SIEMENS

SIMATIC

Industrial PC
SIMATIC IPC847C

Getting Started

12/2010
A5E02669190-02

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.

Siemens AG
Industry Sector
Postfach 48 48
90026 NÜRNBERG
GERMANY

A5E02669190-02
℗ 12/2010

Table of contents

Introduction

1

Objective of this documentation

This Getting Started documentation contains all the information you need for commissioning and using the SIMATIC IPC847C.

Scope of validity of this document

This documentation is valid for all supplied variations of the SIMATIC IPC847C and describe the delivery status as of May 2010.

Operating instructions SIMATIC IPC847C

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 term "rack PC" or "device" is sometimes used to refer to the SIMATIC IPC847C product in this documentation. The abbreviation "CP" stands for CP 1616 onboard.

Note

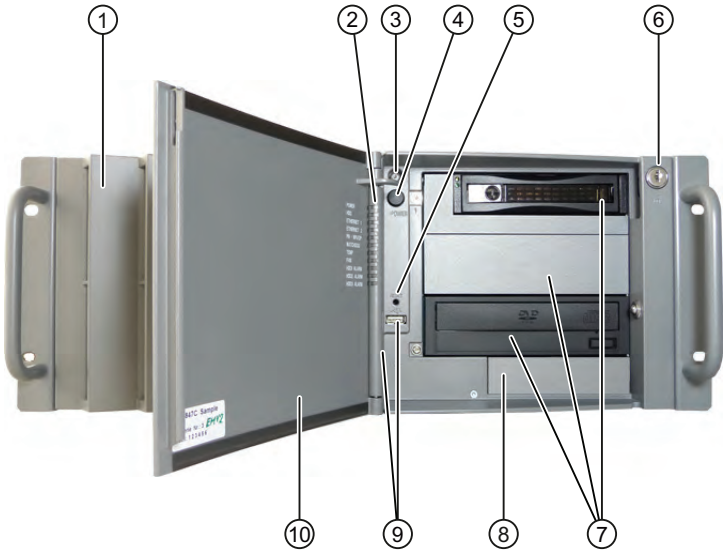
Safety-related Notices

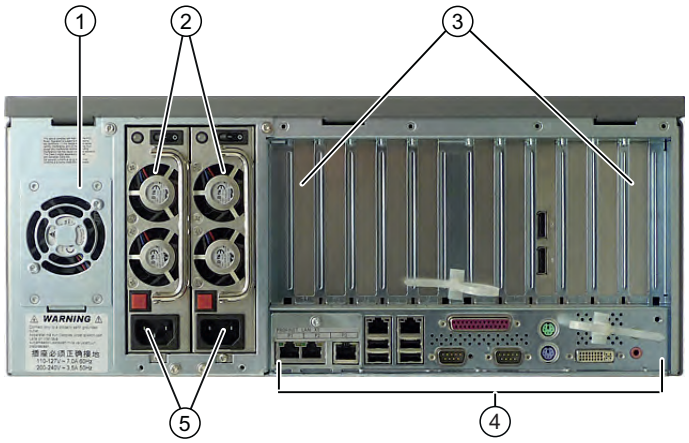
To avoid damage to assets and for the sake of your own personal safety, please take note of the information on safety in this Getting Started and in the operating instructions. A warning triangle references this safety information and is shown depending on the potential hazard.

Description

2

2.1 External structure

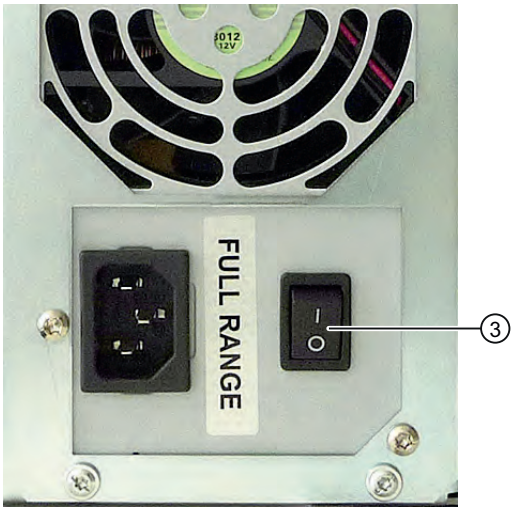
Front view of the device (example)	Item	Description
	①	Front panel with vent openings (filter mat and fan behind the front panel). Check the filter mat regularly for soiling and, if appropriate, replace it.
	②	Status displays
	③	Cover screws
	④	On/off button
	⑤	Reset button
	⑥	Lock
	⑦	Features for the installation of DVD ROM drives, DVD burners and removable racks
	⑧	Installation option for 3.5" drive
	⑨	2 x USB interface
	⑩	Lockable front door for access security. Keep the front door closed during normal operation.

