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SIMATIC

Industrial PC
SIMATIC HMI IPC677C

Operating Instructions (Compact)

05/2010
ASE02680989-01
Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

**DANGER**

indicates that death or severe personal injury will result if proper precautions are not taken.

**WARNING**

indicates that death or severe personal injury may result if proper precautions are not taken.

**CAUTION**

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

**CAUTION**

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

**NOTICE**

indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

**WARNING**

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be adhered to. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of the Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.
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Safety guidelines

**WARNING**

**Emergencies**
In the event of a device fault, interrupt the power supply immediately. Inform the customer service personnel responsible. Malfunctions can occur when the operator controls or power cable are damaged or when liquids or foreign objects penetrate the device.

**WARNING**

Following the results of a risk analysis, additional protection equipment on the machine or the system is necessary to avoid endangering persons. With this, especially the programming, configuration and wiring of the inserted I/O modules have to be executed, in accordance with the safety performance (SIL, PL or Cat.) identified by the necessary risk analysis. The intended use of the device has to be ensured.

The proper use of the device has to be verified with a function test on the system. This test can detect programming, configuration and wiring errors. The test results have to be documented and, if necessary, entered into the relevant documents that verify safety.

**Note**
This device corresponds to the regulations of the EU low-voltage directive and the GPSG, verified by conformity with national and international standards (DIN EN, IEC) by a UL approval (cULuc). Please comply with all the information in these operating instructions when assembling the device.

**Electrical connection**

**WARNING**

Disconnect the device from the mains before every intervention.

Do not touch power lines or data transmission lines during electrical storms and do not connect any cables.
System expansions

Only install system expansion devices designed for this device. If you install other expansions, you may damage the system or violate the safety requirements and regulations for radio frequency interference suppression. Contact your technical support team or where you purchased your PC to find out which system expansion devices may safely be installed.

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you install or exchange system expansions and damage your device, the warranty becomes void.</td>
</tr>
</tbody>
</table>

High frequency radiation

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unintentional operating situations</td>
</tr>
</tbody>
</table>

High frequency radiation, from cell phones for example, can cause unintentional operating situations under some circumstances. Further information is available in the section "EMC requirements" of the "Technical data" chapter.

Handling and disposal of lithium batteries

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger of explosion and the release of harmful substances!</td>
</tr>
</tbody>
</table>

Do not throw lithium batteries into fire, do not solder onto the cell body, do not open, do not short circuit, do not reverse pole, do not heat above 100 °C, dispose of according to regulations, and protect from direct sunlight, moisture and condensation.

Replace lithium batteries with the same brand or a brand recommended by the manufacturer.

Dispose of used lithium batteries as hazardous waste, individually, in accordance with the local regulations.

Repairs

Only authorized personnel are permitted to repair the device.

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unauthorized opening of and improper repairs to the device may result in substantial damage to equipment or risk of personal injury to the user.</td>
</tr>
</tbody>
</table>
2.1 Unpacking and checking the delivery

1. Please check the packaging material for transport damage upon delivery.
2. If any transport damage is present at the time of delivery, lodge a complaint at the shipping company in charge. Have the shipper confirm the transport damage immediately.
3. Unpack the device.

**CAUTION**

Do not lie the device on its back. This will avoid any damage to an optical drive which may be present. Lie the front side on a soft surface to avoid damaging the front panel USB port.

4. Keep the packaging material in case you have to transport the unit again.

**NOTICE**

The packaging protects the device during transport and storage. Therefore, never dispose of the original packaging material!

5. Please keep the enclosed documentation in a safe place. You will need the documentation when you start up the device for the first time.
6. Check the contents of the package for completeness and transportation damage. Check for completeness using the enclosed scope of delivery list.
7. Should the contents of the package be incomplete or damaged, please inform the responsible supply service immediately and fax us the enclosed form "SIMATIC IPC/PG quality control report".

