							- 3070 -



- <1> For p1145 > 0, ramp-function generator tracking is activated when the torque limiting responds. This means that the speed controller output only exceeds the torque limit by a deviation that can be set via p1145.
- <2> For OFF1/OFF3, the ramp-function generator ramp is active. The ramp-function generator is set to the actual value and stops the drive with the ramp-downtime (p1121 or p1135). STW1.4 (enable ramp-function generator) is effective while the drive is stopped via the ramp-function generator. Depending on the p1115, the basic ramp-function generator [3060] or the extended ramp-function generator [3070] is effective. When the function module "expanded setpoint channel" (r0108.8 = 0) is not active for OFF1/OFF3, the down ramp of the basic ramp-function generator is effective (refer to n_set_4 on [3060.8]).
- <3> The interpolator is only effective for clock-cycle synchronous PROFIBUS operation and sign-of-life received from the master (STW2.12 ... STW2.15).
- <4> Behavior of the response ramp of the torque limiting:
 p1145 = 0.0: No ramp-function generator tracking. The ramp-function generator ramp is no longer in the range of the speed actual value.
 p1145 = 1.0: The ramp-function generator ramp remains as close as possible to the speed actual value.
 p1145 > 1.0: The ramp-function generator ramp is steeper than for p1145 = 1.0 (higher "speed following error").
- <5> For SERVO, the following applies: Only when the function module "extended setpoint channel" is activated (r0108.8 = 1).
- <6> The value is displayed correctly only with r0899.2 = 1 (Operation enabled).

Ramp-function generator status word

Bit	Ramp-function generator status word	Output
0	Ramp-up active	r1199
1	Ramp-down active	
2	Ramp-function generator active	r1199.2 [8010.5]
3	Ramp-function generator set	
4	Ramp-function generator held	<1>
5	Ramp-function generator tracking active	
6	Maximum limiting active	
7	Reserved	
8	Reserved	
9	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	
15	Reserved	

1	2	3	4	5	6	7	8
DO: SERVO					fp_3080_98_eng.vsd	Function diagram	
Setpoint channel - Ramp-function generator selection, status word, tracking					28.10.08 V04.01.00	SINAMICS S110	
- 3080 -							

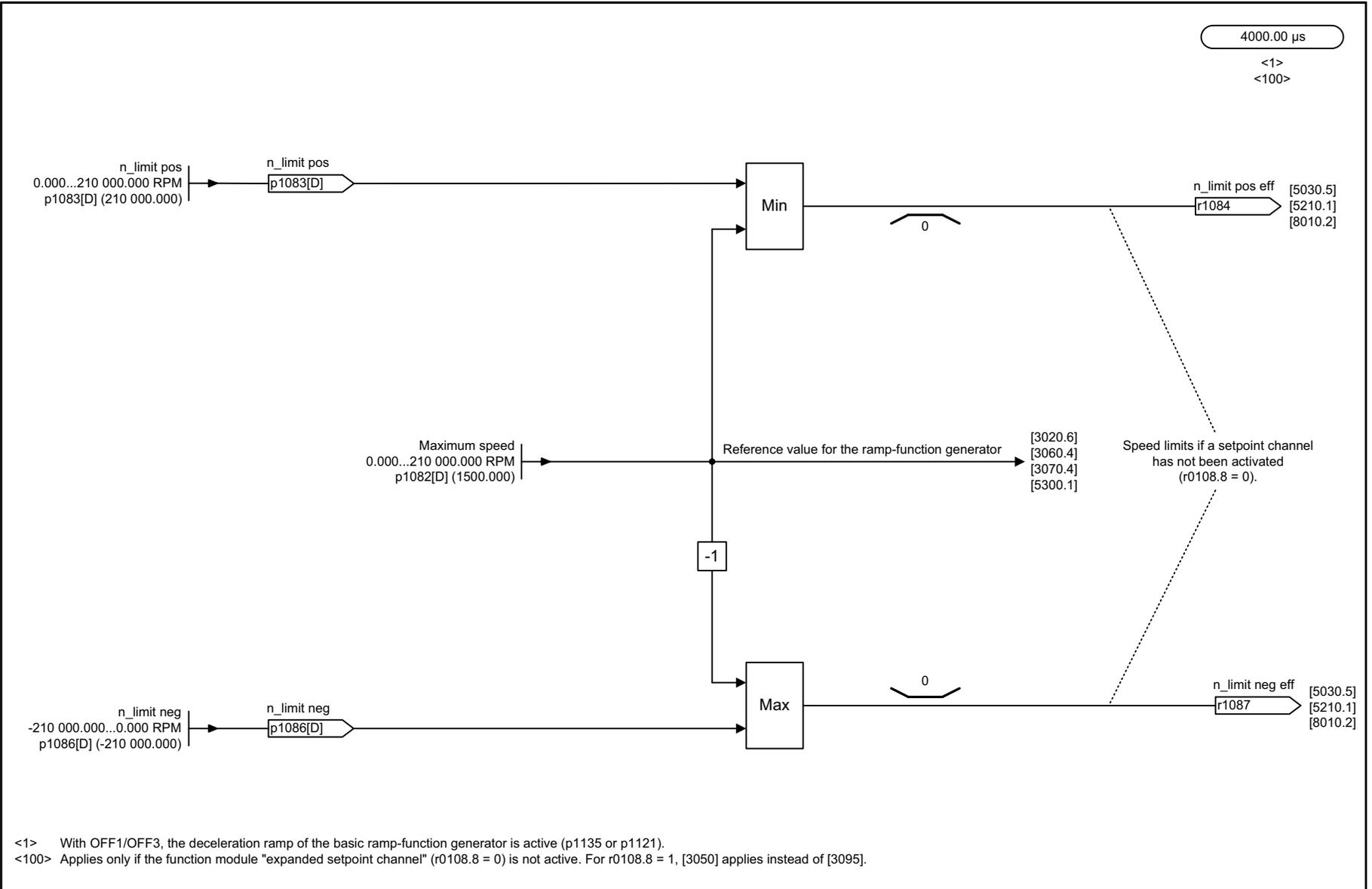
Figure 2-93 3080 – Ramp-function generator selection, status word, tracking

2.11 Setpoint channel not activated

Function diagrams

3095 – Generation of the speed limits (r0108.8 = 0)

2-721



<1> With OFF1/OFF3, the deceleration ramp of the basic ramp-function generator is active (p1135 or p1121).
 <100> Applies only if the function module "expanded setpoint channel" (r0108.8 = 0) is not active. For r0108.8 = 1, [3050] applies instead of [3095].

1	2	3	4	5	6	7	8
DO: SERVO					fp_3095_98_eng.vsd	Function diagram	
Setpoint channel not activated - Generating the speed limits (r0108.8 = 0)					26.06.08 V04.01.00	SINAMICS S110	
							- 3095 -

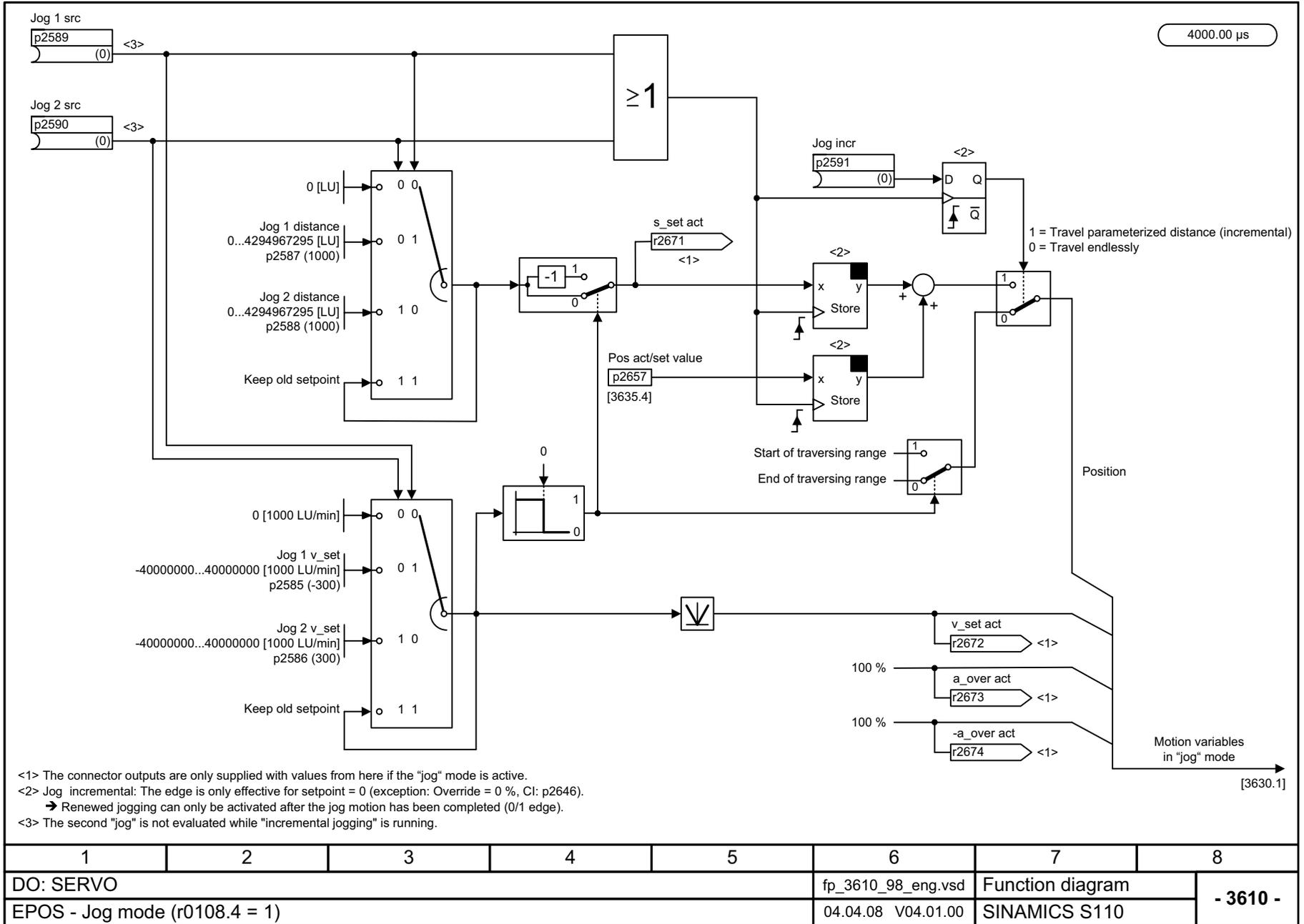
Figure 2-95 3095 – Generation of the speed limits (r0108.8 = 0)

2.12 Basic positioner (EPOS)

Function diagrams

3610 – Jog mode (r0108.4 = 1)	2-723
3612 – Referencing/reference point approach mode (r0108.4 = 1) (p2597 = 0 signal)	2-724
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3615 – Traversing blocks, external block change mode (r0108.4 = 1)	2-726
3616 – Traversing blocks mode (r0108.4 = 1)	2-727
3617 – Travel to fixed stop (r0108.4 = 1)	2-728
3618 – Direct setpoint input/MDI mode, dynamic values (r0108.4 = 1)	2-729
3620 – Direct setpoint input/MDI (r0108.4 = 1)	2-730
3625 – Mode control (r0108.4 = 1)	2-731
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3635 – Interpolator (r0108.4 = 1)	2-733
3640 – Control word block selection/MDI selection (r0108.4 = 1)	2-734
3645 – Status word 1 (r0108.3 = 1, r0108.4 = 1)	2-735
3646 – Status word 2 (r0108.3 = 1, r0108.4 = 1)	2-736
3650 – Status word active traversing block/MDI active (r0108.4 = 1)	2-737

Figure 2-96 3610 – Jog mode (r0108.4 = 1)



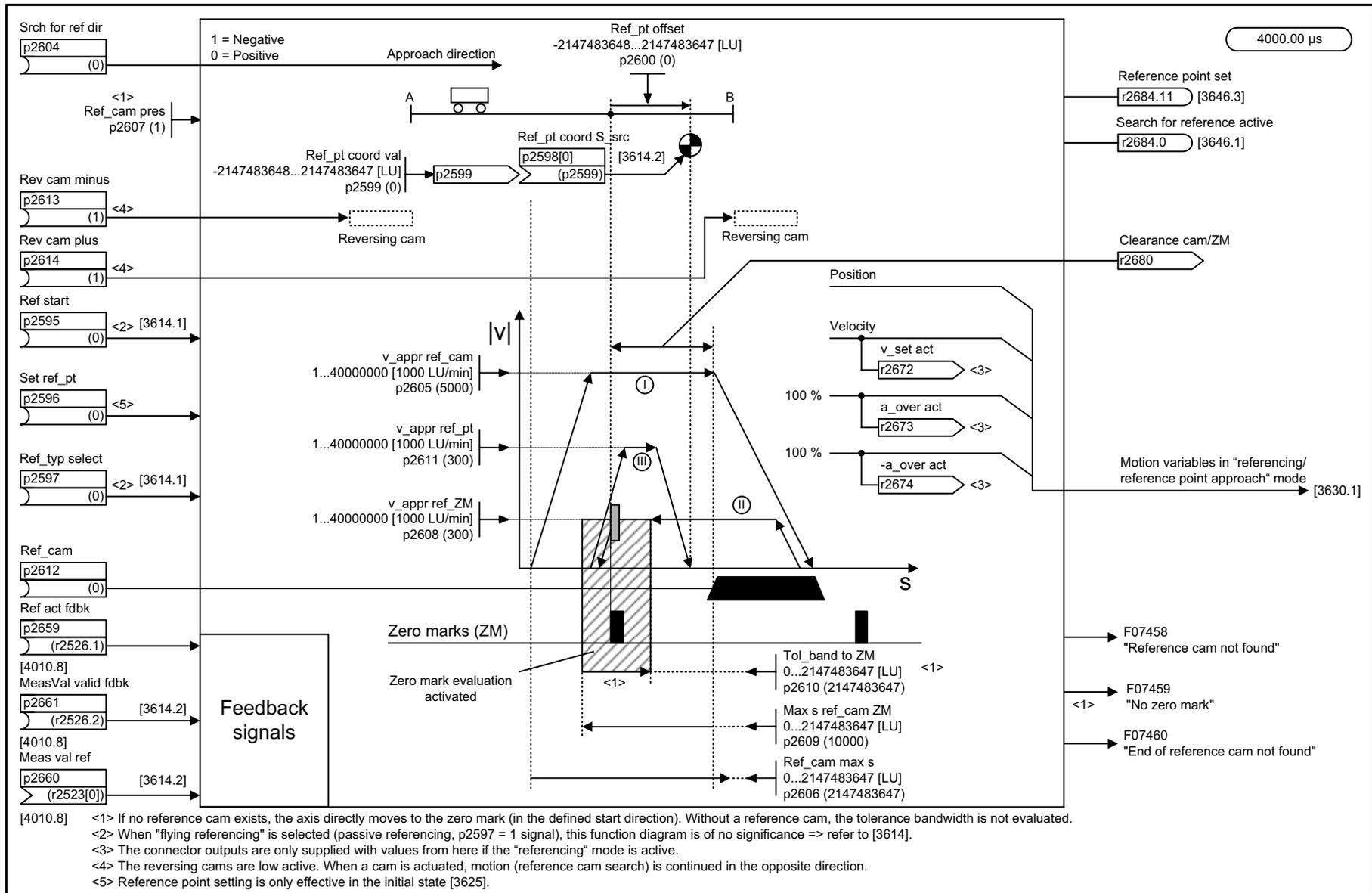
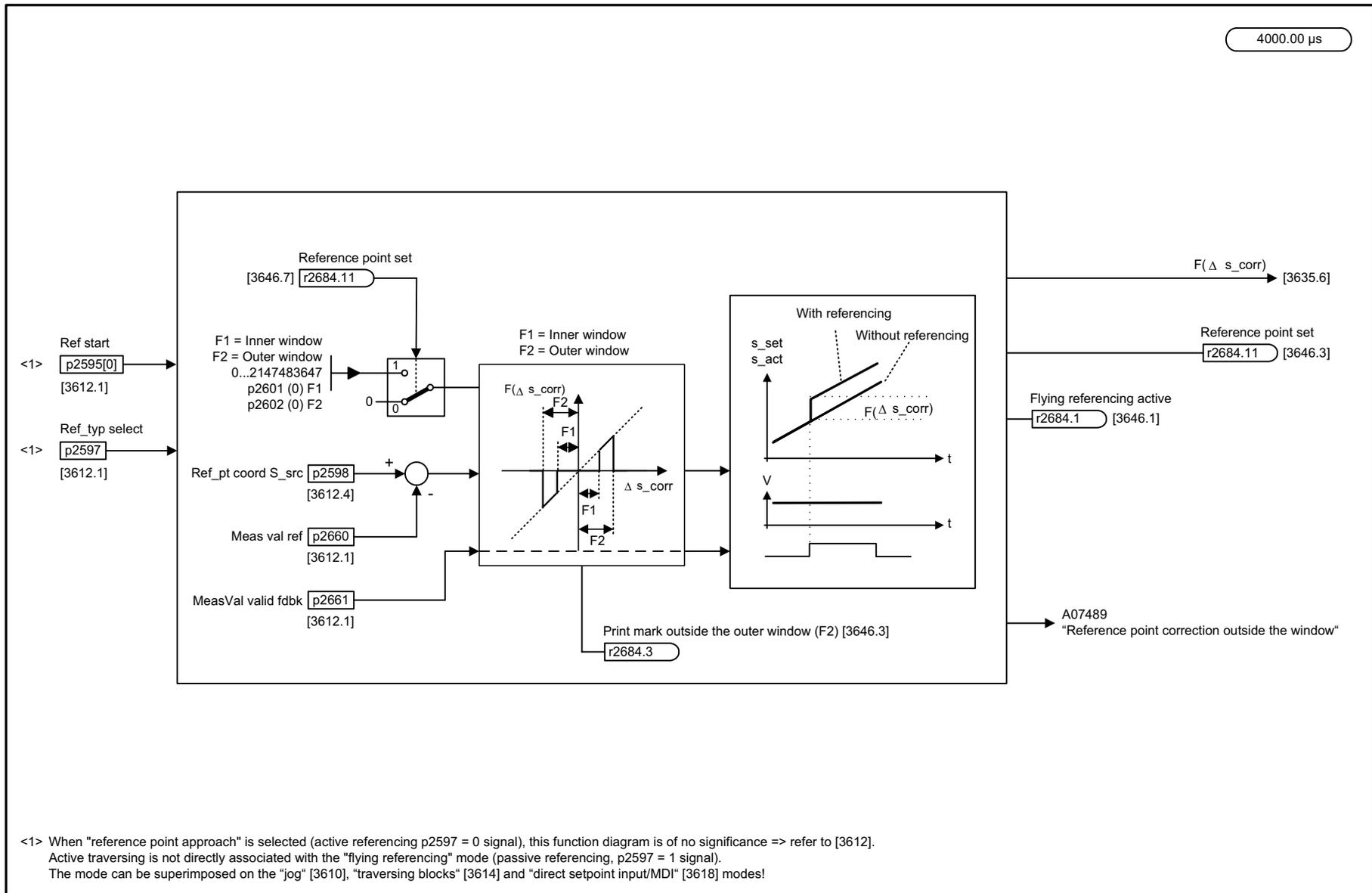


Figure 2-97 3612 – Referencing/reference point approach mode (r0108.4 = 1) (p2597 = 0 signal)

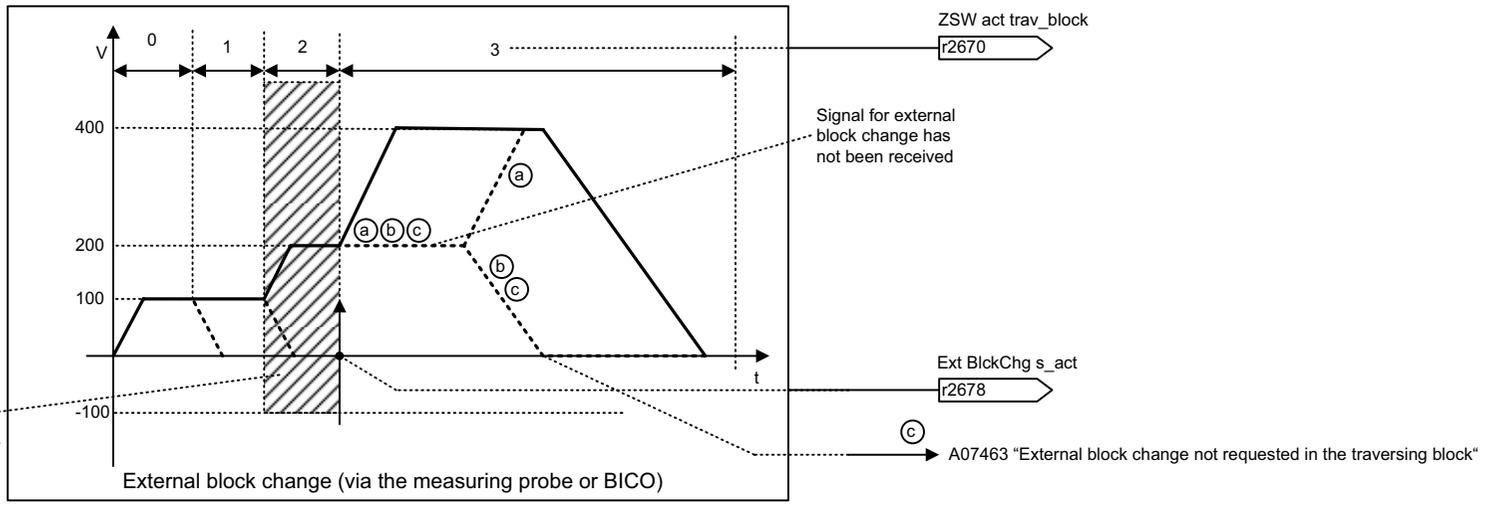
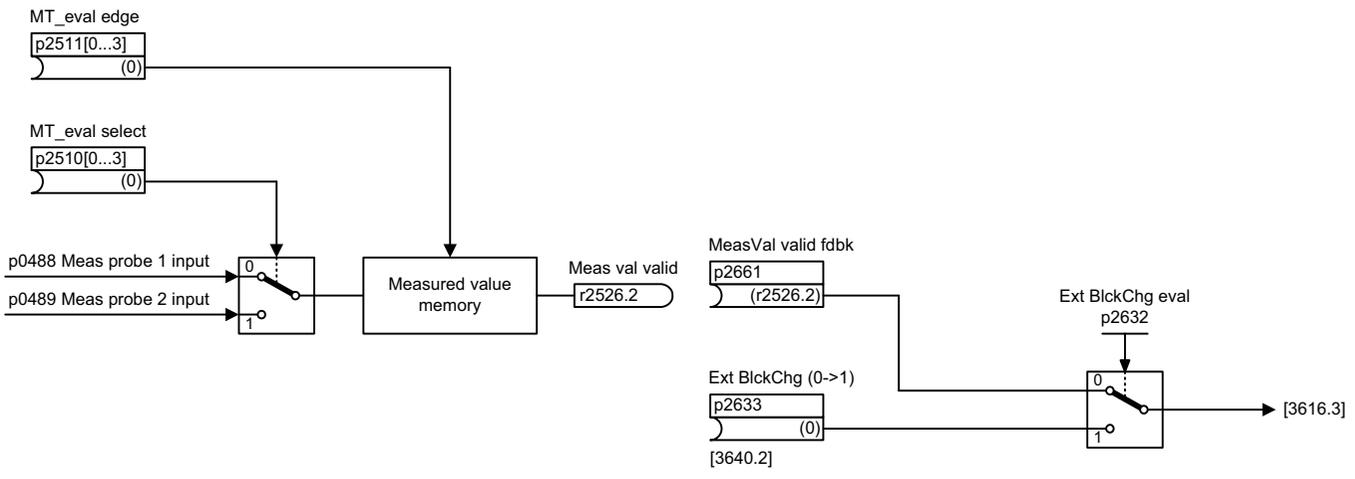
1	2	3	4	5	6	7	8
DO: SERVO					fp_3612_98_eng.vsd	Function diagram	
EPOS - Referencing/reference point approach mode (r0108.4 = 1) (p2597 = 0 signal)					04.04.08 V04.01.00	SINAMICS S110	
							- 3612 -



1	2	3	4	5	6	7	8
DO: SERVO					fp_3614_98_eng.vsd	Function diagram	
EPOS - Flying referencing mode (r0108.4 = 1) (p2597 = 1 signal)					28.10.08 V04.01.00	SINAMICS S110	
							- 3614 -

Figure 2-98 3614 – Flying referencing mode (r0108.4 = 1) (p2597 = 1 signal)

4000.00 µs

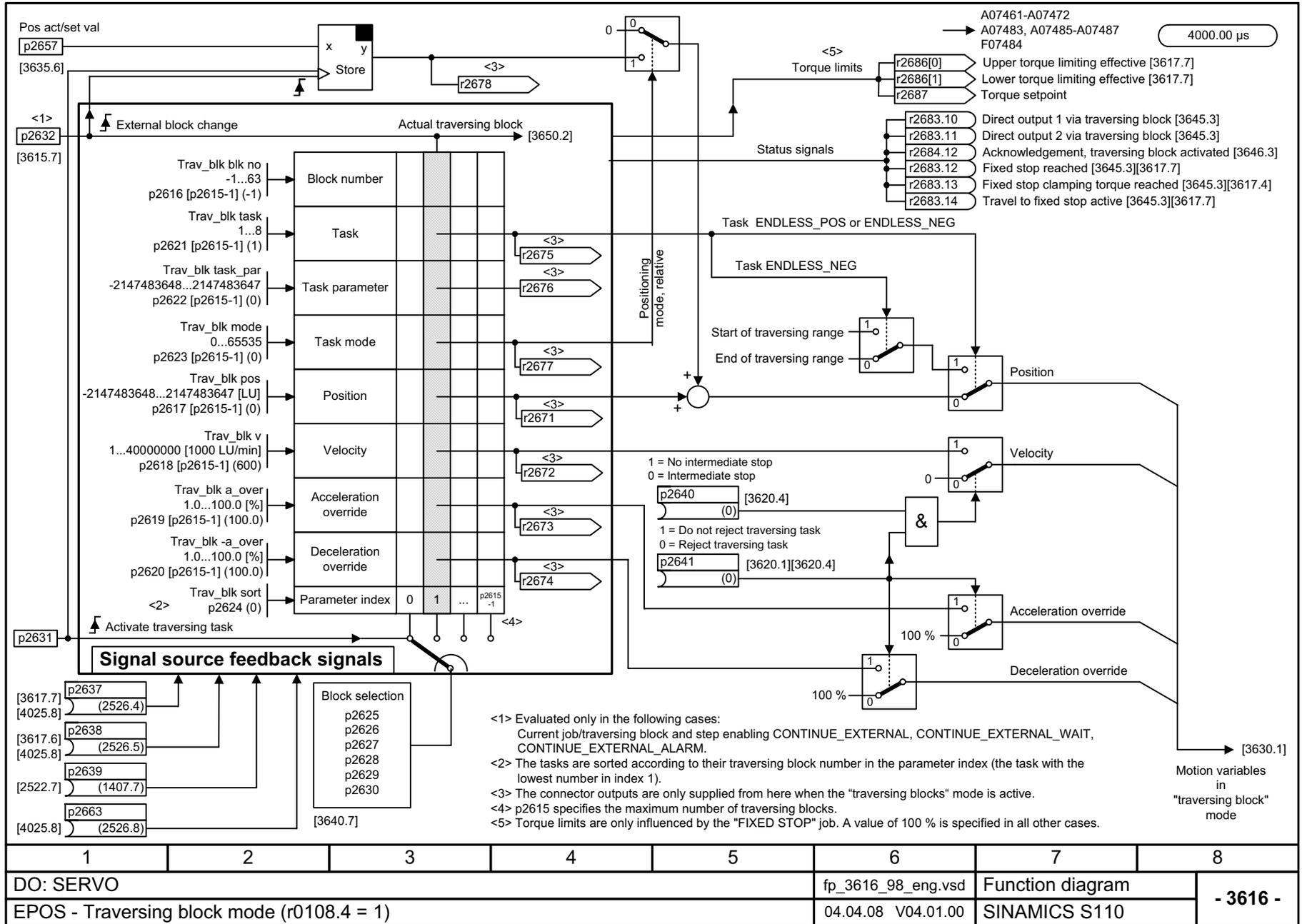


- p2623 Trav_blk mode
- (a) CONTINUE EXTERNAL
 - (b) CONTINUE EXTERNAL WAIT
 - (c) CONTINUE EXTERNAL ALARM

Figure 2-99 3615 – Traversing blocks, external block change mode (r0108.4 = 1)

1	2	3	4	5	6	7	8
DO: SERVO					fp_3615_98_eng.vsd	Function diagram	
EPOS - Traversing block mode, external block change (r0108.4 = 1)					04.04.08 V04.01.00	SINAMICS S110	
- 3615 -							

Figure 2-100 3616 – Traversing blocks mode (r0108.4 = 1)



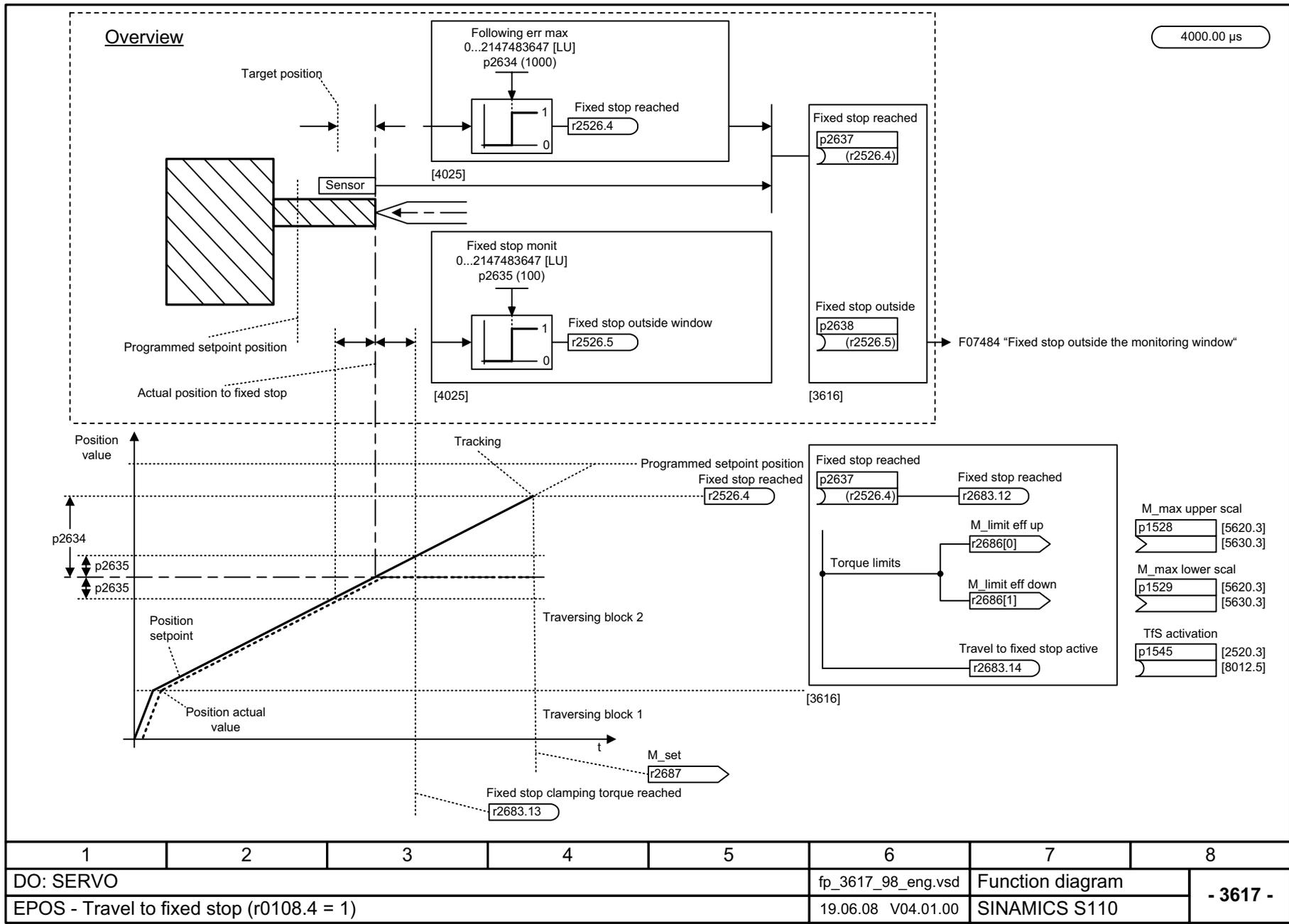


Figure 2-101 3617 – Travel to fixed stop (r0108.4 = 1)

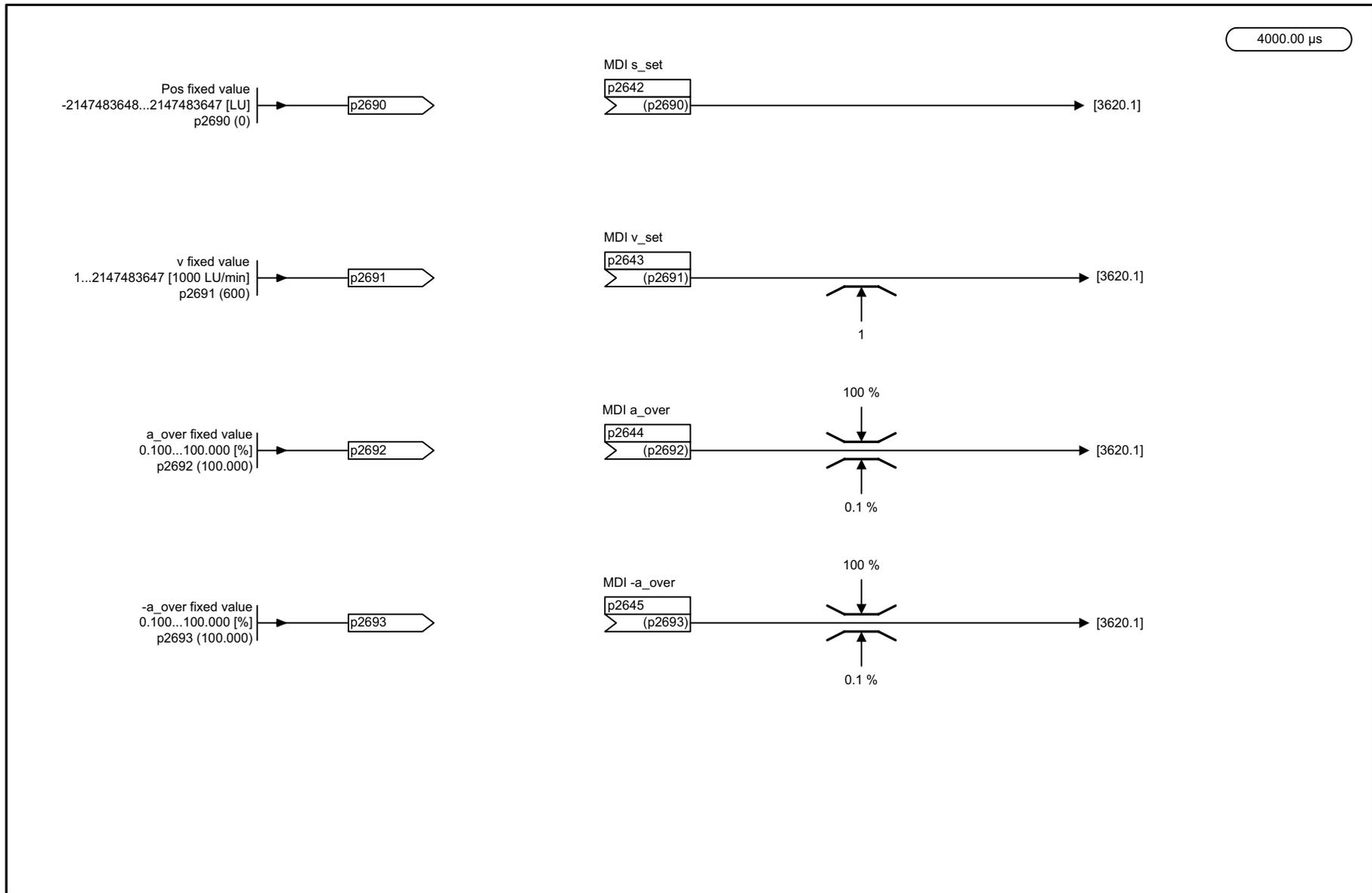


Figure 2-102 3618 – Direct setpoint input/MDI mode, dynamic values (r0108.4 = 1)

1	2	3	4	5	6	7	8
DO: SERVO					fp_3618_98_eng.vsd	Function diagram	
EPOS - Direct setpoint input/MDI mode, dynamic values (r0108.4 = 1)					04.04.08 V04.01.00	SINAMICS S110	
							- 3618 -

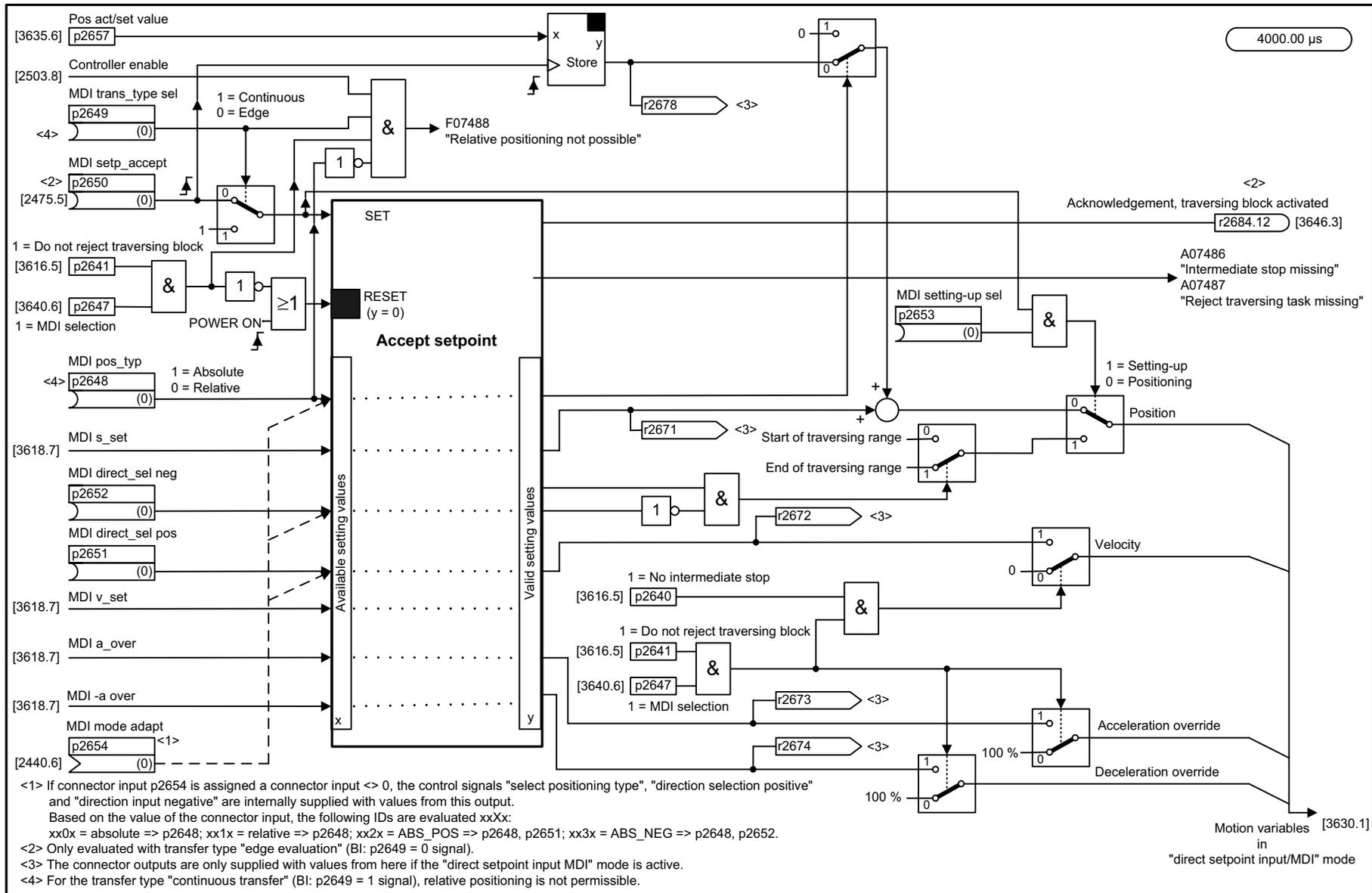
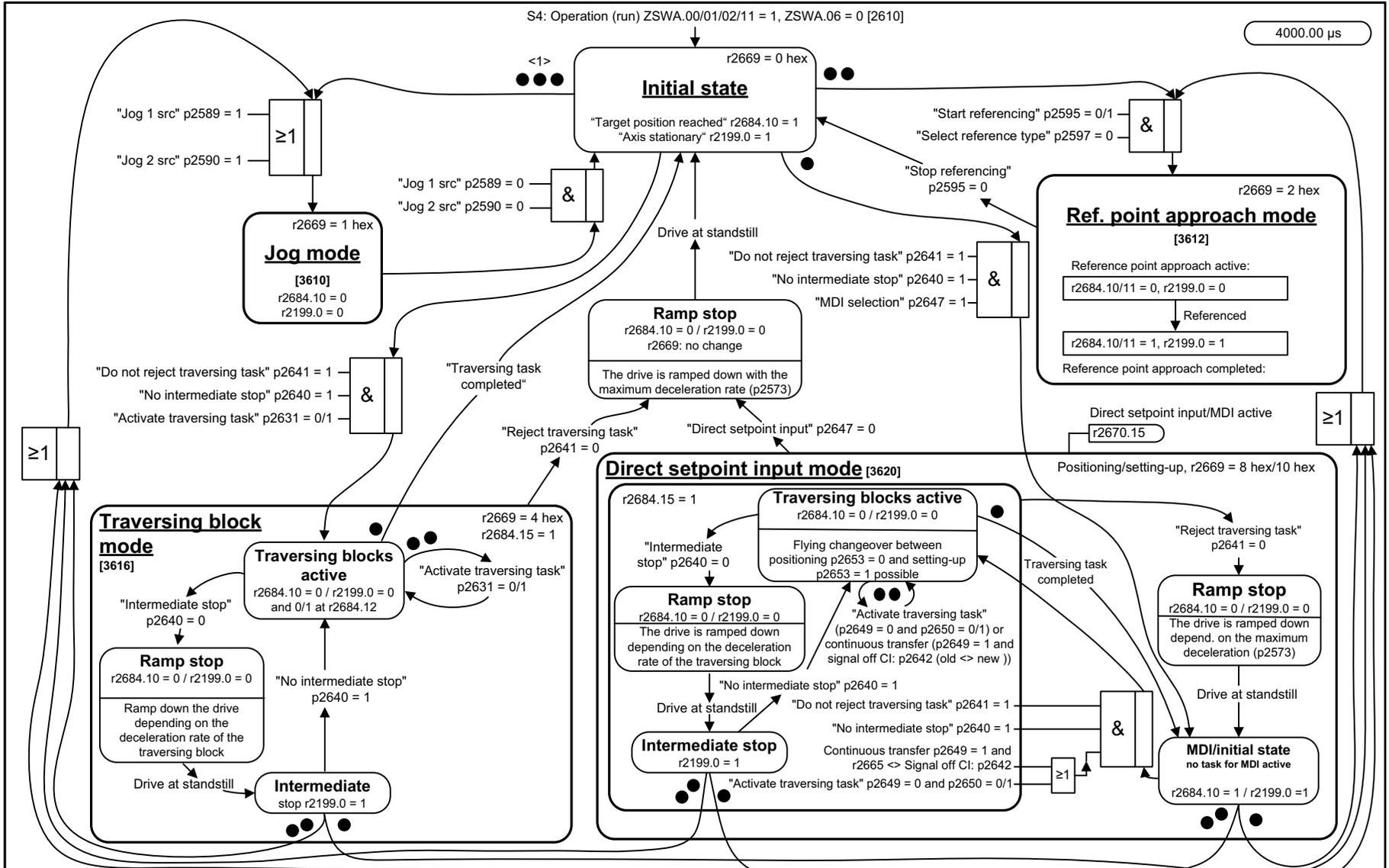


Figure 2-103 3620 – Direct setpoint input/MDI (r0108.4 = 1)

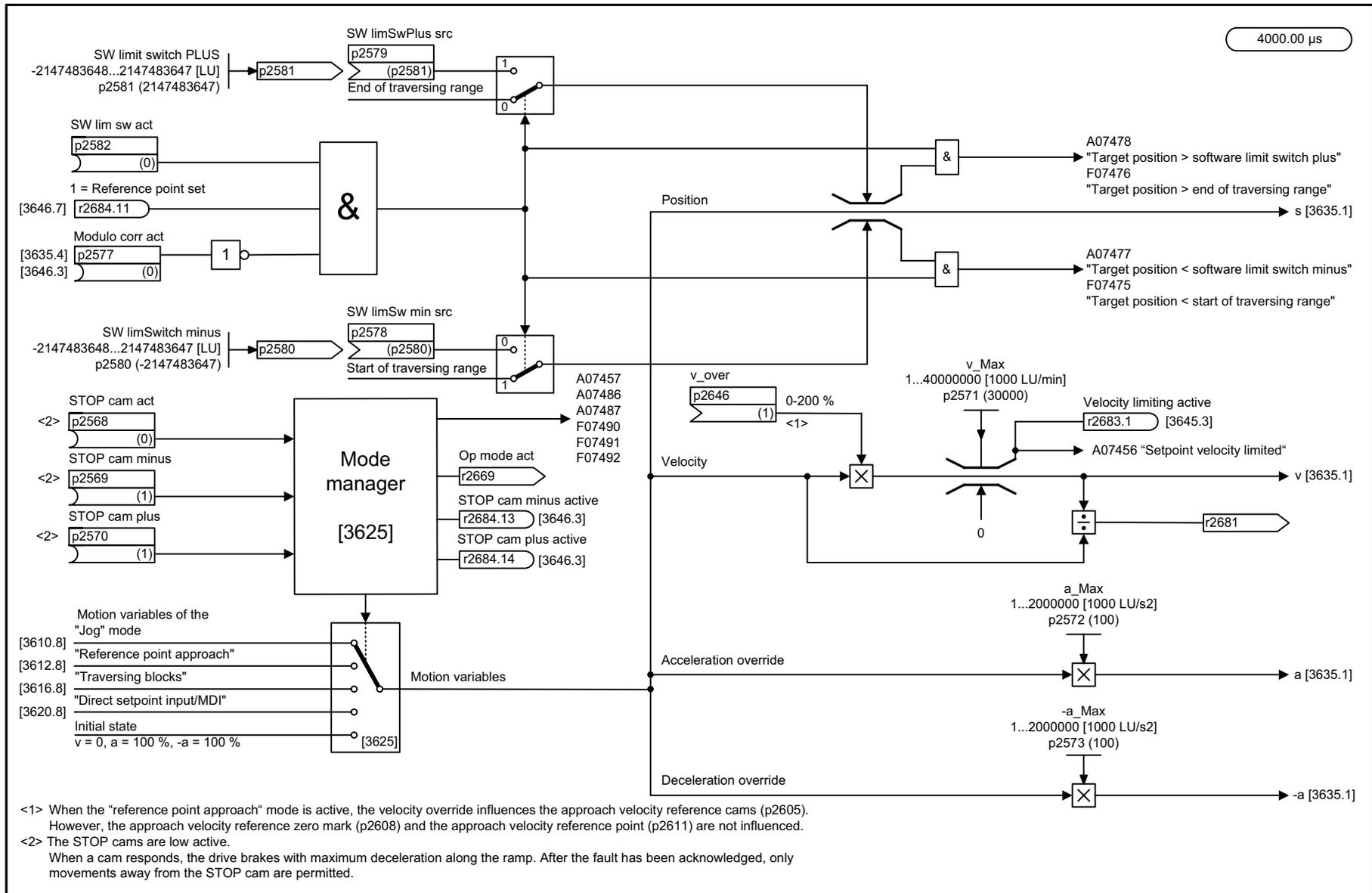
1	2	3	4	5	6	7	8
DO: SERVO					fp_3620_98_eng.vsd	Function diagram	
EPOS - Direct setpoint input/MDI mode (r0108.4 = 1)					04.04.08 V04.01.00	SINAMICS S110	
							- 3620 -

Figure 2-104 3625 – Mode control (r0108.4 = 1)



<1> The more points exist at a transition, the higher the priority.

1	2	3	4	5	6	7	8
DO: SERVO					fp_3625_98_eng.vsd	Function diagram	
EPOS - Mode control (r0108.4 = 1)					04.04.08 V04.01.00	SINAMICS S110	
							- 3625 -

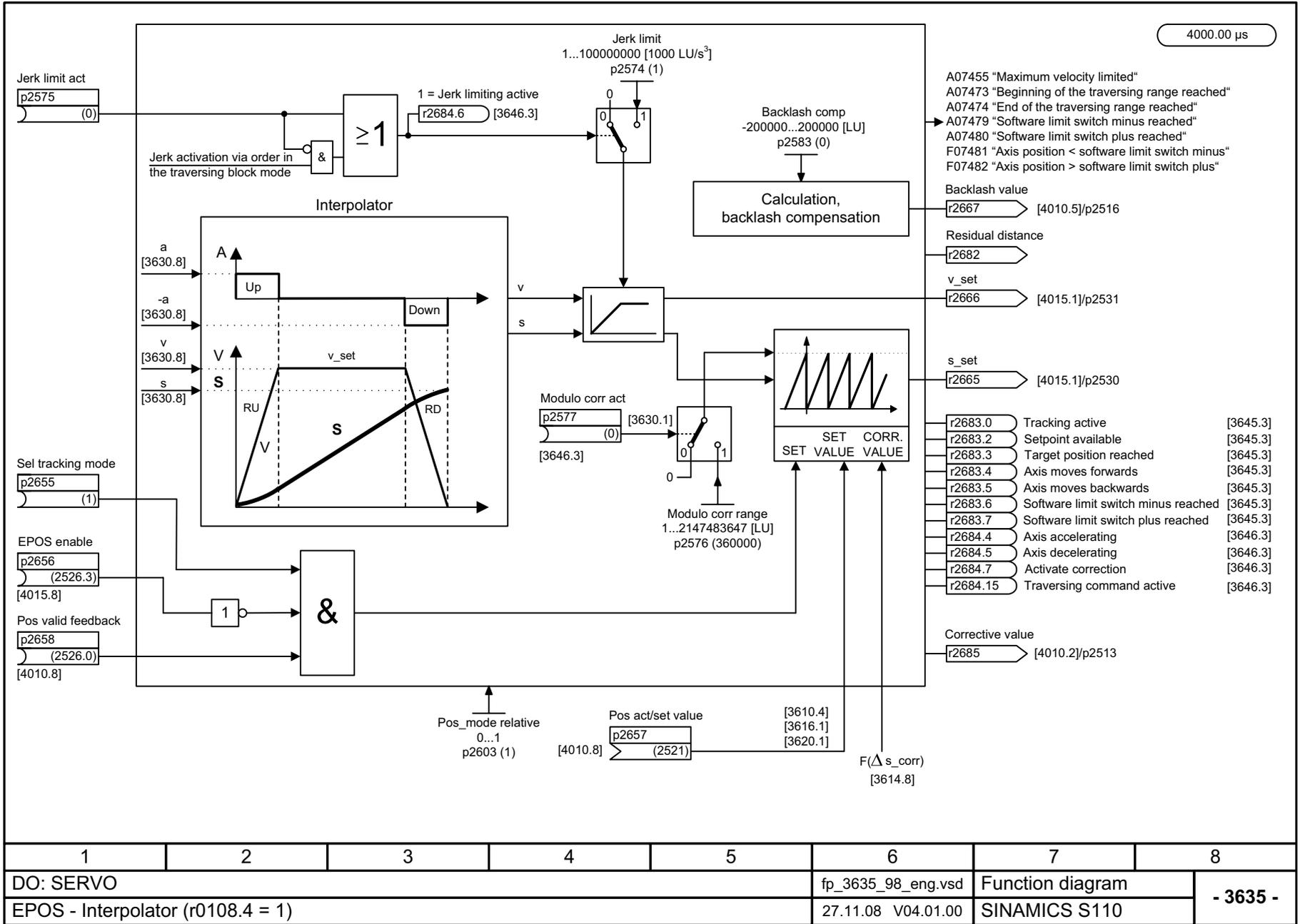


<1> When the "reference point approach" mode is active, the velocity override influences the approach velocity reference cams (p2605). However, the approach velocity reference zero mark (p2608) and the approach velocity reference point (p2611) are not influenced.
 <2> The STOP cams are low active.
 When a cam responds, the drive brakes with maximum deceleration along the ramp. After the fault has been acknowledged, only movements away from the STOP cam are permitted.

1	2	3	4	5	6	7	8
DO: SERVO					fp_3630_98_eng.vsd	Function diagram	
EPOS - Traversing range limits (r0108.4 = 1)					04.04.08 V04.01.00	SINAMICS S110	
							- 3630 -

Figure 2-105 3630 – Traversing range limits (r0108.4 = 1)

Figure 2-106 3635 – Interpolator (r0108.4 = 1)



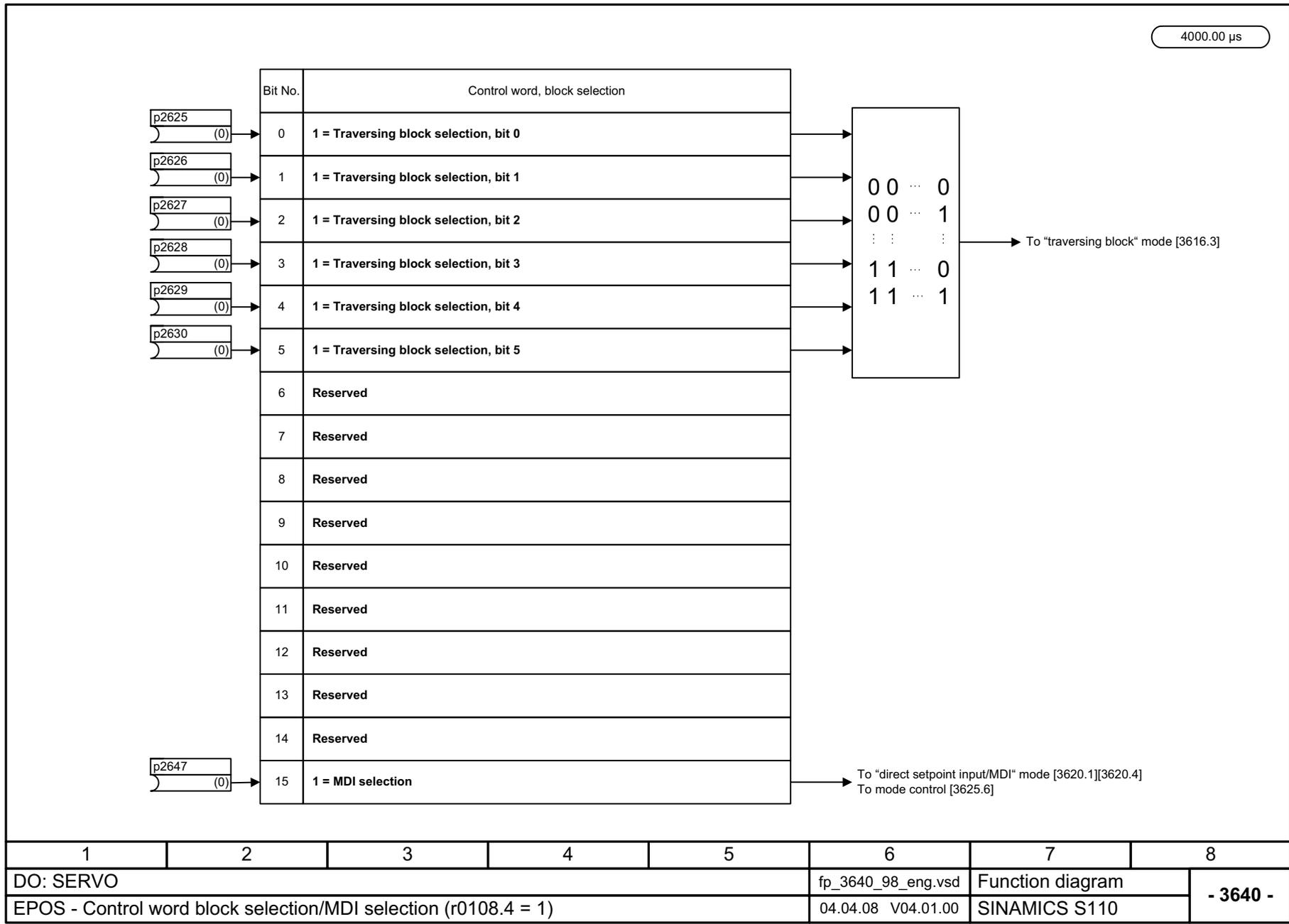


Figure 2-107 3640 – Control word block selection/MDI selection (r0108.4 = 1)

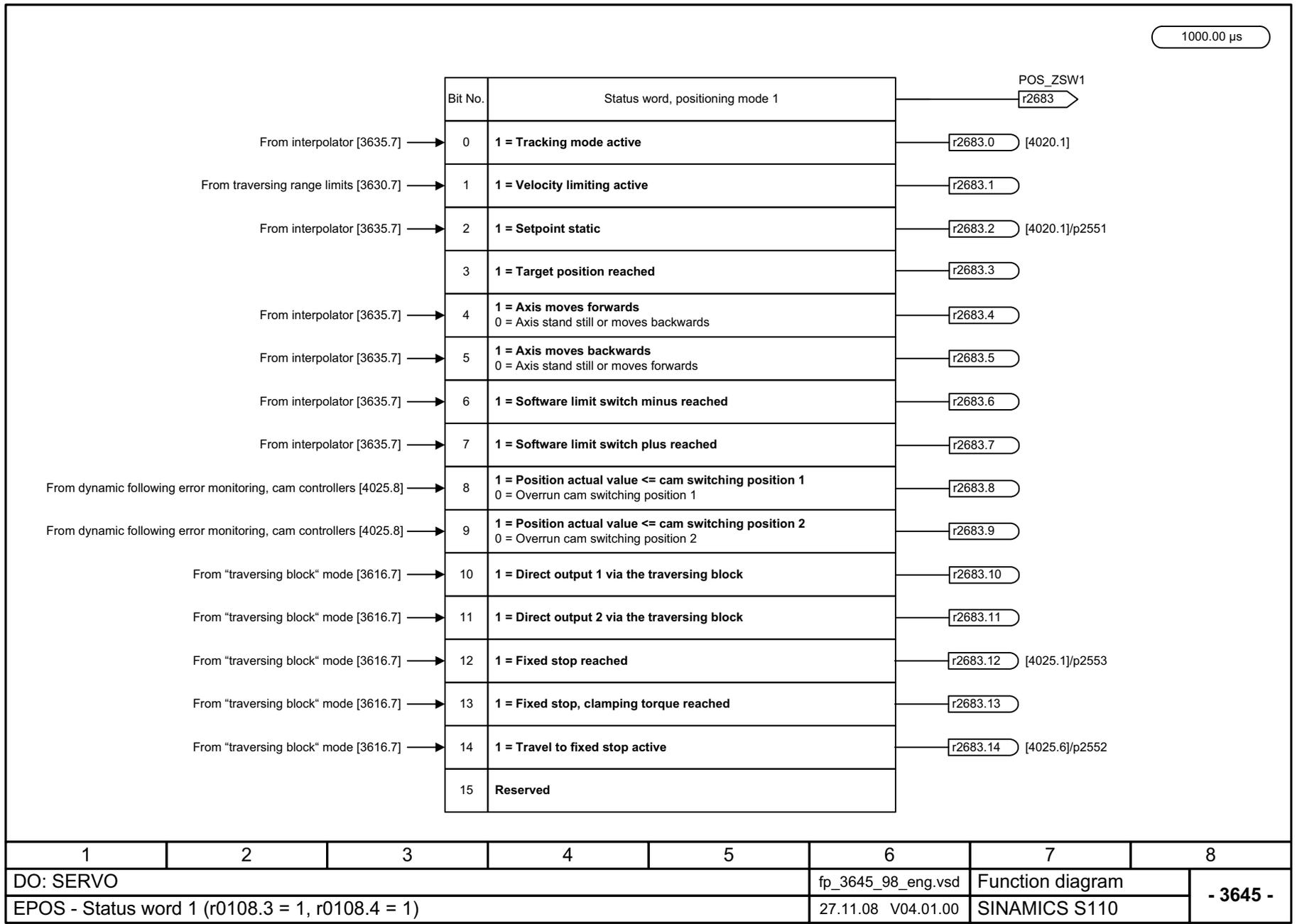
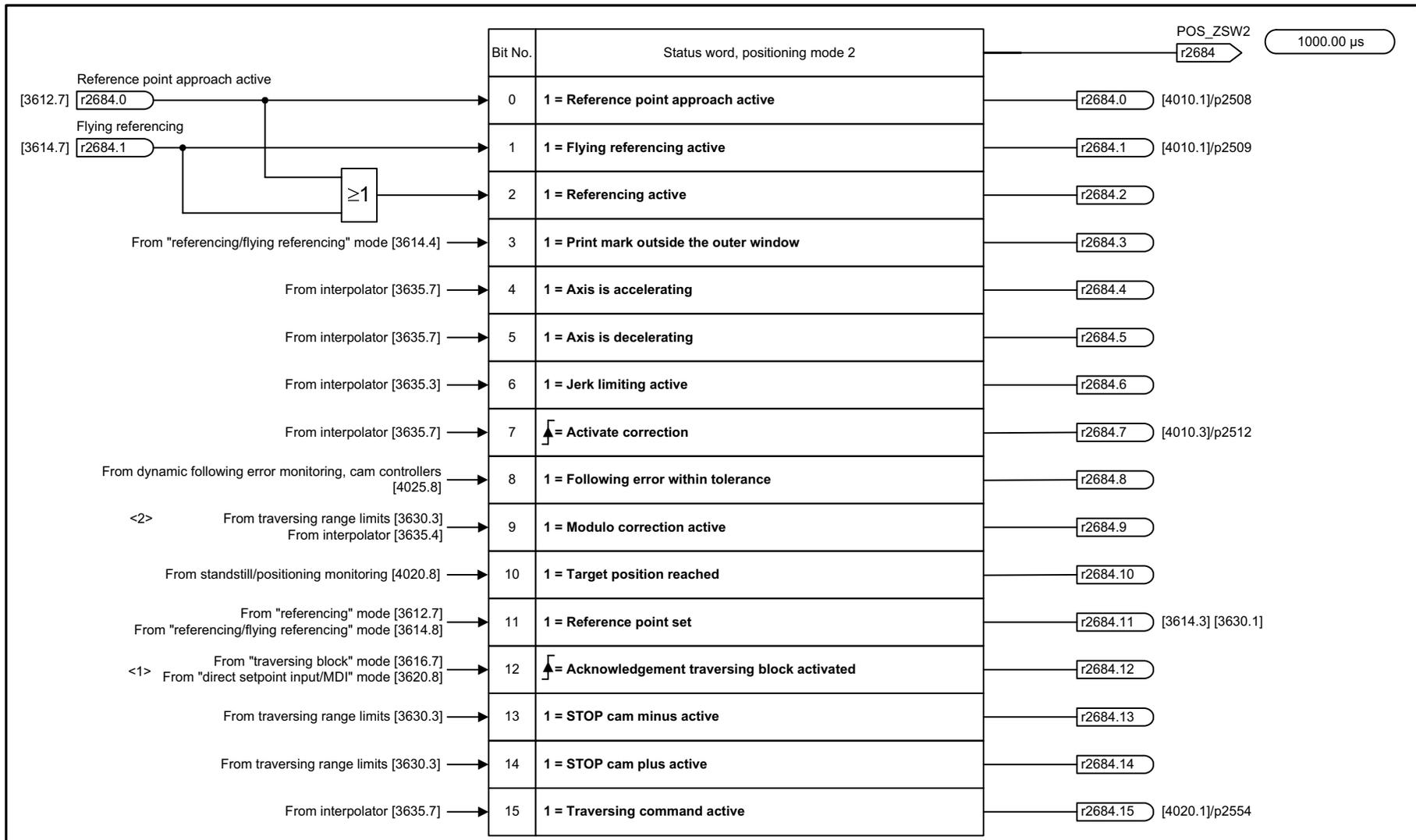


Figure 2-108 3645 – Status word 1 (r0108.3 = 1, r0108.4 = 1)

1	2	3	4	5	6	7	8
DO: SERVO					fp_3645_98_eng.vsd	Function diagram	
EPOS - Status word 1 (r0108.3 = 1, r0108.4 = 1)					27.11.08 V04.01.00	SINAMICS S110	
							- 3645 -



<1> By default, the status bit is supplied with values from the "traversing block" mode. However, if the "direct setpoint input/MDI" mode is active, it is supplied with values from this mode.
<2> The signal is only effective when the drive has reached the "Ready" state.

1	2	3	4	5	6	7	8
DO: SERVO					fp_3646_98_eng.vsd	Function diagram	
EPOS - Status word 2 (r0108.3 = 1, r0108.4 = 1)					07.10.08 V04.01.00	SINAMICS S110	
							- 3646 -

Figure 2-109 3646 – Status word 2 (r0108.3 = 1, r0108.4 = 1)

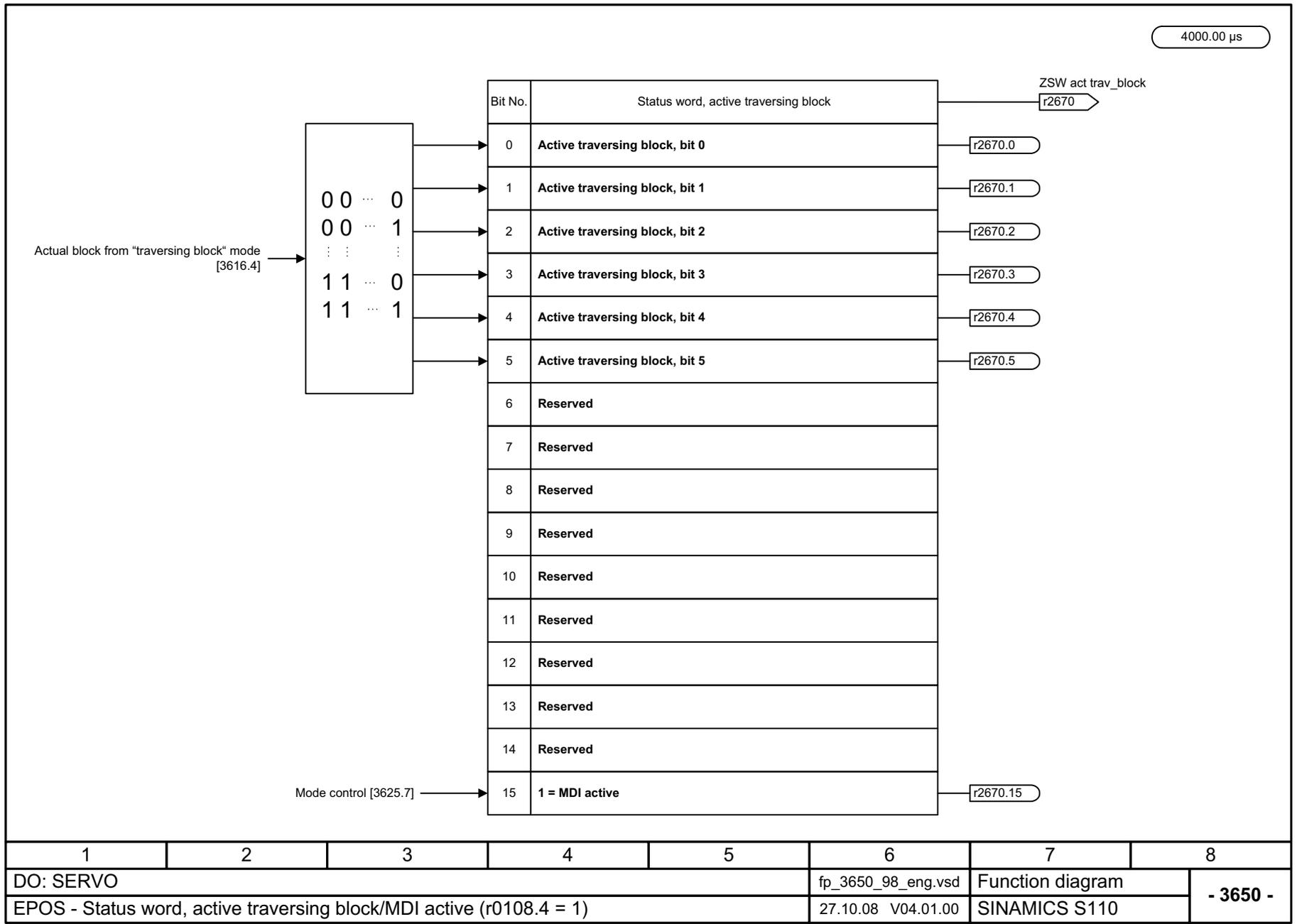


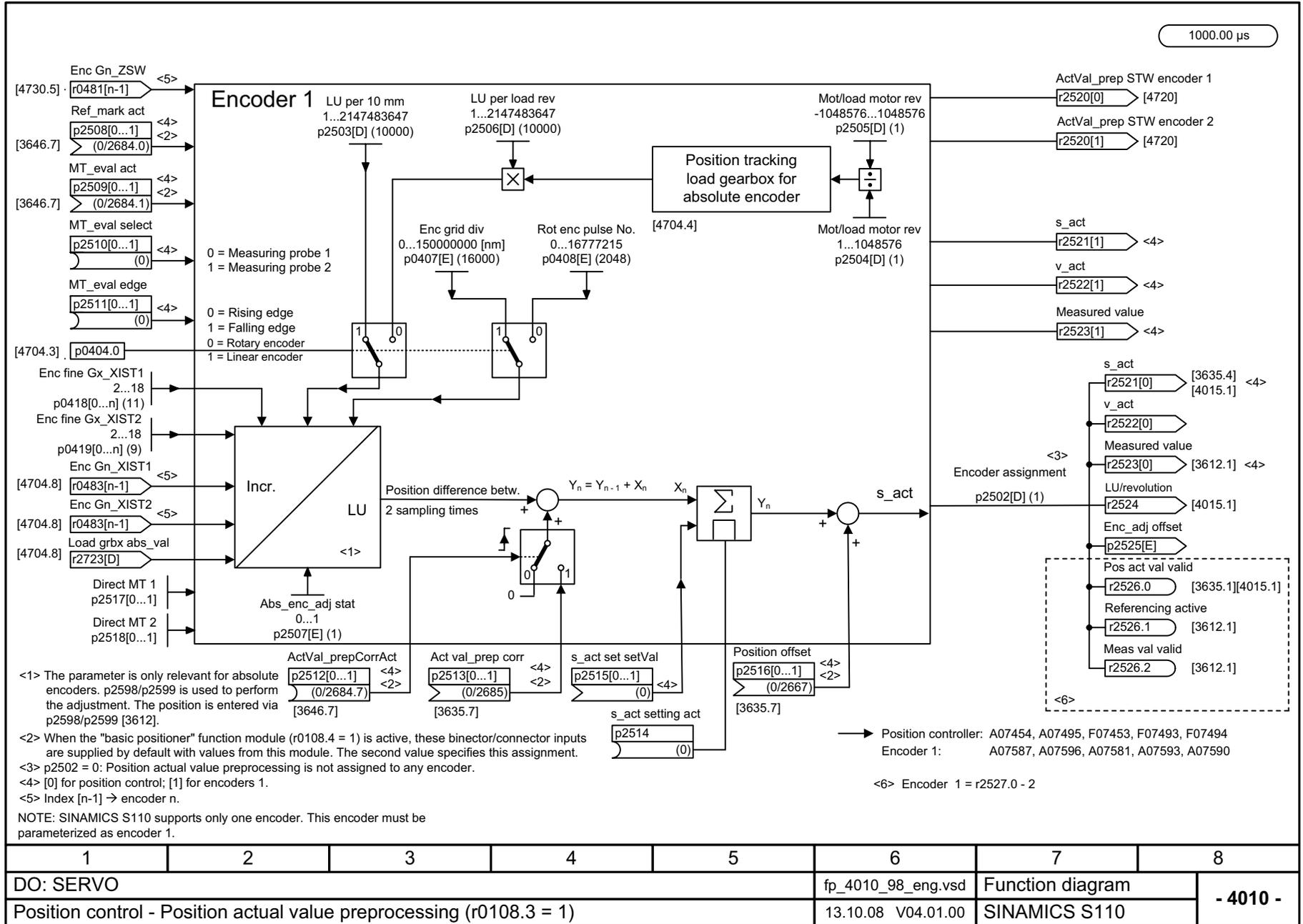
Figure 2-110 3650 – Status word active traversing block/MDI active (r0108.4 = 1)

2.13 Closed-loop position control

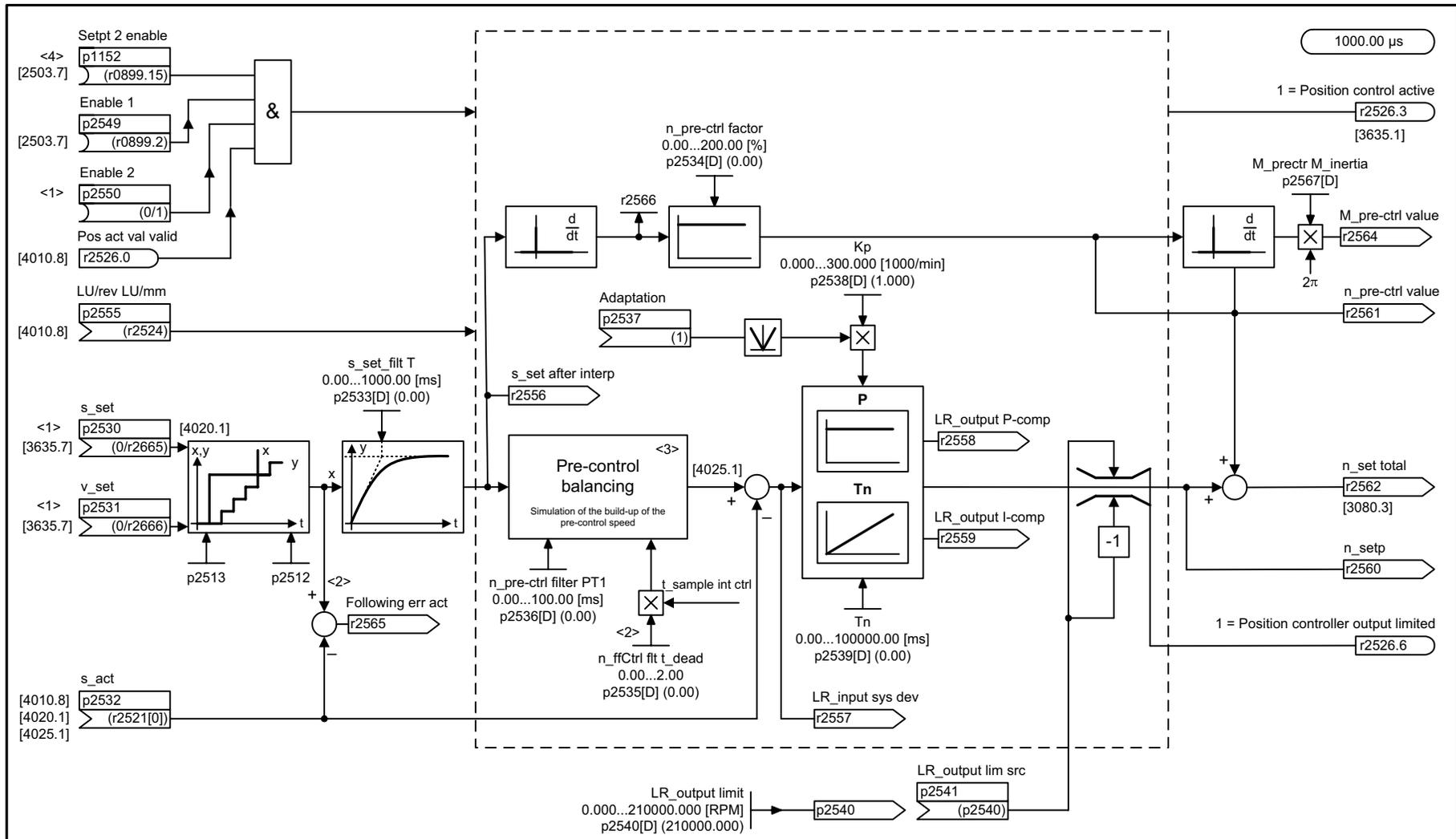
Function diagrams

4010 – Position actual value preprocessing (r0108.3 = 1)	2-739
4015 – Position controller (r0108.3 = 1)	2-740
4020 – Standstill/positioning monitoring (r0108.3 = 1)	2-741
4025 – Dynamic following error monitoring, cam controllers (r0108.3 = 1)	2-742

Figure 2-111 4010 – Position actual value preprocessing (r0108.3 = 1)



1	2	3	4	5	6	7	8
DO: SERVO					fp_4010_98_eng.vsd	Function diagram	
Position control - Position actual value preprocessing (r0108.3 = 1)					13.10.08 V04.01.00	SINAMICS S110	
							- 4010 -

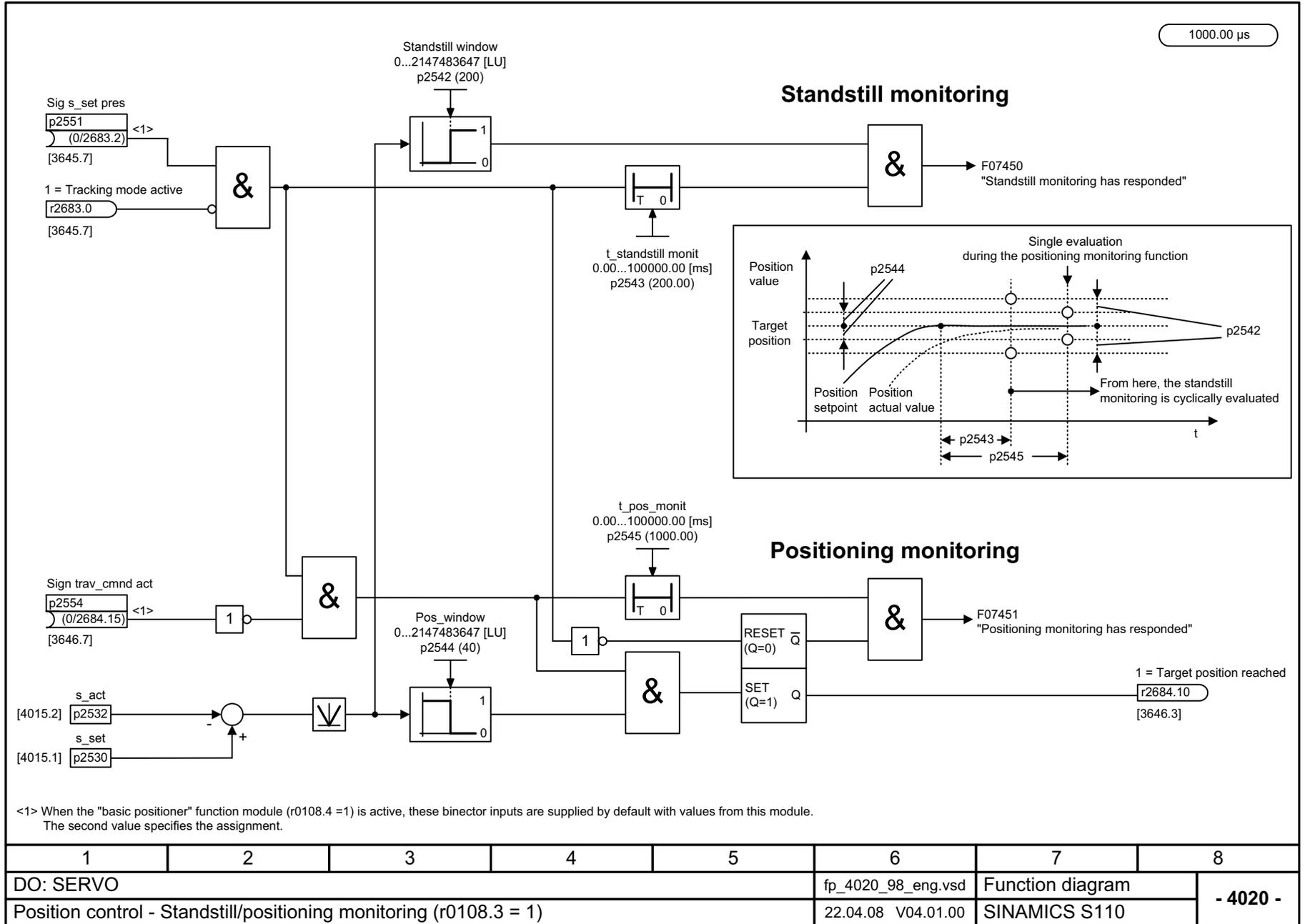


<1> When the "basic positioner" function module (r0108.4 = 1) is active, these binector/connector inputs are supplied by default with values from this module.
The second value specifies this assignment.
<2> For p2534 > 0 % the following applies: A deadtime of two position controller clock cycles is additionally effective.
<3> For p2534 = 0 % the following applies: Pre-control balancing is not effective.
<4> Only if the "extended brake control" function module is active (r0108.14 = 1).

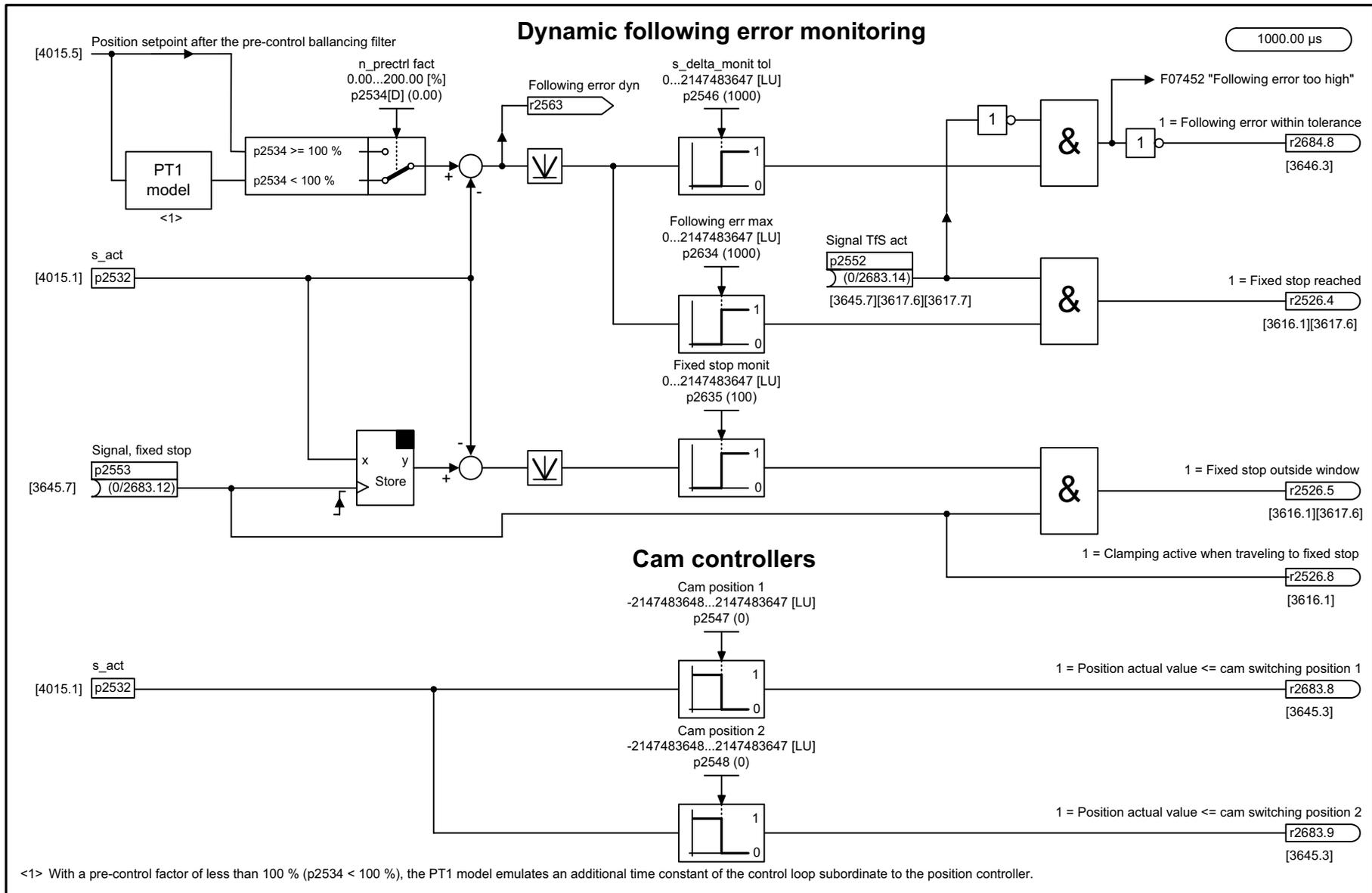
1	2	3	4	5	6	7	8
DO: SERVO					fp_4015_98_eng.vsd	Function diagram	
Position control - Position controller (r0108.3 = 1)					27.06.08 V04.01.00	SINAMICS S110	
							- 4015 -

Figure 2-112 4015 – Position controller (r0108.3 = 1)

Figure 2-113 4020 – Standstill/positioning monitoring (r0108.3 = 1)



1	2	3	4	5	6	7	8
DO: SERVO					fp_4020_98_eng.vsd	Function diagram	
Position control - Standstill/positioning monitoring (r0108.3 = 1)					22.04.08 V04.01.00	SINAMICS S110	
							- 4020 -



<1> With a pre-control factor of less than 100 % (p2534 < 100 %), the PT1 model emulates an additional time constant of the control loop subordinate to the position controller.