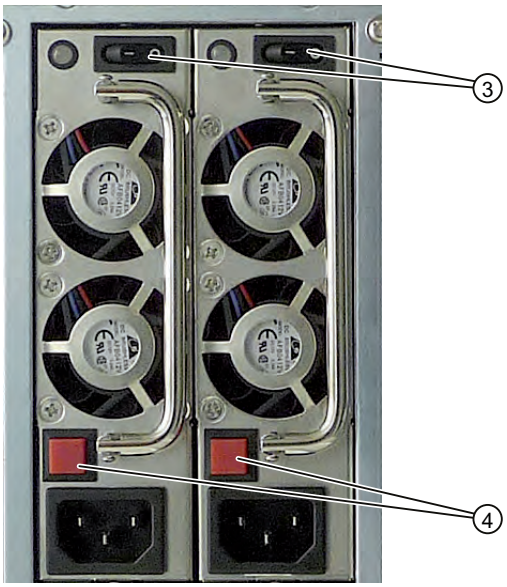
Rear view of the device (example)	Item	Description
	①	Rear drive cooling fan
	②	Modules of the redundant power supply (optional)
	③	Expansion slots
	④	Connection elements
	⑤	Mains connection of the redundant power supply modules

2.2 Operator Controls

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

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

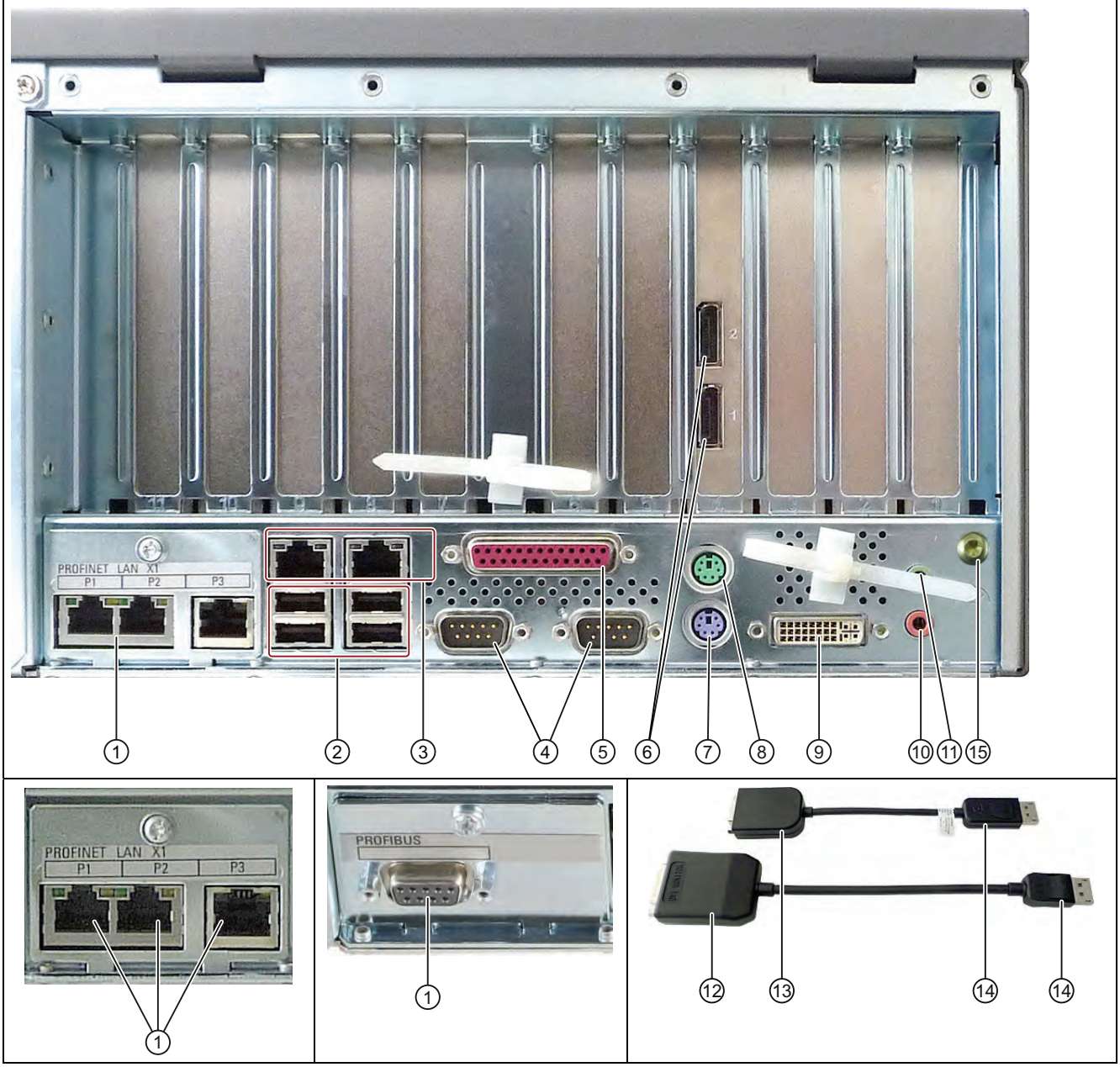
Control elements line side switch, On/Off button and Reset button	Item	Description
	①	On/Off button for switching the device on or off. Note: The device rear has one or 2 line side switches ③. These have to be switched on so that the on/off button at the front functions.
	②	Reset button The reset button 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).
	③	On/Off switch Used to connect the device to the mains. Depending on the BIOS set-up entry "After Power Failure" the PC switches on automatically or the On/Off button ① on the front has to be pressed.

