

SIEMENS

Product Information on the Manual

ET 200X Distributed I/O Device, Edition 02/2003

Check List for Commissioning and Service

This check list is intended to be a simple way of checking that you adhere to all the relevant installation guidelines when you install SIMATIC ET 200X components.

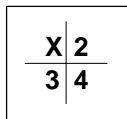
It also includes important tips for commissioning the SIMATIC ET 200X and information on how to avoid errors.

It is essential to use the order numbers (MLFB) and release numbers of the modules when dealing with other contact partners.

You will find the MLFB on the upper side of the module. It usually has the following format:

6ES7141-1BF11-0XB0.

The release is specified in a small cross (you can add this number to the other numbers).



The example given is release 1.

The date code (data of manufacture) is printed on the motor starters:

Example: G/001004; the motor was manufactured on October 4, 2000.

Note

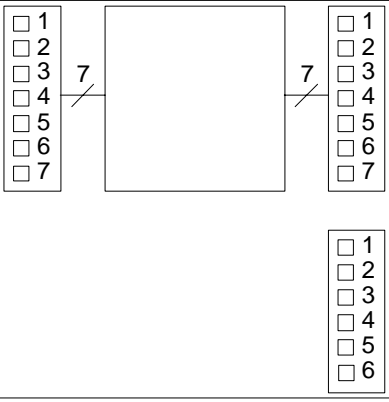
Detailed installation guidelines are described in the 02/2003 manual in Chapters 3 and 4.

1 Mechanical Components

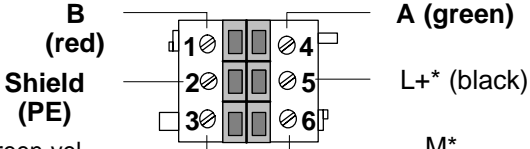
To Do	Done
<p>1.1 Base</p> <p>Are the modules screwed onto a stable base or rail?</p> <p>Rail order numbers:</p> <p>6ES7194-1GA00-0XA0; narrow for BM and 3EM; 400 mm</p> <p>6ES7194-1GA10-0XA0; narrow for BM and 7EM; 640 mm</p> <p>6ES7194-1GA20-0XA0; narrow and customized; 2000 mm</p> <p>6ES7194-1GB00-0XA0; wide for BM/EM/MS/FU; 520 mm</p> <p>6ES7194-1GB10-0XA0; wide for BM/EM/MS/FU; 1000 mm</p> <p>6ES7194-1KC00-0XA0; fixing screws</p> <p>In new installations, rails are used as standard.</p>	
<p>1.2 Fixing of the Modules to Each Other and to the Base</p> <p>The modules must always be fixed to one another.</p> <p>Each module must also be screwed onto the base or rail.</p>	
<p>1.3 Vibration Stress</p> <p>Can the structure deal with the permissible shock and vibration stress?</p> <p>Have the screws become undone or loosened as a result of the mechanical stress?</p> <p>Note:</p> <p>I/O modules are released with 5 g; motor starters, frequency converters and the pneumatic interface with 2 g.</p> <p>Possible Remedy:</p> <p>Install mechanical buffers, or change the installation location of the station.</p>	
<p>1.4 Bus and Voltage Cables</p> <p>Are the screwed joints on the basic modules where the bus and voltage cables are fed in tightly screwed and sealed?</p>	
<p>1.5 Sockets</p> <p>Do all the unused I/O sockets have caps on them?</p>	

2 Electronic Components and PROFIBUS

To Do	Done
<p>2.1 Terminating Resistor</p> <p>Has the terminating resistor been correctly inserted on the basic module? Have too many terminating resistors been inserted by mistake?</p>	
<p>2.2 Cable Connection</p> <p>Are the bus connectors correctly wired? Is the shield of the PROFIBUS cable correctly positioned (no protruding litz wires)?</p>	
<p>2.3 Module Replacement</p> <p>Do not remove the modules when live! The 24 V supply must be switched off before a module is replaced. Removing a module when live can damage the backplane bus ASIC.</p> <p>Note: If several modules have failed one after another, always replace the modules from left to right.</p>	
<p>2.4 Grounding</p> <p>Is the grounding screw connected to the basic modules? If you are using analog modules, you must also place grounding screws on these.</p>	
<p>2.5 Equipotential Bonding</p> <p>Is there equipotential bonding between two stations that are interconnected? Are ground terminals connected for equipotential bonding?</p> <p>Note (VDE Regulation): The shield must not be used as equipotential bonding.</p>	
<p>2.6 LED Combinations</p> <p>The LEDs help you to establish the causes of problems. Check the LED, and compare it with the information in the manual. (Section 5.3 in the 02/2003 manual)</p>	

