

# SIEMENS

## SIMATIC




### Industrial PC SIMATIC Rack PC 547B

#### Getting Started

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## Safety Guidelines

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.

 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
 <b>CAUTION</b>
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
<b>CAUTION</b>
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
<b>NOTICE</b>
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 device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

## Prescribed Usage

Note the following:

 <b>WARNING</b>
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

## 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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# Introduction

## 1.1 Introduction

### Purpose of this document

This Getting Started documentation contains all the information you need for commissioning and using the SIMATIC Rack PC 547B.

### Scope of validity of this document

This documentation is valid for all variations of SIMATIC Rack PC 547B and describes delivery conditions as of December 2007.

### Operating instructions SIMATIC Rack PC 547B

Additional information is available on the supplied CD "Rack PC 547B Documentation and Drivers". To view and print the operating instructions, run **Start** and follow the instructions on the screen.

The operating instructions provide useful information on many topics such as the hardware expansion options, modification of the system configuration and technical specifications.

### Conventions

The term Rack PC or device is also used within this documentation as abbreviation of the product name SIMATIC Rack PC 547B.

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#### Note

#### Safety information

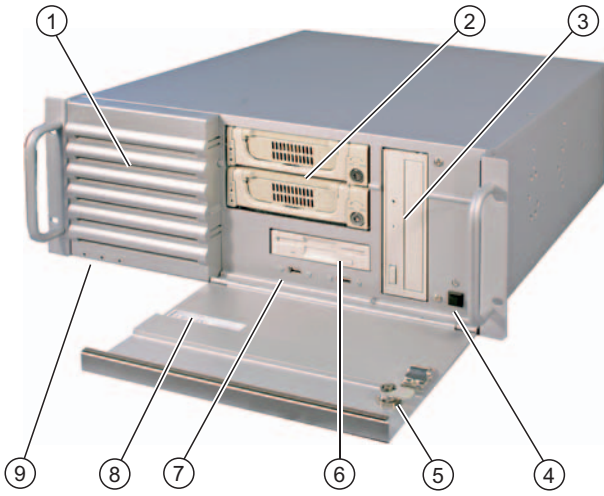
To avoid damage to assets and for the sake of your own personal safety, please take note of the information on safety in this Getting Started and in the operating instructions. A warning triangle references this safety information and is shown depending on the potential hazard.

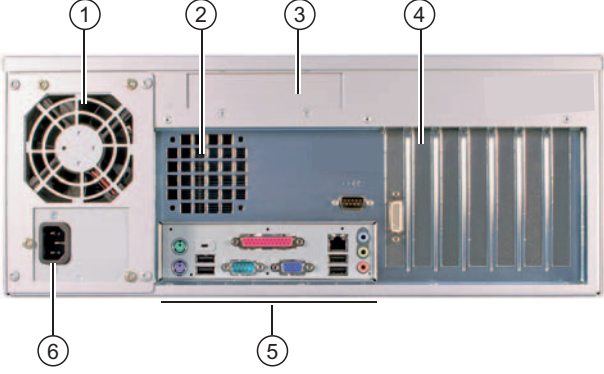
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## Description

### 2.1 External structure


Front view of the device	Pos	Description
	(1)	Front panel with aperture for ventilation of the device (filter mat and fan are located behind this front panel)
	(2)	Installation options for DVD ROM drives, DVD burners and removable drive cartridges
	(3)	Installation options for DVD ROM drives, DVD burners
	(4)	On/off button
	(5)	Front door with lock, provides protection against dirt and unauthorized access. Keep the front door closed during normal operation.
	(6)	Diskette drive
	(7)	USB ports
	(8)	Rating plate
	(9)	Status displays

Rear view of the device	Pos	Description
	(1)	Power unit fan
	(2)	Fan aperture Installation option for 60 mm fan
	(3)	Blanking panel Option for installing a cover for external ports
	(4)	Expansion slots 4 x PCI, 2x PCIe x1, 1x PCIe x16
	(5)	Connection elements
	(6)	Power supply connection