Control elements line side switch, On/Off button and Reset button	Item	Description
	③	On/Off switch Used to connect the device to the mains. Depending on the BIOS set-up entry "After Power Failure" the PC switches on automatically or the On/Off button ① on the front has to be pressed.
	④	Acknowledgement button of the redundant power supply The acoustic error signal is deactivated when the button is pressed.

2.3 Connecting elements

Interfaces

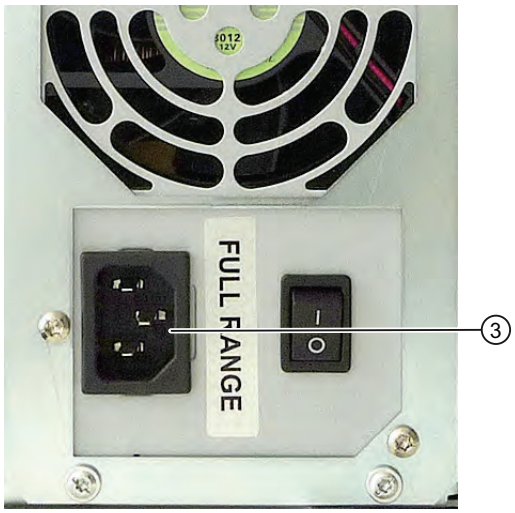
Layout of the interfaces on the rear of the device



Layout of the interfaces on the rear of the device		
Item	**Designation**	**Description**
①	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)
②	USB	Connection for USB devices, USB Port 1 to 4
③	ETHERNET 1, 2 *	2 x RJ45 connectors, Ethernet 10/100/1000 Mbps
④	COM	Serial interface (V.24), 9-pin sub D plug
⑤	LPT	Parallel interface, 25-pin
⑥	DP	2 x display port, DP connection of Dual Head graphics card (optional)
⑦	KEYBOARD	Connection for a PS/2 keyboard
⑧	MOUSE	Connection for a PS/2 mouse
⑨	DVI-I	DVI/VGA port for CRT or LCD monitor with DVI interface, VGA via DVI/VGA adapter
⑩	Audio (input)	Connection for analog audio source, microphone, 3.5 mm phono jack
⑪	Audio (output)	Connection for active speakers or headset, 3.5 mm phono jack
⑫	DVI-D	DVI-D connection of the DP adapter
⑬	VGA	VGA connection of the DP adapter
⑭	DP	Display port connection of the DP adapter at Dual Head graphics card (optional)
⑮	Connecting potentials	Connection for equipotential bonding

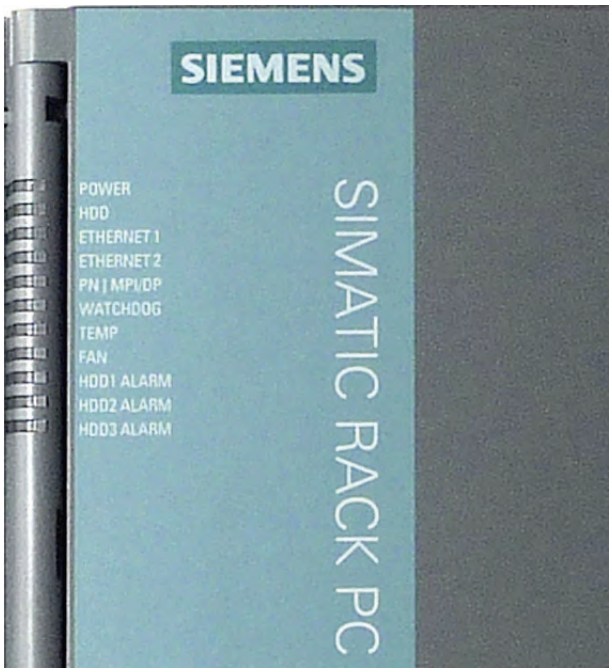
* For unique labeling, the LAN interfaces are numbered on the enclosure. The numbering by the operating system may deviate from this.

Power supply

Position of the connector for cooling devices	Description
	Connector for cooling devices ③ of the AC power supply to the device. The permitted power range is 100 VAC to 240 VAC.
	Connector for cooling devices ③ at redundant power supply for the AC power supply of the device. The permitted power range amounts to 100 VAC to 240 VAC.

