

SIEMENS

SIMATIC




Industrial PC SIMATIC Rack PC 847B

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.

 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 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:

 WARNING
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

Objective of this documentation

This Getting Started documentation contains all the information you need for commissioning and using the SIMATIC Rack PC 847B.

Scope of validity of this document

This documentation is valid for all variations of SIMATIC Rack PC 847B and describes delivery conditions as of June 2008.

Operating instructions SIMATIC Rack PC 847B

The operating instructions are available on the supplied "Documentation and Drivers" DVD. 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 data.

Conventions

The abbreviation Rack PC or device is also used within this documentation for the product name SIMATIC Rack PC 847B. The abbreviations CP will be used for CP 1616 onboard and Vista for Windows Vista Ultimate.

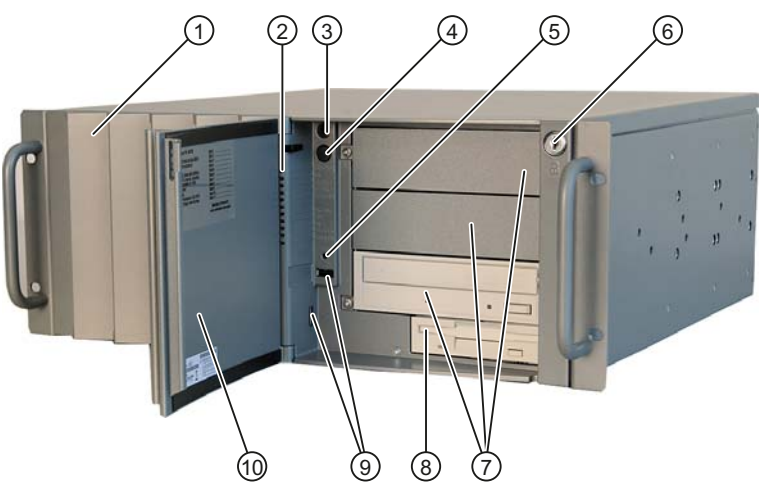
Note

Safety-related Notices

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.

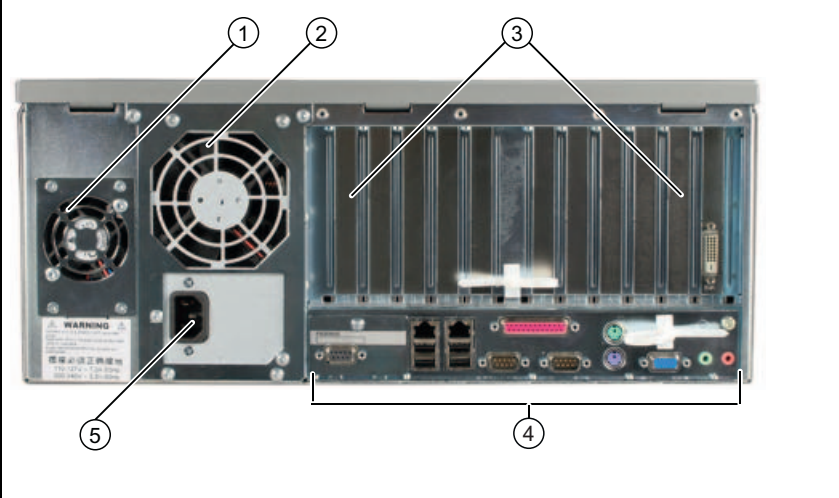
Description

2.1 External structure

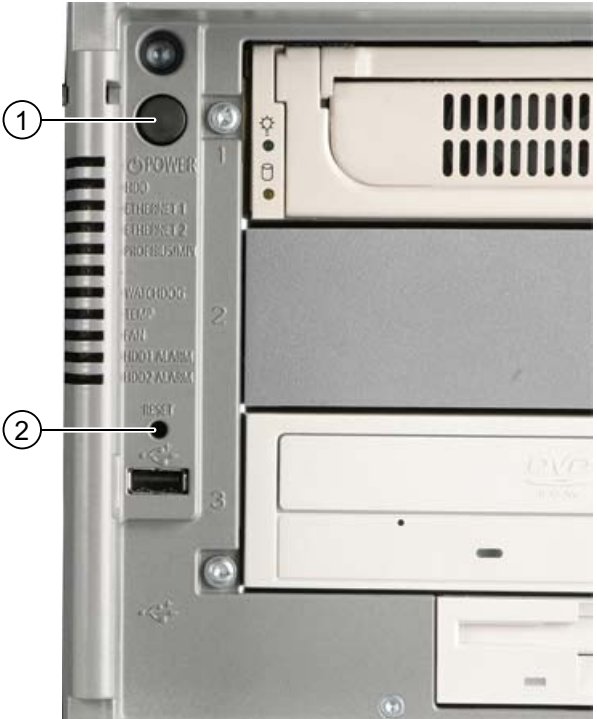
Front view of the device (example)	Item	Description
	(1)	Front panel with vent openings (filter mat and fan behind the front panel). Check the filter mat regularly for soiling and, if appropriate, replace it.
	(2)	Status displays
	(3)	Cover screws
	(4)	On/off button
	(5)	Reset button
	(6)	Lock
	(7)	Features for the installation of DVD ROM drives, DVD burners and exchangeable racks
	(8)	Drive bay for floppy disk drive
	(9)	2 x USB interface
	(10)	Lockable front door for access security. Keep the front door closed during normal operation.