## 2.2 Operator Controls

Operator control on/off button	Pos	Description
	(1)	The on/off/reset buttons have three functions: <ul style="list-style-type: none"><li>- Switch on the PC (press briefly 1x)</li><li>- Shut down the operating system and PC (press briefly 1x)</li><li>- Switch off the PC without shutting down the operating system (press and hold more than 4 seconds) = hardware reset.</li></ul>

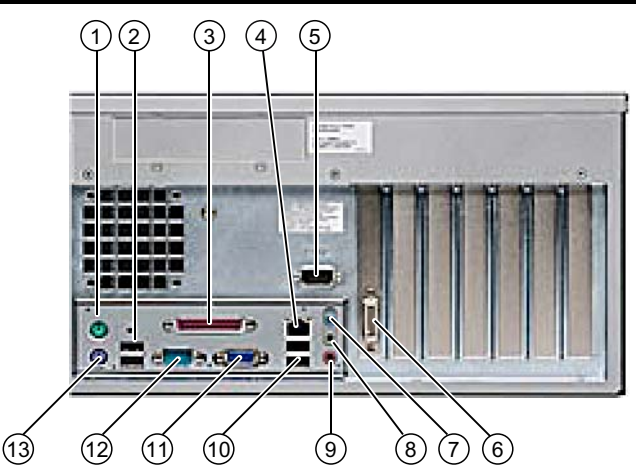
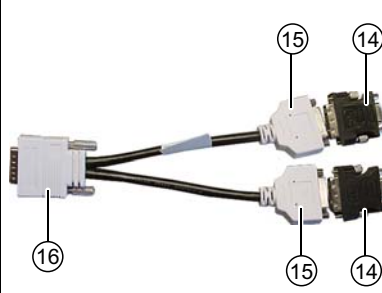
<b>CAUTION</b>
Data may be lost when the PC performs a hardware reset.

 <b>WARNING</b>
The on/off button signal does not cut off power to the PC!




## 2.3 Connection components

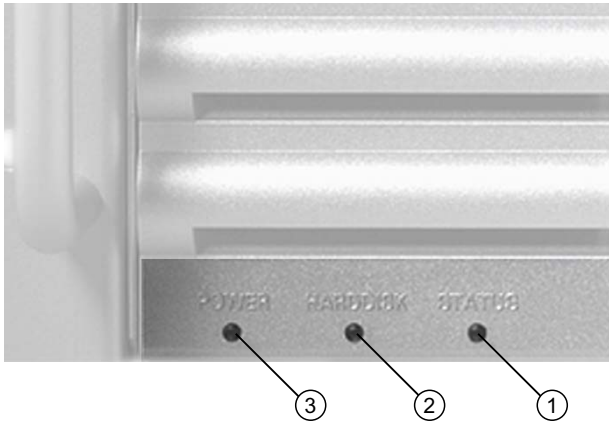
### Ports

Port location at the rear of the device		
		
Pos	Description	Description
(1)	MOUSE	Connection for a PS/2 mouse
(2)	USB C and D	Connection for USB devices
(3)	LPT	Parallel port, 25-pin
(4)	LAN	RJ 45 Ethernet connection 10/100/1000 Mbps
(5)	COM 2	Serial port 2 (V.24), 9-pin D-sub connector (optional)
(6)	DMS59 connector	DMS59 interface socket of the dual-head graphics card (optional)
(7)	Micro (input)	Microphone connection
(8)	Audio (output)	Headphone connection
(9)	Audio (input)	Connector for analog audio source (Line in)
(10)	USB A and B	Connection for USB devices
(11)	VGA	Connection for VGA monitor
(12)	COM 1	Serial port 1 (V.24), 9-pin D-sub connector
(13)	KEYBOARD	Connection for a PS/2 keyboard
(14)	VGA	VGA connection
(15)	DVI-I	DVI-I connection
(16)	Dual-head adapter	Connector on dual-head graphics card (optional)