2.4 Status displays

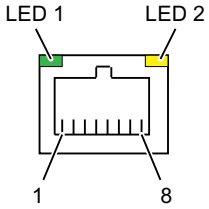
Front status displays



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	• No connection • No data traffic
		GREEN	Data traffic
ETHERNET 2 *	ETHERNET status display	OFF	• No connection • No data traffic
		GREEN	Data traffic

Front status displays			
PN I MPI/DP (optional)	Display of the communication status to S7 or PROFIBUS	OFF	• No connection • No data traffic • PROFIBUS not equipped
		GREEN	• MPI/DP data traffic
	Status display for CP 1616 onboard	OFF	• No connection • No data traffic • CP 1616 onboard not equipped • CP disabled • No error, communication established • Charging in progress • CP 1616 driver not installed • CP in NDIS mode
		Flashes slowly RED	• Link status error • IO controller: IO device cannot be addressed • IO controller: Duplicate IP address
		Flashes rapidly RED	Exception error: diagnostics via Web or SNMP is no longer possible
		RED	• 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 DiagBase or DiagMonitor software)	OFF	Fan speed OK
		RED	Fan speed too low
HDD1 ALARM HDD2 ALARM HDD3 ALARM	Hard disk alarm in conjunction with RAID and monitoring software	OFF	RAID is OK
		One RED	HDD1, HDD2 or HDD3 not OK
		All RED	RAID not OK (for information on locating the faulty HDD, refer to the RAID system section)
		All flashing	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 numbering by the operating system may deviate from this.		

Rear status displays



Display	Meaning	LED	Description
Ethernet LAN 1, 2 *	Green LED Link status display	OFF	• No cable connected • Cable disabled • Interface disabled, 10 MBit cable active
		GREEN	100 MBit cable active
		ORANGE	1000 MBit cable active
	Yellow LED Activity status display	OFF	• 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	• No cable connected • Cable disabled • Interface disabled
		GREEN	Active cable connected
	Yellow LED Activity status display of CP 1616 channel	OFF	• 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

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.

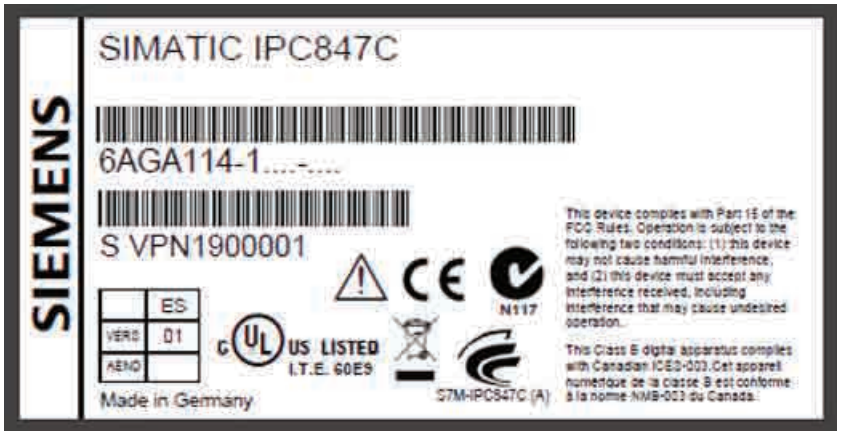


Figure 3-1 Rating plate

- Order number of the device
- Device Ethernet address: The Ethernet address is printed on the device and is stored in the BIOS Setup (F2 key) under "Advanced > Peripheral Configuration".
- 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.

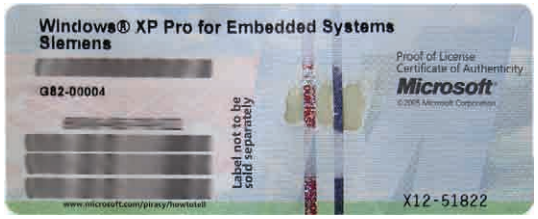


Figure 3-2 COA label

Serial number:	S VP ...
Order no.	6AGA114-1 ...
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

⚠ WARNING

If the following requirements for system installation are not observed, approvals to UL 60950-2, EN 60950-2 are rendered void and there is a risk of overheating and injury.

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

- Climatic and mechanical environmental conditions defined in the "General technical data" chapter of the operating instructions.
- Avoid extreme ambient conditions as far as possible. Protect your device against dust, moisture and heat.
- This device was designed for use in a normal industrial environment. 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.

3.4 Access protection

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

Installing 4

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

⚠ WARNING

Function test while installing the device in machines or systems

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 peripherals 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 inserted into the relevant inputs.

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 sections Technical data of the telescopic rails and Dimensional drawing for the use of telescopic rails.