1	2	3	4	5	6	7	8
DO: SERVO					fp_4025_98_eng.vsd	Function diagram	
Position control - Dynamic following error monitoring, cam controllers (r0108.3 = 1)					22.04.08 V04.01.00	SINAMICS S110	
							- 4025 -

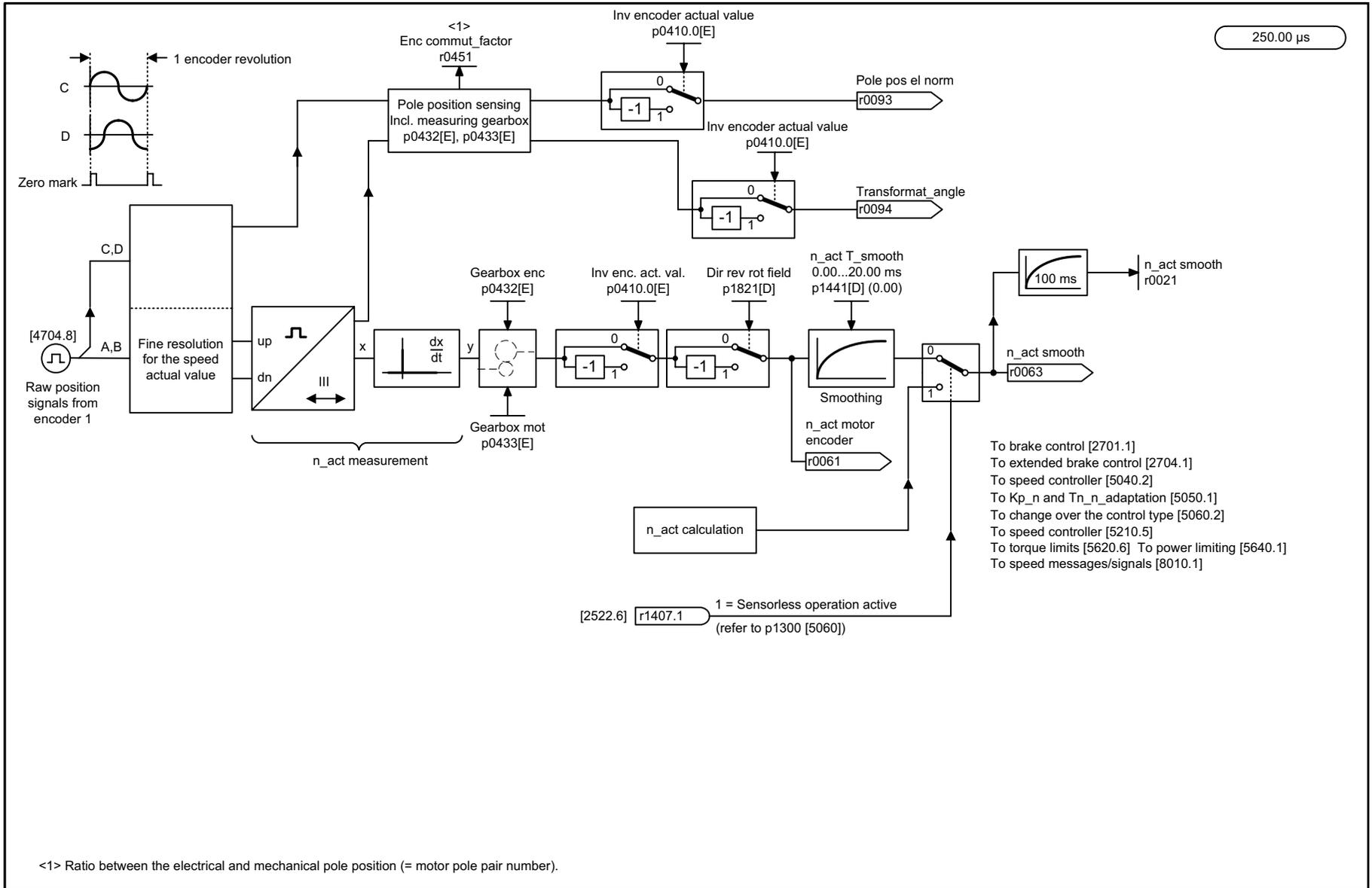
Figure 2-114 4025 – Dynamic following error monitoring; cam controllers (r0108.3 = 1)

2.14 Encoder evaluation

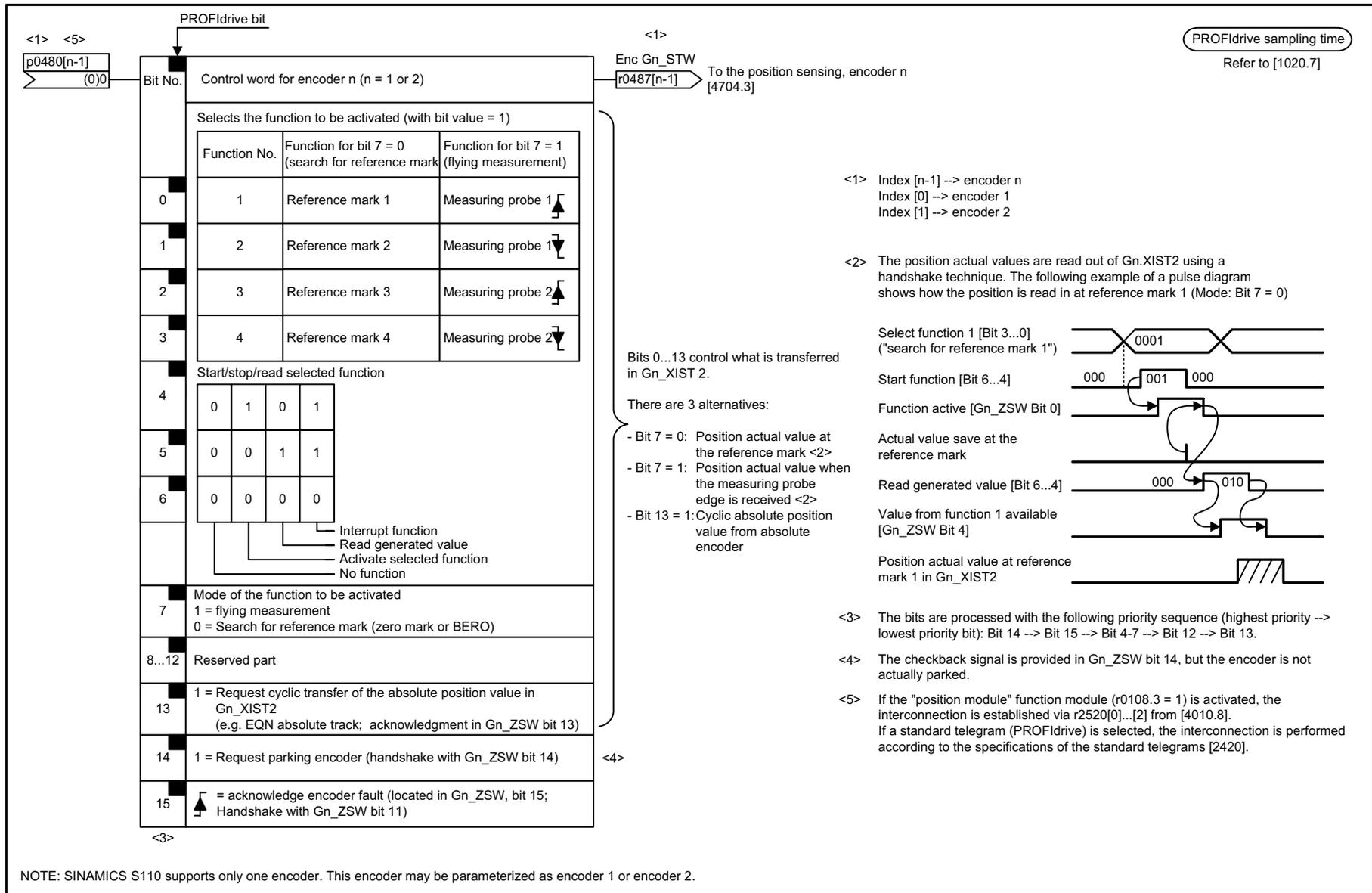
Function diagrams

4704 – Position and temperature measurement, encoder 1 ... 2	2-744
4710 – Actual speed value and rotor position measurement, motor encoder (encoder 1)	2-745
4720 – Encoder interface, receive signals, encoder 1 ... 2	2-746
4730 – Encoder interface, send signals, encoder 1 ... 2	2-747
4735 – Reference mark search with equivalent zero mark, encoder 1	2-748

Figure 2-116 4710 – Actual speed value and rotor position measurement, motor encoder (encoder 1)



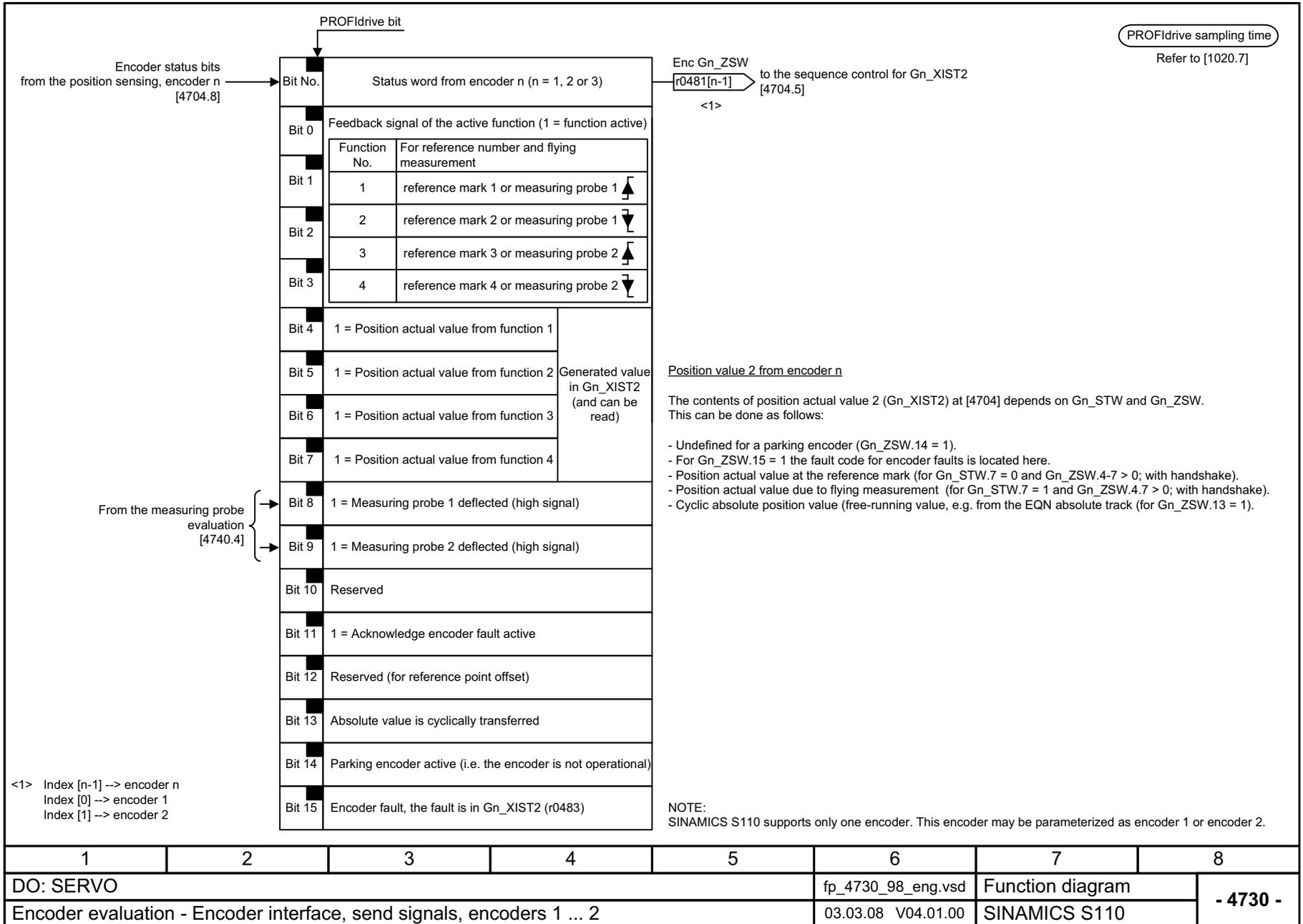
1	2	3	4	5	6	7	8
DO: SERVO					fp_4710_98_eng.vsd	Function diagram	
Encoder evaluation - Speed actual value and pole pos. sensing, motor encoder (encoder 1)					27.06.08 V04.01.00	SINAMICS S110	
							- 4710 -

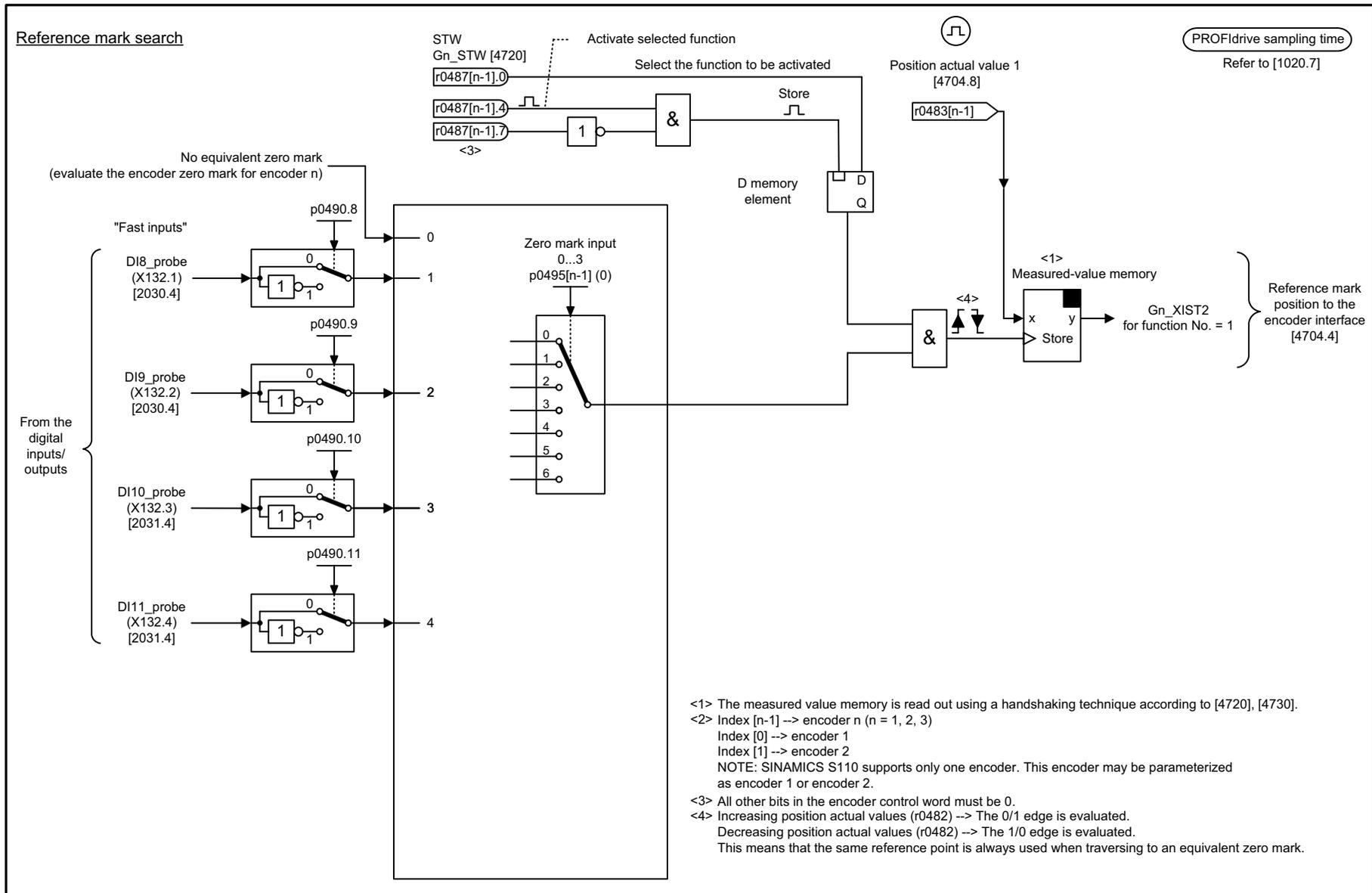


1	2	3	4	5	6	7	8
DO: SERVO					fp_4720_98_eng.vsd	Function diagram	
Encoder evaluation - Encoder interface, receive signals, encoders 1 ... 2					03.03.08 V04.01.00	SINAMICS S110	
							- 4720 -

Figure 2-117 4720 – Encoder interface, receive signals, encoder 1 ... 2

Figure 2-118 4730 – Encoder interface, send signals, encoder 1 ... 2



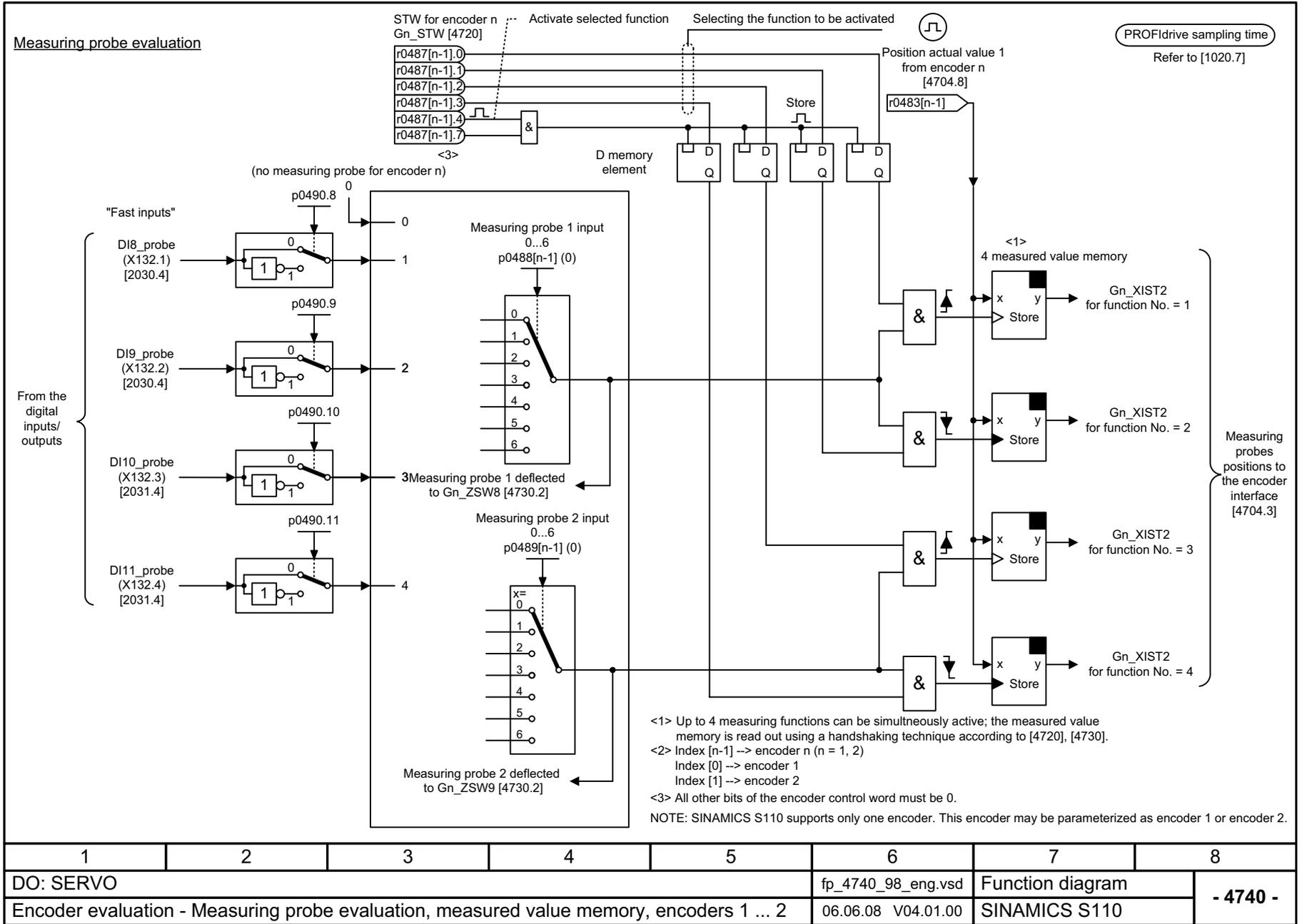


<1> The measured value memory is read out using a handshaking technique according to [4720], [4730].
 <2> Index [n-1] --> encoder n (n = 1, 2, 3)
 Index [0] --> encoder 1
 Index [1] --> encoder 2
 NOTE: SINAMICS S110 supports only one encoder. This encoder may be parameterized as encoder 1 or encoder 2.
 <3> All other bits in the encoder control word must be 0.
 <4> Increasing position actual values (r0482) --> The 0/1 edge is evaluated.
 Decreasing position actual values (r0482) --> The 1/0 edge is evaluated.
 This means that the same reference point is always used when traversing to an equivalent zero mark.

1	2	3	4	5	6	7	8
DO: SERVO					fp_4735_98_eng.vsd	Function diagram	
Encoder evaluation - Reference mark search with equivalent zero mark, encoder 1					06.06.08 V04.01.00	SINAMICS S110	
							- 4735 -

Figure 2-119 4735 – Reference mark search with equivalent zero mark; encoder 1

Figure 2-120 4740 – Measuring Input evaluation, measured value memory, encoder 1 ... 2

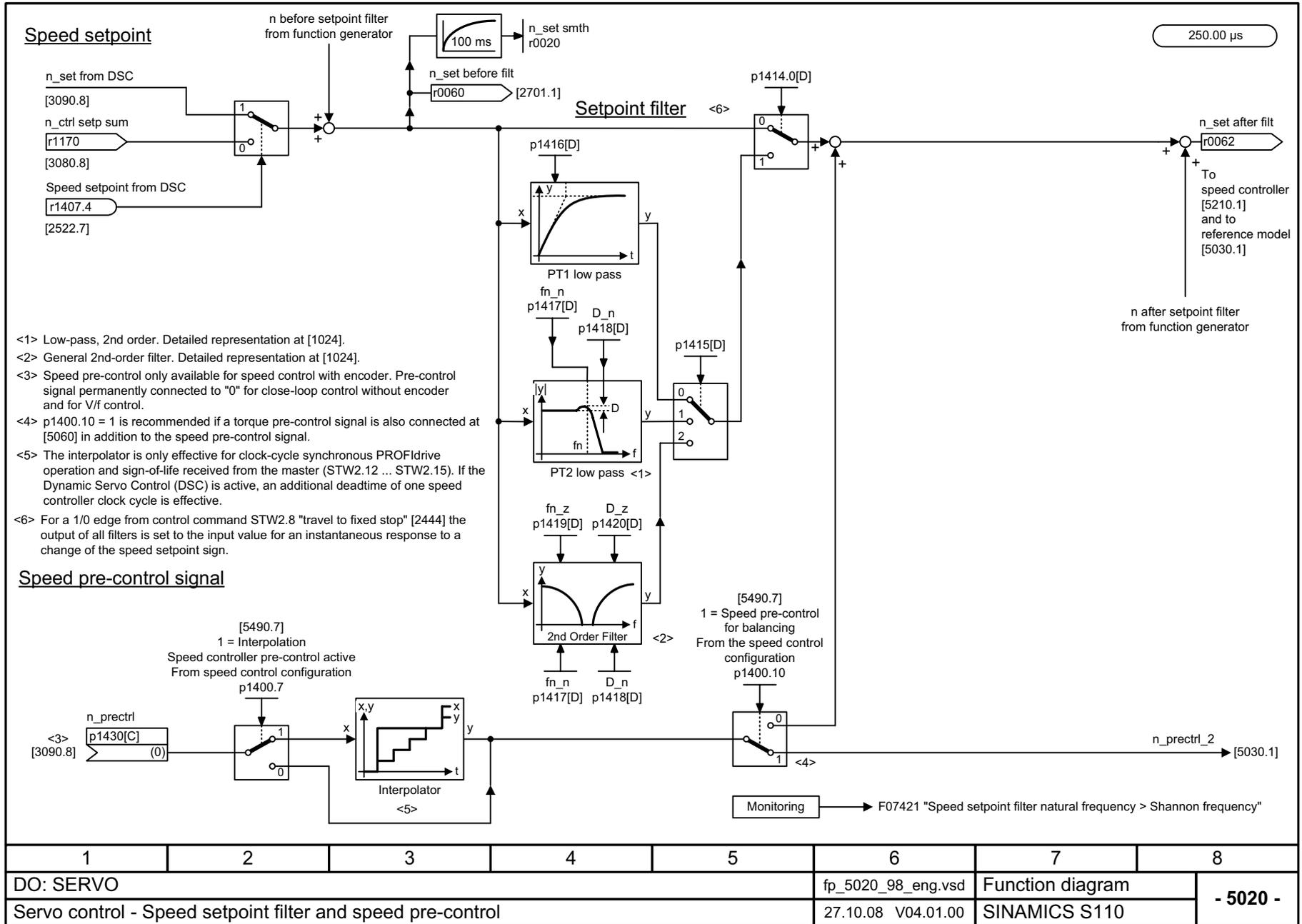


2.15 Servo control

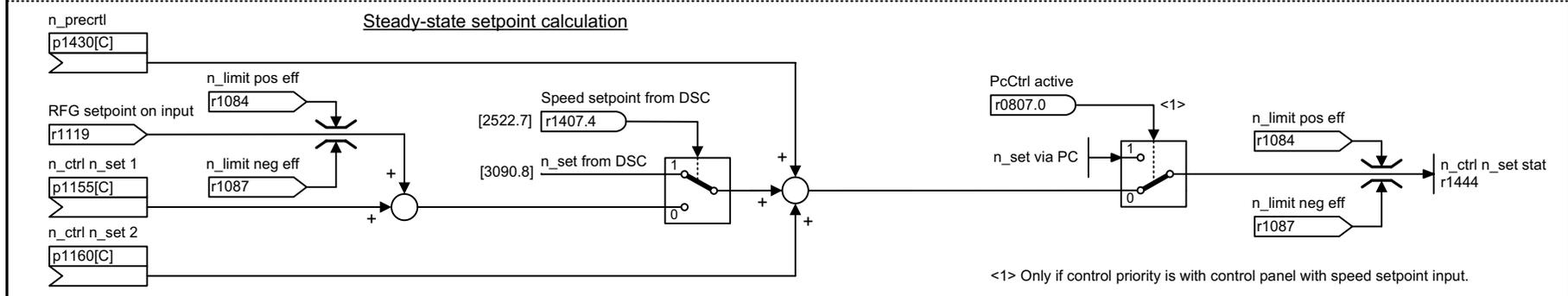
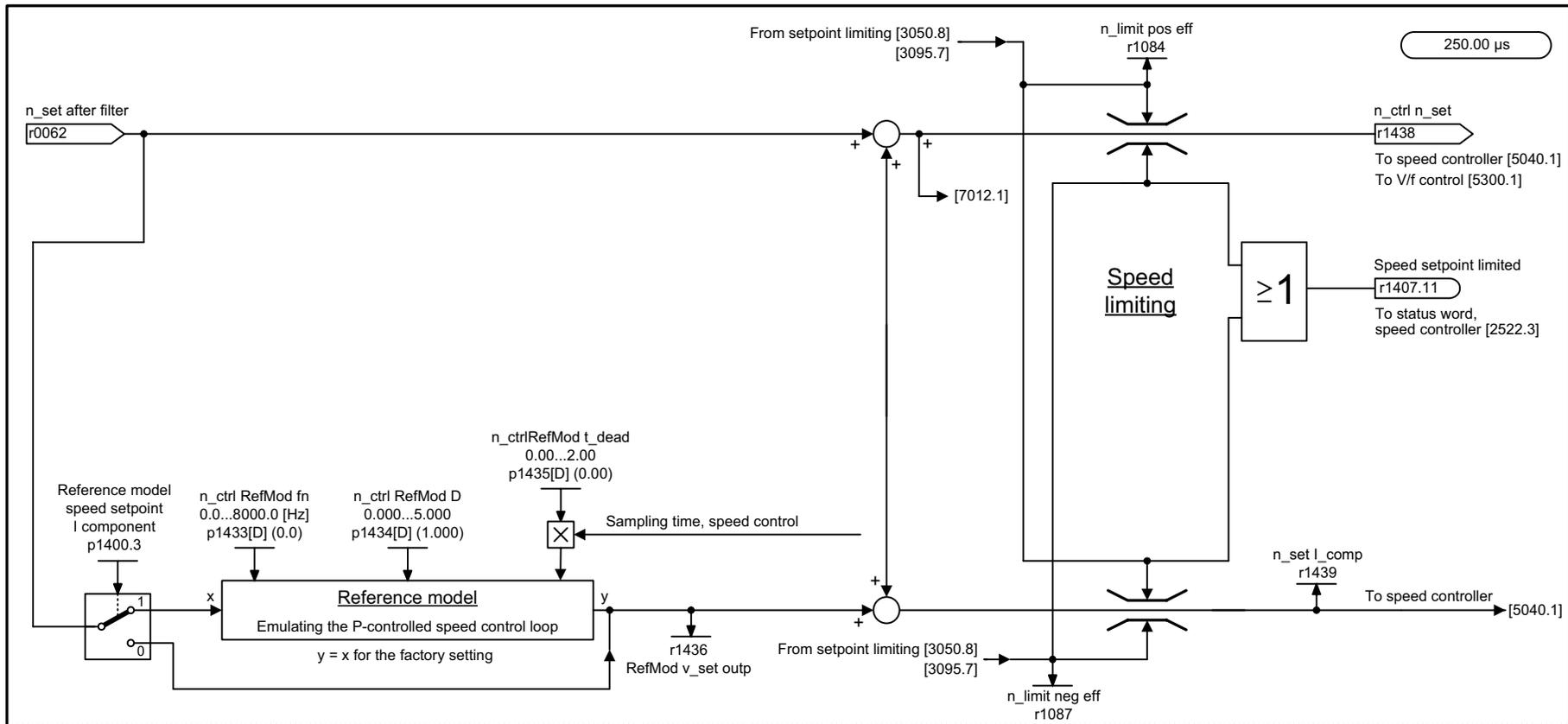
Function diagrams

5020 – Speed setpoint filter and speed pre-control	2-751
5030 – Reference model/pre-control balancing/speed limiting	2-752
5040 – Speed controller with encoder	2-753
5042 – Speed controller, torque-speed pre-control with encoder (p1402.4 = 1)	2-754
5050 – Kp_n-/Tn_n adaptation	2-755
5060 – Torque setpoint, control type switchover	2-756
5210 – Speed controller without encoder	2-757
5300 – V/f control for diagnostics	2-758
5301 – Variable signaling function	2-759
5490 – Speed control configuration	2-760
5610 – Torque limiting/reduction/interpolator	2-761
5620 – Motor/generator torque limit	2-762
5630 – Upper/lower torque limit	2-763
5640 – Mode changeover, power/current limiting	2-764
5650 – Vdc_max controller and Vdc_min controller	2-765
5710 – Current setpoint filter	2-766
5714 – Iq and Id controller	2-767
5722 – Field current / flux specification, flux reduction, flux controller	2-768
5730 – Interface to the Motor Module (gating signals, current actual values)	2-769

Figure 2-121 5020 – Speed setpoint filter and speed pre-control



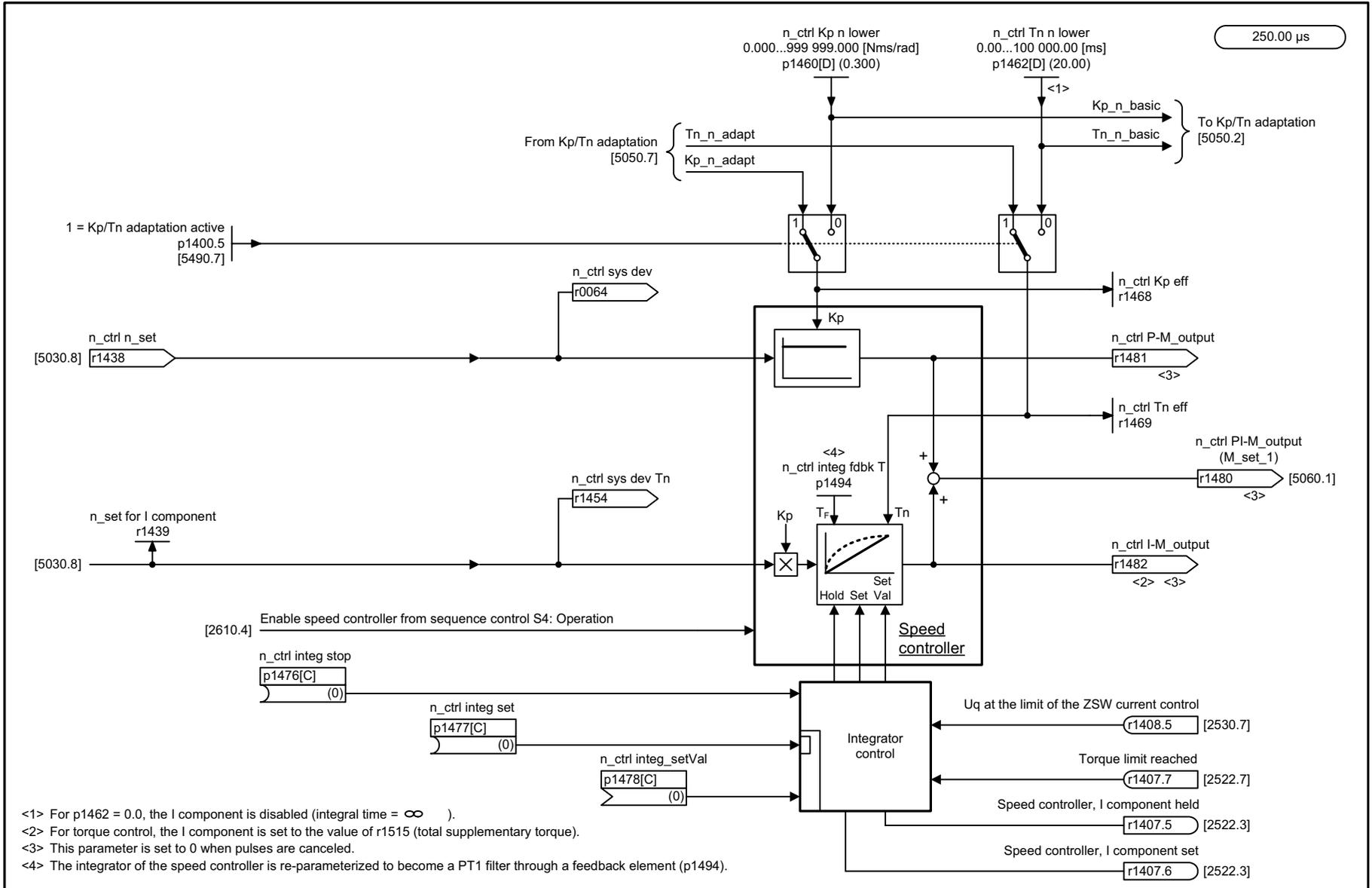
1	2	3	4	5	6	7	8
DO: SERVO					fp_5020_98_eng.vsd	Function diagram	
Servo control - Speed setpoint filter and speed pre-control					27.10.08 V04.01.00	SINAMICS S110	
							- 5020 -



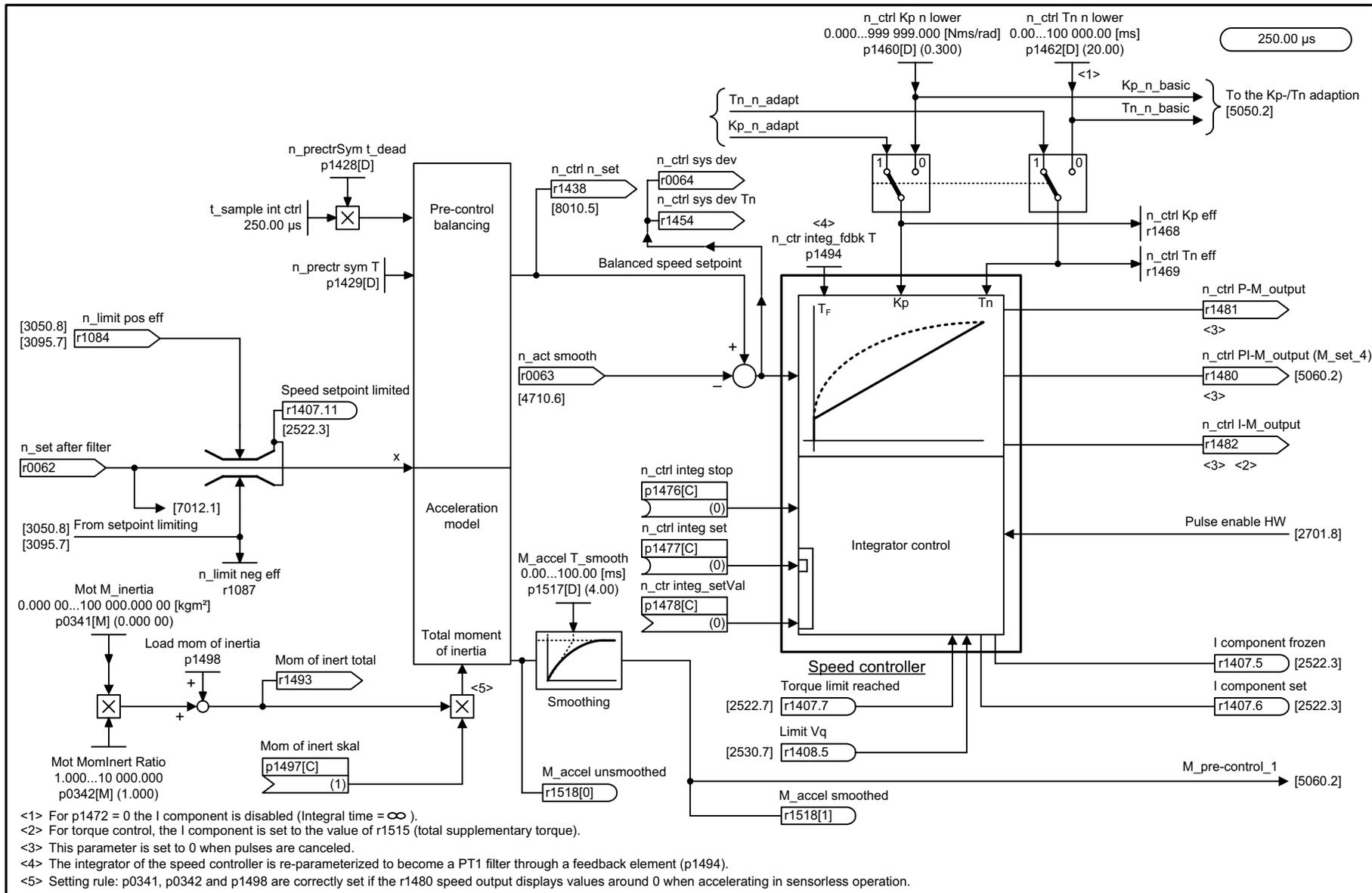
1	2	3	4	5	6	7	8
DO: SERVO					fp_5030_98_eng.vsd	Function diagram	
Servo control - Reference model/pre-control balancing/speed limitation					20.11.08 V04.01.00	SINAMICS S110	
- 5030 -							

Figure 2-122 5030 – Reference model/pre-control balancing/speed limiting

Figure 2-123 5040 – Speed controller with encoder



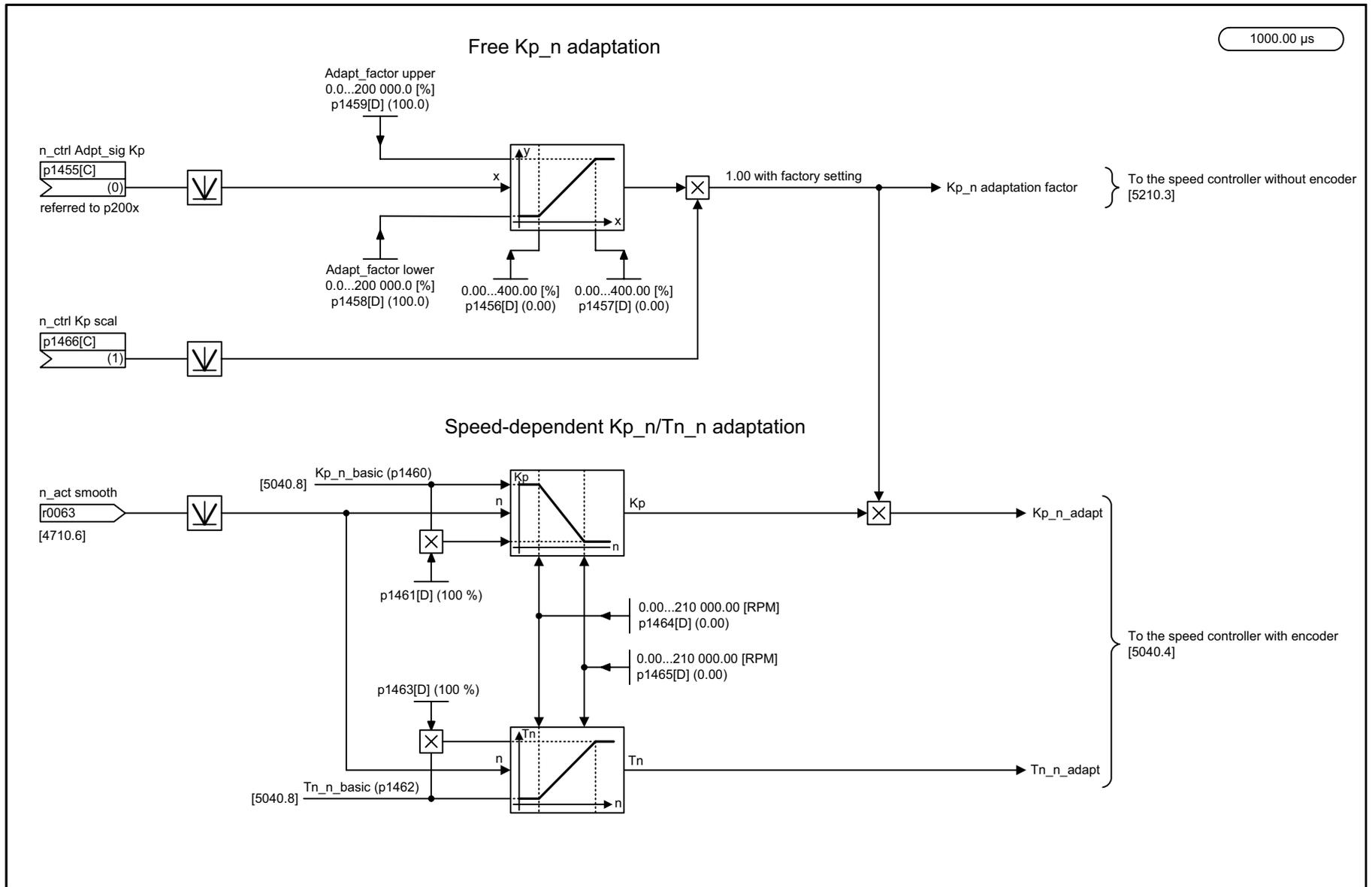
1	2	3	4	5	6	7	8
DO: SERVO					fp_5040_98_eng.vsd	Function diagram	
Servo control - Speed controller with encoder					27.10.08 V04.01.00	SINAMICS S110	
							- 5040 -



<1> For p1472 = 0 the I component is disabled (Integral time = ∞).
 <2> For torque control, the I component is set to the value of r1515 (total supplementary torque).
 <3> This parameter is set to 0 when pulses are canceled.
 <4> The integrator of the speed controller is re-parameterized to become a PT1 filter through a feedback element (p1494).
 <5> Setting rule: p0341, p0342 and p1498 are correctly set if the r1480 speed output displays values around 0 when accelerating in sensorless operation.

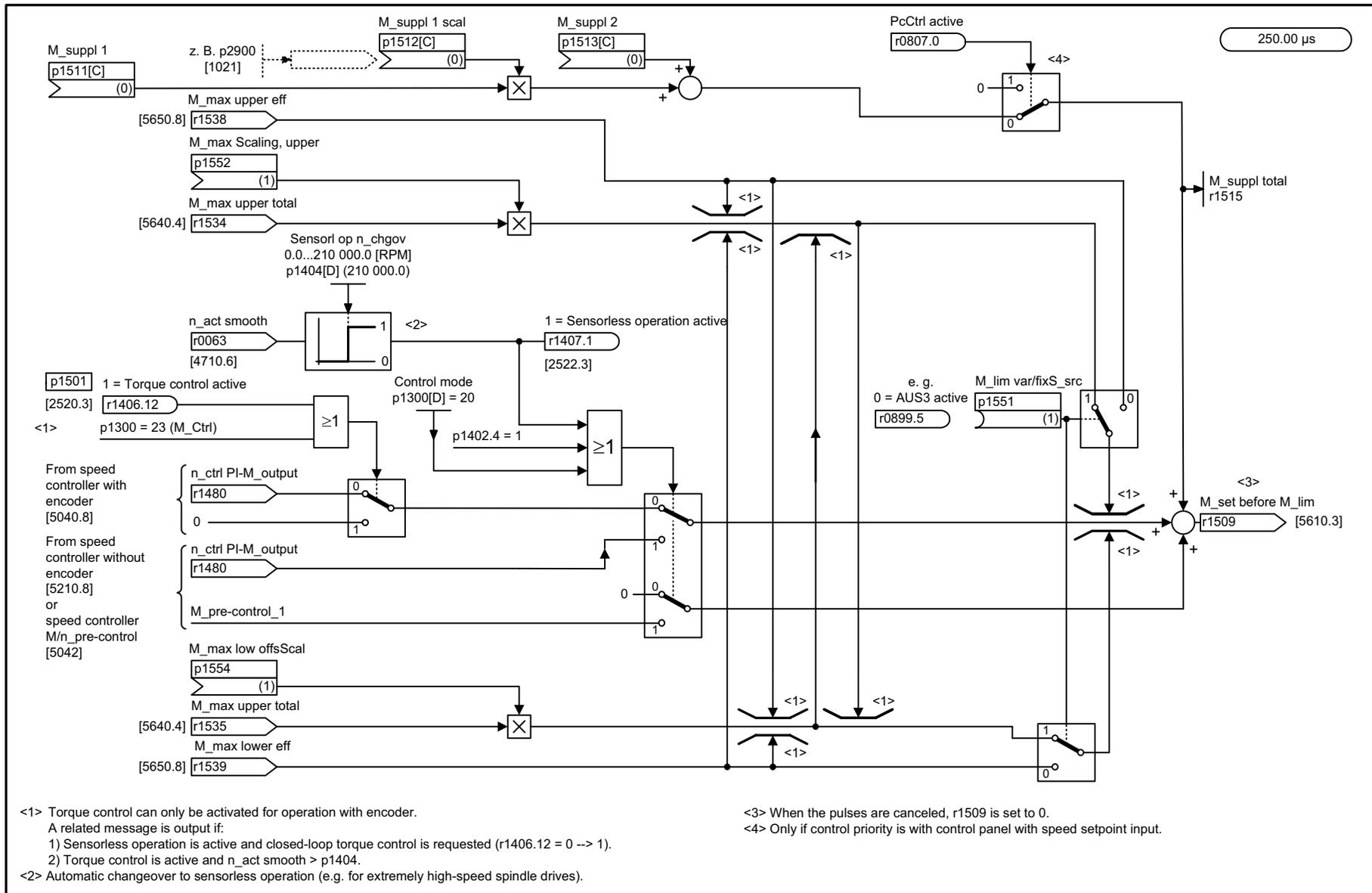
1	2	3	4	5	6	7	8
DO: SERVO					fp_5042_98_eng.vsd	Function diagram	
Servo control - Speed controller, M/n pre-control with encoder (p1402.4 = 1)					12.11.08 V04.01.00	SINAMICS S110	
							- 5042 -

Figure 2-124 5042 – Speed controller, torque-speed pre-control with encoder (p1402.4 = 1)



1	2	3	4	5	6	7	8
DO: SERVO					fp_5050_98_eng.vsd	Function diagram	
Servo control - Kp_n/Tn_n adaptation					15.05.07 V04.01.00	SINAMICS S110	
							- 5050 -

Figure 2-125 5050 – Kp_n-/Tn_n adaptation

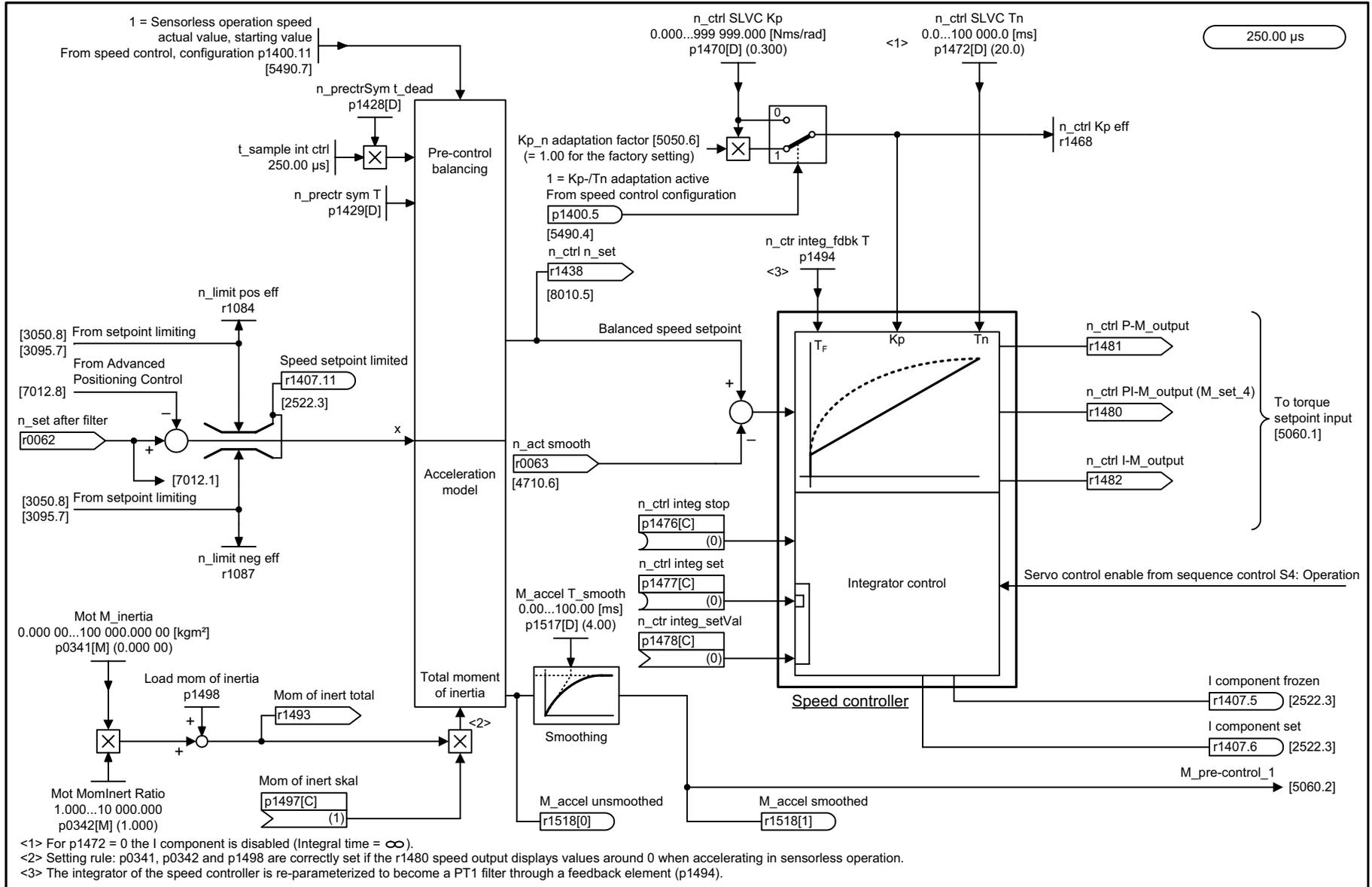


<1> Torque control can only be activated for operation with encoder.
 A related message is output if:
 1) Sensorless operation is active and closed-loop torque control is requested (r1406.12 = 0 --> 1).
 2) Torque control is active and n_act smooth > p1404.
 <2> Automatic changeover to sensorless operation (e.g. for extremely high-speed spindle drives).
 <3> When the pulses are canceled, r1509 is set to 0.
 <4> Only if control priority is with control panel with speed setpoint input.

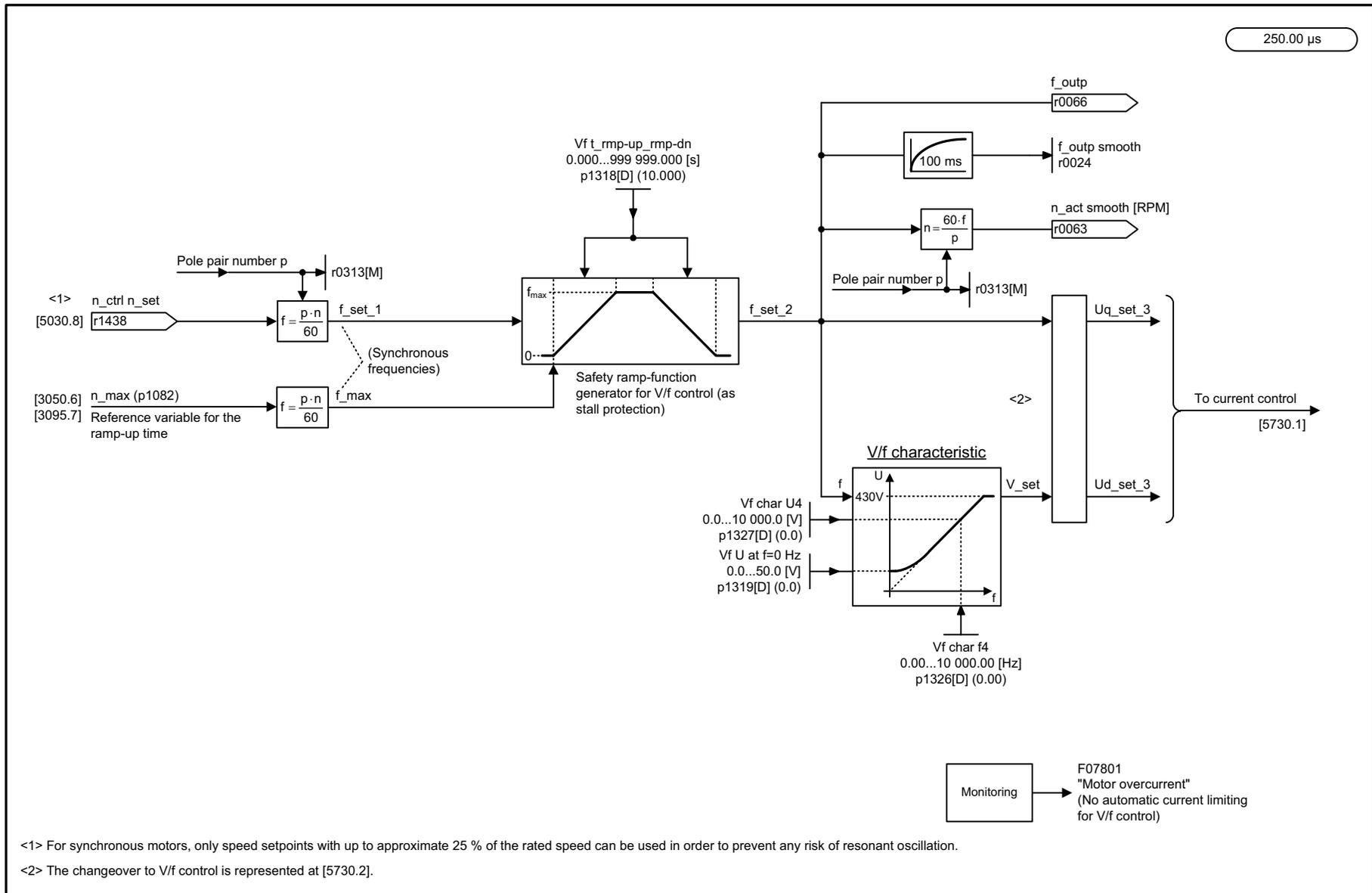
1	2	3	4	5	6	7	8
DO: SERVO					fp_5060_98_eng.vsd	Function diagram	
Servo control - Torque setpoint, control type changeover					20.11.08 V04.01.00	SINAMICS S110	
							- 5060 -

Figure 2-126 5060 – Torque setpoint, control type switchover

Figure 2-127 5210 – Speed controller without encoder



1	2	3	4	5	6	7	8
DO: SERVO					fp_5210_98_eng.vsd	Function diagram	
Servo control - Speed controller without encoder					12.11.08 V04.01.00	SINAMICS S110	
							- 5210 -



<1> For synchronous motors, only speed setpoints with up to approximate 25 % of the rated speed can be used in order to prevent any risk of resonant oscillation.
<2> The changeover to V/f control is represented at [5730.2].

1	2	3	4	5	6	7	8
DO: SERVO					fp_5300_98_eng.vsd	Function diagram	
Servo control - V/f control for diagnostics					28.10.08 V04.01.00	SINAMICS S110	
							- 5300 -

Figure 2-128 5300 – V/f control for diagnostics

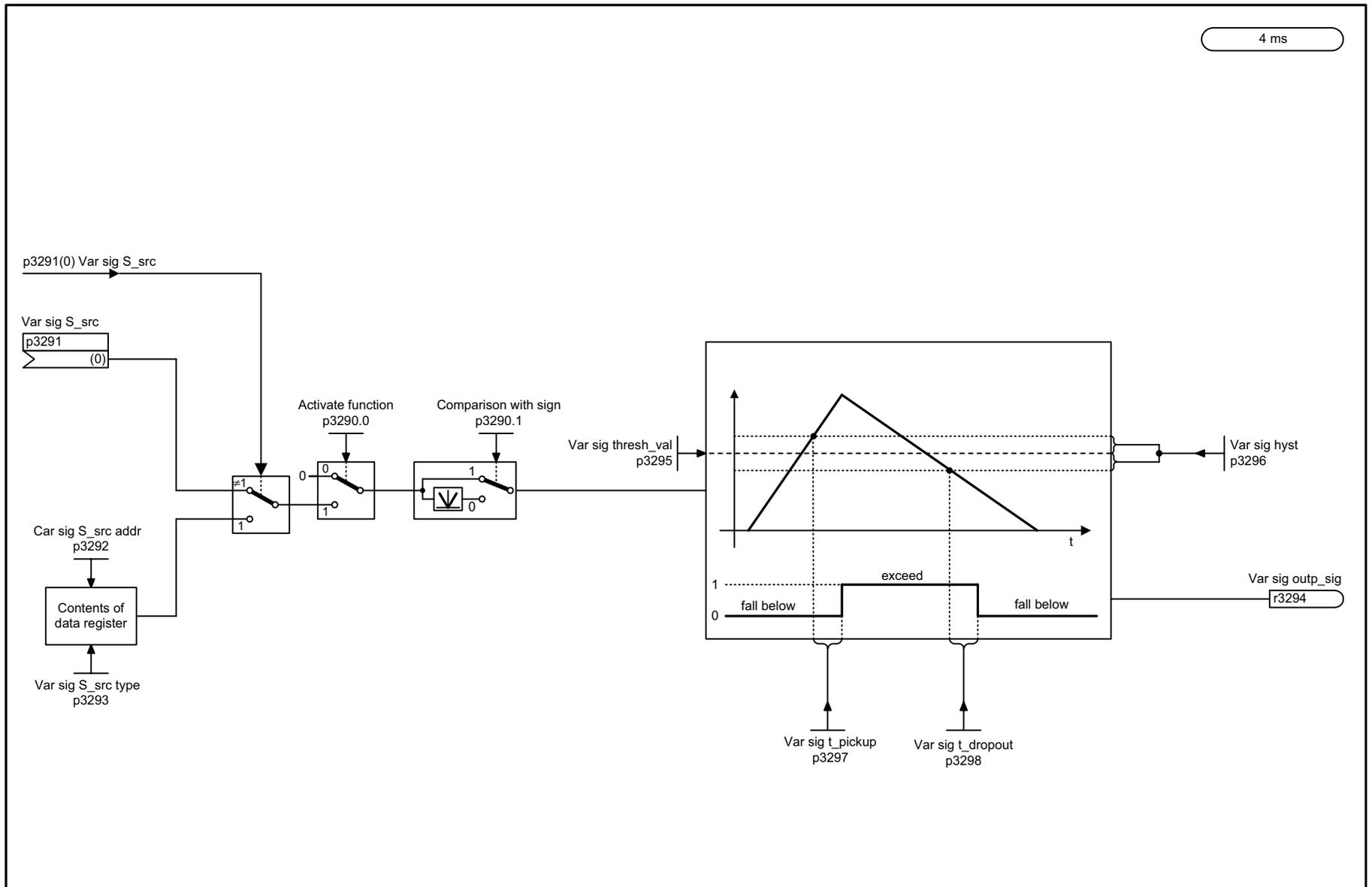


Figure 2-129 5301 – Variable signaling function

1	2	3	4	5	6	7	8
DO: SERVO					fp_5301_98_eng.vsd	Function diagram	
Servo control - Signaling function variable					21.06.08 V04.01.00	SINAMICS S120	
							- 5301 -

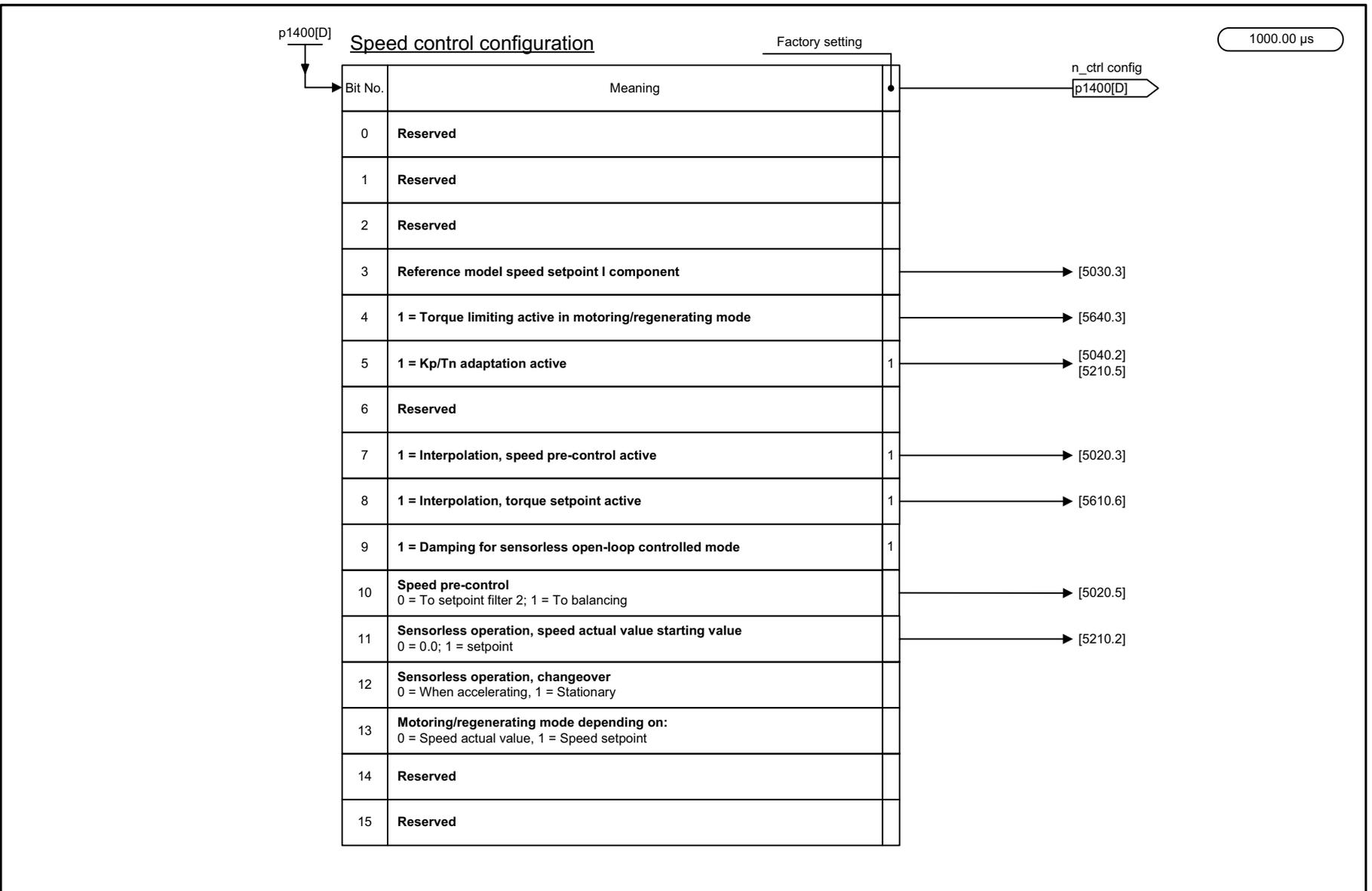
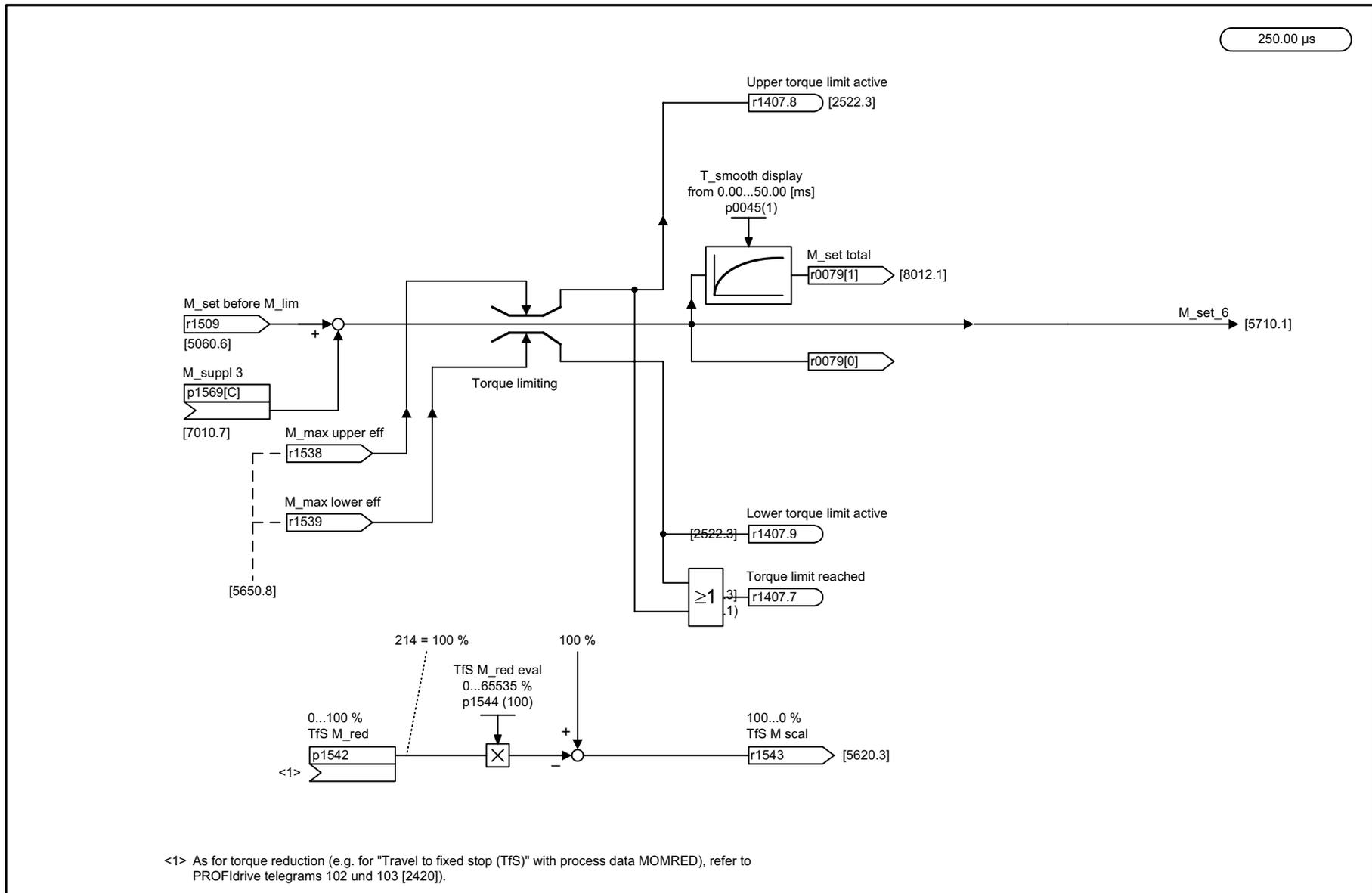


Figure 2-130 5490 – Speed control configuration

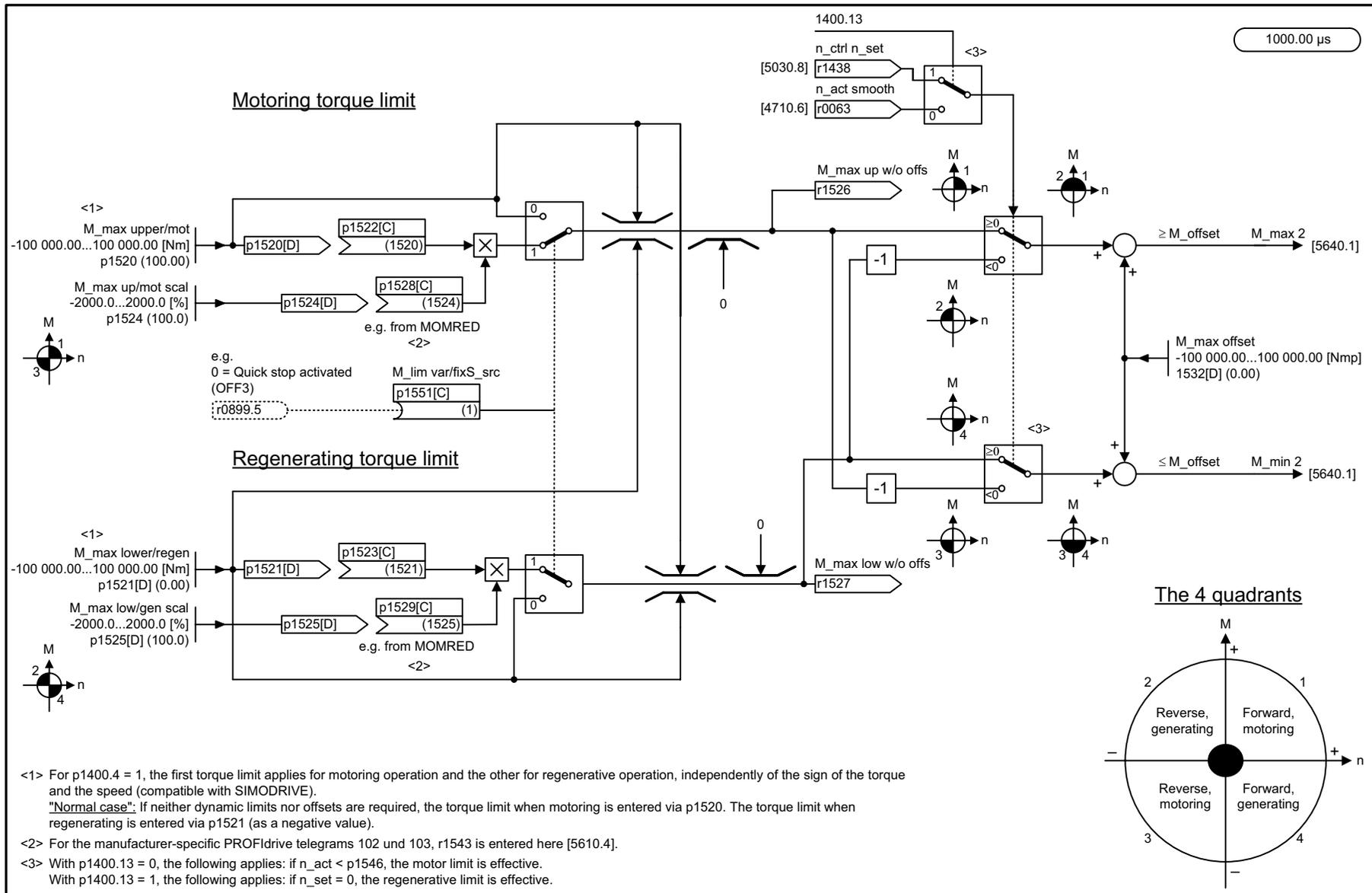
1	2	3	4	5	6	7	8
DO: SERVO					fp_5490_98_eng.vsd	Function diagram	
Servo control - Speed control configuration					27.10.08 V04.01.00	SINAMICS S110	
- 5490 -							



<1> As for torque reduction (e.g. for "Travel to fixed stop (TfS)" with process data MOMRED), refer to PROFIdrive telegrams 102 und 103 [2420].

1	2	3	4	5	6	7	8
DO: SERVO					fp_5610_98_eng.vsd	Function diagram	
Servo control - Torque limiting/reduction/interpolator					27.10.08 V04.01.00	SINAMICS S110	
							- 5610 -

Figure 2-131 5610 – Torque limiting/reduction/interpolator

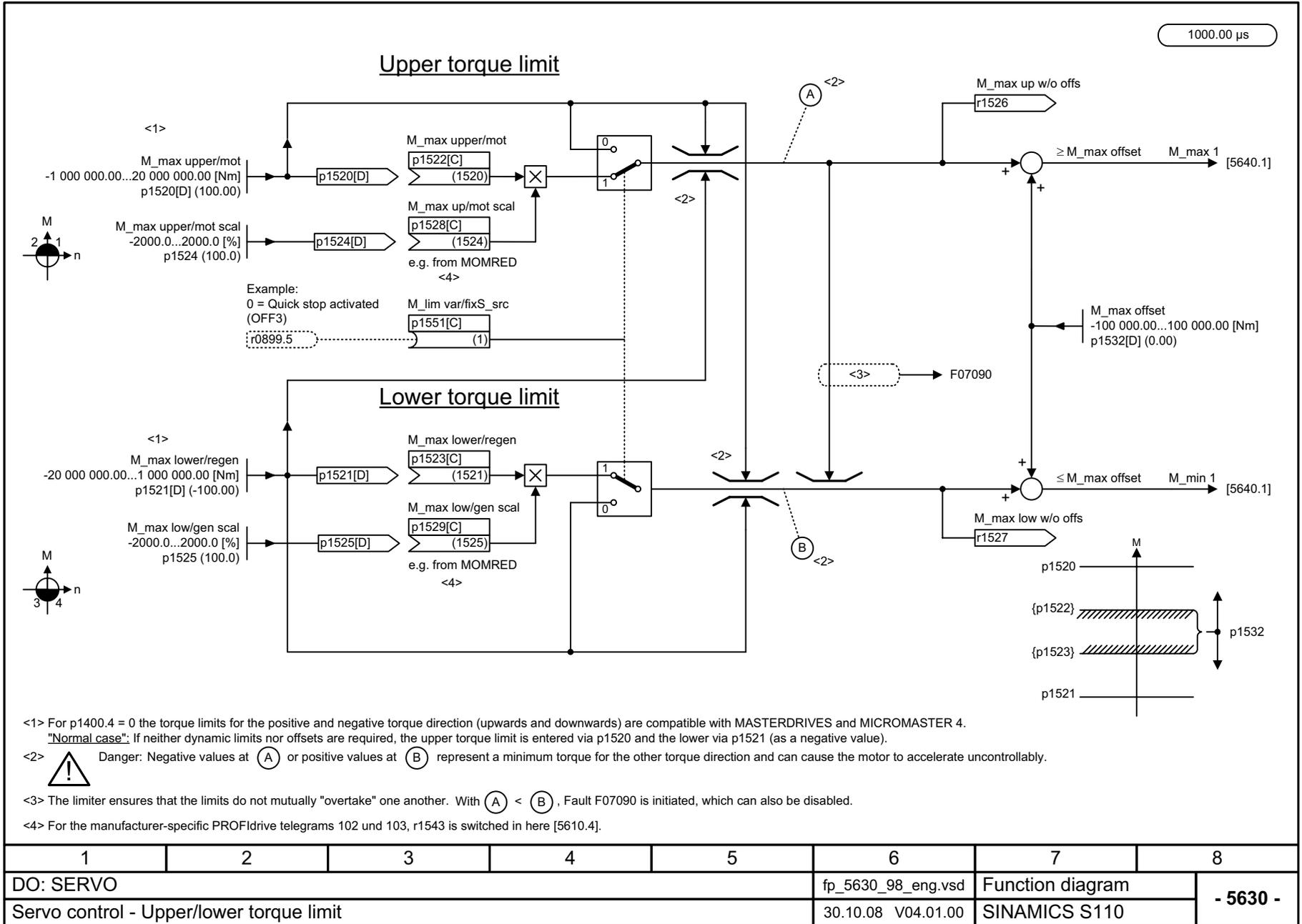


<1> For p1400.4 = 1, the first torque limit applies for motoring operation and the other for regenerative operation, independently of the sign of the torque and the speed (compatible with SIMODRIVE).
 "Normal case": If neither dynamic limits nor offsets are required, the torque limit when motoring is entered via p1520. The torque limit when regenerating is entered via p1521 (as a negative value).
 <2> For the manufacturer-specific PROFIdrive telegrams 102 und 103, r1543 is entered here [5610.4].
 <3> With p1400.13 = 0, the following applies: if n_act < p1546, the motor limit is effective.
 With p1400.13 = 1, the following applies: if n_set = 0, the regenerative limit is effective.