Power supply

Position of the IEC power connector	Description
	<p>IEC connector for the AC power supply to the device. The maximum permitted power range is 120 to 240 V AC.</p>

2.4 Status indicators

Status displays				
				
Pos	Display	Meaning	LEDs	Description
(1)	STATUS	Fan/temperature status	OFF RED	<ul style="list-style-type: none"> <li>• No error</li> <li>• Temperature critical (CPU, device temperature).</li> <li>• CPU heat sink fan fault</li> <li>• Enclosure fan fault</li> <li>• Power supply fan fault</li> </ul>
(2)	HARDDISK	Display for hard disk access	OFF GREEN	<ul style="list-style-type: none"> <li>• No access</li> <li>• Access</li> </ul>
(3)	POWER	PC operating status display	OFF YELLOW GREEN	<ul style="list-style-type: none"> <li>• Hibernate, switched off or unplugged</li> <li>• Windows standby</li> <li>• PC in operation</li> </ul>

## Application planning

### 3.1 Transport

Despite the device's rugged design, its internal components are sensitive to severe vibrations or shock. You must therefore protect the PC from severe mechanical stress when transporting it.

You should always use the **original packaging** for shipping and transporting the device.

<b>CAUTION</b>
<b>Risk of damage to the device!</b>
When transporting the PC in cold weather, it may be submitted to extreme variations in temperature. In this situation, ensure that no moisture (condensation) develops on or inside the device.
If condensation develops, wait at least 12 hours before switching on the device.

### 3.2 Unpacking and checking the delivery unit

#### Unpacking the device

Note the following points when you unpack the unit

- It is advisable not to dispose of the original packing material. Keep it in case you have to transport the unit again.
- Please keep the documentation in a safe place. It is required for initial commissioning and is part of the device.
- Check the delivery unit for any signs of visible transport damage.
- Verify that the shipment contains the complete unit and your separately ordered accessories.
- Please inform your local dealer of any disagreements or transport damages.
- Please inform Siemens AG by means of the enclosed SIMATIC IPC/PG quality control report form.

**Noting the device identification data**

The device can be identified uniquely with the help of these numbers in case of repairs or theft.

Enter the following data in the table below:

- Serial number: The serial number (S VP) is located on the rating plate inside the front door.

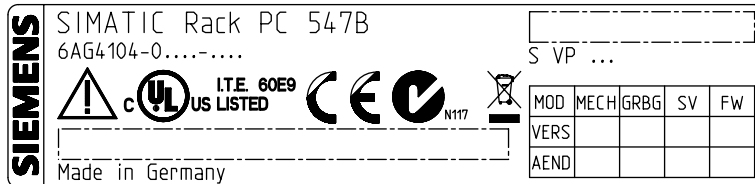


Figure 3-1 Rating plate

- Order number of the device
- Ethernet address: The Ethernet address of the device is available in BIOS Setup (**F2 function key**), at **Info > (F1 function key) > LAN Address**.
- Microsoft Windows "Product Key" on the "Certificate of Authenticity" (COA). The COA label is attached to the inside of the front door. You may need the Product Key in case you reinstall the operating system.



Figure 3-2 COA label

Serial number	S VP ...
Order no.	6AG4104-0 ...
Microsoft Windows Product Key	
Ethernet address	

**Device equipment**

You will find a list of device equipment on a label behind the front door.