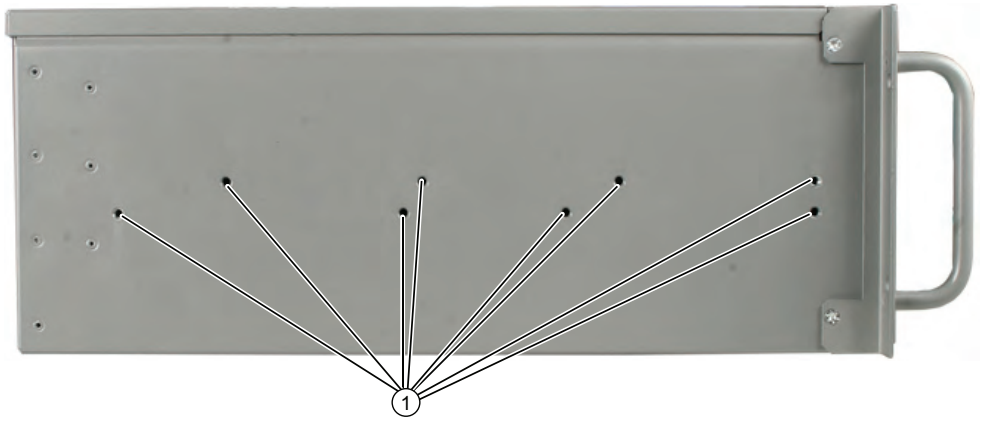


Figure 4-1 Position of the mounting holes

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.

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.

4.2 Technical data of the telescopic rails

Ultimate load per pair	At least 23 kg
Full extraction length	At least 470 mm
Rail thickness	Maximum 9.7 mm
Mounting screws	M5 x 6 mm

Connection 5

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 in question 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

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 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.

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:

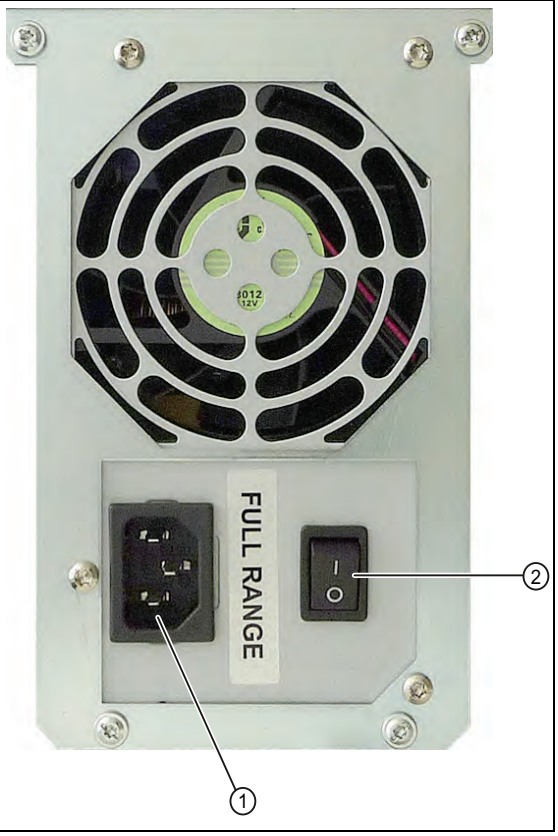
For the United States and Canada, a CSA or UL-listed power cord must be used.

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.

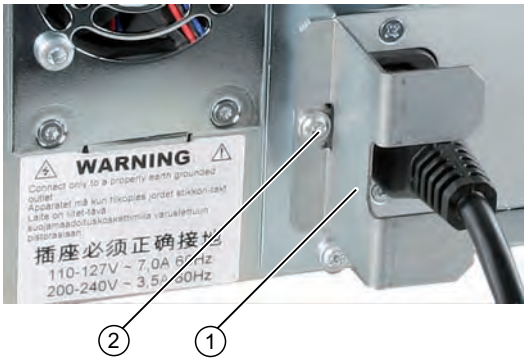
240 VAC power supply
Use a flexible power cord which is approved to UL and CSA, and which has the following features: Type SJT with three conductors, min. 18 AWG conductor cross-section, max. length 4.5 m, and tandem grounded connector 15 A, min. 250 V.

Connecting

Steps for connecting the device to mains		
1	Ensure that the ON/OFF switch ② is in "0" position (Off) when you plug in the power cord to avoid unintentional startup of the device.	
2	Plug in the connector of the cooling device ①.	
3	Connect the power cable to the socket and turn on the ON/OFF switch ②. The yellow power LED (standby) on the front panel of the PC lights up.	