Figure 2-132 5620 – Motor/generator torque limit

1	2	3	4	5	6	7	8
DO: SERVO					fp_5620_98_eng.vsd	Function diagram	
Servo control - Motoring/regenerating torque limit					17.10.08 V04.01.00	SINAMICS S110	
							- 5620 -

Figure 2-133 5630 – Upper/lower torque limit



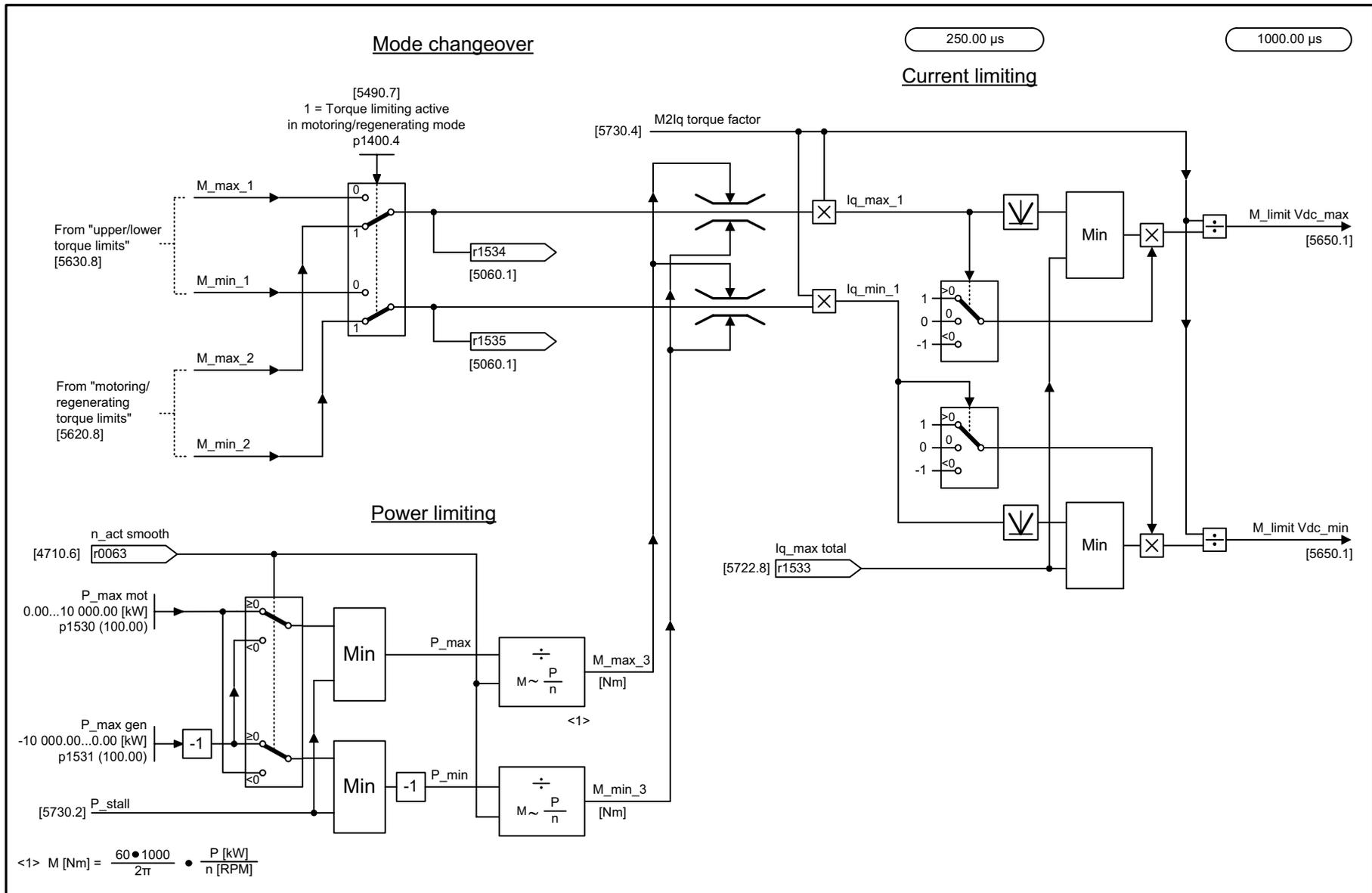
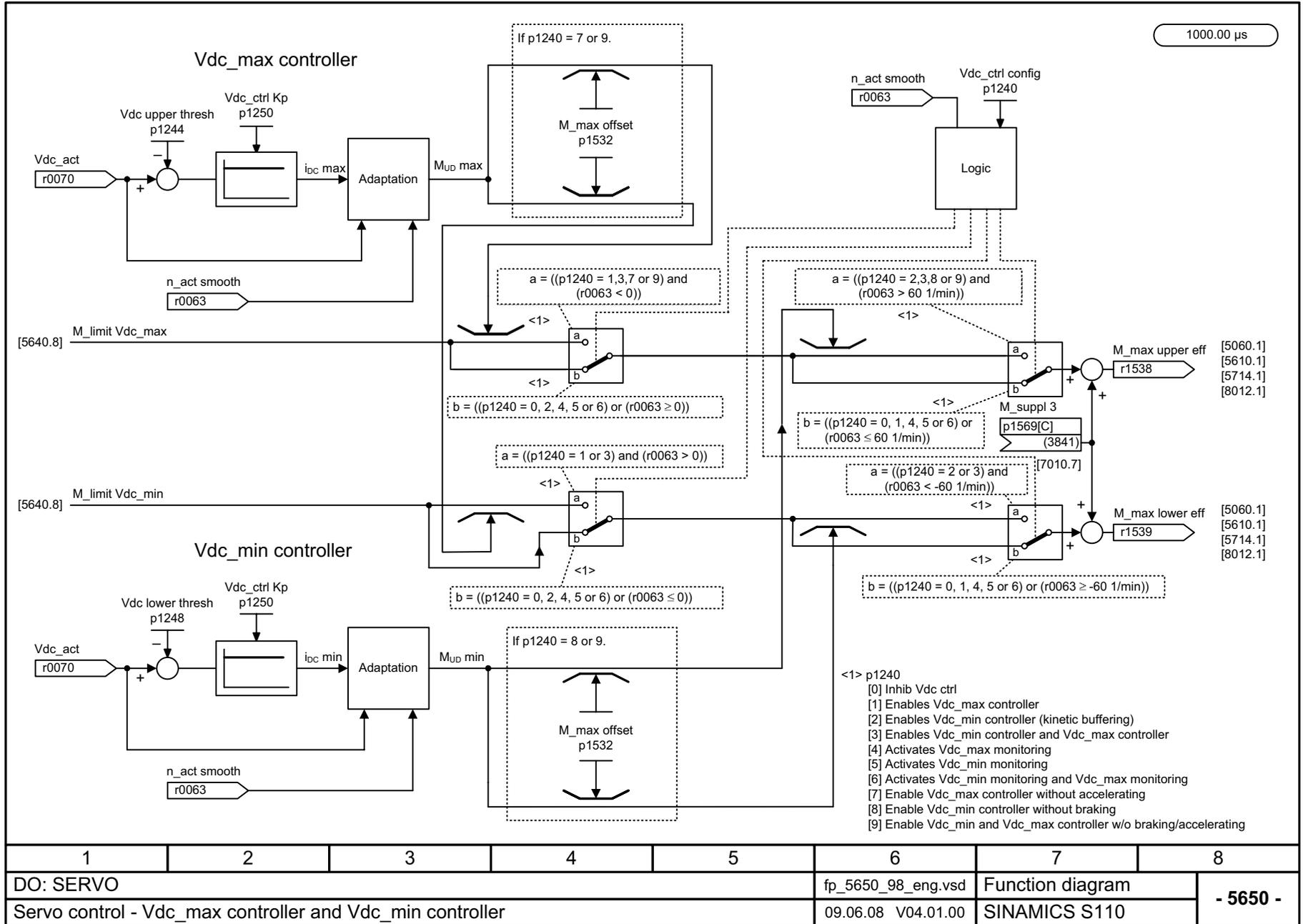
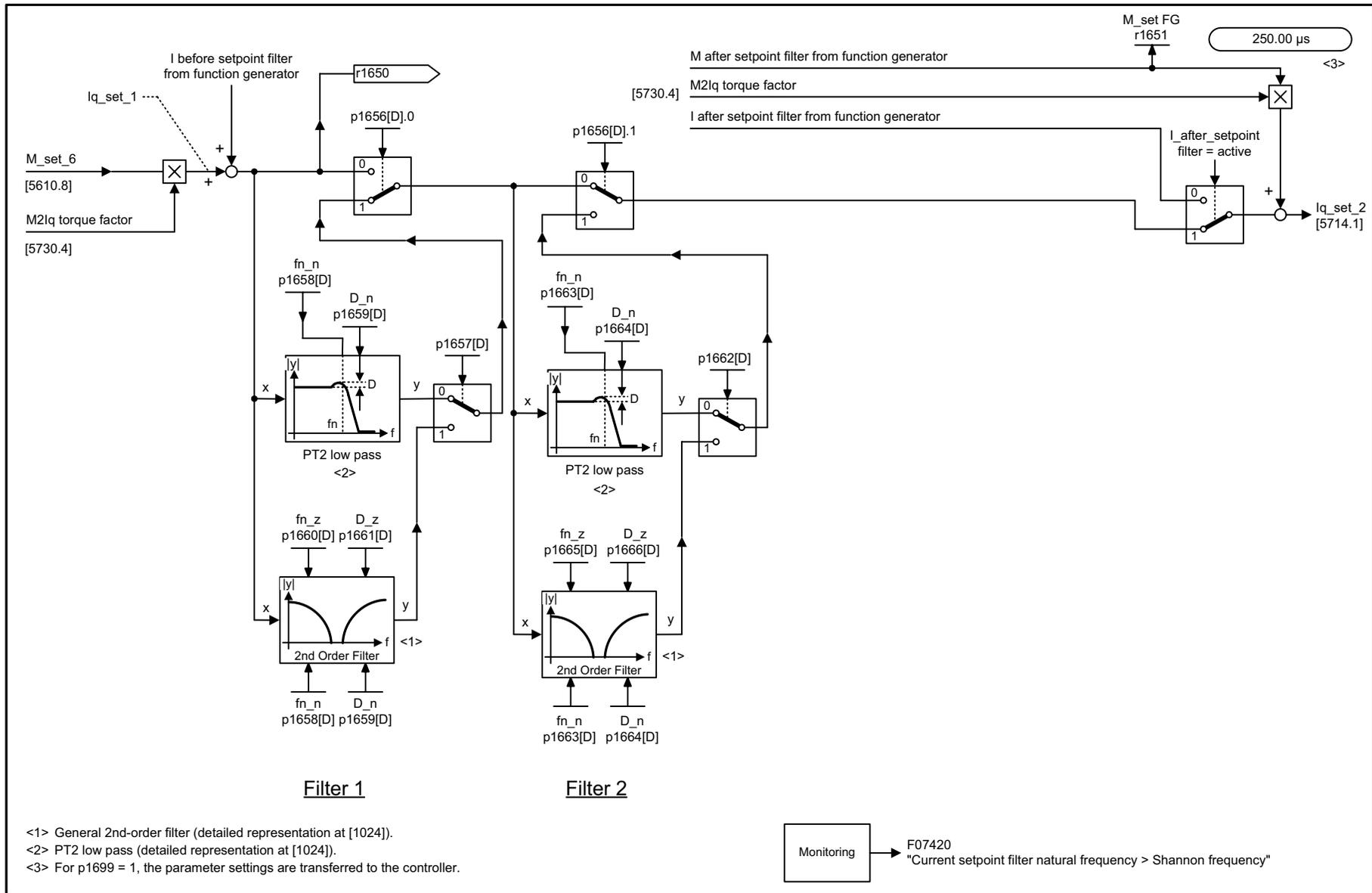


Figure 2-134 5640 – Mode changeover, power/current limiting

1	2	3	4	5	6	7	8
DO: SERVO					fp_5640_98_eng.vsd	Function diagram	
Servo control - Mode changeover, power/current limiting					27.10.08 V04.01.00	SINAMICS S110	
							- 5640 -

Figure 2-135 5650 – Vdc_max controller and Vdc_min controller



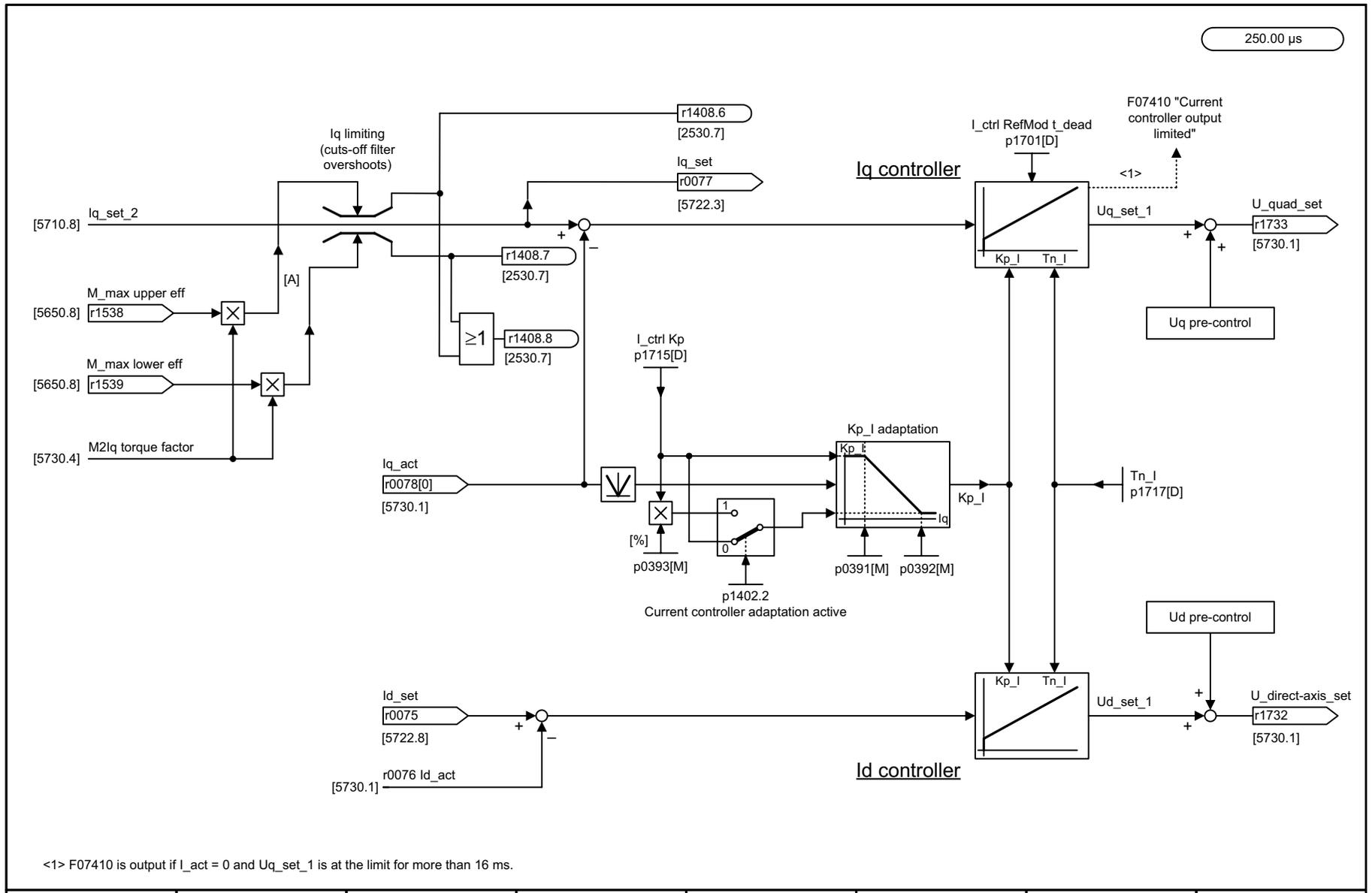


<1> General 2nd-order filter (detailed representation at [1024]).
 <2> PT2 low pass (detailed representation at [1024]).
 <3> For $p1699 = 1$, the parameter settings are transferred to the controller.

Monitoring → F07420
 "Current setpoint filter natural frequency > Shannon frequency"

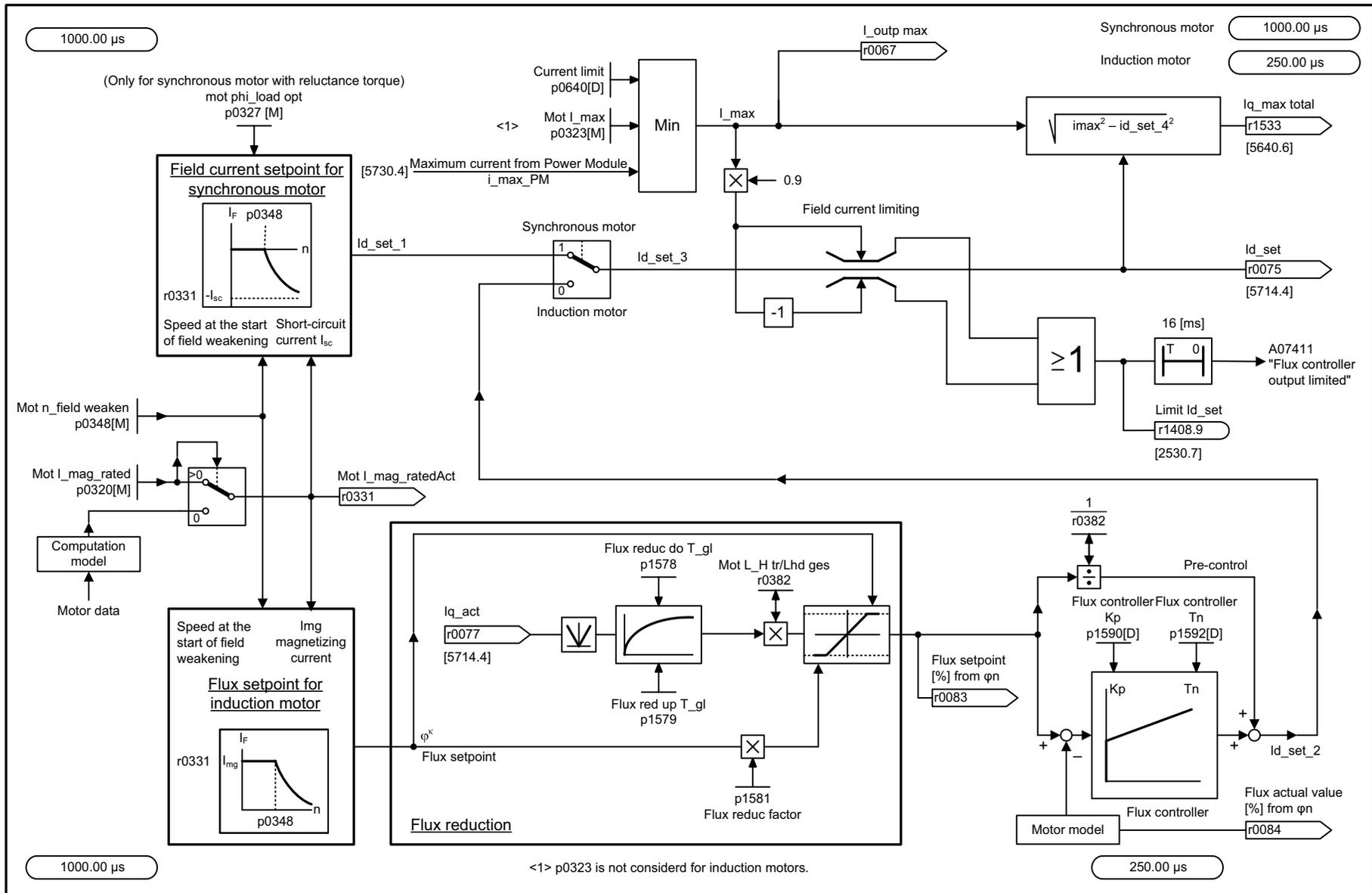
1	2	3	4	5	6	7	8
DO: SERVO					fp_5710_98_eng.vsd	Function diagram	
Servo control - Current setpoint filter					14.04.08 V04.01.00	SINAMICS S110	
							- 5710 -

Figure 2-136 5710 – Current setpoint filter



1	2	3	4	5	6	7	8
DO: SERVO					fp_5714_98_eng.vsd	Function diagram	
Servo control - Iq and Id controller					14.04.08 V04.01.00	SINAMICS S110	
							- 5714 -

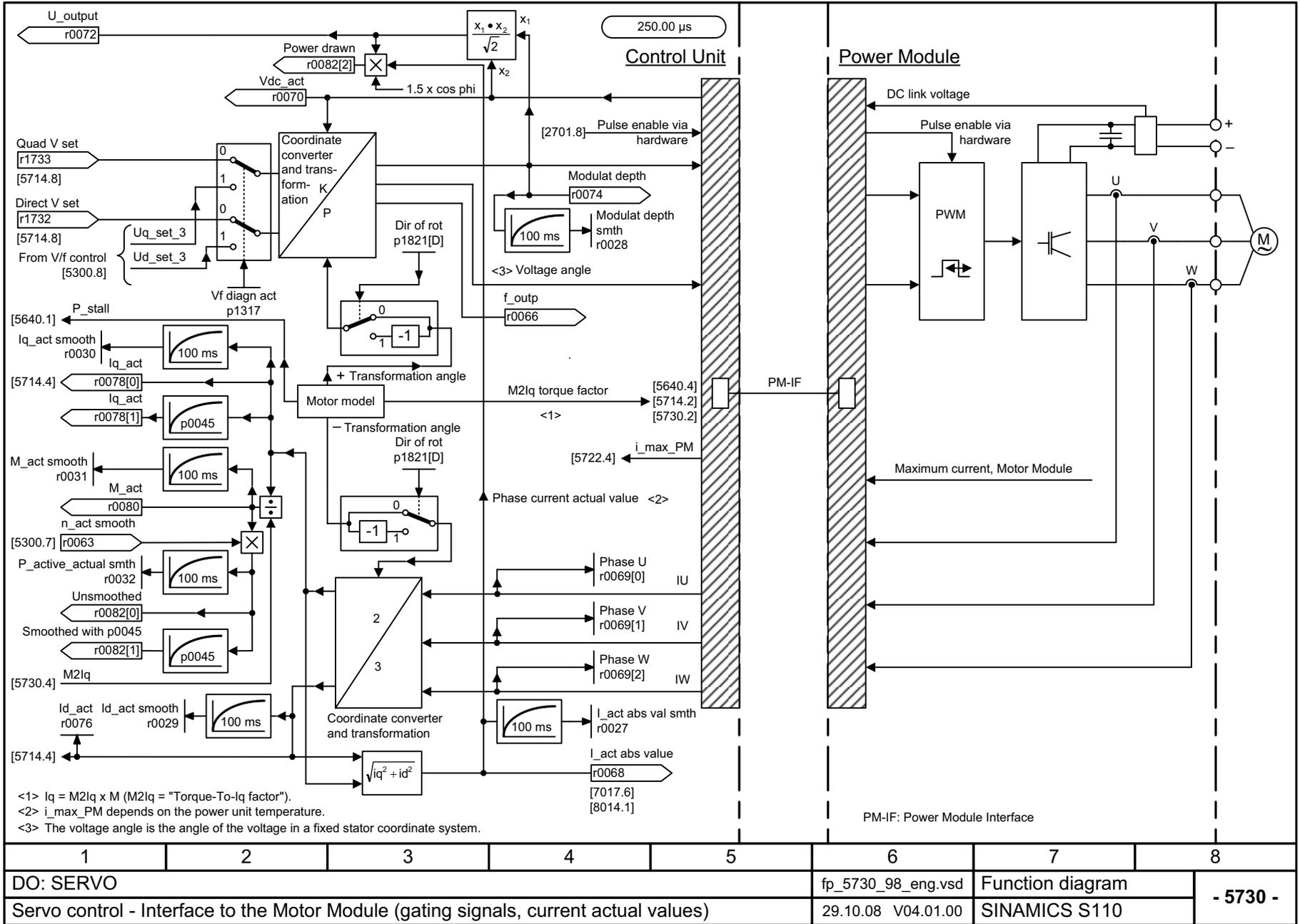
Figure 2-137 5714 – Iq and Id controller



1	2	3	4	5	6	7	8
DO: SERVO					fp_5722_98_eng.vsd	Function diagram	
Servo control - Field current-/flux input, flux reduction, flux controller					29.10.08 V04.01.00	SINAMICS S110	
							- 5722 -

Figure 2-138 5722 – Field current / flux specification, flux reduction, flux controller

Figure 2-139 5730 – Interface to the Motor Module (gating signals, current actual values)

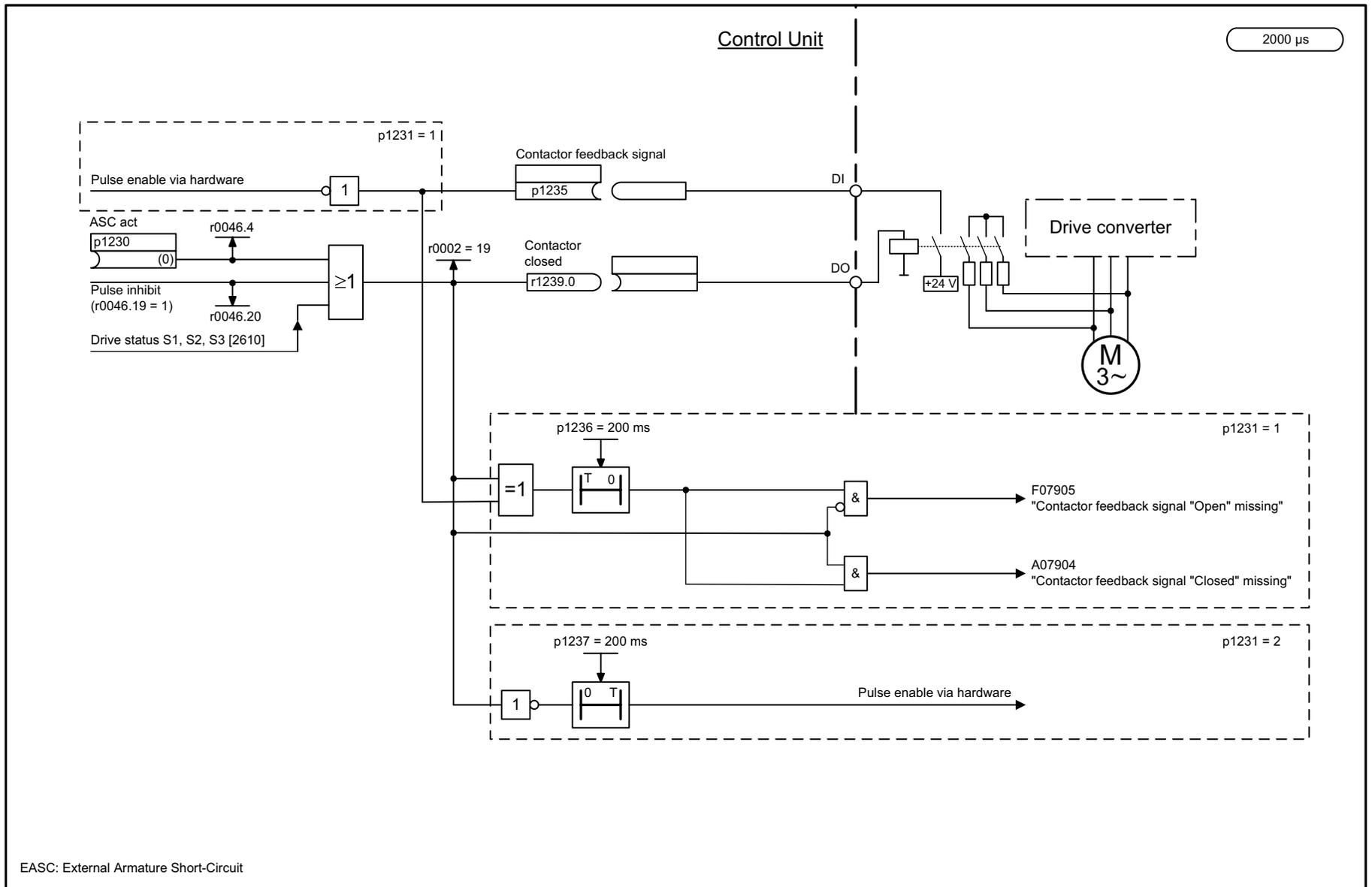


<1> $I_q = M2I_q \times M$ ($M2I_q = \text{"Torque-To-}I_q \text{ factor"}\text{"}$).
 <2> i_{max_PM} depends on the power unit temperature.
 <3> The voltage angle is the angle of the voltage in a fixed stator coordinate system.

2.16 Technology functions

Function diagrams

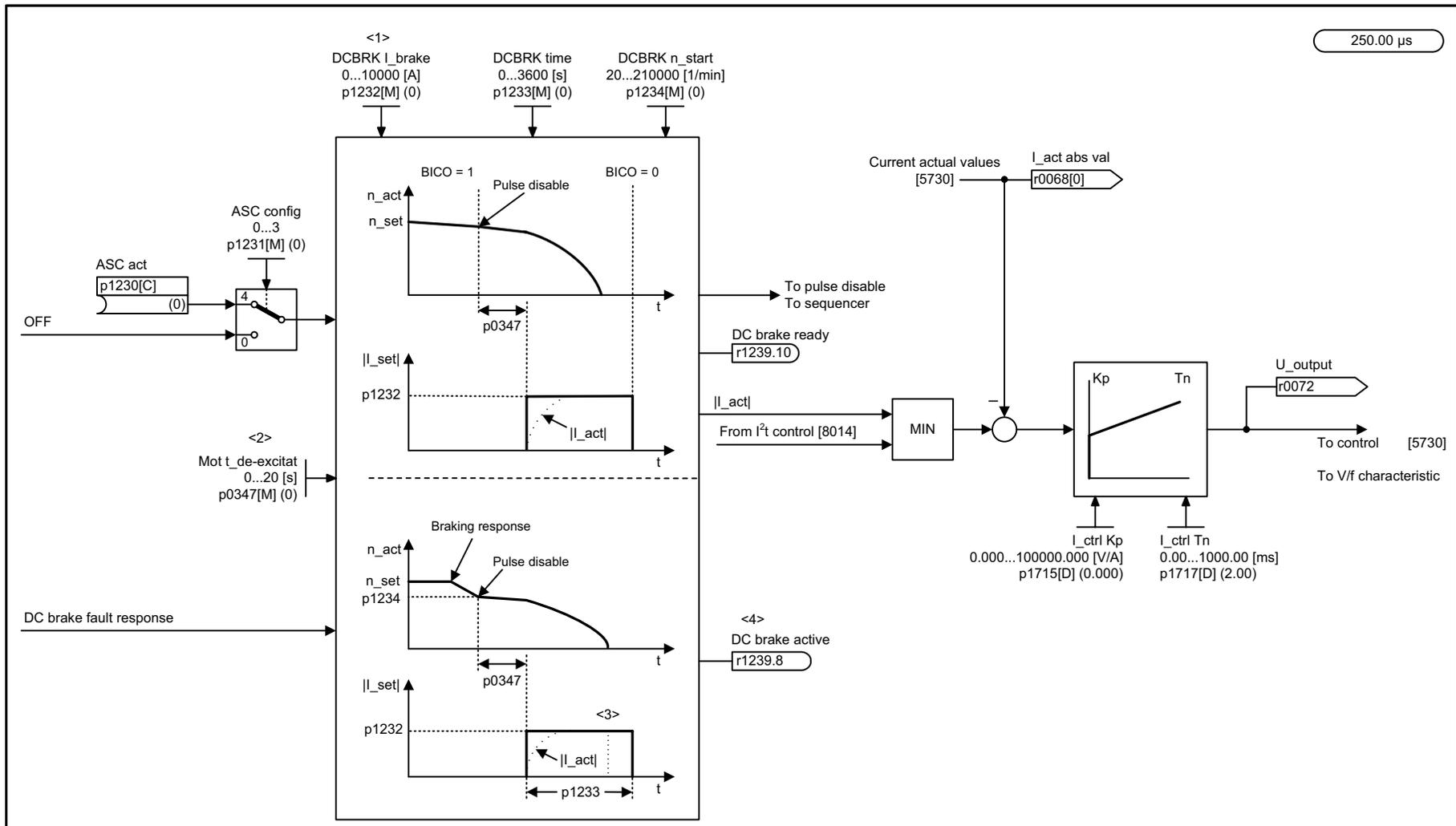
7014 – External armature short circuit (EASC, p0300 = 2xx or 4xx)	2-771
7017 – DC brake (p0300 = 1xx)	2-772



EASC: External Armature Short-Circuit

1	2	3	4	5	6	7	8
DO: SERVO					fp_7014_98_eng.vsd	Function diagram	
Technology functions - External Armature Short-Circuit (EASC, p0300 = 2xx or 4xx)					31.10.08 V04.01.00	SINAMICS S110	
							- 7014 -

Figure 2-140 7014 – External armature short circuit (EASC, p0300 = 2xx or 4xx)



<1> The DC braking current is determined during automatic calculation (p0340 = 1).
 <2> The de-magnetization time is determined during automatic calculation (p0340 = 1, 3).
 <3> As soon as the standstill threshold (p1226) has been reached, the DC current injection will be aborted prematurely.
 <4> Signal r1239.8 is only set while the DC brake is active.

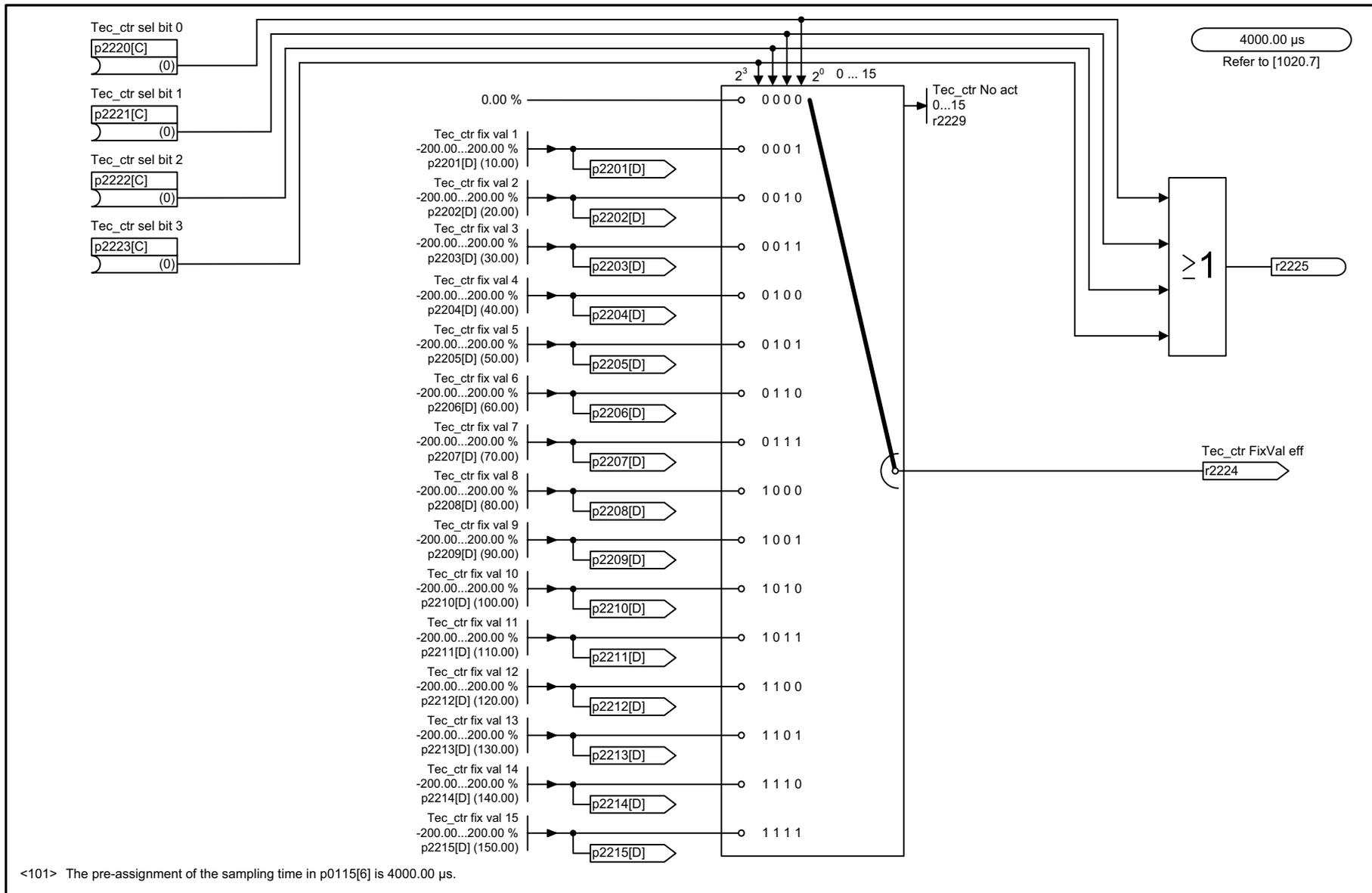
1	2	3	4	5	6	7	8
DO: SERVO					fp_7017_98_eng.vsd	Function diagram	
Technology functions - DC brake (p0300 = 1xx)					30.10.08 V04.01.00	SINAMICS S110	
							- 7017 -

Figure 2-141 7017 – DC brake (p0300 = 1xx)

2.17 Technology controller

Function diagrams

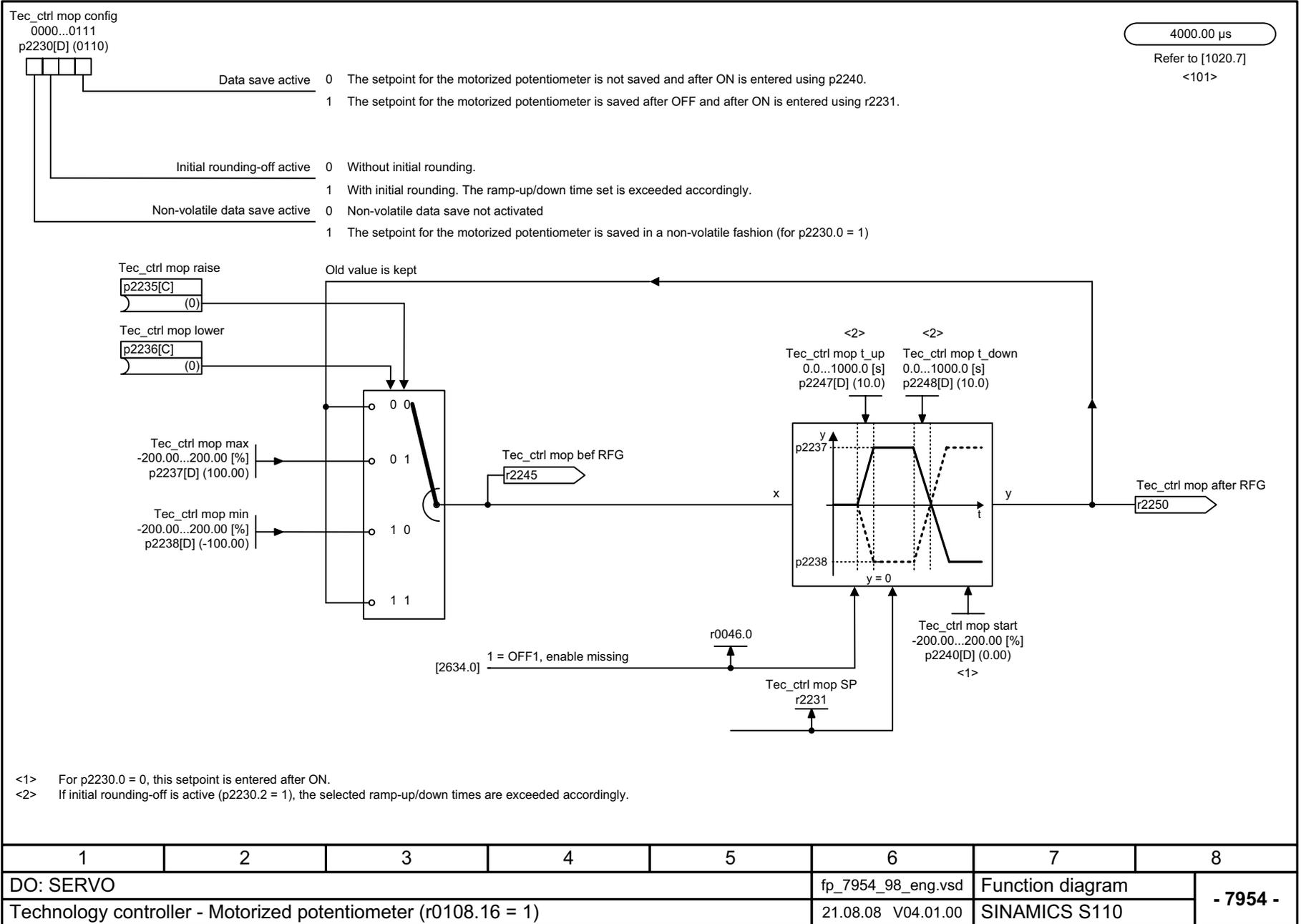
7950 – Fixed values (r0108.16 = 1)	2-774
7954 – Motorized potentiometer (r0108.16 = 1)	2-775
7958 – Closed-loop control (r0108.16 = 1)	2-776

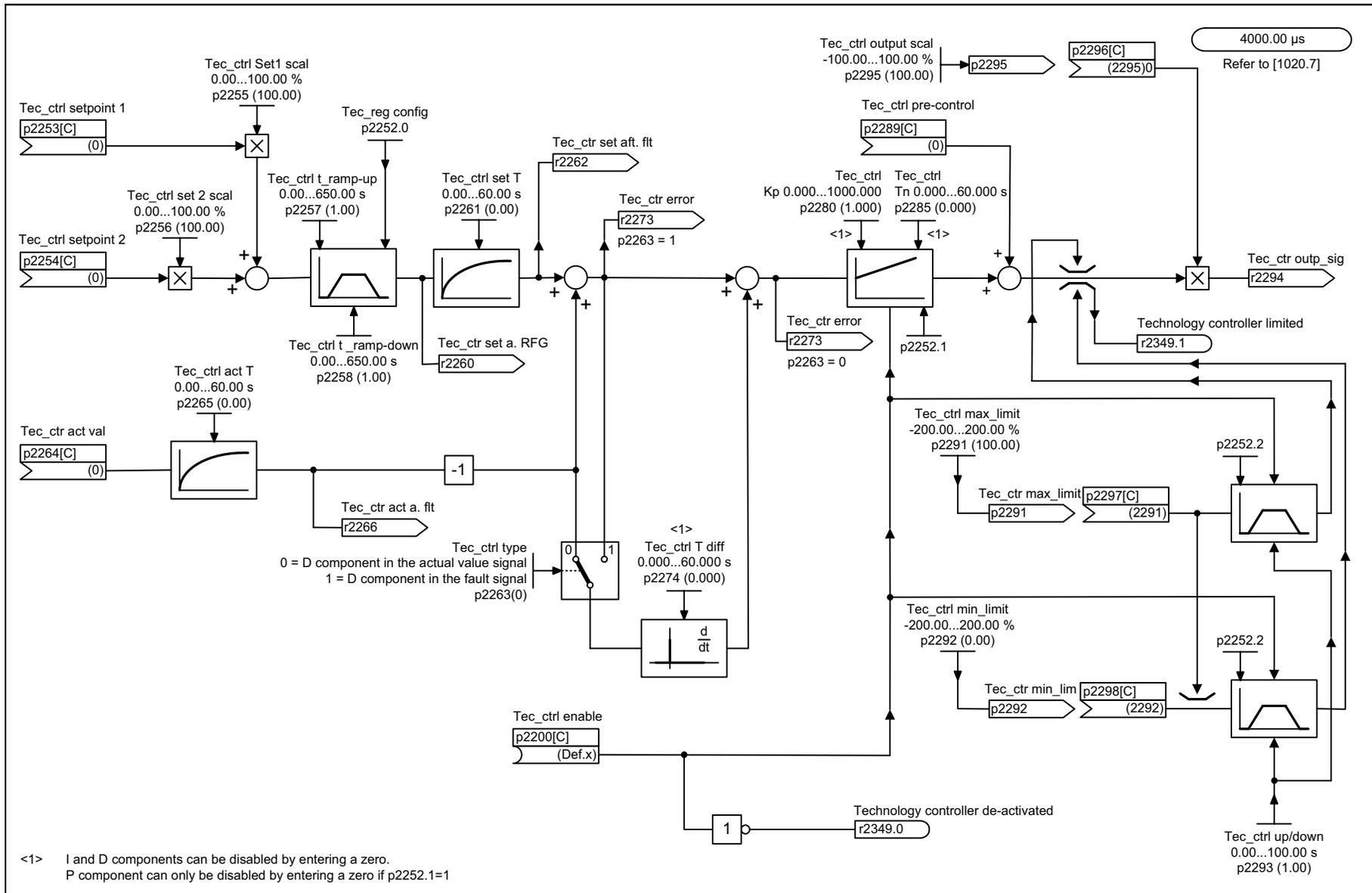


1	2	3	4	5	6	7	8
DO: SERVO					fp_7950_98_eng.vsd	Function diagram	
Technology controller - Fixed values (r0108.16 = 1)					21.08.08 V04.01.00	SINAMICS S110	
							- 7950 -

Figure 2-142 7950 – Fixed values (r0108.16 = 1)

Figure 2-143 7954 – Motorized potentiometer (r0108.16 = 1)





<1> I and D components can be disabled by entering a zero.
P component can only be disabled by entering a zero if p2252.1=1

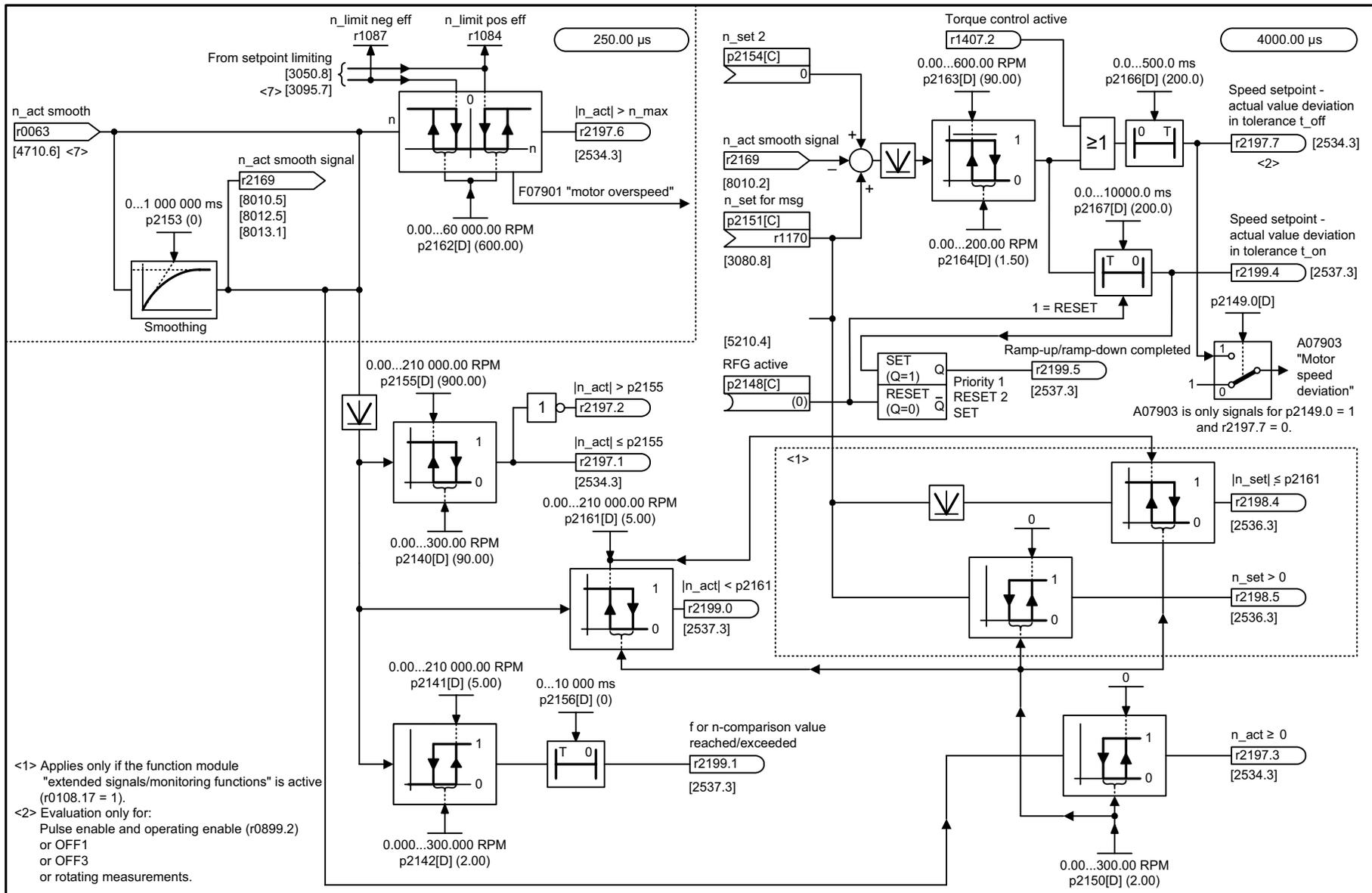
1	2	3	4	5	6	7	8
DO: SERVO					fp_7958_98_eng.vsd	Function diagram	
Technology controller - Closed-loop control (r0108.16 = 1)					10.11.08 V04.01.00	SINAMICS S110	
							- 7958 -

Figure 2-144 7958 – Closed-loop control (r0108.16 = 1)

2.18 Signals and monitoring functions

Function diagrams

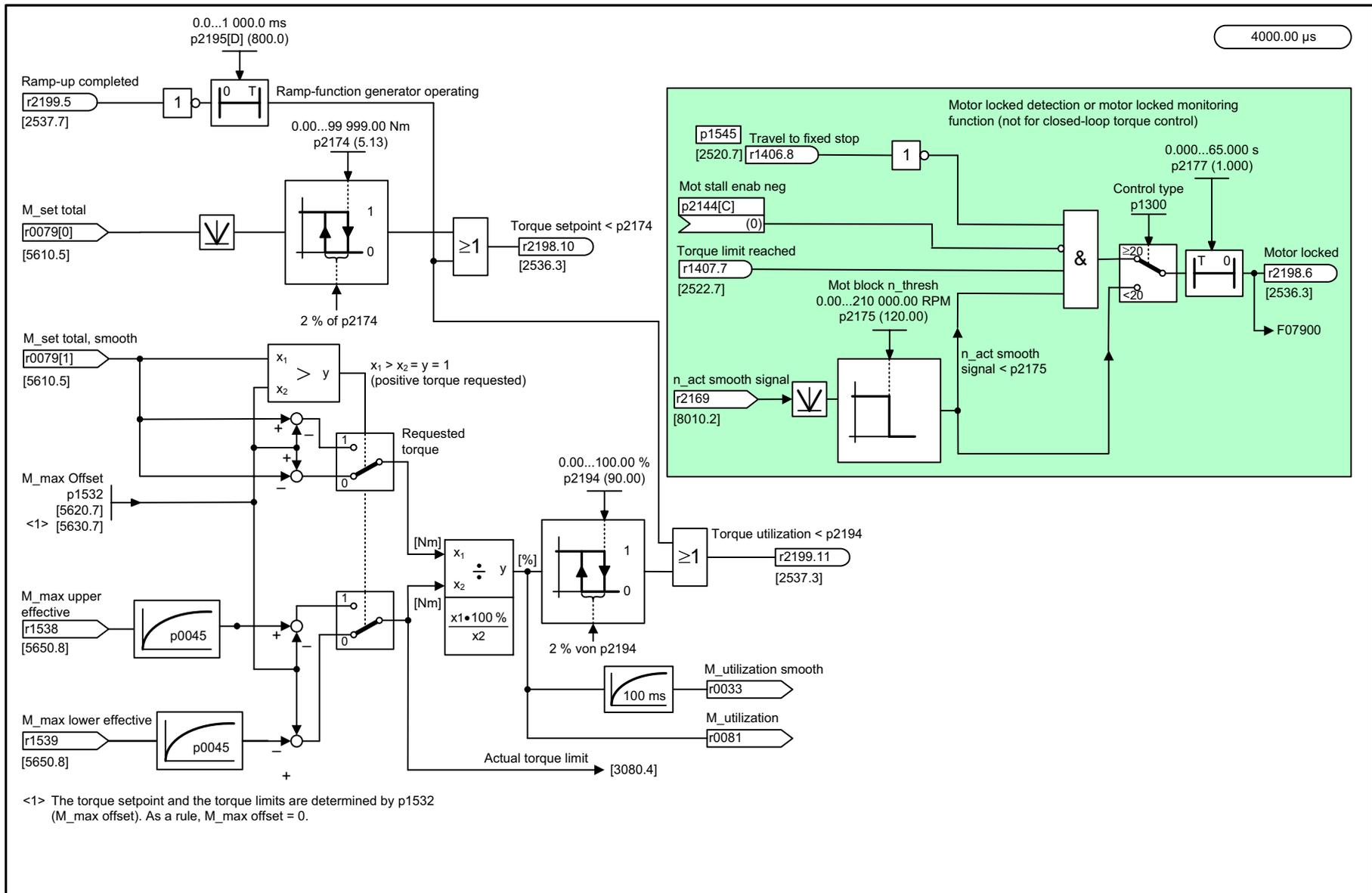
8010 – Speed messages	2-778
8012 – Torque messages, motor blocked/stalled	2-779
8014 – Thermal monitoring, power unit	2-780
8016 – Thermal monitoring motor	2-781



<1> Applies only if the function module "extended signals/monitoring functions" is active (r0108.17 = 1).
 <2> Evaluation only for: Pulse enable and operating enable (r0899.2) or OFF1 or OFF3 or rotating measurements.

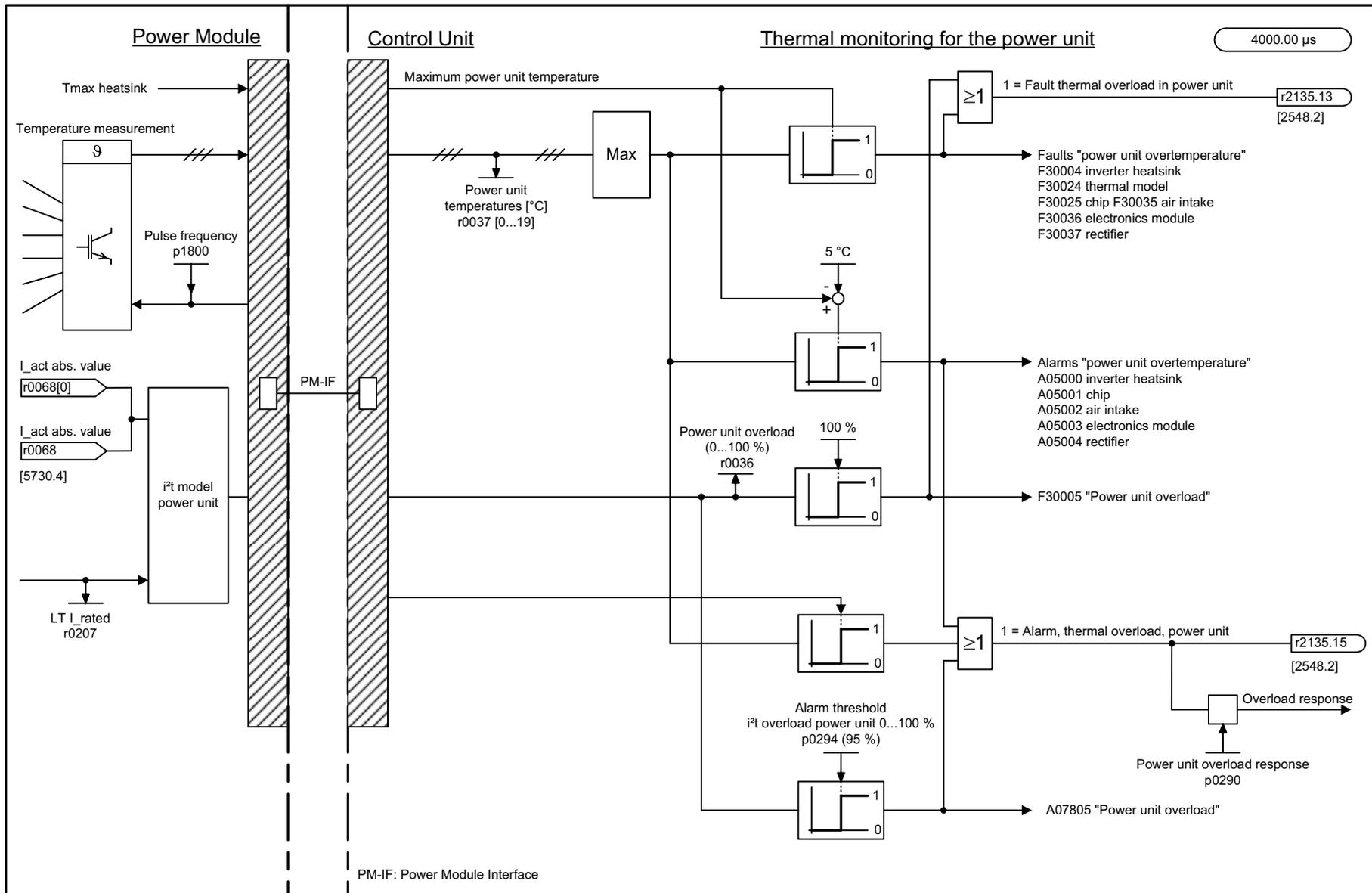
1	2	3	4	5	6	7	8
DO: SERVO					fp_8010_98_eng.vsd	Function diagram	
Signals and monitoring functions - Speed signals					27.10.08 V04.01.00	SINAMICS S110	
							- 8010 -

Figure 2-145 8010 – Speed messages



1	2	3	4	5	6	7	8
DO: SERVO					fp_8012_98_eng.vsd	Function diagram	
Signals and monitoring functions - Torque signals, motor locked/stalled					05.11.08 V04.01.00	SINAMICS S110	
							- 8012 -

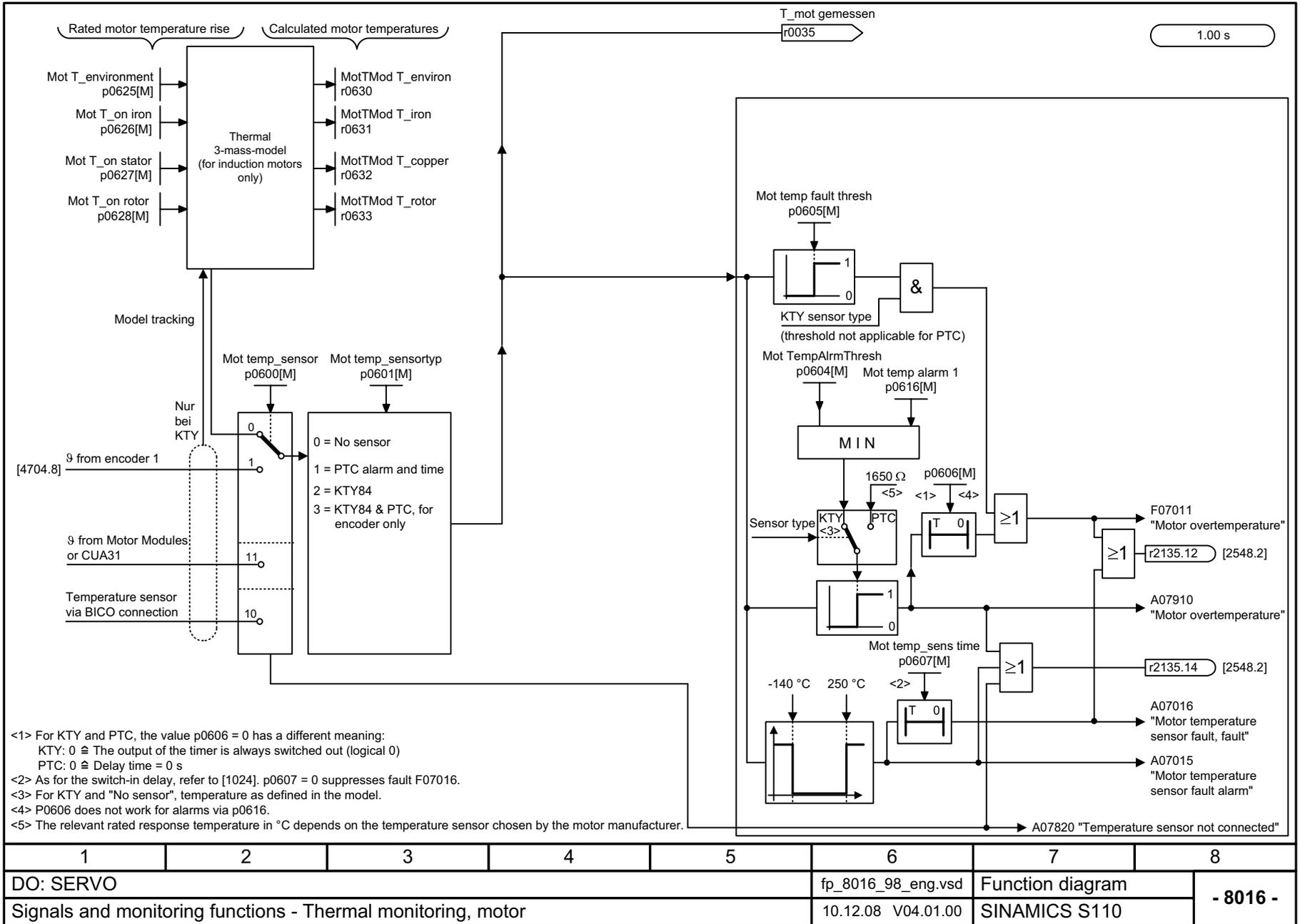
Figure 2-146 8012 – Torque messages, motor blocked/stalled



1	2	3	4	5	6	7	8
DO: SERVO					fp_8014_98_eng.vsd	Function diagram	
Signals and monitoring functions - Thermal monitoring, power unit					29.10.08 V04.01.00	SINAMICS S110	
							- 8014 -

Figure 2-147 8014 – Thermal monitoring, power unit

Figure 2-148 8016 – Thermal monitoring motor

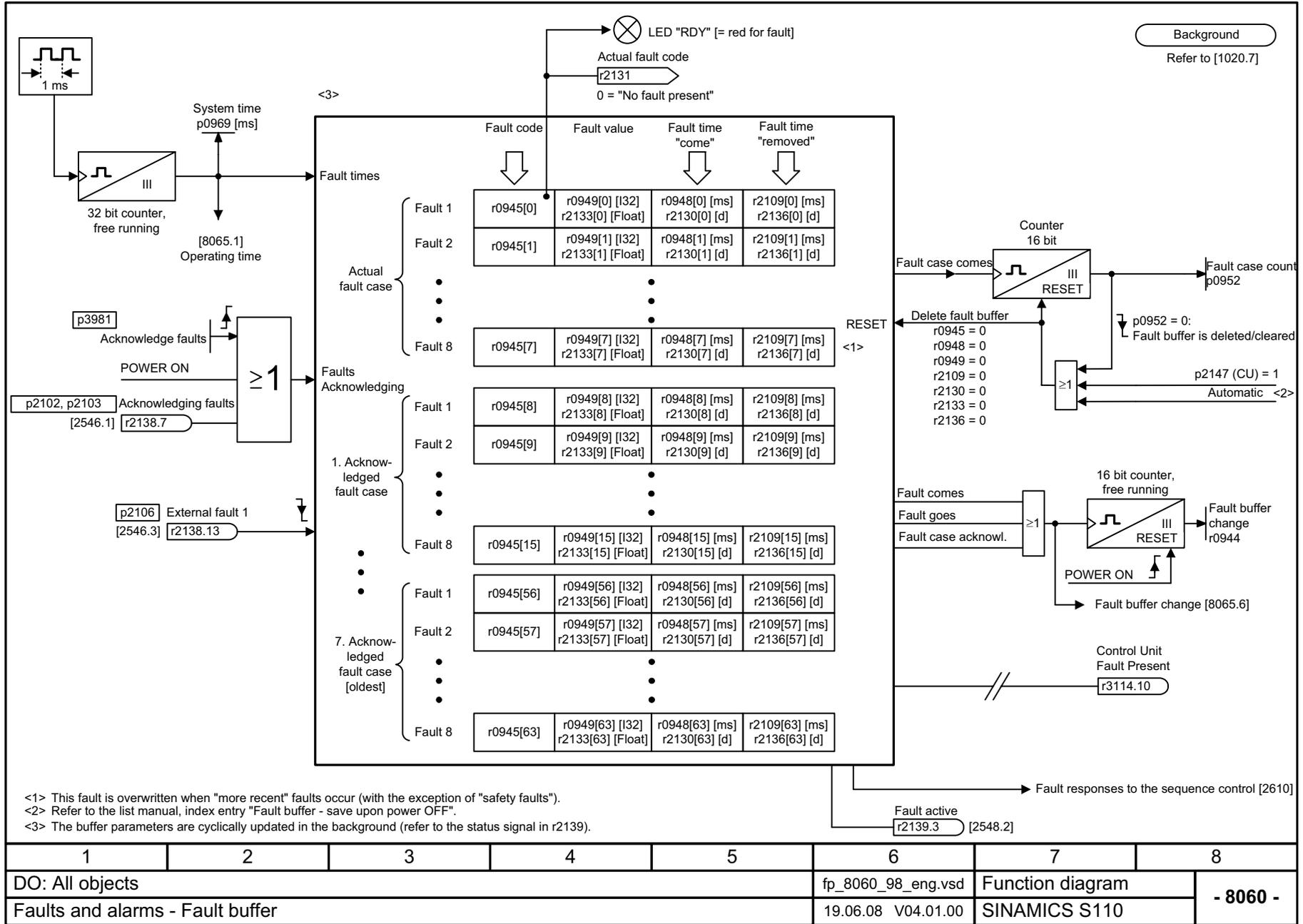


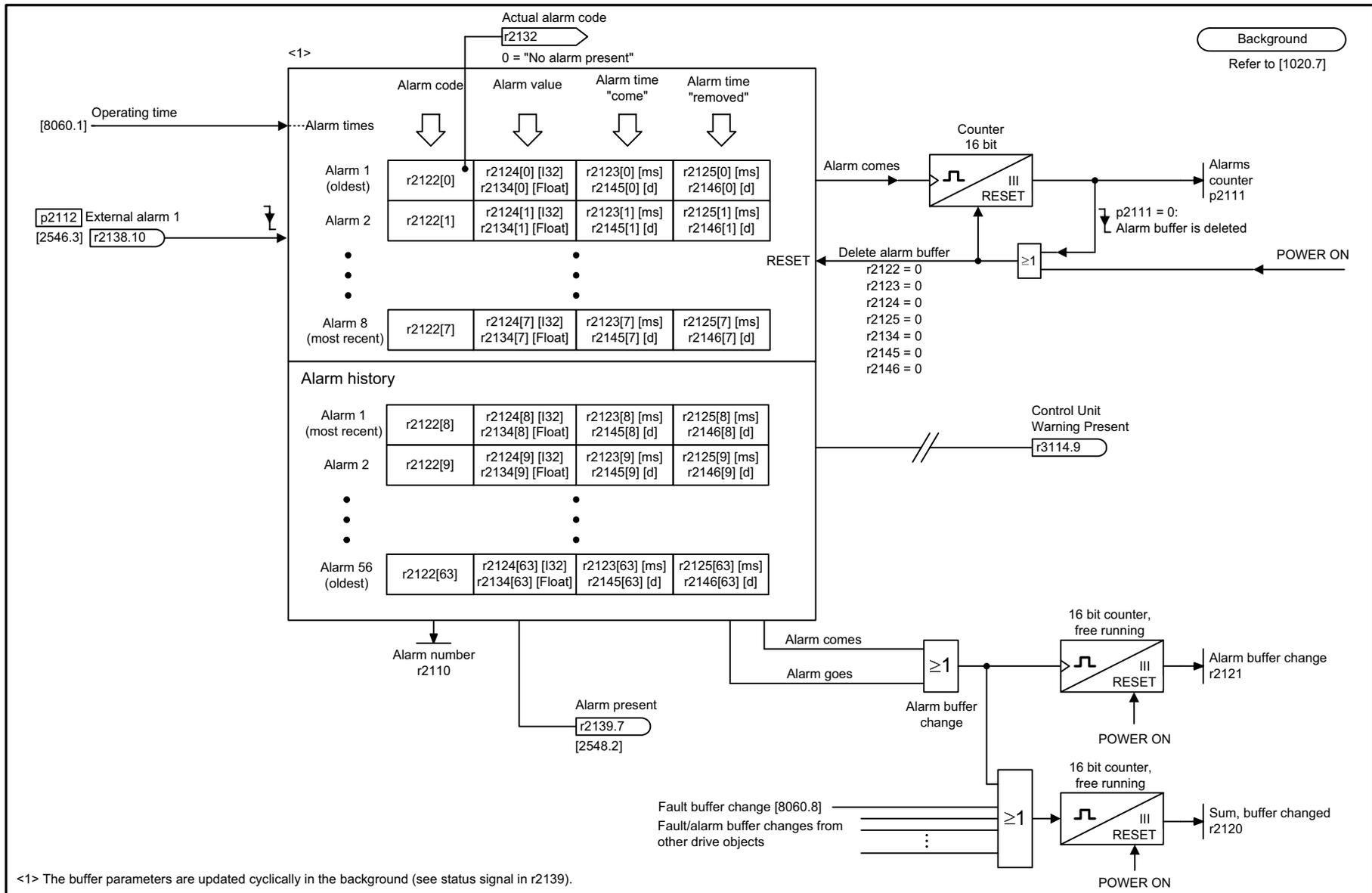
2.19 **Diagnostics**

Function diagrams

8060 – Fault buffer	2-783
8065 – Alarm buffer	2-784
8070 – Fault/alarm trigger word (r2129)	2-785
8075 – Fault/alarm configuration	2-786
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Figure 2-149 8060 – Fault buffer





1	2	3	4	5	6	7	8
DO: All objects					fp_8065_98_eng.vsd	Function diagram	
Faults and alarms - Alarm buffer					19.06.08 V04.01.00	SINAMICS S110	
- 8065 -							

Figure 2-150 8065 – Alarm buffer

Background
Refer to [1020.7]

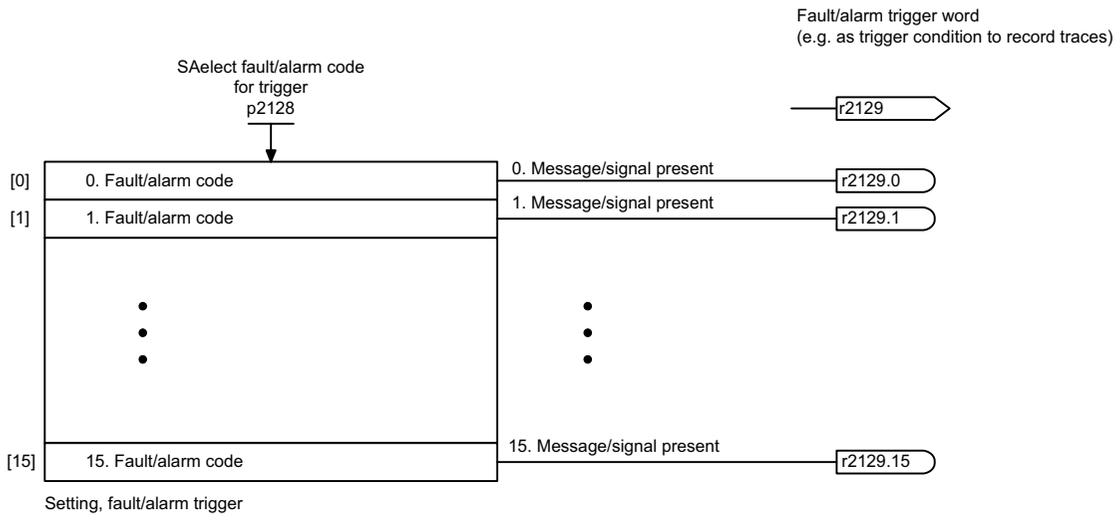
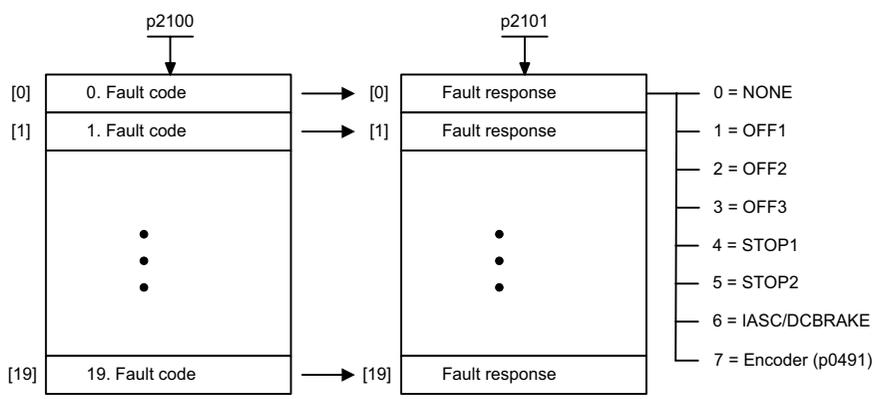


Figure 2-151 8070 – Fault/alarm trigger word (r2129)

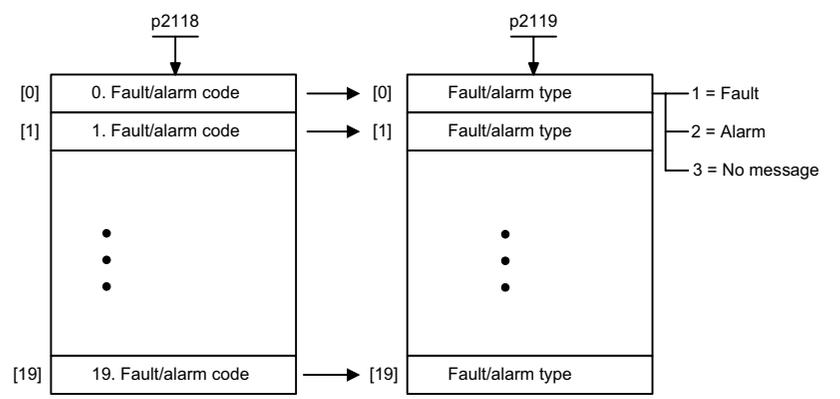
1	2	3	4	5	6	7	8
DO: All objects					fp_8070_98_eng.vsd	Function diagram	
Faults and alarms - Fault/alarm trigger word (r2129)					18.05.05 V04.01.00	SINAMICS S110	
							- 8070 -

Background
Refer to [1020.7]

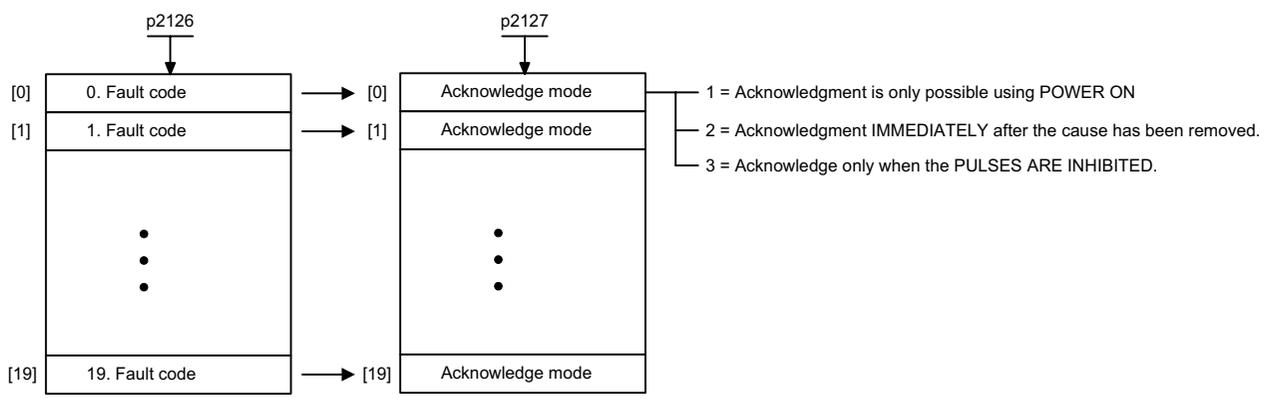
Changing the fault response for maximum 20 faults <1>



Changing the message type - fault <==> alarm for maximum 20 faults/alarms <1>



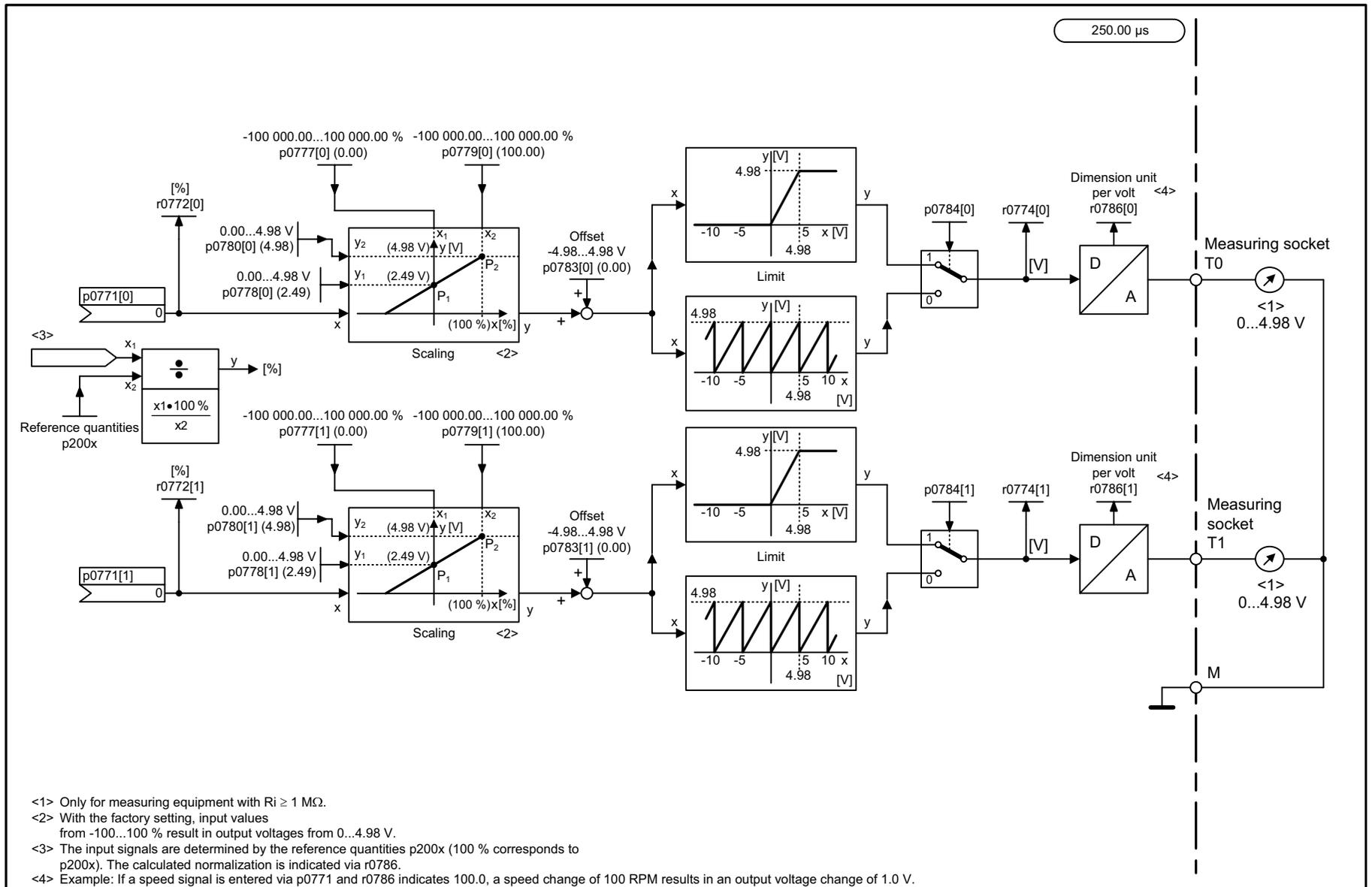
Changing the acknowledge mode for maximum 20 faults <1>



<1> The fault response, acknowledge mode and message type for all faults and alarms are set to meaningful default values in the factory setting. Changes that may be required are only possible in specific value ranges specified by SIEMENS. When the message type is changed, the supplementary information is transferred from fault value r0949 to alarm value r2124 and vice versa.

1	2	3	4	5	6	7	8
DO: All objects					fp_8075_98_eng.vsd	Function diagram	
Faults and alarms - Fault/alarm configuration					13.08.08 V04.01.00	SINAMICS S110	
							- 8075 -

Figure 2-152 8075 – Fault/alarm configuration



- <1> Only for measuring equipment with $R_i \geq 1 \text{ M}\Omega$.
- <2> With the factory setting, input values from -100...100 % result in output voltages from 0...4.98 V.
- <3> The input signals are determined by the reference quantities p200x (100 % corresponds to p200x). The calculated normalization is indicated via r0786.
- <4> Example: If a speed signal is entered via p0771 and r0786 indicates 100.0, a speed change of 100 RPM results in an output voltage change of 1.0 V.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_8134_98_eng.vsd	Function diagram	
Measuring sockets					30.10.08 V04.01.00	SINAMICS S110	
							- 8134 -

Figure 2-153 8134 – Test sockets

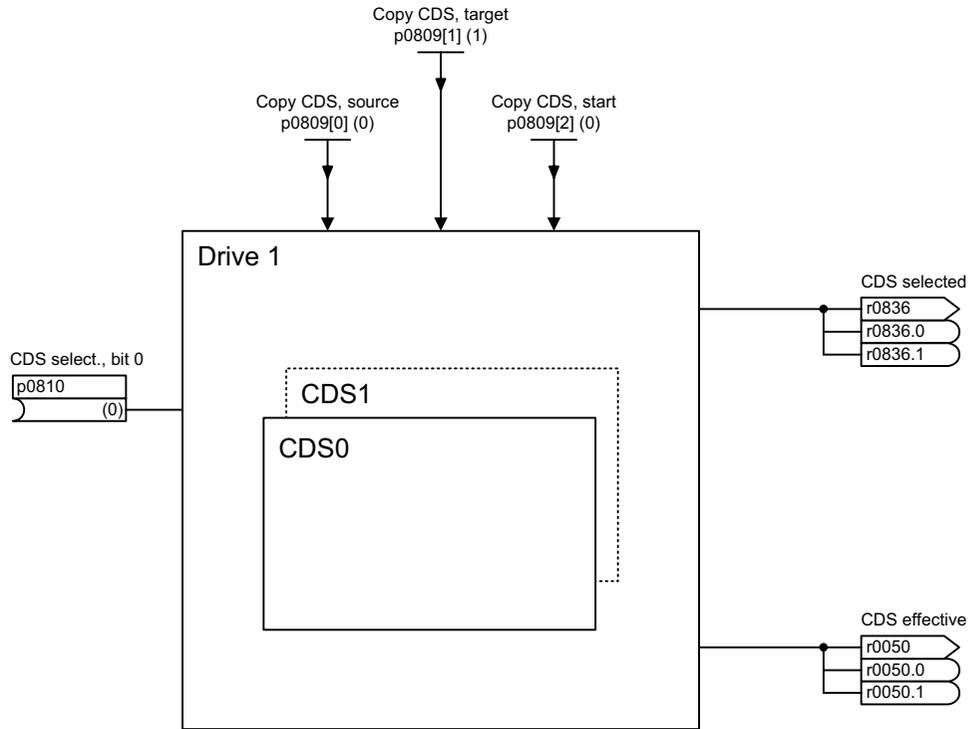
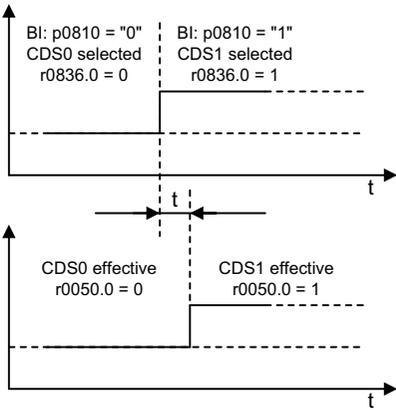
2.20 Data sets

Function diagrams

8560 – Command Data Sets (CDS)	2-789
8565 – Drive Data Sets (DDS)	2-790
8570 – Encoder data sets (EDS)	2-791
8575 – Motor Data Sets (MDS)	2-792

Figure 2-154 8560 – Command Data Sets (CDS)

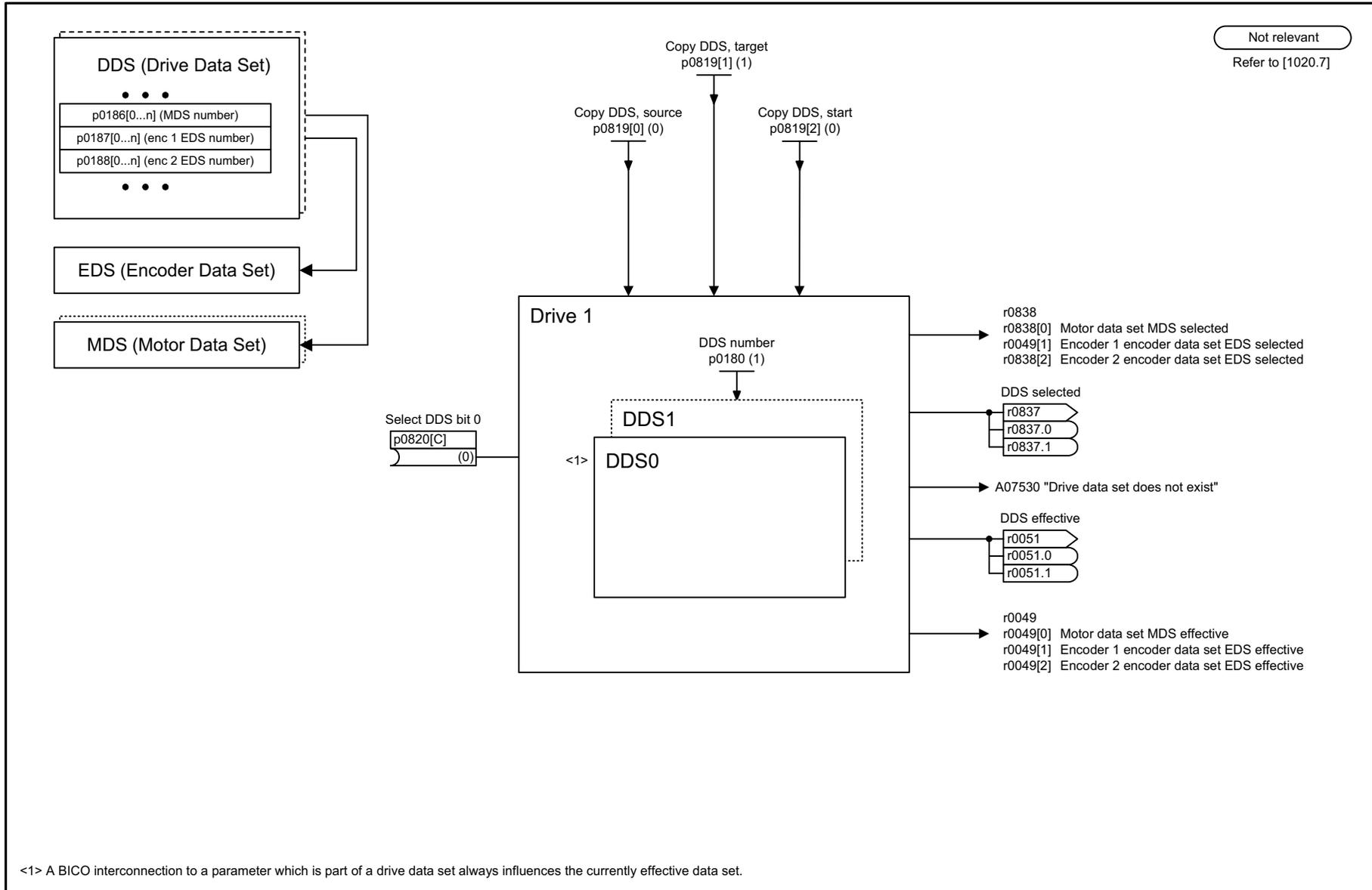
Example:
 Change over Command Data Set
 CDS0 --> CDS1



Not relevant
 Refer to [1020.7]

<1> Min / Max / Factory setting: 1 / 2 / 2.