**WARNING**

Make sure that a damaged device is not installed nor put into operation.

8. Note the identification information (see chapter "Identification data of the device").
2.2 Device identification data

Enter the identification data of the device into the table.

<table>
<thead>
<tr>
<th>SVP number (on the type plate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order No.</td>
</tr>
</tbody>
</table>

"Microsoft Windows Product Key" from "Certificate of Authenticity" (COA)
The label is attached to the device.

Ethernet address:
BIOS Setup (F2 key) under
"Main > Hardware Options > Ethernet Address"

2.3 Product Documentation

The detailed operating instructions for device can be downloaded as a PDF file on the Internet under the following address:

http://www.siemens.com/automation/service&support
3.1 Mounting depth of the device

<table>
<thead>
<tr>
<th>Panel PC with operator control units</th>
<th>Depth D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key panel with 12&quot; TFT</td>
<td>105 mm</td>
</tr>
<tr>
<td>Key panel with 15&quot; TFT</td>
<td>124 mm</td>
</tr>
<tr>
<td>Touch panel with 12&quot; TFT</td>
<td>123 mm</td>
</tr>
<tr>
<td>Touch panel with 15&quot; TFT</td>
<td>121 mm</td>
</tr>
<tr>
<td>Touch panel with 15&quot; TFT INOX</td>
<td>126 mm</td>
</tr>
<tr>
<td>Touch panel with 19&quot; TFT</td>
<td>130 mm</td>
</tr>
</tbody>
</table>

Note

Additional mounting depth with optical drive

The installation depth increases by 21 mm when an optical drive is installed in the device.
3.2 Permitted mounting positions

Approval

Only certain mounting positions are approved for the device.

![Mounting position diagram]

Figure 3-1 Mounting position

Table 3-1 Permissible deviations from the vertical mounting position

<table>
<thead>
<tr>
<th>TFT</th>
<th>Temperature</th>
<th>Angle A</th>
<th>Angle B</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;, 15&quot;</td>
<td>up to 50 °C¹</td>
<td>20°</td>
<td>20°</td>
</tr>
<tr>
<td>19&quot;</td>
<td>up to 45 °C</td>
<td>20°</td>
<td>20°</td>
</tr>
</tbody>
</table>

¹ With a total loading of slots amounting to 15 W

Note

When mounting the device at an angle, note the following.
- Do not subject the device to mechanical stress.
- Operation of a DVD drive is not permitted.
3.3 Preparing the mounting cut-out

The following illustration shows the dimensions for the mounting cut-out.

(1) Drill hole for screw attachment  (4) Clamp
(2) Pressure points for clamp     (5) Rz 120 in the seal area
(3) Setscrews                    (6) Seal area

Figure 3-2 Drill holes for the screws and pressure points for the clamp screws

Note
Mounting dimensions can be read from the dimension overview or they can be transferred to the cabinet from the mounting template supplied.
Installation / panel-mounting

3.3 Preparing the mounting cut-out

Table 3-2 Dimensions for the mounting cut-out in mm

<table>
<thead>
<tr>
<th>Control unit</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
<th>L9</th>
<th>A1</th>
<th>A2</th>
<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
<th>S5</th>
<th>S6</th>
<th>S7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12&quot; TFT</td>
<td>450</td>
<td>290</td>
<td>465</td>
<td>235</td>
<td>112</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>16</td>
<td>10</td>
<td>78</td>
<td>78</td>
<td>56</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15&quot; TFT</td>
<td>450</td>
<td>321</td>
<td>465</td>
<td>279</td>
<td>112</td>
<td>186</td>
<td>25</td>
<td>165</td>
<td>16</td>
<td>17</td>
<td>51</td>
<td>51</td>
<td>56</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15&quot; TFT INOX</td>
<td>450</td>
<td>321</td>
<td>465</td>
<td>279</td>
<td>112</td>
<td>186</td>
<td>25</td>
<td>165</td>
<td>16</td>
<td>17</td>
<td>51</td>
<td>51</td>
<td>56</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Touch panel</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12&quot; TFT</td>
<td>368</td>
<td>290</td>
<td>—</td>
<td>—</td>
<td>112</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>16</td>
<td>10</td>
<td>19</td>
<td>35</td>
<td>56</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15&quot; TFT</td>
<td>450</td>
<td>290</td>
<td>465</td>
<td>235</td>
<td>112</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>16</td>
<td>10</td>
<td>19</td>
<td>35</td>
<td>56</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19&quot; TFT</td>
<td>450</td>
<td>380</td>
<td>465</td>
<td>235</td>
<td>112</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>16</td>
<td>10</td>
<td>46</td>
<td>46</td>
<td>—</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) M6 thread or drill holes with a diameter of 7 mm