Secure the power plug

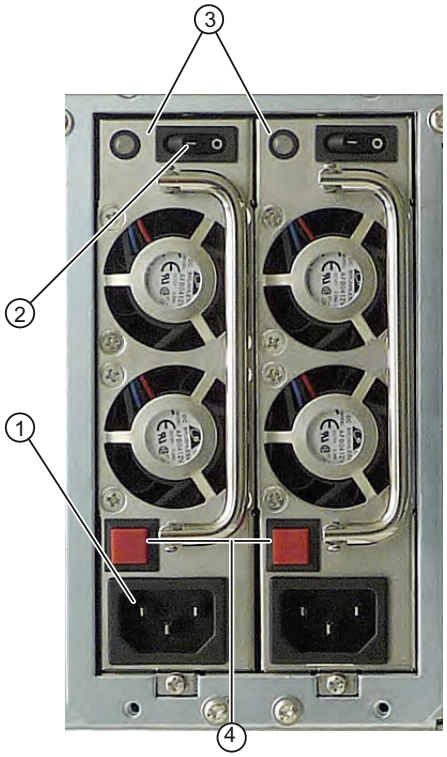
You can secure the power plug in order to avoid unintentional disconnection of the power cord.

Steps for securing the power plug		
1	Screw out the lower left-hand fixing screw ② on the power supply unit.	
2	Screw on the lock for the mains connector (1) to the power supply unit.	

⚠ WARNING

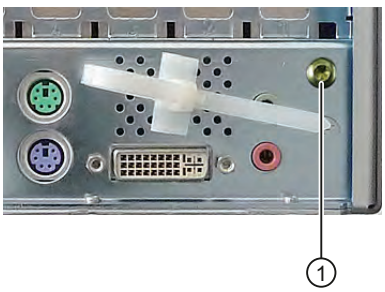
If the power plug is secured with a clamp, the power outlet must be freely accessible to allow the device to be easily removed from the mains.

Connecting to the redundant power supply

Steps for connecting the device to mains (redundant power supply)		
1	Connect the two connectors for cooling devices ①	
2	Switch both On/Off switches on or off simultaneously. The LED at the power supply ③ lights up green. **Note:** If only one control supply module is switched on or connected, or a module is defective, a warning signal is emitted. You cancel the warning signal by pressing button ④.	

5.3 Equipotential bonding

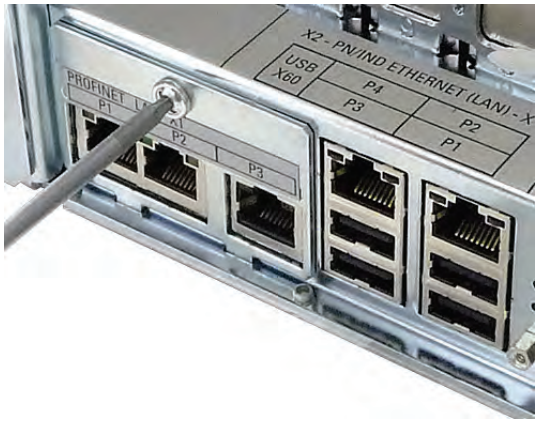
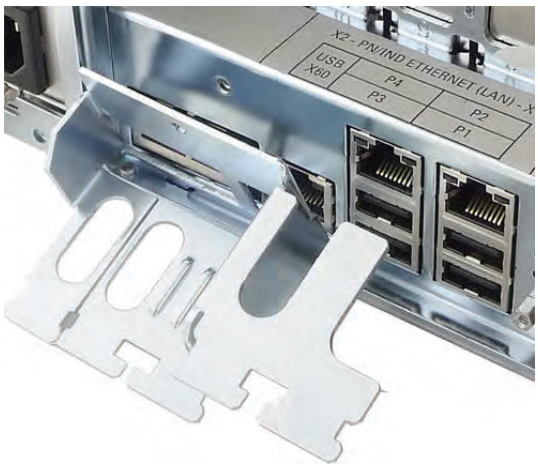
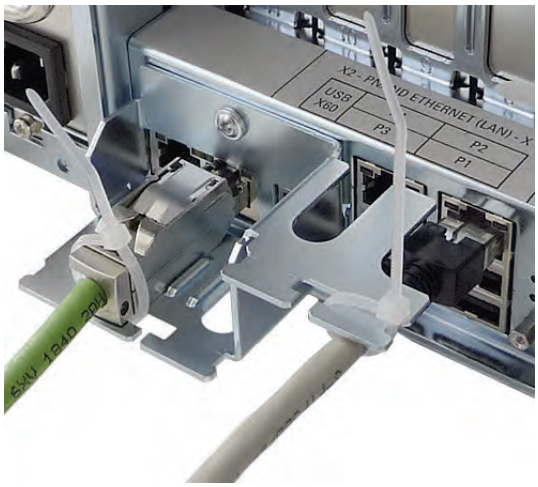
A low-impedance ground connection improves the discharge of interference generated by external power cables, signal cables or cables for I/O modules to ground.

Equipotential bonding terminal	
The equipotential bonding terminal ① on the device (large surface, large-area contact) must be connected 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 mm^2.	