To Do	Done																																																												
<p>2.7 Station Failure/Module Failure</p> <p>Possible Cause: Short circuit of the sensor supply</p> <p>You can measure on the backplane bus whether a short circuit of the 24 V supply has occurred due to short circuiting of the input voltage, for example. You can access the cables on the last module. The pin assignment is as follows: Pin 9 = sensor ground; Pin10 = 24 V sensor supply)</p>																																																													
<div style="display: flex; justify-content: space-around;"> <div style="text-align: left;"> <p>Input side</p> <table border="0"> <tr><td>1</td><td><input type="checkbox"/></td><td>1</td></tr> <tr><td>2</td><td><input type="checkbox"/></td><td>2</td></tr> <tr><td>3</td><td><input type="checkbox"/></td><td>3 M</td></tr> <tr><td>4</td><td><input type="checkbox"/></td><td>4</td></tr> <tr><td>5</td><td><input type="checkbox"/></td><td>5</td></tr> <tr><td>6</td><td><input type="checkbox"/></td><td>6</td></tr> <tr><td>7</td><td><input type="checkbox"/></td><td>7</td></tr> </table> </div> <div style="text-align: center;">  </div> <div style="text-align: right;"> <p>Output side</p> <table border="0"> <tr><td><input type="checkbox"/></td><td>1</td><td>1</td></tr> <tr><td><input type="checkbox"/></td><td>2</td><td>2</td></tr> <tr><td><input type="checkbox"/></td><td>3</td><td>3 M</td></tr> <tr><td><input type="checkbox"/></td><td>4</td><td>4</td></tr> <tr><td><input type="checkbox"/></td><td>5</td><td>5</td></tr> <tr><td><input type="checkbox"/></td><td>6</td><td>6</td></tr> <tr><td><input type="checkbox"/></td><td>7</td><td>7</td></tr> </table> <table border="0"> <tr><td><input type="checkbox"/></td><td>1</td><td>8</td></tr> <tr><td><input type="checkbox"/></td><td>2</td><td>9 M24G (sensor ground)</td></tr> <tr><td><input type="checkbox"/></td><td>3</td><td>10 P24G (sensor supply)</td></tr> <tr><td><input type="checkbox"/></td><td>4</td><td>11 PE</td></tr> <tr><td><input type="checkbox"/></td><td>5</td><td>12 P24L (load supply)</td></tr> <tr><td><input type="checkbox"/></td><td>6</td><td>13 M24L (load ground)</td></tr> </table> </div> </div>	1	<input type="checkbox"/>	1	2	<input type="checkbox"/>	2	3	<input type="checkbox"/>	3 M	4	<input type="checkbox"/>	4	5	<input type="checkbox"/>	5	6	<input type="checkbox"/>	6	7	<input type="checkbox"/>	7	<input type="checkbox"/>	1	1	<input type="checkbox"/>	2	2	<input type="checkbox"/>	3	3 M	<input type="checkbox"/>	4	4	<input type="checkbox"/>	5	5	<input type="checkbox"/>	6	6	<input type="checkbox"/>	7	7	<input type="checkbox"/>	1	8	<input type="checkbox"/>	2	9 M24G (sensor ground)	<input type="checkbox"/>	3	10 P24G (sensor supply)	<input type="checkbox"/>	4	11 PE	<input type="checkbox"/>	5	12 P24L (load supply)	<input type="checkbox"/>	6	13 M24L (load ground)	
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<p>Procedure: Check the module. This means removing the connectors from the sensors and, if there is still an error message on the ET 200X or the voltage is still short-circuited, replace the module or just the upper part of the module. If the error message is no longer reported after the sensor or actuator has been removed, check the connector or the sensor.</p>																																																													

3 Software and Hardware Diagnostics

To Do	Done
<p>3.1 BT200</p> <p>Two relevant checks can be carried out on the ET 200X using the BT200 bus tester:</p> <ul style="list-style-type: none"> • Is the bus terminating resistor inserted? • Is the RS485 driver of the basic module OK? <p>LifeList, reflection measurement and node test menus are available for this in BT200.</p> <p>Adapter:</p> <p>A standard PROFIBUS cable can be used for the test with a connector and an ET200X cap on the other side. On the ET 200X cap, PROFIBUS A (green) is on 4 and PROFIBUS B (red) is on 1. The shield must also be in place.</p> <div style="text-align: center;">  <p>The diagram shows a 6-pin connector with the following labels and connections:</p> <ul style="list-style-type: none"> B (red) connected to pin 1 Shield (PE) connected to pin 3 A (green) connected to pin 4 L+* (black) connected to pin 5 M* (blue) connected to pin 6 </div> <p>BM 141/142: PE (green-yel-low)*</p> <p>BM 147/CPU: unassigned</p> <p>* Connect the supply voltage for the electronic components/sensors to these pins; if you are using the BM 147/CPU, either connect the 3rd core of the cable to pin 3, or do not connect it at all.</p> <p>Procedure or Checking Whether or Not the Resistor Has Been Inserted:</p> <ul style="list-style-type: none"> • Connect BT 200 to the ET 200X directly via an adapter • Switch off the resistor to the BT 200 PROFIBUS connector (OFF) • Apply voltage to the ET 200X • Press ESC and OK • Scroll to the reflection test • OK • Test • Reflection in m => no R inserted and no terminating function • No reflection detected =Y resistor inserted and terminating function <p>Procedure for Checking Whether the RS 485 Driver Is OK</p> <ul style="list-style-type: none"> • Switch on the resistor to the ET 200X (ON) • Connect BT 200 to the ET 200X directly via an adapter • Switch on the resistor to the BT 200 PROFIBUS connector (ON) • Press ESC and OK • Scroll to node test • OK • Set the slave address • OK • Display: RS 485 OK or node not available <p>The 5 V and the RTS signal are not connected with the ET 200X and cannot be evaluated.</p>	

To Do	Done
<p>3.2 FB125</p> <p>The diagnostic messages can be simply displayed using the FB125. The FB125 can only provide information supplied by the ET 200X and that can be evaluated in the usual way using SFC13 or SFC51.</p>	
<p>3.3 Evaluating the Diagnosis</p> <p>Before the diagnostic functions can be used with diagnostics-capable modules of the ET 200X, the diagnostics must be activated or enabled for hardware configuration in the configuration tool.</p> <p>HWCONFIG => Select ET 200X => Properties => Parameters => Activate diagnostics</p>	