### 3.3 Ambient and environmental conditions

When you plan your project, you should make allowances for:

- The climatic and mechanical environmental conditions specified in the specifications provided by your operating instructions.
- Avoid extreme ambient conditions as far as possible. Protect your PC from dust, moisture, and heat.
- The device has been designed for usage in a normal industrial environment according to IEC 60721-3-3 (pollutant class 3C2 for chemical influence, 3S2 for sand and dust). SIMATIC Rack PCs may not be used in severe operating environments, for example locations with acidic vapors or gasses, without additional protective measures (such as the provision of clean air).
- Keep the PC out of direct sunlight.
- Mount the PC as safely as possible to prevent danger (for example, of falling over).
- The device conforms to protection class IP 30 at the front panel.
- The clearance in the area of the ventilation slots must be at least 50 mm, so that the PC is sufficiently ventilated.
- Do not cover the vent slots of the device.
- The device enclosure satisfies fire protection requirements to EN 60950. It may therefore be installed without additional fire-proofing measures.
- The connected or added peripherals must not introduce a counter emf greater than 0.5 V into the device.

 **WARNING**

If these conditions are not upheld while mounting the system, the approvals according to UL 60950, EN 60950 are forfeited and there is a danger of overheating and personal injury.

## **3.4 Access protection**

The access protection of the Rack PC exists only when the front panel is closed and no keyboards with an On/Off button (power button) are being used.

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### **Note**

In Windows, you have the option of setting the function of the On/Off button to meet your requirements. You can make these setting in the "Power Options" menu.

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# Mounting

## 4.1 Installing the device

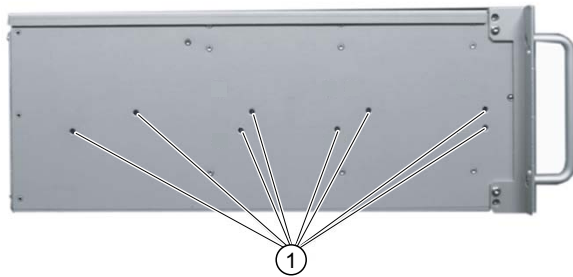
### Optional mounting locations

The device can be mounted in control desks, switching cabinets and 19" rack systems, both horizontally and vertically.

### Optional mounting methods

The device can be mounted with the following methods

- Mounting with cabinet brackets
- Mounting on device bases
- Tower installation: a separate tower kit can be ordered for tower installation (not available in some countries).
- Mounting on telescopic rails  
These telescopic rails allow you to fully extract the device out of the cabinet or rack. Refer to the sections "Technical data of the telescopic rails" and "Dimensional drawing for the use of telescopic rails" for more detailed information.



Position of the mounting holes (1) for angle brackets or telescopic rails


#### CAUTION

The mounting screws of the telescopic rails may not protrude more than 5 mm into the enclosure.

**Note**

For vertical operation, mount the device on a horizontal metal base and secure it against tipping. The following decide bases are available from Rittal for this purpose: Rittal Type TE 7000.620, Rittal Type VR 3861.580, Rittal Type DK 7063.710.

Please refer to the case manufacturer's instructions regarding device bases.

 <b>CAUTION</b>
<b>Risk of injury!</b> It is not permitted to mount the device only on the 19" brackets of the front panel.

## 4.2 Technical data of the telescopic rails

Mechanical load per pair	At least 30 kg
Full extraction length	At least 470 mm
Rail thickness	Maximum 9.7 mm
Fastening screws	M5 x 6 mm

The mounting screws of the telescopic rails may not protrude by more than 5 mm into the enclosure.



## Connecting

### 5.1 Connecting peripherals

#### Note before connecting

**NOTICE**

Connect only peripherals approved for industrial applications according to EN 61000-6-2.

**Note**

Hot-plug peripherals (USB) may be connected while the PC is in operation.

**CAUTION**

Peripherals that are incapable of hot-plugging may only be connected after the device has been disconnected from the power supply.

**CAUTION**

Strictly adhere to the specifications for peripheral equipment.

**NOTICE**

The connected or added peripherals must not introduce any counter emf into the device.  
A counter emf greater than 0.5 V to ground on the + 3.3V DC / + 5V DC / + 12V DC power rail due to a connected or integrated component can prevent normal operation or even destroy the computer.