5.4 Strain relief for network cables

The strain relief provided in the scope of delivery is used to prevent accidental loosening of the network cable from the device. One cable tie (not included in the package) is required for each interface.

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

Steps for mounting the strain relief		
1	Remove the PROFINET interface plate.	
2	Attach the PROFINET strain relief.	
3	Attach the cable using the cable tie.	

Commissioning 6

6.1 Requirements for commissioning

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.

Note

Switching the device on

The device is equipped with a power supply unit with line side switch.

In the line side switch position "1" the device can be switched on by using the On/Off switch at the front.

If the line side switch is in the position "0", the device draws the lowest power from the AC power supply. It cannot be switched on by using the On/Off switch at the front.

- 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.

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

The device is equipped with a power supply unit with line side switch.

Switch the line side switch to the "0" position. The device then draws the lowest power from the AC power supply. It cannot be switched on by using the On/Off switch at the front.

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

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	• 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.	• 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.
		If the monitor screen still remains dark after you have performed these checks, please contact your technical support team.
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.	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.
		Contact Technical Support if the mouse pointer still does not appear on the screen after you carried out these checks.
Incorrect time and/or date on the PC.		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.

Problem	Possible cause	To correct or avoid error
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: 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: • 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: – 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	For details about the error display, see the operating instructions:
Red WATCHDOG LED is lit	Watchdog has triggered	Section "Watchdog (WD)"
Red TEMP LED is lit	Excess temperature in the device	Section "Temperature monitoring / display
Red FAN LED is lit	Fan failure	Section "Fan monitoring"
Red HDD1 ALARM LED is lit	RAID reports that hard disk 1 is defective	Section "RAID monitoring"
Red HDD2 ALARM LED is lit	RAID reports that hard disk 2 is defective	Section "RAID monitoring"
Red HDD1 ALARM and HDD2 ALARM LEDs are flashing	RAID is in the "rebuild" state	Section "RAID monitoring"
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.	Section "RAID monitoring"
Red SF PROFINET LED is lit	A fault has occurred on the CPU 1616 onboard interface	Section "CP 1616 onboard communications processor"
All front-panel LEDs are constantly lit	Error in early BIOS-POS	In this case, contact Technical Support.