Description

2.1 External structure

Rear view of the device (example)	Item	Description
 The image shows the rear panel of a SIMATIC Rack PC 847B. It features a large cooling fan on the left, a power supply unit in the center, and several expansion slots on the right. Below the expansion slots are various connection ports including Ethernet, serial, and video. Callout (1) points to the rear drive cooling fan, (2) to the fan/power supply unit, (3) to the expansion slots, (4) to the connection elements, and (5) to the power supply connector.	(1)	Rear drive cooling fan
	(2)	Fan / power supply unit
	(3)	Expansion slots
	(4)	Connection elements
	(5)	Power supply connector

2.2 Operator Controls

Control elements, On/Off and Reset buttons	Item	Description
	(1)	<p>On/off button For switching the device on or off</p>
	(2)	<p>Reset button The reset button can be operated using a pointed object or a paper clip, for example. The button signal triggers a hardware reset. The PC performs a restart (cold start).</p>

CAUTION

Data may be lost when the PC performs a hardware reset.

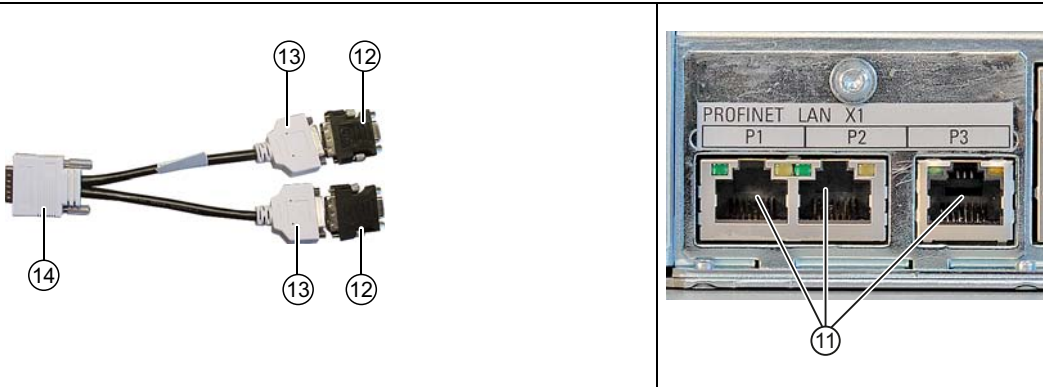
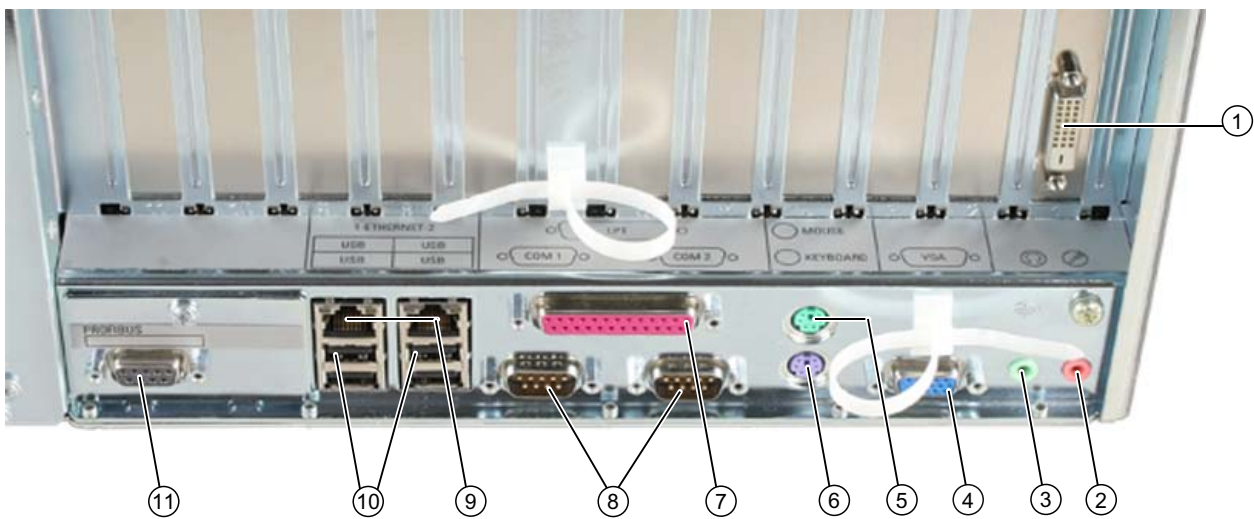
 **WARNING**