When measuring the counter emf, remember the following:

- The computer must be turned off and the power supply connector should be plugged in.
- During the measurement, all cables from the plant to the computer should be connected.
- All other components in the plant must be active

## 5.2 Connecting the device to power

### Note before connecting

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**Note**

The long-range power supply module is designed for operation on 100-240 AC networks. It is not necessary to adjust the voltage range.

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** WARNING**

Do not connect or disconnect power and data cables during thunderstorms.

** WARNING**

The device may only be operated on grounded power supply networks (TN systems to VDE 0100, part 300, or IEC 60364-3).

Operation on ungrounded or impedance-grounded power networks (IT networks) is prohibited.

** WARNING**

The permitted nominal voltage of the device must conform with local mains voltage.

** CAUTION**

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.

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**Note**

The power supply contains a PFC (Power Factor Correction) circuit to conform to the EMC directive.

Uninterruptible AC power systems (UPS) must supply a sinusoidal output voltage in the normal and buffered mode when used with SIMATIC PCs with a PFC.

UPS characteristics are described and classified in the standards EN 50091-3 or IEC 62040-3. Devices with sinusoidal output voltage in the normal and buffered mode are identified with the classification "VFI-SS-...." or "VI-SS-....".

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## Localized information

### Outside of the USA and Canada, operation on a 230 V power supply:

This device is equipped with a safety-tested power cord which may only be connected to a grounded shockproof power 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 shock-proof connector. The cable set must be compliant with safety regulations and stipulated IDs of the country where the system is to be installed.

### For the USA and Canada:

A CSA or UL-listed power cord must be used for the United States and Canada.

The connector must be compliant with NEMA 5-15.

### 120 V AC power supply

A flexible power cord approved to UL and with CSA label should be used. It should have the following features: Type SJT with three leads, min. 18 AWG conductor cross-section, max. length 4.5 m, parallel grounding plug 15 A, min. 125 V.

### 240 V AC power supply

A flexible power cord approved to UL and with CSA label should be used. It should have 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

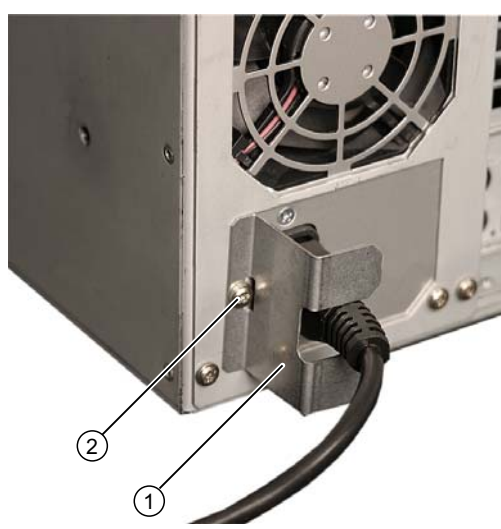
Steps for connecting the device to mains	
1	Connect the IEC connector
2	<p>Connect the power cord to the mains outlet and switch on the mains isolation switch (if this exists).</p> <p>The yellow power LED (standby) on the front panel of the PC lights up.</p>




### Secure the power plug

You can secure the power plug in order to avoid unintentional disconnection of the power cord.

Steps for securing the power plug	
1	Remove the fastening screw (1) on the power supply module.
2	Screw the power plug interlock (2) onto the power supply module.



 <b>WARNING</b>
If the power plug is secured with a clamp, the power outlet must be freely accessible to allow the device to be easily removed from the mains.

## Commissioning

### 6.1 Requirements for commissioning

- Before you switch on the device, you should verify that all peripheral devices such the keyboard, mouse, monitor and the power supply are connected.
- The operating system of your device is preinstalled on the hard disk.

#### CAUTION

##### Risk of damage to the device!

Make sufficient allowances for the device to acquire room temperature before you put it into use. If condensation develops, wait at least 12 hours before switching on the device.