Dimension drawings

8

8.1 Dimensional drawing of the device

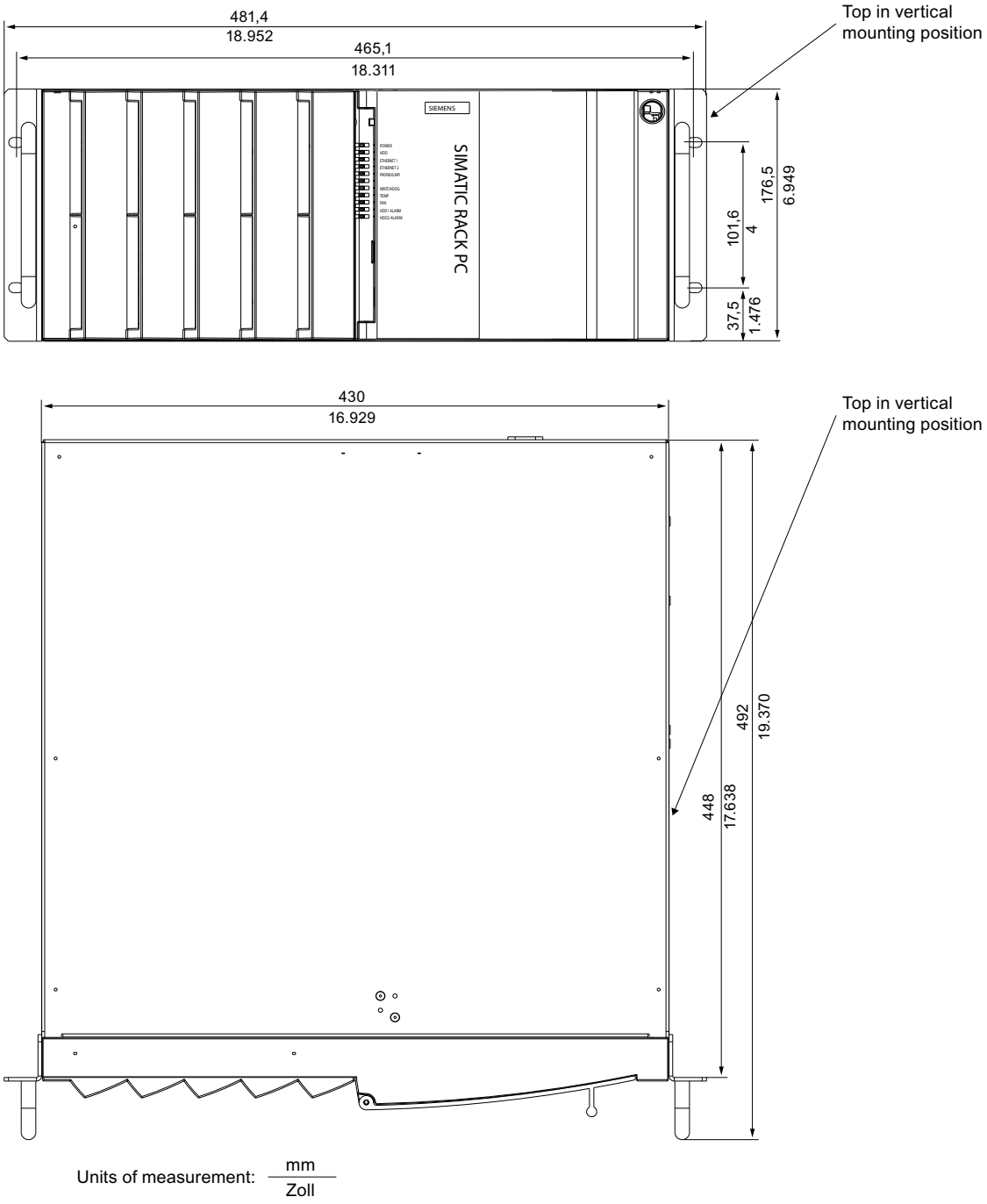
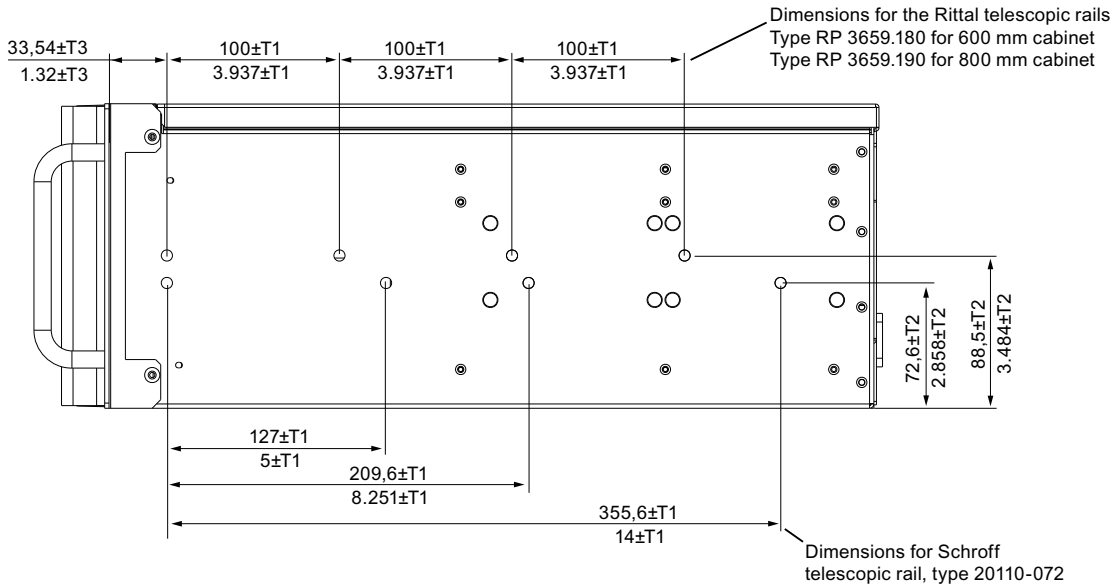


Figure 8-1 Dimensional drawing

8.2 Dimensional drawing for the use of telescopic rails



Units of measurement: mm / inches

T1= tolerance of ±: 0.1 mm / 0.004 inches T2= tolerance of ±: 0.3 mm / 0.01 inches T3= tolerance of ±: 0.5 mm / 0.02 inches

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

Appendix A

A.1 Guidelines and declarations

Notes on CE marking

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

EMC directive

This product meets 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	Requirement for	
	Emitted interference	Immunity to interferences
Residential, business and commercial operations, and small businesses	EN 61000-6-3: 2007	EN 61000-6-1: 2007
Industry	EN 61000-6-4: 2007	EN 61000-6-2: 2005

The product complies with EN 61000-3-2:2006 (harmonic currents) and EN 61000-3-3:2008 (voltage fluctuations and flicker.)

Low-voltage directive

The product fulfills the requirements of EC Directive 2006/95/EC "Low Voltage Directive." Conformance with this directive has been verified according to EN 60950-1: 2006.

Declaration of conformity

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

Note the installation guidelines

The installation guidelines and safety instructions given in this documentation have to be noted 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 are 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:	
c UL us	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 B 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.

AUSTRALIA	
	This product meets the requirements of the standard EN 61000-6-3:2007 Generic standards - Emission standard for residential, commercial and light-industrial environments.

A.3 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)

Index

P

R

S

T

U

V

W