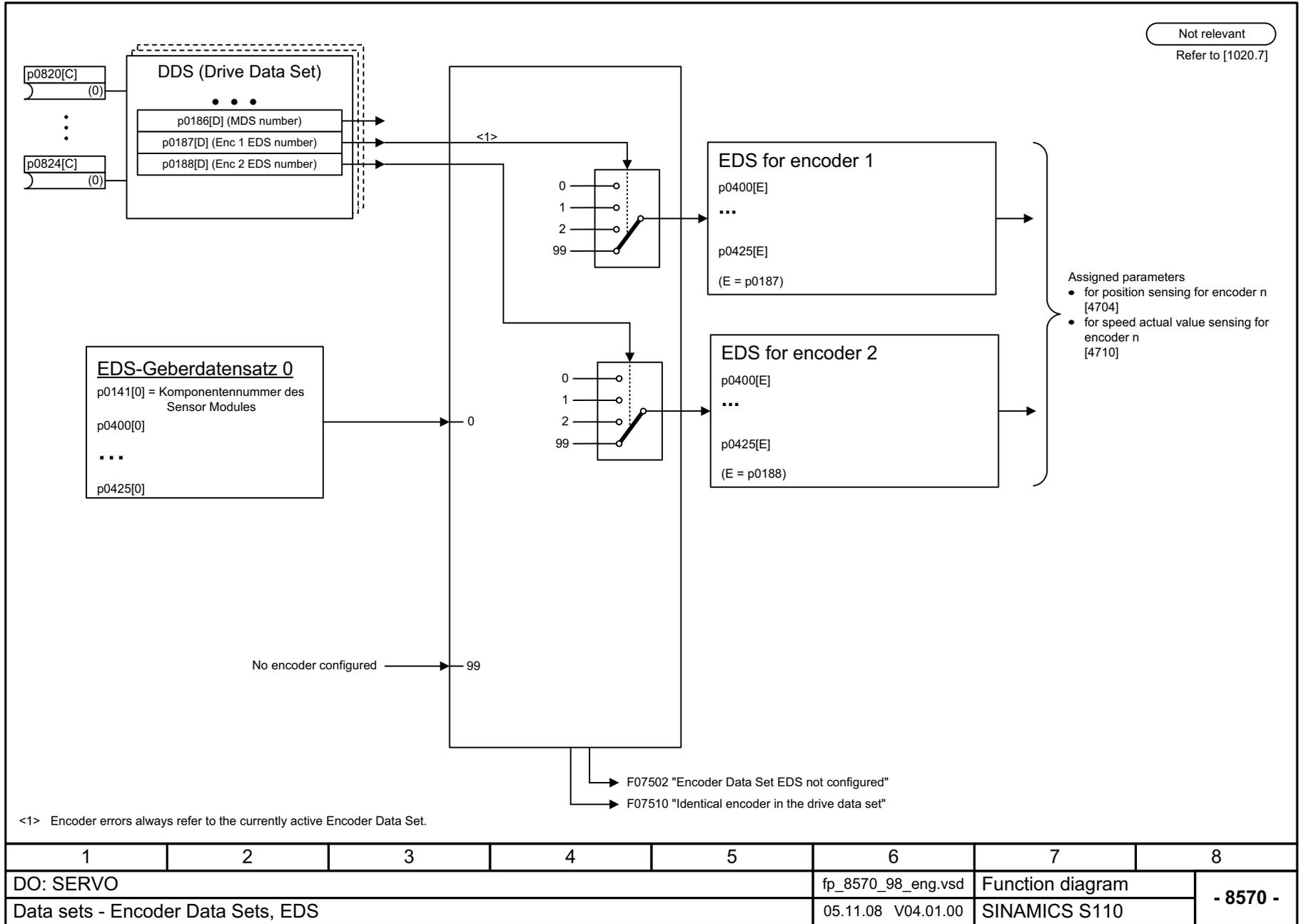
1	2	3	4	5	6	7	8
DO: SERVO					fp_8560_98_eng.vsd	Function diagram	
Data sets - Command Data Sets (CDS)					16.06.08 V04.01.00	SINAMICS S110	
							- 8560 -

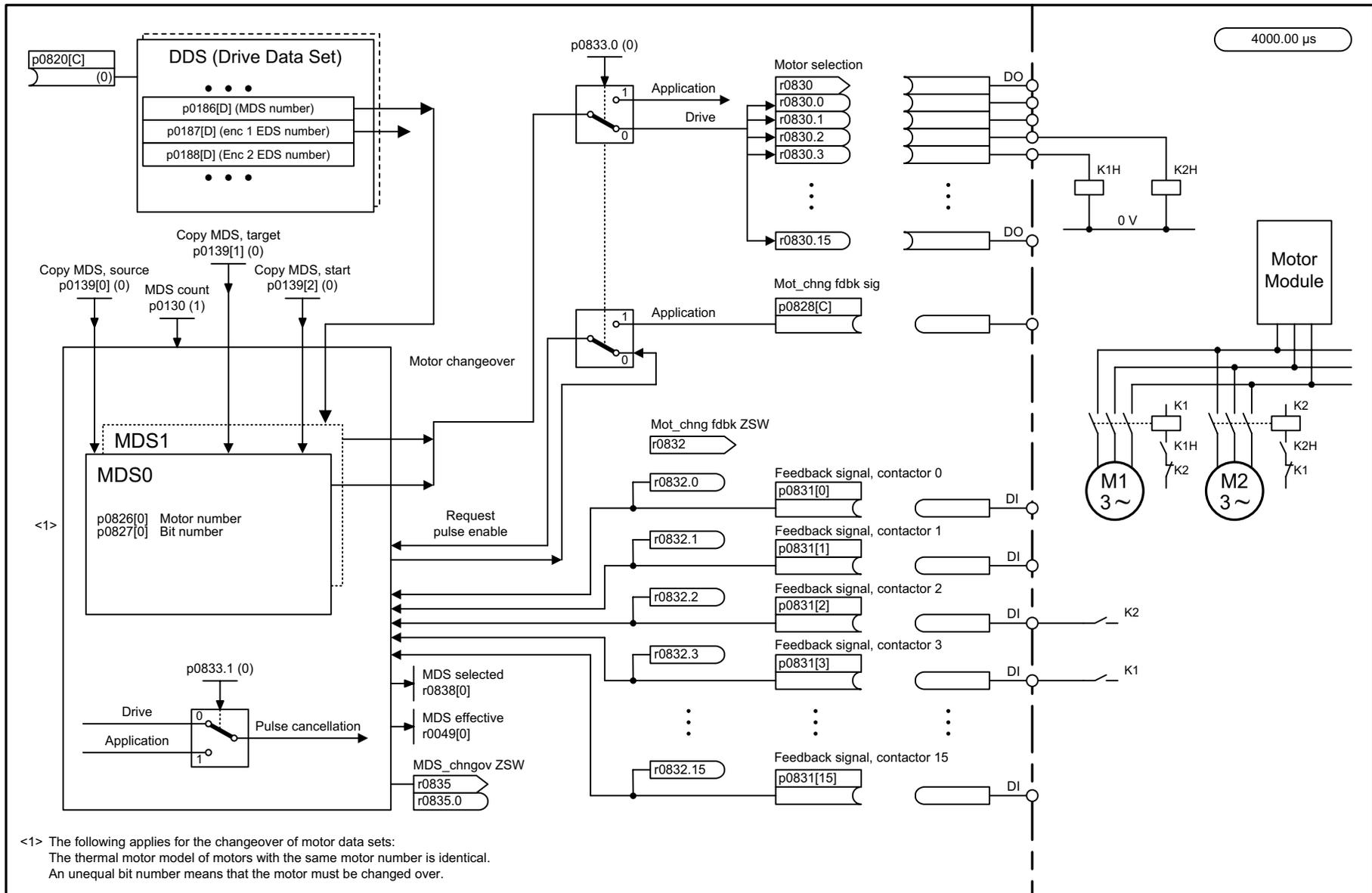


1	2	3	4	5	6	7	8
DO: SERVO					fp_8565_98_eng.vsd	Function diagram	
Data sets - Drive Data Sets, DDS					21.08.08 V04.01.00	SINAMICS S110	
- 8565 -							

Figure 2-155 8565 – Drive Data Sets (DDS)

Figure 2-156 8570 – Encoder data sets (EDS)





<1> The following applies for the changeover of motor data sets:
The thermal motor model of motors with the same motor number is identical.
An unequal bit number means that the motor must be changed over.

1	2	3	4	5	6	7	8
DO: SERVO					fp_8575_98_eng.vsd	Function diagram	
Data sets - Motor Data Sets (MDS)					03.07.08 V04.01.00	SINAMICS S110	
							- 8575 -

Figure 2-157 8575 – Motor Data Sets (MDS)

2.21 Basic Operator Panel 20 (BOP20)

Function diagrams

9912 – Control word interconnection

2-794

PROFIdrive sampling time
Refer to [1020.7]

Interconnection STW BOP (r0019)		<1>
Signal	Meaning	Interconnection parameters
STW BOP.0	1 = On 0 = OFF (OFF1)	p0840[0] = r0019.0
STW BOP.1	1 = No coast down 0 = Coast down (OFF2)	p0844[0] = r0019.1
STW BOP.2	1 = No fast stop 0 = Fast stop (OFF3)	p0848[0] = r0019.2
STW BOP.3	Reserved	-
STW BOP.4	Reserved	-
STW BOP.5	Reserved	-
STW BOP.6	Reserved	-
STW BOP.7	▲ = Acknowledge fault	p2102[0] = r0019.7
STW BOP.8	Reserved	-
STW BOP.9	Reserved	-
STW BOP.10	Reserved	-
STW BOP.11	Reserved	-
STW BOP.12	Reserved	-
STW BOP.13	1 = Motorized potentiometer, raise	p1035[0] = r0019.13
STW BOP.14	1 = Motorized potentiometer, lower	p1036[0] = r0019.14
STW BOP.15	Reserved	-

<1> The BICO interconnection represents an example that can be changed by the user.

1	2	3	4	5	6	7	8
DO: CU_S110					fp_9912_98_eng.vsd	Function diagram	
Basic Operator Panel 20 (BOP20) - Control word interconnection					27.10.08 V04.01.00	SINAMICS S110	
- 9912 -							

Figure 2-158 9912 – Control word interconnection

Faults and alarms

3

Contents

3.1	Overview of faults and alarms	3-796
3.2	List of faults and alarms	3-805

3.1 Overview of faults and alarms

3.1.1 General information about faults and alarms

Indicating faults and alarms

If a fault occurs, the drive indicates the fault and/or alarm.

The following methods for displaying faults and alarms are available:

- Display via the fault and alarm buffer with PROFIBUS.
- Display online via the commissioning software.

Differences between faults and alarms

The differences between faults and alarms are as follows:

Table 3-1 Differences between faults and alarms

Type	Description
General warning	<p>What happens when a fault occurs?</p> <ul style="list-style-type: none"> • The appropriate fault reaction is triggered. • Status signal ZSW1.3 is set. • The fault is entered in the fault buffer. <p>How are faults eliminated?</p> <ul style="list-style-type: none"> • Remove the original cause of the fault. • Acknowledge the fault.
Warnings	<p>What happens when an alarm occurs?</p> <ul style="list-style-type: none"> • Status signal ZSW1.7 is set. • The alarm is entered in the alarm buffer. <p>How are alarms eliminated?</p> <ul style="list-style-type: none"> • Alarms acknowledge themselves. If the cause of the alarm is no longer present, then they automatically reset themselves.

Fault reactions

The following fault reactions are defined:

Table 3-2 Fault reactions

List	PROFId- rive	Response	Description
NONE	-	None	<p>No reaction when a fault occurs.</p> <p>Note: When the "Basic positioner" function module is activated (r0108.4 = 1) the following applies: When a fault occurs with fault reaction "NONE", an active traversing task is interrupted and a change is made into tracking mode until the fault has been rectified and acknowledged.</p>
OFF1	ON/ OFF	Brake along the ramp generator deceleration ramp followed by pulse disable	<p>Closed-loop speed control (p1300 = 20, 21)</p> <ul style="list-style-type: none"> • n_set = 0 is input immediately to brake the drive along the deceleration ramp (p1121). • When zero speed is detected, the motor holding brake (if parameterized) is closed (p1215). The pulses are suppressed when the brake application time (p1217) expires. <p>Zero speed is detected if the actual speed drops below the threshold in p1226 or if the monitoring time (p1227) started when speed setpoint <= speed threshold (p1226) has expired.</p> <p>Closed-loop torque control (p1300 = 23)</p> <ul style="list-style-type: none"> • The following applies to closed-loop torque control mode: Reaction as for OFF2. • When changing over to closed-loop control using p1501, the following applies: There is no dedicated braking response. If the actual speed drops below the speed threshold (p1226), or the timer stage (p1227) has expired, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the brake application time (p1217) expires.
OFF2	COAST STOP	Internal/external pulse disable	<p>Closed-loop speed and torque control</p> <ul style="list-style-type: none"> • Instantaneous pulse suppression, the drive "coasts" to a standstill. • The motor holding brake (if one is being used) is closed immediately. • Switching on inhibited is activated.

Table 3-2 Fault reactions, continued

List	PROFId- rive	Response	Description
OFF3	QUICK STOP	Brake along the OFF3 deceleration ramp followed by pulse disable	<p>Closed-loop speed control (p1300 = 20, 21)</p> <ul style="list-style-type: none"> n_set = 0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135). When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the brake application time (p1217) expires. Zero speed is detected if the actual speed drops below the threshold in p1226 or if the monitoring time (p1227) started when speed setpoint <= speed threshold (p1226) has expired. Switching on inhibited is activated. <p>Closed-loop torque control (p1300 = 23)</p> <ul style="list-style-type: none"> Changeover to speed-controlled operation and other reactions as described for speed-controlled operation.
STOP1	-	-	In preparation
STOP2	-	n_set = 0	<ul style="list-style-type: none"> n_set = 0 is input immediately to brake the drive along the OFF3 deceleration ramp (p1135). The drive remains in closed-loop speed control mode.
IASC/ DCBRAKE	-	-	<ul style="list-style-type: none"> In the case of a synchronous motor the following applies: When a fault occurs with this fault reaction, an internal armature short circuit is triggered. The conditions for p1231 = 4 must be observed. In the case of an induction motor the following applies: When a fault occurs with this fault reaction, DC injection braking is triggered. <p>The DC brake must have been put into operation (p1232, p1233, p1234).</p>
ENCODER	-	Internal/external pulse disable (p0491)	<p>The fault reaction ENCODER is applied as a function of the setting in p0491.</p> <p>Factory setting: p0491 = 0 --> Encoder fault causes OFF2</p> <p>Note: When changing p0491, it is imperative that the information in the description of this parameter is carefully observed.</p>

Acknowledgement of faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been remedied.

Table 3-3 Acknowledgement of faults

Acknowledgement	Description
POWER ON	<p>The fault is acknowledged by a POWER ON process (switch drive unit off and on again).</p> <p>Note: If this action has not eliminated the fault cause, the fault is displayed again immediately after power up.</p>
IMMEDIATELY	<p>Faults can be acknowledged at an individual drive object (Points 1 to 3) or at all drive objects (point 4) as follows:</p> <p>1 Acknowledge by setting parameter: p3981 = 0 --> 1</p> <p>2 Acknowledge via binector inputs:</p> <p>p2103 BI: 1. Acknowledge faults p2104 BI: 2. Acknowledge faults p2105 BI: 3. Acknowledge faults</p> <p>3 Acknowledge using PROFIBUS control signal: STW1.7 = 0 --> 1 (edge)</p> <p>4 Acknowledging all faults p2102 BI: Acknowledging all faults</p> <p>All of the faults at all of the drive objects of the drive system can be acknowledged using this binector input.</p> <p>Note:</p> <ul style="list-style-type: none"> • These faults can also be acknowledged by a POWER ON operation. • If this action has not eliminated the fault cause, the fault is displayed again immediately after power up. • Safety Integrated faults The "Safe Stop" (SH) function must be deselected before these faults are acknowledged.
PULSE INHIBIT	<p>The fault can only be acknowledged with a pulse inhibit (r0899.11 = 0).</p> <p>The same possibilities are available for acknowledging as described under acknowledge IMMEDIATELY.</p>

3.1.2 Explanation of the List of Faults and Alarms

The data in the following example has been chosen at random. A description can contain the information listed below. Some of the information is optional.

The list of faults and alarms (See Section 3.2) has the following layout:

----- **Start of example** -----

Axxxxx (F, N) Fault location (optional): Name
Message value: Component number: %1, cause: %2
Drive object: List of objects.
Response: NONE
Acknowledgment: NONE
Cause: Description of possible causes.
 Fault value (r0949, interpret format): or alarm value (r2124, interpret format): (optional)
 Information about fault or alarm values (optional).
Remedy: Description of possible remedies.
Reaction to F: A_INFEED: OFF2 (OFF1, NONE)
 SERVO: NONE (OFF1, OFF2, OFF3)
 VECTOR: NONE (OFF1, OFF2, OFF3)
Acknowledgement for F: IMMEDIATELY (POWER ON)
Reaction to N: NONE
Acknowledgement:

Axxxxx Alarm xxxxx
Axxxxx (F, N) Alarm xxxxx (message type can be changed to F or N)
Fxxxxx Fault xxxxx
Fxxxxx (A, N) Fault xxxxx (report type can be changed to F or N)
Nxxxxx No message
Nxxxxx (A) No message (message type can be changed to A)
Cxxxxx Safety message (separate message buffer)

A report comprises a letter followed by the relevant number.

The meaning of the letters is as follows:

- A means "Alarm"
- F means "Fault"
- N means "No Report" or "Internal Report"
- C means "Safety message"

The optional brackets indicate whether the type specified for this report can be changed and which report types can be adjusted via parameter (p2118, p2119).

Information about reaction and acknowledgement is specified independently for a report with adjustable report type (e.g. reaction to F, acknowledgement for F).

Note:

You can change the default properties of a fault or alarm by setting parameters.

References: /FH3 SINAMICS S110 Function Manual
Chapter "Diagnostics"

The list of faults and alarms (see Chapter 3.2) provide information referred to the properties of a message/report that have been set as standard. If the properties of a specific message/report are changed, then the appropriate information may have to be modified in this list.

Fault location (optional): Name

The fault location (optional), the name of the fault or alarm and the report number all serve to identify the report (e.g. with the commissioning software).

Message value:

The information provided under message value tells you about the composition of the fault/warning value.

Example:

Message value: Component number: %1, cause: %2

This fault value or warning value contains information about the component number and cause. The entries %1 and %2 are placeholders, which are filled appropriately in online operation with the commissioning software.

Drive object:

For each message (fault/alarm) it is specified in which drive object this message is present.

A message can belong to either one, several, or all drive objects.

Response: Default fault reaction (adjustable fault reaction)

Specifies the default reaction in the event of a fault.

The optional brackets indicate whether the default fault reactions can be changed and which fault reactions can be adjusted via parameters (p2100, p2101).

Note:

See Chapter 3.1.1

Acknowledgment: Default acknowledgement (adjustable acknowledgement)

Specifies the default method of fault acknowledgement after the cause has been eliminated.

The optional brackets indicate whether the default acknowledgement can be changed and which acknowledgement can be adjusted via parameter (p2126, p2127).

Note:

See Chapter 3.1.1

Cause:

Description of the possible causes of the fault/alarm A fault or alarm value is also specified as an option.

Fault value (r0949, format):

The fault value is entered in the fault buffer in r0949[0...63] and specifies additional, precise information about a fault.

Alarm value (r2124, format):

The alarm value specifies additional, precise information about an alarm.

The alarm value is entered in the alarm buffer in r2124[0...7] and specifies additional, precise information about an alarm.

Remedy:

Description of the potential methods for eliminating the cause of the active fault or alarm.



Alarm

In individual cases, the servicing and maintenance personnel are responsible for choosing a suitable method for eliminating the cause of faults.

3.1.3 Numerical ranges of faults and alarms

Note:

The following numerical ranges represent an overview for all faults and alarms in SINAMICS.

The faults and alarms for the product described in this List Manual are described in detail in Chapter 3.2.

Faults and alarms are organized into the following numerical ranges:

Table 3-4 Numerical ranges of faults and alarms

of	to	Range
1000	3999	Control Unit
4000	4999	Reserved
5000	5999	Power unit
6000	6899	Infeed
6900	6999	Braking Module
7000	7999	Drive
8000	8999	Option Board
9000	19999	Reserved
20000	29999	OEM
30000	30999	DRIVE-CLiQ component power unit
31000	31999	DRIVE-CLiQ component encoder 1
32000	32999	DRIVE-CLiQ component encoder 2 Note: Faults that occur are automatically output as alarm if the encoder is parameterized as direct measuring system and does not intervene in the motor control.
33000	33999	DRIVE-CLiQ component encoder 3 Note: Faults that occur are automatically output as alarm if the encoder is parameterized as direct measuring system and does not intervene in the motor control.
34000	34999	Voltage Sensing Module (VSM)
35000	35199	Terminal Module 54F (TM54F)
35200	35999	Terminal Module 31 (TM31)

Table 3-4 Numerical ranges of faults and alarms, continued

of	to	Range
40000	40999	Controller extension 32 (CX32)
41000	48999	Reserved
49000	49999	SINAMICS GM/SM/GL
50000	50499	Communication Board (COMM BOARD)
50500	59999	OEM Siemens
60000	65535	OEM external

3.2 List of faults and alarms

Product: SINAMICS S110, Version: 4101500, Language: eng,
Objects: CU_S110-CAN, CU_S110-DP, SERVO_S110-CAN, SERVO_S110-DP

F01000 Internal software error
Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

F01001 Internal software error
Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01002 Internal software error
Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

F01003 Acknowledgement delay when accessing the memory
Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A memory area was accessed that does not return a "READY".
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy:
- carry out a POWER ON (power off/on) for all components.
- contact the Hotline.

N01004 (F, A)	Internal software error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An internal software error has occurred. Fault value (r0949, hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- read out diagnostics parameter (r9999). - contact the Hotline.
Reaction upon F:	OFF2
Acknowl. upon F:	POWER ON
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F01005	Firmware download for DRIVE-CLiQ component unsuccessful
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	It was not possible to download the firmware to a DRIVE-CLiQ component. Fault value (r0949, interpret hexadecimal): yyxxxx hex: yy = component number, xxxx = fault cause xxxx = 000B hex = 11 dec: DRIVE-CLiQ component has detected a checksum error. xxxx = 000F hex = 15 dec: The selected DRIVE-CLiQ component did not accept the contents of the firmware file. xxxx = 0012 hex = 18 dec: Firmware version is too old and is not accepted by the component. xxxx = 0013 hex = 19 dec: Firmware version is not suitable for the hardware release of the component. xxxx = 0065 hex = 101 dec: After several communication attempts, no response from the DRIVE-CLiQ component. xxxx = 008B hex = 139 dec: Initially, a new boot loader is loaded (must be repeated after POWER ON). xxxx = 008C hex = 140 dec: Firmware file for the DRIVE-CLiQ component not available on the memory card. xxxx = 008F hex = 143 dec: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware. xxxx = 0090 hex = 144 dec: When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card is defective. xxxx = 0091 hex = 145 dec: Checking the loaded firmware (checksum) was not completed by the component in the appropriate time. xxxx = 009C hex = 156 dec: Component with the specified component number is not available (p7828). xxxx = Additional values: Only for internal Siemens troubleshooting.
Remedy:	- check the selected component number (p7828). - check the DRIVE-CLiQ connection. - save suitable firmware file for download in the directory /siemens/sinamics/code/sac/. - after POWER ON has been carried out again for the DRIVE-CLiQ component, download the firmware again. Depending on p7826, the firmware will be automatically downloaded.

A01006	Firmware update for DRIVE-CLiQ component required
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component.
Remedy:	Firmware update using the commissioning software: The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out. Firmware update via parameter: - take the component number from the alarm value and enter into p7828. - start the firmware download with p7829 = 1.

A01007	POWER ON for DRIVE-CLiQ component required
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A DRIVE-CLiQ component must be powered up again (POWER ON) as, for example, the firmware was updated. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component. Note: For a component number = 1, a POWER ON of the Control Unit is required.
Remedy:	Switch off the power supply of the specified DRIVE-CLiQ component and switch it on again.

A01009 (N)	CU: Control module overtemperature
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The temperature (r0037[0]) of the control module (Control Unit) has exceeded the specified limit value.
Remedy:	- check the air intake for the Control Unit. - check the fan for the Control Unit (only for CU310). Note: The alarm automatically disappears after the limit value has been undershot.
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F01010	Drive type unknown
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An unknown drive type was found. Fault value (r0949, interpret decimal): Drive object number (refer to p0101, p0107).
Remedy:	- Replace Power Module. - carry out a POWER ON (power off/on) for all components. - upgrade firmware to later version. - contact the Hotline.

F01011 (N) Download interrupted

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The project download was interrupted.
 - the project download was prematurely ended by the user or by the commissioning software (e.g. STARTER, SCOUT).
 - the communication cable was interrupted (e.g. cable breakage, cable withdrawn).
Note:
 The response to an interrupted download is the state "first commissioning".
Remedy:
 - check the communication cable.
 - download the project again.
 - boot from previously saved files (power-down/power-up or p0976).
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F01012 (N) Project conversion error

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: When converting the project of an older firmware version, an error occurred.
 Fault value (r0949, interpret decimal):
 Parameter number of the parameter causing the error.
 For fault value = 600, the following applies:
 The temperature evaluation is no longer assigned to the power unit but to the encoder evaluation.
Notice:
 Monitoring of the motor temperature is no longer ensured.
Remedy: Check the parameter indicated in the fault value and correctly adjust it accordingly.
 Re fault value = 600:
 Parameter p0600 must be set to the values 1, 2 or 3 in accordance with the assignment of the internal encoder evaluation to the encoder interface.
 Value 1 means: The internal encoder evaluation is assigned to the encoder interface 1 via p0187.
 Value 2 means: The internal encoder evaluation is assigned to the encoder interface 2 via p0188.
 Value 3 means: The internal encoder evaluation is assigned to the encoder interface 3 via p0189.
 - If necessary, the internal encoder evaluation must be assigned to an encoder interface via parameters p0187, p0188 or p0189 accordingly.
 - If necessary, upgrade the firmware to a later version.
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F01015 Internal software error

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy:
 - carry out a POWER ON (power off/on) for all components.
 - upgrade firmware to later version.
 - contact the Hotline.

A01016 (F) Firmware changed

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: At least one firmware file in the directory /SIEMENS/SINAMICS/ has been changed without authorization with respect to the version shipped from the factory. No changes are permitted in this directory.
 Alarm value (r2124, interpret decimal):
 0: Checksum of one file is incorrect.
 1: File missing.
 2: Too many files.
 3: Incorrect firmware version.
 4: Incorrect checksum of the back-up file.
 See also: r9925 (Firmware file incorrect)
Remedy: On the non-volatile memory for the firmware (memory card, device memory), restore the delivery condition.
 Note:
 The file involved can be read out using parameter r9925.
 See also: r9926 (Firmware check status)
 Reaction upon F: OFF2
 Acknowled. upon F: POWER ON

A01017 Component lists changed

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: On the memory card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory.
 Alarm value (r2124, interpret decimal):
 The problem is indicated in the first digit of the alarm value:
 1. File does not exist.
 2. Firmware version of the file does not match the software version.
 3. The file checksum is incorrect.
 The second digit of the alarm value indicates in which directory the file is located:
 0: Directory /SIEMENS/SINAMICS/DATA/
 1: Directory /ADDON/SINAMICS/DATA/
 The third digit of the alarm value indicates the file:
 0: File MOTARM.ACX
 1: File MOTSRM.ACX
 2: File MOTSLM.ACX
 3: File ENCDATA.ACX
 4: File FILTDATA.ACX
 5: File BRKDATA.ACX
Remedy: For the memory card file involved, restore the status originally supplied from the factory.

F01018 Booting has been interrupted several times

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: Module booting was interrupted several times.
 Possible reasons for booting being interrupted:
 - POWER OFF of the module
 - CPU crash
 - invalid USER data
 If this fault is output, then the module is booted with the factory settings.
Remedy: Power down the module and power it up again.
 The module then boots from USER data (if available).
 If this fault profile repeats itself, then this fault is output again after several interrupted boot operations.

A01019 Writing to the removable data medium unsuccessful

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The write access to the removable data medium was unsuccessful.
Remedy: Remove the removable data medium and check; then back up the data again.

F01030 Sign-of-life failure for master control

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF3 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: For active PC master control, no sign-of-life was received within the monitoring time. The master control was returned to the active BICO interconnection.
Remedy: Set the monitoring time higher at the PC or, if required, completely disable the monitoring function. For the commissioning software, the monitoring time is set as follows:
 <Drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds.
Notice:
 The monitoring time should be set as short as possible. A long monitoring time means a late response when the communication fails!

F01031 Sign-of-life failure for OFF in REMOTE

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF3 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: With the "OFF in REMOTE" mode active, no sign-of-life was received within 3 s.
Remedy: - Check the data cable connection at the serial interface for the Control Unit (CU) and operator panel.
 - Check the data cable between the Control Unit and operator panel.

F01033 Units changeover: Reference parameter value invalid

Message value: Parameter: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0
 Fault value (r0949, parameter):
 Reference parameter whose value is 0.0.
 See also: p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Selecting technological units)
Remedy: Set the value of the reference parameter to a number different than 0.0.
 See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004

F01034	Units changeover: Calculation parameter values after reference value change unsuccessful
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The change of a reference parameter meant that for an involved parameter the selected value was not able to be recalculated in the per unit representation. The change was rejected and the original parameter value restored. Fault value (r0949, parameter): Parameter whose value was not able to be re-calculated. See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004
Remedy:	Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation. See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004
A01035 (F)	ACX: Boot from the back-up parameter back-up files
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the Control Unit is booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out. Instead, a back-up data set or a back-up parameter back-up file is downloaded. Alarm value (r2124, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	If you have saved the project using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
F01036 (A)	ACX: Parameter back-up file missing
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	When downloading the device parameterization, a parameter back-up file associated with a drive object cannot be found. Neither a PSxxxxyy.ACX, a PSxxxxyy.NEW nor a PSxxxxyy.BAK parameter back-up file exists in the non-volatile memory for this drive object. Fault value (r0949, interpret hexadecimal): Byte 1: yyy in the file name PSxxxxyy.ACX yyy = 000 --> consistency back-up file yyy = 001 ... 062 --> drive object number yyy = 099 --> PROFIBUS parameter back-up file Byte 2, 3, 4: Only for internal Siemens troubleshooting.
Remedy:	If you have saved the project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory. If you have not saved the project data, then first commissioning of the system has to be carried out again.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F01037 (A) ACX: Re-naming the parameter back-up file unsuccessful

Message value: %1
Drive object: All objects
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Re-naming after saving a parameter back-up file in the non-volatile memory was unsuccessful.
 One of the parameter back-up files to be re-named had the "read only" attribute. The parameter back-up files are saved in the directory \USER\SINAMICS\DATA.
 It is possible that the non-volatile memory is defective.
 Fault value (r0949, interpret hexadecimal):
 Byte 1: yyy in the file names PSxxxxyy.* or CAXxxxxyy.* or CCxxxxyy.*
 yyy = 000 --> consistency back-up file
 yyy = 099 --> PROFIBUS parameter back-up file PSxxx099.*
 Byte 2: xxx in the file name PSxxxxyy.*
 xxx = 000 --> data save started with p0977 = 1
 xxx = 010 --> data save started with p0977 = 10
 xxx = 011 --> data save started with p0977 = 11
 xxx = 012 --> data save started with p0977 = 12
 Byte 4, 3:
 Only for internal Siemens troubleshooting.
Remedy: - check whether one of the files to be overwritten has the attribute "read only" and change this file attribute to "writable". Check all of the files (PSxxxxyy.*, CCxxxxyy.*, CAXxxxxyy.*) that belong to drive yyy designated in the fault value.
 - replace the memory card or Control Unit.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01038 (A) ACX: Loading the parameter back-up file unsuccessful

Message value: %1
Drive object: All objects
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: An error has occurred when downloading PSxxxxyy.ACX or PTxxxxyy.ACX files from the non-volatile memory.
 Fault value (r0949, interpret hexadecimal):
 Byte 1: yyy in the file name PSxxxxyy.ACX
 yyy = 000 --> consistency back-up file
 yyy = 001 ... 062 --> drive object number
 yyy = 099 --> PROFIBUS parameter back-up file
 Byte 4, 3, 2:
 Only for internal Siemens troubleshooting.
Remedy: - If you have saved the project data using the commissioning software, carry out a new download for your project. Save using the function "Copy RAM to ROM" or with p0977 = 1 so that all of the parameter files are again completely written to the non-volatile memory.
 - replace the memory card or Control Unit.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful

Message value: %1

Drive object: All objects

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: Writing to at least one parameter back-up file PSxxxxyy.*** in the non-volatile memory was unsuccessful.
 - In the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxxyy.*** has the "read only" file attribute and cannot be overwritten.
 - There is not sufficient free memory space available.
 - The non-volatile memory is defective and cannot be written to.
 Fault value (r0949, interpret hexadecimal):
 dcba hex
 a = yyy in the file names PSxxxxyy.***
 a = 000 --> consistency back-up file
 a = 001 ... 062 --> drive object number
 a = 099 --> PROFIBUS parameter back-up file
 b = xxx in the file names PSxxxxyy.***
 b = 000 --> data save started with p0977 = 1
 b = 010 --> data save started with p0977 = 10
 b = 011 --> data save started with p0977 = 11
 b = 012 --> data save started with p0977 = 12
 d, c:
 Only for internal Siemens troubleshooting.

Remedy: - check the file attribute of the files (PSxxxxyy.***, CAxxxxyy.***, CCxxxxyy.***) and, if required, change from "read only" to "writeable".
 - check the free memory space in the non-volatile memory. Approx. 40 kbyte of free memory space is required for every drive object in the system.
 - replace the memory card or Control Unit.

Reaction upon A: NONE
 Acknowl. upon A: NONE

F01040 Save parameter settings and carry out a POWER ON

Message value: -

Drive object: All objects

Reaction: OFF2

Acknowledge: POWER ON

Cause: A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot (e.g. p0110).

Remedy: - save the parameters (p0971/p0977).
 - carry out a POWER ON (power off/on) for all components.

F01041 Parameter save necessary

Message value: %1

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Defective or missing files were detected on the memory card when booting.
 Fault value (r0949, interpret decimal):
 1: Source file cannot be opened.
 2: Source file cannot be read.
 3: Target directory cannot be set up.
 4: Target file cannot be set up/opened.
 5: Target file cannot be written to.
 Additional values:
 Only for internal Siemens troubleshooting.

Remedy: - save the parameters.
 - download the project again to the drive unit.
 - update the firmware
 - if required, replace the Control Unit and/or memory card card.

F01042 Parameter error during project download

Message value: Parameter: %1, Index: %2, fault cause: %3

Drive object: All objects

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value).
 For the specified parameter, it was detected that dynamic limits were exceeded that may possibly depend on other parameters.
 Fault value (r0949, interpret hexadecimal):
 ccbbaaaa hex
 aaaa = Parameter
 bb = Index
 cc = fault cause
 0: Parameter number illegal.
 1: Parameter value cannot be changed.
 2: Lower or upper value limit exceeded.
 3: Sub-index incorrect.
 4: No array, no sub-index.
 5: Data type incorrect.
 6: Setting not permitted (only resetting).
 7: Descriptive element cannot be changed.
 9: Descriptive data not available.
 11: No master control.
 15: No text array available.
 17: Task cannot be executed due to operating status.
 20: Illegal value.
 21: Response too long.
 22: Parameter address illegal.
 23: Format illegal.
 24: Number of values not consistent.
 25: Drive object does not exist.
 101: Presently de-activated.
 104: Illegal value.
 107: Write access not permitted when controller enabled.
 108: Unit unknown.
 109: Write access only in the commissioning state, encoder (p0010 = 4).
 110: Write access only in the commissioning state, motor (p0010 = 3).
 111: Write access only in the commissioning state, power unit (p0010 = 2).
 112: Write access only in the quick commissioning mode (p0010 = 1).
 113: Write access only in the ready mode (p0010 = 0).
 114: Write access only in the commissioning state, parameter reset (p0010 = 30).
 115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
 116: Write access only in the commissioning state, technological application/units (p0010 = 5).
 117: Write access only in the commissioning state (p0010 not equal to 0).
 118: Write access only in the commissioning state, download (p0010 = 29).
 119: Parameter may not be written in download.
 120: Write access only in the commissioning state, drive basis configuration (device: p0009 = 3).
 121: Write access only in the commissioning state, define drive type (device: p0009 = 2).
 122: Write access only in the commissioning state, data set basis configuration (device: p0009 = 4).
 123: Write access only in the commissioning state, device configuration (device: p0009 = 1).
 124: Write access only in the commissioning state, device download (device: p0009 = 29).
 125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30).
 126: Write access only in the commissioning state, device ready (device: p0009 = 0).
 127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
 129: Parameter may not be written in download.
 130: Transfer of the master control is inhibited via BI: p0806.
 131: Required BICO interconnection not possible because BICO output does not supply floating value
 132: Free BICO interconnection inhibited via p0922.
 133: Access method not defined.
 200: Below the valid values.
 201: Above the valid values.

202: Cannot be accessed from the Basic Operator Panel (BOP).
 203: Cannot be read from the Basic Operator Panel (BOP).
 204: Write access not permitted.

Remedy:

- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

F01043 Fatal error at project download

Message value: Fault cause: %1
Drive object: All objects
Reaction: OFF2 (OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A fatal error was detected when downloading a project using the commissioning software.
 Fault value (r0949, interpret decimal):
 1: Device status cannot be changed to Device Download (drive object ON?).
 2: Incorrect drive object number.
 3: A drive object that has already been deleted is deleted again.
 4: Deleting of a drive object that has already been registered for generation.
 5: Deleting a drive object that does not exist.
 6: Generating an undeleted drive object that already existed.
 7: Regenerating a drive object already registered for generation.
 8: Maximum number of drive objects that can be generated exceeded.
 9: Error while generating a device drive object.
 10: Error while generating target topology parameters (p9902 and p9903).
 11: Error while generating a drive object (global component).
 12: Error while generating a drive object (drive component).
 13: Unknown drive object type.
 14: Drive status cannot be changed to "ready for operation" (p0947 and p0949).
 15: Drive status cannot be changed to drive download.
 16: Device status cannot be changed to "ready for operation".
 17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.
 18: A new download is only possible if the factory settings are restored for the drive unit.
 19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)
 20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR).

Remedy:

- use the current version of the commissioning software.
- modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power unit in the offline project and at the drive).
- change the drive state (is a drive rotating or is there a message/signal?).
- carefully note any other messages/signals and remove their cause.

F01044 CU: Descriptive data error

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An error was detected when loading the descriptive data saved in the non-volatile memory.
Remedy: Replace the memory card or Control Unit.

A01045 CU: Configuring data invalid

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected when evaluating the parameter files PSxxxxxyy.ACX, PTxxxxyy.ACX, CAxxxxyy.ACX, or CCxxxxyy.ACX saved in the non-volatile memory.
 Alarm value (r2124, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy: Restore the factory setting using (p0976 = 1) and re-load the project to the drive unit. Operation without any restrictions is then possible.
After downloading the project, save the parameters in STARTER using "Copy RAM to ROM" or with p0977 = 1. This overwrites the incorrect parameter files in the non-volatile memory.

A01049 CU: It is not possible to write to file

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to write into a write-protected file (PSxxxxx.acx). The write request was interrupted.
Alarm value (r2124, interpret decimal):
Drive object number.
Remedy: Check whether the "write protected" attribute has been set for the files in the non-volatile memory under .../USER/SINAMICS/DATA/... When required, remove write protection and save again (e.g. set p0977 to 1).

F01050 Memory card and device incompatible

Message value: -
Drive object: All objects
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The memory card and the device type do not match (e.g. a memory card for SINAMICS S is inserted in SINAMICS G).
Remedy: - insert the matching memory card.
- use the matching Control Unit or power unit.

A01052 CU: System overload calculated for the complete target topology

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A system overload was calculated based on a complete active target topology.
Alarm value (r2124, interpret decimal):
2: Computing time load too high.
6: Cyclic computing time load too high.
Remedy: - reduce the sampling time.
- only use one data set (CDS, DDS).
- de-activate the function module.
- de-activate the drive object.
- remove the drive object from the target topology.

A01053 CU: System overload measured

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A system overload was determined based on measured values.
Alarm value (r2124, interpret decimal):
2: Computing time load too high.
6: Cyclic computing time load too high.
See also: r9976 (System load)
Remedy: - reduce the sampling time.
- only use one data set (CDS, DDS).
- de-activate the function module.
- de-activate the drive object.
- remove the drive object from the target topology.

F01054 CU: system limits exceeded

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: A system overload condition has been identified.
Fault value (r0949, interpret decimal):
1: Computing time load too high
5: PEAK load too high. The sampling time of the time slice in which the peak load was exceeded is shown in r9979.
p0115 can be used to view and, if necessary, change the parameterized sampling times.
See also: r9976 (System load)
Remedy: Re fault value = 1, 5:
- reduce the sampling time.
- only use one data set (CDS, DDS).
- de-activate the function module.
- de-activate the drive object.
- remove the drive object from the target topology.

A01064 (F) CU: Internal error (CRC)

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CRC error in the Control Unit program memory
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

Reaction upon F: NONE (OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A01065 Drive: Fault on non-active encoder

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: One or several inactive encoders indicate an error.
Remedy: Remove the error for the inactive encoder.

A01099 Tolerance window of time synchronization exited

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time master exited the selected tolerance window for time synchronization.
See also: p3109 (RTC real time synchronization, tolerance window)
Remedy: Select the re-synchronization interval so that the synchronization deviation between the time master and drive system lies within the tolerance window.
See also: r3108 (RTC last synchronization deviation)

F01105 (A) CU: Insufficient memory

Message value: %1
Drive object: All objects
Reaction: OFF1
Acknowledge: POWER ON
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
 - use an additional Control Unit.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01107 CU: Data save in the non-volatile memory unsuccessful

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A data save in the non-volatile memory was not able to be successfully carried out.
 - non-volatile memory is defective.
 - insufficient space in the non-volatile memory.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy: - try to save again.
 - replace the memory card or Control Unit.

F01112 CU: Power unit not permissible

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The connected power unit cannot be used together with this Control Unit.
 Fault value (r0949, interpret decimal):
 1: Power unit is not supported (e.g. PM240).
 2: DC/AC power unit connected to CU310 not permissible.
Remedy: Replace the power unit that is not permissible by a component that is permissible.

F01120 (A) Terminal initialization has failed

Message value: %1
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error occurred while the terminal functions were being initialized.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
 - upgrade firmware to later version.
 - contact the Hotline.
 - replace the Control Unit.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01122 (A) Frequency at the measuring probe input too high

Message value: %1
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The frequency of the pulses at the measuring probe input is too high.
Fault value (r0949, interpret decimal):
1: DI/DO 9 (X122.8)
2: DI/DO 10 (X122.10)
4: DI/DO 11 (X122.11)
8: DI/DO 13 (X132.8)
16: DI/DO 14 (X132.10)
32: DI/DO 15 (X132.11)
64: DI/DO 8 (X122.7)
128: DI/DO 12 (X132.7)
Remedy: Reduce the frequency of the pulses at the measuring probe input.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01150 CU: Number of instances of a drive object type exceeded

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The maximum permissible number of instances of a drive object type was exceeded.
Fault value (r0949, interpret decimal):
Byte 1: Drive object type (p0107).
Byte 2: Max. permissible number of instances for this drive object type.
Byte 3: Current number of instances for this drive object type.
Remedy:
- power down the unit.
- suitably restrict the number of instances of a drive object type by reducing the number of inserted components.
- re-commission the unit.

F01200 CU: Time slice management internal software error

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A time slice management error has occurred.
It is possible that the sampling times have been inadmissibly set.
Fault value (r0949, interpret hexadecimal):
998:
Too many time slices occupied by OA (e.g. DCC).
999:
Too many time slices occupied by the basic system. Too many different sampling times may have been set.
Additional values:
Only for internal Siemens troubleshooting.
Remedy:
- check the sampling time setting (p0112, p0115, p4099).
- contact the Hotline.

F01205 CU: Time slice overflow

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Insufficient processing time is available for the existing topology.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.
Remedy: - reduce the number of drives.
 - increase the sampling times.

A01224 CU: Pulse frequency inconsistent

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.
 Alarm value (r2124, interpret decimal):
 1: Value, low minimum value.
 2: Value, high maximum value.
 3: Resulting sampling time is not a multiple of 1.25 µs.
 4: Value does not match clock-cycle synchronous PROFIBUS operation.
 10: Special restriction of the drive object violated.
 99: Inconsistency of cross drive objects detected.
 116: Recommended clock cycle in r0116[0...1].
Remedy: Set a valid pulse frequency.

F01250 CU: CU-EEPROM incorrect read-only data

Message value: %1
Drive object: All objects
Reaction: NONE (OFF2)
Acknowledge: POWER ON
Cause: Error when reading the read-only data of the EEPROM in the Control Unit.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON.
 - replace the Control Unit.

A01251 CU: CU-EEPROM incorrect read-write data

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when reading the read-write data of the EEPROM in the Control Unit.
 Alarm value (r2124, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy: For alarm value r2124 < 256, the following applies:
 - carry out a POWER ON.
 - replace the Control Unit.
 For alarm value r2124 >= 256, the following applies:
 - for the drive object with this alarm, clear the fault memory (p0952 = 0).
 - as an alternative, clear the fault memory of all drive objects (p2147 = 1).
 - replace the Control Unit.

F01303	DRIVE-CLiQ component does not support the required function
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A function requested by the Control Unit is not supported by a DRIVE-CLiQ component. Fault value (r0949, interpret decimal): 1: The component does not support the de-activation. 101: The Motor Module does not support an internal armature short-circuit. 102: The Motor Module does not support the de-activation. 201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation. 202: The Sensor Module does not support parking/unparking. 203: The Sensor Module does not support the de-activation. 204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO. 205: The Sensor Module does not support the selected temperature evaluation (r0458). 206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation. 207: The power unit with this hardware version does not support operation with device supply voltages of less than 380 V.
Remedy:	Upgrade the firmware of the DRIVE-CLiQ component involved. Re fault value = 205: Check parameter p0600 and p0601 and if required, adapt interpretation. Re fault value = 207: Replace the power unit or if required set the device supply voltage higher (p0210).
A01304 (F)	Firmware version of DRIVE-CLiQ component is not up-to-date
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The non-volatile memory has a more recent firmware version than the one in the connected DRIVE-CLiQ component. Alarm value (r2124, interpret decimal): Component number of the DRIVE-CLiQ component involved.
Remedy:	Update the firmware (p7828, p7829 and commissioning software).
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
F01305	Topology: Component number missing
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/vector drives, refer to p0107), p0141, p0151, p0161). Fault value (r0949, interpret decimal): The fault value includes the particular data set number. The fault also occurs if speed encoders were configured (p0187 ... p0189), however, no component numbers exist for them. In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number was not entered into p0141 for the third encoder (p0189)). See also: p0121, p0131, p0141, p0142, p0186, p0187, p0188
Remedy:	Enter the missing component number or remove the component and restart commissioning. See also: p0121, p0131, p0141, p0142, p0186, p0187, p0188

A01306 Firmware of the DRIVE-CLiQ component being updated

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Firmware update is active for at least one DRIVE-CLiQ component.
 Alarm value (r2124, interpret decimal):
 Component number of the DRIVE-CLiQ component.
Remedy: None necessary.
 This alarm automatically disappears after the firmware has been updated.

A01314 Topology: Component must not be present

Message value: Component number: %1, Component class: %2, Connection number: %3
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For a component, "de-activate and not present" is set but this component is still in the topology.
 Alarm value (r2124, interpret hexadecimal):
 Byte 1: Component number
 Byte 2: Component class of the component
 Byte 3: Connection number
 Note: Component class and connection number are described in F01375.
Remedy: - remove the corresponding component.
 - change the setting "de-activate and not present".
 Note:
 Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).
 See also: p0145 (Activate/de-activate encoder interface)

A01315 Drive object not ready for operation

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For the active drive object involved, at least one activated component is missing.
 Note:
 All other active and operational drive objects can be in the "RUN" state.
Remedy: The alarm automatically disappears again with the following actions:
 - de-activate the drive object involved (p0105 = 0).
 - de-activate the components involved (p0125 = 0, p0145 = 0, p0155 = 0, p0165 = 0).
 - re-insert the components involved.
 See also: p0145 (Activate/de-activate encoder interface)

A01316 Drive object inactive and again ready for operation

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: If, when inserting a component of the target topology, an inactive, non-operational drive object becomes operational again. The associated parameter of the component is, in this case, set to "activate" (p0125, p0145, p0155, p0165).
 Note:
 This is the only message that is displayed for a de-activated drive object.
Remedy: The alarm automatically disappears again with the following actions:
 - activate the drive object involved (p0105 = 1).
 - again withdraw the components involved.

A01317 (N) De-activated component again present

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "de-activate" (p0125, p0145, p0155, p0165).
Note:
This is the only message that is displayed for a de-activated component.
Remedy: The alarm automatically disappears again with the following actions:
- activate the components involved (p0125 = 1, p0145 = 1, p0155 = 1, p0165 = 1).
- again withdraw the components involved.
See also: p0145 (Activate/de-activate encoder interface)
Reaction upon N: NONE
Acknowl. upon N: NONE

A01318 BICO: De-activated interconnections present

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: This alarm is output:
If an inactive/non-operational drive object is again active/ready for operation and r9498[] or r9499[] are not empty and the connections listed in r9498[] and r9499 have actually been changed
Remedy: Clear alarm:
Set p9496 to 1 or 2
or
de-activate DO again

A01319 Inserted component not initialized

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The inserted component has still not been initiated, as the pulses are enabled.
Remedy: Pulse inhibit

A01320 Topology: Drive object number does not exist in configuration

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is missing in p0978
Alarm value (r2124, interpret decimal):
Index of p0101 under which the missing drive object number can be determined.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01321 Topology: Drive object number does not exist in configuration

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: p0978 contains a drive object number that does not exist.
 Alarm value (r2124, interpret decimal):
 Index of p0978 under which the drive object number can be determined.
Remedy: Set p0009 to 1 and change p0978:
 Rules:
 - p0978 must include all of the drive object numbers (p0101).
 - it is not permissible for a drive object number to be repeated.
 - by entering a 0, the drive objects with PZD are separated from those without PZD.
 - only 2 partial lists are permitted. After the second 0, all values must be 0.
 - dummy drive object numbers (255) are only permitted in the first partial list.

A01322 Topology: Drive object number present twice in configuration

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is present more than once in p0978.
 Alarm value (r2124, interpret decimal):
 Index of p0978 under which the involved drive object number is located.
Remedy: Set p0009 to 1 and change p0978:
 Rules:
 - p0978 must include all of the drive object numbers (p0101).
 - it is not permissible for a drive object number to be repeated.
 - by entering a 0, the drive objects with PZD are separated from those without PZD.
 - only 2 partial lists are permitted. After the second 0, all values must be 0.
 - dummy drive object numbers (255) are only permitted in the first partial list.

A01323 Topology: More than two partial lists created

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Partial lists are available more than twice in p0978. After the second 0, all must be 0.
 Alarm value (r2124, interpret decimal):
 Index of p0978 under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
 Rules:
 - p0978 must include all of the drive object numbers (p0101).
 - it is not permissible for a drive object number to be repeated.
 - by entering a 0, the drive objects with PZD are separated from those without PZD.
 - only 2 partial lists are permitted. After the second 0, all values must be 0.
 - dummy drive object numbers (255) are only permitted in the first partial list.

A01324 Topology: Dummy drive object number incorrectly created

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: In p0978, dummy drive object numbers (255) are only permitted in the first partial list.
 Alarm value (r2124, interpret decimal):
 Index of p0978 under which the illegal value is located.

- Remedy:** Set p0009 to 1 and change p0978:
 Rules:
 - p0978 must include all of the drive object numbers (p0101).
 - it is not permissible for a drive object number to be repeated.
 - by entering a 0, the drive objects with PZD are separated from those without PZD.
 - only 2 partial lists are permitted. After the second 0, all values must be 0.
 - dummy drive object numbers (255) are only permitted in the first partial list.

A01330 Topology: Quick commissioning not possible

Message value: Fault cause: %1, supplementary information: %2, preliminary component number: %3

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Unable to carry out a quick commissioning. The existing actual topology does not fulfill the requirements.

Alarm value (r2124, interpret hexadecimal):

ccccbbaa hex: cccc = preliminary component number, bb = supplementary information, aa = fault cause
 aa = 01 hex = 1 dec:

On one component illegal connections were detected.

- bb = 01 hex = 1 dec: For a Motor Module, more than one motor with DRIVE-CLiQ was detected.

- bb = 02 hex = 2 dec: For a motor with DRIVE-CLiQ, the DRIVE-CLiQ cable is not connected to a Motor Module.

aa = 02 hex = 2 dec:

The topology contains too many components of a particular type.

- bb = 01 hex = 1 dec: There is more than one master Control Unit.

- bb = 02 hex = 2 dec: There is more than 1 infeed (8 for a parallel circuit configuration).

- bb = 03 hex = 3 dec: There are more than 10 Motor Modules (8 for a parallel circuit configuration).

- bb = 04 hex = 4 dec: There are more than 9 encoders.

- bb = 05 hex = 5 dec: There are more than 8 Terminal Modules.

- bb = 07 hex = 7 dec: Unknown component type

- bb = 08 hex = 8 dec: There are more than 6 drive slaves.

- bb = 09 hex = 9 dec: Connection of a drive slave not permitted.

- bb = 0a hex = 10 dec: There is no drive master.

- bb = 0b hex = 11 dec: There is more than one motor with DRIVE-CLiQ for a parallel circuit.

- cccc: Not used.

aa = 03 hex = 3 dec:

More than 16 components are connected at a DRIVE-CLiQ socket of the Control Unit.

- bb = 0, 1, 2, 3 means e.g. detected at the DRIVE-CLiQ socket X100, X101, X102, X103.

- cccc: Not used.

aa = 04 hex = 4 dec:

The number of components connected one after the other is greater than 125.

- bb: Not used.

- cccc = preliminary component number of the first component and component that resulted in the fault.

aa = 05 hex = 5 dec:

The component is not permissible for SERVO.

- bb = 01 hex = 1 dec: SINAMICS G available.

- bb = 02 hex = 2 dec: Chassis available.

- cccc = preliminary component number of the first component and component that resulted in the fault.

aa = 06 hex = 6 dec:

On one component illegal EEPROM data was detected. These must be corrected before the system continues to boot.

- bb = 01 hex = 1 dec: The Order No. [MLFB] of the power unit that was replaced includes a space retainer. The space retainer (*) must be replaced by a correct character.

- cccc = preliminary component number of the component with illegal EEPROM data.

aa = 07 hex = 7 dec:

The actual topology contains an illegal combination of components.

- bb = 01 hex = 1 dec: Active Line Module (ALM) and Basic Line Module (BLM).

- bb = 02 hex = 2 dec: Active Line Module (ALM) and Smart Line Module (SLM).

- bb = 03 hex = 3 dec: SIMOTION control (e.g. SIMOTION D445) and SINUMERIK component (e.g. NX15).

- bb = 04 hex = 4 dec: SINUMERIK control (e.g. SINUMERIK 730.net) and SIMOTION component (e.g. CX32).

- cccc: Not used.

Note:

Connection type and connection number are described in F01375.

See also: p0097 (Select drive object type)

Remedy:

- adapt the output topology to the permissible requirements.
- carry out commissioning using the commissioning software.
- for motors with DRIVE-CLiQ, connect the power and DRIVE-CLiQ cable to the same Motor Module (Single Motor Module: DRIVE-CLiQ at X202, Double Motor Module: DRIVE-CLiQ from motor 1 (X1) to X202, from motor 2 (X2) to X203).

Re aa = 06 hex = 6 dec and bb = 01 hex = 1 dec:
 Correct the order number when commissioning using the commissioning software.
 See also: p0097 (Select drive object type)

A01331 **Topology: At least one component not assigned to a drive object**

Message value: Component number: %1

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: At least one component is not assigned to a drive object.
 - when commissioning, a component was not able to be automatically assigned to a drive object.
 - the parameters for the data sets are not correctly set.
 Alarm value (r2124, interpret decimal):
 Component number of the unassigned component.

Remedy: This component is assigned to a drive object.
 Check the parameters for the data sets.
 Examples:
 - power unit (p0121).
 - motor (p0131, p0186).
 - encoder interface (p0140, p0141, p0187 ... p0189).
 - encoder (p0140, p0142, p0187 ... p0189).
 - Terminal Module (p0151).
 - option board (p0161).

F01354 **Topology: Actual topology indicates an illegal component**

Message value: Fault cause: %1, component number: %2

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: The actual topology indicates at least one illegal component.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = cause.
 xx = 1: Component at this Control Unit not permissible.
 xx = 2: Component in combination with another component not permissible.
 Note:
 Pulse enable is prevented.

Remedy: Remove the illegal components and restart the system.

F01355 **Topology: Actual topology changed**

Message value: %1

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The device target topology (p0099) does not correspond to the device actual topology (r0098).
 The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the commissioning software.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy: One of the following counter-measures can be selected if no faults have occurred in the topology detection itself:
 If commissioning was still not completed:
 - carry out a self-commissioning routine (starting from p0009 = 1).
 General: Set p0099 to r0098, set p0009 to 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107).
 Generating servo drives: Set p0097 to 1, set p0009 to 0.
 Generating vector drives: Set p0097 to 2, set p0009 to 0.
 Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0.
 In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and modify p0108. The index corresponds to the drive object (p0107).
 If commissioning was already completed:
 - re-establish the original connections and re-connect power to the Control Unit.
 - restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
 - change the device parameterization to match the connections (this is only possible using the commissioning software).
Notice:
 Topology changes that result in this fault being generated cannot be accepted by the automatic function in the device, but must be transferred using the commissioning software and parameter download. The automatic function in the device only allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.

F01360 **Topology: Actual topology is illegal**

Message value: Fault cause: %1, preliminary component number: %2

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The detected actual topology is not permissible.
 Fault value (r0949, interpret hexadecimal):
 ccccbbaa hex: cccc = preliminary component number, aa = fault cause
 aa = 01 hex = 1 dec:
 Too many components were detected at the Control Unit. The maximum permissible number of components is 199.
 aa = 02 hex = 2 dec:
 The component type of a component is not known.
 aa = 03 hex = 3 dec:
 It is illegal to combine ALM and BLM.
 aa = 04 hex = 4 dec:
 It is illegal to combine ALM and SLM.
 aa = 05 hex = 5 dec:
 It is illegal to combine BLM and SLM.
 aa = 06 hex = 6 dec:
 A CX32 was not directly connected to a permitted Control Unit.
 aa = 07 hex = 7 dec:
 An NX10 or NX15 was not directly connected to a permitted Control Unit.
 aa = 08 hex = 8 dec:
 A component was connected to a Control Unit that is not permitted for this purpose.
 aa = 0A hex = 10 dec:
 Too many components of a particular type detected.
 aa = 0B hex = 11 dec:
 Too many components of a particular type detected on a single line.
Note:
 The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy:

- Re fault cause = 1:
Change the configuration. Connect less than 199 components to the Control Unit.
- Re fault cause = 2:
Remove the component with unknown component type.
- Re fault cause = 3, 4, 5:
Establish a valid combination.
- Re fault cause = 6, 7:
Connect the expansion module directly to a permitted Control Unit.
- Re fault cause = 8:
Remove component.
- Re fault cause = 10, 11:
Reduce the number of components.

A01361 Topology: Actual topology contains SINUMERIK and SIMOTION components

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The detected actual topology contains SINUMERIK and SIMOTION components.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex: cc = fault cause, bb = component class of the actual topology, aa = component number of the component
cc = 01 hex = 1 dec:
An NX10 or NX15 was connected to a SIMOTION control.
cc = 02 hex = 2 dec:
A CX32 was connected to a SINUMERIK control.

Remedy:

- Re fault cause = 1:
Replace all NX10 or NX15 by a CX32.
- Re fault cause = 2:
Replace all CX32 by an NX10 or NX15.

F01380 Topology: Actual topology, defective EEPROM

Message value: Preliminary component number: %1
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: When detecting the actual topology, a component with a defective EEPROM was detected.
Fault value (r0949, interpret hexadecimal):
bbbbaaaa hex:
aaaa = preliminary component number of the defective components

Remedy: Output the fault value and remove the defected component.

A01416 Topology: Comparison additional component in actual topology

Message value: Component number: %1, Component class: %2, Connection number: %3
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has found a component in the actual topology which is not specified in the target topology.
The alarm value includes the component number and connection number of the component with which the additional component is connected.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
cc = connection number
bb = component class of the additional component
aa = component number
Note:
- component class and connection number are described in F01375.
- components that are connected to this additional component are not operational.

Remedy: Adapting the topologies:
 - remove the additional component in the actual topology.
 - download the target topology that matches the actual topology (commissioning software).
Note:
 Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).

A01420 Topology: Comparison a component is different

Message value: Component number: %1, component class target: %2, component class actual: %3, fault cause: %4
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. There are differences in the electronic rating plate.
 Alarm value (r2124, interpret hexadecimal):
 ddccbbaa hex: aa = component number of the component, bb = component class of the target topology, cc = component class of the actual topology, dd = fault cause
 dd = 01 hex = 1 dec:
 Different component type.
 dd = 02 hex = 2 dec:
 Different Order No.
 dd = 03 hex = 3 dec:
 Different manufacturer.
 dd = 04 hex = 4 dec:
 Connection changed over for a multi-component slave (e.g. Double Motor Module) or defective EEPROM data in the electronic rating plate.
 dd = 05 hex = 5 dec:
 A CX32 was replaced by an NX10 or NX15.
 dd = 06 hex = 6 dec:
 An NX10 or NX15 was replaced by a CX32.
Note:
 Component class and component type are described in F01375.
 The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting the topologies:
 - check the component soft-wired connections against the hardware configuration of the drive unit in the commissioning software and correct differences.
 - parameterize the topology comparison of all components (p9906).
 - parameterize the topology comparison of one components (p9907, p9908).
Note:
 Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).

A01421	Topology: Comparison different components
Message value:	Component number: %1, component class target: %2, component class actual: %3, fault cause: %4
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected differences in the actual and target topologies in relation to one component. The component class, the component type or the number of connections differ.</p> <p>Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: aa = component number of the component, bb = component class of the target topology, cc = component class of the actual topology, dd = fault cause dd = 01 hex = 1 dec: Different component class. dd = 02 hex = 2 dec: Different component type. dd = 03 hex = 3 dec: Different Order No. dd = 04 hex = 4 dec: Different number of connections.</p> <p>Note: Component class, component type and connection number are described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Check the component soft-wired connections against the hardware configuration of the drive unit in the commissioning software and correct differences.</p> <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01425	Topology: Comparison serial number of a component is different
Message value:	Component number: %1, Component class: %2, Differences: %3
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The topology comparison has detected differences in the actual and target topologies in relation to one component. The serial number is different.</p> <p>Alarm value (r2124, interpret hexadecimal): ddccbbaa hex: cc = number of differences bb = component class aa = component number of the component</p> <p>Note: The component class is described in F01375. The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.</p>
Remedy:	<p>Adapting the topologies: - change over the actual topology to match the target topology. - download the target topology that matches the actual topology (commissioning software).</p> <p>Re byte cc: cc = 1 --> can be acknowledged using p9904 or p9905. cc > 1 --> can be acknowledged using p9905 and can be de-activated using p9906 or p9907/p9908.</p> <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison). See also: p9904 (Topology comparison, acknowledge differences), p9905 (Device specialization)</p>

F01451	Topology: Target topology is invalid
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	An error was detected in the target topology. The target topology is invalid. Fault value (r0949, interpret hexadecimal): ccccbbaa hex: cccc = index error, bb = component number, aa = fault cause aa = 1B hex = 27 dec: Error not specified. aa = 1C hex = 28 dec: Value illegal. aa = 1D hex = 29 dec: Incorrect ID. aa = 1E hex = 30 dec: Incorrect ID length. aa = 1F hex = 31 dec: Too few indices left. aa = 20 hex = 32 dec: component not connected to Control Unit.
Remedy:	Reload the target topology using the commissioning software.

A01481	Topology: Comparison power unit missing in the actual topology
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a power unit in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components.
Remedy:	<ul style="list-style-type: none">- delete the drive belonging to the power unit in the commissioning software project and download the new configuration to the drive unit.- check that the actual topology matches the target topology and if required, change over.- check DRIVE-CLiQ cables for interruption and contact problems.- check the 24 V supply voltage.- check that the power unit is working properly. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01482	Topology: Comparison Sensor Module missing in the actual topology
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a Sensor Module in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components.
Remedy:	<ul style="list-style-type: none">- re-configure the drive belonging to the Sensor Module in the commissioning software project (encoder configuration) and download the new configuration to the drive unit.- delete the drive belonging to the Sensor Module in the commissioning software project and download the new configuration to the drive unit.- check that the actual topology matches the target topology and if required, change over.- check DRIVE-CLiQ cables for interruption and contact problems.- check the 24 V supply voltage.- check that the Sensor Module is working properly. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

A01486	Topology: Comparison DRIVE-CLiQ components missing in the actual topology
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a DRIVE-CLiQ component in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components.
Remedy:	<ul style="list-style-type: none"> - delete the drive belonging to this component in the commissioning software project and download the new configuration to the drive unit. - re-configure the drive belonging to this component in the commissioning software project and download the new configuration to the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. - check the 24 V supply voltage. - check that the component is working properly. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01488	Topology: Comparison EnDat encoder missing in the actual topology
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected an EnDat encoder in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components.
Remedy:	<ul style="list-style-type: none"> - re-configure the drive belonging to the encoder in the commissioning software project (encoder configuration) and download the new configuration to the drive unit. - delete the drive belonging to the encoder in the commissioning software project and download the new configuration to the drive unit. - check that the actual topology matches the target topology and if required, change over. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>
A01489	Topology: Comparison motor with DRIVE-CLiQ missing in the actual topology
Message value:	Component number: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The topology comparison has detected a motor with DRIVE-CLiQ in the target topology that is not available in the actual topology. Alarm value (r2124, interpret decimal): Component number of the additional target components.
Remedy:	<ul style="list-style-type: none"> - re-configure the drive belonging to this motor in the commissioning software project and download the new configuration to the drive unit. - re-configure the drive belonging to this motor in the commissioning software project and download the new configuration to the drive unit. - check that the actual topology matches the target topology and if required, change over. - check DRIVE-CLiQ cables for interruption and contact problems. - check that the motor is working properly. <p>Note: Under "Topology --> Topology view" the commissioning software offers improved diagnostics capability (e.g. set-point/actual value comparison).</p>

F01505 (A) BICO: Interconnection cannot be established

Message value: Parameter: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A PROFIdrive telegram has been set (p0922).
 An interconnection contained in the telegram was not able to be established.
 Fault value (r0949, interpret decimal):
 Parameter receiver that should be changed.
Remedy: Establish another interconnection.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01506 (A) BICO: No standard telegram

Message value: Parameter: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The standard telegram in p0922 is not maintained and therefore p0922 is set to 999.
 Fault value (r0949, interpret decimal):
 BICO parameter for which the write attempt was unsuccessful.
Remedy: Again set the required standard telegram (p0922).
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A01507 (F, N) BICO: Interconnections to inactive objects present

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: There are BICO interconnections as signal sink from a drive object that is either inactive/not operational.
 The BI/CI parameters involved are listed in r9498.
 The associated BO/CO parameters are listed in r9499.
 The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the de-activated drive object.
 Note:
 r9498 and r9499 are only written to, if p9495 is not set to 0.
 Alarm value (r2124, interpret decimal):
 Number of BICO interconnections found to inactive drive objects.
Remedy:
 - set all open BICO interconnections centrally to the factory setting with p9495 = 2.
 - make the non-operational drive object active/operational again (re-insert or activate components).
 Reaction upon F: OFF2 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A01508 BICO: Interconnections to inactive objects exceeded

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum number of BICO interconnections (signal sinks) when de-activating a drive object was exceeded.
 When de-activating a drive object, all BICO interconnections (signal sinks) are listed in the following parameters:
 - r9498[0...29]: List of the BI/CI parameters involved.
 - r9499[0...29]: List of the associated BO/CO parameters.

Remedy: The alarm automatically disappears as soon as no BICO interconnection (value = 0) is entered in r9498[29] and r9499[29].
Notice:
 When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.

F01510 BICO: Signal source is not float type

Message value: Parameter: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested connector output does not have the correct data type. This interconnection is not established.
 Fault value (r0949, interpret decimal):
 Parameter number to which an interconnection should be made (connector output).
Remedy: Interconnect this connector input with a connector output having a float data type.

F01511 (A) BICO: Interconnection between different normalizations

Message value: Parameter: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
 - the BICO output has different normalized units than the BICO input.
 - message only for interconnections within a drive object.
Example:
 The BICO output has, as normalized unit, voltage and the BICO input has current.
 This means that the factor p2002 (contains the reference value for current) / p2001 (contains the reference value for voltage) is calculated between the BICO output and BICO input.
 Fault value (r0949, interpret decimal):
 Parameter number of the BICO input (signal sink).
Remedy: No correction needed.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01512 BICO: No normalization available

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An attempt was made to determine a conversion factor for a normalization that does not exist.
 Fault value (r0949, interpret decimal):
 Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.
Remedy: Apply normalization or check the transfer value.

F01513 (A) BICO: Spanning DO between different normalizations

Message value: Parameter: %1
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
 An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different.
 Example:
 The BICO output has, as standard unit, voltage and the BICO input has current; both lie in different drive objects. This means that the factor p2002 (contains the reference value for current) / p2001 (contains the reference value for voltage) is calculated between the BICO output and BICO input.
 Fault value (r0949, interpret decimal):
 Parameter number of the BICO input (signal sink).
Remedy: None necessary.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A01514 (F) BICO: Error when writing during a reconnect

Message value: Parameter: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to.
 Example:
 When writing to a double word BICO input in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting.
 Alarm value (r2124, interpret decimal):
 Parameter number of the BICO input (signal sink).
Remedy: None necessary.
 Reaction upon F: NONE
 Acknowl. upon F: IMMEDIATELY

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: While changing the number of CDS or when copying from CDS, the master control was active.
Remedy: None necessary.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A01590 (F) Drive: Motor maintenance interval expired

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The selected service/maintenance interval for this motor was reached.
 Alarm value (r2124, interpret decimal):
 Motor data set number.
 See also: p0650 (Actual motor operating hours), p0651 (Motor operating hours maintenance interval)

Remedy: carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F: NONE
Acknowled. upon F: IMMEDIATELY

F01600 SI CU: STOP A initiated

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function in the Control Unit (CU) has detected a fault and initiated a STOP A (pulse suppression via the safety shutdown path of the Control Unit).
 - forced checking procedure of the safety shutdown path of the Control Unit unsuccessful.
 - subsequent response to fault F01611 (defect in a monitoring channel).
Fault value (r0949, interpret decimal):
 0: Stop request from the Motor Module.
 1005: Pulses suppressed although STO not selected and there is no internal STOP A present.
 1010: Pulses enabled although STO is selected or an internal STOP A is present.
 1015: Feedback of the safe pulse suppression for Motor Modules connected in parallel are different.
 9999: Subsequent response to fault F01611.
Remedy:
 - select Safe Torque Off and de-select again.
 - replace the Motor Module involved.
 Re fault value = 9999:
 - carry out diagnostics for fault F01611.
Note:
 CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated
 STO: Safe Torque Off / SH: Safe standstill

F01611 SI CU: Defect in a monitoring channel

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function in the Control Unit (CU) has detected a fault in the data cross-check between the CU and Motor Module (MM) and initiated a STOP F.
 As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.
Fault value (r0949, interpret decimal):
 0: Stop request from the Motor Module.
 1 to 999:
 Number of the cross-checked data that resulted in this fault. This number is also displayed in r9795.
 1: SI monitoring clock cycle (r9780, r9880).
 2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.
 3: SI SGE changeover tolerance time (p9650, p9850).
 4: SI transition period STOP F to STOP A (p9658, p9858).
 5: SI enable Safe Brake Control (p9602, p9802).
 6: SI Motion enable, safety-relevant functions (p9501, internal value).
 7: SI pulse suppression delay time for Safe Stop 1 (p9652, p9852).
 8: SI PROFIsafe address (p9610, p9810).
 1000: Watchdog timer has expired. Within the time of approx. 5 * p9650 too many switching operations have occurred at terminal EP of the Motor Module, or STO (also as subsequent response) was initiated too frequently via PROFIsafe/TM54F.
 1001, 1002: Initialization error, change timer / check timer.
 2000: Status of the STO selection on the Control Unit and Motor Module are different.
 2001: Feedback signal for safe pulse suppression on the Control Unit and Motor Module are different.
 2002: Status of the delay timer SS1 on the Control Unit and Motor Module are different.
 2004: Status of the STO selection for modules connected in parallel are different.
 2005: Feedback signal of the safe pulse suppression on the Control Unit and Motor Modules connected in parallel are different.

Remedy:

- Re fault value = 1 to 5 and 7 to 999:
 - check the cross-checked data that resulted in a STOP F.
 - carry out a POWER ON (power off/on) for all components.
 - upgrade the Motor Module software.
 - upgrade the Control Unit software.
- Re fault value = 6:
 - carry out a POWER ON (power off/on) for all components.
 - upgrade the Motor Module software.
 - upgrade the Control Unit software.
- Re fault value = 1000:
 - check the EP terminal at the Motor Module (contact problems).
 - PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller.
 - check the wiring of the fail-safe inputs at the TM54F (contact problems).
- Re fault value = 1001, 1002:
 - carry out a POWER ON (power off/on) for all components.
 - upgrade the Motor Module software.
 - upgrade the Control Unit software.
- Re fault value = 2000, 2001, 2002, 2004, 2005:
 - check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).
 - check the wiring of the safety-relevant inputs (SGE) (contact problems).
 - check the causes of the STO selection in r9772. When the SMM functions are active (p9501=1), STO can also be selected using these functions.
 - replace the Motor Module involved.

Note:
 CU: Control Unit
 EP: Enable Pulses (pulse enable)
 MM: Motor Module
 SGE: Safety-relevant input
 SI: Safety Integrated
 SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
 STO: Safe Torque Off / SH: Safe standstill
 SMM: refer to r9772

F01612 **SI CU: STO inputs for power units connected in parallel different**

Message value: Fault cause: %1 bin

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive-based "Safety Integrated" function on the Control Unit (CU) has identified different states of the AND'ed STO inputs for power units connected in parallel and has initiated a STOP F.
 As a result of this fault, after the parameterized transition has expired (p9658), fault F01600 (SI CU: STOP A initiated) is output.
 Fault value (r0949, interpret binary):
 Binary image of the digital inputs of the Control Unit that are used as signal source for the function "Safe Torque Off".

Remedy:

- check the tolerance time SGE changeover and if required, increase the value (p9650).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).

Note:
 CU: Control Unit
 SGE: Safety-relevant input
 SI: Safety Integrated
 STO: Safe Torque Off / SH: Safe standstill

N01620 (F, A) **SI CU: Safe Torque Off active**

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The "Safe Torque Off" (STO) function has been selected on the Control Unit (CU) using the input terminal and is active.
 Note:
 This message does not result in a safety stop response.

Remedy: None necessary.
 Note:
 CU: Control Unit
 SI: Safety Integrated
 STO: Safe Torque Off / SH: Safe standstill

Reaction upon F: OFF2
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon A: NONE
 Acknowl. upon A: NONE

N01621 (F, A) SI CU: Safe Stop 1 active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The "Safe Stop 1" (SS1) function has been selected on the Control Unit (CU) and is active.
 Note:
 This message does not result in a safety stop response.

Remedy: None necessary.
 Note:
 CU: Control Unit
 SI: Safety Integrated
 SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

Reaction upon F: OFF3
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01625 SI CU: Sign-of-life error in safety data

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function in the Control Unit (CU) has detected an error in the sign-of-life of the safety data between the CU and Motor Module (MM) and initiated a STOP A.
 - there is either a DRIVE-CLiQ communication error or communication has failed.
 - a time slice overflow of the safety software has occurred.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:

- select Safe Torque Off and de-select again.
- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- de-select all drive functions that are not absolutely necessary.
- reduce the number of drives.
- check the electrical cabinet design and cable routing for EMC compliance

Note:
 CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated

F01630	SI CU: Brake control error
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function in the Control Unit (CU) has detected a brake control error and initiated a STOP A.</p> <p>Fault value (r0949, interpret decimal):</p> <p>10, 11: Fault in "open holding brake" operation. - Parameter p1278 incorrectly set. - No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)). - Ground fault in brake cable.</p> <p>20: Fault in "brake open" state. - Short-circuit in brake winding.</p> <p>30, 31: Fault in "close holding brake" operation. - No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)). - Short-circuit in brake winding.</p> <p>40: Fault in "brake closed" state.</p> <p>50: Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).</p> <p>Note: The following causes may apply to fault values: - motor cable is not shielded correctly. - defect in control circuit of the Motor Module.</p>
Remedy:	<p>- check parameter p1278 (for SBC, only p1278 = 0 is permissible). - select Safe Torque Off and de-select again. - check the motor holding brake connection. - check the function of the motor holding brake. - check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified. - check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing). - replace the Motor Module involved.</p> <p>Operation with Safe Brake Module: - check the Safe Brake Modules connection. - replace the Safe Brake Module.</p> <p>Note: CU: Control Unit SBC: Safe Brake Control SI: Safety Integrated</p>
F01649	SI CU: Internal software error
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>An internal error in the Safety Integrated software on the Control Unit has occurred.</p> <p>Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.</p>

- Remedy:**
- carry out a POWER ON (power off/on) for all components.
 - re-commission the "Safety Integrated" function and carry out a POWER ON.
 - upgrade the Control Unit software.
 - contact the Hotline.
 - replace the Control Unit.

Note:

CU: Control Unit

MM: Motor Module

SI: Safety Integrated

F01650 SI CU: Acceptance test required

Message value: %1

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive-based "Safety Integrated" function in the Control Unit requires an acceptance test.

Note:

This fault results in a STOP A that can be acknowledged.

Fault value (r0949, interpret decimal):

130: Safety parameters for the Motor Module not available.

1000: Reference and actual checksum on the Control Unit are not identical (booting).

- at least one checksum-checked piece of data is defective.

2000: Reference and actual checksum on the Control Unit are not identical (commissioning mode).

- reference checksum incorrectly entered into the Control Unit (p9799 not equal to r9798).

- when de-activating the safety functions, p9501 or p9503 are not deleted.

2001: Reference and actual checksum on the Motor Module are not identical (commissioning mode).

- reference checksum incorrectly entered into the Motor Module (p9899 not equal to r9898).

- when de-activating the safety functions, p9501 or p9503 are not deleted.

2002: Enable of safety-related functions between the Control Unit and Motor Module differ (p9601 not equal to p9801).

2003: Acceptance test is required as a safety parameter has been changed.

2004: An acceptance test is required because a project with enabled safety-functions has been downloaded.

2005: The Safety LogBook has identified that a functional safety checksum has changed. An acceptance test is required.

2010: Safe Brake Control is enabled differently between the Control Unit and Motor Module (p9602 not equal to p9802).

2020: Error when saving the safety parameters for the Motor Module.

3003: Acceptance test is required as a hardware-related safety parameter has been changed.

3005: The Safety LogBook has identified that a hardware-related safety checksum has changed. An acceptance test is required.

9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

Remedy:

Re fault value = 130:
 - carry out safety commissioning routine.

Re fault value = 1000:
 - again carry out safety commissioning routine.
 - replace the memory card or Control Unit.

Re fault value = 2000:
 - check the safety parameters in the Control Unit and adapt the reference checksum (p9799).

Re fault value = 2001:
 - check the safety parameters in the Motor Module and adapt the reference checksum (p9899).

Re fault value = 2002:
 - enable the safety-related functions in the Control Unit and check in the Motor Module (p9601 = p9801).

Re fault value = 2003, 2004, 2005:
 - Carry out an acceptance test and generate an acceptance report.
 The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the documentation for SINAMICS Safety Integrated.

The fault with fault value 3005 can only be acknowledged when the "STO" function is deselected.

Re fault value = 2010:
 - check enable of the safety-related brake control in the Control Unit and Motor Module (p9602 = p9802).

Re fault value = 2020:
 - again carry out safety commissioning routine.
 - replace the memory card or Control Unit.

Re fault value = 3003:
 - carry out the function checks for the modified hardware and generate an acceptance report.
 The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
 SINAMICS S120 Function Manual Safety Integrated

Re fault value = 3005:
 - carry out the function checks for the modified hardware and generate an acceptance report.
 The fault with fault value 3005 can only be acknowledged when the "STO" function is deselected.

Re fault value = 9999:
 - carry out diagnostics for the other safety-related fault that is present.

Note:
 CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated
 STO: Safe Torque Off
 See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI reference checksum SI parameters (Motor Module))

F01651	SI CU: Synchronization safety time slices unsuccessful
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The "Safety Integrated" function requires a synchronization of the safety time slices between the Control Unit (CU) and Motor Module (MM) and between the Control Unit and the higher-level control. This synchronization routine was unsuccessful.
	Note:
	This fault results in a STOP A that cannot be acknowledged.
	Fault value (r0949, interpret decimal):
	150: Fault in the synchronization to the PROFIBUS master.
	All other values: Only for internal Siemens troubleshooting.
	See also: p9510 (SI Motion clock-cycle synchronous PROFIBUS master)

Remedy:

Re fault value = 150:

- check the setting of p9510 (SI Motion clock-cycle synchronous PROFIBUS master) and if required, correct.

General:

- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- upgrade the software of the higher-level control.

Note:

CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated

F01652 SI CU: Illegal monitoring clock cycle

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause:

One of the Safety Integrated monitoring clock cycles is not permissible:

- the drive-based monitoring clock cycle cannot be maintained due to the communication conditions required in the system.
- the monitoring clock cycle for safe motion monitoring functions with the higher-level control is not permissible (p9500).
- The sampling time for the current controller (p0112, p0115) cannot be supported.

Note:

This fault results in a STOP A that cannot be acknowledged.

Fault value (r0949, interpret decimal):

- for enabled drive-based SI monitoring (p9601/p9801 > 0):
 Minimum setting for the monitoring clock cycle (in µs).
- with the motion monitoring function enabled (p9501 > 0):

100: No matching monitoring clock cycle was able to be found.
 101: The monitoring clock cycle is not an integer multiple of the actual value sensing clock cycle.
 102: An error has occurred when transferring the DP clock cycle to the Motor Module (MM).
 103: An error has occurred when transferring the DP clock cycle to the Sensor Module.
 104,105:
 - Four times the sampling time of the current controller is greater than 1 ms when operating with a non-clock-cycle synchronous PROFIBUS.
 - Four times the sampling time of the current controller is greater than the DP clock cycle when operating with a clock-cycle synchronous PROFIBUS.
 - The DP clock cycle is not an integer multiple of the sampling time of the current controller.

106: The monitoring clock cycle does not match the monitoring clock cycle of the TM54F.
 107: Four times the sampling time of the current controller is greater than the actual value sensing clock cycle (p9511) or
 the actual value sensing clock cycle is not an integer multiple of the sampling time of the current controller.
 108: The parameterized actual value sensing clock cycle cannot be set on this component

Remedy:

- For enabled drive-based SI monitoring (p9601/p9801 > 0):
 - upgrade the Control Unit software.
- For enabled motion monitoring function (p9501 > 0):
 - correct the monitoring clock cycle (p9500) and carry out POWER ON.
- Re fault value 101:
 - the actual value sensing clock cycle is per default the position control clock cycle / DP clock cycle.
 - for the drive-based motion monitoring functions (p9601/p9801bit 2 = 1) the actual value sensing clock cycle can be directly parameterized in p9511/p9311.
- Re fault value = 104, 105:
 - set a separate actual value sensing clock cycle in p9511.
 - restrict operation to a maximum of two vector drives. For the standard settings in p0112, p0115, the current controller sampling time is automatically reduced to 250 µs. If the standard values were changed, then the current controller sampling time (p0112, p0115) should be appropriately set.
 - increase the DP clock cycle for operation with a clock-cycle synchronous PROFIBUS so that there is a multiple clock cycle ratio of at least 4:1 between the DP clock cycle and the current controller sampling time.
- Re fault value 106:
 - set the parameters for the monitoring clock cycles the same (p10000 and p9500 / p9300).
- Re fault value 107:
 - set an actual value sensing clock cycle in p9511 that matches the current control clock cycle.
- Re fault value 108:
 - set a suitable actual value sensing clock cycle in p9511.
 - If the DP clock cycle is used as the actual value sensing clock cycle for operation with clock-cycle synchronous PROFIBUS (p9511 = 0), a suitable DP clock cycle must be configured.

A suitable multiple of the DP clock cycle (e.g. 1,2,3,4,5,6,8,10) must be parameterized on the D410. Otherwise, the clock cycle must be set to less than 8 ms.

Note:
 CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated

F01653 SI CU: PROFIBUS configuration error

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: There is a PROFIBUS configuration error for using Safety Integrated monitoring functions with a higher-level control (SINUMERIK or F-PLC).