### 6.2 Initial Commissioning - Initial Startup

The Rack PC operating system is automatically set up the **first** time you switch on the device. Proceed as follows:

1. Press the on/off button. The green power LED lights up. The PC performs a POST. During the self-test, this message appears:  
Press <F2> to enter SETUP
2. Wait until this message is cleared, then follow the instructions on the screen.
3. Type in the Product Key as required. You find this key on the "Certificate of Authentication" in the "Product Key" line.

#### NOTICE

The PC may not be switched off at any time during the entire installation procedure.  
**Do not** change the default BIOS settings, otherwise the operating system setup may become corrupted.

4. Automatic restart

After you have entered all necessary information and after the operating system setup is completed, the PC is automatically restarted and displays the user interface of the relevant operating system.

From now on, after you switch on the PC, the user interface of the operating system is automatically opened when the startup routine is completed.

## Switching off the device

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### Note

When working with Windows, always switch off the PC by clicking **Start > Shut Down**.

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Press the on/off button behind the front panel door. The green power LED is switched off. Disconnect the mains connector to isolate the device from mains.

## 6.3 Reinstalling the software

### General installation procedure

In case of errors in your software installation, you can reinstall your software using the Recovery CD or DVD, the Documentation and Drivers CD or the Restore DVD.

- **Recovery CD or DVD:** The Recovery CD/DVD contains the Windows PE user interface with tools for configuring the hard drives, and for installation of the operating system and of the languages supported by the operating system (MUI.).

The base language of the operating system to be installed is English. If you want to integrate additional languages, you will need to subsequently install them from Recovery CD2 or DVD.

- **Documentation and Drivers CD:** Contains the documentation and the hardware drivers.
- **Restore DVD:** Contains a hard disk image file with the original factory software (operating system with installed hardware drivers).

### Restoring the factory state

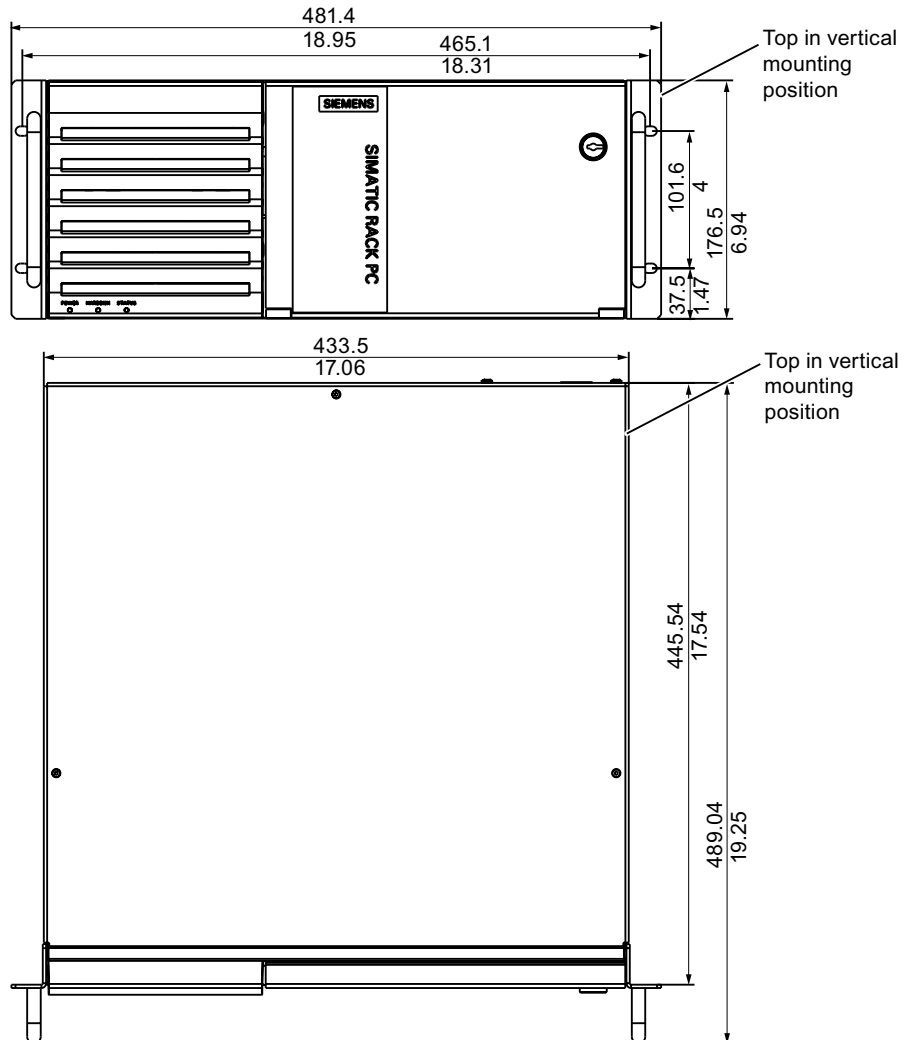
- Place the Restore DVD into the drive and restart the device using the on/off switch.
- During the self-test phase, press the F12 key. The "Boot Menu" is displayed when initialization is completed.
- Select the optical drive using the cursor keys.
- Now follow the instructions on the screen.