The on/off button signal does not cut off power to the PC!

2.3 Connecting elements

Interfaces

Layout of the interfaces on the rear of the device




Item	Designation	Description
(1)	DVI or DMS59	DVI-D connector of the ADD2 card for digital monitors (optional) or DMS59 connector for Dual Head graphics card (optional).
(2)	Audio (input)	Connectors for analog audio source, microphone, 3.5 mm phono jack
(3)	Audio (output)	Connector for active speakers or headset, 3.5 mm phono jack
(4)	VGA	Connection for VGA monitor
(5)	MOUSE	Connection for a PS/2 mouse
(6)	KEYBOARD	Connection for a PS/2 keyboard
(7)	LPT	Parallel interface, 25-pin
(8)	COM	Serial interface(V.24), 9-pin sub D plug
(9)	ETHERNET 1, 2 *	2 x RJ45 connectors, Ethernet 10/100/1000 Mbps
(10)	USB	USB device connectors. USB ports 1 to 4

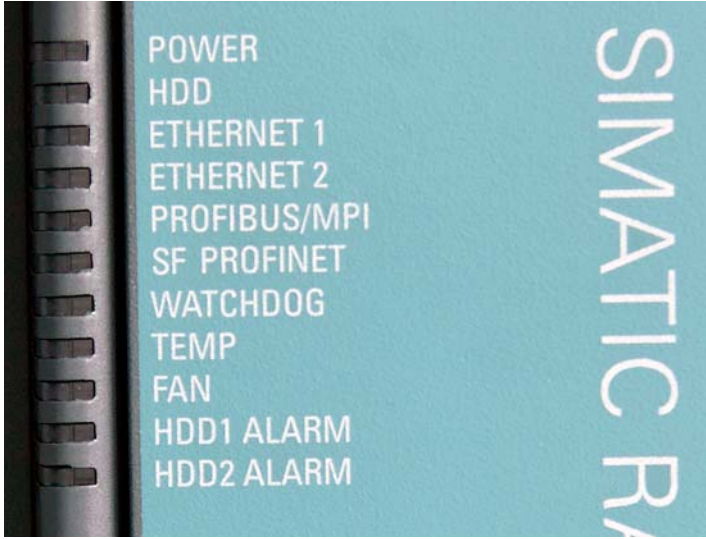
Layout of the interfaces on the rear of the device		
(11)	PROFIBUS/MPI	PROFIBUS interface (RS 485, electrically isolated), 9-pin D-sub socket (optional product characteristic)
	PROFINET	CP 1616 onboard interface, three RJ45 sockets (optional product version)
(12)	VGA	VGA connections
(13)	DVI-I	DVI-I connection
(14)	Dual-head adapter	Connector on dual-head graphics card (optional)

- * For unique labeling, the LAN interfaces are numbered on the enclosure. The operating system numbering may deviate from this.

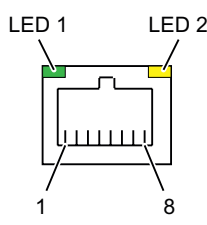
Power supply

Position of the IEC connector	Description
	IEC connector for the AC power supply to the device. The permitted power range is 100 VAC to 240 VAC.

2.4 Status displays

Front status displays			
			
Display	Meaning	LEDs	Description
POWER	PC status display	OFF	isolated from mains
		YELLOW	Standby (hibernating)
		GREEN	PC in operation
HDD	Display for hard disk access	OFF	no access
		GREEN	Access
ETHERNET 1 *	ETHERNET status display	OFF	<ul style="list-style-type: none"> No connection No data traffic
		GREEN	Data traffic
ETHERNET 2 *	ETHERNET status display	OFF	<ul style="list-style-type: none"> No connection No data traffic
		GREEN	Data traffic
PROFIBUS/MPI (optional)	Display of the communication status to S7 or PROFIBUS	OFF	<ul style="list-style-type: none"> No connection No data traffic
		GREEN	Data traffic