2) Cut-outs for the shafts of the insert strips are only necessary for 15" key panels.

3) Two clamps necessary for vertically securing clamps only for 19" touch panel fronts.

Preparing the mounting cut-out

<table>
<thead>
<tr>
<th>Steps for preparing the mounting cut-out</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>
3.4 Securing the device with clamps

Requirement

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12&quot;</td>
</tr>
<tr>
<td>Clamp</td>
<td>6 x</td>
</tr>
</tbody>
</table>

The clamps are provided with the control unit.

Tool

| Tool | 2.5 mm hexagonal spanner |

Procedure

1. Disconnect the device from the power supply.
2. Working from the front, insert the device into the 19" rack on the swivel arm or in the mounting cut-out.
3. Fasten the control unit from the rear using the clamps.
4. Tighten the setscrews to a torque of 0.4 - 0.5 Nm.

IP65 degree of protection

The plant builder is responsible for the correct installation of the device. The degree of protection IP65 is only guaranteed for the front of the device if the ring seal is properly applied with the correct size of cutout, the unit has been clamped in place, and the instructions below are observed.

NOTICE

Control cabinet installation: Material strength at the mounting cut-out

Ensure that the material strength at the mounting cut-out is a minimum of 2 mm and a maximum of 6 mm. Please follow the specifications for the dimensions in the "Preparing the mounting cut-out" section.

The degrees of protection are only guaranteed when the following is observed:

- The surface plane deviation of the mounting cut-out in relation to the external dimensions of the control unit amounts to ≤ 0.5 mm when the control unit is mounted.
3.5 Securing with screws

**Note**

Securing with screws is not possible with the 12" touch panel variant.

**Drill holes in the control unit**

<table>
<thead>
<tr>
<th>Steps for drilling holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drill holes (Ø approx. 2.5 mm) from the rear in the four recesses of the control unit.</td>
</tr>
<tr>
<td>2. Drill these holes with a diameter of Ø 5.5 mm for M5 and a Ø 6.5 mm for M6.</td>
</tr>
<tr>
<td>3. Deburr the holes from the front of the control unit</td>
</tr>
</tbody>
</table>

**NOTICE**

**Risk of damage**

Ensure that no metal cuttings enter the device when the holes are drilled. Cover the device with film or when drilling, use removal by suction.

**Drill holes in the mounting unit**

1. Drill the holes at the prepared mounting cut-out according to the information for L3 and L4. (see Chapter "Mounting cut-out")
2. Working from the front, insert the device into the 19" rack on the swivel arm or in the mounting cut-out of the control cabinet.
3. Secure the control unit by inserting suitable screws and nuts
### IP54 degree of protection

The IP54 degree of protection is guaranteed for mounting together with the ring seal.