<b>CAUTION</b>
All existing data, programs, user settings, authorizations and license keys on the drives will be deleted and are thereby lost.

For information on the functions, refer to the README.TXT file on the Restore DVD.

## Dimension drawings

### 7.1 Dimensional drawing of the device



Dimensions:  $\frac{\text{mm}}{\text{Inch}}$

Figure 7-1 Dimension drawing of the device

## 7.2 Dimensional drawing for the use of telescopic rails

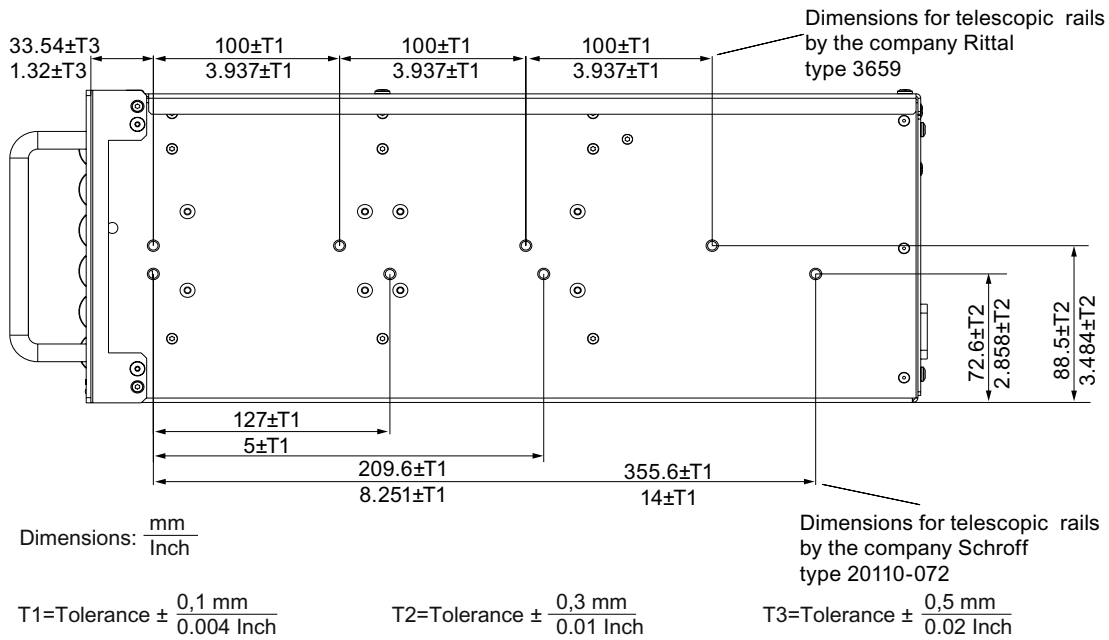


Figure 7-2 Dimension drawing for the use of telescopic rails



## Appendix

### A.1 Guidelines and declarations

#### Notes on the CE Label

**CE** The following applies to the SIMATIC product described in this documentation:

#### EMC guideline

This product fulfills the requirements for the EC directive "89/336/EEC Electromagnetic Compatibility", and the following fields of application apply according to this CE label:

Scope of application	Requirements for	
	Interference emission	Immunity to interference
Industrial area	EN 61000-6-4 : 2001	EN 61000-6-2 : 2005
Residential and commercial areas and small businesses	EN 61000-6-3 : 2001	EN 61000-6-1 : 2001

The devices conform with EN 61000-3-2:2000 (harmonics) and EN 61000-3-3:1995+A1:2001 (voltage fluctuations and flicker).

#### Low-voltage guideline

The devices complies with the requirements of the EC Directive 2006/95/EC "Low Voltage Directive". Conformance with this standard has been verified according to EN 60950-1.

#### Conformity certificates

The EC declaration of conformity and the corresponding documentation are made available to authorities in accordance with the EC directives stated above. Your local sales representative can provide these on request.

#### Observing the installation guidelines

The installation guidelines and safety notices specified in the supplied documentation must be adhered to during commissioning and operation.

#### Connecting peripherals

Noise immunity requirements to EN 61000-6-2 are met if connected peripherals are suitable for industrial applications. Peripheral devices may only be connected via shielded cables.

## A.2 Certificates and Approvals

### DIN ISO 9001 certificate

The Siemens quality management system for all production processes (development, production and sales) meets DIN ISO 9001:2000 requirements.