Front status displays			
SF PROFINET (optional)	Status display for CP 1616 onboard	OFF	<ul style="list-style-type: none"> • CP not available • CP disabled • No error, communication established • Charging in progress • CP 1616 driver not installed • CP in NDIS mode
		Flashes slowly	<ul style="list-style-type: none"> • Link status error • IO controller: IO device cannot be addressed • IO controller: Duplicate IP address
		Flashes rapidly	Exception error: diagnostics via Web or SNMP is no longer possible
		AN	<ul style="list-style-type: none"> • Diagnostics information available • No communication established.
WATCHDOG	WATCHDOG status display	OFF	WATCHDOG not activated
		GREEN	WATCHDOG monitoring enabled
		RED	Monitoring time elapsed
TEMP	Internal temperature monitoring	OFF	Internal temperature OK
		RED	Internal temperature critical
FAN	Fan status (only with active SOM or DiagMonitor software)	OFF	Fan speed OK
		RED	Fan speed too low
HDD1 ALARM HDD2 ALARM	Hard disk alarm in conjunction with RAID and monitoring software	OFF	RAID is OK
		One RED	HDD1 or HDD2 not OK
		Both RED	RAID not OK (for information on locating the faulty HDD, refer to the RAID system section)
		Both flash	RAID is synchronized
All displays are lit	Error in early BIOS Post	All lit	CPU startup failure Error in early POST
*	For unique labeling, the LAN interfaces are numbered on the enclosure. The operating system numbering may deviate from this.		

Rear status displays			
			
Display	Meaning	LED	Description
Ethernet LAN 1, 2 *	Green LED Link status display	OFF	<ul style="list-style-type: none"> No cable connected Cable disabled Interface disabled
		GREEN	Active cable connected
	Yellow LED Activity status display	OFF	<ul style="list-style-type: none"> No cable connected Cable disabled Interface disabled No activity
		YELLOW	Data transfer active
PROFINET LAN X1, P1, P2, P3 *	Green LED Link status display of CP 1616 channel	OFF	<ul style="list-style-type: none"> No cable connected Cable disabled Interface disabled
		GREEN	Active cable connected
	Yellow LED Activity status display of CP 1616 channel	OFF	<ul style="list-style-type: none"> No cable connected Cable disabled Interface disabled No activity
		YELLOW	Data transfer active
* For unique labeling, the LAN and PROFINET interfaces are numbered on the housing. The numbering by the operating system may deviate from this.			

Virtual status displays			
The two "virtual" CP 1616 LEDs are only visible in the SIMATIC software and can be read via SNMP.			
PROFINET	Virtual LEDs	RUN	CP is active
		STOP	CP is in the stop state
		Flashes	The states "flashes slowly" or "flashes rapidly" do not exist.

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.

CAUTION
Risk of damage to the device!
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 has developed on the device, wait at least 12 hours before you switch it on.

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 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 damage.
- Please inform Siemens AG by means of the enclosed SIMATIC IPC/PG quality control report form.

Noting down the device identification data

The device can be clearly identified with the help of this identification data 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 either on the rear panel of the device or on the inside of the front door.

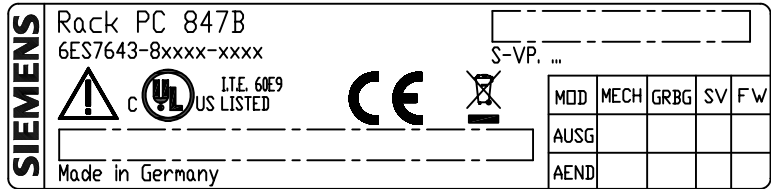


Figure 3-1 Rating plate

- 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.	6ES7643-8...
Microsoft Windows Product Key	
Ethernet 1 address	
Ethernet 2 address	
CP 1616 onboard layer 2	

Device equipment

The device equipment is listed on the inner side of the front door.

3.3 Ambient and environmental conditions

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

- Observe the climatic and mechanical environmental conditions in the technical data in your operating instructions.
- Avoid extreme ambient conditions as far as possible. Protect your device against dust, moisture and heat.
- The device is designed for use in normal industrial environments to IEC 60721-3-3 (pollutant class 3C2 for chemical influence, 3S2 for sand and dust.) SIMATIC Rack PCs may not be operated in severe environments which are subject to caustic vapors or gases without taking additional protective measures (such as the provision of clean air.)
- Do not expose the device to direct sunlight.
- Install the device in such a way that it poses no danger, for example, by falling over.
- The device conforms to protection class IP41 at the front panel. Ensure that the installation opening for the device is splash-proof in areas which may be subject to splash water.
- Always maintain a minimum clearance of 50 mm to the area of the ventilation slots in order to ensure adequate ventilation of the PC.
- Do not cover the ventilation slots of the enclosure.
- The device meets requirements for fire protection housings to EN 60950-1 and can be installed without additional fire protection enclosure.
- The connected or built-in peripherals should not introduce a counter emf in excess of 0.5 V into the device.