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observe the panel seal when mounting</strong></td>
</tr>
<tr>
<td>Ensure you do not damage the panel seal when mounting the device.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control cabinet installation: Material strength at the mounting cut-out</strong></td>
</tr>
<tr>
<td>Ensure that the material strength at the mounting cut-out is a minimum of 2 mm and a maximum of 6 mm. Please follow the specifications for the dimensions in the &quot;Preparing the mounting cut-out&quot; section.</td>
</tr>
<tr>
<td>The degrees of protection are only guaranteed when the following is observed:</td>
</tr>
<tr>
<td>- The surface plane deviation of the mounting cut-out in relation to the external dimensions of the control unit amounts to ≤ 0.5 mm when the control unit is mounted.</td>
</tr>
</tbody>
</table>
## 4.1 Connection elements

### Ports

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>DVI/VGA</td>
<td>DVI/VGA connection for CRT or LCD monitor with DVI port, VGA via DVI/VGA adapter</td>
</tr>
<tr>
<td>②</td>
<td>Compact Flash card</td>
<td>Slot for Compact Flash card</td>
</tr>
<tr>
<td>③</td>
<td>COM</td>
<td>Serial V.24 port</td>
</tr>
<tr>
<td>④</td>
<td>USB 2.0</td>
<td>4 ports for USB devices (only 2 ports can be simultaneously used as high current)</td>
</tr>
<tr>
<td>⑤</td>
<td>ETHERNET</td>
<td>2x RJ 45 Ethernet connection for 10/100/1000 Mbps</td>
</tr>
<tr>
<td>⑥</td>
<td>PROFIBUS/MPI</td>
<td>MPI port (RS485, electrically isolated), optional 9-pin D-sub socket (optional product model)</td>
</tr>
<tr>
<td>⑦</td>
<td>PROFINET</td>
<td>CP 1616 onboard port, three RJ45 sockets (optional product models)</td>
</tr>
</tbody>
</table>
The ports available on the device can be uniquely identified based on their numbering. This numbering may deviate, however, from the numbering performed by the operating system.

Ports for connecting operator panels / displays

<table>
<thead>
<tr>
<th>Arrangement of the ports</th>
<th>①</th>
<th>LVDS display ports for TFT displays up to 1024 x 768 pixels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>②</td>
<td>Access to 2nd LVDS display port for TFT displays up to 1280 x 1024</td>
</tr>
<tr>
<td></td>
<td>③</td>
<td>USB 2.0 for front</td>
</tr>
<tr>
<td></td>
<td>④</td>
<td>Retaining screw for the steel cover plate that covers the ports described below.</td>
</tr>
<tr>
<td></td>
<td>⑤</td>
<td>I/O port for connecting front components</td>
</tr>
</tbody>
</table>
### AC power supply

<table>
<thead>
<tr>
<th>Position of the IEC power connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IEC power connector to AC power supply of the device. The maximum permitted power range is 100 V AC to 240 V AC.</td>
</tr>
</tbody>
</table>

### DC power supply

<table>
<thead>
<tr>
<th>Position of the DC power connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug connector for DC power supply of the device</td>
<td></td>
</tr>
<tr>
<td>1. + (24 V DC)</td>
<td></td>
</tr>
<tr>
<td>2. - (ground)</td>
<td></td>
</tr>
<tr>
<td>3. PE (ground terminal)</td>
<td></td>
</tr>
</tbody>
</table>
4.2 Connecting the 100 - 240 V AC Power Supply

**Note before connecting the device**

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>The varying voltage power supply module is designed for operation on 120/230/240 V AC networks. The setting of the voltage range takes place automatically.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>WARNING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not connect or disconnect power and data cables during thunderstorms.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>WARNING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The device is designed for operation on grounded power supply networks (TN networks to VDE 0100, Part 300, or IEC 60364-3). Operation on ungrounded or impedance-grounded power networks (IT networks) is prohibited.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>WARNING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The permitted nominal voltage of the device must conform with local mains voltage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CAUTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The mains connector must be disconnected to fully isolate the device from mains. Ensure easy access to this area. A master mains disconnect switch must be installed if the device is mounted in a switch cabinet. Always ensure free and easy access to the power inlet on the device or that the safety power outlet of the building installation is freely accessible and located close to the device.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>The power supply contains an active PFC (Power Factor Correction) circuit to conform to the EMC guidelines. Uninterruptible AC power systems (UPS) must supply a sinusoidal output voltage in the normal and buffered mode when used with SIMATIC PCs with an active PFC. UPS characteristics are described and classified in the standards EN 50091-3 and IEC 62040-3. Devices with sinusoidal output voltage in the normal and buffered mode are identified with the classification &quot;VFI-SS-....&quot; or &quot;VI-SS-....&quot;.</td>
</tr>
</tbody>
</table>
Localized information