Note:
 For safety functions that have been enabled, this fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret decimal):

- 200: A safety slot for receive data from the control has not been configured.
- 210, 220: The configured safety slot for the receive data from the control has an unknown format.
- 230: The configured safety slot for the receive data from the F-PLC has the incorrect length.
- 240: The configured safety slot for the receive data from the SINUMERIK has the incorrect length.
- 250: A PROFIsafe slot is configured in the higher-level F control, however PROFIsafe is not enabled in the drive.
- 300: A safety slot for the send data to the control has not been configured.
- 310, 320: The configured safety slot for the send data to the control has an unknown format.
- 330: The configured safety slot for the send data to the F-PLC has the incorrect length.
- 340: The configured safety slot for the send data to the SINUMERIK has the incorrect length.

Remedy:

- Re fault value = 250:
 - remove the PROFIsafe configuring in the higher-level F control or enable PROFIsafe in the drive.

The following generally applies:

- check and, if necessary, correct the PROFIBUS configuration of the safety slot on the master side.
- upgrade the Control Unit software.

F01655	SI CU: Align monitoring functions
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An error has occurred when aligning the Safety Integrated monitoring functions on the Control Unit (CU) and Motor Module (MM). Control Unit and Motor Module were not able to determine a common set of supported SI monitoring functions. - there is either a DRIVE-CLiQ communication error or communication has failed. - Safety Integrated software releases on the Control Unit and Motor Module are not compatible with one another.
	Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module software. - upgrade the Control Unit software. - check the electrical cabinet design and cable routing for EMC compliance
	Note: CU: Control Unit MM: Motor Module SI: Safety Integrated

F01656	SI CU: Motor Module parameter error
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When accessing the Safety Integrated parameters for the Motor Module (MM) in the non-volatile memory, an error has occurred.
	Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 129: Safety parameters for the Motor Module corrupted. 131: Internal Motor Module software error. 132: Communication errors when uploading or downloading the safety parameters for the Motor Module. 255: Internal software error on the Control Unit.
Remedy:	- re-commission the safety functions. - upgrade the Control Unit software. - upgrade the Motor Module software. - replace the memory card or Control Unit.
	Re fault value = 132: - check the electrical cabinet design and cable routing for EMC compliance
	Note: CU: Control Unit MM: Motor Module SI: Safety Integrated

F01659	SI CU: Write request for parameter rejected
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The write request for one or several Safety Integrated parameters on the Control Unit (CU) was rejected. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 1: The Safety Integrated password is not set. 2: A reset of the drive parameters was selected. However, the Safety Integrated parameters cannot be reset, as Safety Integrated is presently enabled. 3: The interconnected STO input is in the simulation mode. 10: An attempt was made to enable the STO function although this cannot be supported. 11: An attempt was made to enable the SBC function although this cannot be supported. 12: An attempt was made to enable the SBC function although this cannot be supported for a parallel circuit configuration. 13: An attempt was made to enable the SS1 function although this cannot be supported. 14: An attempt was made to enable the PROFIsafe communication - although this cannot be supported or the version of the PROFIsafe driver used on the CU and MM is different. 15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported. 16: An attempt was made to enable the STO function although this cannot be supported when the internal voltage protection (p1231) is enabled. See also: p0970 (Reset drive parameters), p3900 (Completion of quick commissioning), r9771 (SI common functions (Control Unit)), r9871 (SI common functions (Motor Module))
Remedy:	Re fault value = 1: - set the Safety Integrated password (p9761). Re fault value = 2: - inhibit Safety Integrated and again reset the drive parameters. Re fault value = 3: - end the simulation mode for the digital input (p0795). Re fault value = 10, 11, 12, 13, 14, 15: - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved. - use a Motor Module that supports the required function ("Safe Torque Off", "Safe Brake Control", "PROFIsafe/PROFIsafe V2", "motion monitoring functions integrated in the drive"). - upgrade the Motor Module software. - upgrade the Control Unit software. Re fault value = 16: - inhibit the internal voltage protection (p1231). Note: CU: Control Unit MM: Motor Module SBC: Safe Brake Control SI: Safety Integrated SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204) STO: Safe Torque Off / SH: Safe standstill See also: p9501 (SI Motion enable safety functions (Control Unit)), p9601 (SI enable, functions integrated in the drive (Control Unit)), p9761 (SI password input), p9801 (SI enable, functions integrated in the drive (Motor Module))

F01660	SI CU: Safety-related functions not supported
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The Motor Module (MM) does not support the safety-related functions (e.g. the Motor Module version is not the correct one). Safety Integrated cannot be commissioned. Note: This fault does not result in a safety stop response.

Remedy:

- use a Motor Module that supports the safety-related functions.
- upgrade the Motor Module software.

Note:
 CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated

F01662 Error in internal communications

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: A module-internal communication error has occurred.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

F01663 SI CU: Copying the SI parameters rejected

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: One of the following values is saved in p9700 or was entered offline: 87 or 208. This is the reason that when booting, an attempt is made to copy the SI parameters from the Control Unit to the Motor Module. However, no safety-relevant function has been selected on the Control Unit (p9501 = 0, p9601 = 0). This is the reason that copying is not possible.
Note:
 This fault does not result in a safety stop response.
 See also: p9700 (SI Motion copy function)

Remedy:

- Set p9700 to 0.
- Check p9501 and p9601 and if required, correct.
- Restart the copying function by entering the corresponding value into p9700.

F01664 SI CU: No automatic firmware update

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When booting, parameter p7826 "automatic firmware update" did not have the value "1" that is required for the automatic firmware upgrade/downgrade. This means that when the safety functions are enabled, an inadmissible combination of versions can occur.
Note:
 This fault does not result in a safety stop response.

Remedy: For enabled drive-based SI monitoring:

1. Set parameter p7826 to the value 1
2. Save the parameter (p0977 = 1) and carry out a power-on reset

When de-activating the drive-based SI monitoring (p9601 = 0), the alarm can be acknowledged after exiting the safety commissioning mode.

F01665 SI CU: System defective

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Before the drive booted the last time, it detected a system defect and carried out an emergency stop.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on).
- upgrade firmware to later version.
- contact the Hotline.

A01666 (F) SI Motion CU: Steady-state (static) 1 signal at the F-DI for safety-relevant acknowledgement

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: A logical 1 signal is present at the F-DI configured in p10006 for more than 10 seconds. A logical 0 signal must be present statically (steady-state) at the F-DI. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.

Remedy: Set F-DI (see p10006) to logical 0 signal.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

F01670 SI Motion: Invalid parameterization Sensor Module

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameterization of a Sensor Module used for Safety Integrated is not permissible.

Note:
 This fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret decimal):
 1: No encoder was parameterized for Safety Integrated.
 2: An encoder was parameterized for Safety Integrated that does not have an A/B track (sine/cosine).
 3: The encoder data set selected for Safety Integrated is still not valid.
 4: A communication error with the encoder has occurred.
 10: For an encoder used for Safety Integrated, not all of the Drive Data Sets (DDS) are assigned to the same Encoder Data Set (EDS) (p0187 ... p0189).

Remedy:

Re fault value = 1, 2:
 - use and parameterize an encoder that Safety Integrated supports (encoder with track A/B sine-wave, p0404.4 = 1).

Re fault value = 3:
 - check whether the drive or drive commissioning function is active and if required, exit this (p0009 = p00010 = 0), save the parameters (p0971 = 1) and carry out a POWER ON

Re fault value = 4:
 - check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Sensor Module involved and if required, carry out a diagnostics routine for the faults identified.

Re fault value = 10:
 - align the EDS assignment of all of the encoders used for Safety Integrated (p0187 ... p0189).

Note:
 SI: Safety Integrated

F01671 SI Motion: Parameterization encoder error

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The parameterization of the encoder used by Safety Integrated is different to the parameterization of the standard encoder.

Note:
 This fault does not result in a safety stop response.
 Fault value (r0949, interpret decimal):
 Parameter number of the non-corresponding safety parameter.

Remedy: Align the encoder parameterization between the safety encoder and the standard encoder.

Note:
 SI: Safety Integrated

F01672 SI Motion: Motor Module software/hardware incompatible

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing Motor Module software does not support safe motion monitoring or is not compatible to the software on the Control Unit or there is a communications error between the Control Unit and Motor Module.
Note:
 This fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret decimal):
 1: The existing Motor Module software does not support the safe motion monitoring function.
 4, 5, 7: The existing Motor Module software is not compatible to the software on the Control Unit.
 2, 3, 6, 8: There is a communications error between the Control Unit and Motor Module.
Remedy:
 - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out the appropriate diagnostics routine for the particular faults.
 Re fault value = 1:
 - use a Motor Module that supports safe motion monitoring
 Re fault value = 4, 5, 7:
 - upgrade the Motor Module software.
 Re fault value = 2, 3, 6, 8:
 - check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
Note:
 SI: Safety Integrated

F01673 SI Motion: Sensor Module software/hardware incompatible

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing Sensor Module software and/or hardware does not support the safe motion monitoring function with the higher-level control.
Note:
 This fault does not result in a safety stop response.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy:
 - upgrade the Sensor Module software.
 - use a Sensor Module that supports the safe motion monitoring function.
Note:
 SI: Safety Integrated

F01680 SI Motion CU: Checksum error safety monitoring functions

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The actual checksum calculated by the drive and entered in r9728 via the safety-relevant parameters does not match the reference checksum saved in p9729 at the last machine acceptance.
 Safety-relevant parameters have been changed or a fault is present.
Note:
 This fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret decimal):
 0: Checksum error for SI parameters for motion monitoring.
 1: Checksum error for SI parameters for actual values.
 2: Checksum error for SI parameters for component assignment.

Remedy:

- Check the safety-relevant parameters and if required, correct.
- carry out a POWER ON.
- carry out an acceptance test.

Note:
SI: Safety Integrated

F01681 SI Motion CU: Incorrect parameter value

Message value: Parameter: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameter cannot be parameterized with this value.
Note:
This fault does not result in a safety stop response.
Fault value (r0949, interpret decimal):
Parameter number with the incorrect value.

Remedy: Correct the parameter value.

F01682 SI Motion CU: Monitoring function not supported

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The monitoring function enabled in p9501, p9601 or p9801 is not supported in this firmware version.
Note:
This fault results in a STOP A that cannot be acknowledged.
Fault value (r0949, interpret decimal):
Monitoring function SLP not supported (p9501.1).
2: Monitoring function SCA not supported (p9501.7 and p9501.8 ... 15 and p9503).
3: Monitoring function SLS override not supported (p9501.5).
10: Monitoring functions only supported for a SERVO drive object.
20: Drive-based motion monitoring functions are only supported in conjunction with PROFIsafe (p9501 and p9601.1 ... 2 and p9801.1 ... 2).
21: PROFIsafe only supported in conjunction with motion monitoring functions in the drive (p9501 and p9601.1 ... 2 and p9801.1 ... 2).

Remedy: De-select the monitoring function involved (p9501, p9503, p9601, p9801).
Note:
SCA: Safe Cam / SN: Safe software cam
SI: Safety Integrated
SLP: Safely-Limited Position / SE: Safe software limit switches
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9501 (SI Motion enable safety functions (Control Unit)), p9503 (SI Motion SCA (SN) enable (Control Unit))

F01683 SI Motion CU: SOS/SLS enable missing

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The safety-relevant basic function "SOS/SLS" is not enabled in p9501 although other safety-relevant monitoring functions are enabled.
Note:
This fault does not result in a safety stop response.

Remedy: Enable the function "SOS/SLS" (p9501.0) and carry out a POWER ON.
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
SOS: Safe Operating Stop / SBH: Safe operating stop
See also: p9501 (SI Motion enable safety functions (Control Unit))

F01684	SI Motion: Safely limited position limit values interchanged
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	For the function "Safely-Limited Position" (SE), a lower value is in p9534 than in p9535. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 1: Limit values SLP1 interchanged. 2: Limit values SLP2 interchanged.
Remedy:	Correct the limit values in p9534 and p9535 and carry out a POWER ON. Note: SI: Safety Integrated SLP: Safely-Limited Position / SE: Safe software limit switches
F01685	SI Motion CU: Safely-limited speed limit value too high
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): Maximum permissible speed.
Remedy:	Correct the limit values for SLS and carry out a POWER ON. Note: SI: Safety Integrated SLS: Safely-Limited Speed / SG: Safely reduced speed See also: p9531 (SI Motion SLS (SG) limit values (Control Unit))
F01686	SI Motion: Illegal parameterization cam position
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	At least one enabled "Safety Cam" (SCA) is parameterized in p9536 or p9537 too close to the tolerance range around the modulo position. The following conditions must be complied with to assign cams to a cam track: - the cam length of cam x = p9536[x]-p9537[x] must be greater or equal to the cam tolerance + the position tolerance (= p9540 + p9542). This also means that for cams on a cam track, the minus position value must be less than the plus position value. - the distance between 2 cams x and y (minus position value[y] - plus position value[x] = p9537[y] - p9536[x]) on a cam track must be greater than or equal to the cam tolerance + position tolerance (= p9540 + p9542). Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): Number of the "Safe Cam" with an illegal position. See also: p9501 (SI Motion enable safety functions (Control Unit))
Remedy:	Correct the cam position and carry out a POWER ON. Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9536 (SI Motion SCA (SN) plus cam position (Control Unit)), p9537 (SI Motion SCA (SN) plus cam position (Control Unit))

F01687	SI Motion: Illegal parameterization modulo value SCA (SN)
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The parameterized modulo value for the "Safe Cam" (SCA) function is not a multiple of 360 000 mDegrees. Note: This fault does not result in a safety stop response.
Remedy:	Correct the modulo value for SCA and carry out a POWER ON. Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated See also: p9505 (SI Motion SCA (SN) modulo value (Control Unit))
F01688	SI Motion CU: Actual value synchronization not permissible
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	- It is not permissible to enable actual value synchronization for a 1-encoder system. - It is not permissible to simultaneously enable the actual value synchronization and a monitoring function with absolute reference (SCA/SLP). Note: This fault results in a STOP A that cannot be acknowledged.
Remedy:	- Either select the "actual value synchronization" function or parameterize a 2-encoder system. - Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON. Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated SLP: Safely-Limited Position / SE: Safe software limit switches See also: p9501 (SI Motion enable safety functions (Control Unit))
C01689	SI Motion: Axis re-configured
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	The axis configuration was changed (e.g. changeover between linear axis and rotary axis). Parameter p0108.13 is internally set to the correct value. Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): Parameter number of parameter that initiated the change. See also: p9502 (SI Motion axis type (Control Unit))
Remedy:	The following should be carried out after the changeover: - exit the safety commissioning mode (p0010). - save all parameters (p0977 = 1 or "copy RAM to ROM"). - carry out a POWER ON. Once the Control Unit has been switched on, safety message F01680 or F30680 indicates that the checksums in r9398[0] and r9728[0] have changed in the drive. The following must, therefore, be carried out: - activate safety commissioning mode again. - complete safety commissioning of the drive. - exit the safety commissioning mode (p0010). - save all parameters (p0977 = 1 or "copy RAM to ROM"). - carry out a POWER ON. Note: For the commissioning software, the units are only consistently displayed after a project upload.

F01690	SI Motion: Data save problem for the NVRAM
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	POWER ON
Cause:	There is not sufficient memory space in the NVRAM on the drive to save parameters r9781 and r9782 (safety log-book). Note: This fault does not result in a safety stop response. Fault value (r0949, interpret decimal): 0: There is no physical NVRAM available in the drive. 1: There is no longer any free memory space in the NVRAM.
Remedy:	Re fault value = 0: - use a Control Unit NVRAM. Re fault value = 1: - deselect functions that are not required and that take up memory space in the NVRAM. - contact the Hotline.
A01691 (F)	SI Motion: Ti and To unsuitable for DP cycle
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The configured times for PROFIBUS communication are not permitted and the DP cycle is used as the actual value acquisition cycle for the safe movement monitoring functions: Isochronous PROFIBUS: the total of Ti and To is too high for the set DP cycle. The DP cycle should be at least 1 current controller cycle greater than the sum of Ti and To. Non-isochronous PROFIBUS: the DP cycle must be at least 4 x current controller cycle.
Remedy:	Configure Ti and To low so that they are suitable for the DP cycle or increase the DP cycle time. Alternative when drive-based SI monitoring is enabled (p9601/p9801 > 0): Use the actual value acquisition cycle p9511/p9311 and, in turn, set independently from DP cycle. See also: p9511 (SI Motion clock cycle actual value sensing (Control Unit))
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)
A01696 (F)	SI Motion: Testing of the motion monitoring functions selected when booting
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The test of the motion monitoring functions was already illegally active when booting. This is the reason that the test is only carried out again after selecting the forced checking procedure parameterized in p9705. Note: This message does not result in a safety stop response. See also: p9705 (SI Motion: Test stop signal source)
Remedy:	De-select the forced checking procedure of the safety motion monitoring functions and then select again. The signal source for initiation is parameterized in binector input p9705. Note: SI: Safety Integrated See also: p9705 (SI Motion: Test stop signal source)
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY (POWER ON)

A01697 (F) SI Motion: Motion monitoring functions must be tested

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The time set in p9559 for the forced checking procedure of the safety motion monitoring functions has been exceeded. A new test is required.
 After next selecting the forced checking procedure parameterized in p9705, the message is withdrawn and the monitoring time is reset.
Note:
 This message does not result in a safety stop response.
 See also: p9559 (SI Motion forced checking procedure timer (Control Unit)), p9705 (SI Motion: Test stop signal source)
Remedy: Carry out the forced checking procedure of the safety motion monitoring functions.
 The signal source for initiation is parameterized in BI: p9705.
Note:
 SI: Safety Integrated
 See also: p9705 (SI Motion: Test stop signal source)
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A01698 (F) SI CU: Commissioning mode active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The commissioning of the "Safety Integrated" function is selected.
 This message is withdrawn after the safety functions have been commissioned.
Note:
 This message does not result in a safety stop response.
 See also: p0010 (Drive commissioning parameter filter)
Remedy: None necessary.
Note:
 CU: Control Unit
 SI: Safety Integrated
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A01699 (F) SI CU: Shutdown path must be tested

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The time set in p9659 for the forced checking procedure of the safety shutdown paths has been exceeded. The safety shutdown paths must be re-tested.
 After the next time the "STO" function is de-selected, the message is withdrawn and the monitoring time is reset.
Note:
 This message does not result in a safety stop response.
 See also: p9659 (SI forced checking procedure timer)
Remedy: Select STO and then deselect again.
Note:
 CU: Control Unit
 SI: Safety Integrated
 STO: Safe Torque Off / SH: Safe standstill
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

C01700 SI Motion CU: STOP A initiated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP A (pulses are suppressed via the safety shutdown path of the Control Unit).
Possible causes:
- stop request from the higher-level control.
- pulses not suppressed after a parameterized time (p9557) after test stop selection.
- subsequent response to the message C01706 "SI Motion CU: Safe Acceleration Monitoring limit exceeded".
- subsequent response to the message C01714 "SI Motion CU: Safely-Limited Speed exceeded".
- subsequent response to the message C01701 "SI Motion CU: STOP B initiated".

Remedy:
- remove the fault cause in the control and carry out a POWER ON.
- check the value in p9557, if necessary, increase the value, and carry out POWER ON.
- check the shutdown path of the Control Unit (check DRIVE-CLiQ communication).
- carry out a diagnostics routine for message C01706.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01701.
- replace Motor Module.
- replace Control Unit.
This message can only be acknowledged as follows in the acceptance test mode without POWER ON:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel.
Note:
SI: Safety Integrated

C01701 SI Motion CU: STOP B initiated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF3

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP B (braking along the OFF3 deceleration ramp).
As a result of this fault, after the time parameterized in p9556 has expired, or the speed threshold parameterized in p9560 has been undershot, message C01700 "STOP A initiated" is output.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded".
- subsequent response to the message C01711 "SI Motion: Defect in a monitoring channel".

Remedy:
- remove the fault cause in the control and carry out a POWER ON.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01711.
This message can only be acknowledged as follows in the acceptance test mode without POWER ON:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel.
Note:
SI: Safety Integrated

C01706 SI Motion CU: Safe Acceleration Monitor limit exceeded

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: After initiating STOP B or STOP C, the velocity has exceeded the selected tolerance.
The drive is shut down by the message C01700 "SI Motion: STOP A initiated".

Remedy: Check the braking behavior, if required, adapt the tolerance for "Safe Acceleration Monitor".
 This message can only be acknowledged as follows in the acceptance test mode without POWER ON:
 - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
 - motion monitoring functions with SINUMERIK: Via the machine control panel.
Note:
 SBR: Safe Acceleration Monitor
 SI: Safety Integrated
 See also: p9548 (SI Motion SBR actual velocity tolerance (Control Unit))

C01707 SI Motion CU: Tolerance for safe operating stop exceeded

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The actual position has distanced itself further from the target position than the standstill tolerance.
 The drive is shut down by the message C01701 "SI Motion: STOP B initiated".
Remedy: - check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
 - check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.
 - carry out a POWER ON.
 This message can only be acknowledged as follows in the acceptance test mode without POWER ON:
 - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
 - motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
 SI: Safety Integrated
 SOS: Safe Operating Stop / SBH: Safe operating stop
 See also: p9530 (SI Motion standstill tolerance (Control Unit))

C01708 SI Motion CU: STOP C initiated

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: STOP2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP C (braking along the OFF3 deceleration ramp).
 "Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
 Possible causes:
 - stop request from the higher-level control.
 - subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded".
 - subsequent response to the message C01715 "SI Motion: Safe end stop exceeded".
 See also: p9552 (SI Motion transition time STOP C to SOS (SBH) (Control Unit))
Remedy: - remove the cause of the fault at the control.
 - carry out a diagnostics routine for message C01714.
 This message can be acknowledged as follows:
 - motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
 - motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
 SI: Safety Integrated
 SOS: Safe Operating Stop / SBH: Safe operating stop

C01709 SI Motion CU: STOP D initiated

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP D (braking along the path).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded".
- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded".
See also: p9553 (SI Motion transition time STOP D to SOS (SBH) (Control Unit))
Remedy:
- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C01710 SI Motion CU: STOP E initiated

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive is stopped via a STOP E (retraction motion).
"Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
Possible causes:
- stop request from the higher-level control.
- subsequent response to the message C01714 "SI Motion: Safely reduced speed exceeded".
- subsequent response to the message C01715 "SI Motion: Safe end stop exceeded".
See also: p9554 (SI Motion transition time STOP E to SOS (SBH) (Control Unit))
Remedy:
- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C01714.
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SOS: Safe Operating Stop / SBH: Safe operating stop

C01711 SI Motion CU: Defect in a monitoring channel

Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>When cross-checking and comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.</p> <p>If at least one monitoring function is active, then after the parameterized timer has expired, the message C01701 "SI Motion: STOP B initiated" is output.</p> <p>The message value that resulted in a STOP F is displayed in r9725. The described message values involve the data cross-check between the Control Unit and Motor Module. If the drive is operated together with a SINUMERIK, the message values are described in message 27001 of SINUMERIK.</p> <p>Message value (r9749, interpret decimal): 0 to 999: Number of the cross-checked data that resulted in this fault. Fault values that are not subsequently listed are only for internal Siemens fault diagnostics.</p> <p>0: Stop request from the other monitoring channel. 1: Status image of monitoring functions SOS, SLS or SLP (result list 1) (r9710[0], r9710[1]). 2: Status image of monitoring function SCA or n < nx (result list 2) (r9711[0], r9711[1]). 3: Pos. act. val. (r9712). 4: Error when synchronizing the crosswise data comparison between the two channels. 5: Function enable signals (p9501, p9301). 6: Limit value for SLS1 (p9531[0], p9331[0]). 7: Limit value for SLS2 (p9531[1], p9331[1]). 8: Limit value for SLS3 (p9531[2], p9331[2]). 9: Limit value for SLS4 (p9531[3], p9331[3]). 10: Standstill tol. (p9530, p9330). 31: Pos. tol. (p9542, p9342). 33: Time, velocity changeover (p9551, p9351). 35: Delay time, pulse canc. (p9556, p9356). 36: Checking time, pulse canc. (p9557, p9357). 37: Trans. time, STOP C to SOS (p9552, p9352). 38: Trans. time STOP D to SOS (p9553, p9353). 40: Stop response for SLS. 42: Shutdown speed, pulse canc. (p9560, p9360). 43: Memory test, stop response (STOP A). 44: Position actual value + limit value SLS1 / safety monitoring clock cycle. 45: Pos. act. val. - limit value SLS1 / safety monitoring clock cycle. 46: Pos. act. val. + limit value SLS2 / safety monitoring clock cycle. 47: Pos. act. val. - limit value SLS2 / safety monitoring clock cycle. 48: Pos. act. val. + limit value SLS3 / safety monitoring clock cycle. 49: Pos. act. val. - limit value SLS3 / safety monitoring clock cycle. 50: Pos. act. val. + limit value SLS4 / safety monitoring clock cycle. 51: Pos. act. val. - limit value SLS4 / safety monitoring clock cycle. 52: Standstill position + tolerance. 53: Standstill position - tolerance 54: Pos. act. val. + limit value nx / safety monit. clock cycle + tolerance. 55: Pos. act. val. + limit value nx / safety monit. clock cycle. 56: Pos. act. val. - limit value nx / safety monit. clock cycle. 57: Pos. act. val. - limit value nx / safety monit. clock cycle - tolerance. 58: Current stop request. 75: Velocity limit nx (p9546, p9346). 76: Stop response for SLS1 (p9563[0], p9363[0]). 77: Stop response for SLS2 (p9563[1], p9363[1]). 78: Stop response for SLS3 (p9563[2], p9363[2]). 79: Stop response for SLS4 (p9563[3], p9363[3]). 81: Velocity tolerance for SBR (p9548, p9348). 82: SGEs for SLS correction factor. 83: Acceptance test timer (p9558, p9358). 84: Trans. time STOP F (p9555, p9355). 85: Trans. time bus failure (p9580, p9380). 86: Ident. 1-encoder system.</p>

- 87: Encoder assignment, 2nd channel (p9526, p9326).
 - 89: Encoder limit freq.
 - 230: Filter time constant for $n < nx$.
 - 231: Hysteresis tolerance for $n < nx$.
 - 232: Smoothed velocity actual value.
 - 233: Smoothed velocity actual value + limit value nx / safety monitoring clock cycle + hysteresis tolerance.
 - 234: Smoothed velocity actual value + limit value nx / safety monitoring clock cycle.
 - 235: Smoothed velocity actual value - limit value nx / safety monitoring clock cycle.
 - 236: Smoothed velocity actual value - limit value nx / safety monitoring clock cycle - hysteresis tolerance.
 - 237: SGA $n < nx$.
 - 1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.
 - 1001: Initialization error of watchdog timer.
 - 1005: Pulses already suppressed for test stop selection.
 - 1011: Acceptance test status between the monitoring channels differ.
 - 1012: Plausibility violation of the actual value from the encoder.
 - 1020: Cyc. communication failure between the monit. cycles.
 - 1021: Cyc. communication failure between the monit. channel and Sensor Module.
 - 1022: Sign-of-life for DQL Sensor Module CU
 - 1023: Error during the effectivity test in the Sensor Module
 - 1032: Sign-of-life for DQL Sensor Module MM
 - 1033: Error checking offset between POS1 and POS2 for DQL Sensor Module CU
 - 1034: Error checking offset between POS1 and POS2 for DQL Sensor Module MM
 - 5000 ... 5140: PROFIsafe message values.
 - 5000, 5014, 5023, 5024, 5030 ... 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140: An internal software error has occurred (only for internal Siemens troubleshooting).
 - 5012: Error when initializing the PROFIsafe driver.
 - 5013: The result of the initialization is different for the two controllers.
 - 5022: Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
 - 5025: The result of the F parameterization is different for the two controllers.
 - 5026: CRC error for the F parameters. The transferred CRC value of the F parameters does not match the value calculated in the PST.
 - 5065: A communications error was identified when receiving the PROFIsafe telegram.
 - 5066: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.
 - 6000 ... 6166: PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).
Message values 6000, 6072:
 - an internal software error has occurred (only for internal Siemens troubleshooting).Message values 6064 ... 6071:
 - Error when evaluating the F parameters. The values of the transferred F parameters do not match the expected values in the PROFIsafe driver.
 - 6064: Destination address and PROFIsafe address are different (F_Dest_Add).
 - 6065: Destination address not valid (F_Dest_Add).
 - 6066: Source address not valid (F_Source_Add).
 - 6067: Watchdog time not valid (F_WD_Time).
 - 6068: Incorrect SIL level (F_SIL).
 - 6069: Incorrect F-CRC length (F_CRC_Length).
 - 6070: Incorrect F parameter version (F_Par_Version).
 - 6071: CRC error for the F parameters (CRC1). The transferred CRC value of the F parameters does not match the value calculated in the PROFIsafe driver.
 - 6165: A communications error was identified when receiving the PROFIsafe telegram.
 - 6166: A time monitoring error (timeout) was identified when receiving the PROFIsafe telegram.
- See also: p9555 (SI Motion transition time STOP F to STOP B (Control Unit)), r9725 (SI Motion, diagnostics STOP F)

Remedy:

The following generally applies:

The monitoring clock cycles in both channels should be checked for equality and if required, set the same.

Re fault value = 0:

- no error was identified in this monitoring channel. Note the error message of the other monitoring channel (for MM: F30711).

Re fault value = 4:

The monitoring clock cycles in both channels should be checked for equality and if required, set the same.

Re fault value = 1 ... 999:

- if the fault value is listed under cause: Check the crosswise compared parameters to which the fault value refers.
- copy the safety parameters.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.
- correction of the encoder evaluation. The actual values differ as a result of mechanical faults (V belts, travel to a mechanical endstop, wear and window setting that is too narrow, encoder fault, ...).

Re fault value = 1000:

- investigate the signal associated with the safety-relevant input (contact problems).

Re fault value = 1001:

- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 1005:

- check the conditions for pulse enable.

Re fault value = 1011:

- for diagnostics, refer to parameter (r9571).

Re fault value = 1012:

- upgrade the Sensor Module software.

Re fault value = 1020, 1021:

- check the communication link.
- carry out a POWER ON (power off/on) for all components.
- replace the hardware.

Re fault value = 5000, 5014, 5023, 5024, 5030, 5031, 5032, 5042, 5043, 5052, 5053, 5068, 5072, 5073, 5082 ... 5087, 5090, 5091, 5122 ... 5125, 5132 ... 5135, 5140:

- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- upgrade firmware to later version.
- contact the Hotline.
- replace the Control Unit.

Re fault value = 5012:

- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810). It is not permissible for the PROFIsafe address to be 0 or FFFF!

Re fault value = 5013, 5025:

- carry out a POWER ON (power off/on) for all components.
- check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re fault value = 5022:

- check the setting of the values of the F parameters at the PROFIsafe slave (F_SIL, F_CRC_Length, F_Par_Version, F_Source_Add, F_Dest_add, F_WD_Time).

Re fault value = 5026:

- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and update.

Re fault value = 5065:

- check the configuration and communication at the PROFIsafe slave (cons. No. / CRC).
- check the setting of the value for F parameters F_WD_Time at the PROFIsafe slave and increase if necessary.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

Re fault value = 5066:

- check the setting of the value for F parameters F_WD_Time at the PROFIsafe slave and increase if necessary.

Re fault value = 6000, 6072:

- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.

- upgrade firmware to later version.
 - contact the Hotline.
 - replace the Control Unit.
- Re fault value = 6064:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave.
 - check the setting of the PROFIsafe address of the Control Unit (p9610) and that of the Motor Module (p9810).
- Re fault value = 6065:
- check the setting of the value in the F parameter F_Dest_Add at the PROFIsafe slave. It is not permissible for the destination address to be either 0 or FFFF!
- Re fault value = 6066:
- check the setting of the value in the F parameter F_Source_Add at the PROFIsafe slave. It is not permissible for the source address to be either 0 or FFFF!
- Re fault value = 6067:
- check the setting of the value in the F parameter F_WD_Time at the PROFIsafe slave. It is not permissible for the watch time to be 0!
- Re fault value = 6068:
- check the setting of the value in the F parameter F_SIL at the PROFIsafe slave. The SIL level must correspond to SIL2!
- Re fault value = 6069:
- check the setting of the value in the F parameter F_CRC_Length at the PROFIsafe slave. The setting of the CRC2 length is 2-byte CRC in the V1 mode and 3-byte CRC in the V2 mode!
- Re fault value = 6070:
- check the setting of the value in the F parameter F_Par_Version at the PROFIsafe slave. The value for the F parameter version is 0 in the V1 mode and 1 in the V2 mode!
- Re fault value = 6071:
- check the settings of the values of the F parameters and the F parameter CRC (CRC1) calculated from these at the PROFIsafe slave and, if required, update.
- Re fault value = 6165:
- check the configuration and communication at the PROFIsafe slave.
 - check the setting of the value for F parameters F_WD_Time at the PROFIsafe slave and increase if necessary.
 - check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- Re fault value = 6166:
- check the configuration and communication at the PROFIsafe slave.
 - check the setting of the value for F parameters F_WD_Time at the PROFIsafe slave and increase if necessary.
- This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
 - motion monitoring functions with SINUMERIK: Via the machine control panel
- See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))

C01712 SI Motion CU: Defect in F-IO processing

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.
Message C01711 with message value 0 is also displayed due to triggering of STOP F.
If at least one monitoring function is active, then after the parameterized timer has expired, the message C01701 "SI Motion: STOP B initiated" is output.
Message value (r9749, interpret decimal):
Number of the cross-checked data that resulted in this message.
1: SI discrepancy monitoring time (p10002, p10102).
2: SI acknowledgement internal event input terminal (p10006, p10106).
3: SI STO input terminal (p10022, p10122).
4: SI SS1 input terminal (p10023, p10123).
5: SI SS2 input terminal (p10024, p10124).
6: SI SOS input terminal (p10025, p10125).
7: SI SLS input terminal (p10026, p10126).
8: SI SLS_Limit(1) input terminal (p10027, p10127).
9: SI SLS_Limit(2) input terminal (p10028, p10128).
10: SI Safe State signal selection (p10039, p10139).
11 SI F-DI input mode (p10040, p10140).
12: SI F-DO 0 signal sources (p10042, p10142).
13: Static inactive signal sources (p10006, p10022 ... p10028).
Remedy: Check the correct parameterization in the parameters involved and if required, correct.
Ensure equality by copying the SI data to the 2nd channel and then carry out an acceptance test
Check for the same monitoring clock cycle in p9500 and p9300.
Note:
This message can be acknowledged via F-DI or PROFIsafe.
See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))

C01714 SI Motion CU: Safely-Limited Speed exceeded

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive has moved faster than that specified by the velocity limit value (p9531). The drive is stopped as a result of the configured stop response (p9563).
Message value (r9749, interpret decimal):
100: SLS1 exceeded.
200: SLS2 exceeded.
300: SLS3 exceeded.
400: SLS4 exceeded.
1000: Encoder limit frequency exceeded.
Remedy: - check the traversing/motion program in the control.
- check the limits for "Safely-Limited Speed (SLS) and if required, adapt (p9531).
This message can be acknowledged as follows:
- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel
Note:
SI: Safety Integrated
SLS: Safely-Limited Speed / SG: Safely reduced speed
See also: p9531 (SI Motion SLS (SG) limit values (Control Unit)), p9563 (SI Motion SLS (SG)-specific stop response (Control Unit))

C01745 SI Motion CU: Checking braking torque for the brake test

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: POWER ON (IMMEDIATELY)

Cause: The normalization of the brake torque for the brake test can be changed using parameter p2003. An acceptance test must be carried out again for the braking test. This determines whether the braking test is still carried out with the correct braking torque.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- repeat the acceptance test for the safe brake test if the brake test is used.

See also: p2003 (Reference torque)

C01750 SI Motion CU: Hardware fault safety-relevant encoder

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The encoder that is used for the safety-relevant motion monitoring functions signals a hardware fault. Message value (r9749, interpret decimal): Encoder status word 1, encoder status word 2 that resulted in the message.

Remedy:

- check the encoder connection.
- replace the encoder.

This message can be acknowledged as follows:

- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel.

C01751 SI Motion CU: eff.test error safe encoder

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The DQ encoder that is used for the safety-relevant motion monitoring functions signals an effectiveness test error. Message value (r9749, interpret decimal):

- 1 - TFD bit in EncoderStatusWord2 set in last effectiveness test set
- 2 - Actual effectiveness test no. in last effectiveness test set smaller/greater than expected
- 3 - IG1/IG2 bits in EncoderStatusWord2 set in last effectiveness test set longer than expected
- 4 - F1/F2 bits in EncoderStatusWord2 in last effectiveness test set not dynamized
- 5 - Effectiveness tests performed too frequently
- 6 - LS1/LS2 not frozen during effectiveness test
- 7 - Effectiveness test performed too rarely or not at all

Remedy:

- check the encoder connection.
- replace the encoder.

This message can be acknowledged as follows:

- motion monitoring functions integrated in the drive: Via Terminal Module 54F (TM54F) or PROFIsafe
- motion monitoring functions with SINUMERIK: Via the machine control panel.

C01770 SI Motion CU: Discrepancy error of the fail-safe inputs or outputs

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The safety input terminals or output terminals show a different state longer than that parameterized in p10002 (or p10102).
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
xxxx:
The safety-relevant input terminals F-DI indicate a discrepancy.
Bit 0: Discrepancy for F-DI 0
Bit 1: Discrepancy for F-DI 1
...
yyyy:
The safety-relevant output terminals F-DO indicate a discrepancy.
Bit 0: Discrepancy for F-DO 0
...
Note:
If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.
Remedy:
- Check the wiring of the F-DI (contact problems).
- carry out safe acknowledgement (p10006).
Note:
Discrepancy error of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10006). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state.
F-DI: Failsafe Digital Input
F-DO: Failsafe Digital Output

A01796 (F, N) SI Motion CU: Wait for communication

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The drive waits for communication to be established with SINUMERIK or TM54F to execute the safety-relevant motion monitoring functions.
Note:
In this state, the pulses are safely suppressed.
Remedy: If, after a longer period of time, the message is not automatically withdrawn, the following checks have to be made as appropriate:
For communication with SINUMERIK, the following applies:
- check any other PROFIBUS messages/signals present and remove their cause.
- check that assignment of the axes on the higher-level control to the drives in the drive unit is correct.
- check enable signal of the safety-relevant motion monitoring functions for the corresponding axis on the higher-level control and if required, set it.
For communication with TM54F, the following applies:
- check any other messages/signals present for DRIVE-CLiQ communication with the TM54F and remove their cause.
- check the setting of p10010. All the drive objects controlled by the TM54F must be listed.
See also: p9601 (SI enable, functions integrated in the drive (Control Unit)), p9801 (SI enable, functions integrated in the drive (Motor Module))
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

C01798 SI Motion CU: Test stop running

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The test stop is active.
Remedy: None necessary.
The message is withdrawn when the test stop is finished.
Note:
SI: Safety Integrated

C01799 SI Motion CU: Acceptance test mode active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The acceptance test mode is active. The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the RESET button of the higher-level control.
Remedy: None necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated

F01800 DRIVE-CLiQ: Hardware/configuration error

Message value: %1
Drive object: All objects
Reaction: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A DRIVE-CLiQ connection fault has occurred.
Fault value (r0949, interpret decimal):
100 ... 107:
Communication via DRIVE-CLiQ socket X100 ... X107 has not been switched to cyclic operation. The cause may be an incorrect structure or a configuration that results in an impossible bus timing.
10:
Loss of the DRIVE-CLiQ connection. The cause may be, for example, that the DRIVE-CLiQ cable was withdrawn from the Control Unit or as a result of a short-circuit for motors with DRIVE-CLiQ. This fault can only be acknowledged in cyclic communication.
11:
Repeated faults when detecting the connection. This fault can only be acknowledged in cyclic communication.
12:
A connection was detected but the node ID exchange mechanism does not function. The reason is probably that the component is defective. This fault can only be acknowledged in cyclic communication.
Remedy: Re fault value = 100 ... 107:
- ensure that the DRIVE-CLiQ components have the same firmware releases.
- avoid longer topologies for short current controller clock cycles.
Re fault value = 10:
- check the DRIVE-CLiQ cables at the Control Unit.
- remove any short-circuit for motors with DRIVE-CLiQ.
- carry out a POWER ON.
Re fault value = 11:
- check the electrical cabinet design and cable routing for EMC compliance
Re fault value = 12:
- replace the component involved.

F01840	SMI: Component found with changed data
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	POWER ON
Cause:	Another Sensor Module Integrated (SMI) was found. The reasons could be as follows: 1. A motor with DRIVE-CLiQ (SMI) and another order No. were used as replacement. 2. A Sensor Module Integrated was used as spare part where there is no encoder data and motor data or the incorrect data are present. Fault value (r0949, interpret hexadecimal): The value should be interpreted as follows as 8-digit hexadecimal number AAAABBBB: BBBB = Reserved. AAAA = Component number of the component involved.
Remedy:	Re 1. - restore the factory setting. - carry out the first commissioning. Re 2. - download the SMI data from the back-up (p4690, p4691). - carry out a POWER ON (power off/on) for all components.
A01900 (F)	PROFIBUS: Configuration telegram error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A PROFIBUS master attempts to establish a connection using an incorrect configuring telegram. Alarm value (r2124, interpret decimal): 50: Syntax error. 51: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence were defined using p0978. 52: Too many data words for input or output to a drive object. A maximum of 16 words is permitted for SERVO and VECTOR; and a maximum of 5 words for A_INFEED, TB30, TM31 and CU320. 53: Uneven number of bytes for input or output.
Remedy:	Check the bus configuring on the master and slave sides. Re alarm value = 51: Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
Reaction upon F:	NONE (OFF1)
Acknowl. upon F:	IMMEDIATELY
A01901 (F)	PROFIBUS: Parameterizing telegram error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	A PROFIBUS master attempts to establish a connection using an incorrect parameterizing telegram. Alarm value (r2124, interpret decimal): 1: Incorrect parameterizing bits. 10: Illegal length of an optional parameterizing block. 11: Illegal ID of an optional parameterizing block. 20: Double parameterizing block for clock synchronization. 21: Incorrect parameterizing block for clock synchronization. 22: Incorrect parameterizing bits for clock synchronization. 23: Illegal clock synchronization for PZD interface 2. 30: Double parameterizing block for peer-to-peer data transfer. 31: Incorrect parameterizing block for peer-to-peer data transfer.

Remedy: Check the bus configuration:
 - bus addresses
 - slave configuring

Reaction upon F: NONE (OFF1)
 Acknowl. upon F: IMMEDIATELY

A01902 IF1: PB/PN clock cycle synchronous operation parameterization not permissible

Message value: %1

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Alarm value (r2124, interpret decimal):
 0: Bus cycle time Tdp < 0.5 ms.
 1: Bus cycle time Tdp > 32 ms.
 2: Bus cycle time Tdp is not an integer multiple of the current controller clock cycle.
 3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.
 4: Instant of the actual value sensing Ti is not an integer multiple of the current controller clock cycle.
 5: Instant of the setpoint acceptance To >= Bus cycle time Tdp or To = 0.
 6: Instant of the setpoint acceptance To is not an integer multiple of the current controller clock cycle.
 7: Master application cycle time Tmapc is not an integer multiple of the speed controller clock cycle.
 8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller clock cycles.
 9: Bus cycle time Tdp has been modified with respect to the first time that the connection was established.
 10: Instant of the setpoint acceptance not To <= data exchange time Tdx + To_min.
 11: Master application cycle time Tmapc > 14 or Tmapc = 0.
 12: PLL tolerance window Tpll_w > Tpll_w_max.
 13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].
 14: For COMM BOARD with the setting To - 1 = Tdp - Ti, the instant of the setpoint acceptance is not To <= Data exchange time Tdx + 2 * To_min.
 15: This configuration is not permitted for Tdp < 1 ms.
 16: Instant of the actual value sensing Ti is less than the permitted value (COMM BOARD: Ti >= 2).
 17: The setting (To + Ti = Tdp + 2) is not permitted for COMM BOARD.

Remedy:
 - adapt the parameterizing telegram.
 - adapt the current and speed controller clock cycle.
 Re alarm value = 9:
 - carry out a POWER ON.
 Re alarm value = 15:
 - check the number of specific drive object types in the configuration.
 Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

A01903 (F) COMM INT: Receive configuration data invalid

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The drive unit did not accept the receive configuration data.
 Alarm value (r2124, interpret decimal):
 Return value of the receive configuration data check.
 0: Configuration accepted.
 1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence were defined using p0978.
 2: Too many data words for input or output to a drive object. A maximum of 16 words is permitted for SERVO and VECTOR; and a maximum of 5 words for A_INFEED, TB30, TM31 and CU320.
 3: Uneven number of bytes for input or output.
 4: Setting data for synchronization not accepted.
 5: Drive still not in cyclic operation.
 6: Buffer system not accepted.
 7: Cyclic channel length too short for this setting.
 8: Cyclic channel address not initialized.
 9: 3-buffer system not permitted.
 10: DRIVE-CLiQ fault.
 11: CU-Link fault.
 12: CX32 not in cyclic operation.

Remedy: Check the receive configuration data.
 Re alarm value = 1:
 Check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

F01910 (N, A) PROFIBUS: Setpoint timeout

Message value: -

Drive object: All objects

Reaction: OFF3 (IASC/DCBRAKE, NONE, OFF1, OFF2, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: The receipt of setpoints from the PROFIBUS interface is interrupted because the bus connection is interrupted or the PROFIBUS master is switched off or was set to the STOP state.
 See also: p2047 (PROFIBUS additional monitoring time)

Remedy: Restore the bus connection and set the PROFIBUS master to RUN.
 Slave redundancy: For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.
 See also: p2047 (PROFIBUS additional monitoring time)

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F01911 IF1: PB/PN clock cycle synchronous operation clock cycle failure

Message value: -

Drive object: All objects

Reaction: OFF1

Acknowledge: IMMEDIATELY

Cause: The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tpllw).

Remedy:

- check the PROFIBUS cables and connectors.
- check whether communication was briefly or permanently interrupted.
- check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).

Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

F01912 IF1: PB/PN clock cycle synchronous operation sign-of-life failure

Message value: -

Drive object: All objects

Reaction: OFF1

Acknowledge: IMMEDIATELY

Cause: The maximum permissible number of errors in the master sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.

Remedy:

- check the physical bus configuration (terminating resistor, shielding, etc.).
- correct the interconnection of the master sign-of-life (p2045).
- check whether the master correctly sends the sign-of-life (e.g. create a trace with STW2.12 ... STW2.15 and trigger signal ZSW1.3).
- check the permissible telegram failure rate (p0925).
- check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).

Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

F01913 (N, A) COMM INT: Monitoring time sign-of-life expired

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The monitoring time for the sign-of-life counter has expired.
 The connection between the drive and the higher-level control (SIMOTION, SINUMERIK) has been interrupted for the following reasons:

- the control was reset.
- the data transfer to the control was interrupted.

Remedy:

- wait until the control has re-booted.
- restore data transfer to the control.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F01914 (N, A) COMM INT: Monitoring time configuration expired

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The monitoring time for the configuration has expired.
 Fault value (r0949, interpret decimal):
 0: The transfer time of the send configuration data has been exceeded.
 1: The transfer time of the receive configuration data has been exceeded.

Remedy:

- acknowledge faults that are present.
- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A01920 (F) PROFIBUS: Interruption cyclic connection

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic connection to the PROFIBUS master is interrupted.
Remedy: Establish the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode.
 Reaction upon F: NONE (OFF1)
 Acknowl. upon F: IMMEDIATELY

A01921 (F) PROFIBUS: Receive setpoints after To

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle.
Remedy:
 - check bus configuration.
 - check parameters for clock cycle synchronization (ensure To > Tdx).
Note:
 To: Time of setpoint acceptance
 Tdx: Data exchange time
 Reaction upon F: NONE (OFF1)
 Acknowl. upon F: IMMEDIATELY

A01930 IF1: PB/PN current controller clock cycle clock cycle synchronous not equal

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The current controller clock cycle of all drives must be set the same for the clock cycle synchronous operation.
 Alarm value (r2124, interpret decimal):
 Number of the drive object with different current controller clock cycle.
Remedy: Set current controller clock cycles to identical values (p0115[0]).
Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

A01931 IF1: PB/PN speed controller clock cycle clock cycle synchronous not equal

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The speed controller clock cycle of all drives must be set the same for the clock cycle synchronous operation.
 Alarm value (r2124, interpret decimal):
 Number of the drive object with the different speed controller clock cycle.

Remedy: Set the speed controller clock cycles the same (p0115[1]).
Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

A01932 IF1: PB/PN clock cycle synchronization missing for DSC

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: There is no clock cycle synchronization and DSC is selected.
Note:
 DSC: Dynamic Servo Control
Remedy: Set the clock cycle synchronization when configuring the bus.

A01940 IF1: PB/PN clock cycle synchronism not reached

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master.
 - the master does not send a clock synchronous global control telegram although clock synchronous operation was selected when configuring the bus.
 - the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
 - at least one drive object (that is not controlled from PROFIBUS/PROFINET) has a pulse enable.
Remedy:
 - check the master application and bus configuration.
 - check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
 - ensure that the pulses of drive objects that are not controlled by PROFIBUS/PROFINET are not enabled. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives.
Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

A01941 IF1: PB/PN clock cycle signal missing when establishing bus communication

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is not being received.
Remedy: Check the master application and bus configuration.
Note:
 IF1: Interface 1
 PB: PROFIBUS
 PN: PROFINET

A01943	IF1: PB/PN clock cycle signal error when establishing bus communication
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is being irregularly received. -the master is sending an irregular global control telegram. - the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
Remedy:	- check the master application and bus configuration. - check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master. Note: IF1: Interface 1 PB: PROFIBUS PN: PROFINET
A01944	IF1: PB/PN sign-of-life synchronism not reached
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. Synchronization with the master sign-of-life (STW2.12 ... STW2.15) could not be completed because the sign-of-life is changing differently to how it was configured in the Tmapc time grid.
Remedy:	- ensure that the master correctly increments the sign-of-life in the master application clock cycle Tmapc. - correct the interconnection of the master sign-of-life (p2045). Note: IF1: Interface 1 PB: PROFIBUS PN: PROFINET
A01945	PROFIBUS: Connection to the Publisher failed
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed. Alarm value (r2124, interpret binary): Bit 0 = 1: Publisher with address in r2077[0], connection failed. ... Bit 15 = 1: Publisher with address in r2077[15], connection failed.
Remedy:	- check the PROFIBUS cables. - carry out a first commissioning of the Publisher that has the failed connection.
F01946 (A)	PROFIBUS: Connection to the Publisher aborted
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation has been aborted. Alarm value (r2124, interpret binary): Bit 0 = 1: Publisher with address in r2077[0], connection aborted. ... Bit 15 = 1: Publisher with address in r2077[15], connection aborted.

Remedy: - check the PROFIBUS cables.
- check the state of the Publisher that has the aborted connection.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01950 (N, A) IF1: PB/PN clock cycle synchronous operation synchronization unsuccessful

Message value: -
Drive object: All objects
Reaction: OFF1 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.
Remedy: Only for internal Siemens troubleshooting.
Note:
IF1: Interface 1
PB: PROFIBUS
PN: PROFINET
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A02000 Function generator: Start not possible

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The function generator has already been started.
Remedy: Stop the function generator and restart again if necessary.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02005 Function generator: Drive does not exist

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection does not exist.
See also: p4815 (Function generator drive number)
Remedy: Use the existing drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

A02006 Function generator: No drive specified for connection

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: No drive specified for connection in p4815.
See also: p4815 (Function generator drive number)
Remedy: At least one drive to be connected must be specified in p4815.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4815 (Function generator drive number)

A02007 Function generator: Drive not SERVO / VECTOR

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection is not a SERVO / VECTOR.
See also: p4815 (Function generator drive number)
Remedy: Use a SERVO / VECTOR drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02008 Function generator: Drive specified a multiple number of times

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection is already specified.
Alarm value (r2124, interpret decimal):
Drive object number of the drive object that is specified a multiple number of times.
Remedy: Specify a different drive object.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02009 Function generator: Illegal mode

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The set operating mode (p1300) of the drive object is not permissible when using the function generator.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.
Remedy: Change the operating mode for this drive object to p1300 = 20 (encoderless speed control) or p1300 = 21 (speed control with encoder).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02010	Function generator: Speed setpoint from the drive is not zero
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The speed setpoint of a drive selected for connection is greater than the value for the standstill detection set using p1226. Alarm value (r2124, interpret decimal): Number of the drive object involved.
Remedy:	For all of the drives specified for connection, set the speed setpoints to 0. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.
A02011	Function generator: The actual drive speed is not zero
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The speed actual value of a drive selected for connection is greater than the value for the standstill detection set using p1226. Alarm value (r2124, interpret decimal): Number of the drive object involved.
Remedy:	Set the relevant drives to zero speed before starting the function generator. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.
A02015	Function generator: Drive enable signals missing
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The master control and/or enable signals are missing to connect to the specified drive. Alarm value (r2124, interpret decimal): Number of the drive object involved. See also: p4815 (Function generator drive number)
Remedy:	Fetch the master control to the specified drive object and set all enable signals. Note: The alarm is reset as follows: - remove the cause of this alarm. - restart the function generator.
A02016	Function generator: Magnetizing running
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Magnetizing has not yet been completed on a drive object specified for connection. Alarm value (r2124, interpret decimal): Number of the drive object involved. See also: p4815 (Function generator drive number)

Remedy: Wait for magnetizing of the motor (r0056.4).
Note:
 The alarm is reset as follows:
 - restart the function generator.
 See also: r0056 (Status word, closed-loop control)

A02020 Function generator: Parameter cannot be changed

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: This parameter setting cannot be changed when the function generator is active (p4800 = 1).
 See also: p4810, p4812, p4813, p4815, p4820, p4821, p4822, p4823, p4824, p4825, p4826, p4827, p4828, p4829
Remedy: - stop the function generator before parameterizing (p4800 = 0).
 - if required, start the function generator (p4800 = 1).
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4800 (Function generator control)

A02025 Function generator: Period too short

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the period is too short.
 See also: p4821 (Function generator period)
Remedy: Check and adapt the value for the period.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4821 (Function generator period)

A02026 Function generator: Pulse width too high

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected pulse width is too high.
 The pulse width must be less than the period duration.
 See also: p4822 (Function generator pulse width)
Remedy: Reduce pulse width.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4821 (Function generator period), p4822 (Function generator pulse width)

A02030 Function generator: Physical address equals zero

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The specified physical address is zero.
 See also: p4812 (Function generator physical address)

Remedy: Set a physical address with a value other than zero.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4812 (Function generator physical address)

A02040 Function generator: Illegal value for offset

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
 See also: p4826 (Function generator offset)
Remedy: Adjust the offset value accordingly.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: p4826 (Function generator offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)

A02041 Function generator: Illegal value for bandwidth

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The bandwidth referred to the time slice clock cycle of the function generator has either been set too low or too high.
 Depending on the time slice clock cycle, the bandwidth is defined as follows:
 $\text{Bandwidth_max} = 1 / (2 * \text{time slice clock cycle})$
 $\text{Bandwidth_min} = \text{Bandwidth_max} / 100000$
 Example:
 Assumption: p4830 = 125 μs
 --> $\text{Bandwidth_max} = 1 / (2 * 125 \mu\text{s}) = 4000 \text{ Hz}$
 --> $\text{Bandwidth_min} = 4000 \text{ Hz} / 100000 = 0.04 \text{ Hz}$
Note:
 p4823: Function generator bandwidth
 p4830: Function generator time slice clock cycle
 See also: p4823 (Function generator bandwidth), p4830 (Function generator time slice cycle)
Remedy: Check the value for the bandwidth and adapt accordingly.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.

A02047 Function generator: Time slice clock cycle invalid

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice clock cycle selected does not match any of the existing time slices.
 See also: p4830 (Function generator time slice cycle)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
Note:
 The alarm is reset as follows:
 - remove the cause of this alarm.
 - restart the function generator.
 See also: r7901 (Time slice cycle times)

A02050 Trace: Start not possible

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace has already been started.
See also: p4700 (Trace control)
Remedy: Stop the trace and, if necessary, start again.

A02055 Trace: Recording time too short

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace duration is too short.
The minimum is twice the value of the trace clock cycle.
See also: p4721 (Trace recording time)
Remedy: Check the selected recording time and, if necessary, adjust.

A02056 Trace: Recording cycle too short

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected recording cycle is shorter than the selected basic clock cycle 0 (p0110[0]).
See also: p4720 (Trace recording cycle)
Remedy: Increase the value for the trace cycle.

A02057 Trace: Time slice clock cycle invalid

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The time slice clock cycle selected does not match any of the existing time slices.
See also: p4723 (Time slice cycle for trace)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
See also: r7901 (Time slice cycle times)

A02058 Trace: Time slice clock cycle for endless trace not valid

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for the endless trace
See also: p4723 (Time slice cycle for trace)
Remedy: Enter the clock cycle of an existing time slice with a cycle time ≥ 2 ms for up to 4 recording channels or ≥ 4 ms from 5 recording channels per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Time slice cycle times)

A02059	Trace: Time slice clock cycle for 2 x 8 recording channels not valid
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected time slice clock cycle cannot be used for more than 4 recording channels. See also: p4723 (Time slice cycle for trace)
Remedy:	Enter the clock cycle of an existing time slice with a cycle time \geq 4 ms or reduce the number of recording channels to 4 per trace. The existing time slices can be read out via p7901. See also: r7901 (Time slice cycle times)
A02060	Trace: Signal to be traced missing
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	- a signal to be traced was not specified. - the specified signals are not valid. See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy:	- specify the signal to be traced. - check whether the relevant signal can be traced.
A02061	Trace: Invalid signal
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	- the specified signal does not exist. - the specified signal can no longer be traced (recorded). See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy:	- specify the signal to be traced. - check whether the relevant signal can be traced.
A02062	Trace: Invalid trigger signal
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	- a trigger signal was not specified. - the specified signal does not exist. - the specified signal is not a fixed-point signal. - the specified signal cannot be used as a trigger signal for the trace. See also: p4711 (Trace trigger signal)
Remedy:	Specify a valid trigger signal.
A02063	Trace: Invalid data type
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The specified data type to select a signal using a physical address is invalid. See also: p4711 (Trace trigger signal), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)

Remedy: Use a valid data type.

A02070 Trace: Parameter cannot be changed

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The trace parameter settings cannot be changed when the trace is active.
 See also: p4700, p4710, p4711, p4712, p4713, p4714, p4715, p4716, p4720, p4721, p4722, p4730, p4731, p4732, p4733, p4780, p4781, p4782, p4783, p4789, p4795
Remedy: - stop the trace before parameterization.
 - if required, start the trace.

A02075 Trace: Pretrigger time too long

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The selected pretrigger time must be shorter than the trace time.
 See also: p4721 (Trace recording time), p4722 (Trace trigger delay)
Remedy: Check the pretrigger time setting and change if necessary.

F02080 Trace: Delete trace because units changed over

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The trace was deleted due to the fact that the units were changed over or the reference parameters changed.
Remedy:

A02099 Trace: Insufficient Control Unit memory

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The memory space still available on the Control Unit is no longer sufficient for the trace function.
Remedy: Reduce the memory required, e.g. as follows:
 - reduce the trace time.
 - increase the trace clock cycle.
 - reduce the number of signals to be traced.
 See also: r4708 (Trace memory space required), r4799 (Trace memory location free)

A02100 CU: Computing dead time current controller too short

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The value in p0118 produces a dead time of one clock cycle because it is prior to setpoint availability. A possible cause could be, for example, that the system characteristics no longer match those parameterized after a component has been replaced.
 Alarm value (r2134, floating point):
 The minimum value for p0118 where a dead time no longer occurs.
Remedy: - set p0118 to a value greater than or equal to the alarm value.
 - set p0117 to an automatic setting.
 - check the firmware releases of the components involved.

A02150 OA: Application cannot be loaded

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The system was not able to load an OA application.
 Alarm value (r2124, interpret hexadecimal):
 Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
 - upgrade firmware to later version.
 - contact the Hotline.
Note:
 OA: Open Architecture

F02151 (A) OA: Internal software error

Message value: %1
Drive object: All objects
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error has occurred within an OA application.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (power off/on) for all components.
 - upgrade firmware to later version.
 - contact the Hotline.
 - replace the Control Unit.
Note:
 OA: Open Architecture
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F02152 (A) OA: Insufficient memory

Message value: %1
Drive object: All objects
Reaction: OFF1
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, OA applications, blocks, etc).
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, OA applications, blocks, etc).
 - use an additional Control Unit.
Note:
 OA: Open Architecture
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A05000 (N) Power unit: Overtemperature heat sink AC inverter

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The alarm threshold for overtemperature at the inverter heat sink has been reached. The response is set using p0290.
 If the temperature of the heat sink increases by an additional 5 K, then fault F30004 is initiated.

Remedy: Check the following:
 - is the ambient temperature within the defined limit values?
 - have the load conditions and the load duty cycle been appropriately dimensioned?
 - has the cooling failed?

Reaction upon N: NONE

Acknowl. upon N: NONE

A05001 (N) Power unit: Chip overtemperature

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: Alarm threshold for overtemperature of the power semiconductor in the AC converter has been reached. The response is set using p0290.
 If the chip temperature increases by an additional 15 K, then fault F30025 is triggered.

Remedy: Check the following:
 - is the ambient temperature within the defined limit values?
 - have the load conditions and the load duty cycle been appropriately dimensioned?
 - has the cooling failed?
 - pulse frequency too high?
 See also: r0037, p0290 (Power unit overload response)

Reaction upon N: NONE

Acknowl. upon N: NONE

A05002 (N) Power unit: Air intake overtemperature

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The alarm threshold for the air intake overtemperature has been reached. For air-cooled power units, the threshold is 42 °C (hysteresis 2 K). The response is set using p0290.
 If the air intake temperature increases by an additional 13 K, then fault F30035 is output.

Remedy: Check the following:
 - is the ambient temperature within the defined limit values?
 - has the fan failed? Check the direction of rotation.

Reaction upon N: NONE

Acknowl. upon N: NONE

A05003 (N) Power unit: Electronics board overtemperature

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The alarm threshold for the overtemperature of the electronics module has been reached. The response is set using p0290.
 If the temperature of the electronics module increases by an additional 5 K, then fault F30036 is triggered.

Remedy: Check the following:
 - is the ambient temperature within the defined limit values?
 - has the fan failed? Check the direction of rotation.

Reaction upon N: NONE

Acknowl. upon N: NONE

A05004 (N) Power unit: Rectifier overtemperature

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The alarm threshold for the overtemperature of the rectifier has been reached. The response is set using p0290. If the temperature of the rectifier increases by an additional 5 K, then fault F30037 is triggered.
Remedy: Check the following:
 - is the ambient temperature within the defined limit values?
 - have the load conditions and the load duty cycle been appropriately dimensioned?
 - has the fan failed? Check the direction of rotation.
 - has a phase of the line supply failed?
 - is an arm of the supply (incoming) rectifier defective?
Reaction upon N: NONE
Acknowl. upon N: NONE

A05006 (N) Power unit: Overtemperature thermal model

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The temperature difference between the chip and heat sink has exceeded the permissible limit value (blocksize power units only). Depending on p0290, an appropriate overload response is initiated. See also: r0037
Remedy: None necessary. The alarm disappears automatically once the limit value is undershot. Note: If the alarm does not disappear automatically and the temperature continues to rise, this can result in fault F30024. See also: p0290 (Power unit overload response)
Reaction upon N: NONE
Acknowl. upon N: NONE

N05007 (A) Power unit: Overtemperature thermal model (chassis PU)

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The temperature difference between the chip and heat sink has exceeded the permissible limit value (r0293) (chassis power units only). Depending on p0290, an appropriate overload response is initiated. See also: r0037
Remedy: None necessary. The alarm disappears automatically once the limit value is undershot. See also: p0290 (Power unit overload response)
Reaction upon A: NONE
Acknowl. upon A: NONE

F06310 (A) Supply voltage (p0210) incorrectly parameterized

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For AC/AC drive units, the measured DC voltage lies outside the tolerance range after pre-charging has been completed. The following applies for the tolerance range: $1.16 * p0210 < r0070 < 1.6 * p0210$. The fault can only be acknowledged when the drive is powered down. See also: p0210 (Drive unit line supply voltage)

Remedy:

- check the parameterized supply voltage and if required change (p0210).
- check the line supply voltage.

See also: p0210 (Drive unit line supply voltage)

Reaction upon A: NONE

Acknowl. upon A: NONE

F07011 Drive: Motor overtemperature

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: KTY:
 The motor temperature has exceeded the fault threshold (p0605) or the timer (p0606) after the alarm threshold was exceeded (p0604) has expired.
 The response parameterized in p0610 becomes active.
 PTC:
 The response threshold of 1650 Ohm was exceeded and the timer (p0606) has expired.
 The response parameterized in p0610 becomes active.
 Possible causes:
 - motor is overloaded.
 - motor ambient temperature too high.
 - wire breakage or sensor not connected.
 Fault value (r0949, interpret decimal):
 For SME selected (p0601 = 10), number of the sensor channel leading to the message.
 When the I2t motor model is activated (p0612 bit[0] = yes, p0611 > 0), fault value= 200 refers to the fact that the fault has been triggered by the I2t motor model.
 See also: p0604 (Motor overtemperature alarm threshold), p0605 (Motor overtemperature fault threshold), p0606 (Motor overtemperature timer)

Remedy:

- reduce the motor load.
- check the ambient temperature.
- check the wiring and sensor connector.

See also: p0604 (Motor overtemperature alarm threshold), p0605 (Motor overtemperature fault threshold), p0606 (Motor overtemperature timer)

A07012 (N) Drive: I2t motor model overtemperature

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The thermal I2t motor model (for synchronous motors) identified that the temperature alarm threshold was exceeded.
 See also: r0034 (Motor utilization), p0605 (Motor overtemperature fault threshold), p0611 (I2t motor model thermal time constant)

Remedy:

- check the motor load and if required, reduce.
- check the motor ambient temperature.
- check the thermal time constant p0611.
- check the overtemperature fault threshold p0605 (= alarm threshold for the I2t motor model, see p0612)

Reaction upon N: NONE

Acknowl. upon N: NONE

A07015	Drive: Motor temperature sensor alarm
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	An error was detected when evaluating the temperature sensor set in p0600 and p0601. With the fault, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 0.2 s after alarm A07015. Possible causes: - wire breakage or sensor not connected (KTY: R > 1630 Ohm). - measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm). Alarm value (r2124, interpret decimal): For SME selected (p0601 = 10), number of the sensor channel leading to the message.
Remedy:	- make sure that the sensor is connected correctly. - check the parameterization (p0600, p0601). See also: r0035 (Motor temperature), p0600 (Motor temperature sensor for monitoring), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)
F07016	Drive: Motor temperature sensor fault
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	An error was detected when evaluating the temperature sensor set in p0600 and p0601. Possible causes: - wire breakage or sensor not connected (KTY: R > 1630 Ohm). - measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm). Note: If alarm A07015 is present, the time in p0607 is started. If the fault is still present after this time has expired, then fault F07016 is output; however, at the earliest, 0.2 s after alarm A07015. Fault value (r0949, interpret decimal): For SME selected (p0601 = 10), number of the sensor channel leading to the message. See also: p0607 (Temperature sensor fault timer)
Remedy:	- make sure that the sensor is connected correctly. - check the parameterization (p0600, p0601). - induction motors: De-activate temperature sensor fault (p0607 = 0). See also: r0035 (Motor temperature), p0600 (Motor temperature sensor for monitoring), p0601 (Motor temperature sensor type), p0607 (Temperature sensor fault timer)
F07080	Drive: Incorrect control parameter
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The closed-loop control parameters have been parameterized incorrectly (e.g. p0356 = L_spread = 0). Fault value (r0949, interpret decimal): The fault value includes the parameter number involved. The following parameter numbers only occur as fault values for vector drives: p0310, for synchronous motors: p0341, p0344, p0350, p0357 The following parameter numbers do not occur as fault values for synchronous motors: p0354, p0358, p0360 See also: p0310, p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0400, p0404, p0408, p0640, p1082, p1300
Remedy:	Modify the parameter indicated in the fault value (r0949) (e.g. p0640 = current limit > 0). See also: p0311, p0341, p0344, p0350, p0354, p0356, p0358, p0360, p0400, p0404, p0408, p0640, p1082

F07082 Macro: Execution not possible

Message value: Fault cause: %1, supplementary information: %2, preliminary parameter number: %3

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The macro cannot be executed.
 Fault value (r0949, interpret hexadecimal):
 ccccbbaa hex:
 cccc = preliminary parameter number, bb = supplementary information, aa = fault cause
 Fault causes for the trigger parameter itself:
 -20: Called file is not valid for parameter 15.
 -21: Called file is not valid for parameter 700.
 -22: Called file is not valid for parameter 1000.
 -23: Called file is not valid for parameter 1500.
 -24: Data type of a TAG is incorrect (e.g.: Index, number or bit is not U16).
 Fault causes for the parameters to be set:
 -25: Error level has an undefined value.
 -26: Mode has an undefined value.
 -27: A value was entered as string in the tag value that is not "DEFAULT".
 -31: Entered drive object type unknown.
 -32: A device was not able to be found for the determined drive object number.
 -34: A trigger parameter was recursively called.
 -35: It is not permissible to write to the parameter via macro.
 -36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect.
 -37: Source parameter for a BICO interconnection was not able to be determined.
 -38: An index was set for a non-indexed (or CDS-dependent) parameter.
 -39: No index was set for an indexed parameter.
 -41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN.
 -42: A value not equal to 0 or 1 was set for a BitOperation.
 -43: Reading the parameter to be changed by the BitOperation was unsuccessful.
 -51: Factory setting for DEVICE may only be executed on the DEVICE.
 -61: The setting of a value was unsuccessful.

Remedy: - check the parameter involved.
 - check the macro file and BICO interconnection.
 See also: p0015

F07083 Macro: ACX file not found

Message value: Parameter: %1

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The ACX file (macro) to be executed was not able to be found in the appropriate directory.
 Fault value (r0949, interpret decimal):
 Parameter number with which the execution was started.
 See also: p0015

Remedy: - check whether the file is saved in the appropriate directory on the memory card.
 Example:
 If p0015 is set to 1501, then the selected ACX file must be located in the following directory:
 ... /PMACROS/DEVICE/P15/PM001501.ACX

F07084	Macro: Condition for WaitUntil not fulfilled
Message value:	Parameter: %1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts. Fault value (r0949, interpret decimal): Parameter number for which the condition was set.
Remedy:	Check and correct the conditions for the WaitUntil loop.
F07085	Drive: Open-loop/closed-loop control parameters changed
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	Parameters of the open-loop/closed-loop control had to be changed as they exceeded dynamic limits as a result of other parameters. Fault value (r0949, interpret decimal): The fault value includes the modified parameter number. 340: The motor and control parameters were automatically calculated (p0340 = 1), because the vector control was subsequently activated as configuration (r0108.2). See also: p0640 (Current limit), p1082 (Maximum speed), p1300 (Open-loop/closed-loop control operating mode), p1800 (Pulse frequency setpoint)
Remedy:	It is not necessary to change the parameters as they have already been correctly limited.
F07086	Units changeover: Parameter limit violation due to reference value change
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit representation (cause: e.g. the steady-state minimum/maximum limit or that defined in the application was violated). The values of the parameters were set to the corresponding violated minimum/maximum limit or to the factory setting. Fault value (r0949, parameter): Diagnostics parameter r9450 to display the parameters that were not able to be re-calculated. See also: p0304, p0305, p0310, p0596, p2000, p2001, p2002, p2003, r2004
Remedy:	Check the adapted parameter value and if required correct. See also: r9450 (Reference value change parameter with unsuccessful calculation)
F07087	Drive: Encoderless operation not possible for the selected pulse frequency
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	Encoderless operation is not possible for the selected pulse frequency (p1800). Encoderless operation is activated under the following conditions: - the changeover speed for encoderless operation (p1404) is less than the maximum speed (p0322). - a control type with encoderless operation has been selected (p1300). - encoder faults of the motor encoder result in a fault response with encoderless operation (p0491). See also: p0491 (Motor encoder fault response ENCODER), p1300 (Open-loop/closed-loop control operating mode), p1404 (Encoderless operation changeover speed), p1800 (Pulse frequency setpoint)
Remedy:	Increase the pulse frequency (p1800). Note: In encoderless operation, the pulse frequency must be at least as high as half the current controller clock cycle (1/p0115[0]).

F07088	Units changeover: Parameter limit violation due to units changeover
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	A changeover of units was initiated. Possible causes for the violation of a parameter limit are: - when rounding off a parameter corresponding to its decimal places, the steady-state minimum or maximum limit was violated. - inaccuracies for the data type "Floating Point". In these cases, when the minimum limit is violated then the parameter value is rounded up and when the maximum limited is violated the parameter value is rounded down. Fault value (r0949, interpret decimal): Diagnostics parameter r9451 to display all parameters whose value had to be adapted. See also: p0100 (IEC/NEMA mot stds), p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units), p0595 (Selecting technological units)
Remedy:	Check the adapted parameter values and if required correct. See also: r9451 (Units changeover adapted parameters)
A07089	Changing over units: Adding a function module blocked if units changed over
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	An attempt was made to add a function module. This is not permissible if the units have already been changed over. See also: p0100 (IEC/NEMA mot stds), p0349 (System of units, motor equivalent circuit diagram data), p0505 (Selecting the system of units)
Remedy:	Restore units that have been changed over to the default value.
F07090	Drive: Upper torque limit less than the lower torque limit
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The upper torque limit is lower than the lower torque limit.
Remedy:	P1 must be >= P2 if parameter P1 is connected to p1522 and parameter P2 to p1523.
A07200	Drive: Master control ON/OFF1 command present
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The ON/OFF1 command is not 0, either via binector input p0840 (current CDS) or in control word p3982 bit 0.
Remedy:	The signal at binector input p0840 (current CDS) as well as p3982 bit 0 must be 0.
F07210	Master control PC/AOP inhibited
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	The transfer of master control is disabled via binector input p3985.
Remedy:	Change the signal via binector input p3985.

F07220 (N, A)	Drive: Master control by PLC missing
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The "master control by PLC" signal was missing in operation. - interconnection of the binector input for "master control by PLC" is incorrect (p0854). - the higher-level control has withdrawn the "master control by PLC" signal. - data transfer via the fieldbus (master/drive) was interrupted.
Remedy:	- check the interconnection of the binector input for "master control by PLC" (p0854). - check the "master control by PLC" signal and, if required, switch in. - check the data transfer via the fieldbus (master/drive). Note: If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized to NONE or the message type should be parameterized as alarm.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07300 (A)	Drive: Line contactor feedback signal missing
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	- the line contactor was not able to be closed within the time in p0861. - the line contactor was not able to be opened within the time in p0861. - the line contactor has dropped out in operation. - the line contactor has closed although the drive converter is powered down.
Remedy:	- check the setting of p0860. - check the feedback circuit from the line contactor. - increase the monitoring time in p0861. See also: p0860 (Line cont. fdbk sig), p0861 (Line contactor monitoring time)
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07320	Drive: Automatic restart interrupted
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	- The specified number of restart attempts (p1211) has been completely used up because within the monitoring time (p1213) the faults were not able to be acknowledged. The number of restart attempts (p1211) is decremented at each new start attempt. - there is no active ON command. - the monitoring time for the power unit has expired (p0857). - when exiting commissioning or at the end of the motor identification routine or the speed controller optimization, the drive unit is not automatically powered up again. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- increase the number of restart attempts (p1211). The current number of starting attempts is displayed in r1214. - increase the delay time in p1212 and/or the monitoring time in p1213. - issue an ON command (p0840). - either increase or disable the monitoring time of the power unit (p0857).

A07321 Drive: Automatic restart active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The automatic restart (AR) is active. When the line supply returns and/or the causes of the existing faults are removed the drive is automatically restarted. The pulses are enabled and the motor starts to rotate.
Remedy: - the automatic restart (AR) should, if required, be inhibited (p1210 = 0).
- an automatic restart can be directly interrupted by withdrawing the power-on command (BI: p0840).

A07350 (F) Drive: Measuring probe parameterized to a digital output

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output.
Alarm value (r2124, decimal):
8: DI/DO 8 (X122.9/X132.1)
9: DI/DO 9 (X122.10/X132.2)
10: DI/DO 10 (X122.12/X132.3)
11: DI/DO 11 (X122.13/X132.4)
12: DI/DO 12 (X132.9)
13: DI/DO 13 (X132.10)
14: DI/DO 14 (X132.12)
15: DI/DO 15 (X132.13)
To the terminal designation:
The first designation is valid for CU320, the second for CU305.
Remedy: - set the terminal as input (p0728).
- de-select the measuring probe (p0488, p0489, p0580).
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

A07400 (N) Drive: DC link voltage maximum controller active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The DC link voltage controller has been activated because the upper switch-in threshold has been exceeded (r1242). The ramp-down times are automatically increased in order to maintain the DC link voltage (r0070) within the permissible limits. There is a system deviation between the setpoint and actual speeds. When the DC link voltage controller is switched out (disabled), this is the reason that the ramp-function generator output is set to the speed actual value.
See also: p1240 (Vdc controller or Vdc monitoring configuration)
Remedy: If the controller is not to intervene:
- increase the ramp-down times.
- shut down the Vdc max controller (p1280 = 0)
If the ramp-down times are not to be changed:
- use a chopper or regenerative feedback unit
Reaction upon N: NONE
Acknowl. upon N: NONE

A07402 (N) Drive: DC link voltage minimum controller active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The DC link voltage controller has been activated as the lower switch-in threshold has been undershot (r1246). The kinetic energy of the motor is used in order to buffer the DC link. This brakes the drive. See also: p1240 (Vdc controller or Vdc monitoring configuration)
Remedy: The alarm disappears when power supply returns.
Reaction upon N: NONE
Acknowl. upon N: NONE

F07403 (N, A) Drive: Lower DC link voltage threshold reached

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The DC link voltage monitoring is active (p1240 = 2, 3) and the lower DC link voltage threshold (p1248) was reached in the "Operation" state.
Remedy:
 - check the line supply voltage.
 - check the infeed module
 - reduce the lower DC link threshold (p1248).
 - switch out (disable) the DC link voltage monitoring (p1240 = 0).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07404 Drive: Upper DC link voltage threshold reached

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The DC link voltage monitoring is active (p1240 = 1, 3) and the upper DC link voltage threshold (p1244) was reached in the "Operation" state.
Remedy:
 - check the line supply voltage.
 - check the infeed module or the Braking Module.
 - increase the upper DC link voltage threshold (p1244).
 - switch out (disable) the DC link voltage monitoring (p1240 = 0).

F07410 Drive: Current controller output limited

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (NONE, OFF1)
Acknowledge: IMMEDIATELY
Cause: The condition "I_act = 0 and Uq_set_1 longer than 16 ms at its limit" is present and can be caused by the following:
 - motor not connected or motor contactor open.
 - no DC link voltage present.
 - Motor Module defective.
Remedy:
 - connect the motor or check the motor contactor.
 - check the DC link voltage (r0070).
 - check the Motor Module.

F07411 Drive: Flux controller output limited

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (NONE, OFF1)

Acknowledge: IMMEDIATELY

Cause: The specified flux setpoint cannot be reached although 90% of the maximum current has been specified.

- incorrect motor data.
- motor data and motor configuration (star/delta) do not match.
- the current limit has been set too low for the motor.
- induction motor (encoderless, open-loop controlled) in I2t limiting.
- the Motor Module is too small.

Remedy:

- correct the motor data.
- check the motor configuration.
- correct the current limits (p0640, p0323).
- reduce the induction motor load.
- if required, use a larger Motor Module.

F07412 Drive: Commutation angle incorrect (motor model)

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: ENCODER (NONE, OFF2)

Acknowledge: IMMEDIATELY

Cause: An incorrect commutation angle was detected that can result in a positive coupling in the speed controller.

Possible causes:

- the motor encoder is incorrectly adjusted with respect to the magnet position.
- the motor encoder is damaged.
- the angular commutation offset is incorrectly set (p0431).
- data to calculate the motor model has been incorrectly set (p0356 (motor-stator leakage inductance) and/or p0350 (motor-stator resistance) and/or p0352 (cable resistance)).
- the changeover speed for the motor model is too low (p1752). The monitoring function only becomes effective above the changeover speed.
- the motor encoder speed signal is faulted.
- the control loop is instable due to incorrect parameterization.

Fault value (r0949, interpret decimal):

SERVO:

0: The comparison of the pole position angle from the encoder and the motor model resulted in an excessively high value (> 80 ° electrical).

1: -

VECTOR:

0: The comparison of the pole position angle from the encoder and the motor model resulted in an excessively high value (> 45 ° electrical).

1: The change in the speed signal from the motor encoder has changed by > p0492 within a current controller clock cycle.

Remedy:

- if the encoder mounting was changed - re-adjust the encoder.
- replace the defective motor encoder.
- correctly set the angular commutation offset (p0431).
- correctly set the motor stator resistance, cable resistance and motor-stator leakage inductance (p0350, p0352, p0356).
- increase the changeover speed for the motor model (p1752). The monitoring is completely de-activated for p1752 > p1082 (maximum speed).

Note:

For High Dynamic Motors (1FK7xxx-7xxx), for applications with a higher current, if necessary, the monitoring should be disabled.

F07413 Drive: Commutation angle incorrect (pole position identification)

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: An incorrect commutation angle was detected that can result in a positive coupling in the speed controller.
 - within the pole position identification routine (p1982 = 2):
 A difference of > 45° electrical to the encoder angle was determined.
 - for VECTOR, within the encoder adjustment (p1990 = 2):
 A difference of > 6 ° electrical to the encoder angle was determined.
Remedy:
 - correctly set the angular commutation offset (p0431).
 - re-adjust the motor encoder after the encoder has been replaced.
 - replace the defective motor encoder.
 - check the pole position identification routine. If the pole position identification routine is not suitable for this motor type, then disable the plausibility check (p1982 = 0).

F07414 (N, A) Drive: Encoder serial number changed

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (NONE, OFF2)
Acknowledge: IMMEDIATELY
Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
Cause 1:
 The encoder was replaced.
Cause 2:
 A third-party, build-in or linear motor was re-commissioned.
Cause 3:
 The motor with integrated and adjusted encoder was replaced.
Cause 4:
 The firmware was updated to a version that checks the encoder serial number.
Remedy: Re causes 1, 2:
 Carry out an automatic adjustment using the pole position identification routine. First, accept the serial number with p0440 = 1. Acknowledge the fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.
SERVO:
 If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
 or
 Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
 or
 Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Re causes 3, 4:
 Accept the new serial number with p0440 = 1.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

N07415 (F) Drive: Angular commutation offset transfer running

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: NONE
Cause: The angular commutation offset was automatically determined using p1990 = 1.
 This fault causes the pulses to be suppressed - this is necessary to transfer the angular commutation offset to p0431.
 See also: p1990 (Encoder adjustment, determine angular commutation offset)

Remedy: The fault can be acknowledged without any additional measures.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F07420 Drive: Current setpoint filter natural frequency > Shannon frequency

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: One of the filter natural frequencies is greater than the Shannon frequency.
 The Shannon frequency is calculated according to the following formula: $0.5 / p0115[0]$
 Fault value (r0949, interpret hexadecimal):
 Bit 0: Filter 1 (p1658, p1660)
 Bit 1: Filter 2 (p1663, p1665)
 Bit 2: Filter 3 (p1668, p1670)
 Bit 3: Filter 4 (p1673, p1675)
 Bit 8 ... 15: Data set number (starting from zero).
Remedy: - reduce the numerator or denominator natural frequency of the current setpoint filter involved.
 - reduce the current controller sampling time (p0115[0]).
 - switch out the filter involved (p1656).

F07421 Drive: Speed setpoint filter natural frequency > Shannon frequency

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: One of the filter natural frequencies is greater than the Shannon frequency.
 The Shannon frequency is calculated according to the following formula: $0.5 / p0115[1]$
 Fault value (r0949, interpret hexadecimal):
 Bit 0: Filter 1 (p1417, p1419)
 Bit 1: Filter 2 (p1423, p1425)
 Bit 8 ... 15: Data set number (starting from zero)
Remedy: - reduce the numerator or denominator natural frequency of the speed setpoint filter involved.
 - reduce the speed controller sampling time (p0115[1]).
 - switch out the filter involved (p1414).

F07422 Drive: Reference model natural frequency > Shannon frequency

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The natural filter frequency of the PT2 element for the reference model (p1433) is greater than the Shannon frequency.
 The Shannon frequency is calculated according to the following formula: $0.5 / p0115[1]$
Remedy: - reduce the natural frequency of PT2 element for reference model (p1433).
 - reduce the speed controller sampling time (p0115[1]).