 WARNING
--

Failure to comply with these requirements for system installation shall render approvals to UL 60950-1, EN 60950-1 void and leads to the risk of overheating and injury!
--

3.4 Access protection

The access protection of the rack PC is only enabled if the front door is locked.

Installing

4.1 Installing the device

Optional installation locations

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

Optional mounting methods

Options of mounting the device

- Mounting on cabinet brackets
- Mounting on device bases
- Tower installation: a tower kit can be ordered separately for this (not available in some countries)
- Mounting on telescopic rails

When telescopic rails are used for mounting, the device can be withdrawn fully from the cabinet or rack.

For detailed information on telescopic rails, see the chapters "Technical data of the telescopic rails" and "Dimensional drawing for the use of telescopic rails".

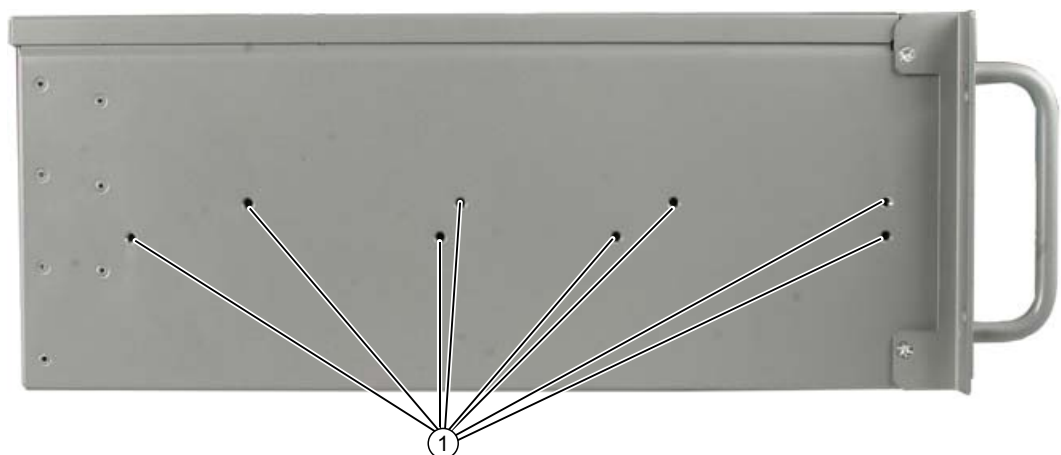



Figure 4-1 Position of the mounting holes

Note

For vertical operation, install the device on a horizontal metal base and secure it against tilting. The following RITTAL module panels are available:

Rittal type TE 7000.620, Rittal type VR 3861.580, Rittal type DK 7063.710. Note the information of the switch cabinet supplier.

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

 CAUTION
Risk of injury! It is not permitted to install the device only on the 19-inch brackets of the front panel.

4.2 Technical data of the telescopic rails

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

Connecting

5.1 Connecting peripherals

Note before connecting

NOTICE

Connect only peripherals approved for industrial applications according to EN 61000-6-2. Shielded interface cables must be used for interfaces integrated ex factory.

Note

Hot-plug I/O modules (USB) may be connected while the PC is in operation.

CAUTION

I/O devices 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 in the I/O manuals.

NOTICE

The connected or built-in peripherals should not introduce a counter emf into the device. A counter emf greater than 0.5 V to ground on the + 3.3 VDC / + 5 VDC / + 12 VDC 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

Note

The wide-range power supply module is designed for operation on 100 VAC to 240 VAC mains. The setting of the voltage range takes place automatically.

 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.

Note

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

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

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 "VFI-SS-...." or "VI-SS-....".

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:

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. length 4.5 m, parallel grounding plug 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

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 lower left mounting screw (2) on the power supply module.
2	Screw the power plug interlock (1) onto the power supply module

WARNING
<p>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.</p>

5.3 Equipotential bonding



A low-impedance ground connection improves the discharge of interference generated by external power cables, signal cables or cables for I/O modules to ground.


Equipotential bonding terminal	
<p>The equipotential bonding terminal (1) on the device (large surface, large-area contact) must be interconnected with the central grounding busbar of the cabinet or plant in which the PC is to be installed. The minimum conductor cross-section may not be less than 5 mm².</p>	

5.4 Connecting PROFINET strain relief

The PROFINET strain relief provided in the package is used to prevent accidental loosening of the cable from the device. A cable tie (not included in the package) is needed for each interface.