For countries other than the USA and Canada:

**230 V supply voltage**
This device is equipped with a safety-tested power cable which may only be connected to a grounding outlet. If you choose not to use this cable, you must use a flexible cable of the following type: Min 18 AWG conductor cross-section and 15-A / 250-V shockproof connector. The cable set must be compliant with the safety regulations and stipulated IDs of the country where the system is to be installed.

**For the USA and Canada:**
For the United States and Canada, a CSA or UL-listed power cord must be used.
The connector must be compliant with NEMA 5-15.

**120 V AC power supply**
To be used is a flexible power cord approved to UL and with CSA label, and which has the following features: Type SJT with three leads, min. 18 AWG conductor cross-section, max. 4.5 m in length and parallel ground contact connector 15 A, min. 125 V.

**240 VAC power supply**
Use a flexible power cord which is approved to UL and CSA, and which has the following features: Type SJT with three conductors, min. 18 AWG conductor cross-section, max. length 4.5 m, and tandem grounded connector 15 A, min. 250 V.
### Connecting

#### 4.2 Connecting the 100 - 240 V AC Power Supply

#### How to connect the device to the 120 V AC / 230 V AC power supply

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure that the ON/OFF switch is in &quot;0&quot; position (Off) when you plug in the power cord in order to avoid unintentional startup of the device.</td>
</tr>
<tr>
<td>2</td>
<td>Connect the IEC connector</td>
</tr>
<tr>
<td>3</td>
<td>Connecting the power cord to the power socket</td>
</tr>
<tr>
<td>4</td>
<td>Fasten the cable with the supplied power plug latch ①, if necessary.</td>
</tr>
</tbody>
</table>

![Image 1](image1)

![Image 2](image2)
4.3 Connecting the (24 V) DC power supply

Note before connecting the device

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only connect the device to 24 V DC power supply systems which meet the requirements of a safe extra-low voltage (SELV); in addition, a protective conductor must be connected. The conductors must withstand the short-circuit current of the 24 V DC power source, so that a short-circuit will not damage the cable. Only connect cables with a minimum cross-section of 1.3 mm² (AWG16) and a maximum cross-section of 3.3 mm² (AWG12).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The 24 V DC power source must be adapted to the input data of the device (see specifications).</td>
</tr>
</tbody>
</table>
### Connecting

4.3 Connecting the (24 V) DC power supply

#### Steps for connecting the device to the 24 V DC power supply

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure that the ON/OFF switch is in the '0' (OFF) position to prevent unintentional startup of the device when connecting it to the 24 V power supply.</td>
</tr>
<tr>
<td>2</td>
<td>Switch off the 24 V DC power source.</td>
</tr>
</tbody>
</table>
| 3 | Insert the DC power plug.  
   ① DC 24 V  
   ② ground  
   ③ protective conductor |
| 4 | Fasten the cable with the supplied power plug latch, if necessary. |

#### Note

**Reverse-polarity protection**

The DC power supply (24V) has a mechanism to protect against reverse polarity. In the event the 24 V DC lines are reversed (24 V DC nominal (-15% / +20%) and connected to ground, the device will not sustain any damage. The device will simply fail to turn on. After the power supply has been connected correctly, the device will again be ready to operate.
4.4 Connecting the Equipotential Bonding Circuit

A low-resistance ground connection ensures that interference signals generated by external power supply cables, signal cables or cables to the I/O modules are safely discharged to ground.