This has been certified by DQS (the German society for the certification of quality management systems).


EQ-Net certificate no.: DE-001108 QM

### Software License Agreement

The device is shipped with preinstalled software. Please observe the respective license agreements.

### Certification for the USA, Canada and Australia


#### Security

<b>The following approval is available for the device:</b>	
	Underwriters Laboratories (UL) to Standard UL 60950-1, Report E11 5352 and Canadian National Standard CAN/CSA-C22.2 No. 60950-1 (I.T.E)

### EMC

USA	
Federal Communications Commission Radio Frequency Interference Statement	This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Shielded cables	Shielded cables must be used with this equipment to maintain compliance with FCC regulations.
Modifications	Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.
Conditions of operations	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

<b>CANADA</b>	
Canadian notice	This Class A digital apparatus complies with Canadian ICES-003.
Avis Canadian	Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

<b>AUSTRALIA</b>	
	This product meets the requirements of the AS/NZS CISPR 22 Standard.

## A.3 Service and support

### Local information

If you have questions about the products described in this document, you can find help at:  
<http://www.siemens.com/automation/partner>

### Technical documentation for SIMATIC products

Further documentation for SIMATIC products and systems can be found at:  
<http://www.siemens.de/simatic-tech-doku-portal>

### Easy shopping with the A&D Mall

Catalog & online ordering system <http://www.siemens.com/automation/mall>

### Training

All the training options are listed at: <http://www.siemens.com/sitrain>  
Find a contact at: Phone: +49(911) 895-3200

### Technical support

Tel +49 180 5050 222  
Fax +49 180 5050 223  
<http://www.siemens.com/automation/service>

You will find support request web form at:  
<http://www.siemens.de/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 support

Information about the product, Support and Service, right through to the Technical Forum, can be found at: <http://www.siemens.com/automation/service&partner>

### After-sales information system for SIMATIC PC / PG

Information about contacts, drivers, and BIOS updates, FAQs and Customer Support can be found at: <http://www.siemens.com/asis>