F07429 Drive: DSC without encoder not possible

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The function DSC (Dynamic Servo Control) was activated although there is no encoder.
 See also: p1191 (DSC position controller gain KPC)
Remedy: If there is no encoder and CI: p1191 (DSC position controller gain) is interconnected, then connector input CI: p1191 must have a 0 signal.

F07430	Drive: Changeover to open-loop torque controlled operation not possible
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (NONE, OFF1, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For encoderless operation, the converter cannot change over to closed-loop torque-controlled operation (BI: p1501).
Remedy:	Do not attempt to cover over to closed-loop torque-controlled operation.
F07431	Drive: Changeover to encoderless operation not possible
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	For closed-loop torque control, the converter cannot change over to encoderless operation (p1404).
Remedy:	Do not attempt to change over to encoderless operation.
F07432	Drive: Synchronous motor without overvoltage protection
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (OFF1)
Acknowledge:	IMMEDIATELY
Cause:	Under voltage conditions, a synchronous motor can generate an overvoltage condition that can destroy the drive system. Fault value (r0949, interpret hexadecimal): Associated Drive Data Set (DDS).
Remedy:	Overvoltage protection can be implemented in the following ways: - limit the maximum speed (p1082) without any additional protection. The maximum speed without protection is calculated as follows: Rotary motors: $p1082 \text{ [rpm]} \leq 11.695 * p0297/p0316 \text{ [Nm/A]}$ Linear motors: $p1082 \text{ [m/min]} \leq 73.484 * p0297/p0316 \text{ [N/A]}$ - use a voltage protection module (VPM) in conjunction with the function "Safe Torque Off" (p9601, p9801). When a fault condition exists, the VPM short-circuits the motors. During the short-circuit, the pulses must be suppressed - this means that the terminals for the function "Safe Torque Off" must be connected to the VPM. When using a VPM, p0643 must be set to 1. - activating the internal voltage protection (IVP) with p1231 = 3. See also: p0643 (Overvoltage protection for synchronous motors), p1231 (Armature short-circuit / DC brake configuration)
F07433	Drive: Closed-loop control with encoder is not possible as the encoder has not been unparked
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The changeover to closed-loop control with encoder is not possible as the encoder has not been unparked.
Remedy:	- check whether the encoder firmware supports the "parking" function (r0481.6 = 1). - upgrade the firmware. Note: For long-stator motors (p3870.0 = 1), the following applies: The encoder must have completed the unparking procedure (r3875.0 = 1) before a changeover can be made to closed-loop control with encoder. The encoder is unparked with a 0/1 edge at BI: p3876 and remains unparked until a 0 signal is again present.

F07434	Drive: It is not possible to change the direction of rotation with the pulses enabled
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	A drive data set was selected - with the pulses enabled - which has a different parameterized direction of rotation (p1821). It is only possible to change the motor direction of rotation using p1821 when the pulses are inhibited.
Remedy:	- change over the drive data set with the pulses inhibited. - ensure that the changeover to a drive data set does not result in the motor direction of rotation being changed (i.e. for these drive data sets, the same value must be in p1821). See also: p1821 (Dir of rot)

A07440	EPOS: Jerk time is limited
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The calculation of the jerk time $T_r = \text{MAX}(p2572, p2573) / p2574$ resulted in an excessively high value so that the jerk time is internally limited to 1000 ms. Note: The alarm is also output if jerk limiting is not active.
Remedy:	- increase the jerk limiting (p2574). - reduce maximum acceleration or maximum deceleration (p2572, p2573). See also: p2572 (EPOS maximum acceleration), p2573 (EPOS maximum deceleration), p2574 (EPOS jerk limiting)

A07441	LR: Save the position offset of the absolute encoder adjustment
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The status of the absolute encoder adjustment has changed. In order to permanently save the determined position offset (p2525) it must be saved in a non-volatile fashion (p0971, p0977).
Remedy:	None necessary. This alarm automatically disappears after the offset has been saved. See also: p2507 (LR absolute encoder adjustment status), p2525 (LR encoder adjustment, offset)

F07442 (A)	LR: Multiturn does not match the modulo range
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The ratio between the multiturn resolution and the modular range (p2576) is not an integer number. This results in the adjustment being set back, as the position actual value cannot be reproduced after power-off/power-on.

Remedy: Make the ration between the multiturn resolution and the modulo range an integer number.

The ratio v is calculated as follows:

1. Motor encoder without position tracking:

$$v = (p0421 * p2506 * p0433 * p2505) / (p0432 * p2504 * p2576)$$

2. Motor encoder with position tracking for the measuring gear:

$$v = (p0412 * p2506 * p2505) / (p2504 * p2576)$$

3. Motor encoder with position tracking for the load gear:

$$v = (p2721 * p2506 * p0433) / (p0432 * p2576)$$

4. Motor encoder with position tracking for the load and measuring gear:

$$v = (p2721 * p2506) / p2576$$

5. Direct encoder without position tracking:

$$v = (p0421 * p2506 * p0433) / (p0432 * p2576)$$

6. Direct encoder with position tracking for the measuring gear:

$$v = (p0412 * p2506) / p2576$$

Note:

With position tracking, it is recommended that p0412 and p2721 are changed

See also: p0432, p0433, p2504, p2505, p2506, p2576, p2721

Reaction upon A: NONE

Acknowl. upon A: NONE

F07443 (A) LR: Reference point coordinate not in the permissible range

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The reference point coordinate received when adjusting the encoder via connector input p2599 lies outside the half of the encoder range and cannot be set as current axis position.

Fault value (r0949, interpret decimal):

Maximum permissible value for the reference point coordinate.

Remedy: Set the reference point coordinate to a lower value than specified in the fault value.

See also: p2598 (EPOS reference point coordinate, signal source), p2599 (EPOS reference point coordinate value)

Reaction upon A: NONE

Acknowl. upon A: NONE

F07446 (A) Load gear: Position tracking cannot be reset

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The position tracking cannot be reset.

Remedy: Reset the position tracking as follows:

- select encoder commissioning (p0010 = 4).

- reset position tracking, position (p2720.2 = 1).

- de-select encoder commissioning (p0010 = 0).

The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).

Reaction upon A: NONE

Acknowl. upon A: NONE

F07447 **Load gear: Position tracking, maximum actual value exceeded**

Message value: Component number: %1, encoder data set: %2, drive data set: %3

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When the position tracking of the load gear is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.
 Maximum value: $p0408 * p2721 * 2^{p0419}$
 Fault value (r0949, interpret hexadecimal):
 ccbbaa hex
 aa = encoder data set
 bb = component number
 cc = drive data set
 See also: p0408 (Rotary encoder pulse No.), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear, rotary absolute gearbox, revolutions, virtual)

Remedy: - reduce the fine resolution (p0419).
 - reduce the multiturn resolution (p2721).
 See also: p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear, rotary absolute gearbox, revolutions, virtual)

F07448 (A) **Load gear: Position tracking, linear axis has exceeded the maximum range**

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For a configured linear axis/no modulo axis, the currently effective motor encoder (encoder 1) has exceeded the maximum possible traversing range.
 For the configured linear axis, the maximum traversing range is defined to be $64x (+/- 32x)$ of p0421. It should be read in p2721 and interpreted as the number of load revolutions.
 Note:
 Only the motor encoder in the currently effective drive data set is monitored here. The currently effective drive data set is displayed in $x = r0051$ and the corresponding motor encoder is specified in in p0187[x].

Remedy: The fault should be resolved as follows:
 - select encoder commissioning (p0010 = 4).
 - reset position tracking, position (p2720.2 = 1).
 - de-select encoder commissioning (p0010 = 0).
 The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon A: NONE

Acknowl. upon A: NONE

F07449 (A) **Load gear: Position tracking, current position outside tolerance window**

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: When powered down, the currently effective motor encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
 Note:
 Only the motor encoder in the currently effective drive data set is monitored here. The currently effective drive data set is displayed in $x = r0051$ and the corresponding motor encoder is specified in in p0187[x].
 Fault value (r0949, interpret decimal):
 Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gear - if one is being used. The sign designates the traversing direction.
 Note:
 The deviation (difference) found is also displayed in r2724.
 See also: p2722 (Load gear, position tracking tolerance window), r2724 (Load gear position difference)

Remedy: Reset the position tracking as follows:
 - select encoder commissioning (p0010 = 4).
 - reset position tracking, position (p2720.2 = 1).
 - de-select encoder commissioning (p0010 = 0).
 The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
 See also: p0010 (Drive commissioning parameter filter), p2507 (LR absolute encoder adjustment status)

Reaction upon A: NONE
 Acknowl. upon A: NONE

F07450 (A) LR: Standstill monitoring has responded

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: After the standstill monitoring time (p2543) expired, the drive left the standstill window (p2542).
 - position actual value inversion incorrectly set (p0410).
 - standstill window set too small (p2542).
 - standstill monitoring time set too low (p2543).
 - position loop gain too low (p2538).
 - position loop gain too high (instability/oscillation, p2538).
 - mechanical overload.
 - check the connecting cable, motor/drive converter (phase missing, interchange).
 - when selecting motor identification, select tracking mode (BI: p2655[0] = 1 signal).
 - when selecting function generator, select tracking mode (BI: p2655[0] = 1 signal) and de-activate position control (BI:p2550 = 0 signal).

Remedy: Check the causes and resolve.

Reaction upon A: NONE
 Acknowl. upon A: NONE

F07451 (A) LR: Position monitoring has responded

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When the position monitoring time (p2545) expired, the drive had still not reached the positioning window (p2544).
 - positioning window parameterized too small (p2544).
 - position monitoring time parameterized too short (p2545).
 - position loop gain too low (p2538).
 - position loop gain too high (instability/oscillation, p2538).
 - drive mechanically locked.

Remedy: Check the causes and resolve.

Reaction upon A: NONE
 Acknowl. upon A: NONE

F07452 (A) LR: Following error too high

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The difference between the position setpoint position actual value (following error dynamic model, r2563) is greater than the tolerance (p2546).
 - the drive torque or accelerating capacity exceeded.
 - position measuring system fault.
 - position control sense incorrect.
 - mechanical system locked.
 - excessively high traversing velocity or excessively high position reference value (setpoint) differences

Remedy: Check the causes and resolve.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07453 LR: Position actual value preprocessing error

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: An error has occurred during the position actual value preprocessing.
Remedy: Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)

A07454 LR: Position actual value preprocessing does not have a valid encoder

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: One of the following problems has occurred with the position actual value preprocessing:
- an encoder is not assigned for the position actual value preprocessing (p2502 = 0).
- an encoder is assigned, but no encoder data set (p0187 = 99 or p0188 = 99 or p0189 = 99).
- an encoder and an encoder data set have been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy: Check the drive data sets, encoder data sets and encoder assignment.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0400 (Encoder type selection), p2502 (LR encoder assignment)

A07455 EPOS: Maximum velocity limited

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The maximum velocity (p2571) is too high to correctly calculate the modulo correction.
Within the sampling time for positioning (p0115[5]), with the maximum velocity, a maximum of the half modulo length must be moved through. p2571 was limited to this value.
Remedy: - reduce the maximum velocity (p2571).
- increase the sampling time for positioning (p0115[5]).

A07456 EPOS: Setpoint velocity limited

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The current setpoint velocity is greater than the parameterized maximum velocity (p2571) and is therefore limited.
Remedy: - check the entered setpoint velocity.
- reduce the velocity override (CI: p2646).
- increase the maximum velocity (p2571).
- check the signal source for the externally limited velocity (CI: p2594).

A07457	EPOS: Combination of input signals illegal
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	An illegal combination of input signals that are simultaneously set was identified. Alarm value (r2124, interpret decimal): 0: Jog 1 and jog 2 (p2589, p2590). 1: Jog 1 or jog 2 and direct setpoint input/MDI (p2589, p2590, p2647). 2: Jog 1 or jog 2 and start referencing (p2589, p2590, p2595). 3: Jog 1 or jog 2 and activate traversing task (p2589, p2590, p2631). 4: Direct setpoint input/MDI and starting referencing (p2647, p2595). 5: Direct setpoint input/MDI and activate traversing task (p2647, p2631). 6: Start referencing and activate traversing task (p2595, p2631).
Remedy:	Check the appropriate input signals and correct.
F07458	EPOS: Reference cam not found
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	After starting the search for reference, the axis moved through the maximum permissible distance to search for the reference cam without actually finding the reference cam.
Remedy:	- check the "reference cam" binector input (BI: p2612). - check the maximum permissible distance to the reference cam (p2606). - if axis does not have any reference cam, then set p2607 to 0. See also: p2606 (EPOS search for reference, reference cam, maximum distance), p2607 (EPOS search for reference, reference cam present), p2612 (EPOS search for reference, reference cam)
F07459	EPOS: No zero mark
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	After leaving the reference cam, the axis has traversed the maximum permissible distance between the reference cam and zero mark without finding the zero mark.
Remedy:	- check the encoder regarding the zero mark - check the maximum permissible distance between the reference cam and zero mark (p2609). - use an external encoder zero mark (equivalent zero mark) (p0495). See also: p0495 (Equivalent zero mark, input terminal), p2609 (EPOS search for reference, max. distance ref. cam and zero mark)
F07460	EPOS: End of reference cam not found
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	During the search for reference, when the axis reached the zero mark it also reached the end of the traversing range without detecting an edge at the binector input "reference cam" (BI: p2612). Maximum traversing range: -2147483648 [LU] ... -2147483647 [LU]
Remedy:	- check the "reference cam" binector input (BI: p2612). - repeat the search for reference. See also: p2612 (EPOS search for reference, reference cam)

A07461	EPOS: Reference point not set
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	When starting a traversing block/direct setpoint input, a reference point is not set (r2684.11 = 0).
Remedy:	Reference the system (search for reference, flying referencing, set reference point).
A07462	EPOS: Selected traversing block number does not exist
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	A traversing block selected via BI: p2625 to BI: p2630 was started via BI: p2631 = 0/1 edge "Activate traversing task". - the number of the started traversing block is not contained in p2616[0...n]. - the started traversing block is suppressed. Alarm value (r2124, interpret decimal): Number of the selected traversing block that is also not available.
Remedy:	- correct the traversing program. - select an available traversing block number.
A07463 (F)	EPOS: External block change not requested in the traversing block
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	For a traversing block with the block change enable CONTINUE_EXTERNAL_ALARM, the external block change was not requested. Alarm value (r2124, interpret decimal): Number of the traversing block.
Remedy:	Resolve the reason as to why the edge is missing at binector input (BI: p2632).
Reaction upon F:	OFF1
Acknowl. upon F:	IMMEDIATELY
F07464	EPOS: Traversing block is inconsistent
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The traversing block does not contain valid information. Alarm value (r2124, interpret decimal): Number of the traversing block with invalid information.
Remedy:	Check the traversing block and where relevant, take into consideration alarms that are present.
A07465	EPOS: Traversing block does not have a subsequent block
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	There is no subsequent block in the traversing block. Alarm value (r2124, interpret decimal): Number of the traversing block with the missing subsequent block.
Remedy:	- parameterize this traversing block with the block change enable END. - parameterize additional traversing blocks with a higher block number and for the last block, using the block change enable END.

A07466	EPOS: Traversing block number assigned a multiple number of times
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The same traversing block number was assigned a multiple number of times. Alarm value (r2124, interpret decimal): Number of the traversing block that was assigned a multiple number of times.
Remedy:	Correct the traversing blocks.
A07467	EPOS: Traversing block has illegal task parameters
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The task parameter in the traversing block contains an illegal value. Alarm value (r2124, interpret decimal): Number of the traversing block with an illegal task parameter.
Remedy:	Correct the task parameter in the traversing block.
A07468	EPOS: Traversing block jump destination does not exist
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In a traversing block, a jump was programmed to a non-existent block. Alarm value (r2124, interpret decimal): Number of the traversing block with a jump destination that does not exist.
Remedy:	- correct the traversing block. - add the missing traversing block.
A07469	EPOS: Traversing block < target position < software limit switch minus
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the specified absolute target position lies outside the range limited by the software limit switch minus. Alarm value (r2124, interpret decimal): Number of the traversing block with illegal target position.
Remedy:	- correct the traversing block. - change software limit switch minus (CI: p2578, p2580).
A07470	EPOS: Traversing block > target position > software limit switch plus
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the specified absolute target position lies outside the range limited by the software limit switch plus. Alarm value (r2124, interpret decimal): Number of the traversing block with illegal target position.
Remedy:	- correct the traversing block. - change software limit switch plus (CI: p2579, p2581).

A07471	EPOS: Traversing block target position outside the modulo range
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the target position lies outside the modulo range. Alarm value (r2124, interpret decimal): Number of the traversing block with illegal target position.
Remedy:	- in the traversing block, correct the target position. - change the modulo range (p2576).

A07472	EPOS: Traversing block ABS_POS/ABS_NEG not possible
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the traversing block the positioning mode ABS_POS or ABS_NEG were parameterized with the modulo correction not activated. Alarm value (r2124, interpret decimal): Number of the traversing block with the illegal positioning mode.
Remedy:	Correct the traversing block.

A07473 (F)	EPOS: Beginning of traversing range reached
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	When traversing, the axis has moved to the traversing range limit.
Remedy:	Move away in the positive direction.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07474 (F)	EPOS: End of traversing range reached
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	When traversing, the axis has moved to the traversing range limit.
Remedy:	Move away in the negative direction.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

F07475 (A)	EPOS: Target position < start of traversing range
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The target position for relative traversing lies outside the traversing range.
Remedy:	Correct the target position.
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07476 (A)	EPOS: Target position > end of the traversing range
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The target position for relative traversing lies outside the traversing range.
Remedy:	Correct the target position.
Reaction upon A:	NONE
Acknowl. upon A:	NONE
A07477 (F)	EPOS: Target position < software limit switch minus
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the current traversing operation, the target position is less than the software limit switch minus.
Remedy:	- correct the target position. - change software limit switch minus (CI: p2578, p2580). See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07478 (F)	EPOS: Target position > software limit switch plus
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	In the current traversing operation, the target position is greater than the software limit switch plus.
Remedy:	- correct the target position. - change software limit switch plus (CI: p2579, p2581). See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07479	EPOS: Software limit switch minus reached
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The axis is at the position of the software limit switch minus. An active traversing block was interrupted.
Remedy:	- correct the target position. - change software limit switch minus (CI: p2578, p2580). See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)
A07480	EPOS: Software limit switch plus reached
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The axis is at the position of the software limit switch plus. An active traversing block was interrupted.

Remedy:

- correct the target position.
- change software limit switch plus (CI: p2579, p2581).

See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)

F07481 (A) EPOS: Axis position < software limit switch minus

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The current position of the axis is less than the position of the software limit switch minus.

Remedy:

- correct the target position.
- change software limit switch minus (CI: p2578, p2580).

See also: p2578 (EPOS software limit switch minus signal source), p2580 (EPOS software limit switch minus), p2582 (EPOS software limit switch activation)

Reaction upon A: NONE

Acknowl. upon A: NONE

F07482 (A) EPOS: Axis position > software limit switch plus

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The current position of the axis is greater than the position of the software limit switch plus.

Remedy:

- correct the target position.
- change software limit switch plus (CI: p2579, p2581).

See also: p2579 (EPOS software limit switch plus signal source), p2581 (EPOS software limit switch plus), p2582 (EPOS software limit switch activation)

Reaction upon A: NONE

Acknowl. upon A: NONE

A07483 EPOS: Travel to fixed stop clamping torque not reached

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The fixed stop in the traversing block was reached without the clamping torque/clamping force having been achieved.

Remedy:

- Check the maximum torque-generating current (r1533).
- check the torque limits (p1520, p1521).
- check the power limits (p1530, p1531).
- check the BICO interconnections of the torque limits (p1522, p1523, p1528, p1529).

F07484 EPOS: Fixed stop outside the monitoring window

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF3 (OFF1, OFF2)

Acknowledge: IMMEDIATELY

Cause: In the "fixed stop reached" state, the axis has moved outside the defined monitoring window (p2635).

Remedy:

- check the monitoring window (p2635).
- check the mechanical system.

F07485 (A) EPOS: Fixed stop not reached

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: In a traversing block with the task FIXED STOP, the end position was reached without detecting a fixed stop.
Remedy: - check the traversing block and locate the target position further into the workpiece.
- check the "fixed stop reached" control signal (p2637).
- if required, reduce the maximum following error window to detect the fixed stop (p2634).
Reaction upon A: NONE
Acknowl. upon A: NONE

A07486 EPOS: Intermediate stop missing

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "no intermediate stop/intermediate stop" (BI: p2640) did not have a 1 signal.
Remedy: Connect a 1 signal to the binector input "no intermediate stop/intermediate stop" (BI: p2640) and re-start motion.
See also: p2640 (EPOS intermediate stop (0 signal))

A07487 EPOS: Reject traversing task missing

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: In the modes "traversing blocks" or "direct setpoint input/MDI" at the start of motion, the binector input "do not reject traversing task/reject traversing task" (BI: p2641) does not have a 1 signal.
Remedy: Connect a 1 signal to the binector input "do not reject traversing task/reject traversing task" (BI: p2641) and re-start motion.
See also: p2641 (EPOS reject traversing task (0 signal))

F07488 EPOS: Relative positioning not possible

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: In the mode "direct setpoint input/MDI", for continuous transfer (p2649 = 1) relative positioning was selected (BI: p2648 = 0 signal).
Remedy: Check the control.

A07489 EPOS: Reference point correction outside the window

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: For the function "flying referencing" the difference between the measured position at the measuring probe and the reference point coordinate lies outside the parameterized window.
Remedy: - check the mechanical system.
- check the parameterization of the window (p2602).

F07490 EPOS: Enable signal withdrawn while traversing

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: - for a standard assignment, another fault may have occurred as a result of withdrawing the enable signals.
- the drive is in the "switching on inhibited" state (for a standard assignment).

Remedy: - set the enable signals or check the cause of the fault that first occurred and then result (for a standard assignment).
- check the assignment to enable the basic positioning function.

F07491 (A) EPOS: STOP cam minus reached

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF3

Acknowledge: IMMEDIATELY

Cause: A zero signal was detected at binector input BI: p2569, i.e. the STOP cam minus was reached.
For a positive traversing direction, the STOP cam minus was reached - i.e. the wiring of the STOP cam is incorrect.
See also: p2569 (EPOS STOP cam minus)

Remedy: - leave the STOP cam minus in the positive traversing direction and return the axis to the valid traversing range.
- check the wiring of the STOP cam.

Reaction upon A: NONE

Acknowl. upon A: NONE

F07492 (A) EPOS: STOP cam plus reached

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF3

Acknowledge: IMMEDIATELY

Cause: A zero signal was detected at binector input BI: p2570, i.e. the STOP cam plus was reached.
For a negative traversing direction, the STOP cam plus was reached - i.e. the wiring of the STOP cam is incorrect.
See also: p2570 (EPOS STOP cam plus)

Remedy: - leave the STOP cam plus in the negative traversing direction and return the axis to the valid traversing range.
- check the wiring of the STOP cam.

Reaction upon A: NONE

Acknowl. upon A: NONE

F07493 LR: Overflow of the value range for position actual value

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded.
When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset.
Fault value (r0949, interpret decimal):
1: The position actual value (r2521) has exceeded the value range.
2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.

Remedy: If required, reduce the traversing range or position resolution (p2506).
 Increase the fine resolution of absolute position actual value (p0419).
 Reference to fault value = 3:
 If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.
 For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:
 1. Motor encoder without position tracking:
 $p2506 * p0433 * p2505 / (p0432 * p2504)$
 $p2506 * p0433 * p2505 * p0421 / (p0432 * p2504)$ for multiturn encoders
 2. Motor encoder with position tracking for measuring gear
 $p2506 * p0412 * p2505 / p2504$
 3. Motor encoder with position tracking for load gear:
 $p2506 * p2721 * p0433 / p0432$
 4. Motor encoder with position tracking for load and measuring gear:
 $p2506 * p2721$
 5. Direct encoder without position tracking:
 $p2506 * p0433 / p0432$
 $p2506 * p0433 * p0421 / p0432$ for multiturn encoders
 6. Direct encoder with position tracking for measuring gear:
 $p2506 * p0412$

F07494 LR: Drive Data Set changeover in operation

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A drive data set changeover (DDS changeover) when the mechanical relationships change (p2503 .. 2506), the direction of rotation (p1821) or the encoder assignment (p2502) were requested during operation.
Remedy: To changeover the drive data set, initially, exit the "operation" mode.

A07495 (F) LR: Reference function interrupted

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: An activated reference function (reference mark search or measuring probe evaluation) was interrupted.
 - an encoder fault has occurred (Gn_ZSW.15 = 1).
 - position actual value was set during an activated reference function.
 - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).
 - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy: - check the causes and resolve.
 - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

A07496 EPOS: Enable not possible

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to enable the basic positioner because at least one signal is missing.
 Alarm value (r2124, interpret decimal):
 1: EPOS enable missing (BI: p2656).
 2: Position actual value, valid feedback signal missing (BI: p2658).
 See also: p2656 (EPOS enable basic positioner), p2658 (EPOS pos. actual value valid, feedback signal)
Remedy: Check the appropriate binector inputs and signals.

A07497 LR: Position setting value activated

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.
Remedy: None necessary.
 The alarm automatically disappears with BI: p2514 = 0 signal.

A07498 (F) LR: Measuring probe evaluation not possible

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the measuring probe, an error occurred.
 Alarm value (r2124, interpret decimal):
 6: The input terminal for the measuring probe is not set.
 4098: Error when initializing the measuring probe.
 4100: The measuring pulse frequency is too high.
 > 50000: The measuring clock cycle is not a multiple integer of the position controller clock cycle.
Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
 Re alarm value = 6:
 Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
 Re alarm value = 4098:
 Check the Control Unit hardware.
 Re alarm value = 4100:
 Reduce the frequency of the measuring pulses at the measuring probe.
 Re alarm value > 50000:
 Set the clock cycle ratio of the measuring clock cycle to the position controller clock cycle to an integer multiple.
 To do this, the currently effective measuring clock cycle can be determined from the alarm value as follows:
 $T_{meas}[125\mu s] = \text{alarm value} - 50000$.
 With PROFIBUS, the measuring clock cycle corresponds to the PROFIBUS clock cycle r2064[1].
 Without PROFIBUS, the measuring clock cycle is an internal cycle time that cannot be influenced.
 Reaction upon F: OFF1
 Acknowl. upon F: IMMEDIATELY

F07499 (A) EPOS: Reversing cam approached with the incorrect traversing direction

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF3
Acknowledge: IMMEDIATELY
Cause: The reversing cam MINUS was approached in the positive traversing direction or the reversing cam PLUS was approached in the negative traversing direction.
 See also: p2613 (EPOS search for reference reversing cam minus), p2614 (EPOS search for reference reversing cam plus)
Remedy: - check the wiring of the reversing cam (BI: p2613, BI: p2614).
 - check the traversing direction to approach the reversing cam.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F07500 Drive: Power unit data set PDS not configured

Message value: Drive data set: %1

Drive object: All objects

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Only for controlled line supply infeed/regenerative feedback units:
The power unit data set was not configured - this means that a data set number was not entered into the drive data set.
Fault value (r0949, interpret decimal):
Drive data set number of p0185.

Remedy: The index of the power unit data set associated with the drive data set should be entered into p0185.

F07501 Drive: Motor Data Set MDS not configured

Message value: Drive data set: %1

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Only for power units:
The motor data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, interpret decimal):
The fault value includes the drive data set number of p0186.

Remedy: The index of the motor data set associated with the drive data set should be entered into p0186.
See also: p0186 (Motor Data Sets (MDS) number)

F07502 Drive: Encoder Data Set EDS not configured

Message value: Drive data set: %1

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY

Cause: Only for power units:
The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, interpret decimal):
The fault value includes the drive data set number of p0187, p0188 and p0189.
The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).

Remedy: The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).

A07504 Drive: Motor data set is not assigned to a drive data set

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: A motor data set is not assigned to a drive object.
All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0...n]).
There must be at least as many drive data sets as motor data sets.
Alarm value (r2124, interpret decimal):
Number of the motor data set that has not been assigned.

Remedy: In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0...n]).
- check whether all of the motor data sets are assigned to drive data sets.
- if required, delete superfluous motor data sets.
- if required, set up new drive data sets and assign to the corresponding motor data sets.
See also: p0186 (Motor Data Sets (MDS) number)

F07509	Drive: Component number missing
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>A Drive Data Set (DDS) is assigned to a Motor Data Set (MDS) or Encoder Data Set (EDS) that does not have a component number.</p> <p>Alarm value (r2124, interpret decimal): nnmmmmxyyy nn: Number of the MDS/EDS. mmm: Parameter number of the missing component number. xx: Number of the DDS that is assigned to the MDS/EDS. yyy: Parameter number that references the MDS/EDS.</p> <p>Example: p0186[7] = 5: DDS 7 is assigned MDS 5. p0131[5] = 0: There is no component number set in MDS 5. Alarm value = 0513107186</p>
Remedy:	<p>In the drive data sets, no longer assign MDS/EDS using p0186, p0187, p0188, p0189 or set a valid component number.</p> <p>See also: p0131 (Motor component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0186 (Motor Data Sets (MDS) number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)</p>
F07511	Drive: Encoder used a multiple number of times
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	IMMEDIATELY
Cause:	<p>Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated.</p> <p>Fault value (r0949, interpret decimal): The two parameters in coded form, that refer to the same component number.</p> <p>First parameter: Index: First and second decimal place (99 for EDS, not assigned DDS) Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS) Drive number: Fourth and fifth decimal place</p> <p>Second parameter: Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS) Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS) Drive number: Ninth and tenth decimal place</p> <p>See also: p0141 (Encoder interface (Sensor Module) component number)</p>
Remedy:	Correct the double use of a component number using the two parameters coded in the fault value.
A07514 (N)	Drive: Data structure does not correspond to the interface module
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	<p>The interface mode "SIMODRIVE 611 universal" was set (p2038 = 1) and the data structure does not correspond to this mode.</p> <p>For the data structure, the following rule must be complied with.</p> <p>Within the group of 8 drive data sets, the assignment to the motor data set must be set the same:</p> <p>p0186[0] = p0186[1] = ... = p0186[7] p0186[8] = p0186[9] = ... = p0186[15] p0186[16] = p0186[17] = ... = p0186[23] p0186[24] = p0186[25] = ... = p0186[31]</p> <p>See also: p0180 (Number of Drive Data Sets (DDS)), p0186 (Motor Data Sets (MDS) number), p2038 (PROFIdrive STW/ZSW interface mode)</p>

Remedy: - structure the data according to the rules of the "SIMODRIVE 611 universal" interface mode.
 - check the interface mode (p2038).
Reaction upon N: NONE
Acknowl. upon N: NONE

F07515 Drive: Power unit and motor incorrectly connected

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology.
 Alarm value (r2124, interpret decimal):
 Number of the incorrectly parameterized drive data set.
Remedy: - assign the drive data set to a combination of motor and power unit permitted by the target topology.
 - adapt the target topology.
 See also: p0121 (Power unit component number), p0131 (Motor component number), p0186 (Motor Data Sets (MDS) number)

F07516 Drive: Re-commission the data set

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned.
 Fault value (r0949, interpret decimal):
 Drive data set to be re-commissioned.
Remedy: Commission the drive data set specified in the fault value (r0949).

F07518 Drive: Motor data set changeover incorrectly parameterized

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The system has identified that two motor data sets were incorrectly parameterized.
 Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor data sets are assigned different motors. p0827 is used to assign the motors and/contactors.
 It is not possible to toggle between motor data sets.
 Alarm value (r2124, interpret hexadecimal):
 xxxxyyyy:
 xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS
Remedy: Correct the parameterization of the motor data sets.

A07519 Drive: Motor changeover incorrectly parameterized

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: With the setting p0833.0 = 1, a motor changeover via the application is selected. This is the reason that p0827 must have different values in the appropriate motor data set.
 Alarm value (r2124, interpret hexadecimal):
 xxxxyyyy:
 xxxx: First MDS, yyyy: Second MDS
Remedy: - parameterize the appropriate motor data sets differently (p0827).
 - select the setting p0833.0 = 0 (motor changeover via the drive).

A07520	Drive: Motor cannot be changed over
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor cannot be changed over. Alarm value (r2124, interpret decimal): 1: The contactor for the motor that is presently active cannot be opened, because for a synchronous motor, the speed (r0063) is greater than the speed at the start of field weakening (p3048). As long as r0063 > p3048, the current in the motor does not decay in spite of the pulses being suppressed. 2: The "contactor opened" feedback signal was not detected within 1 s. 3: The "contactor closed" feedback signal was not detected within 1 s.
Remedy:	Re alarm value = 1: Set the speed lower than the speed at the start of field weakening (r0063 < p3048). Re alarm value = 2, 3: Check the feedback signals of the contactor involved.

A07530	Drive: Drive Data Set DDS not present
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected drive data set is not available (p0837 > p0180). The drive data set was not changed over. See also: p0180 (Number of Drive Data Sets (DDS)), p0820 (Drive Data Set selection DDS bit 0), r0837 (Drive Data Set DDS selected)
Remedy:	- select the existing drive data set. - set up additional drive data sets.

A07541	Drive: Data set changeover not possible
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out. For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348). See also: r0063 (Speed actual value after actual value smoothing), p0348 (Speed at the start of field weakening Vdc = 600 V)
Remedy:	Reduce the speed below the speed at the start of field weakening.

A07550 (F, N)	Drive: Not possible to reset encoder parameters
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ. Alarm value (r2124, interpret decimal): Component number of the encoder involved.

Remedy: - repeat the operation.
 - check the DRIVE-CLiQ connection.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F07551 Drive encoder: No commutation angle information

Message value: Fault cause: %1, drive data set: %2
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (IASC/DCBRAKE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The commutation angle information is missing. This means that synchronous motors cannot be controlled (closed-loop control)
 Fault value (r0949, interpret decimal):
 yyyxxxxx dec: yyyy = fault cause, xxxx = drive data set
 yyyy = 1 dec:
 The motor encoder used does not supply an absolute commutation angle.
 yyyy = 2 dec:
 The selected ratio of the measuring gear does not match the motor pole pair number.

Remedy: Re fault cause = 1:
 - check the encoder parameterization (p0404).
 - use an encoder with track C/D, EnDat interface of Hall sensors.
 - use an encoder with sinusoidal A/B track for which the motor pole pair number (r0313) is an integer multiple of the encoder pulse number (p0408).
 - activate the pole position identification routine (p1982 = 1).
 Re fault cause = 2:
 - the quotient of the pole pair number divided by the ratio of the measuring gear must be an integer number: (p0314 * p0433) / p0432.
 Note:
 For operation with track C/D, this quotient must be less than 8.
 See also: p0404 (Encoder configuration effective), p0432 (Gearbox factor, encoder revolutions), p0433 (Gearbox factor, motor/load revolutions)

F07552 (A) Drive encoder: Encoder configuration not supported

Message value: Fault cause: %1, component number: %2, encoder data set: %3
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456.
 Fault value (r0949, interpret decimal):
 Low word low byte: Encoder data set number
 Low word high byte: Component number
 High word:
 The encoder evaluation does not support a function selected in p0404.
 1: sin/cos encoder with absolute track (this is supported by SME25).
 3: Squarewave encoder (this is supported by SMC30).
 4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).
 12: sin/cos encoder with reference mark (this is supported by SME20).
 15: Commutation with zero mark for separately-excited synchronous motors with VECTORMV.
 23: Resolver (this is supported by SMC10, SMI10).
 65535: Other function (compare r0456 and p0404).
 See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)

Remedy: - check the encoder parameterization (p0400, p0404).
 - use the matching encoder evaluation (r0456).

Reaction upon A: NONE
 Acknowl. upon A: NONE

F07553 (A) Drive encoder: Sensor Module configuration not supported

Message value: Encoder data set: %1, first incorrect bit: %2, incorrect parameter: %3

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The Sensor Module does not support the requested configuration.
 For incorrect p0430 (cc = 0), the following applies:
 - In p0430 (requested functions), at least 1 bit was set that is not set in r0458 (supported functions) (exception: Bit 19, 28, 29, 30, 31).
 - p1982 > 0 (pole position identification requested), but r0458.16 = 0 (pole position identification not supported).
 For incorrect p0437 (cc = 1), the following applies:
 - In p0437 (requested functions), at least 1 bit was set that is not set in r0459 (supported functions).
 Fault value (r0949, interpret hexadecimal):
 ddcbbbaa hex
 aa: encoder data set number
 bb: first incorrect bit
 cc: incorrect parameter
 cc = 0: incorrect parameter is p0430
 cc = 1: incorrect parameter is p0437
 dd: reserved (always 0)

Remedy: - check the encoder parameterization (p0430, p0437).
 - check the pole position identification routine (p1982).
 - use the matching encoder evaluation (r0458, r0459).
 See also: p0430 (Sensor Module configuration), p0437 (Sensor Module configuration extended), r0458 (Sensor Module properties), r0459 (Sensor Module properties extended), p1982 (Pole position identification selection)

Reaction upon A: NONE
 Acknowl. upon A: NONE

F07555 (A) Drive encoder: Configuration position tracking

Message value: Component number: %1, encoder data set: %2, drive data set: %3, fault cause: %4

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The configuration of the position tracking is not supported.
 Position tracking can only be activated for absolute encoders.
 For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears.
 Fault value (r0949, interpret hexadecimal):
 ddcbbbaa hex
 aa = encoder data set
 bb = component number
 cc = drive data set
 dd = Error cause
 dd = 00 hex = 0 dez
 An absolute encoder is not being used.
 dd = 01 hex = 1 dez
 Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
 dd = 02 hex = 2 dez
 For a linear axis, the position tracking was activated for the load and measuring gear.
 dd = 03 hex = 3 dez
 Position tracking cannot be activated because position tracking with another gear ratio, axis type or tolerance window has already been detected for this encoder data set.
 dd = 04 hex = 4 dez
 A linear encoder is being used.
 See also: p0404 (Encoder configuration effective)

Remedy:

- use an absolute encoder.
- if necessary, de-select the position tracking (p0411 for the measuring gear, p2720 for the load gear).
- use a Control Unit with sufficient NVRAM.
- Only activate position tracking of the load gear in the same encoder data set if the gear ratio (p2504, p2505), axis type (p2720.1) and tolerance window (p2722) are also the same.

Reaction upon A: NONE

Acknowl. upon A: NONE

A07557 (F) Encoder 1: Reference point coordinate not in the permissible range

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as current axis position. The maximum permissible value is displayed in the supplementary information.

Remedy: Set the reference point coordinate less than the value from the supplementary information.
See also: p2598 (EPOS reference point coordinate, signal source)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A07558 (F) Encoder 2: Reference point coordinate not in the permissible range

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The reference point coordinate received when adjusting the encoder via connector input CI:p2599 lies outside the half of the encoder range and cannot be set as current axis position. The maximum permissible value is displayed in the supplementary information.

Remedy: Set the reference point coordinate less than the value from the supplementary information.
See also: p2598 (EPOS reference point coordinate, signal source)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

F07560 Drive encoder: Number of pulses is not to the power of two

Message value: Encoder data set: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: For rotary absolute encoders, the pulse number in p0408 must be to the power of two.
Fault value (r0949, interpret decimal):
The fault value includes the encoder data set number involved.

Remedy:

- check the parameterization (p0408, p0404.1, r0458.5).
- if required, upgrade the Sensor Module firmware.

F07561 Drive encoder: Number of multiturn pulses is not to the power of two

Message value: Encoder data set: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The multiturn resolution in p0421 must be to the power of two.
Fault value (r0949, interpret decimal):
The fault value includes the encoder data set number involved.

Remedy:

- check the parameterization (p0421, p0404.1, r0458.5).
- if required, upgrade the Sensor Module firmware.

F07562 (A) Drive, encoder: Position tracking, incremental encoder not possible

Message value: Fault cause: %1, component number: %2, encoder data set: %3
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The requested position tracking for incremental encoders is not supported.
 Fault value (r0949, interpret hexadecimal):
 ccccbaa hex
 aa = encoder Data Set number
 bb = component number
 cccc = fault cause
 cccc = 00 hex = 0 dec
 The encoder type does not support the "Position tracking incremental encoder" function.
 cccc = 01 hex = 1 dec
 Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
 cccc = 04 hex = 4 dec
 A linear encoder is used that does not support the position tracking function.
 See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)
Remedy:
 - check the encoder parameterization (p0400, p0404).
 - use a Control Unit with sufficient NVRAM.
 - if required, deselect position tracking for the incremental encoder (p0411.3 = 0).
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A07565 (F, N) Drive: Encoder error in PROFIdrive encoder interface 1

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15).
 Alarm value (r2124, interpret decimal):
 Error code from G1_XIST2, refer to the description regarding r0483.
 Note:
 This alarm is only output if p0480[0] is not equal to zero.
Remedy: Acknowledge the encoder error using the encoder control word (G1_STW.15 = 1).
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A07566 (F, N) Drive: Encoder error in PROFIdrive encoder interface 2

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15).
 Alarm value (r2124, interpret decimal):
 Error code from G2_XIST2, refer to the description regarding r0483.
 Note:
 This alarm is only output if p0480[1] is not equal to zero.
Remedy: Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1).
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A07569 (F)	Encoder could not be identified
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	During encoder identification (waiting) with p0400 = 10100, the encoder could not be identified. Either the wrong encoder has been installed or no encoder has been installed, the wrong encoder cable has been connected or no encoder cable has been connected to the Sensor Module, or the DRIVE-CLiQ component has not been connected to DRIVE-CLiQ. Note: Encoder identification must be supported by the encoder and is possible in the following cases: Encoder with EnDat interface, motor with DRIVE-CLiQ.
Remedy:	- check and, if necessary, connect the encoder and/or encoder cable. - check and, if necessary, establish the DRIVE-CLiQ connection. - in the case of encoders that cannot be identified (e.g. encoders without EnDat interface), the correct encoder type must be entered in p0400.
Reaction upon F:	NONE (OFF1, OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

F07575	Drive: Motor encoder not ready
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (ENCODER)
Acknowledge:	IMMEDIATELY
Cause:	The motor encoder signals that it is not ready. - initialization of encoder 1 (motor encoder) was unsuccessful. - the function "parking encoder" is active (encoder control word G1_STW.14 = 1). - the encoder interface (Sensor Module) is de-activated (p0145). - the Sensor Module is defective.
Remedy:	Evaluate other queued faults via encoder 1.

A07576	Drive: Encoderless operation due to a fault active
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	Encoderless operation is active due to a fault (r1407.13). The required response when an encoder fault occurs is parameterized in p0491. See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	

A07577 (F)	Encoder 1: Measuring probe evaluation not possible
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	When evaluating the measuring probe, an error occurred. Alarm value (r2124, interpret decimal): 6: The input terminal for the measuring probe is not set. 4098: Error when initializing the measuring probe. 4100: The measuring pulse frequency is too high. 4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.

Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
 Re alarm value = 6:
 Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
 Re alarm value = 4098:
 Check the Control Unit hardware.
 Re alarm value = 4100:
 Reduce the frequency of the measuring pulses at the measuring probe.
 Re alarm value = 4200:
 Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
 Reaction upon F: OFF1
 Acknowl. upon F: IMMEDIATELY

A07578 (F) Encoder 2: Measuring probe evaluation not possible

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the measuring probe, an error occurred.
 Alarm value (r2124, interpret decimal):
 6: The input terminal for the measuring probe is not set.
 4098: Error when initializing the measuring probe.
 4100: The measuring pulse frequency is too high.
 4200: The PROFIBUS clock cycle is not a multiple of integer of the position controller clock cycle.
Remedy: De-activate the measuring probe evaluation (BI: p2509 = 0 signal).
 Re alarm value = 6:
 Set the input terminal for the measuring probe (p0488, p0489 or p2517, p2518).
 Re alarm value = 4098:
 Check the Control Unit hardware.
 Re alarm value = 4100:
 Reduce the frequency of the measuring pulses at the measuring probe.
 Re alarm value = 4200:
 Set the clock cycle ratio between the PROFIBUS clock cycle and the position controller clock cycle to an integer multiple.
 Reaction upon F: OFF1
 Acknowl. upon F: IMMEDIATELY

A07580 (F, N) Drive: No Sensor Module with matching component number

Message value: Encoder data set: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: A Sensor Module with the component number specified in p0141 was not found.
 Alarm value (r2124, interpret decimal):
 Encoder data set involved (index of p0141).
Remedy: Correct parameter p0141.
 Reaction upon F: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A07581 (F) Encoder 1: Position actual value preprocessing error

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred during the position actual value preprocessing.

Remedy: Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A07582 (F) Encoder 2: Position actual value preprocessing error

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: An error has occurred during the position actual value preprocessing.

Remedy: Check the encoder for the position actual value preprocessing.
See also: p2502 (LR encoder assignment)

Reaction upon F: OFF1 (OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

A07584 Encoder 1: Position setting value activated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.

Remedy: None necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

A07585 Encoder 2: Position setting value activated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The position actual value is set to the value received via CI: p2515 while BI: p2514 = 1 signal. A possible system deviation cannot be corrected.

Remedy: None necessary.
The alarm automatically disappears with BI: p2514 = 0 signal.

A07587 Encoder 1: Position actual value preprocessing does not have a valid encoder

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The following problem has occurred during the position actual value preprocessing.
- an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).

Remedy: Check the drive data sets, encoder data sets.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0400 (Encoder type selection), p2502 (LR encoder assignment)

A07588	Encoder 2: Position actual value preprocessing does not have a valid encoder
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The following problem has occurred during the position actual value preprocessing. - an encoder data set has been assigned, however, the encoder data set does not contain any encoder data (p0400 = 0) or invalid data (e.g. p0408 = 0).
Remedy:	Check the drive data sets, encoder data sets. See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number), p0400 (Encoder type selection), p2502 (LR encoder assignment)
A07590 (F)	Encoder 1: Drive Data Set changeover in operation
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07591 (F)	Encoder 2: Drive Data Set changeover in operation
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	A Drive Data Set changeover (DDS) with a change of the mechanical relationships and the encoder assignment (p2502) was requested in operation.
Remedy:	To changeover the drive data set, initially, exit the "operation" mode.
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY
A07593 (F)	Encoder 1: Value range for position actual value exceeded
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset. Fault value (r0949, interpret decimal): 1: The position actual value (r2521) has exceeded the value range. 2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range. 3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.
Remedy:	If required, reduce the traversing range or position resolution. Re alarm value = 3: Reducing the position resolution and conversion factor: - reduce the length unit (LU) per load revolution for rotary encoders (p2506). - increase the fine resolution of absolute position actual values (p0419).
Reaction upon F:	OFF1 (OFF2, OFF3)
Acknowl. upon F:	IMMEDIATELY

A07594 (F) Encoder 2: Value range for position actual value exceeded

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The value range (-2147483648 ... 2147483647) for the position actual value representation was exceeded. When the overflow occurs, the "referenced" or "adjustment absolute measuring system" status is reset.
 Fault value (r0949, interpret decimal):
 1: The position actual value (r2521) has exceeded the value range.
 2: The encoder position actual value Gn_XIST2 (r0483) or the absolute value after the load gear (r2723) has exceeded the value range.
 3: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range for displaying the position actual value.
Remedy: If required, reduce the traversing range or position resolution.
 Re alarm value = 3:
 Reducing the position resolution and conversion factor:
 - reduce the length unit (LU) per load revolution for rotary encoders (p2506).
 - increase the fine resolution of absolute position actual values (p0419).
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

A07596 (F) Encoder 1: Reference function interrupted

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: An activated reference function (reference mark search or measuring probe evaluation) was interrupted.
 - an encoder fault has occurred (Gn_ZSW.15 = 1).
 - position actual value was set during an activated reference function.
 - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).
 - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy: - check the causes and resolve.
 - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

A07597 (F) Encoder 2: Reference function interrupted

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: An activated reference function (reference mark search or measuring probe evaluation) was interrupted.
 - an encoder fault has occurred (Gn_ZSW.15 = 1).
 - position actual value was set during an activated reference function.
 - simultaneously activate reference mark search and measuring probe evaluation (BI: p2508 and BI: p2509 = 1 signal).
 - activated reference function (reference mark search or measuring probe evaluation) was de-activated (BI: p2508 and BI: p2509 = 0 signal).
Remedy: - check the causes and resolve.
 - reset the control (BI: p2508 and BI: p2509 = 0 signal) and activate the requested function.
 Reaction upon F: OFF1 (OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

F07599 (A) Encoder 1: Adjustment not possible

Message value: Drive data set: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.
Remedy: If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.
 For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:
 1. Motor encoder without position tracking:
 $p2506 * p0433 * p2505 / (p0432 * p2504)$
 $p2506 * p0433 * p2505 * p0421 / (p0432 * p2504)$ for multiturn encoders
 2. Motor encoder with position tracking for measuring gear
 $p2506 * p0412 * p2505 / p2504$
 3. Motor encoder with position tracking for load gear:
 $p2506 * p2721 * p0433 / p0432$
 4. Motor encoder with position tracking for load and measuring gear:
 $p2506 * p2721$
 5. Direct encoder without position tracking:
 $p2506 * p0433 / p0432$
 $p2506 * p0433 * p0421 / p0432$ for multiturn encoders
 6. Direct encoder with position tracking for measuring gear:
 $p2506 * p0412$
Reaction upon A: NONE
Acknowl. upon A: NONE

F07600 (A) Encoder 2: Adjustment not possible

Message value: Drive data set: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The maximum encoder value times the factor to convert the absolute position (r0483 and/or r2723) from increments to length units (LU) has exceeded the value range (-2147483648 ... 2147483647) for displaying the position actual value.
Remedy: If the value for the maximum possible absolute position (LU) is greater than 4294967296, then it is not possible to make an adjustment due to an overflow.
 For rotary encoders, the maximum possible absolute position (LU) is calculated as follows:
 1. Motor encoder without position tracking:
 $p2506 * p0433 * p2505 / (p0432 * p2504)$
 $p2506 * p0433 * p2505 * p0421 / (p0432 * p2504)$ for multiturn encoders
 2. Motor encoder with position tracking for measuring gear
 $p2506 * p0412 * p2505 / p2504$
 3. Motor encoder with position tracking for load gear:
 $p2506 * p2721 * p0433 / p0432$
 4. Motor encoder with position tracking for load and measuring gear:
 $p2506 * p2721$
 5. Direct encoder without position tracking:
 $p2506 * p0433 / p0432$
 $p2506 * p0433 * p0421 / p0432$ for multiturn encoders
 6. Direct encoder with position tracking for measuring gear:
 $p2506 * p0412$
Reaction upon A: NONE
Acknowl. upon A: NONE

F07800 Drive: No power unit present

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The power unit parameters cannot be read or no parameters are stored in the power unit. Connection between the Control Unit and the Motor Module was interrupted or is defective. This fault also occurs if an incorrect topology was selected in the commissioning software and this parameterization is then downloaded to the Control Unit.
 See also: r0200 (Power unit current code number)
Remedy: - connect the data line to power unit and restart the Control Unit (POWER ON).
 - check or replace the Control Unit.
 - check the cable between the Control Unit and Motor Module.
 - after correcting the topology, the parameters must be again downloaded using the commissioning software.

F07801 Drive: Motor overcurrent

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The permissible motor limit current was exceeded.
 - effective current limit set too low.
 - current controller not correctly set.
 - motor was braked with an excessively high stall torque correction factor.
 - V/f operation: Up ramp was set too short or the load is too high.
 - V/f operation: Short-circuit in the motor cable or ground fault.
 - V/f operation: Motor current does not match the current of Motor Module.
Note:
 Synchronous motor: Limit current= 1.3 * p0323
 Induction motor: Limit current= 1.3 * r0209
Remedy: - check the current limits (p0323, p0640).
 - check the current controller (p1715, p1717).
 - reduce the stall torque correction factor (p0326).
 - increase the up ramp (p1318) or reduce the load.
 - check the motor and motor cables for short-circuit and ground fault.
 - check the Motor Module and motor combination.

F07802 Drive: Infeed or power unit not ready

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: After an internal power-on command, the infeed or drive does not signal ready.
 - monitoring time is too short.
 - DC link voltage is not present.
 - associated infeed or drive of the signaling component is defective.
 - supply voltage incorrectly set.
Remedy: - increase the monitoring time (p0857).
 - ensure that there is a DC link voltage. Check the DC link busbar. Enable the infeed.
 - replace the associated infeed or drive of the signaling component.
 - check the line supply voltage setting (p0210).
 See also: p0857 (Power unit monitoring time)

A07805 (N) Drive: Power unit overload I2t

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: Alarm threshold for I2t overload (p0294) of the power unit exceeded.
 The response parameterized in p0290 becomes active.
 See also: p0290 (Power unit overload response)
Remedy: - reduce the continuous load.
 - adapt the load duty cycle.
 - check the assignment of the rated currents of the motor and Motor Module.
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F07810 Drive: Power unit EEPROM without rated data

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: No rated data are stored in the power unit EEPROM.
 See also: r0206 (Rated power unit power), r0207 (Rated power unit current), r0208 (Rated power unit line supply voltage), r0209 (Power unit, maximum current)
Remedy: Replace the power unit or inform Siemens Customer Service.

F07815 Drive: Power unit has been changed

Message value: Parameter: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The code number of the current power unit does not match the saved number. The fault only occurs if the comparator in p9906 or p9908 is not at f 2 (low) or 3 (minimum).
 Fault value (r0949, interpret decimal):
 Number of the incorrect parameter.
 See also: r0200 (Power unit current code number), p0201 (Power unit code number)
Remedy: Connect the original power unit and power up the Control Unit again (POWER ON) or set p0201 to r0200 and exit commissioning with p0010 = 0.
 For infeeds, the following applies:
 Commutating reactors or line filters must be used that are specified for the new power unit. A line supply and DC link identification routine (p3410 = 5) must then be carried out. It is not possible to change the power unit without re-commissioning the system if the type of infeed (A_Infeed, B_Infeed, S_Infeed), the type of construction/design (booksize, chassis) or the voltage class differ between the old and new power units.
 For inverters, the following applies:
 If the new power unit is accepted, then if required, the current limit p0640 can be reduced by a lower maximum current of the power unit (r0209) (torque limits stay the same).
 If not only the power unit is changed, but also the motor, then the motor must be re-commissioning (e.g. using p0010 = 1). This is also necessary if motor data is still to be downloaded via DRIVE-CLiQ.
 If the comparison stage in p9906 is set to 2, 3, then commissioning can be exited (p0010 = 0) and the fault acknowledged.
 See also: r0200 (Power unit current code number)

A07820 Drive: Temperature sensor not connected

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The temperature sensor for motor temperature monitoring, specified in p0600, is not available.
 - parameter download with "incorrect" setting.
 - module with sensor evaluation has been, in the meantime, been removed.
 - temperature sensor via Motor Module, not for CU310.
Remedy: - connect the module with temperature sensor.
 - set the available temperature sensor (p0600, p0601).
 See also: p0600 (Motor temperature sensor for monitoring), p0601 (Motor temperature sensor type)

A07850 (F) External alarm 1

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The BICO signal for "external alarm 1" was triggered.
 The condition for this external alarm is fulfilled.
 See also: p2112 (External alarm 1)
Remedy: Eliminate the causes of this alarm.
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A07851 (F) External alarm 2

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The BICO signal for "external alarm 2" was triggered.
 The condition for this external alarm is fulfilled.
 See also: p2116 (External alarm 2)
Remedy: Eliminate the causes of this alarm.
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A07852 (F) External alarm 3

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The BICO signal for "external alarm 3" was triggered.
 The condition for this external alarm is fulfilled.
 See also: p2117 (External alarm 3)
Remedy: Eliminate the causes of this alarm.
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

F07860 (A) External fault 1

Message value: -
Drive object: All objects
Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The BICO signal "external fault 1" was triggered.
See also: p2106 (External fault 1)
Remedy: Eliminate the causes of this fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07861 (A) External fault 2

Message value: -
Drive object: All objects
Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The BICO signal "external fault 2" was triggered.
See also: p2107 (External fault 2)
Remedy: Eliminate the causes of this fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07862 (A) External fault 3

Message value: -
Drive object: All objects
Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The BICO signal "external fault 3" was triggered.
See also: p2108 (External fault 3)
Remedy: Eliminate the causes of this fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07890 Internal voltage protection/internal armature short-circuit with Safe Torque Off active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The internal armature short-circuit (p1231 = 4) is not possible as Safe Torque Off (STO) is enabled. The pulses cannot be enabled.
Remedy: Switch out the internal armature short-circuit (p1231=0) or de-activate Safe Torque Off (p9501 = p9561 = 0).
Note:
STO: Safe Torque Off / SH: Safe standstill

F07900 (N, A)	Drive: Motor locked/speed controller at its limit
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	Motor has been operating at the torque limit longer than the time specified in p2177 and below the speed threshold set in p2175. This signal can also be initiated if the speed actual value is oscillating and the speed controller output repeatedly goes to its limit. See also: p2175 (Motor locked speed threshold), p2177 (Motor locked delay time)
Remedy:	- check that the motor can freely rotate. - check the torque limit: For a positive direction of rotation r1538, for a negative direction of rotation r1539. - check the parameter, message "Motor locked" and if required, correct (p2175, p2177). - check the inversion of the actual value (p0410). - check the motor encoder connection. - check the encoder pulse number (p0408). - for SERVO with encoderless operation and motors with low power ratings (< 300 W), increase the pulse frequency (p1800). - after de-selecting basic positioning, check the torque limits when motoring (p1528) and when regenerating (p1529).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F07901	Drive: Motor overspeed
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The maximum permissible speed was either positively or negatively exceeded. The maximum permissible positive speed is formed as follows: Minimum (p1082, Cl: p1085) + p2162 The maximum permissible negative speed is formed as follows: Maximum (-p1082, Cl: 1088) - p2162
Remedy:	The following applies for a positive direction of rotation: - check r1084 and if required, correct p1082, Cl:p1085 and p2162. The following applies for a negative direction of rotation: - check r1087 and if required, correct p1082, Cl:p1088 and p2162.

F07902 (N, A)	Drive: Motor stalled
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	For a vector drive the system has identified that the motor has stall for a time longer than is set in p2178. Fault value (r0949, interpret decimal): 1: Stall detection using r1408.11 (p1744 or p0492). 2: Stall detection using r1408.12 (p1745). 3: Stall detection using r0056.11 (only for separately excited synchronous motors).

Remedy:

For closed-loop speed and torque control with speed encoder, the following applies:

- check the speed signal (interrupted cable, polarity, pulse number, broken encoder shaft).
- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the same motor that is controlled for the data set changeover.

If there is no fault, then the fault tolerance (p1744 and p0492) can be increased.

For closed-loop speed and torque control without speed encoder, the following applies:

- check whether the drive in the open-loop controlled mode (r1750.0) stalls under load. If yes, then increase the current setpoint using p1610.
- check whether the drive stalls due to the load if the speed setpoint is still zero. If yes, then increase the current setpoint using p1610.
- if the motor excitation (magnetizing) time (r0346) was significantly reduced, then it should be increased again.
- check the current limits (p0640, r0067). If the current limits are too low, then the drive cannot be magnetized.
- check the current controller (p1715, p1717) and the speed adaptation controller (p1764, p1767). If the dynamic response was significantly reduced, then this should be increased again.
- check the speed encoder, if another speed encoder was selected using the data set changeover. This must be connected to the motor that is controlled for the data set changeover.

If there is no fault, then the fault tolerance (p1745) or the delay time (p2178) can be increased.

For separately-excited synchronous motors (closed-loop control with speed encoder), the following applies:

- check the speed signal (interrupted cable, polarity, pulse number).
- ensure the correct motor parameterization (rating plate and equivalent circuit diagram parameters).
- check the excitation equipment and the interface to the closed-loop control.
- encoder the highest possible dynamic response of the closed-loop excitation current control.
- check the speed control for any tendency to oscillate and if resonance effects occur, use a bandstop filter.
- do not exceed the maximum speed (p2162).

If there is no fault, then the delay time can be increased (p2178).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A07903 Drive: Motor speed deviation

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The absolute value of the speed difference from the two setpoints (p2151, p2154) and the speed actual value (r2169) exceeds the tolerance threshold (p2163) longer than tolerated (p2164, p2166).
 The alarm is only enabled for p2149.0 = 1.
 Possible causes could be:

- the load torque is greater than the torque setpoint.
- when accelerating, the torque/current/power limit is reached. If the limits are not sufficient, then it is possible that the drive has been dimensioned too small.
- for closed-loop torque control, the speed setpoint does not track the speed actual value.
- for active Vdc controller.

For V/f control, the overload condition is detected as the I_{max} controller is active.
 See also: p2149 (Monitoring configuration)

Remedy:

- increase p2163 and/or p2166.
- increase the torque/current/power limits.
- for closed-loop torque control: The speed setpoint should track the speed actual value.

A07904 (N)	External armature short-circuit: Contactor feedback signal "Closed" missing
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	When closing, the contactor feedback signal (p1235) did not issue the signal "Closed" (r1239.1 = 1) within the monitoring time (p1236).
Remedy:	<ul style="list-style-type: none"> - check that the contactor feedback signal is correctly connected (p1235). - check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open"). - increase the monitoring time (p1236). - if required, set the external armature short-circuit without contactor feedback signal (p1231=2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07905 (N, A)	External armature short-circuit: Contactor feedback signal "Open" missing
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (NONE)
Acknowledge:	IMMEDIATELY
Cause:	When opening, the contactor feedback signal (p1235) did not issue the signal "Open" (r1239.1 = 0) within the monitoring time (p1236).
Remedy:	<ul style="list-style-type: none"> - check that the contactor feedback signal is correctly connected (p1235). - check the logic of the contactor feedback signal (r1239.1 = 1: "Closed", r1239.1 = 0: "Open"). - increase the monitoring time (p1236). - if required, set the external armature short-circuit without contactor feedback signal (p1231=2).
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F07906	Armature short-circuit / internal voltage protection: Parameterization error
Message value:	Fault cause: %1, motor data set: %2
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The armature short-circuit is incorrectly parameterized.</p> <p>Fault value (r0949, interpret decimal):</p> <p>Low word: Motor data set number</p> <p>High word: Cause:</p> <p>1: A permanent-magnet synchronous motor has not been selected.</p> <p>101: External armature short-circuit: Output (r1239.0) not connected up.</p> <p>102: External armature short-circuit with contactor feedback signal: No feedback signal connected (BI:p1235).</p> <p>103: External armature short-circuit without contactor feedback signal: Delay time when opening (p1237) is 0.</p> <p>201: Internal voltage protection: The maximum output current of the Motor Module (r0289) is less than 1.8 * motor short-circuit current (r0331).</p> <p>202: Internal voltage protection: A Motor Module in booksize format is not being used.</p> <p>203: Internal voltage protection: The motor short-circuit current (p0320) is greater than the maximum motor current (p0323).</p> <p>204: Internal voltage protection: The activation (p1231 = 4) is not given for all motor data sets with synchronous motors (p0300 = 2xx, 4xx).</p>

- Remedy:**
- Re cause 1:
 - an armature short-circuit / voltage protection is only permissible for permanent-magnetic synchronous motors. The highest position of the motor type in p0300 must either be 2 or 4.
 - Re cause 101:
 - the contactor for the external armature short-circuit configuration should be controlled using output signal r1239.0. The signal can, e.g. be connected to an output terminal BI: p0738. Before this fault can be acknowledged, p1231 must be set again.
 - Re cause 102:
 - if the external armature short-circuit with contactor feedback signal (p1231 = 1) is selected, this feedback signal must be connected to an input terminal (e.g. r722.x) and then connected to BI: p1235.
 - alternatively, the external armature short-circuit without contactor feedback signal (p1231 = 2) can be selected.
 - Re cause 103:
 - if the external armature short-circuit without contactor feedback signal (p1231 = 2) is selected, then a delay time must be parameterized in p1237. This time must always be greater than the actual contactor opening time, as otherwise the Motor Module would be short-circuited!
 - Re cause 201:
 - a Motor Module with a higher maximum current or a motor with a lower short-circuit current must be used. The maximum Motor Module current must be higher than 1.8 * short-circuit current of the motor.
 - Re cause 202:
 - for internal voltage protection, use a Motor Module in booksize format.
 - Re cause 203:
 - for internal voltage protection, only use short-circuit proof motors.
 - Re cause 204:
 - The internal voltage protection must either be activated for all motor data sets with synchronous motors (p0300 = 2xx, 4xx) (p1231 = 3) or it must be de-activated for all motor data sets (p1231 not equal to 3). This therefore ensures that the protection cannot be accidentally withdrawn as a result of a data set changeover. The fault can only be acknowledged if this condition is fulfilled.

F07907 Internal armature short-circuit: Motor terminals are not at zero potential after pulse suppression

- Message value:** -
- Drive object:** SERVO_S110-CAN, SERVO_S110-DP
- Reaction:** NONE
- Acknowledge:** IMMEDIATELY
- Cause:**
- The function "Internal voltage protection" (p1231 = 3) was activated. The following must be observed:
 - when the internal voltage protection is active, after pulse suppression, all of the motor terminals are at half of the DC link voltage (without an internal voltage protection, the motor terminals are at zero potential)!
 - it is only permissible to use motors that are short-circuit proof (p0320 < p0323).
 - the Motor Module must be able to continually conduct 180% short-circuit current (r0331) of the motor (r0289).
 - the internal voltage protection cannot be interrupted due to a fault response. If an overcurrent condition occurs during the active, internal voltage protection, then this can destroy the Motor Module and/or the motor.
 - if the Motor Module does not support the autonomous, internal voltage protection (r0192.10 = 0), in order to ensure safe, reliable functioning when the line supply fails, an external 24 V power supply (UPS) must be used for the components.
 - if the Motor Module does support the autonomous, internal voltage protection (r0192.10 = 1), in order to ensure safe, reliable functioning when the line supply fails, the 24 V power supply for the components must be provided through a Control Supply Module.
 - if the internal voltage protection is active, it is not permissible that the motor is driven by the load for a longer period of time (e.g. as a result of loads that move the motor or another coupled motor).
- Remedy:**
- None necessary.
 - This a note for the user.

A07908	Internal armature short-circuit active
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal armature short-circuit is selected (p1231 = 4):
Remedy:	For synchronous motors, the armature short-circuit braking is activated if a 1 signal is present via binector input p1230. See also: p1230 (Armature short-circuit / DC brake activation), p1231 (Armature short-circuit / DC brake configuration)
F07909	Internal voltage protection: De-activation only effective after POWER ON
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	POWER ON
Cause:	The de-activation of the internal voltage protection (p1231 not equal to 3) only becomes effective after POWER ON. The status signal r1239.6 = 1 indicates that the internal voltage protection is ready.
Remedy:	None necessary. This a note for the user.
A07910 (N)	Drive: Motor overtemperature
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	KTY: The motor temperature has exceeded the fault threshold (p0604 or p0616). VECTOR: The response parameterized in p0610 becomes active. PTC: The response threshold of 1650 Ohm was exceeded. Alarm value (r2124, interpret decimal): SME not selected in p0601: 1: No output current reduction. 2: Output current reduction active. SME selected in p0601 (p0601 = 10): The number specifies the sensor channel that resulted in the alarm being output. See also: p0604 (Motor overtemperature alarm threshold)
Remedy:	- check the motor load. - check the motor ambient temperature. - check KTY84.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
F07913	Excitation current outside the tolerance range
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The difference between the excitation current actual value and setpoint has exceeded the tolerance: $\text{abs}(r1641 - r1626) > p3201 + p3202$ The cause of this fault is again reset for $\text{abs}(r1641 - r1626) < p3201$.
Remedy:	- check the parameterization (p1640, p3201, p3202). - check the interfaces to the excitation equipment (r1626, p1640). - check the excitation equipment.

F07914 Flux out of tolerance

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The difference between the flux actual value and setpoint has exceeded the tolerance:
 $\text{abs}(r0084 - r1598) > p3204 + p3205$
 The cause of this fault is again reset for $\text{abs}(r0084 - r1598) < p3204$.
 The fault is only issued after the delay time in p3206 has expired.
Remedy: - check the parameterization (p3204, p3205).
 - check the interfaces to the excitation equipment (r1626, p1640).
 - check the excitation equipment.
 - check the flux control (p1592, p1592, p1597).
 - check the control for oscillation and take the appropriate counter measures (e.g. optimize the speed control loop, parameterize a bandstop filter).

A07918 (N) Three-phase setpoint generator operation selected/active

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: Only for separately excited synchronous motors (p0300 = 5):
 The current open-loop/closed-loop control mode is I/f control (open-loop) with a fixed current (p1300 = 18).
 The speed is entered via the setpoint channel and the current setpoint is given by the minimum current (p1620).
 It must be ensured that in this mode, the control dynamic performance is very limited. This is the reason that longer ramp-up times should be set for the setpoint speed than for normal operation.
Remedy: Select another open-loop/closed-loop control mode
 See also: p1300 (Open-loop/closed-loop control operating mode)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A07920 Drive: Torque/speed too low

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic (too low).
 See also: p2181 (Load monitoring response)
Remedy: Check the connection between the motor and load.
 Adapt the parameterization corresponding to the load.

A07921 Drive: Torque/speed too high

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The torque deviates from the torque/speed envelope characteristic (too high).
Remedy: Check the connection between the motor and load.
 Adapt the parameterization corresponding to the load.

A07922	Drive: Torque/speed out of tolerance
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The torque deviates from the torque/speed envelope characteristic.
Remedy:	Check the connection between the motor and load. Adapt the parameterization corresponding to the load.
F07923	Drive: Torque/speed too low
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The torque deviates from the torque/speed envelope characteristic (too low).
Remedy:	Check the connection between the motor and load. Adapt the parameterization corresponding to the load.
F07924	Drive: Torque/speed too high
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The torque deviates from the torque/speed envelope characteristic (too high).
Remedy:	Check the connection between the motor and load. Adapt the parameterization corresponding to the load.
F07925	Drive: Torque/speed out of tolerance
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The torque deviates from the torque/speed envelope characteristic.
Remedy:	Check the connection between the motor and load. Adapt the parameterization corresponding to the load.
A07926	Drive: Envelope curve, parameter invalid
Message value:	Parameter: %1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	Invalid parameter values were entered for the envelope characteristic of the load monitoring. The following rules apply for the speed thresholds: p2182 < p2183 < p2184 The following rules apply for the torque thresholds: p2185 > p2186 p2187 > p2188 p2189 > p2190 Alarm value (r2124, interpret decimal): Number of the parameter with the invalid value.
Remedy:	Set the parameters for the load monitoring according to the applicable rules or de-activate load monitoring (p2181 = 0; p2193 = 0).

A07927	DC brake active
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	The motor is braked with a DC current, the DC current brake is active. 1) An alarm with response DC brake is active. The motor is braked with the DC braking current p1232 for the duration in p1233. If the standstill threshold p1226 is undershot, then braking is prematurely canceled. 2) The DC braking function was activated on binector input p1230 with the set DC brake p1230 = 4. Braking current p1232 is injected until this binector input becomes inactive.
Remedy:	None necessary.
F07928	Internal voltage protection initiated
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The Motor Module signals that the motor is short-circuited through the power semiconductors (r1239.5 = 1). The pulses cannot be enabled. The internal voltage protection is selected (p1231 = 3).
Remedy:	If the Motor Module supports the autonomous internal voltage protection (r0192.10 = 1), then the Motor Module automatically decides - using the DC link voltage - as to whether the armature short-circuit should be activated. The armature short-circuit is activated and response OFF2 is initiated if the DC link voltage exceeds 800 V. If the DC link voltage falls below 450 V, then the armature short-circuit is withdrawn. If the motor is still in a critical speed range, the armature short-circuit is re-activated once the DC link voltage exceeds the threshold of 800 V. If the autonomous (independent) internal voltage protection is active (r1239.5 = 1) and the line supply returns (450 V < DC link voltage < 800 V), the armature short-circuit is withdrawn after 1 minute.
F07930	Drive: Brake control error
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	The Control Unit has detected a brake control error. Fault value (r0949, interpret decimal): 10, 11: Fault in "open holding brake" operation. - No brake connected or wire breakage (check whether brake releases for p1278 = 1). - Ground fault in brake cable. 20: Fault in "brake open" state. - Short-circuit in brake winding. 30, 31: Fault in "close holding brake" operation. - No brake connected or wire breakage (check whether brake releases for p1278 = 1). - Short-circuit in brake winding. 40: Fault in "brake closed" state. 50: Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control). Note: The following causes may apply to fault values: - motor cable is not shielded correctly. - defect in control circuit of the Motor Module. See also: p1278 (Brake control, diagnostics evaluation)

Remedy:

- check the motor holding brake connection.
- check the function of the motor holding brake.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
- replace the Motor Module involved.

Operation with Safe Brake Module:

- check the Safe Brake Modules connection.
- replace the Safe Brake Module.

See also: p1215 (Motor holding brake configuration), p1278 (Brake control, diagnostics evaluation)

A07931 (F, N) Brake does not open

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: This alarm is output for r1229.4 = 1.
See also: p1216 (Motor holding brake, opening time), r1229 (Motor holding brake status word)

Remedy:

- check the functionality of the motor holding brake.
- check the feedback signal (p1223).

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

A07932 Brake does not close

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: This alarm is output for r1229.5 = 1.
For r1229.5 = 1, OFF/OFF3 are suppressed to prevent the drive accelerating by a load that drives the motor - whereby OFF2 remains effective.
See also: p1217 (Motor holding brake closing time), r1229 (Motor holding brake status word)

Remedy:

- check the functionality of the motor holding brake.
- check the feedback signal (p1222).

F07935 (N) Drv: Motor holding brake detected

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE (OFF1, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A motor with integrated motor holding brake was detected where the brake control has not been configured (p1215 = 0). The brake control configuration was then set to "motor holding brake the same as sequence control" (p1215 = 1).

Remedy: None necessary.
See also: p1215 (Motor holding brake configuration)

Reaction upon N: NONE

Acknowl. upon N: NONE

F07950 (A) Drive: Incorrect motor parameter

Message value: Parameter: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: - the motor parameters were incorrectly entered while commissioning (e.g. p0300 = 0, no motor)
 - The braking resistor (p6811) has still not been parameterized - commissioning cannot be completed.
 Fault value (r0949, interpret decimal):
 The parameter number involved.
 See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323
Remedy: Compare the motor data with the rating plate data and if required, correct.
 See also: p0300, p0301, p0304, p0305, p0307, p0310, p0311, p0314, p0316, p0320, p0322, p0323
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F07955 Drive: Motor has been changed

Message value: Parameter: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The code number of the current motor with DRIVE-CLiQ does not match the saved number.
 Fault value (r0949, interpret decimal):
 Number of the incorrect parameter.
 See also: p0301 (Motor code number selection), r0302 (Motor code number of motor with DRIVE-CLiQ)
Remedy: Connect the original motor, power up the Control Unit again (POWER ON) and exit the quick commissioning by setting p0010 to 0.
 Or set p0300 = 10000 (load the motor parameter with DRIVE-CLiQ) and re-commission.
 Quick commissioning (p0010 = 1) is automatically exited with p3900 > 0.
 If quick commissioning was exited by setting p0010 to 0, then an automatic controller calculation (p0340 = 1) is not carried out.

F07956 (A) Drive: Motor code does not match the list (catalog) motor

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The motor code of the current motor with DRIVE-CLiQ does not match the possible list motor types (refer to the selection, p0300).
 Fault value (r0949, interpret decimal):
 Motor code of the motor with DRIVE-CLiQ
Remedy: Use a motor with DRIVE-CLiQ and the matching motor code.
 The first three digits of the motor code generally correspond to the matching list motor type.
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A07965 (N) Drive: Save required

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The angular commutation offset (p0431) was re-defined and has still not been saved.
 In order to permanently accept the new value, it must be saved in a non-volatile fashion (p0971, p0977).
 See also: p0431 (Angular commutation offset), p1990 (Encoder adjustment, determine angular commutation offset)

Remedy: None necessary.
 This alarm automatically disappears after the data has been saved.
 See also: p0971 (Save drive object parameters), p0977 (Save all parameters)

Reaction upon N: NONE
 Acknowl. upon N: NONE

F07966 Drive: Check the commutation angle

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The speed actual value was inverted and the associated angular commutation offset is not equal to zero and is therefore possibly incorrect.
Remedy: Angular commutation offset after the actual value inversion or determine it again (p1990=1).

A07971 (N) Drive: Angular commutation offset determination activated

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The automatic determination of the angular commutation offset (encoder adjustment) is activated (p1990 = 1).
 The automatic determination is carried out with the next power-on command.
 For SERVO and fault F07414 present, the following applies:
 The determination of the angular commutation offset is automatically activated (p1990 = 1), if a pole position identification technique is set in p1980.
 See also: p1990 (Encoder adjustment, determine angular commutation offset)

Remedy: None necessary.
 The alarm automatically disappears after determination or for the setting p1990 = 0.

Reaction upon N: NONE
 Acknowl. upon N: NONE

A07980 Drive: Rotating measurement activated

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The rotating measurement is activated. For the rotating measurement, the motor can accelerate up to the maximum speed and with maximum torque. Only the parameterized current limit (p0640) and the maximum speed (p1082) are effective. The behavior of the motor can be influenced using the direction inhibit (p1959.14, p1959.15) and the ramp-up/ramp-down time (p1958).
 The rotating measurement is carried out at the next power-on command.
 See also: p1960 (Rotating measurement selection)

Remedy: None necessary.
 The alarm automatically disappears after the rotating measurement has been successfully completed or for the setting p1960 = 0.

F07990	Drive: Incorrect motor data identification
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2 (NONE, OFF1)
Acknowledge:	IMMEDIATELY
Cause:	<p>A fault has occurred during the identification routine.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: Current limit value reached.</p> <p>2: Identified stator resistance lies outside the expected range 0.1 ... 100 % of Z_n.</p> <p>3: Identified rotor resistance lies outside the expected range 0.1 ... 100 % of Z_n.</p> <p>4: Identified stator reactance lies outside the expected range 50 ... 500 % of Z_n.</p> <p>5: Identified magnetizing inductance lies outside the expected range 50 ... 500 % of Z_n.</p> <p>6: Identified rotor time constant lies outside the expected range 10 ms ... 5 s.</p> <p>7: Identified total leakage reactance lies outside the expected range 4 ... 50 % of Z_n.</p> <p>8: Identified stator leakage reactance lies outside the expected range 2 ... 50 % of Z_n.</p> <p>9: Identified rotor leakage reactance lies outside the expected range 2 ... 50 % of Z_n.</p> <p>10: Motor has been incorrectly connected.</p> <p>11: Motor shaft rotates.</p> <p>20: Identified threshold voltage of the semiconductor devices lies outside the expected range 0 ... 10 V.</p> <p>30: Current controller in voltage limiting.</p> <p>40: At least one identification contains errors. The identified parameters are not saved to prevent inconsistencies.</p> <p>50: With the selected current controller sampling rate, the pulse frequency cannot be implemented.</p> <p>Note:</p> <p>Percentage values are referred to the rated motor impedance: $Z_n = V_{mot,nom} / \sqrt{3} / I_{mot,nom}$</p> <p>101: Voltage amplitude even at 30% maximum current amplitude is too low to measure the inductance.</p> <p>102, 104: Voltage limiting while measuring the inductance.</p> <p>103: Maximum frequency exceeded during the rotating inductance measurement.</p> <p>110: Motor not finely synchronized before the rotating measurement.</p> <p>111: The zero mark is not received within 2 revolutions.</p> <p>112: Fine synchronization is not realized within 8 seconds after the zero mark has been passed.</p> <p>113: The power, torque or current limit is zero.</p> <p>120: Error when evaluating the magnetizing inductance.</p> <p>125: Cable resistance greater than the total resistance.</p> <p>126: Series inductance greater than the total leakage inductance.</p> <p>127: Identified leakage inductance negative.</p> <p>128: Identified stator resistance negative.</p> <p>129: Identified rotor resistance negative.</p> <p>130: Drive data set changeover during the motor data identification routine.</p> <p>140: The setpoint channel inhibits both directions.</p> <p>160: Accelerating when determining k_T, moment of inertia or reluctance torque too short or the accelerating time is too long.</p> <p>173: Internal problem.</p> <p>180: Identification speed (maximum speed, rated speed, $0,9 * p0348$) less than $p1755$.</p> <p>190: Speed setpoint not equal to zero.</p> <p>191: An actual speed of zero is not reached.</p> <p>192: Speed setpoint not reached.</p> <p>193: Inadmissible motion of the motor when identifying the voltage emulation error.</p> <p>194: Supplementary torque (r1515) not equal to zero.</p> <p>195: Closed-loop torque control active.</p> <p>200, 201: Not possible to identify the voltage emulation error characteristic of the drive converter (p1952, p1953).</p>
Remedy:	<p>Re fault value = 0:</p> <ul style="list-style-type: none"> - check whether the motor is correctly connected. Observe configuration (star/delta). <p>Re fault value = 1 ... 40:</p> <ul style="list-style-type: none"> - check whether motor data have been correctly entered in p0300, p0304 ... p0311. - is there an appropriate relationship between the motor power rating and that of the Motor Module? The ratio of the Motor Module to the rated motor current should not be less than 0.5 and not be greater than 4. - check configuration (star/delta). <p>Re fault value = 2:</p> <ul style="list-style-type: none"> - for parallel circuits, check the motor winding system in p7003. If, for power units connected in parallel, a motor is specified with a single-winding system ($p7003 = 0$), although a multi-winding system is being used, then a large proportion of the stator resistance is interpreted as feeder cable resistance and entered in p0352.

- Re fault value = 4, 7:
- check whether inductances are correctly entered in p0233 and p0353.
 - check whether motor was correctly connected (star/delta).
- Re fault value = 50:
- reduce the current controller sampling rate.
- Re fault value = 101:
- increase current limit (p0640) or torque limit (p1520, p1521).
 - check current controller gain (p1715).
 - reduce current controller sampling time (p0115).
- It may be impossible to completely identify the L characteristic, as required current amplitude is too high.
- suppress meas. (p1909, p1959).
- Re fault value = 102, 104:
- reduce current limit (p0640).
 - check current controller P gain.
 - suppress meas. (p1909, p1959).
- Re fault value = 103:
- increase external moment of inertia (if possible).
 - reduce current controller sampling time (p0115).
 - suppress meas. (p1909, p1959).
- Re fault value = 110:
- before rotating measurement, traverse motor over zero mark.
- Re fault value = 111:
- it is possible that encoder does not have zero mark. Correct setting in p0404.15.
 - encoder pulse number was incorrectly entered. Correct setting in p0408.
 - if zero mark signal is defective, replace encoder.
- Re fault value = 112:
- upgrade encoder software.
- Re fault value = 113:
- check the limits (p0640, p1520, p1521, p1530, p1531), correct the zero values.
- Re fault value = 120:
- check current controller P gain (p1715) and if required, reduce.
 - increase the pulse frequency (p1800).
- Re fault value = 125:
- reduce cable resistance (p0352).
- Re fault value = 126:
- reduce series inductance (p0353).
- Re fault = 127, 128, 129:
- it is possible that current controller is oscillating. Reduce p1715 before next measurement.
- Re fault value = 130:
- do not initiate a drive data set changeover during motor ident. routine.
- Re fault value = 140:
- before the measurement, enable at least one direction (p1110 = 0 or p1111 = 0 or p1959.14 = 1 or p1959.15 = 1).
- Re fault value = 160:
- extend accelerating time when determining kT, moment of inertia and reluctance torque, e.g. by increasing max. speed (p1082), increasing moment of inertia or reducing max. current (p0640).
 - in encoderless operation with load moment of inertia, parameterize the load moment of inertia (p1498).
 - reduce the ramp-up time (p1958).
 - increase speed controller P-gain (p1460).
 - suppress meas. (p1959).
- Re fault value = 173:
-
- Re fault value = 180:
- increase max. speed (p1082).
 - reduce p1755.
 - suppress meas. (p1909, p1959).
- Re fault value = 190:
- set speed setpoint to zero.
- Re fault value = 191:
- do not start motor data ident. routine while motor is still rotating.
- Re fault value = 192:
- check closed-loop speed control (motor rotor may be locked or closed-loop speed control is not functioning).
 - for p1215 = 1, 3 (brake the same as the sequence control) check the control sense (p0410.0).
 - ensure that enable signals are present during measurement.
 - remove any pulling loads from motor.

- increase max. current (p0640).
- reduce max. speed (p1082).
- suppress meas. (p1959).
- Re fault value = 193:
 - the motor has moved through more than 5 ° electrical (r0093). Lock motor rotor at one of these pole position angles (r0093): 90 °, 210 ° or 330 ° (+/-5 °) and then start identification.
- Re fault value = 194:
 - switch out all supplementary torques (e.g. CI: p1511).
 - for hanging/suspended axes: Lock motor rotor at one of these pole position angles (r0093): 90 °, 210 ° or 330 ° (+/- 1 °) and then start identification.
- Re fault value = 195:
 - de-select closed-loop torque control (p1300 = 21 or 20, or set the signal source in p1501 to a 0 signal).
- Re fault value = 200, 201:
 - set pulse frequency to 0.5 * current controller frequency (e.g. 4 kHz for a current controller clock cycle of 125 us).
 - reduce cable length between Motor Module and motor.
 - read-out measured values (r1950, r1951) and therefore determine suitable values for p1952, p1953 according to your own estimation.