To fix the PROFINET strain relief, you will need a TORX T10 screwdriver.

Steps for connecting the PROFINET strain relief	
1	Remove the PROFINET interface plate. 
2	Attach the PROFINET strain relief. 

Steps for connecting the PROFINET strain relief	
3	Attach the cable using the cable tie. 

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 has developed on the device wait at least 12 hours before you switch it on.

6.2 Initial Commissioning - Initial Startup

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

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 when you run setup.
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

Note

On a Windows platform, always shut down the PC by clicking **Start > Close**.

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 user interface with tools for configuring the hard drives, and for installation of the operating system and 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 CD 2 or DVD.

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

Restoring the factory condition

- Place the Restore DVD into the drive and restart the device.
- Press the ESC button when the BIOS message "Press <F2> to enter Setup" appears. After initialization, a "Boot Menu" is displayed.
- Select the optical drive using the cursor keys.
- Now follow the instructions on the screen.

CAUTION

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.

Troubleshooting

7.1 General problems

This chapter provides you with tips on how to localize and troubleshoot frequently occurring problems.

Problem	Possible cause	To correct or avoid error
The device is not operational	No power supply	Check the power supply, and the power cord / connector
	Device operation is non-compliant with specified environment conditions	<ul style="list-style-type: none"> • Check the environment conditions • Wait approx. 12 hours before you switch on a device which was shipped in cold weather
The external monitor remains dark.	The monitor is switched off.	Switch on the monitor.
	The monitor is in "power save" mode.	Press any key on the keyboard.
	Luminance control is set to dark state	Increase brightness by means of luminance control. For detailed information, refer to the monitor operating instructions.
	Power cord or monitor cable not connected.	<ul style="list-style-type: none"> • Check whether the power cord has been properly connected to the monitor and to the system unit or to the grounded outlet. • Check whether the monitor cable has been properly connected to the system unit and to the monitor. <p>If the monitor screen still remains dark after you have performed these checks, please contact your technical support team.</p>
The mouse pointer does not appear on the screen.	The mouse driver is not loaded.	Check whether the mouse driver is properly installed and present when you start the application program. Detailed information about the mouse driver is available in the corresponding documentation.
	Mouse not connected.	<p>Check whether the mouse cord is properly connected to the system unit. If you use an adapter or extension on the mouse cable, also check the connectors.</p> <p>Contact Technical Support if the mouse pointer still does not appear on the screen after you carried out these checks.</p>

Troubleshooting

7.1 General problems

Problem	Possible cause	To correct or avoid error
Incorrect time and/or date on the PC.		<ol style="list-style-type: none"> 1. Press <F2> within the boot sequence to open BIOS Setup. 2. Adjust the time and date in BIOS Setup.
Although the BIOS setting is OK, the time and data are still incorrect.	The backup battery is low.	Contact Technical Support.
USB device not responding.	The USB ports are disabled in BIOS.	Use a different USB port or enable the port.
	USB 2.0 device connected and USB 2.0 is disabled.	Enable USB 2.0.
	The operating system does not support the USB ports.	Enable USB Legacy Support for the mouse and keyboard. For other devices you need the USB drivers for your operating system.
DVD/CD: The front loader does not open.	The device is switched off or the open/close button is disabled by a software application.	Emergency removal of the data medium: <ol style="list-style-type: none"> 1. Switch off the device 2. Insert a pointed object, a pin for example, or an opened paper clip into the emergency extraction opening of the drive. Apply slight pressure to the contact until the front loader opens. 3. Pull the loader further out.
The RAID software reports the following errors: <ul style="list-style-type: none"> • The RAID plug-in failed to load, because the drive is not installed. • The Serial ATA plug-in failed to load, because the driver is not installed correctly. • The Intel® Matrix Storage Console was unable to load a page for the following reason: <ul style="list-style-type: none"> – A plug-in did not provide a page for the selected device – A plug-in failed to load 	RAID is not activated RAID is activated	In this case, the messages have no negative influence on the device function and can be ignored. Acknowledge the messages. Re-install the software from the supplied Documentation and Drivers DVD.
After changing the hard disk, the system does not boot from the RAID array	RAID array does not have highest boot priority	Set the RAID array to be first in the boot priority order
After changing the hard disk, "unused" is indicated for the relevant SATA port	The system was booted without a functioning hard disk (the exchangeable rack was possibly not switched on)	Reboot the system with a functioning hard disk
Computer does not boot or "Boot device not found" is displayed	The boot device is not first in the boot priority in the BIOS setup or is excluded as a boot device	Change the boot priority of the boot device in the Boot menu of the BIOS setup or include boot device in the boot priority