The equipotential bonding connection of the device is located underneath the device and is identified by the following symbol:

![Equipotential Bonding symbol]

Figure 4-1 Equipotential Bonding

Connecting the Equipotential Bonding Circuit

You require a TORX T20 screwdriver to connect the equipotential bonding conductor.

Steps for connecting the equipotential bonding

<table>
<thead>
<tr>
<th>(1)</th>
<th>Connect the equipotential bonding connection (M4 thread) (1) on the device (large surface, large-area contact) with the central grounding point of the control cabinet. The minimum permissible cross-section is 5 mm².</th>
</tr>
</thead>
</table>

![Step 1 image]
Connecting

4.4 Connecting the Equipotential Bonding Circuit
Commissioning

5.1 Switching on the device

Procedure

1. Switch on the external AC or DC supply.
2. Connect the external keyboard and mouse.
3. Switch on the equipment using the switch next to the supply connector.
4. The "POWER" LED will light up: The device starts up and boots.

Self-test

After switching on, the device performs a self test. During the self test, the message "Press <F2> to enter SETUP" appears briefly. Do not press this key during this first start up.

When the self-test is finished, the operating system will be loaded. You will see this from the screen display.

5. Before you install additional hardware in the SIMATIC Panel PC, such as a PCI card, please start up the equipment once without it.

5.2 Windows XP, Windows 7 Security Center

Warning from the Windows Security Center

A warning from the Windows Security Center appears the first time you switch on your device. The Security Center checks the status of the device in regard to the three important security aspects listed below. If a problem is detected (an outdated antivirus program, for example), the Security Center issues a warning and makes recommendations on how you can better protect the device.

- **Firewall**: The Windows Firewall adds protection to the device by blocking network or Internet access to the device by unauthorized users. Windows checks if the device is protected by a software firewall. The firewall is enabled in the factory state.

- **Antivirus software**: Antivirus programs add protection to the device by searching for and eliminating viruses and other security threats. Windows checks if a full-range, up-to-date antivirus program is running on the device. No antivirus software is installed in the factory state.

- **Automatic updates**: Using the Automatic Update feature allows Windows to regularly search for the latest critical updates for the device and to install them automatically. This feature is disabled in the factory state.

- **Realtime protection (Windows 7 only)**: Windows Defender displays warnings if spyware or possibly unwanted software is installed or executed on the computer. You will also receive a warning if programs attempt to modify important Windows settings.

Configure the Security Center according to your requirements.
5.3 Setting up the Microsoft Windows operating system

Introduction

The setup wizard appears immediately following the startup of the device. The wizard is used to set the parameters of the operating system.

Note

The dialogs of the setup wizards differ slightly in some places for the Windows operating systems.

In order to change to the next dialog, click on the ">>" button. In order to change the entry in the previous dialog, click on the "<<" button.

Procedure

1. Accept the Microsoft licensing agreement.
2. Leave the regional settings of the operating system unchanged. If required, adjust the regional settings of the operating system only after commissioning.
3. Enter the company names and user names.
4. If this PC name is already in use as you attempt to connect the device to a network: Enter a new PC name for identification.

   The operating system will restart automatically.

   The system settings are updated. The desktop is set up. The setup of the operating system is complete.

5.4 Additional applications

First commissioning

**NOTICE**

Commission the device before you install additional hardware, such as a PCI interface card.

- The "SIMATIC PC Wizard" program is automatically started once during commissioning.
- The Wizard will automatically set the device-specific drivers and applications at the initial start of the operating system.
- The hardware is detected automatically.
Procedure

1. Start the HMI device with the original factory settings.
2. Follow the instructions displayed on the screen.

**NOTICE**

**Malfunctions**

Do not turn off the HMI device during software installation. Follow the instructions until the end.