A07991 (N) Drive: Motor data identification activated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: The motor data ident. routine is activated.
The motor data identification routine is carried out at the next power-on command.
See also: p1910 (Motor data identification routine, stationary (standstill)), p1960 (Rotating measurement selection)

Remedy: None necessary.
The alarm automatically disappears after the motor data identification routine has been successfully completed or for the setting p1910 = 0 or p1960 = 0.

Reaction upon N: NONE

Acknowl. upon N: NONE

F07993 Drive: Incorrect direction of rotation of the field or encoder actual value inversion

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: Either the direction of the rotating field or the encoder actual value has an incorrect sign. The motor data identification automatically changed the actual value inversion (p0410) in order to correct the control sense. This can result in a direction of rotation change. To acknowledge this fault, the correctness of the direction of rotation must first be acknowledged with p1910 = -2.

Remedy: Check the direction of rotation, also for the position controller, if one is being used.
If the direction of rotation is correct, the following applies:
No additional measures are required (except p1910 = -2 and acknowledge fault).
If the direction of rotation is incorrect, the following applies:
To change the direction of rotation, two phases must be interchanged and the motor identification routine must be repeated.

F07995	Drive: Pole position identification not successful
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	<p>The pole position identification routine was unsuccessful.</p> <p>Fault value (r0949, interpret decimal):</p> <p>1: No current is established.</p> <p>2: The starting current is not zero.</p> <p>3: The selected max. distance was exceeded (p1981).</p> <p>4x: The measuring signal does not permit a clear evaluation.</p> <p>5: The max. current was exceeded during the measurement.</p> <p>6: The current measurement must be re-calibrated.</p> <p>7x: The Sensor Module does not support the pole position identification routine.</p> <p>70 ... 79: Only for internal Siemens troubleshooting.</p> <p>8: The pole position identification routine current required is greater than the max. current.</p> <p>9: The set pole position identification routine current is zero.</p> <p>10: Data set changeover during the pole position identification.</p> <p>11: The encoder adjustment to determine the commutation angle (p1990 = 1) and the encoder without zero mark is not finely synchronized or does not have any valid data.</p> <p>100: Motion-based pole position identification, 1st and 2nd measurement different. Motor locked or current (p1993) too low.</p> <p>101: Motion-based position position identification, insufficient motion, motor locked or current (p1993) too low.</p> <p>102: Motion-based pole position identification, brake is being used and is closed. The motion-based position position identification in conjunction with the brake is not permitted.</p> <p>103: Motion-based pole position identification without encoder.</p> <p>104: Motion-based pole position identification, speed actual value not zero after stabilizing time.</p> <p>Note: x = 0 ... 9</p>
Remedy:	<p>Re fault value = 1:</p> <p>Check the motor connection and DC link voltage.</p> <p>For the following parameters, set practical values that are not zero (p0325, p0329).</p> <p>Re fault value = 3:</p> <p>Increase the max. distance (p1981).</p> <p>Reduce the currents for the pole position identification routine (p0325, p0329).</p> <p>Stop the motor in order to carry out the pole position identification routine.</p> <p>Re fault value = 40 ... 49:</p> <p>Increase the currents for the pole position identification routine (p0325, p0329).</p> <p>Stop the motor in order to carry out the pole position identification routine.</p> <p>Select another technique for pole position identification routine (p1980).</p> <p>Use another motor, absolute encoder or Hall sensors.</p> <p>Re fault value = 5:</p> <p>Reduce the currents for the pole position identification routine (p0325, p0329).</p> <p>Re fault value = 6:</p> <p>Re-calibrate the Motor Module.</p> <p>Re fault value = 7x:</p> <p>Upgrade the software in the Sensor Module.</p> <p>Re fault value = 8:</p> <p>Reduce the currents for the pole position identification routine (p0329, p0325, p1993).</p> <p>The power unit cannot provide the necessary pole position identification routine current (p0209 < p0329, p0325, p1993), replace the power unit by a power unit with a higher max. current.</p> <p>Re fault value = 9:</p> <p>Enter a value not equal to zero in the pole position identification routine current (p0329, p0325, p1993).</p> <p>Re fault value = 10:</p> <p>Do not initiate a data set changeover during the pole position identification.</p> <p>Re fault value = 11:</p> <ul style="list-style-type: none"> - for incremental encoders without commutation with zero mark (p0404.15 = 0), it does not make sense to adjust the encoder to determine the commutation angle (p1990 = 1). In this case, the function should be de-selected (p1990 = 0) or, for an encoder with suitable zero mark, commutation with zero mark should be selected (p0404.15 = 1). - for absolute encoders, only adjust the encoder to determine the commutation angle (p1990 = 1) if the encoder supplies commutation information and is finely synchronized (p1992.8 = 1 and p1992.10 = 1). The encoder is possibly parked, de-activated (p0145), not ready to operate or signals a fault condition. - deselect the encoder adjustment to determine the commutation angle (set p1990 to 0).

Re fault value = 100, 101:
 Check and ensure that the motor is free to move.
 Increase the current for motion-based pole position identification (p1993).
 Re fault value = 102:
 If the motor is to be operated with a brake: Select a different technique to identify the pole position (p1980).
 If the motor can be operated without a brake: Open the brake (p1215 = 2).
 Re fault value = 103:
 The motion-based pole position identification can only be carried out using an encoder. Connect an encoder or select another technique for pole position identification routine (p1980).
 Re fault value = 104:
 Pole position identification, increase the smoothing time, motion-based (p1997).
 Pole position identification, increase the rise time, motion-based (p1994).
 Pole position identification, check the gain, motion-based (p1995).
 Pole position identification, check the integral time, motion-based (p1996).

F07996 Drive: Pole position identification routine not carried out

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: ENCODER (OFF2)

Acknowledge: IMMEDIATELY

Cause: In operation, the operating mode that requires a pole position identification was changed over, which is not possible in this state:
 - the drive was changed over, flying, from encoderless operation to operation with encoder without having previously carried out a pole position identification for the encoder. p1404 is then at a value between zero and the max. speed and the pulses in the speed range above p1404 were enabled without a pole position ident. routine having been previously carried out in operation with encoder.
 - in operation, an EDS changeover was made to an encoder where it is necessary to carry out a pole position identification. However, this has still not been carried out (p1982 = 1 or 2 and p1992.7 = 0).

Remedy: - for a flying changeover between operation with and without encoder with pole position identification after POWER ON or commissioning (p0010 not equal to zero) enable the pulses once at zero speed. This means that the pole position identification routine is carried out and the result is available for operation.
 - carry out the EDS changeover with the pulses inhibited, or, before the changeover, carry out a pole position identification using this data set.

A07999 Drive: Motor data identification cannot be activated

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: NONE

Cause: Closed-loop control is enabled on a SERVO drive object type. To select motor data identification, pulses must be suppressed for all SERVO drive objects.
 Fault value (r0949, interpret decimal):
 Drive object with enabled closed-loop control.

Remedy: Withdraw the pulse enable on all drives and re-activate the motor data identification.

A08550 PZD Interface Hardware assignment error

Message value: %1

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The assignment of the hardware to the PZD interface has been incorrectly parameterized.
 Alarm value (r2124, interpret decimal):
 Only one of the two indices is not equal to 99 (automatic).
 2: Both PZD interfaces are assigned to the same hardware.
 3: Assigned COMM BOARD missing.
 4: CBC10 is assigned to interface 1.

Remedy: Correct the parameterization (p8839).

F08700 (A)	CAN: Communications error
Message value:	%1
Drive object:	All objects
Reaction:	OFF3 (NONE, OFF1, OFF2)
Acknowledge:	IMMEDIATELY
Cause:	A CAN communications error has occurred. Fault value (r0949, interpret decimal): 1: The error counter for the send telegrams has exceeded the BUS OFF value 255. The bus disables the CAN controller. - bus cable interrupted. - bus cable not connected. - incorrect baud rate. - incorrect bit timing. 2: The master no longer interrogated the CAN node status longer than for its "life time". The "life time" is obtained from the "guard time" (p8604[0]) multiplied by the "life time factor" (p8604[1]). - bus cable interrupted. - bus cable not connected. - incorrect baud rate. - incorrect bit timing. - master fault. Note: The fault response can be set as required using p8641. See also: p8604 (CAN node guarding), p8641 (CAN Abort Connection Option Code)
Remedy:	- check the bus cable - check the baud rate (p8622). - check the bit timing (p8623). - check the master. See also: p8622 (CAN baud rate), p8623 (CAN Bit Timing selection)
Reaction upon A:	NONE
Acknowl. upon A:	NONE
F08701	CAN: NMT state change
Message value:	%1
Drive object:	All objects
Reaction:	OFF3
Acknowledge:	IMMEDIATELY
Cause:	A CANopen NMT state transition from "operational" to "pre-operational" or after "stopped". Fault value (r0949, interpret decimal): 1: CANopen NMT state transition from "operational" to "pre-operational". 2: CANopen NMT state transition from "operational" to "stopped". Note: In the NMT state "pre-operational", process data cannot be transferred and in the NMT state "stopped", no process data and no service data can be transferred.
Remedy:	None necessary. Acknowledge the fault and continue operation.
A08751	CAN: Telegram loss
Message value:	-
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The CAN controller has lost a receive message (telegram).
Remedy:	Reduce the cycle times of the receive messages.

A08752 CAN: Error counter for error passive exceeded

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The error counter for the send or receive telegrams has exceeded the value 127.
Remedy: - check the bus cable
- set a higher baud rate (p8622).
- check the bit timing and if required optimize (p8623).
See also: p8622 (CAN baud rate), p8623 (CAN Bit Timing selection)

A08753 CAN: Message buffer overflow

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A message buffer overflow.
Alarm value (r2124, interpret decimal):
1: Non-cyclic send buffer (SDO response buffer) overflow.
2: Non-cyclic receive buffer (SDO receive buffer) overflow.
3: Cyclic send buffer (PDO send buffer) overflow.
Remedy: Check the bus cable.
Set a higher baud rate (p8622).
Check the bit timing and if required optimize (p8623).
Re alarm value = 2:
- reduce the cycle times of the SDO receive messages.
See also: p8622 (CAN baud rate), p8623 (CAN Bit Timing selection)

A08754 CAN: Incorrect communications mode

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: In the "operational" mode, an attempt was made to change parameters p8700 ... p8737.
Remedy: Change to the "pre-operational" or "stopped" mode.

A08755 CAN: Object cannot be mapped

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The CANopen object is not provided for the Process Data Object (PDO) Mapping.
Remedy: Use a CANopen object intended for the PDO mapping or enter 0.
The following objects can be mapped in the Receive Process Data Object (RPDO) or Transmit Process Data Object (TPDO):
- RPDO: 6040 hex, 6060 hex, 60FF hex, 6071 hex; 5800 hex - 580F hex; 5820 hex - 5827 hex
- TPDO: 6041 hex, 6061 hex, 6063 hex, 6069 hex, 606B hex, 606C hex, 6074 hex; 5810 hex - 581F hex; 5830 hex - 5837 hex
Only sub-index 0 of the specified objects can be mapped.
Note:
As long as A08755 is present, the COB-ID cannot be set to valid.

A08756 **CAN: Number of mapped bytes exceeded**

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The number of bytes of the mapped objects exceeds the telegram size for net data. A max. of 8 bytes is permissible.

Remedy: Map fewer objects or objects with a smaller data type.
See also: p8710, p8711, p8712, p8713, p8714, p8715, p8716, p8717, p8730, p8731, p8732, p8733, p8734, p8735, p8736, p8737

A08757 **CAN: Set COB-ID invalid**

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: For online operation, the appropriate COB-ID must be set invalid before mapping.
Example:
Mapping for RPDO 1 should be changed (p8710[0]).
--> set p8700[0] = C00006E0 hex (invalid COB-ID)
--> set p8710[0] as required.
--> p8700[0] enter a valid COB-ID

Remedy: Set the COB-ID to invalid.

A08759 **CAN: PDO COB-ID already available**

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: An existing PDO COB-ID was allocated.

Remedy: Select another PDO COB-ID.

A13000 **License not adequate**

Message value: %1

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: - for the drive unit, the options that require a license are being used but the licenses are not sufficient.
- an error occurred when checking the existing licenses.
Alarm value (r2124, interpret decimal):
0:
The existing license is not sufficient.
1:
An adequate license was not able to be determined as the memory card with the required licensing data was withdrawn in operation.
2:
An adequate license was not able to be determined, as an error occurred when reading-out the required licensing data from the memory card.
3:
An adequate license was not able to be determined as there is a checksum error in the license key.
4:
An internal error occurred when checking the license.

Remedy:

- Re alarm value = 0:
Additional licenses are required and these must be activated (p9920, p9921).
- Re alarm value = 1:
With the system powered down, re-insert the memory card that matches the system.
- Re alarm value = 2:
Enter and activate the license key (p9920, p9921).
- Re alarm value = 3:
Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).
- Re alarm value = 4:
- carry out a POWER ON.
- upgrade firmware to later version.
- contact the Hotline.

A13001 Error in license checksum

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When checking the checksum of the license key, an error was detected.
Remedy: Compare the license key (p9920) entered with the license key on the certificate of license.
 Re-enter the license key and activate (p9920, p9921).

F30001 Power unit: Overcurrent

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an overcurrent condition.
 - closed-loop control is incorrectly parameterized.
 - motor has a short-circuit or fault to ground (frame).
 - V/f operation: Up ramp set too low.
 - V/f operation: Rated motor current is significantly greater than that of the Motor Module.
 - infeed: High discharge and post-charging current for line supply voltage interruptions.
 - infeed: High post-charging currents for overload when motoring and DC link voltage dip.
 - infeed: Short-circuit currents at power-on due to the missing commutating reactor.
 - power cables are not correctly connected.
 - power cables exceed the maximum permissible length.
 - power unit defective.
 - Line phase interrupted.
 Additional causes for a parallel switching device (r0108.15 = 1):
 - a power unit has tripped (powered down) due to a ground fault.
 - the closed-loop circulating current control is either too slow or has been set too fast.
 Fault value (r0949, interpret bitwise binary):
 Bit 0: Phase U.
 Bit 1: Phase V.
 Bit 2: Phase W.
 Bit 3: Overcurrent in the DC link.
 Note:
 Fault value = 0 means that the phase with overcurrent is not recognized (e.g. for blocksize device).

- Remedy:**
- check the motor data - if required, carry out commissioning.
 - Check the motor circuit configuration (star/delta)
 - V/f operation: Increase up ramp.
 - V/f operation: Check the assignment of the rated currents of the motor and Motor Module.
 - infeed: Check the line supply quality.
 - infeed: Reduce the load when motoring.
 - infeed: Correct connection of the line commutating reactor.
 - check the power cable connections.
 - check the power cables for short-circuit or ground fault.
 - check the length of the power cables.
 - replace power unit.
 - check the line supply phases.
- For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
 - check the setting of the closed-loop circulating current control (p7036, p7037).

F30002 Power unit: DC link voltage, overvoltage

- Message value:** %1
- Drive object:** All objects
- Reaction:** OFF2
- Acknowledge:** IMMEDIATELY
- Cause:** The power unit has detected overvoltage in the DC link.
- motor regenerates too much energy.
 - Device connection voltage too high.
 - when operating with a VSM, the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.
 - Line phase interrupted.
- Fault value (r0949, interpret decimal):
DC link voltage [1 bit = 100 mV].
- For SINAMICS GM/SM, the following applies:
Fault value (r0949, interpret decimal):
32: Overvoltage in the negative partial DC link (VdcP)
64: Overvoltage in the positive partial DC link (VdcN)
96: Overvoltage in both partial DC links
- Remedy:**
- increase the ramp-down time.
 - activate the DC link voltage controller.
 - use a brake resistor or Active Line Module.
 - increase the current limit of the infeed or use a larger module (for the Active Line Module).
 - Check the device connection voltage.
 - check and correct the phase assignment at the VSM and at the power unit.
 - check the line supply phases.
- See also: p0210 (Drive unit line supply voltage), p1240 (Vdc controller or Vdc monitoring configuration)

F30003 Power unit: DC link voltage, undervoltage

- Message value:** -
- Drive object:** All objects
- Reaction:** OFF2
- Acknowledge:** IMMEDIATELY
- Cause:** The power unit has detected an undervoltage condition in the DC link.
- line supply failure
 - line supply voltage below the permissible value.
 - line supply infeed failed or interrupted.
 - Line phase interrupted.
- Note:**
The monitoring threshold for the DC link undervoltage is the minimum of the following values:
- for a calculation, refer to p0210.

Remedy:

- check the line supply voltage
- check the line supply infeed and if necessary observe the fault messages of the line supply infeed.
- check the line supply phases.

Note:
The ready signal of the infeed r0863 must be connected to the associated inputs p0864 of the drives.
See also: p0210 (Drive unit line supply voltage)

F30004 Power unit: Overtemperature heat sink AC inverter

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature of the power unit heat sink has exceeded the permissible limit value.

- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.

 Fault value (r0949):
 Temperature [1 bit = 0.01 °C].

Remedy:

- check whether the fan is running.
- check the fan elements
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.

Notice:
This fault can only be acknowledged after this alarm threshold for alarm A05000 has been undershot.
See also: p1800 (Pulse frequency setpoint)

F30005 Power unit: Overload I2t

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit was overloaded (r0036 = 100 %).

- the permissible rated power unit current was exceeded for an inadmissibly long time.
- the permissible load duty cycle was not maintained.

 Fault value (r0949, interpret decimal):
 I2t [100 % = 16384].

Remedy:

- reduce the continuous load.
- adapt the load duty cycle.
- check the motor and power unit rated currents.

See also: r0036 (Power unit overload I2t), r0206 (Rated power unit power), p0307 (Rated motor power)

F30008 Power unit: Sign-of-life error cyclic data

Message value: -
Drive object: All objects
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The power unit has detected that the cyclic setpoint telegrams of the Control Unit were not punctually updated for at least two clock cycles within a time interval of 20 ms.

Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- for projects with the VECTOR drive object, check whether p0117 = 6 has been set on the Control Unit.

A30010 (F) Power unit: Sign-of-life error cyclic data

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the power unit involved. The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least one clock cycle.
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30011 Power unit: Line phase failure in main circuit

Message value: -
Drive object: All objects
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY
Cause: A line phase failure was detected at the power unit.
 - the fuse of a phase of a main circuit has ruptured.
 - the DC link voltage ripple has exceeded the permissible limit value.
Remedy: Check the fuses in the main circuit.

F30012 Power unit: Temperature sensor heat sink wire breakage

Message value: %1
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The connection to one of the heat sink temperature sensors in the power unit is interrupted.
 Fault value (r0949, interpret hexadecimal):
 Bit 0: Module slot (electronics slot)
 Bit 1: Air intake
 Bit 2: Inverter 1
 Bit 3: Inverter 2
 Bit 4: Inverter 3
 Bit 5: Inverter 4
 Bit 6: Inverter 5
 Bit 7: Inverter 6
 Bit 8: Rectifier 1
 Bit 9: Rectifier 2
Remedy: Contact the manufacturer.

F30013 Power unit: Temperature sensor heat sink short-circuit

Message value: %1
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The heat sink temperature sensor in the Motor Module is short-circuited.
 Fault value (r0949, interpret hexadecimal):
 Bit 0: Module slot (electronics slot)
 Bit 1: Air intake
 Bit 2: Inverter 1
 Bit 3: Inverter 2
 Bit 4: Inverter 3
 Bit 5: Inverter 4
 Bit 6: Inverter 5
 Bit 7: Inverter 6
 Bit 8: Rectifier 1
 Bit 9: Rectifier 2
Remedy: Contact the manufacturer.

A30016 (N) Power unit: Load supply switched out

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The following applies for CU31x and CUA31:
 The DC link voltage is too low.
 Alarm value (r2124, interpret decimal):
 DC link voltage in [V].
Remedy: The following applies for CU31x and CUA31:
 Under certain circumstances, the AC line supply is not switched in.
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F30017 Power unit: Hardware current limit has responded too often

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The number of times the limit has been exceeded depends on the design and type of power unit.
 For infeed units, the following applies:
 - closed-loop control is incorrectly parameterized.
 - load on the infeed is too high.
 - Voltage Sensing Module incorrectly connected.
 - commutating reactor missing or the incorrect type.
 - power unit defective.
 The following applies to Motor Modules:
 - closed-loop control is incorrectly parameterized.
 - fault in the motor or in the power cables.
 - the power cables exceed the maximum permissible length.
 - motor load too high
 - power unit defective.
 Fault value (r0949, interpret binary):
 Bit 0: Phase U
 Bit 1: Phase V
 Bit 2: Phase W

Remedy: For infeed units, the following applies:

- check the controller settings, if required, reset and identify the controller (p0340 = 2, p3410 = 5).
- reduce the load, if required, increase the DC link capacitance or use a higher-rating infeed.
- check the connection of the optional Voltage Sensing Module.
- check the connection and technical data of the commutating reactor.
- check the power cables for short-circuit or ground fault.
- replace power unit.

The following applies to Motor Modules:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

F30020 Power unit: Configuration not supported

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A configuration is requested that is not supported by the power unit.
 Fault value (r0949, interpret hexadecimal):
 0:
 Autonomous operation is requested but is not supported.

Remedy: Re fault value = 0:
 If internal voltage protection is active (p1231 = 3), deactivate it if necessary.
 See also: p1231 (Armature short-circuit / DC brake configuration)

F30021 Power unit: Ground fault

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Power unit has detected a ground fault.
 - ground fault in the power cables
 - winding fault or ground fault at the motor.
 - CT defective.
 Additional cause for CU310/CUA31:
 - when the brake is applied, this causes the hardware DC current monitoring to respond.
 Additional cause for parallel switching devices (r0108.15 = 1):
 - the closed-loop circulating current control is either too slow or has been set too fast.
 Fault value (r0949, interpret decimal):
 Absolute value, summation current [32767 = 271 % rated current].

Remedy:

- check the power cable connections.
- check the motor.
- check the CT.

The following applies additionally for CU310 and CUA31:

- check the cables and contacts of the brake connection (a wire is possibly broken).

For parallel switching devices (r0108.15 = 1) the following additionally applies:

- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

See also: p0287 (Ground fault monitoring thresholds)

F30022 Power unit: Monitoring V_{ce}

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: In the power unit, the monitoring of the collector-emitter voltage (V_{ce}) of the semiconductor has responded.
Possible causes:
- fiber-optic cable interrupted.
- power supply of the IGBT gating module missing.
- short-circuit at the Motor Module output.
- defective semiconductor in the power unit.
Fault value (r0949, interpret binary):
Bit 0: Short-circuit in phase U
Bit 1: Short circuit in phase V
Bit 2: Short-circuit in phase W
Bit 3: Light transmitter enable defective
Bit 4: V_{ce} group fault signal interrupted
See also: r0949 (Fault value)
Remedy:
- check the fiber-optic cable and if required, replace.
- check the power supply of the IGBT gating module (24 V).
- check the power cable connections.
- select the defective semiconductor and replace.

A30023 Power unit: Overtemperature thermal model alarm

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The temperature difference between the heat sink and chip has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.
See also: r0037
Remedy:
- adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.

F30024 Power unit: Overtemperature thermal model

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature difference between the heat sink and chip has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload
- ambient temperature too high.
- pulse frequency too high.
See also: r0037

- Remedy:**
- adapt the load duty cycle.
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - reduce the pulse frequency if this is higher than the rated pulse frequency.

F30025 Power unit: Chip overtemperature

- Message value:** %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Chip temperature of the semiconductor has exceeded the permissible limit value.
 - the permissible load duty cycle was not maintained.
 - insufficient cooling, fan failure.
 - overload
 - ambient temperature too high.
 - pulse frequency too high.
Fault value (r0949):
 Temperature difference between the heat sink and chip [1 Bit = 0.01 °C].

- Remedy:**
- adapt the load duty cycle.
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - reduce the pulse frequency if this is higher than the rated pulse frequency.
- Notice:**
 This fault can only be acknowledged after this alarm threshold for alarm A05001 has been undershot.
 See also: r0037

F30027 Power unit: Precharging DC link time monitoring

- Message value:** Enable signals: %1, Status: %2
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit DC link was not able to be pre-charged within the expected time.
 1) There is no line supply voltage connected.
 2) The line contactor/line side switch has not been closed.
 3) The line supply voltage is too low.
 4) Line supply voltage incorrectly set (p0210).
 5) The pre-charging resistors are overheated as there were too many pre-charging operations per time unit.
 6) The pre-charging resistors are overheated as the DC link capacitance is too high.
 7) The pre-charging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link.
 8) The pre-charging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module.
 9) The DC link has either a ground fault or a short-circuit.
 10) The pre-charging circuit is possibly defective (only for chassis units).

Fault value (r0949, interpret binary):

Missing internal enable signals, power unit (lower 16 bit):

(Inverted bit-coded representation FFFF hex -> all internal enable signals available)

Bit 0: Power supply of the IGBT gating shut down

Bit 1: Reserved

Bit 2: Reserved

Bit 3: Ground fault detected

Bit 4: Peak current intervention

Bit 5: I2t exceeded

Bit 6: Thermal model overtemperature calculated

Bit 7: (heat sink, gating module, power unit) overtemperature measured

Bit 8: Reserved

Bit 9: Overvoltage detected

Bit 10: Power unit has completed pre-charging, ready for pulse enable

Bit 11: STO terminal missing

Bit 12: Overcurrent detected

Bit 13: Armature short-circuit active

Bit 14: DRIVE-CLiQ fault active

Bit 15: Uce fault detected, transistor de-saturated due to overcurrent/short-circuit

Status, power unit (upper 16 bit, hexadecimal number):

0: Fault status (wait for OFF and fault acknowledgement)

1: Restart inhibit (wait for OFF)

2: Overvoltage condition detected -> change into the fault state

3: Undervoltage condition detected -> change into the fault state

4: Wait for bypass contactor to open -> change into the fault state

5: Wait for bypass contactor to open -> change into restart inhibit

6: Commissioning

7: Ready for pre-charging

8: Pre-charging started, DC link voltage lower than the minimum switch-on voltage

9: Pre-charging, DC link voltage end of pre-charging still not detected

10: Wait for the end of the de-bounce time of the main contactor after pre-charging has been completed

11: Pre-charging completed, ready for pulse enable

12: It was detected that the STO terminal was energized at the power unit

See also: p0210 (Drive unit line supply voltage)

Remedy:

In general:

- check the line supply voltage at the input terminals.

- check the line supply voltage setting (p0210).

- the following applies to booksize units: Wait (approx. 8 min.) until the pre-charging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.

Re 5):

- carefully observe the permissible pre-charging frequency (refer to the appropriate Equipment Manual).

Re 6):

- check the total capacitance of the DC link and if required, correspondingly reduce the maximum permissible DC link capacitance (refer to the appropriate Equipment Manual).

Re 7):

- interconnect the ready for operation signal of the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link.

Re 8):

- check the connections of the external line contactor. The line contactor must be open during the DC link fast discharge.

Re 9):

- check the DC link regarding ground fault or short-circuit.

See also: p0210 (Drive unit line supply voltage)

A30031 Power unit: Hardware current limiting, phase U

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30032 Power unit: Hardware current limiting, phase V

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30033 Power unit: Hardware current limiting, phase W

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.

- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy:

- check the motor data.
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

F30035 Power unit: Air intake overtemperature

Message value: %1
Drive object: All objects
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The air intake in the power unit has exceeded the permissible temperature limit.
 For air-cooled power units, the temperature limit is at 55 °C.
 - ambient temperature too high.
 - insufficient cooling, fan failure.
 Fault value (r0949, interpret decimal):
 Temperature [1 bit = 0.01 °C].
Remedy:
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 Notice:
 This fault can only be acknowledged after this alarm threshold for alarm A05002 has been undershot.

F30036 Power unit: Electronics board overtemperature

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature in the module slot of the drive converter has exceeded the permissible temperature limit.
 - insufficient cooling, fan failure.
 - overload
 - ambient temperature too high.
 Fault value (r0949, interpret decimal):
 Temperature [1 bit = 0.1 °C].
Remedy:
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 Notice:
 This fault can only be acknowledged after this alarm threshold for alarm A05003 has been undershot.

F30037 Power unit: Rectifier overtemperature

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature in the rectifier of the power unit has exceeded the permissible temperature limit.
 - insufficient cooling, fan failure.
 - overload
 - ambient temperature too high.
 - line supply phase failure.
 Fault value (r0949, interpret decimal):
 Temperature [1 bit = 0.01 °C].
Remedy:
 - check whether the fan is running.
 - check the fan elements
 - check whether the ambient temperature is in the permissible range.
 - check the motor load.
 - check the line supply phases.
 Notice:
 This fault can only be acknowledged after this alarm threshold for alarm A05004 has been undershot.

F30040 Power unit: Undervolt 24 V

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Failure of the 24 V power supply for the power unit.
 - The undervoltage threshold was undershot for longer than 3 ms.
 Fault value (r0949, interpret decimal):
 24 V voltage [1 bit = 0.1 V].
Remedy: Check the 24 V DC voltage supply to power unit.

A30041 (F) Power unit: Undervoltage 24 V alarm

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: 24 V power supply fault for the power unit.
 - the 16 V threshold was undershot..
 Fault value (r0949, interpret decimal):
 24 V voltage [1 bit = 0.1 V].
Remedy: Check the 24 V DC voltage supply to power unit.
 Reaction upon F: NONE (OFF1, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY (POWER ON)

A30042 Power unit: Fan operating time reached or exceeded

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The maximum operating time of the fan in the power unit is set in p0252.
 This message indicates the following:
 Fault value (r0949, interpret decimal):
 0: The maximum fan operating time is 500 hours.
 1: The maximum fan operating time has been exceeded.
Remedy: Replace the fan in the power unit and reset the operating hours counter to 0 (p0251 = 0).
 See also: p0251 (Operating hours counter power unit fan), p0252 (Maximum operating time power unit fan)

F30043 Power unit: Overvolt 24 V

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: The following applies for CU31x:
 Overvoltage of the 24 V power supply for the power unit.
 - the 31.5 V threshold was exceeded for more than 3 ms.
 Fault value (r0949):
 24 V voltage [1 bit = 0.1 V].
Remedy: Check the 24 V DC voltage supply to power unit.

A30044 (F) Power unit: Overvoltage 24 V alarm

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The following applies for CU31x:
24 V power supply fault for the power unit.
- the 32.0 V threshold was exceeded.
Fault value (r0949):
24 V voltage [1 bit = 0.1 V].
Remedy: Check the 24 V DC voltage supply to power unit.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30045 Power unit: Supply undervoltage

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Power supply fault in the power unit.
- The voltage monitor signals an undervoltage fault on the module.
The following applies for CU31x:
- the voltage monitoring on the DAC board signals an undervoltage fault on the module.
Remedy: Check the 24 V DC power supply for the power unit and if required replace the module.

A30046 (F) Power unit: Undervoltage, alarm

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Before the last new start, a problem occurred at the power unit power supply.
- the voltage monitoring in the internal FPGA of the PSA signals an undervoltage fault on the module.
Fault value (r0949):
Register value of the voltage fault register.
Remedy: Check the 24 V DC power supply for the power unit and if required replace the module.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30050 Power unit: Supply overvoltage

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: The following applies for CU31x and CUA31:
- the voltage monitoring on the DAC board signals an overvoltage fault on the module.
Remedy: - check the voltage supply for the Control Unit (24 V).
- if required, replace the module.

F30052 EEPROM data error

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: POWER ON
Cause: EEPROM data error of the power unit module.
 Fault value (r0949, interpret hexadecimal):
 0: The EEPROM data read in from the power unit module is inconsistent.
 1: EEPROM data is not compatible to the firmware of the power unit application.
Remedy: Re fault value = 0:
 Replace the power unit module or update the EEPROM data.
 Re fault value = 1:
 The following applies for CU31x and CUA31:
 Update the firmware \SIEMENS\SINAMICS\CODE\SAC\cu31xi.ufw (cua31.ufw)

F30070 Cycle requested by the power unit module not supported

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
 A cycle is requested that is not supported by the power unit.
 Fault value (r0949, interpret hexadecimal):
 The following applies for CU31x and CUA31:
 0: The current control cycle is not supported.
 1: The DRIVE-CLiQ cycle is not supported.
 2: Internal timing problem (clearance between RX and TX instants too low).
 3: Internal timing problem (TX instant too early).
Remedy: The following applies for CU31x and CUA31:
 The power unit only supports the following cycles:
 62.5 µs, 125 µs, 250 µs and 500 µs
 Fault value (r0949, interpret hexadecimal):
 The following applies for CU31x and CUA31:
 0: Set a permitted current control cycle.
 1: Set a permitted DRIVE-CLiQ cycle.
 2/3: Contact the manufacturer (there is possibly an incompatible firmware version).

F30071 No new actual values received from the power unit module

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
 More than one actual value telegram from the power unit has failed.
Remedy: The following applies for CU31x and CUA31:
 Check the interface (adjustment and locking) to the power unit.

F30072 Setpoints are no longer being transferred to the power unit

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
 More than one setpoint telegram was not able to be transferred to the power unit module.
Remedy: The following applies for CU31x and CUA31:
 Check the interface (adjustment and locking) to the power unit.

A30073 (N) Actual value/setpoint preprocessing no longer synchronous to DRIVE-CLiQ

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The following applies for CU31x and CUA31:
Communications to the power unit module are no longer in synchronism with DRIVE-CLiQ.
Remedy: The following applies for CU31x and CUA31:
Wait until synchronization is re-established.
Reaction upon N: NONE
Acknowl. upon N: NONE

F30074 Communications error to the power unit module

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Communication is not possible with the power unit module via the plug connection.
Remedy: The following applies for CU31x and CUA31:
Either replace the Control Unit or the power unit.
You must check which of the two components must be replaced by replacing one and then the other (functioning) component. If these are not available, then both components must be returned.

F30105 PU: Actual value sensing fault

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).
The incorrect actual value channels are displayed in the following diagnostic parameters.
Remedy: Evaluate the diagnostic parameters.
If the actual value channel is incorrect, check the components and if required, replace.

F30600 SI MM: STOP A initiated

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function in the Motor Module (MM) has detected a fault and initiated STOP A (pulse suppression via the safety shutdown path of the Motor Module).
- forced checking procedure of the safety shutdown path of the Motor Module unsuccessful.
- subsequent response to fault F30611 (defect in a monitoring channel).
Fault value (r0949, interpret decimal):
0: Stop request from the Control Unit.
1005: Pulses suppressed although STO not selected and there is no internal STOP A present.
1010: Pulses enabled although STO is selected or an internal STOP A is present.
1020: Internal software error in the "Internal voltage protection" function. The "internal voltage protection" function is withdrawn. A STOP A that cannot be acknowledged is initiated.
9999: Subsequent response to fault F30611.

- Remedy:**
- select Safe Torque Off and de-select again.
 - replace the Motor Module involved.
- Re fault value = 1020:
- carry out a POWER ON (power off/on) for all components.
 - upgrade the Motor Module software.
 - replace the Motor Module.
- Re fault value = 9999:
- carry out diagnostics for fault F30611.
- Note:
- CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated
 STO: Safe Torque Off / SH: Safe standstill

F30611	SI MM: Defect in a monitoring channel
Message value:	%1
Drive object:	All objects
Reaction:	NONE (OFF1, OFF2, OFF3)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive-based "Safety Integrated" function in the Motor Module (MM) has detected a fault in the data cross-check between the Control Unit (CU) and MM and initiated a STOP F.</p> <p>As a result of this fault, after the parameterized transition has expired (p9858), fault F30600 is output (SI MM: STOP A initiated).</p> <p>Fault value (r0949, interpret decimal):</p> <p>0: Stop request from the Control Unit.</p> <p>1 to 999:</p> <p>Number of the cross-checked data that resulted in this fault. This number is also displayed in r9895.</p> <p>1: SI monitoring clock cycle (r9780, r9880).</p> <p>2: SI enable safety functions (p9601, p9801). Crosswise data comparison is only carried out for the supported bits.</p> <p>3: SI SGE changeover tolerance time (p9650, p9850).</p> <p>4: SI transition period STOP F to STOP A (p9658, p9858).</p> <p>5: SI enable Safe Brake Control (p9602, p9802).</p> <p>6: SI Motion enable, safety-relevant functions (p9501, internal value).</p> <p>7: SI pulse suppression delay time for Safe Stop 1 (p9652, p9852).</p> <p>8: SI PROFIsafe address (p9610, p9810).</p> <p>1000: Watchdog timer has expired. Within the time of approx. 5 * p9850 too many switching operations have occurred at the safety-related inputs of the Control Unit, or STO (also as subsequent response) was initiated too frequently via PROFIsafe/TM54F.</p> <p>1001, 1002: Initialization error, change timer / check timer.</p> <p>2000: Status of the STO selection on the Control Unit and Motor Module are different.</p> <p>2001: Feedback signal for safe pulse suppression on the Control Unit and Motor Module are different.</p> <p>2002: Status of the delay timer SS1 on the Control Unit and Motor Module are different.</p>

Remedy:

Re fault value = 1 to 5 and 7 to 999:

- check the cross-checked data that resulted in a STOP F.
- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 6:

- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 1000:

- check the wiring of the safety-relevant inputs (SGE) on the Control Unit (contact problems).
- PROFIsafe: Remove contact problems/faults at the PROFIBUS master/PROFINET controller. - check the wiring of the fail-safe inputs at the TM54F (contact problems).

Re fault value = 1001, 1002:

- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Re fault value = 2000, 2001, 2002:

- check the tolerance time SGE changeover and if required, increase the value (p9650/p9850, p9652/p9852).
- check the wiring of the safety-relevant inputs (SGE) (contact problems).
- check the cause of the STO selection in r9772. When the SMM functions are active (p9501=1), STO can also be selected using these functions.
- replace the Motor Module involved.

Note:

CU: Control Unit
 MM: Motor Module
 SGE: Safety-relevant input
 SI: Safety Integrated
 SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
 STO: Safe Torque Off / SH: Safe standstill
 SMM: refer to r9772

N30620 (F, A) SI MM: Safe Torque Off active

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The "Safe Torque Off" function was selected on the Motor Module (MM) via the input terminal and is active.

Note:

This message does not result in a safety stop response.

Remedy: None necessary.

Note:

MM: Motor Module
 SI: Safety Integrated
 STO: Safe Torque Off / SH: Safe standstill

Reaction upon F: OFF2

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon A: NONE

Acknowl. upon A: NONE

N30621 (F, A) SI MM: Safe Stop 1 active

Message value: -

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: The "Safe Stop 1" function (SS1) was selected on the Motor Module (MM) and is active.
 Note:
 This message does not result in a safety stop response.

Remedy: None necessary.
 Note:
 MM: Motor Module
 SI: Safety Integrated
 SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)

Reaction upon F: OFF3

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon A: NONE

Acknowl. upon A: NONE

F30625 SI MM: Sign-of-life error in safety data

Message value: %1

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive-based "Safety Integrated" function on the Motor Module (MM) has detected an error in the sign-of-life of the safety data between the Control Unit (CU) and MM and initiated a STOP A.
 - there is either a DRIVE-CLiQ communication error or communication has failed.
 - a time slice overflow of the safety software has occurred.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:

- select Safe Torque Off and de-select again.
- carry out a POWER ON (power off/on) for all components.
- check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
- de-select all drive functions that are not absolutely necessary.
- reduce the number of drives.
- check the electrical cabinet design and cable routing for EMC compliance

Note:
 CU: Control Unit
 MM: Motor Module
 SI: Safety Integrated

F30630 SI MM: Brake control error

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The drive-based "Safety Integrated" function on the Motor Module (MM) has detected a brake control error and initiated a STOP A.
 Fault value (r0949, interpret decimal):
 10:
 Fault in "open holding brake" operation.
 - Parameter p1278 incorrectly set.
 - No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
 - Ground fault in brake cable.
 30:
 Fault in "close holding brake" operation.
 - No brake connected or wire breakage (check whether brake releases for p1278 = 1 and p9602/p9802 = 0 (SBC deactivated)).
 - Short-circuit in brake winding.
 40:
 Fault in "brake closed" state.
 60, 70:
 Fault in the brake control circuit of the Control Unit or communication fault between the Control Unit and Motor Module (brake control).
Note:
 The following causes may apply to fault values:
 - motor cable is not shielded correctly.
 - defect in control circuit of the Motor Module.
Remedy:
 - check parameter p1278 (for SBC, only p1278 = 0 is permissible).
 - select Safe Torque Off and de-select again.
 - check the motor holding brake connection.
 - check the function of the motor holding brake.
 - check whether there is a DRIVE-CLiQ communication error between the Control Unit and the Motor Module involved and, if required, carry out a diagnostics routine for the faults identified.
 - check that the electrical cabinet design and cable routing are in compliance with EMC regulations (e.g. shield of the motor cable and brake conductors are connected with the shield connecting plate and the motor connectors are tightly screwed to the housing).
 - replace the Motor Module involved.
Operation with Safe Brake Module:
 - check the Safe Brake Modules connection.
 - replace the Safe Brake Module.
Note:
 MM: Motor Module
 SBC: Safe Brake Control
 SI: Safety Integrated

F30640 SI MM: Fault in the shutdown path of the second channel

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Motor Module has detected a communications error with the higher-level control or the TM54F to transfer the safety-relevant information.
Note:
 This fault results in a STOP A that can be acknowledged.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:

- For the higher-level control, the following applies:
 - check the PROFIsafe address in the higher-level control and Motor Modules and if required, align.
 - save all parameters (p0977 = 1).
 - carry out a POWER ON (power off/on) for all components.
- For TM54F, carry out the following steps:
 - start the copy function for the node identifier (p9700 = 1D hex).
 - acknowledge hardware CRC (p9701 = EC hex).
 - save all parameters (p0977 = 1).
 - carry out a POWER ON (power off/on) for all components.

The following generally applies:

- upgrade the Motor Module software.

Note:

MM: Motor Module
 SI: Safety Integrated
 See also: p9810 (SI PROFIsafe address (Motor Module))

F30649 SI MM: Internal software error

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal error in the Safety Integrated software on the Motor Module has occurred.
 Note:
 This fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- re-commission the Safety Integrated function and carry out a POWER ON.
- upgrade the Motor Module software.
- contact the Hotline.
- replace the Motor Module.

Note:

MM: Motor Module
 SI: Safety Integrated

F30650 SI MM: Acceptance test required

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The "Safety Integrated" function on the Motor Module requires an acceptance test.
 Note:
 This fault results in a STOP A that can be acknowledged.
 Fault value (r0949, interpret decimal):
 130: Safety parameters for the Motor Module not available.
 1000: Reference and actual checksum in the Motor Module are not identical (booting).
 - at least one checksum-checked piece of data is defective.
 2000: Reference and actual checksum on the Motor Module are not identical (commissioning mode).
 - reference checksum incorrectly entered into the Motor Module (p9899 not equal to r9898).
 2003: Acceptance test is required as a safety parameter has been changed.
 2005: The safety logbook has identified that the safety checksums have changed. An acceptance test is required.
 3003: Acceptance test is required as a hardware-related safety parameter has been changed.
 9999: Subsequent response of another safety-related fault that occurred when booting that requires an acceptance test.

Remedy:

Re fault value = 130:
 - carry out safety commissioning routine.

Re fault value = 1000:
 - again carry out safety commissioning routine.
 - replace the memory card or Control Unit.

Re fault value = 2000:
 - check the safety parameters in the Motor Module and adapt the reference checksum (p9899).

Re fault value = 2003, 2005:
 - Carry out an acceptance test and generate an acceptance report.
 The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
 SINAMICS S120 Function Manual Safety Integrated

Re fault value = 3003:
 - carry out the function checks for the modified hardware and generate an acceptance report.
 The procedure when carrying out an acceptance test as well as an example of the acceptance report are provided in the following literature:
 SINAMICS S120 Function Manual Safety Integrated

Re fault value = 9999:
 - carry out diagnostics for the other safety-related fault that is present.

Note:
 MM: Motor Module
 SI: Safety Integrated
 See also: p9799 (SI reference checksum SI parameters (Control Unit)), p9899 (SI reference checksum SI parameters (Motor Module))

F30651 SI MM: Synchronization with Control Unit unsuccessful

Message value: %1

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive-based "Safety Integrated" function is requesting synchronization of the safety time slices on the Control Unit and Motor Module. This synchronization routine was unsuccessful.

Note:
 This fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade the Motor Module software.
- upgrade the Control Unit software.

Note:
 MM: Motor Module
 SI: Safety Integrated

F30652 SI MM: Illegal monitoring clock cycle

Message value: %1

Drive object: All objects

Reaction: OFF2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The Safety Integrated monitoring clock cycle cannot be maintained due to the communication conditions requested in the system.

Note:
 This fault results in a STOP A that cannot be acknowledged.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.

Remedy: Upgrade the Motor Module software.

Note:
 MM: Motor Module
 SI: Safety Integrated

F30655	SI MM: Align monitoring functions
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	An error has occurred when aligning the Safety Integrated monitoring functions on the Control Unit (CU) and Motor Module (MM). Control Unit and Motor Module were not able to determine a common set of supported SI monitoring functions. - there is either a DRIVE-CLiQ communication error or communication has failed. - Safety Integrated software releases on the Control Unit and Motor Module are not compatible with one another.
	Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on) for all components. - upgrade the Motor Module software. - upgrade the Control Unit software. - check the electrical cabinet design and cable routing for EMC compliance
	Note: CU: Control Unit MM: Motor Module SI: Safety Integrated

F30656	SI MM: Motor Module parameter error
Message value:	%1
Drive object:	All objects
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	When accessing the Safety Integrated parameters for the Motor Module (MM) in the non-volatile memory, an error has occurred.
	Note: This fault results in a STOP A that can be acknowledged. Fault value (r0949, interpret decimal): 129: Safety parameters for the Motor Module corrupted. 131: Internal software error on the Control Unit. 255: Internal Motor Module software error.
Remedy:	- re-commission the safety functions. - upgrade the Control Unit software. - upgrade the Motor Module software. - replace the memory card or Control Unit.
	Note: MM: Motor Module SI: Safety Integrated

F30659 SI MM: Write request for parameter rejected

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The write request for one or several Safety Integrated parameters on the Motor Module (MM) was rejected.
Note:
 This fault does not result in a safety stop response.
 Fault value (r0949, interpret decimal):
 10: An attempt was made to enable the STO function although this cannot be supported.
 11: An attempt was made to enable the SBC function although this cannot be supported.
 13: An attempt was made to enable the SS1 function although this cannot be supported.
 14: An attempt was made to enable the safe motion monitoring function with the higher-level control, although this cannot be supported.
 15: An attempt was made to enable the motion monitoring functions integrated in the drive although these cannot be supported.
 16: An attempt was made to enable the PROFI-safe communication - although this cannot be supported or the version of the PROFI-safe driver used on the CU and MM is different.
 See also: r9771 (SI common functions (Control Unit)), r9871 (SI common functions (Motor Module))
Remedy: Re fault value = 10, 11, 13, 14, 15, 16:
 - check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved.
 - use a Motor Module that supports the required function ("Safe Torque Off", "Safe Brake Control", "PROFI-safe/PROFI-safe V2", "motion monitoring functions integrated in the drive").
 - upgrade the Motor Module software.
 - upgrade the Control Unit software.
Note:
 CU: Control Unit
 MM: Motor Module
 SBC: Safe Brake Control
 SI: Safety Integrated
 SS1: Safe Stop 1 (corresponds to Stop Category 1 acc. to EN60204)
 STO: Safe Torque Off / SH: Safe standstill

F30662 Error in internal communications

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: A module-internal communication error has occurred.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.
Remedy:
 - carry out a POWER ON (power off/on).
 - upgrade firmware to later version.
 - contact the Hotline.

F30664 Error while booting

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: POWER ON
Cause: An error has occurred during booting.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.
Remedy:
 - carry out a POWER ON (power off/on).
 - upgrade firmware to later version.
 - contact the Hotline.

F30665	SI MM: System defective
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY
Cause:	The drive has detected a system defect and performed an emergency shutdown. Fault value (r0949, interpret hexadecimal): Only for internal Siemens troubleshooting.
Remedy:	- carry out a POWER ON (power off/on). - upgrade firmware to later version. - contact the Hotline.
A30666 (F)	SI Motion MM: Steady-state (static) 1 signal at the F-DI for safety-relevant acknowledgement
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	NONE
Cause:	A logical 1 signal is present at the F-DI parameterized in p10106 for more than 10 seconds. A logical 0 signal must be present statically (steady-state) at the F-DI. This avoids unintentional safety-relevant acknowledgement (or the "Internal Event Acknowledge" signal) if a wire breaks or one of the two digital inputs bounces.
Remedy:	Set F-DI (see p10106) to a logical 0 signal.
Reaction upon F:	NONE
Acknowl. upon F:	IMMEDIATELY
F30672	SI Motion: Control Unit software incompatible
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The existing Control Unit software does not support the safe drive-based motion monitoring function. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): Only for internal Siemens troubleshooting.
Remedy:	- check whether there are faults in the safety function alignment between the Control Unit and the Motor Module involved (F01655, F30655) and if required, carry out diagnostics for the faults involved. - use a Control Unit that supports the safe motion monitoring function. - upgrade the Control Unit software. Note: SI: Safety Integrated
F30680	SI Motion MM: Checksum error safety monitoring functions
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The actual checksum calculated by the Motor Module and entered in r9398 over the safety-relevant parameters does not match the reference checksum saved in p9399 at the last machine acceptance. Safety-relevant parameters have been changed or a fault is present. Note: This fault results in a STOP A that cannot be acknowledged. Fault value (r0949, interpret decimal): 0: Checksum error for SI parameters for motion monitoring. 1: Checksum error for SI parameters for component assignment.

Remedy:

- Check the safety-relevant parameters and if required, correct.
- set the reference checksum to the actual checksum.
- carry out a POWER ON.
- carry out an acceptance test.

Note:
SI: Safety Integrated

C30681 SI Motion MM: Incorrect parameter value

Message value: Parameter: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The parameter value cannot be parameterized with this value.
 Note:
 This message does not result in a safety stop response.
 Fault value (r0949, interpret decimal):
 Parameter number with the incorrect value.

Remedy: Correct the parameter value.

F30682 SI Motion MM: Monitoring function not supported

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The monitoring function enabled in p9301, p9501, p9601 or p9801 is not supported in this firmware version.
 Note:
 This message does not result in a safety stop response.
 Fault value (r0949, interpret decimal):
 30: The firmware version of the Motor Module is older than the version of the Control Unit.

Remedy:

- De-select the monitoring function involved (p9301, p9301, p9303, p9601, p9801).
- Upgrade the Motor Module firmware.

See also: p9301 (SI Motion enable safety functions (Motor Module)), p9501 (SI Motion enable safety functions (Control Unit)), p9503 (SI Motion SCA (SN) enable (Control Unit)), p9601 (SI enable, functions integrated in the drive (Control Unit)), p9801 (SI enable, functions integrated in the drive (Motor Module))

F30683 SI Motion MM: SOS/SLS enable missing

Message value: -
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The safety-relevant basic function "SOS/SLS" is not enabled in p9301 although other safety-relevant monitoring functions are enabled.
 Note:
 This message does not result in a safety stop response.

Remedy: Enable the function "SOS/SLS" (p9301.0).
 Note:
 SI: Safety Integrated
 SLS: Safely-Limited Speed / SG: Safely reduced speed
 SOS: Safe Operating Stop / SBH: Safe operating stop
 See also: p9301 (SI Motion enable safety functions (Motor Module))

F30685	SI Motion MM: Safely-Limited Speed limit value too high
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The limit value for the function "Safely-Limited Speed" (SLS) is greater than the speed that corresponds to an encoder limit frequency of 500 kHz. Note: This message does not result in a safety stop response. Fault value (r0949, interpret decimal): Maximum permissible speed.
Remedy:	Correct the limit values for SLS and carry out a POWER ON. Note: SI: Safety Integrated SLS: Safely-Limited Speed / SG: Safely reduced speed See also: p9331 (SI Motion SLS limit values (Motor Module))
F30688	SI Motion MM: Actual value synchronization not permissible
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	- It is not permissible to enable actual value synchronization for a 1-encoder system. - It is not permissible to simultaneously enable the actual value synchronization and a monitoring function with absolute reference (SCA/SLP). Note: This fault results in a STOP A that cannot be acknowledged.
Remedy:	- Either select the "actual value synchronization" function or parameterize a 2-encoder system. - Either de-select the function "actual value synchronization" or the monitoring functions with absolute reference (SCA/SLP) and carry out a POWER ON. Note: SCA: Safe Cam / SN: Safe software cam SI: Safety Integrated SLP: Safely-Limited Position / SE: Safe software limit switches See also: p9501 (SI Motion enable safety functions (Control Unit))
C30700	SI Motion MM: STOP A initiated
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF2
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The drive is stopped via a STOP A (pulses are suppressed via the safety shutdown path of the Control Unit). Possible causes: - stop request from the Control Unit. - pulses not suppressed after a parameterized time (p9357) after test stop selection. - subsequent response to the message C30706 "SI Motion MM: Safe Acceleration Monitoring, limit exceeded". - subsequent response to the message C30714 "SI Motion MM: Safely-Limited Speed exceeded". - subsequent response to the message C30701 "SI Motion MM: STOP B initiated".

Remedy:

- remove the cause to the fault on the Control Unit.
- check the value in p9357, if required, increase the value.
- check the shutdown path of the Control Unit (check DRIVE-CLiQ communication).
- carry out a diagnostics routine for message C30706.
- carry out a diagnostics routine for message C30714.
- carry out a diagnostics routine for message C30701.
- replace Motor Module.
- replace Control Unit.

This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:
SI: Safety Integrated

C30701 SI Motion MM: STOP B initiated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF3

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP B (braking along the OFF3 ramp).
As a result of this fault, after the time parameterized in p9356 has expired, or the speed threshold parameterized in p9360 has been undershot, message C30700 "SI Motion MM: STOP A initiated" is output.
Possible causes:

- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion MM: Safely limited speed exceeded".
- subsequent response to the message C30711 "SI Motion MM: Defect in a monitoring channel".

Remedy:

- remove the fault cause in the control and carry out a POWER ON.
- carry out a diagnostics routine for message C01714.
- carry out a diagnostics routine for message C01711.

This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:
SI: Safety Integrated

C30706 SI Motion MM: Safe Acceleration Monitor limit exceeded

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: After initiating STOP B or STOP C, the velocity has exceeded the selected tolerance.
The drive is shut down by the message C30700 "SI Motion MM: STOP A initiated".

Remedy: Check the braking behavior, if required, adapt the tolerance for "Safe Acceleration Monitor".
This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:
SBR: Safe Acceleration Monitor
SI: Safety Integrated
See also: p9548 (SI Motion SBR actual velocity tolerance (Control Unit))

C30707 SI Motion MM: Tolerance for safe operating stop exceeded

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The actual position has distanced itself further from the target position than the standstill tolerance.
The drive is shut down by the message C30701 "SI Motion MM: STOP B initiated".

Remedy:

- check whether safety faults are present and if required carry out the appropriate diagnostic routines for the particular faults.
- check whether the standstill tolerance matches the accuracy and control dynamic performance of the axis.
- carry out a POWER ON.

This message can only be acknowledged in the acceptance test mode without POWER ON via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:

SI: Safety Integrated
 SOS: Safe Operating Stop / SBH: Safe operating stop
 See also: p9530 (SI Motion standstill tolerance (Control Unit))

C30708 SI Motion MM: STOP C initiated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: STOP2

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP C (braking along the OFF3 ramp).
 "Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
 Possible causes:

- stop request from the higher-level control.
- subsequent response to the message C30714 "SI Motion MM: Safely limited speed exceeded".

See also: p9552 (SI Motion transition time STOP C to SOS (SBH) (Control Unit))

Remedy:

- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:

SI: Safety Integrated
 SOS: Safe Operating Stop / SBH: Safe operating stop

C30709 SI Motion MM: STOP D initiated

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The drive is stopped via a STOP D (braking along the path).
 "Safe Operating Stop" (SOS) is activated after the parameterized timer has expired.
 Possible causes:

- stop request from the Control Unit.
- subsequent response to the message C30714 "SI Motion: Safely limited speed exceeded".

See also: p9353 (SI Motion transition time STOP D to SOS (Motor Module)), p9553 (SI Motion transition time STOP D to SOS (SBH) (Control Unit))

Remedy:

- remove the cause of the fault at the control.
- carry out a diagnostics routine for message C30714.

This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.

Note:

SI: Safety Integrated
 SOS: Safe Operating Stop / SBH: Safe operating stop

C30711	SI MM MM: Defect in a monitoring channel
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>When cross-checking and comparing the two monitoring channels, the drive detected a difference between the input data or results of the monitoring functions and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.</p> <p>If at least one monitoring function is active, then after the parameterized timer has expired, the message C30701 "SI Motion: STOP B initiated" is output. The message is output with message value 1031 when the Sensor Module hardware is replaced.</p> <p>Message value (r9749, interpret decimal):</p> <p>0 ... 999: Number of the cross-checked data that resulted in this message. Refer to safety message C01711 for a description of the individual data.</p> <p>The significance of the individual message values is described in safety message C01711 of the Control Unit.</p> <p>1000: Watchdog timer has expired. Too many signal changes have occurred at safety-relevant inputs.</p> <p>1001: Initialization error of watchdog timer.</p> <p>1005: Pulses already suppressed for test stop selection.</p> <p>1011: Acceptance test status between the monitoring channels differ.</p> <p>1012: Plausibility violation of the actual value from the encoder.</p> <p>1020: Cyc. communication failure between the monit. cycles.</p> <p>1021: Cyc. communication failure between the monit. channel and Sensor Module.</p> <p>1023: Error during the effectivity test in the Sensor Module</p> <p>1030: Encoder fault detected from another monitoring channel.</p> <p>1031: Data transfer error between the monitoring channel and the Sensor Module.</p> <p>5000 ... 5140: PROFIsafe message values.</p> <p>The significance of the individual message values is described in safety message C01711 of the Control Unit.</p> <p>6000 ... 6166: PROFIsafe message values (PROFIsafe driver for PROFIBUS DP V1/V2 and PROFINET).</p> <p>The significance of the individual message values is described in safety message C01711 of the Control Unit.</p> <p>See also: p9555 (SI Motion transition time STOP F to STOP B (Control Unit)), r9725 (SI Motion, diagnostics STOP F)</p>
Remedy:	<p>Re message value = 1030:</p> <ul style="list-style-type: none"> - check the encoder connection. - if required, replace the encoder. <p>Re message value = 1031:</p> <p>When replacing a Sensor Module, carry out the following steps:</p> <ul style="list-style-type: none"> - start the copy function for the node identifier on the drive (p9700 = 1D hex). - acknowledge the hardware CRC on the drive (p9701 = EC hex). - save all parameters (p0977 = 1). - carry out a POWER ON (power off/on) for all components. <p>The following always applies:</p> <ul style="list-style-type: none"> - check the encoder connection. - if required, replace the encoder. <p>Re other message values:</p> <ul style="list-style-type: none"> - The significance of the individual message values is described in safety message C01711 of the Control Unit. <p>Note:</p> <p>This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.</p> <p>See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))</p>

C30712	SI Motion MM: Defect in F-IO processing
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>When cross checking and comparing the two monitoring channels, the drive detected a difference between parameters or results of the F-IO processing and initiated a STOP F. One of the monitoring functions no longer reliably functions - i.e. safe operation is no longer possible.</p> <p>Message C30711 with fault ID 0 is additionally displayed due to the fact that a Stop F is initiated.</p> <p>If at least one monitoring function is active, then after the parameterized timer has expired, the message C30701 "SI Motion: STOP B initiated" is output. The number of the cross-checked data that resulted in this fault is displayed in message value (r9749, interpret decimal).</p> <p>For a description of the message words, refer to message C01712</p>
Remedy:	<p>Check the correct parameterization in the parameters involved and if required, correct.</p> <p>Ensure equality by copying the SI data to the 2nd channel and then carry out an acceptance test</p> <p>Check for the same monitoring clock cycle in p9500 and p9300.</p> <p>Note:</p> <p>This message can be acknowledged via F-DI or PROFIsafe.</p> <p>See also: p9300 (SI Motion monitoring clock cycle (Motor Module)), p9500 (SI Motion monitoring clock cycle (Control Unit))</p>
C30714	SI Motion MM: Safely-Limited Speed exceeded
Message value:	%1
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	NONE
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	<p>The drive had moved faster than that specified by the velocity limit value (p9331). The drive is stopped as a result of the configured stop response (p9363).</p> <p>Message value (r9749, interpret decimal):</p> <p>100: SLS1 exceeded.</p> <p>200: SLS2 exceeded.</p> <p>300: SLS3 exceeded.</p> <p>400: SLS4 exceeded.</p> <p>1000: Encoder limit frequency exceeded.</p>
Remedy:	<p>- check the traversing/motion program in the control.</p> <p>- check the limits for "Safely-Limited Speed" (SLS) and if required, adapt (p9331).</p> <p>This message can only be acknowledged via the Terminal Module 54F (TM54F) or PROFIsafe.</p> <p>Note:</p> <p>SI: Safety Integrated</p> <p>SLS: Safely-Limited Speed / SG: Safely reduced speed</p> <p>See also: p9331 (SI Motion SLS limit values (Motor Module)), p9363 (SI Motion SLS stop response (Motor Module))</p>

C30770 **SI Motion MM: Discrepancy error of the fail-safe inputs or outputs**

Message value: %1

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The safety input terminals or output terminals show a different state longer than that parameterized in p10002 (or p10102).
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
xxxx:
The safety-relevant input terminals F-DI indicate a discrepancy.
Bit 0: Discrepancy for F-DI 0
Bit 1: Discrepancy for F-DI 1
...
yyyy:
The safety-relevant output terminals F-DO indicate a discrepancy.
Bit 0: Discrepancy for F-DO 0
...
Note:
If several discrepancy errors occur consecutively, then this fault is only signaled for the first error that occurs.

Remedy: - Check the wiring of the F-DI (contact problems).
- carry out safe acknowledgement (p10106).
Note:
Discrepancy error of an F-DI can only be completely acknowledged if safe acknowledgement was carried out once the cause of the error was resolved (p10106). As long as safety acknowledgement was not carried out, the corresponding F-DI stays in the safe state.
F-DI: Failsafe Digital Input
F-DO: Failsafe Digital Output

C30798 **SI Motion MM: Test stop running**

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The test stop is active.

Remedy: None necessary.
The message is withdrawn when the test stop is finished.
Note:
SI: Safety Integrated

C30799 **SI Motion MM: Acceptance test mode active**

Message value: -

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: NONE

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The acceptance test mode is active. The POWER ON signals of the safety-relevant motion monitoring functions can be acknowledged during the acceptance test using the acknowledgement functions of the higher-level control.

Remedy: None necessary.
The message is withdrawn when exiting the acceptance test mode.
Note:
SI: Safety Integrated

N30800 (F) Power unit: Group signal

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: NONE
Cause: The power unit has detected at least one fault.
Remedy: Evaluates other current messages.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F30801 Power unit DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit involved.
 The computing time load might be too high.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 0A hex:
 The sign-of-life bit in the receive telegram is not set.
Remedy:

- check the electrical cabinet design and cable routing for EMC compliance
- remove DRIVE-CLiQ components that are not required.
- de-select functions that are not required.
- if required, increase the sampling times (p0112, p0115).
- replace the component involved.

F30802 Power unit: Time slice overflow

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Time slice overflow.
Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

A30804 (F) Power unit: CRC

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: CRC error actuator
Remedy:

- carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

Reaction upon F: OFF2 (OFF1, OFF3)
Acknowl. upon F: IMMEDIATELY

F30805 Power unit: EPROM checksum error

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.

F30809 Power unit: Switching information not valid

Message value: -
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: For 3P gating unit:
The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.

A30810 (F) Power unit: Watchdog timer

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
Remedy: - carry out a POWER ON (power off/on) for all components.
- upgrade firmware to later version.
- contact the Hotline.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY

F30850 Power unit: Internal software error

Message value: %1
Drive object: All objects
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: An internal software error in the power unit has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - replace power unit.
- if required, upgrade the firmware in the power unit.
- contact the Hotline.

F30899 (N, A) Power unit: Unknown fault

Message value: New message: %1
Drive object: All objects
Reaction: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
 Fault value (r0949, interpret decimal):
 Fault number.
 Note:
 If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the power unit by an older firmware version (r0128).
 - upgrade the firmware on the Control Unit (r0018).
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F30903 Power unit: I2C bus error occurred

Message value: %1
Drive object: All objects
Reaction: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: Communications error with an EEPROM or A/D converter.
 Fault value (r0949, interpret hexadecimal):
 80000000 hex:
 - internal software error.
 00000001 hex ... 0000FFFF hex:
 - module fault.
Remedy: Re fault value = 80000000 hex:
 - upgrade firmware to later version.
 Re fault value = 00000001 hex ... 0000FFFF hex:
 - replace the module.

F30907 Power unit: FPGA configuration unsuccessful

Message value: -
Drive object: All objects
Reaction: OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: For the initialization within the power unit, an internal software error has occurred.
Remedy: - if required, upgrade the firmware in the power unit.
 - replace power unit.
 - contact the Hotline.

A30920 (F) Power unit: Temperature sensor fault

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
 Alarm value (r2124, interpret decimal):
 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm, PT100: R > 375 Ohm).
 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT100: R < 30 Ohm).

Remedy: - make sure that the sensor is connected correctly.
 - replace the sensor.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY

A30999 (F, N) Power unit: Unknown alarm

Message value: New message: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
 Alarm value (r2124, interpret decimal):
 Alarm number.
Note:
 If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.

Remedy: - replace the firmware on the power unit by an older firmware version (r0128).
 - upgrade the firmware on the Control Unit (r0018).

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F31100 (N, A) Encoder 1: Zero mark distance error

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance. For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Fault value (r0949, interpret decimal):
 Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
 The sign designates the direction of motion when detecting the zero mark distance.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 . check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the distance between zero marks (p0424, p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).
 - replace the encoder or encoder cable.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31101 (N, A) Encoder 1: Zero marked failed

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The 1.5 x parameterized zero mark distance was exceeded.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Fault value (r0949, interpret decimal):
 Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).
 - when p0437.1 is active, check p4686.
 - replace the encoder or encoder cable.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31103 (N, A) Encoder 1: Amplitude error, track R

Message value: R track: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The amplitude of the reference track signal (track R) does not lie within the tolerance bandwidth for encoder 1.
 The fault can be initiated when the unipolar voltage range is exceeded or the differential amplitude is initiated.
 Fault value (r0949, interpret hexadecimal):
 xxxx hex:
 xxxx = Signal level, track R (16 bits with sign).
 The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
 The response threshold is < 1700 mV and > 3300 mV.
 The nominal differential signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response threshold is > 750 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
 The analog value of the amplitude error is not measured at the same time with the hardware fault output by the sensor module.
 The signal level is not evaluated unless the following conditions are satisfied:
 - Sensor Module properties available (r0459.30 = 1, r0459.31 = 1).
 - monitoring active (p0437.30 = 1, p0437.31 = 1).
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment may not be sufficient for the speed range.
 - check that the encoder cables and shielding are routed in compliance with EMC.
 - check the plug connections and contacts of the encoder cable.
 - check whether the zero mark is connected and the signal cables RP and RN connected correctly.
 - replace the encoder cable.
 - if the coding disk is soiled or the lighting worn, replace the encoder.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31110 (N, A)	Encoder 1: Serial communications error
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	ENCODER (IASC/DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	<p>Serial communication protocol transfer error between the encoder and evaluation module.</p> <p>Fault value (r0949, interpret binary):</p> <p>Bit 0: Alarm bit in the position protocol.</p> <p>Bit 1: Incorrect quiescent level on the data line.</p> <p>Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).</p> <p>Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.</p> <p>Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.</p> <p>Bit 5: Internal error in the serial driver: An illegal mode command was requested.</p> <p>Bit 6: Timeout when cyclically reading.</p> <p>Bit 8: Protocol is too long (e.g. > 64 bits).</p> <p>Bit 9: Receive buffer overflow.</p> <p>Bit 10: Frame error when reading twice.</p> <p>Bit 11: Parity error.</p> <p>Bit 12: Data line signal level error during the monoflop time.</p> <p>Bit 13: Data line incorrect.</p>
Remedy:	<p>Re fault value, bit 0 = 1:</p> <ul style="list-style-type: none"> - Enc defect F31111 may provide additional details. <p>Re fault value, bit 1 = 1:</p> <ul style="list-style-type: none"> - Incorrect encoder type / replace the encoder or encoder cable. <p>Re fault value, bit 2 = 1:</p> <ul style="list-style-type: none"> - Incorrect encoder type / replace the encoder or encoder cable. <p>Re fault value, bit 3 = 1:</p> <ul style="list-style-type: none"> - EMC / connect the cable shield, replace the encoder or encoder cable. <p>Re fault value, bit 4 = 1:</p> <ul style="list-style-type: none"> - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. <p>Re fault value, bit 5 = 1:</p> <ul style="list-style-type: none"> - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. <p>Re fault value, bit 6 = 1:</p> <ul style="list-style-type: none"> - Update Sensor Module firmware. <p>Re fault value, bit 8 = 1:</p> <ul style="list-style-type: none"> - Check parameterization (p0429.2). <p>Re fault value, bit 9 = 1:</p> <ul style="list-style-type: none"> - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module. <p>Re fault value, bit 10 = 1:</p> <ul style="list-style-type: none"> - Check parameterization (p0429.2, p0449). <p>Re fault value, bit 11 = 1:</p> <ul style="list-style-type: none"> - Check parameterization (p0436). <p>Re fault value, bit 12 = 1:</p> <ul style="list-style-type: none"> - Check parameterization (p0429.6). <p>Re fault value, bit 13 = 1:</p> <ul style="list-style-type: none"> - Check data line.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31111 (N, A) Encoder 1: Absolute encoder EnDat, internal fault/error

Message value: Fault cause: %1 bin

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: The EnDat encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit 0: Lighting system failed.
 Bit 1: Signal amplitude too low.
 Bit 2: Position value incorrect.
 Bit 3: Encoder power supply overvoltage condition.
 Bit 4: Encoder power supply undervoltage condition.
 Bit 5: Encoder power supply overcurrent condition.
 Bit 6: The battery must be changed.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Re fault value, bit 0 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 1 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 2 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 3 = 1:
 5 V power supply voltage fault.
 When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
 When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
 Re fault value, bit 4 = 1:
 5 V power supply voltage fault.
 When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
 When using a motor with DRIVE-CLiQ: Replace the motor.
 Re fault value, bit 5 = 1:
 Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
 Re fault value, bit 6 = 1:
 The battery must be changed (only for encoders with battery back-up).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31112 (N, A) Encoder 1: Error bit set in the serial protocol

Message value: %1

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: The encoder sends a set error bit via the serial protocol.
 Fault value (r0949, interpret binary):
 Bit 0: Fault bit in the position protocol.

Remedy: For fault value, bit 0 = 1:
 In the case of an EnDat encoder, F31111 may provide further details.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31115 (N, A) Encoder 1: Amplitude error track A or B ($A^2 + B^2$)

Message value: A track: %1, B-track: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The amplitude (root of $A^2 + B^2$) for encoder 1 exceeds the permissible tolerance.
 Fault value (r0949, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Signal level, track B (16 bits with sign).
 xxxx = Signal level, track A (16 bits with sign).
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
 Note for sensors modules for resolvers (e. g. SMC10):
 The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
 A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
 The analog values of the amplitude error are not measured at the same time with the hardware fault output by the sensor module.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - check that the encoder cables and shielding are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check the Sensor Module (e.g. contacts).
 - with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel.
 - for measuring systems with their own bearing system: Ensure that the encoder housing is not subject to any axial force.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31116 (N, A) Encoder 1: Amplitude error monitoring track A + B

Message value: A track: %1, B-track: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: The amplitude of the rectified encoder signals A and B and the amplitude from the roots of $A^2 + B^2$ for encoder 1 are not within the tolerance bandwidth.
 Fault value (r0949, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Signal level, track B (16 bits with sign).
 xxxx = Signal level, track A (16 bits with sign).
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response thresholds are < 176 mV (observe the frequency response of the encoder) and > 955 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
 The analog values of the amplitude error are not measured at the same time with the hardware fault output by the sensor module.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - check that the encoder cables and shielding are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check the Sensor Module (e.g. contacts).
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31117 (N, A) Encoder 1: Inversion error signals A and B and R

Message value: -

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: For a square-wave signal encoder (TTL. bipolar. double ended) the A* and B* and R* signals are not inverted with respect to signals A and B and R.
 Note:
 For SMC30 (order nos. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:
 A squarewave encoder without track R is used and the track monitoring (p0405.2 = 1) is activated.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check the setting of p0405: p0405.2 = 1 is only possible if the encoder is connected at X520.
 - check the encoder/cable: Does the encoder supply TTL signals and the associated inverted signals?
 Note:
 For a squarewave encoder without track R, the following jumpers must be set at the encoder connection:
 - pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
 - pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31118 (N, A) Encoder 1: Speed difference outside the tolerance range

Message value: %1

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Encoder 1 is used as motor encoder and can be effective has fault response to change over to encoderless operation.
 Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
 See also: p0491 (Motor encoder fault response ENCODER), p0492 (Square-wave encoder, maximum speed difference per sampling cycle)

Remedy: - check the tachometer feeder cable for interruptions.
 - check the grounding of the tachometer shielding.
 - if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31120 (N, A) Encoder 1: Power supply voltage fault

Message value: Fault cause: %1 bin

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: Encoder 1 power supply voltage fault.
 Note:
 If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
 Fault value (r0949, interpret binary):
 Bit 0: Undervoltage condition on the sense line.
 Bit 1: Overcurrent condition for the encoder power supply.
 Bit 2: Undervoltage for the Sensor Module power supply (SMx).
 Bit 3: Overvoltage for the Sensor Module power supply (SMx).
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: For fault value, bit 0 = 1:
 - correct encoder cable connected?
 - check the plug connections of the encoder cable.
 - SMC30: Check the parameterization (p0404.22).
 For fault value, bit 1 = 1:
 - correct encoder cable connected?
 - replace the encoder or encoder cable.
 For fault value, bit 2 = 1:
 - DRIVE-CLiQ cable too long?

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31121 (N, A) Encoder 1: Coarse position error

Message value: -
Drive object: All objects
Reaction: ENCODER (NONE)
Acknowledge: PULSE INHIBIT
Cause: For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31122 Encoder 1: Internal power supply voltage fault

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (ENCODER)
Acknowledge: IMMEDIATELY
Cause: Fault in internal reference voltage of ASICs for encoder 1.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F31123 (N, A) Encoder 1: Signal level A/B unipolar outside tolerance

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The unipolar level (AP/AN or BP/BN) for encoder 1 is outside the permissible tolerance.
 Fault value (r0949, interpret binary):
 Bit 0 = 1: Either AP or AN outside the tolerance.
 Bit 16 = 1: Either BP or BN outside the tolerance.
 The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
 The response thresholds are < 1700 mV and > 3300 mV.
Note:
 The signal level is not evaluated unless the following conditions are satisfied:
 - Sensor Module properties available (r0459.31 = 1).
 - Monitoring active (p0437.31 = 1).
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31129 (N, A) Encoder 1: Position difference, hall sensor/track C/D and A/B too large

Message value: %1

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: PULSE INHIBIT

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.

One period of track C/D corresponds to 360 ° mechanical.

One period of the Hall signal corresponds to 360 ° electrical.

The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.

After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429.

Fault value (r0949, interpret decimal):

For track C/D, the following applies:

Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).

For Hall signals, the following applies:

Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31130 (N, A) Encoder 1: Zero mark and position error from the coarse synchronization

Message value: Angular deviation, electrical: %1, angle, mechanical: %2

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: PULSE INHIBIT

Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.

When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.

When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex

yyyy: Determined mechanical zero mark position (can only be used for track C/D).

xxxx: Deviation of the zero mark from the expected position as electrical angle.

Normalization: 32768 dec = 180 °

See also: p0491 (Motor encoder fault response ENCODER)

- Remedy:**
- Check p0431 and, if necessary, correct (trigger via p1990 = 1 if necessary).
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - if the Hall sensor is used as an equivalent for track C/D, check the connection.
 - Check the connection of track C or D.
 - replace the encoder or encoder cable.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31131 (N, A) Encoder 1: Deviation, position incremental/absolute too large

Message value: %1

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowledge: PULSE INHIBIT

Cause: Absolute encoder:

When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.

Limit value for the deviation:

- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQ1 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

See also: p0491 (Motor encoder fault response ENCODER)

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check whether the coding disk is dirty or there are strong ambient magnetic fields.
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31135	Encoder 1: Fault when determining the position
Message value:	Fault cause: %1 bin
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	ENCODER (IASC/DCBRAKE, NONE)
Acknowledge:	PULSE INHIBIT
Cause:	<p>The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.</p> <p>Fault value (r0949, interpret binary):</p> <ul style="list-style-type: none"> Bit 0: F1 (safety status display) Bit 1: F2 (safety status display) Bit 2: Lighting (reserved) Bit 3: Signal amplitude (reserved) Bit 4: Position value (reserved) Bit 5: Overvoltage (reserved) Bit 6: Undervoltage (reserved) Bit 7: Overcurrent (reserved) Bit 8: Battery (reserved) Bit 16: Lighting (--> F3x135, x = 1, 2, 3) Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3) Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3) Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3) Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3) Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3) Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3) Bit 23: Singleturn position 2 (safety status display) Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3) Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3) Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3) Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3) Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3) Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3) Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3) Bit 31: Multiturn battery (reserved)
Remedy:	Replace DRIVE-CLiQ encoder.

F31136 Encoder 1: Error when determining multiturn information

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display)
Bit 1: F2 (safety status display)
Bit 2: Lighting (reserved)
Bit 3: Signal amplitude (reserved)
Bit 4: Position value (reserved)
Bit 5: Overvoltage (reserved)
Bit 6: Undervoltage (reserved)
Bit 7: Overcurrent (reserved)
Bit 8: Battery (reserved)
Bit 16: Lighting (--> F3x135, x = 1, 2, 3)
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3)
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3)
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3)
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3)
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3)
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3)
Bit 23: Singleturn position 2 (safety status display)
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3)
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3)
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3)
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3)
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3)
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3)
Bit 31: Multiturn battery (reserved)
Remedy: Replace DRIVE-CLiQ encoder.

F31137 Encoder 1: Internal error when determining the position

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Only for internal SIEMENS use.
Remedy: Replace encoder

F31138 Encoder 1: Internal error when determining multiturn information

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Fault value (r0949, interpret binary):
Only for internal SIEMENS use.
Remedy: Replace encoder

F31150 (N, A) Encoder 1: Initialization error

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Encoder functionality selected in p0404 is not operating correctly.
 Fault value (r0949, interpret hexadecimal):
 The fault value is a bit field. Every set bit indicates functionality that is faulted.
 The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
 See also: p0404 (Encoder configuration effective), p0491 (Motor encoder fault response ENCODER)
Remedy:
 - Check that p0404 is correctly set.
 - check the encoder type used (incremental/absolute value) and for SMCxx, the encoder cable.
 - if relevant, note additional fault messages that describe the fault in detail.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31151 (N, A) Encoder 1: Encoder speed for initialization AB too high

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high during while initializing the sensor.
Remedy: Reduce the speed of the encoder accordingly during initialization.
 If necessary, deactivate monitoring (p0437.29).
 See also: p0437 (Sensor Module configuration extended)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A31400 (F, N) Encoder 1: Alarm threshold zero mark distance error

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
 For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Alarm value (r2124, interpret decimal):
 Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
 The sign designates the direction of motion when detecting the zero mark distance.
Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the distance between zero marks (p0424, p0425).
 - replace the encoder or encoder cable.
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31401 (F, N)	Encoder 1: Alarm threshold zero marked failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - replace the encoder or encoder cable.
Reaction upon F:	NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31405 (N, A)	Encoder 1: Temperature in the encoder evaluation inadmissible
Message value:	%1
Drive object:	All objects
Reaction:	ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature. The fault threshold is 125 ° C. Alarm value (r2124, interpret decimal): Measured board/module temperature in 0.1 °C.
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A31410 (F, N)	Encoder 1: Serial communications
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Alarm value (r2124, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it. Bit 5: Internal error in the serial driver: An illegal mode command was requested. Bit 6: Timeout when cyclically reading. Bit 8: Protocol is too long (e.g. > 64 bits). Bit 9: Receive buffer overflow. Bit 10: Frame error when reading twice. Bit 11: Parity error. Bit 12: Data line signal level error during the monoflop time.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31411 (F, N) Encoder 1: EnDat encoder signals alarms

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The error word of the EnDat encoder has alarm bits that have been set.
 Alarm value (r2124, interpret binary):
 Bit 0: Frequency exceeded (speed too high).
 Bit 1: Temperature exceeded.
 Bit 2: Control reserve, lighting system exceeded.
 Bit 3: Battery discharged.
 Bit 4: Reference point passed.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Replace encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31412 (F, N) Encoder 1: Error bit set in the serial protocol

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The encoder sends a set error bit via the serial protocol.
 Alarm value (r2124, interpret binary):
 Bit 0: Fault bit in the position protocol.
 Bit 1: Alarm bit in the position protocol.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31414 (F, N) Encoder 1: Amplitude error track C or D (C² + D²)

Message value: C track: %1, D track: %2
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (C² + D²) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
 Alarm value (r2124, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Signal level, track D (16 bits with sign).
 xxxx = Signal level, track C (16 bits with sign).
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
 Note:
 If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check the Sensor Module (e.g. contacts).
 - check the Hall sensor box
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

N31415 (F, A) Encoder 1: Amplitude alarm track A or B (A² + B²)

Message value: Amplitude: %1, Angle: %2
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (root of A² + B²) for encoder 1 exceeds the permissible tolerance.
 Alarm value (r2124, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Angle
 xxxx = Amplitude, i.e. root from A² + B² (16 bits without sign)
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response threshold is < 300 mV (observe the frequency response of the encoder).
 A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
 The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
 Note for sensors modules for resolvers (e. g. SMC10):
 The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
 A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
 Note:
 The analog values of the amplitude error are not measured at the same time with the hardware fault output by the sensor module.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
 - check that the encoder cables and shielding are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check the Sensor Module (e.g. contacts).
 - if the coding disk is soiled or the lighting worn, replace the encoder.
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A31418 (F, N) Encoder 1: Speed difference per sampling rate exceeded

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. See also: p0492 (Square-wave encoder, maximum speed difference per sampling cycle)
Remedy: - check the tachometer feeder cable for interruptions.
 - check the grounding of the tachometer shielding.
 - if required, increase the setting of p0492.
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31419 (F, N) Encoder 1: Track A or B outside the tolerance range

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude, phase or offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
 Phase: <84 degrees or >96 degrees
 SMC20: Offset correction: +/-140 mV
 SMC10: Offset correction: +/-650 mV
 Alarm value (r2124, interpret hexadecimal):
 xxxx1: Minimum of the offset correction, track B
 xxxx2: Maximum of the offset correction, track B
 xxx1x: Minimum of the offset correction, track A
 xxx2x: Maximum of the offset correction, track A
 xx1xx: Minimum of the amplitude correction, track B/A
 xx2xx: Maximum of the amplitude correction, track B/A
 x1xxx: Minimum of the phase error correction
 x2xxx: Maximum of the phase error correction
 1xxxx: Minimum of the cubic correction
 2xxxx: Maximum of the cubic correction
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
 - check the plug connections (also the transition resistance).
 - check the encoder signals.
 - replace the encoder or encoder cable.
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31421 (F, N) Encoder 1: Coarse position error

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
 Alarm value (r2124, interpret decimal):
 3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy: Re alarm value = 3:
 - for a standard encoder with cable, if required, contact the manufacturer.
 - correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31429 (F, N) Encoder 1: Position difference, hall sensor/track C/D and A/B too large

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
 One period of track C/D corresponds to 360 ° mechanical.
 One period of the Hall signal corresponds to 360 ° electrical.
 The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
 Alarm value (r2124, interpret decimal):
 For track C/D, the following applies:
 Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
 For Hall signals, the following applies:
 Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - track C or D not connected.
 - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
 - check that the encoder cables are routed in compliance with EMC.
 - check the adjustment of the Hall sensor.
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31431 (F, N)	Encoder 1: Deviation, position incremental/absolute too large
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark. For distance-coded zero marks, the following applies: - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair. Alarm value (r2124, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants). See also: p0491 (Motor encoder fault response ENCODER)
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - Clean coding disk or remove strong magnetic fields.
Reaction upon F:	NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A31432 (F, N)	Encoder 1: Rotor position adaptation corrects deviation
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of the zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F31500 (N, A)	Encoder 1: Position tracking traversing range exceeded
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions. For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421. For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

Remedy: The fault should be resolved as follows:
 - select encoder commissioning (p0010 = 4).
 - reset the position tracking as follows (p0411.2 = 1).
 - de-select encoder commissioning (p0010 = 0).
 The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31501 (N, A) Encoder 1: Position tracking encoder position outside tolerance window

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
 Fault value (r0949, decimal):
 Deviation (difference) to the last encoder position in increments of the absolute value.
 The sign designates the traversing direction.
Note:
 The deviation (difference) found is also displayed in r0477.