Error displays on the front panel

Front LED	Possible cause	Details about the error display
Red WATCHDOG LED is lit	Watchdog has triggered	See section 9.3
Red TEMP LED is lit	Excess temperature in the device	See section 9.2
Red FAN LED is lit	Fan failure	See section 9.4
Red HDD1 ALARM LED is lit	RAID reports that hard disk 1 is defective	See section 9.5
Red HDD2 ALARM LED is lit	RAID reports that hard disk 2 is defective	See section 9.5
Red HDD1 ALARM and HDD2 ALARM LEDs are flashing	RAID is in the "rebuild" state	See section 9.5
Red HDD1 ALARM and HDD2 ALARM LEDs are lit	RAID system is not ready for operation:	Affected drive must be determined with the help of the RAID software. See section 9.5
Red SF PROFINET LED is lit	A fault has occurred on the CPU 1616 onboard interface	See section 16.6
All front-panel LEDs are constantly lit	Error in early BIOS-POS	In this case, contact Technical Support.

Dimension drawings

8.1 Dimensional drawing of the device

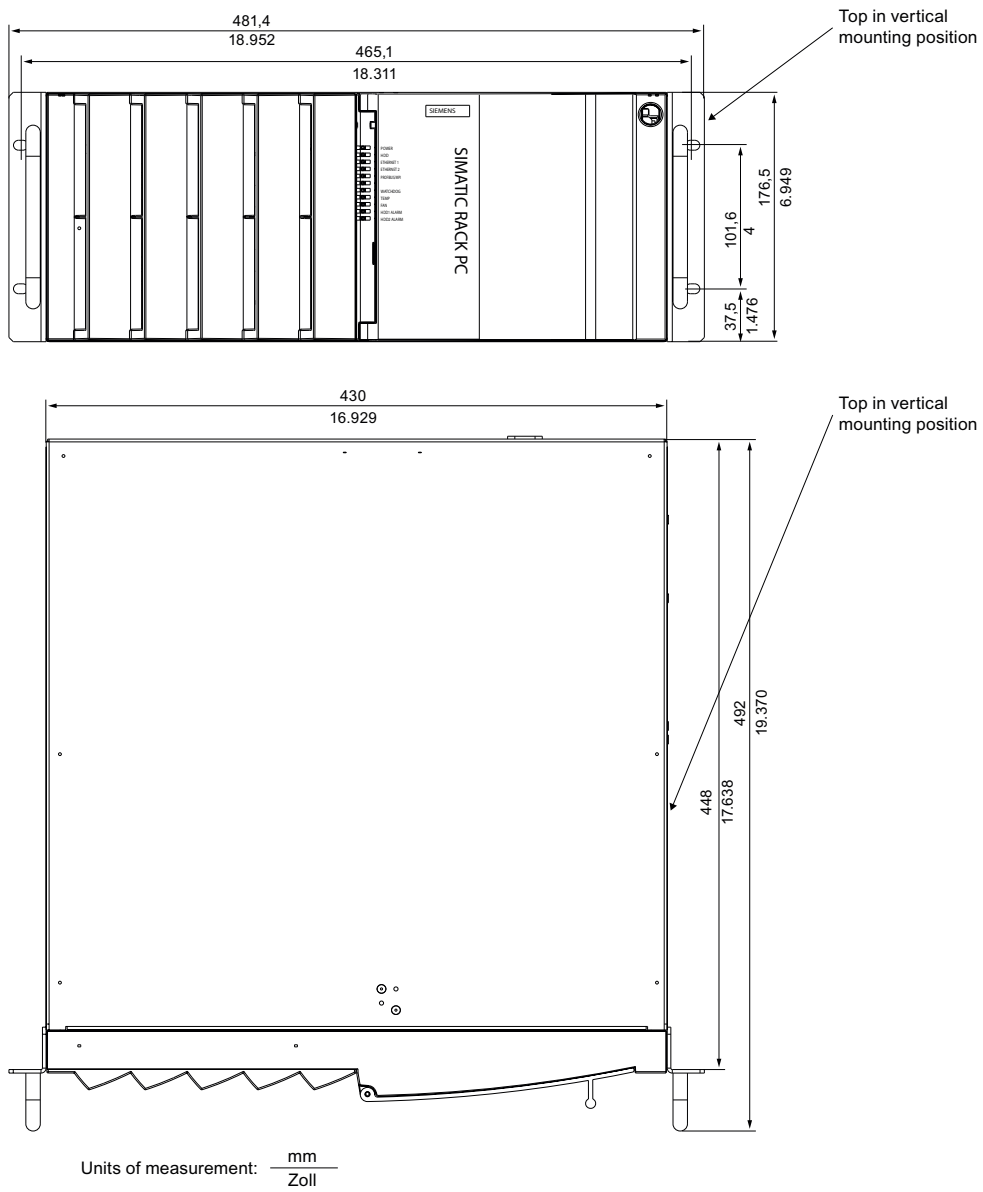


Figure 8-1 Dimensional drawing

8.2 Dimensional drawing for the use of telescopic rails

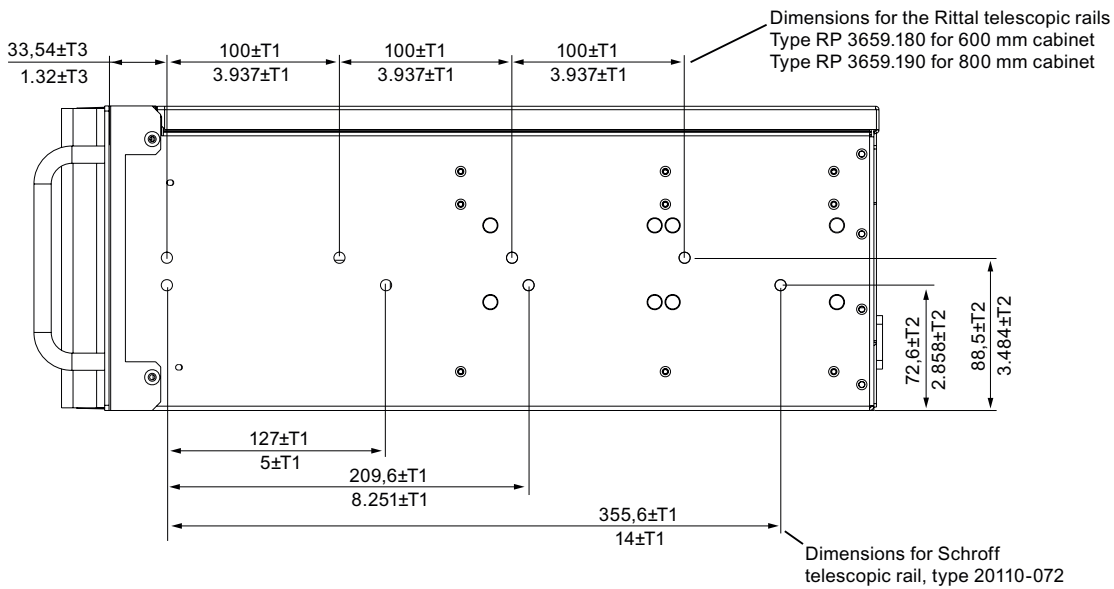


Figure 8-2 Dimensional drawing for the use of telescopic rails

Appendix

A.1 Guidelines and Declarations

Notes on the CE marking


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

EMC directive

This product fulfills the requirements of EC directive 2004/108/EEC "Electromagnetic Compatibility", and is designed for operation in the following fields of application in accordance with this CE marking:

Fields of application	Requirements for	
	Radiated interference	Noise immunity:
Industrial area	EN 61000-6-4: 2007	EN 61000-6-2: 2005

The devices conform with EN 61000-3-2:2000 +A2:2005 (harmonics) and EN 61000-3-3:1995 +A1:2001 +A2:2005 (voltage fluctuations and flicker).

 WARNING
This product is Class A equipment which may cause RF interference in residential areas. The system operator can be requested to take reasonable counteractive measures.

Low voltage directive

The devices comply with the requirements of the EC Directive 2006/95/EC "Low Voltage Directive". Compliance with this directive has been verified according to EN 60950-1:2001 +A11:2004.

Declaration of conformity

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

Observe the installation guidelines

The installation guidelines and safety instructions specified in this documentation must be observed for 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

ISO 9001 certificate

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

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


Q-Net certificate no.: DE-001108 QM

Software License Agreement

The device can be supplied with or without preinstalled software. For devices with preinstalled software, please note the relevant license agreements.

Approvals for the USA, Canada and Australia

Product safety

The following approval is available for the device:	
	Underwriters Laboratories (UL) to Standard UL 60950-1, Report E11 5352 and Canadian Standard 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 tolerate any interference received, including interference that may cause undesired operation.

CANADA	
Canadian Notice	This Class A digital apparatus complies with Canadian ICES-003.
Avis Canadian	Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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.com/simatic-tech-doku-portal>

Easy Shopping at the 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/csi/service>

A Web form for Support Request can be found at:
<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 support

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