The dialogs can differ for the different Windows operating systems.
5.4 Additional applications

5.4.1 Touch Panel set-up

Note
The configuration of the HMI device will be detected and set automatically. During the hardware recognition, the Touch Controller is detected again and entered.
1. Calibrate the touch screen by touching the selected points as shown in the illustration.

2. If "OSK on Windows Logon" is enabled, the Windows on-screen keyboard will be displayed every time you log on. You can use this keyboard to enter the password, for example. If you disable the "OSK on Windows Logon" option, then the Windows on-screen keyboard will not be displayed. An external keyboard will then be required to log on.

   In Windows 7 the Windows on-screen keyboard will not appear until you have assigned a password for the user account.

3. Use the "Finish" button to terminate the wizard. The HMI device will be automatically restarted for the respective configuration.
5.4.2 Key Panel adjustment

Note
The configuration of the HMI device will be detected and set automatically.

1. Use the "Finish" button to terminate the wizard. The HMI device will be automatically restarted for the respective configuration.

5.5 BIOS settings

The BIOS setting "USB legacy Support" is enabled by default. Thus, the complete functionality of a USB keyboard is available prior to starting up Windows. You can also adjust the BIOS settings with the USB keyboard.

Note
To edit the BIOS on an operator device equipped with a touch screen, connect a USB keyboard.
5.6 USB

Introduction
Commercially available USB peripherals can be easily and flexibly connected via the USB interface. For example, you can connect an external USB keyboard and a USB mouse. If the USB keyboard has a USB interface, you can connect other USB peripherals, such as a USB mouse, directly to the keyboard.

USB interface
There are several types of USB peripherals:

- Low power devices: maximum 100 mA power consumption, e.g. mouse and keyboard
- High power devices: maximum 500 mA power consumption, e.g. hard disk with a separate power supply and floppy drive

Note
The general USB specifications apply to the USB interfaces on the computer unit. The USB interface on the control panel has been approved for a maximum of one additional USB hub.

Using USB peripherals

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>When installing a USB device for the first time, make sure you have the required device driver. Before removing an intelligent USB device, deactivate the device in the operating system using the dialog &quot;Unplug or Eject Hardware&quot;. For additional information, refer to the documentation for the operating system.</td>
</tr>
</tbody>
</table>
5.7 On-screen keyboard (for touch panel device)

You can operate the device by means of a virtual screen keyboard. You can use it to enter the characters directly on the touch panel or with an externally connected mouse.

Call "Touch input"

Start the "Touch input" application on the desktop. The screen keyboard is displayed.

(1) Button for language selection: German, English, Italian, Spanish, French
Service and support

Local information

Contain your Siemens representative (http://www.siemens.com/automation/partner) if you have questions about the products described here.

Technical documentation for SIMATIC products

You can find additional documentation for SIMATIC products and systems in the Internet: SIMATIC Guide manuals (http://www.siemens.com/simatic-tech-doku-portal)

Easy shopping at the mall

You can find the online catalog and order system under:
Industrial Automation and Drive Technologies (http://mall.automation.siemens.com)

Training center

All the training options are listed at:
SITRAIN homepage (http://www.sitrain.com)

Technical support

You can contact technical support for all Industry Automation and Drive Technologies products by:

- E-mail: support.automation@siemens.com
- Internet: Online support request form: (http://www.siemens.com/automation/support-request)

When you contact the customer support, please have the following information for the technician on hand:

- BIOS version
- Order No. (MLFB) of the device
- Installed additional software
- Installed additional hardware
Online Service & Support

Information about the product, Support and Service, right through to the Technical Forum, can be found at: Industry Automation and Drive Technologies - Homepage (http://www.siemens.com/automation/service&support)

After-sales information system for SIMATIC PC / PG

Information about contacts, drivers, and BIOS updates, FAQs and Customer Support can be found at: After-sales information system for SIMATIC PC/PG (http://www.siemens.com/asis)
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