Remedy: Reset the position tracking as follows:
 - select encoder commissioning (p0010 = 4).
 - reset the position tracking as follows (p0411.2 = 1).
 - de-select encoder commissioning (p0010 = 0).
 The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
 See also: p0010 (Drive commissioning parameter filter), p2507 (LR absolute encoder adjustment status)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

N31800 (F) Encoder 1: Group signal

Message value: -
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Evaluates other current messages.

Reaction upon F: ENCODER (IASC/DCBRAKE, NONE)
 Acknowl. upon F: IMMEDIATELY

F31801 (N, A) Encoder 1 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 0A hex:
 The sign-of-life bit in the receive telegram is not set.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
 - replace the component involved.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31802 (N, A) Encoder 1: Time slice overflow

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: Time slice overflow, encoder 1.
 Fault value (r0949, interpret decimal):
 9: Time slice overflow of the fast (current controller clock cycle) time slice.
 10: Time slice overflow of the average time slice.
 12: Time slice overflow of the slow time slice.
 999: Timeout when waiting for SYNO, e.g. unexpected return to non-cyclic operation.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Reduce the current controller frequency.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31804 (N, A) Encoder 1: Checksum error

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
 Fault value (r0949, interpret hexadecimal):
 yyyyxxxx hex
 yyyy: Memory area involved.
 xxxx: Difference between the checksum at POWER ON and the current checksum.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - check whether the permissible ambient temperature for the component is maintained.
 - replace the Sensor Module.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31805 (N, A) Encoder 1: EPROM checksum error

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31806 (N, A) Encoder 1: Initialization error

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
1, 2, 3: Encoder initialization with the motor rotating.
See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Acknowledge the fault.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31811 (F, N) Encoder 1: Encoder serial number changed

Message value: -
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
Cause 1:
The encoder was replaced.
Cause 2:
A third-party, build-in or linear motor was re-commissioned.
Cause 3:
The motor with integrated and adjusted encoder was replaced.
Cause 4:
The firmware was updated to a version that checks the encoder serial number.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Re causes 1, 2:
 Carry out an automatic adjustment using the pole position identification routine. First, accept the serial number with p0440 = 1. Acknowledge the fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.
 SERVO:
 If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
 or
 Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
 or
 Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
 Re causes 3, 4:
 Accept the new serial number with p0440 = 1.

Reaction upon F: NONE (ENCODER, OFF2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.
 Alarm value (r2124, interpret decimal):
 0: Application cycle is not supported.
 1: DQ cycle is not supported.
 2: Distance between RX and TX instants in time too low.
 3: TX instant in time too early.

Remedy:

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31813 Encoder 1: Hardware logic unit failed

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit 0: ALU watchdog has responded.
 Bit 1: ALU has detected a sign-of-life error.

Remedy: Replace encoder

F31820 (N, A) Encoder 1 DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 01 hex:
 CRC error
 xx = 02 hex:
 Telegram is shorter than specified in the length byte or in the receive list.
 xx = 03 hex:
 Telegram is longer than specified in the length byte or in the receive list.
 xx = 04 hex:
 The length of the receive telegram does not match the receive list.
 xx = 05 hex:
 The type of the receive telegram does not match the receive list.
 xx = 06 hex:
 The address of the component in the telegram and in the receive list do not match.
 xx = 07 hex:
 A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
 xx = 08 hex:
 No SYNC telegram is expected - but the received telegram is one.
 xx = 09 hex:
 The error bit in the receive telegram is set.
 xx = 10 hex:
 The receive telegram is too early.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - carry out a POWER ON.
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31835 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Drive object: All objects

Reaction: ENCODER (IASC/DCBRAKE, NONE)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. The nodes do not send and receive in synchronism.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 21 hex:
 The cyclic telegram has not been received.
 xx = 22 hex:
 Timeout in the telegram receive list.
 xx = 40 hex:
 Timeout in the telegram send list.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - carry out a POWER ON.
 - replace the component involved.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31836 (N, A) Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 41 hex:
 Telegram type does not match send list.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: Carry out a POWER ON.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 20 hex:
 Error in the telegram header.
 xx = 23 hex:
 Receive error: The telegram buffer memory contains an error.
 xx = 42 hex:
 Send error: The telegram buffer memory contains an error.
 xx = 43 hex:
 Send error: The telegram buffer memory contains an error.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 - check the electrical cabinet design and cable routing for EMC compliance
 - if required, use another DRIVE-CLiQ socket (p9904).
 - replace the component involved.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31845 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 0B hex:
 Synchronization error during alternating cyclic data transfer.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: Carry out a POWER ON.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31850 (N, A) Encoder 1: Encoder evaluation, internal software error

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: POWER ON
Cause: Internal software error in the Sensor Module of encoder 1.
 Fault value (r0949, interpret decimal):
 1: Background time slice is blocked.
 2: Checksum over the code memory is not OK.
 10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
 11000 - 11499: Descriptive data from EEPROM incorrect.
 11500 - 11899: Calibration data from EEPROM incorrect.
 11900 - 11999: Configuration data from EEPROM incorrect.
 16000: DRIVE-CLiQ encoder initialization application error.
 16001: DRIVE-CLiQ encoder initialization ALU error.
 16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
 16003: DRIVE-CLiQ encoder safety initialization error.
 16004: DRIVE-CLiQ encoder internal system error.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - replace the Sensor Module.
 - if required, upgrade the firmware in the Sensor Module.
 - contact the Hotline.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31851 (N, A) Encoder 1 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
 The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 0A hex = 10 dec:
 The sign-of-life bit in the receive telegram is not set.

Remedy: Upgrade the firmware of the component involved.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31860 (N, A) Encoder 1 DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 11 hex = 17 dec:
 CRC error and the receive telegram is too early.
 xx = 01 hex = 01 dec:
 Checksum error (CRC error).
 xx = 12 hex = 18 dec:
 The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
 xx = 02 hex = 02 dec:
 Telegram is shorter than specified in the length byte or in the receive list.
 xx = 13 hex = 19 dec:
 The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
 xx = 03 hex = 03 dec:
 Telegram is longer than specified in the length byte or in the receive list.
 xx = 14 hex = 20 dec:
 The length of the receive telegram does not match the receive list and the receive telegram is too early.
 xx = 04 hex = 04 dec:
 The length of the receive telegram does not match the receive list.
 xx = 15 hex = 21 dec:
 The type of the receive telegram does not match the receive list and the receive telegram is too early.
 xx = 05 hex = 05 dec:
 The type of the receive telegram does not match the receive list.
 xx = 16 hex = 22 dec:
 The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
 xx = 06 hex = 06 dec:
 The address of the power unit in the telegram and in the receive list do not match.
 xx = 19 hex = 25 dec:
 The error bit in the receive telegram is set and the receive telegram is too early.
 xx = 09 hex = 09 dec:
 The error bit in the receive telegram is set.
 xx = 10 hex = 16 dec:
 The receive telegram is too early.

Remedy:
 - carry out a POWER ON.
 - check the electrical cabinet design and cable routing for EMC compliance
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31885 (N, A) Encoder 1 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. The nodes do not send and receive in synchronism.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 1A hex = 26 dec:
 Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
 xx = 21 hex = 33 dec:
 The cyclic telegram has not been received.
 xx = 22 hex = 34 dec:
 Timeout in the telegram receive list.
 xx = 40 hex = 64 dec:
 Timeout in the telegram send list.
 xx = 62 hex = 98 dec:
 Error at the transition to cyclic operation.
Remedy:
 - check the power supply voltage of the component involved.
 - carry out a POWER ON.
 - replace the component involved.
 See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31886 (N, A) Encoder 1 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. Data were not able to be sent.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 41 hex:
 Telegram type does not match send list.
Remedy:
 - carry out a POWER ON.
 - check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31887 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	ENCODER (IASC/DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 20 hex: Error in the telegram header. xx = 23 hex: Receive error: The telegram buffer memory contains an error. xx = 42 hex: Send error: The telegram buffer memory contains an error. xx = 43 hex: Send error: The telegram buffer memory contains an error. xx = 60 hex: Response received too late during runtime measurement. xx = 61 hex: Time taken to exchange characteristic data too long.
Remedy:	- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). - check the electrical cabinet design and cable routing for EMC compliance - if required, use another DRIVE-CLiQ socket (p9904). - replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31895 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Alternating cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	ENCODER (IASC/DCBRAKE, NONE)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 0B hex: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F31896 (N, A)	Encoder 1 DRIVE-CLiQ (CU): Inconsistent component properties
Message value:	Component number: %1
Drive object:	All objects
Reaction:	OFF2 (ENCODER, IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.

Remedy:

- when replacing cables, only use cables with the same length as the original cables.
- when replacing components, use the same components and firmware releases.
- carry out a POWER ON.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F31899 (N, A) Encoder 1: Unknown fault

Message value: New message: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
 Fault value (r0949, interpret decimal):
 Fault number.

Note:
 If required, the significance of this new fault can be read about in a more recent description of the Control Unit. See also: p0491 (Motor encoder fault response ENCODER)

Remedy:

- replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A31902 (F, N) Encoder 1: SPI-BUS error occurred

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A31903 (F, N) Encoder 1: I2C-BUS error occurred

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy: - replace the Sensor Module.
 - if required, upgrade the firmware in the Sensor Module.
 - contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F31905 (N, A) Encoder 1: Parameterization error

Message value: Parameter: %1, supplementary information: %2
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 1 was detected as being incorrect.
 It is possible that the parameterized encoder type does not match the connected encoder.
 The parameter involved can be determined as follows:
 - determine the parameter number using the fault value (r0949).
 - determine the parameter index (p0187).
 Fault value (r0949, interpret decimal):
 yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
 Supplementary information = 0:
 No information available.
 Supplementary information = 1:
 The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
 Supplementary information = 2:
 A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
 Please start a new encoder identification.
 Supplementary information = 3:
 A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
 Please select a listed encoder in p0400 with a code number < 10000.
 Supplementary information = 4:
 This component does not support SSI encoders (p0404.9 = 1) without track A/B.
 Supplementary information = 5:
 For SQW encoder, value in p4686 greater than in p0425.
 Supplementary information = 6:
 DRIVE-CLiQ encoder cannot be used with this firmware version.
 See also: p0491 (Motor encoder fault response ENCODER)

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
 - correct the parameter specified by the fault value (r0949) and p0187.
 - re parameter number 314: Check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A31915 (F, N) Encoder 1: Configuration error

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 1 is incorrect.
 Fault value (r0949, interpret decimal):
 1: Re-parameterization between fault/alarm is not permissible.

Remedy: No re-parameterization between fault/alarm.
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31916 (N, A) Encoder 1: Parameterization error

Message value: Parameter: %1, supplementary information: %2
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 1 was detected as being incorrect.
 It is possible that the parameterized encoder type does not match the connected encoder.
 The parameter involved can be determined as follows:
 - determine the parameter number using the fault value (r0949).
 - determine the parameter index (p0187).
 Fault value (r0949, interpret decimal):
 Parameter number
 This fault is only output for encoders with r404[0].10 = 1. It corresponds to A31905 with encoders where r404[0].10 = 0.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - check whether the connected encoder type matches the encoder that has been parameterized.
 - correct the parameter specified by the fault value (r0949) and p0187.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31920 (F, N) Encoder 1: Temperature sensor fault

Message value: Fault cause: %1, channel number: %2
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
 Alarm value (r2124, interpret decimal):
 Low word low byte: Cause:
 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
 Additional values:
 Only for internal Siemens troubleshooting.
 Low word high byte: Channel number.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy:
 - check that the encoder cable is the correct type and is correctly connected.
 - check the temperature sensor selection in p0600 to p0603.
 - replace the Sensor Module (hardware defect or incorrect calibration data).
Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31999 (F, N) Encoder 1: Unknown alarm

Message value: New message: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
 Alarm value (r2124, interpret decimal): Alarm number.
 Note:
 If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
 See also: p0491 (Motor encoder fault response ENCODER)
Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
 - upgrade the firmware on the Control Unit (r0018).
 Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY (POWER ON)
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F32100 (N, A) Encoder 2: Zero mark distance error

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
 For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Fault value (r0949, interpret decimal):
 Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
 The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 . check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the distance between zero marks (p0424, p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).
 - replace the encoder or encoder cable.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32101 (N, A) Encoder 2: Zero marked failed

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The 1.5 x parameterized zero mark distance was exceeded.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Fault value (r0949, interpret decimal):
 Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy: - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).
 - when p0437.1 is active, check p4686.
 - replace the encoder or encoder cable.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32110 (N, A) Encoder 2: Serial communications error

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
 Fault value (r0949, interpret binary):
 Bit 0: Alarm bit in the position protocol.
 Bit 1: Incorrect quiescent level on the data line.
 Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
 Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
 Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it.
 Bit 5: Internal error in the serial driver: An illegal mode command was requested.
 Bit 6: Timeout when cyclically reading.
 Bit 8: Protocol is too long (e.g. > 64 bits).
 Bit 9: Receive buffer overflow.
 Bit 10: Frame error when reading twice.
 Bit 11: Parity error.
 Bit 12: Data line signal level error during the monoflop time.
 Bit 13: Data line incorrect.

Remedy:

- Re fault value, bit 0 = 1:
 - Enc defect F31111 may provide additional details.
- Re fault value, bit 1 = 1:
 - Incorrect encoder type / replace the encoder or encoder cable.
- Re fault value, bit 2 = 1:
 - Incorrect encoder type / replace the encoder or encoder cable.
- Re fault value, bit 3 = 1:
 - EMC / connect the cable shield, replace the encoder or encoder cable.
- Re fault value, bit 4 = 1:
 - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
- Re fault value, bit 5 = 1:
 - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
- Re fault value, bit 6 = 1:
 - Update Sensor Module firmware.
- Re fault value, bit 8 = 1:
 - Check parameterization (p0429.2).
- Re fault value, bit 9 = 1:
 - EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.
- Re fault value, bit 10 = 1:
 - Check parameterization (p0429.2, p0449).
- Re fault value, bit 11 = 1:
 - Check parameterization (p0436).
- Re fault value, bit 12 = 1:
 - Check parameterization (p0429.6).
- Re fault value, bit 13 = 1:
 - Check data line.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32111 (N, A) Encoder 2: Absolute encoder EnDat, internal fault/error

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The EnDat encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit 0: Lighting system failed.
 Bit 1: Signal amplitude too low.
 Bit 2: Position value incorrect.
 Bit 3: Encoder power supply overvoltage condition.
 Bit 4: Encoder power supply undervoltage condition.
 Bit 5: Encoder power supply overcurrent condition.
 Bit 6: The battery must be changed.

Remedy:

Re fault value, bit 0 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 1 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 2 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 3 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.

Re fault value, bit 4 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When using a motor with DRIVE-CLiQ: Replace the motor.

Re fault value, bit 5 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.

Re fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32112 (N, A) Encoder 2: Error bit set in the serial protocol

Message value: %1

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The encoder sends a set error bit via the serial protocol.
Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.

Remedy: For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32115 (N, A) Encoder 2: Amplitude error track A or B ($A^2 + B^2$)

Message value: A track: %1, B-track: %2

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The amplitude (root of $A^2 + B^2$) for encoder 2 exceeds the permissible tolerance.
 Fault value (r0949, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Signal level, track B (16 bits with sign).
 xxxx = Signal level, track A (16 bits with sign).
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
 Note for sensors modules for resolvers (e. g. SMC10):
 The nominal signal level is at 2900 mV (2.0 Vrms). The response thresholds are < 1070 mV and > 3582 mV.
 A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
 Note:
 The analog values of the amplitude error are not measured at the same time with the hardware fault output by the sensor module.

Remedy:

- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- with measuring systems without their own bearing system: Adjust the scanning head and check the bearing system of the measuring wheel.
- for measuring systems with their own bearing system: Ensure that the encoder housing is not subject to any axial force.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32116 (N, A) Encoder 2: Amplitude error monitoring track A + B

Message value: Amplitude: %1, Angle: %2

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: The amplitude of the rectified encoder signals A and B and the amplitude from the roots of $A^2 + B^2$ for encoder 2 are not within the tolerance bandwidth.
 Fault value (r0949, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Signal level, track B (16 bits with sign).
 xxxx = Signal level, track A (16 bits with sign).
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response thresholds are < 176 mV (observe the frequency response of the encoder) and > 955 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
 Note:
 The analog values of the amplitude error are not measured at the same time with the hardware fault output by the sensor module.

Remedy:

- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32117 (N, A) Encoder 2: Inversion error signals A and B and R

Message value: -

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For a square-wave signal encoder (TTL. bipolar. double ended) the A* and B* and R* signals are not inverted with respect to signals A and B and R.
 Note:
 For SMC30 (order nos. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1 only), the following applies:
 A squarewave encoder without track R is used and the track monitoring (p0405.2 = 1) is activated.

Remedy: - check the setting of p0405: p0405.2 = 1 is only possible if the encoder is connected at X520.
 - check the encoder/cable: Does the encoder supply TTL signals and the associated inverted signals?
 Note:
 For a squarewave encoder without track R, the following jumpers must be set at the encoder connection:
 - pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
 - pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32118 (N, A) Encoder 2: Speed difference outside the tolerance range

Message value: %1

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: For an HTL/TTL encoder, the speed difference has exceeded the value in p0492 over several sampling cycles. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Fault value (r0949, interpret decimal):
 Only for internal Siemens troubleshooting.
 See also: p0492 (Square-wave encoder, maximum speed difference per sampling cycle)

Remedy: - check the tachometer feeder cable for interruptions.
 - check the grounding of the tachometer shielding.
 - if required, increase the maximum speed difference per sampling cycle (p0492).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32120 (N, A) Encoder 2: Power supply voltage fault

Message value: Fault cause: %1 bin

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: Encoder 2 power supply voltage fault.
 Note:
 If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.
 Fault value (r0949, interpret binary):
 Bit 0: Undervoltage condition on the sense line.
 Bit 1: Overcurrent condition for the encoder power supply.
 Bit 2: Undervoltage for the Sensor Module power supply (SMx).
 Bit 3: Overvoltage for the Sensor Module power supply (SMx).

Remedy:

- For fault value, bit 0 = 1:
 - correct encoder cable connected?
 - check the plug connections of the encoder cable.
 - SMC30: Check the parameterization (p0404.22).
- For fault value, bit 1 = 1:
 - correct encoder cable connected?
 - replace the encoder or encoder cable.
- For fault value, bit 2 = 1:
 - DRIVE-CLiQ cable too long?

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32121 (N, A) Encoder 2: Coarse position error

Message value: -
Drive object: All objects
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: For the actual value sensing, an error was detected on the module. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32122 Encoder 2: Internal power supply voltage fault

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE (ENCODER)
Acknowledge: IMMEDIATELY
Cause: Fault in internal reference voltage of ASICs for encoder 2.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F32123 (N, A) Encoder 2: Signal level A/B unipolar outside tolerance

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The unipolar level (AP/AN or BP/BN) for encoder 2 is outside the permissible tolerance.
 Fault value (r0949, interpret binary):
 Bit 0 = 1: Either AP or AN outside the tolerance.
 Bit 16 = 1: Either BP or BN outside the tolerance.
 The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
 The response thresholds are < 1700 mV and > 3300 mV.
Note:
 The signal level is not evaluated unless the following conditions are satisfied:
 - Sensor Module properties available (r0459.31 = 1).
 - Monitoring active (p0437.31 = 1).

Remedy:

- make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32129 (N, A) Encoder 2: Position difference, hall sensor/track C/D and A/B too large

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
 One period of track C/D corresponds to 360 ° mechanical.
 One period of the Hall signal corresponds to 360 ° electrical.
 The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
 After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429.
 Fault value (r0949, interpret decimal):
 For track C/D, the following applies:
 Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
 For Hall signals, the following applies:
 Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy:

- track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32130 (N, A) Encoder 2: Zero mark and position error from the coarse synchronization

Message value: Angular deviation, electrical: %1, angle, mechanical: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.
 When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.
 When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.
 Fault value (r0949, interpret hexadecimal):
 yyyyxxxx hex
 yyyy: Determined mechanical zero mark position (can only be used for track C/D).
 xxxx: Deviation of the zero mark from the expected position as electrical angle.
 Normalization: 32768 dec = 180 °

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - if the Hall sensor is used as an equivalent for track C/D, check the connection.
 - Check the connection of track C or D.
 - replace the encoder or encoder cable.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32131 (N, A) Encoder 2: Deviation, position incremental/absolute too large

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Absolute encoder:
 When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.
 Limit value for the deviation:
 - EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQ1 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
 - other encoders: 15 pulses = 60 quadrants.
 Incremental encoder:
 When the zero pulse is passed, a deviation in the incremental position was detected.
 For equidistant zero marks, the following applies:
 - The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
 For distance-coded zero marks, the following applies:
 - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
 Fault value (r0949, interpret decimal):
 Deviation in quadrants (1 pulse = 4 quadrants).

- Remedy:**
- check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check whether the coding disk is dirty or there are strong ambient magnetic fields.
 - adapt the parameter for the clearance between zero marks (p0425).
 - if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32135	Encoder 2: Fault when determining the position
Message value:	Fault cause: %1 bin
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	PULSE INHIBIT
Cause:	<p>The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.</p> <p>Fault value (r0949, interpret binary):</p> <ul style="list-style-type: none"> Bit 0: F1 (safety status display) Bit 1: F2 (safety status display) Bit 2: Lighting (reserved) Bit 3: Signal amplitude (reserved) Bit 4: Position value (reserved) Bit 5: Overvoltage (reserved) Bit 6: Undervoltage (reserved) Bit 7: Overcurrent (reserved) Bit 8: Battery (reserved) Bit 16: Lighting (--> F3x135, x = 1, 2, 3) Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3) Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3) Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3) Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3) Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3) Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3) Bit 23: Singleturn position 2 (safety status display) Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3) Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3) Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3) Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3) Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3) Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3) Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3) Bit 31: Multiturn battery (reserved)
Remedy:	Replace DRIVE-CLiQ encoder.

F32136 Encoder 2: Error when determining multiturn information

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder supplies status information via bits in an internal status/fault word. Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
 Fault value (r0949, interpret binary):
 Bit 0: F1 (safety status display)
 Bit 1: F2 (safety status display)
 Bit 2: Lighting (reserved)
 Bit 3: Signal amplitude (reserved)
 Bit 4: Position value (reserved)
 Bit 5: Overvoltage (reserved)
 Bit 6: Undervoltage (reserved)
 Bit 7: Overcurrent (reserved)
 Bit 8: Battery (reserved)
 Bit 16: Lighting (--> F3x135, x = 1, 2, 3)
 Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3)
 Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3)
 Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3)
 Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3)
 Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3)
 Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3)
 Bit 23: Singleturn position 2 (safety status display)
 Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3)
 Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
 Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3)
 Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3)
 Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3)
 Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3)
 Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3)
 Bit 31: Multiturn battery (reserved)
Remedy: Replace DRIVE-CLiQ encoder.

F32137 Encoder 2: Internal error when determining the position

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Only for internal SIEMENS use.
Remedy: Replace encoder

F32138 Encoder 2: Internal error when determining multiturn information

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Only for internal SIEMENS use.
Remedy: Replace encoder

F32150 (N, A) Encoder 2: Initialization error

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Encoder functionality selected in p0404 is not operating correctly.
 Fault value (r0949, interpret hexadecimal):
 The fault value is a bit field. Every set bit indicates functionality that is faulted.
 The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy:
 - Check that p0404 is correctly set.
 - check the encoder type used (incremental/absolute value) and for SMCxx, the encoder cable.
 - if relevant, note additional fault messages that describe the fault in detail.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32151 (N, A) Encoder 2: Encoder speed for initialization AB too high

Message value: %1
Drive object: All objects
Reaction: ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high during while initializing the sensor.
Remedy: Reduce the speed of the encoder accordingly during initialization.
 If necessary, deactivate monitoring (p0437.29).
 See also: p0437 (Sensor Module configuration extended)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32400 (F, N) Encoder 2: Alarm threshold zero mark distance error

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
 For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
 The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
 Alarm value (r2124, interpret decimal):
 Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
 The sign designates the direction of motion when detecting the zero mark distance.
Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - check the encoder type (encoder with equidistant zero marks).
 - adapt the parameter for the distance between zero marks (p0424, p0425).
 - replace the encoder or encoder cable.
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32401 (F, N)	Encoder 2: Alarm threshold zero marked failed
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The 1.5 x parameterized zero mark distance was exceeded. The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder). Alarm value (r2124, interpret decimal): Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - check the encoder type (encoder with equidistant zero marks). - adapt the parameter for the clearance between zero marks (p0425). - replace the encoder or encoder cable.
Reaction upon F:	NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32405 (N, A)	Encoder 2: Temperature in the encoder evaluation inadmissible
Message value:	%1
Drive object:	All objects
Reaction:	ENCODER (IASC/DCBRAKE, NONE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY (POWER ON)
Cause:	The encoder evaluation for a motor with DRIVE-CLiQ has detected an inadmissible temperature. The fault threshold is 125 ° C. Alarm value (r2124, interpret decimal): Measured board/module temperature in 0.1 °C.
Remedy:	Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

A32410 (F, N)	Encoder 2: Serial communications
Message value:	Fault cause: %1 bin
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	Serial communication protocol transfer error between the encoder and evaluation module. Alarm value (r2124, interpret binary): Bit 0: Alarm bit in the position protocol. Bit 1: Incorrect quiescent level on the data line. Bit 2: Encoder does not respond (does not supply a start bit within 50 ms). Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data. Bit 4: Encoder acknowledgement error: The encoder incorrectly understood the task (request) or cannot execute it. Bit 5: Internal error in the serial driver: An illegal mode command was requested. Bit 6: Timeout when cyclically reading. Bit 8: Protocol is too long (e.g. > 64 bits). Bit 9: Receive buffer overflow. Bit 10: Frame error when reading twice. Bit 11: Parity error. Bit 12: Data line signal level error during the monoflop time.

Remedy:

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32411 (F, N) Encoder 2: EnDat encoder signals alarms

Message value: Fault cause: %1 bin
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The error word of the EnDat encoder has alarm bits that have been set.
 Alarm value (r2124, interpret binary):
 Bit 0: Frequency exceeded (speed too high).
 Bit 1: Temperature exceeded.
 Bit 2: Control reserve, lighting system exceeded.
 Bit 3: Battery discharged.
 Bit 4: Reference point passed.

Remedy: Replace encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32412 (F, N) Encoder 2: Error bit set in the serial protocol

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The encoder sends a set error bit via the serial protocol.
 Alarm value (r2124, interpret binary):
 Bit 0: Fault bit in the position protocol.
 Bit 1: Alarm bit in the position protocol.

Remedy:

- carry out a POWER ON (power off/on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder.

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32414 (F, N) Encoder 2: Amplitude error track C or D ($C^2 + D^2$)

Message value: C track: %1, D track: %2
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude ($C^2 + D^2$) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
 Alarm value (r2124, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Signal level, track D (16 bits with sign).
 xxxx = Signal level, track C (16 bits with sign).
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
 A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
 Note:
 If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy:
 - check that the encoder cables are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check the Sensor Module (e.g. contacts).
 - check the Hall sensor box
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

N32415 (F, A) Encoder 2: Amplitude alarm track A or B ($A^2 + B^2$)

Message value: Amplitude: %1, Angle: %2
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude (root of $A^2 + B^2$) for encoder 2 exceeds the permissible tolerance.
 Alarm value (r2124, interpret hexadecimal):
 yyyyxxxx hex:
 yyyy = Angle
 xxxx = Amplitude, i.e. root from $A^2 + B^2$ (16 bits without sign)
 The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
 The response threshold is < 300 mV (observe the frequency response of the encoder).
 A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
 The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is at the negative zero crossover of track B.
 Note for sensors modules for resolvers (e. g. SMC10):
 The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
 A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
 Note:
 The analog values of the amplitude error are not measured at the same time with the hardware fault output by the sensor module.
Remedy:
 - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
 - check that the encoder cables and shielding are routed in compliance with EMC.
 - check the plug connections.
 - replace the encoder or encoder cable.
 - check the Sensor Module (e.g. contacts).
 - if the coding disk is soiled or the lighting worn, replace the encoder.
 Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32418 (F, N) Encoder 2: Speed difference per sampling rate exceeded

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: For an HTL/TTL encoder, the speed difference between two sampling cycles has exceeded the value in p0492. The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time. Alarm value (r2124, interpret decimal): Only for internal Siemens troubleshooting. See also: p0492 (Square-wave encoder, maximum speed difference per sampling cycle)
Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32419 (F, N) Encoder 2: Track A or B outside the tolerance range

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude, phase or offset correction for track A or B is at the limit. Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxxx1: Minimum of the offset correction, track B
xxxx2: Maximum of the offset correction, track B
xxx1x: Minimum of the offset correction, track A
xxx2x: Maximum of the offset correction, track A
xx1xx: Minimum of the amplitude correction, track B/A
xx2xx: Maximum of the amplitude correction, track B/A
x1xxx: Minimum of the phase error correction
x2xxx: Maximum of the phase error correction
1xxxx: Minimum of the cubic correction
2xxxx: Maximum of the cubic correction
Remedy: - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.
Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32421 (F, N)	Encoder 2: Coarse position error
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For the actual value sensing, an error was detected. As a result of this error, it must be assumed that the actual value sensing supplies an incorrect coarse position. Alarm value (r2124, interpret decimal): 3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy:	Re alarm value = 3: - for a standard encoder with cable, if required, contact the manufacturer. - correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.
Reaction upon F:	NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32429 (F, N)	Encoder 2: Position difference, hall sensor/track C/D and A/B too large
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical. One period of track C/D corresponds to 360 ° mechanical. One period of the Hall signal corresponds to 360 ° electrical. The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough. Alarm value (r2124, interpret decimal): For track C/D, the following applies: Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °). For Hall signals, the following applies: Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy:	- track C or D not connected. - correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D. - check that the encoder cables are routed in compliance with EMC. - check the adjustment of the Hall sensor.
Reaction upon F:	NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32431 (F, N)	Encoder 2: Deviation, position incremental/absolute too large
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	When the zero pulse is passed, a deviation in the incremental position was detected. For equidistant zero marks, the following applies: - The first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark. For distance-coded zero marks, the following applies: - the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair. Alarm value (r2124, interpret decimal): Deviation in quadrants (1 pulse = 4 quadrants).
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - Clean coding disk or remove strong magnetic fields.
Reaction upon F:	NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

A32432 (F, N)	Encoder 2: Rotor position adaptation corrects deviation
Message value:	%1
Drive object:	All objects
Reaction:	NONE
Acknowledge:	NONE
Cause:	For track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected. Alarm value (r2124, interpret decimal): Last measured deviation of the zero mark distance in increments (4 increments = 1 encoder pulse). The sign designates the direction of motion when detecting the zero mark distance.
Remedy:	- check that the encoder cables are routed in compliance with EMC. - check the plug connections. - replace the encoder or encoder cable. - check encoder limit frequency. - adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F:	NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F:	IMMEDIATELY
Reaction upon N:	NONE
Acknowl. upon N:	NONE

F32500 (N, A)	Encoder 2: Position tracking traversing range exceeded
Message value:	-
Drive object:	SERVO_S110-CAN, SERVO_S110-DP
Reaction:	OFF1 (NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions. For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421. For p0411.3 = 1, the maximum traversing range for the configured linear axis is pre-set (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

Remedy: The fault should be resolved as follows:
 - select encoder commissioning (p0010 = 4).
 - reset the position tracking as follows (p0411.2 = 1).
 - de-select encoder commissioning (p0010 = 0).
 The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32501 (N, A) Encoder 2: Position tracking encoder position outside tolerance window

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When powered down, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
 Fault value (r0949, decimal):
 Deviation (difference) to the last encoder position in increments of the absolute value.
 The sign designates the traversing direction.
Note:
 The deviation (difference) found is also displayed in r0477.

Remedy: Reset the position tracking as follows:
 - select encoder commissioning (p0010 = 4).
 - reset the position tracking as follows (p0411.2 = 1).
 - de-select encoder commissioning (p0010 = 0).
 The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
 See also: p0010 (Drive commissioning parameter filter), p2507 (LR absolute encoder adjustment status)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32700 Encoder 2: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit x = 1: Effectivity test x unsuccessful.

Remedy:

N32800 (F) Encoder 2: Group signal

Message value: -
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluates other current messages.

Reaction upon F: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
 Acknowl. upon F: IMMEDIATELY

F32801 (N, A) Encoder 2 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = fault cause
xx = 0A hex:
The sign-of-life bit in the receive telegram is not set.
Remedy:
- check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32802 (N, A) Encoder 2: Time slice overflow

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Time slice overflow, encoder 2.
Fault value (r0949, interpret decimal):
9: Time slice overflow of the fast (current controller clock cycle) time slice.
10: Time slice overflow of the average time slice.
12: Time slice overflow of the slow time slice.
999: Timeout when waiting for SYNO, e.g. unexpected return to non-cyclic operation.
Remedy: Reduce the current controller frequency.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32804 (N, A) Encoder 2: Checksum error

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the current checksum.
Remedy:
- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32805 (N, A) Encoder 2: EPROM checksum error

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
 Fault value (r0949, interpret hexadecimal):
 01: EEPROM access error.
 02: Too many blocks in the EEPROM.
Remedy: Replace the module.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32806 (N, A) Encoder 2: Initialization error

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder was not successfully initialized.
 Fault value (r0949, interpret hexadecimal):
 1, 2, 3: Encoder initialization with the motor rotating.
Remedy: Acknowledge the fault.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32811 (N, A) Encoder 2: Encoder serial number changed

Message value: -
Drive object: All objects
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
 Cause:
 The encoder was replaced.
 Note:
 With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
 When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
Remedy: Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32812 (N, A) Encoder 2: Requested cycle or RX-/TX timing not supported

Message value: %1
Drive object: All objects
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.
 Alarm value (r2124, interpret decimal):
 0: Application cycle is not supported.
 1: DQ cycle is not supported.
 2: Distance between RX and TX instants in time too low.
 3: TX instant in time too early.

Remedy:
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32813 Encoder 2: Hardware logic unit failed

Message value: Fault cause: %1 bin
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
 Fault value (r0949, interpret binary):
 Bit 0: ALU watchdog has responded.
 Bit 1: ALU has detected a sign-of-life error.

Remedy: Replace encoder

F32820 (N, A) Encoder 2 DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 01 hex:
 CRC error
 xx = 02 hex:
 Telegram is shorter than specified in the length byte or in the receive list.
 xx = 03 hex:
 Telegram is longer than specified in the length byte or in the receive list.
 xx = 04 hex:
 The length of the receive telegram does not match the receive list.
 xx = 05 hex:
 The type of the receive telegram does not match the receive list.
 xx = 06 hex:
 The address of the component in the telegram and in the receive list do not match.
 xx = 07 hex:
 A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
 xx = 08 hex:
 No SYNC telegram is expected - but the received telegram is one.
 xx = 09 hex:
 The error bit in the receive telegram is set.
 xx = 10 hex:
 The receive telegram is too early.

Remedy:

- carry out a POWER ON.
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32835 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. The nodes do not send and receive in synchronism.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 21 hex:
 The cyclic telegram has not been received.
 xx = 22 hex:
 Timeout in the telegram receive list.
 xx = 40 hex:
 Timeout in the telegram send list.

Remedy:

- carry out a POWER ON.
- replace the component involved.

See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32836 (N, A) Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2

Drive object: All objects

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 41 hex:
 Telegram type does not match send list.

Remedy: Carry out a POWER ON.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32837 (N, A) Encoder 2 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved. Faulty hardware cannot be excluded.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 20 hex:
 Error in the telegram header.
 xx = 23 hex:
 Receive error: The telegram buffer memory contains an error.
 xx = 42 hex:
 Send error: The telegram buffer memory contains an error.
 xx = 43 hex:
 Send error: The telegram buffer memory contains an error.
Remedy:
 - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
 - check the electrical cabinet design and cable routing for EMC compliance
 - if required, use another DRIVE-CLiQ socket (p9904).
 - replace the component involved.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32845 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 0B hex:
 Synchronization error during alternating cyclic data transfer.
Remedy:
 Carry out a POWER ON.
 See also: p9916 (DRIVE-CLiQ data transfer error shutdown threshold slave)
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32850 (N, A) Encoder 2: Encoder evaluation, internal software error

Message value: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: Internal software error in the Sensor Module of encoder 2.
 Fault value (r0949, interpret decimal):
 1: Background time slice is blocked.
 2: Checksum over the code memory is not OK.
 10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
 11000 - 11499: Descriptive data from EEPROM incorrect.
 11500 - 11899: Calibration data from EEPROM incorrect.
 11900 - 11999: Configuration data from EEPROM incorrect.
 16000: DRIVE-CLiQ encoder initialization application error.
 16001: DRIVE-CLiQ encoder initialization ALU error.
 16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
 16003: DRIVE-CLiQ encoder safety initialization error.
 16004: DRIVE-CLiQ encoder internal system error.
Remedy: - replace the Sensor Module.
 - if required, upgrade the firmware in the Sensor Module.
 - contact the Hotline.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32851 (N, A) Encoder 2 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
 The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
 Fault value (r0949, interpret hexadecimal):
 yyxx hex: yy = component number, xx = fault cause
 xx = 0A hex = 10 dec:
 The sign-of-life bit in the receive telegram is not set.
Remedy: Upgrade the firmware of the component involved.
 Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32860 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Telegram error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	<p>A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 11 hex = 17 dec: CRC error and the receive telegram is too early. xx = 01 hex = 01 dec: Checksum error (CRC error). xx = 12 hex = 18 dec: The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early. xx = 02 hex = 02 dec: Telegram is shorter than specified in the length byte or in the receive list. xx = 13 hex = 19 dec: The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early. xx = 03 hex = 03 dec: Telegram is longer than specified in the length byte or in the receive list. xx = 14 hex = 20 dec: The length of the receive telegram does not match the receive list and the receive telegram is too early. xx = 04 hex = 04 dec: The length of the receive telegram does not match the receive list. xx = 15 hex = 21 dec: The type of the receive telegram does not match the receive list and the receive telegram is too early. xx = 05 hex = 05 dec: The type of the receive telegram does not match the receive list. xx = 16 hex = 22 dec: The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early. xx = 06 hex = 06 dec: The address of the power unit in the telegram and in the receive list do not match. xx = 19 hex = 25 dec: The error bit in the receive telegram is set and the receive telegram is too early. xx = 09 hex = 09 dec: The error bit in the receive telegram is set. xx = 10 hex = 16 dec: The receive telegram is too early.</p>
Remedy:	<ul style="list-style-type: none"> - carry out a POWER ON. - check the electrical cabinet design and cable routing for EMC compliance - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...). <p>See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)</p>
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32885 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. The nodes do not send and receive in synchronism. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 1A hex = 26 dec: Sign-of-life bit in the receive telegram not set and the receive telegram is too early. xx = 21 hex = 33 dec: The cyclic telegram has not been received. xx = 22 hex = 34 dec: Timeout in the telegram receive list. xx = 40 hex = 64 dec: Timeout in the telegram send list. xx = 62 hex = 98 dec: Error at the transition to cyclic operation.
Remedy:	- check the power supply voltage of the component involved. - carry out a POWER ON. - replace the component involved. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32886 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Data were not able to be sent. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 41 hex: Telegram type does not match send list.
Remedy:	Carry out a POWER ON.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32887 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Component fault
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 20 hex: Error in the telegram header. xx = 23 hex: Receive error: The telegram buffer memory contains an error. xx = 42 hex: Send error: The telegram buffer memory contains an error. xx = 43 hex: Send error: The telegram buffer memory contains an error. xx = 60 hex: Response received too late during runtime measurement. xx = 61 hex: Time taken to exchange characteristic data too long.
Remedy:	<ul style="list-style-type: none">- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).- check the electrical cabinet design and cable routing for EMC compliance- if required, use another DRIVE-CLiQ socket (p9904).- replace the component involved.
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32895 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Alternating cyclic data transfer error
Message value:	Component number: %1, fault cause: %2
Drive object:	All objects
Reaction:	OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3)
Acknowledge:	IMMEDIATELY
Cause:	A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit. Fault value (r0949, interpret hexadecimal): yyxx hex: yy = component number, xx = fault cause xx = 0B hex: Synchronization error during alternating cyclic data transfer.
Remedy:	Carry out a POWER ON. See also: p9915 (DRIVE-CLiQ data transfer error shutdown threshold master)
Reaction upon N:	NONE
Acknowl. upon N:	NONE
Reaction upon A:	NONE
Acknowl. upon A:	NONE

F32896 (N, A)	Encoder 2 DRIVE-CLiQ (CU): Inconsistent component properties
Message value:	Component number: %1
Drive object:	All objects
Reaction:	OFF2 (IASC/DCBRAKE, NONE, OFF1, OFF3, STOP1, STOP2)
Acknowledge:	IMMEDIATELY
Cause:	The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced. Fault value (r0949, interpret decimal): Component number.

Remedy:

- when replacing cables, only use cables with the same length as the original cables.
- when replacing components, use the same components and firmware releases.
- carry out a POWER ON.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

F32899 (N, A) Encoder 2: Unknown fault

Message value: New message: %1
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
 Fault value (r0949, interpret decimal):
 Fault number.
 Note:
 If required, the significance of this new fault can be read about in a more recent description of the Control Unit.

Remedy:

- replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32902 (F, N) Encoder 2: SPI-BUS error occurred

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy:

- replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32903 (F, N) Encoder 2: I2C-BUS error occurred

Message value: %1
Drive object: All objects
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
 Fault value (r0949, interpret hexadecimal):
 Only for internal Siemens troubleshooting.

Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact the Hotline.

Reaction upon F: NONE (ENCODER, IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32905 (N, A) Encoder 2: Parameterization error

Message value: Parameter: %1, supplementary information: %2
Drive object: All objects
Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)
Acknowledge: IMMEDIATELY
Cause: A parameter of encoder 2 was detected as being incorrect.
 It is possible that the parameterized encoder type does not match the connected encoder.
 The parameter involved can be determined as follows:
 - determine the parameter number using the fault value (r0949).
 - determine the parameter index (p0187).
 Fault value (r0949, interpret decimal):
 yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
 Supplementary information = 0:
 No information available.
 Supplementary information = 1:
 The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <- -A/B (p0405.2 = 1).
 Supplementary information = 2:
 A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
 Please start a new encoder identification.
 Supplementary information = 3:
 A code number for an identified encoder has been entered into p0400, however, no identification was carried out.
 Please select a listed encoder in p0400 with a code number < 10000.
 Supplementary information = 4:
 This component does not support SSI encoders (p0404.9 = 1) without track A/B.
 Supplementary information = 5:
 For SQW encoder, value in p4686 greater than in p0425.
 Supplementary information = 6:
 DRIVE-CLiQ encoder cannot be used with this firmware version.

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number 314: Check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32915 (F, N) Encoder 2: Configuration error

Message value: %1
Drive object: SERVO_S110-CAN, SERVO_S110-DP
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 2 is incorrect.
 Fault value (r0949, interpret decimal):
 1: Re-parameterization between fault/alarm is not permissible.

Remedy: No re-parameterization between fault/alarm.

Reaction upon F: NONE (IASC/DCBRAKE)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

F32916 (N, A) Encoder 2: Parameterization error

Message value: Parameter: %1, supplementary information: %2

Drive object: SERVO_S110-CAN, SERVO_S110-DP

Reaction: OFF1 (IASC/DCBRAKE, NONE, OFF2, OFF3, STOP1, STOP2)

Acknowledge: IMMEDIATELY

Cause: A parameter of encoder 2 was detected as being incorrect.
 It is possible that the parameterized encoder type does not match the connected encoder.
 The parameter involved can be determined as follows:
 - determine the parameter number using the fault value (r0949).
 - determine the parameter index (p0187).
 Fault value (r0949, interpret decimal):
 Parameter number
 This fault is only output for encoders with r404[0].10 = 1. It corresponds to A32905 with encoders where r404[0].10 = 0.

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
 - correct the parameter specified by the fault value (r0949) and p0187.

Reaction upon N: NONE
 Acknowl. upon N: NONE
 Reaction upon A: NONE
 Acknowl. upon A: NONE

A32920 (F, N) Encoder 2: Temperature sensor fault

Message value: Fault cause: %1, channel number: %2

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: When evaluating the temperature sensor, an error occurred.
 Alarm value (r2124, interpret decimal):
 Low word low byte: Cause:
 1: Wire breakage or sensor not connected (KTY: R > 1630 Ohm).
 2: Measured resistance too low (PTC: R < 20 Ohm, KTY: R < 50 Ohm).
 Additional values:
 Only for internal Siemens troubleshooting.
 Low word high byte: Channel number.

Remedy: - check that the encoder cable is the correct type and is correctly connected.
 - check the temperature sensor selection in p0600 to p0603.
 - replace the Sensor Module (hardware defect or incorrect calibration data).

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)
 Acknowl. upon F: IMMEDIATELY
 Reaction upon N: NONE
 Acknowl. upon N: NONE

A32999 (F, N) Encoder 2: Unknown alarm

Message value: New message: %1

Drive object: All objects

Reaction: NONE

Acknowledge: NONE

Cause: A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware. This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
 Alarm value (r2124, interpret decimal):
 Alarm number.
 Note:
 If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.

Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
 - upgrade the firmware on the Control Unit (r0018).

Reaction upon F: NONE (IASC/DCBRAKE, OFF1, OFF2, OFF3, STOP1, STOP2)

Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE

Acknowl. upon N: NONE

Appendix

A

Contents

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A.1 ASCII table (excerpt)

The following table includes the decimal and hexadecimal notation of selected ASCII characters.

Table A-1 ASCII table (excerpt)

Character	Decimal	Hexadecimal	Character	Decimal	Hexadecimal
Blanks	32	20	H	72	48
-	45	2D	I	73	49
0	48	30	J	74	4A
1	49	31	K	75	4B
2	50	32	L	76	4C
3	51	33	M	77	4D
4	52	34	N	78	4E
5	53	35	O	79	4F
6	54	36	P	80	50
7	55	37	Q	81	51
8	56	38	R	82	52
9	57	39	S	83	53
A	65	41	T	84	54
B	66	42	U	85	55
C	67	43	V	86	56
D	68	44	W	87	57
E	69	45	X	88	58
F	70	46	Y	89	59
G	71	47	Z	90	5A

A.2 List for motor code/encoder code

A.2.1 Motor code

Induction motors (Version: 4101500)

Table A-2 Motor code for induction motors

Order number	Motor type (p0300)	Motor code (p0301)
1PH4103-4NF2x-xxxx	104	10401
1PH4103-4xF5x-xxxx	104	10421
1PH4105-4NF2x-xxxx	104	10403
1PH4105-4xF5x-xxxx	104	10422
1PH4107-4NF2x-xxxx	104	10405
1PH4107-4xF5x-xxxx	104	10423
1PH4133-4NF2x-xxxx	104	10407
1PH4133-4xF5x-xxxx	104	10424
1PH4135-4NF2x-xxxx	104	10409
1PH4135-4xF5x-xxxx	104	10425
1PH4137-4NF2x-xxxx	104	10411
1PH4137-4xF5x-xxxx	104	10426
1PH4138-4NF2x-xxxx	104	10413
1PH4163-4NF2x-xxxx	104	10416
1PH4163-4xF5x-xxxx	104	10427
1PH4163-xxF2x(L37)	104	10431
1PH4167-4NF2x-xxxx	104	10418
1PH4167-4xF5x-xxxx	104	10428
1PH4168-4NF2x-xxxx	104	10420
1PH4168-4xF5x-xxxx	104	10429
1PH7101-xxFxx-xLxx	107	12701
1PH7101-xxFxx-xxxx	107	10701
1PH7103-xxDxx-xLxx	107	12702
1PH7103-xxDxx-xxxx	107	10702
1PH7103-xxFxx-xLxx	107	12703
1PH7103-xxFxx-xxxx	107	10703
1PH7103-xxGxx-xLxx	107	12704
1PH7103-xxGxx-xxxx	107	10704
1PH7105-xxFxx-xLxx	107	12705

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH7105-xxFxx-xxxx	107	10705
1PH7107-xxDxx-xLxx	107	12706
1PH7107-xxDxx-xxxx	107	10706
1PH7107-xxFxx-xLxx	107	12707
1PH7107-xxFxx-xxxx	107	10707
1PH7107-xxGxx-xLxx	107	12708
1PH7107-xxGxx-xxxx	107	10708
1PH7131-xxFxx-xLxx	107	12709
1PH7131-xxFxx-xxxx	107	10709
1PH7133-xxDxx-xLxx	107	12710
1PH7133-xxDxx-xxxx	107	10710
1PH7133-xxFxx-xLxx	107	12711
1PH7133-xxFxx-xxxx	107	10711
1PH7133-xxGxx-xLxx	107	12712
1PH7133-xxGxx-xxxx	107	10712
1PH7135-xxFxx-xLxx	107	12713
1PH7135-xxFxx-xxxx	107	10713
1PH7137-xxBxx-xxxx	107	10766
1PH7137-xxDxx-xLxx	107	12714
1PH7137-xxDxx-xxxx	107	10714
1PH7137-xxFxx-xLxx	107	12715
1PH7137-xxFxx-xxxx	107	10715
1PH7137-xxGxx-xLxx	107	12716
1PH7137-xxGxx-xxxx	107	10716
1PH7163-xxBxx-xLxx	107	12717
1PH7163-xxBxx-xxxx	107	10717
1PH7163-xxDxx-xLxx	107	12718
1PH7163-xxDxx-xxxx	107	10718
1PH7163-xxFxx-xLxx	107	12719
1PH7163-xxFxx-xxxx	107	10719
1PH7163-xxGxx-xLxx	107	12720
1PH7163-xxGxx-xxxx	107	10720
1PH7167-xxBxx-xLxx	107	12721
1PH7167-xxBxx-xxxx	107	10721
1PH7167-xxDxx-xLxx	107	12722

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH7167-xxDxx-xxxx	107	10722
1PH7167-xxFxx-xxxx	107	10723
1PH7167-xxGxx-xLxx	107	12724
1PH7167-xxGxx-xxxx	107	10724
1PH7184-xxBxx-xxxx	107	10725
1PH7184-xxDxx-xxxx	107	10735
1PH7184-xxExx-xxxx	107	10727
1PH7184-xxFxx-xxxx	107	10736
1PH7184-xxLxx-xxxx	107	10737
1PH7184-xxTxx-xxxx	107	10726
1PH7186-xxBxx-xxxx	107	10770
1PH7186-xxDxx-xxxx	107	10734
1PH7186-xxExx-xxxx	107	10730
1PH7186-xxFxx-xxxx	107	10768
1PH7186-xxLxx-xxxx	107	10769
1PH7186-xxTxx-xxxx	107	10729
1PH7224-xxBxx-xxxx	107	10743
1PH7224-xxCxx-xxxx	107	10731
1PH7224-xxDxx-xxxx	107	10738
1PH7224-xxFxx-xxxx	107	10732
1PH7224-xxLxx-xxxx	107	10744
1PH7224-xxUxx-xxxx	107	10745
1PH7226-xxBxx-xxxx	107	10746
1PH7226-xxDxx-xxxx	107	10747
1PH7226-xxFxx-xxxx	107	10739
1PH7226-xxLxx-xxxx	107	10748
1PH7228-xxBxx-xxxx	107	10749
1PH7228-xxDxx-xxxx	107	10750
1PH7228-xxFxx-xxxx	107	10741
1PH7228-xxLxx-xxxx	107	10751
1PH7284-xxBxx-xxxx	107	10752
1PH7284-xxCxx-xxxx	107	10753
1PH7284-xxDxx-xxxx	107	10754
1PH7284-xxFxx-xxxx	107	10755
1PH7286-xxBxx-xxxx	107	10756

Table A-2 Motor code for induction motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH7286-xxCxx-xxxx	107	10757
1PH7286-xxDxx-xxxx	107	10758
1PH7286-xxFxx-xxxx	107	10759
1PH7288-xxBxx-xxxx	107	10760
1PH7288-xxCxx-xxxx	107	10761
1PH7288-xxDxx-xxxx	107	10762
1PH7288-xxFxx-xxxx	107	10763
1PH8131-1xF0x-xxxx	108	10803
1PH8131-1xF1x-xxxx	108	10804
1PH8131-1xF2x-xxxx	108	10805
1PH8131-1xG2x-xxxx	108	10806
1PH8133-1xD0x-xxxx	108	10811
1PH8133-1xD1x-xxxx	108	10812
1PH8133-1xF0x-xxxx	108	10813
1PH8133-1xF1x-xxxx	108	10814
1PH8133-1xF2x-xxxx	108	10815
1PH8133-1xG0x-xxxx	108	10816
1PH8133-1xG1x-xxxx	108	10817
1PH8133-1xG2x-xxxx	108	10818
1PH8135-1xF0x-xxxx	108	10819
1PH8135-1xF1x-xxxx	108	10820
1PH8135-1xF2x-xxxx	108	10821
1PH8137-1xD0x-xxxx	108	10827
1PH8137-1xD1x-xxxx	108	10828
1PH8184-1xB2x-xxxx	108	10839
1PH8184-1xC2x-xxxx	108	10840
1PH8184-1xD2x-xxxx	108	10841
1PH8184-1xF2x-xxxx	108	10842
1PH8184-1xL2x-xxxx	108	10843
1PH8186-1xB2x-xxxx	108	10844
1PH8186-1xC2x-xxxx	108	10845
1PH8186-1xD2x-xxxx	108	10846
1PH8186-1xF2x-xxxx	108	10847
1PH8186-1xL2x-xxxx	108	10848

Synchronous motors (Version: 4101500)

Table A-3 Motor code for synchronous motors

Order number	Motor type (p0300)	Motor code (p0301)
1FK6032-6AK7x-xxxx	236	23601
1FK6033-7AK7x-xxxx	236	23602
1FK6040-6AK7x-xxxx	236	23603
1FK6042-6AF7x-xxxx	236	23604
1FK6043-7AH7x-xxxx	236	23605
1FK6043-7AK7x-xxxx	236	23606
1FK6044-7AF7x-xxxx	236	23607
1FK6044-7AH7x-xxxx	236	23608
1FK6060-6AF7x-xxxx	236	23609
1FK6061-7AF7x-xxxx	236	23610
1FK6061-7AH7x-xxxx	236	23611
1FK6063-6AF7x-xxxx	236	23612
1FK6064-7AF7x-xxxx	236	23613
1FK6064-7AH7x-xxxx	236	23614
1FK6080-6AF7x-xxxx	236	23615
1FK6082-7AF7x-xxxx	236	23616
1FK6083-6AF7x-xxxx	236	23617
1FK6085-7AF7x-xxxx	236	23618
1FK6100-8AF7x-xxxx	236	23619
1FK6101-8AF7x-xxxx	236	23620
1FK6103-8AF7x-xxxx	236	23621
1FK7011-xAK2x-xxxx	237	23738
1FK7011-xAK7x-xxxx	237	23747
1FK7015-xAK2x-xxxx	237	23739
1FK7015-xAK7x-xxxx	237	23748
1FK7022-xAK2x-xxxx	237	23733
1FK7022-xAK7x-xxxx	237	23726
1FK7032-xAF2x-xxxx	237	23742
1FK7032-xAK7x-xxxx	237	23727
1FK7033-xAF2x-xxxx	237	23741
1FK7033-xAK7x-xxxx	237	23701
1FK7034-xAF2x-xxxx	237	23740
1FK7034-xAK7x-xxxx	237	23732
1FK7040-xAK7x-xxxx	237	23702

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FK7042-xAC7x-xxxx	237	23749
1FK7042-xAF2x-xxxx	237	23735
1FK7042-xAF7x-xxxx	237	23703
1FK7042-xAK7x-xxxx	237	23704
1FK7043-xAF2x-xxxx	237	23743
1FK7043-xAH7x-xxxx	237	23705
1FK7043-xAK7x-xxxx	237	23706
1FK7044-xAF7x-xxxx	237	23707
1FK7044-xAH7x-xxxx	237	23708
1FK7060-xAF7x-xxxx	237	23709
1FK7060-xAH7x-xxxx	237	23710
1FK7061-xAF7x-xxxx	237	23711
1FK7061-xAH7x-xxxx	237	23712
1FK7063-xAF7x-xxxx	237	23713
1FK7063-xAH7x-xxxx	237	23714
1FK7064-xAF7x-xxxx	237	23715
1FK7064-xAH7x-xxxx	237	23716
1FK7080-xAF7x-xxxx	237	23717
1FK7080-xAH7x-xxxx	237	23718
1FK7082-xAF7x-xxxx	237	23719
1FK7083-xAF7x-xxxx	237	23720
1FK7083-xAH7x-xxxx	237	23721
1FK7085-xAF7x-xxxx	237	23722
1FK7086-xAA7x-xxxx	237	23737
1FK7086-xAC7x-xxxx	237	23744
1FK7086-xAF7x-xxxx	237	23731
1FK7086-xSF7x-xxxx	237	23730
1FK7100-xAF7x-xxxx	237	23723
1FK7101-xAC7x-xxxx	237	23745
1FK7101-xAF7x-xxxx	237	23724
1FK7103-xAC7x-xxxx	237	23746
1FK7103-xAF7x-xxxx	237	23725
1FK7105-xAC7x-xxxx	237	23728
1FK7105-xAF7x-xxxx	237	23729
1FT6021-6AK7x-xxxx	206	20601

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6024-6AK7x-xxxx	206	20602
1FT6031-xAK7x-xxxx	206	20603
1FT6034-xAK7x-xxxx	206	20604
1FT6041-xAF7x-xxxx	206	20605
1FT6041-xAK7x-xxxx	206	20606
1FT6044-xAF7x-xxxx	206	20607
1FT6044-xAK7x-xxxx	206	20608
1FT6061-xAC7x-xxxx	206	20609
1FT6061-xAF7x-xxxx	206	20610
1FT6061-xAH7x-xxxx	206	20611
1FT6061-xAK7x-xxxx	206	20612
1FT6062-xAC7x-xxxx	206	20613
1FT6062-xAF7x-xxxx	206	20614
1FT6062-xAH7x-xxxx	206	20615
1FT6062-xAK7x-xxxx	206	20616
1FT6062-xWF7x-xxxx	206	22601
1FT6062-xWH7x-xxxx	206	22602
1FT6062-xWK7x-xxxx	206	22603
1FT6064-xAC7x-xxxx	206	20617
1FT6064-xAF7x-xxxx	206	20618
1FT6064-xAH7x-xxxx	206	20619
1FT6064-xAK7x-xxxx	206	20620
1FT6064-xWF7x-xxxx	206	22604
1FT6064-xWH7x-xxxx	206	22605
1FT6064-xWK7x-xxxx	206	22606
1FT6081-xAC7x-xxxx	206	20621
1FT6081-xAF7x-xxxx	206	20622
1FT6081-xAH7x-xxxx	206	20623
1FT6081-xAK7x-xxxx	206	20624
1FT6082-xAC7x-xxxx	206	20625
1FT6082-xAF7x-xxxx	206	20626
1FT6082-xAH7x-xxxx	206	20627
1FT6082-xAK7x-xxxx	206	20628
1FT6082-xWH7x-xxxx	206	22630
1FT6084-xAC7x-xxxx	206	20629

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6084-xAF7x-xxxx	206	20630
1FT6084-xAH7x-xxxx	206	20631
1FT6084-xAK7x-xxxx	206	20632
1FT6084-xSF7x-xxxx	206	21601
1FT6084-xSH7x-xxxx	206	21602
1FT6084-xSK7x-xxxx	206	21603
1FT6084-xWF7x-xxxx	206	22607
1FT6084-xWH7x-xxxx	206	22608
1FT6084-xWK7x-xxxx	206	22609
1FT6086-xAC7x-xxxx	206	20633
1FT6086-xAF7x-xxxx	206	20634
1FT6086-xAH7x-xxxx	206	20635
1FT6086-xSF7x-xxxx	206	21604
1FT6086-xSG7x-xxxx	206	21626
1FT6086-xSH7x-xxxx	206	21605
1FT6086-xSK7x-xxxx	206	21606
1FT6086-xWF7x-xxxx	206	22610
1FT6086-xWH7x-xxxx	206	22611
1FT6086-xWK7x-xxxx	206	22612
1FT6102-xAB7x-xxxx	206	20636
1FT6102-xAC7x-xxxx	206	20637
1FT6102-xAF7x-xxxx	206	20638
1FT6102-xAH7x-xxxx	206	20639
1FT6105-xAB7x-xxxx	206	20640
1FT6105-xAC7x-xxxx	206	20641
1FT6105-xAF7x-xxxx	206	20642
1FT6105-xSB7x-xxxx	206	21607
1FT6105-xSC7x-xxxx	206	21608
1FT6105-xSF7x-xxxx	206	21609
1FT6105-xSH7x-xxxx	206	21610
1FT6105-xWC7x-xxxx	206	22613
1FT6105-xWF7x-xxxx	206	22614
1FT6108-xAB7x-xxxx	206	20643
1FT6108-xAC7x-xxxx	206	20644
1FT6108-xAF7x-xxxx	206	20645

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6108-xSB7x-xxxx	206	21611
1FT6108-xSC7x-xxxx	206	21612
1FT6108-xSF7x-xxxx	206	21613
1FT6108-xWB7x-xxxx	206	22615
1FT6108-xWC7x-xxxx	206	22616
1FT6108-xWF7x-xxxx	206	22617
1FT6132-xAB7x-xxxx	206	20646
1FT6132-xAC7x-xxxx	206	20647
1FT6132-xAF7x-xxxx	206	20648
1FT6132-xSB7x-xxxx	206	21614
1FT6132-xSC7x-xxxx	206	21615
1FT6132-xSF7x-xxxx	206	21616
1FT6132-xWB7x-xxxx	206	22618
1FT6132-xWD7x-xxxx	206	22619
1FT6134-xAB7x-xxxx	206	20649
1FT6134-xAC7x-xxxx	206	20650
1FT6134-xSB7x-xxxx	206	21617
1FT6134-xSC7x-xxxx	206	21618
1FT6134-xSF7x-xxxx	206	21619
1FT6134-xWB7x-xxxx	206	22620
1FT6134-xWD7x-xxxx	206	22621
1FT6136-xAB7x-xxxx	206	20651
1FT6136-xAC7x-xxxx	206	20652
1FT6136-xSB7x-xxxx	206	21620
1FT6136-xSC7x-xxxx	206	21621
1FT6136-xSF7x-xxxx	206	21622
1FT6136-xWB7x-xxxx	206	22622
1FT6136-xWD7x-xxxx	206	22623
1FT6138-xWB7x-xxxx	206	22624
1FT6138-xWD7x-xxxx	206	22625
1FT6163-xSB7x-xxxx	206	21623
1FT6163-xSD7x-xxxx	206	21624
1FT6163-xWB7x-xxxx	206	22626
1FT6163-xWD7x-xxxx	206	22627
1FT6168-xSB7x-xxxx	206	21625

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT6168-xWB7x-xxxx	206	22628
1FT7034-xAK7x-xxxx	207	20740
1FT7036-xAK7x-xxxx	207	20741
1FT7042-xAF7x-xxxx	207	20701
1FT7042-xAK7x-xxxx	207	20702
1FT7044-xAF7x-xxxx	207	20703
1FT7044-xAK7x-xxxx	207	20704
1FT7046-xAF7x-xxxx	207	20705
1FT7046-xAH7x-xxxx	207	20732
1FT7046-xAK7x-xxxx	207	20706
1FT7062-xAF7x-xxxx	207	20716
1FT7062-xAK7x-xxxx	207	20717
1FT7062-xWF7x-xxxx	207	20745
1FT7062-xWK7x-xxxx	207	20746
1FT7064-xAF7x-xxxx	207	20720
1FT7064-xAK7x-xxxx	207	20721
1FT7064-xWF7x-xxxx	207	20747
1FT7064-xWK7x-xxxx	207	20748
1FT7066-xAF7x-xxxx	207	20722
1FT7066-xAH7x-xxxx	207	20733
1FT7066-xWF7x-xxxx	207	20749
1FT7066-xWH7x-xxxx	207	20750
1FT7068-xAF7x-xxxx	207	20725
1FT7068-xWF7x-xxxx	207	20751
1FT7082-xAC7x-xxxx	207	20734
1FT7082-xAF7x-xxxx	207	20709
1FT7082-xAH7x-xxxx	207	20707
1FT7082-xWC7x-xxxx	207	20752
1FT7082-xWF7x-xxxx	207	20753
1FT7082-xWH7x-xxxx	207	20754
1FT7084-xAC7x-xxxx	207	20735
1FT7084-xAF7x-xxxx	207	20711
1FT7084-xAH7x-xxxx	207	20712
1FT7084-xWC7x-xxxx	207	20755
1FT7084-xWF7x-xxxx	207	20756

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1FT7084-xWH7x-xxxx	207	20757
1FT7086-xAC7x-xxxx	207	20736
1FT7086-xAF7x-xxxx	207	20714
1FT7086-xAH7x-xxxx	207	20715
1FT7086-xWC7x-xxxx	207	20758
1FT7086-xWF7x-xxxx	207	20759
1FT7086-xWH7x-xxxx	207	20760
1FT7102-xAB7x-xxxx	207	20726
1FT7102-xAC7x-xxxx	207	20737
1FT7102-xAF7x-xxxx	207	20727
1FT7102-xWB7x-xxxx	207	20761
1FT7102-xWC7x-xxxx	207	20762
1FT7102-xWF7x-xxxx	207	20763
1FT7105-xAB7x-xxxx	207	20728
1FT7105-xAC7x-xxxx	207	20738
1FT7105-xAF7x-xxxx	207	20729
1FT7105-xWB7x-xxxx	207	20744
1FT7105-xWC7x-xxxx	207	20764
1FT7105-xWF7x-xxxx	207	20765
1FT7108-xAB7x-xxxx	207	20730
1FT7108-xAC7x-xxxx	207	20739
1FT7108-xAF7x-xxxx	207	20731
1FT7108-xWB7x-xxxx	207	20742
1FT7108-xWC7x-xxxx	207	20766
1FT7108-xWF7x-xxxx	207	20767
1PH8131-2xF0x-xxxx	200	20001
1PH8131-2xF1x-xxxx	200	20002
1PH8131-2xF2x-xxxx	200	20003
1PH8131-2xL0x-xxxx	200	20004
1PH8131-2xL1x-xxxx	200	20005
1PH8131-2xL2x-xxxx	200	20006
1PH8133-2xF0x-xxxx	200	20007
1PH8133-2xF1x-xxxx	200	20008
1PH8133-2xF2x-xxxx	200	20009
1PH8133-2xG2x-xxxx	200	20010

Table A-3 Motor code for synchronous motors, continued

Order number	Motor type (p0300)	Motor code (p0301)
1PH8133-2xL0x-xxxx	200	20011
1PH8133-2xL1x-xxxx	200	20012
1PH8135-2xF0x-xxxx	200	20013
1PH8135-2xF1x-xxxx	200	20014
1PH8135-2xF2x-xxxx	200	20015
1PH8135-2xG0x-xxxx	200	20016
1PH8135-2xG1x-xxxx	200	20017
1PH8135-2xG2x-xxxx	200	20018
1PH8137-2xF0x-xxxx	200	20019
1PH8137-2xF1x-xxxx	200	20020
1PH8137-2xF2x-xxxx	200	20021
1PH8137-2xG2x-xxxx	200	20022
1PH8137-2xL0x-xxxx	200	20023
1PH8137-2xL1x-xxxx	200	20024
1PH8137-2xM0x-xxxx	200	20025
1PH8137-2xM1x-xxxx	200	20026
1PH8138-2xF2x-xxxx	200	20027
1PH8138-2xG2x-xxxx	200	20028

A.2.2 Encoder code

1FK6 encoders

Table A-4 Encoder code for 1FK6 encoders

Order number	Encoder code (p0400)	Comment
1FK6xxx-xxxxx-xAxx	2001	-
1FK6xxx-xxxxx-xExx	2051	-
1FK6xxx-xxxxx-xGxx	2052	-
1FK6xxx-xxxxx-xHxx	2053	-
1FK6xxx-xxxxx-xJxx	2054	-
1FK6xxx-xxxxx-xSxx	1002 1003 1004	4p (2-speed) 6p (3-speed) 8p (4-speed) The pole number of the resolver corresponds to the pole number of the motor (see catalog).
1FK6xxx-xxxxx-xTxx	1001	-

1FK7 encoders

Table A-5 Encoder code for 1FK7 encoders

Order number	Encoder code (p0400)	Comment
1FK7xxx-xxxxx-xAxx	2001	-
1FK7xxx-xxxxx-xExx	2051	-
1FK7xxx-xxxxx-xGxx	2052	-
1FK7xxx-xxxxx-xHxx	2053	-
1FK7xxx-xxxxx-xJxx	2054	-
1FK7xxx-xxxxx-xSxx	1002 1003 1004	4p (2-speed) 6p (3-speed) 8p (4-speed) The pole number of the resolver corresponds to the pole number of the motor (see catalog).
1FK7xxx-xxxxx-xTxx	1001	-

1FT6 encoders

Table A-6 Encoder code for 1FT6 encoders

Order number	Encoder code (p0400)	Comment
1FT6xxx-xxxxx-xAxx	2001	-
1FT6xxx-xxxxx-xExx	2051	-
1FT6xxx-xxxxx-xHxx	2053	-
1FT6xxx-4xxxx-xSxx	1002	4p (2-speed)
1FT6xxx-6xxxx-xSxx	1003	6p (3-speed)
1FT6xxx-8xxxx-xSxx	1004	8p (4-speed)
1FT6xxx-xxxxx-xTxx	1001	-

1PH4 encoders

Table A-7 Encoder code for 1PH4 encoders

Order number	Encoder code (p0400)	Comment
1PH4xxx-xNxxx-xxxx	2002	-

1PH7 encoders

Table A-8 Encoder code for 1PH7 encoders

Order number	Encoder code (p0400)	Comment
1PH7xxx-xExxx-xxxx	2051	-
1PH7xxx-xHxxx-xxxx	3002	-
1PH7xxx-xJxxx-xxxx	3003	-
1PH7xxx-xMxxx-xxxx	2001	-
1PH7xxx-xNxxx-xxxx	2002	-
1PH7xxx-xRxxx-xxxx	1001	-

List of abbreviations

B

Note:

The following list of abbreviations contains the abbreviations and their meanings used in the entire SINAMICS user documentation.

Abbreviation	Derivation of abbreviation	Meaning
A		
A...	Alarm	Alarm
AC	Alternating Current	Alternating current
ADC	Analog Digital Converter	Analog digital converter
AI	Analog Input	Analog input
AIM	Active Interface Module	Active Interface Module
ALM	Active Line Module	Active Line Module
AO	Analog Output	Analog output
AOP	Advanced Operator Panel	Advanced Operator Panel
APC	Advanced Positioning Control	Advanced positioning control
AR	Automatic Restart	Automatic restart
ASC	Armature Short-Circuit	Armature short-circuit
ASCII	American Standard Code for Information Interchange	American Standard Code for Information Interchange
ASM	Asynchronmotor	Induction motor
B		
BERO	-	Tradename for a type of contactless proximity switch
BI	Binector Input	Binector input
BIA	Berufsgenossenschaftliches Institut für Arbeitssicherheit	German Institute for Occupational Safety
BICO	Binector Connector Technology	Binector connector technology
BLM	Basic Line Module	Basic Line Module
BO	Binector Output	Binector output
BOP	Basic Operator Panel	Basic Operator Panel
C		
C	Capacitance	Capacitance
C...	-	Safety message
CAN	Controller Area Network	Serial bus system
CBC	Communication Board CAN	CAN communication board

Abbreviation	Derivation of abbreviation	Meaning
CD	Compact Disc	Compact Disc
CDS	Command Data Set	Command data set
CF Card	CompactFlash Card	CompactFlash card
CI	Connector Input	Connector input
CLC	Clearance Control	Clearance control
CNC	Computer Numerical Control	Computer numerical control
CO	Connector Output	Connector output
CO/BO	Connector Output/Binector Output	Connector output/Binector output
COB-ID	CAN Object-Identification	CAN object identification
COM	Common contact of a change-over relay	Common contact of a change-over relay
COMM	Commissioning	Commissioning
CP	Communications Processor	Communications processor
CPU	Central Processing Unit	Central processing unit
CRC	Cyclic Redundancy Check	Cyclic redundancy check
CSM	Control Supply Module	Control Supply Module
CU	Control Unit	Control Unit
D		
DAC	Digital Analog Converter	Digital Analog Converter
DC	Direct Current	Direct current
DCB	Drive Control Block	Drive Control Block
DCC	Drive Control Chart	Drive Control Chart
DCC	Data Cross-Check	Data cross-check
DCN	Direct Current Negative	Direct current negative
DCP	Direct Current Positive	Direct current positive
DDS	Drive Data Set	Drive data set
DI	Digital Input	Digital input
DI/DO	Digital Input/Digital Output	Bidirectional digital input/digital output
DMC	DRIVE-CLiQ Hub Module Cabinet	DRIVE-CLiQ Hub Module Cabinet
DME	DRIVE-CLiQ Hub Module External	DRIVE-CLiQ Hub Module External
DO	Digital Output	Digital output
DO	Drive Object	Drive object
DP	Distributed I/Os	Distributed I/Os
DPRAM	Dual-Port Random Access Memory	Dual-Port Random Access Memory
DRAM	Dynamic Random Access Memory	Dynamic Random Access Memory
DRIVE-CLiQ	Drive Component Link with IQ	Drive Component Link with IQ
DSC	Dynamic Servo Control	Dynamic servo control
E		
EASC	External Armature Short-Circuit	External armature short-circuit
EDS	Encoder Data Set	Encoder data set
ELCB	Earth Leakage Circuit Breaker	Earth leakage circuit breaker
ELP	Earth Leakage Protection	Earth leakage protection

Abbreviation	Derivation of abbreviation	Meaning
EMC	Electromagnetic Compatibility	Electromagnetic compatibility
EMF	Electromagnetic Force	Electromagnetic force
EN	Europäische Norm	European Standard
EnDat	Encoder-Data-Interface	Encoder interface
EP	Enable Pulses	Enable Pulses
EPOS	Einfachpositionierer	Basic positioner
ES	Engineering System	Engineering system
ESB	Ersatzschaltbild	Equivalent circuit diagram
ESD	Electrostatic Sensitive Devices	Electrostatic sensitive devices
ESR	Extended Stop and Retract	Extended stop and retract
F		
F...	Fault	Fault
FAQ	Frequently Asked Questions	Frequently asked questions
FBL	Free Blocks	Free function blocks
FCC	Function Control Chart	Function Control Chart
FCC	Flux Current Control	Flux current control
FD	Function Diagram	Function diagram
F-DI	Failsafe Digital Input	Failsafe digital input
F-DO	Failsafe Digital Output	Failsafe digital output
FEM	Fremderregter Synchronmotor	Separate-field synchronous motor
FEPRM	Flash-EPRM	Non-volatile write and read memory
FG	Function Generator	Function generator
FI	-	Fault current
FO	Fiber-Optic Cable	Fiber optic cable
FPGA	Field Programmable Gate Array	Field Programmable Gate Array
FW	Firmware	Firmware
G		
GB	Gigabyte	Gigabyte
GC	Global Control	Global Control Telegram (Broadcast Telegram)
GND	Ground	Reference potential for all signal and operating voltages, usually defined with 0 V (also designated as M)
GSD	Gerätstammdatei	Device master file: describes the features of a PROFIBUS slave
GSV	Gate Supply Voltage	Gate supply voltage
GUID	Globally Unique Identifier	Globally unique identifier
H		
HF	High Frequency	High frequency
HFD	Hochfrequenzdrossel	High-frequency reactor
HMI	Human Machine Interface	Human Machine Interface
HTL	High-Threshold Logic	High-threshold logic

Abbreviation	Derivation of abbreviation	Meaning
HW	Hardware	Hardware
I		
I/O	Input/Output	Input/Output
I2C	Inter Integrated Circuit	Internal serial data bus
IASC	Internal Armature Short-Circuit	Internal armature short-circuit
ID	Identifier	Identifier
IEC	International Electrotechnical Commission	International standard in electrical engineering
IF	Interface	Interface
IGBT	Insulated Gate Bipolar Transistor	Bipolar transistor with insulated control electrode
IGCT	Integrated Gate-Controlled Thyristor	Semiconductor circuit-breaker with integrated control electrode
IL	Impulslöschung	Pulse suppression
IP	Internet Protocol	Internet Protocol
IPO	Interpolator	Interpolator
IT	Isolé Terré	Insulated three-phase supply system
IVP	Internal Voltage Protection	Internal voltage protection
J		
JOG	Jogging	Jogging
K		
KIP	Kinetische Pufferung	Kinetic buffering
Kp	-	Proportional gain
KTY	-	Special temperature sensor
L		
L	-	Formula symbol for inductance
LED	Light Emitting Diode	Light Emitting Diode
LIN	Linearmotor	Linear motor
LR	Lageregler	Position controller
LSB	Least Significant Bit	Least Significant Bit
LSC	Line-Side Converter	Line-Side Converter
LSS	Line Side Switch	Line Side Switch
LU	Length Unit	Length Unit
M		
M	-	Formula symbol for torque
M	Masse	Reference potential for all signal and operating voltages, usually defined with 0 V (also designated as GND)
MB	Megabyte	Megabyte
MCC	Motion Control Chart	Motion Control Chart
MDS	Motor Data Set	Motor data set
MLFB	Maschinenlesbare Fabrikatebezeichnung	Machine-readable product designation

Abbreviation	Derivation of abbreviation	Meaning
MMC	Man-Machine Communication	Man-Machine Communication
MMC	Micro Memory Card	Micro Memory Card
MSB	Most Significant Bit	Most Significant Bit
MSC	Motor-Side Converter	Motor-Side Converter
MSCY_C1	Master Slave Cycle Class 1	Cyclic communication between master (class 1) and slave
MT	Messtaster	Probe
N		
N. C.	Not Connected	Not connected
N...	No Report	No report or internal message
NAMUR	Normenarbeitsgemeinschaft für Mess- und Regeltechnik in der chemischen Industrie	Standardization association for measurement and control in chemical industries
NC	Normally Closed (contact)	Normally Closed (contact)
NC	Numerical Control	Numerical control
NEMA	National Electrical Manufacturers Association	Standards association in USA
NO	Normally Open (contact)	Normally Open (contact)
O		
OA	Open Architecture	Open Architecture
OC	Operating Condition	Operating condition
OEM	Original Equipment Manufacturer	Original Equipment Manufacturer
OLP	Optical Link Plug	Optical link plug
OMI	Option Module Interface	Option Module Interface
P		
p...	-	Setting parameter
PB	PROFIBUS	PROFIBUS
PcCtrl	PC Control	Master control
PD	PROFIdrive	PROFIdrive
PDS	Power unit Data Set	Power unit data set
PE	Protective Earth	Protective Earth
PELV	Protective Extra Low Voltage	Protective Extra Low Voltage
PEM	Permanenterregter Synchronmotor	Permanent-field synchronous motor
PG	Programmiergerät	Programming device
PI	Proportional Integral	Proportional Integral
PID	Proportional Integral Differential	Proportional Integral Differential
PLC	Programmable Logic Controller	Programmable logic controller
PLL	Phase-Locked Loop	Phase-Locked Loop
PN	PROFINET	PROFINET
PNO	PROFIBUS Nutzerorganisation	PROFIBUS User Organization (PROFIBUS International)
PPI	Point to Point Interface	Point to point interface
PRBS	Pseudo Random Binary Signal	Pseudo Random Binary Signal

Abbreviation	Derivation of abbreviation	Meaning
PROFIBUS	Process Field Bus	Serial data bus
PS	Power Supply	Power supply
PSA	Power Stack Adapter	Power stack adapter
PTC	Positive Temperature Coefficient	Positive Temperature Coefficient
PTP	Point-To-Point	Point-to-point
PWM	Pulse Width Modulation	Pulse width modulation
PZD	Prozessdaten	Process data
Q		
R		
r...	-	Display parameter (read only)
RAM	Random Access Memory	Read and write memory
RCCB	Residual Current Circuit Breaker	Residual current circuit breaker
RCD	Residual Current Device	Residual current device
RFG	Ramp-Function Generator	Ramp-function generator
RJ45	Registered Jack 45	Describes an 8-pole connector system for data transfer with shielded or unshielded multicore copper cables
RKA	Rückkühlanlage	Cooling unit
RO	Read Only	Read only
RPDO	Receive Process Data Object	Receive Process Data Object
RS232	Recommended Standard 232	Interface standard for conducted serial data transfer between a transmitter and a receiver (also designated as EIA232)
RS485	Recommended Standard 485	Interface standard for a conducted differential, parallel and/or serial bus system (data transfer between several transmitters and receivers, also designated as EIA485)
RTC	Real Time Clock	Real time clock
S		
S1	-	Continuous duty
S3	-	Intermittent duty
SBC	Safe Brake Control	Safe brake control
SBH	Sicherer Betriebshalt	Safe Operating Stop
SBR	-	Safe Acceleration Monitor
SCA	Safe Cam	Safe cam
SD Card	SecureDigital Card	Secure Digital Card
SE	Sicherer Software-Endschalter	Safe software limit switch
SG	Sicher reduzierte Geschwindigkeit	Safely reduced speed
SGA	Sicherheitsgerichteter Ausgang	Safety-related output
SGE	Sicherheitsgerichteter Eingang	Safety-related input
SH	Sicherer Halt	Safe standstill
SP	Safety Integrated	Safety Integrated
SIL	Safety Integrity Level	Safety Integrity Level

Abbreviation	Derivation of abbreviation	Meaning
SLM	Smart Line Module	Smart Line Module
SLP	Safely-Limited Position	Safely-Limited Position
SLS	Safely-Limited Speed	Safely Limited Speed
SLVC	Sensorless Vector Control	Sensorless Vector Control
SM	Sensor Module	Sensor Module
SMC	Sensor Module Cabinet	Sensor Module Cabinet
SME	Sensor Module External	Sensor Module External
SN	Sicherer Software-Nocken	Safe software cam
SOS	Safe Operating Stop	Safe operating stop
SP	Service Pack	Service pack
SPC	Setpoint Channel	Setpoint channel
SPI	Serial Peripheral Interface	Serial I/O interface
SS1	Safe Stop 1	Safe Stop 1 (time-monitored, ramp-monitored)
SS2	Safe Stop 2	Safe Stop 2
SSI	Synchronous Serial Interface	Synchronous serial interface
SSM	Safe Speed Monitor	Safe feedback from speed monitor (n < nx)
SSR	Safe Stop Ramp	Safe brake ramp
STO	Safe Torque Off	Safely switched-off torque
STW	Steuernwort	Control word
SVA	Space-vector approximation	Space-vector approximation
T		
TB	Terminal Board	Terminal Board
TIA	Totally Integrated Automation	Totally Integrated Automation
TM	Terminal Module	Terminal Module
TN	Terre Neutre	Grounded three-phase supply system
Tn	-	Integral time
TPDO	Transmit Process Data Object	Transmit Process Data Object
TT	Terre Terre	Grounded three-phase supply system
TTL	Transistor-Transistor Logic	Transistor-Transistor-Logic
Tv	-	Derivative action time
U		
UL	Underwriters Laboratories Inc.	Underwriters Laboratories Inc.
UPS	Uninterruptible Power Supply	Uninterruptible power supply
V		
VC	Vector Control	Vector control
Vdc	-	DC link voltage
VdcN	-	Partial DC link voltage negative
VdcP	-	Partial DC link voltage positive
VDE	Verband Deutscher Elektrotechniker	Association of German Electrical Engineers
VDI	Verein Deutscher Ingenieure	Association of German Engineers

Abbreviation	Derivation of abbreviation	Meaning
VPM	Voltage Protection Module	Voltage Protection Module
Vpp	Volt peak to peak	Volt peak to peak
VSM	Voltage Sensing Module	Voltage Sensing Module
W		
WZM	Werkzeugmaschine	Machine tool
X		
XML	Extensible Markup Language	Extensible Markup Language (standard language for Web publishing and document management)
Y		
Z		
ZK	Zwischenkreis	DC link
ZM	Zero Mark	Zero mark
ZSW	Zustandswort	Status word

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