

Getting Started Edition 09/2005



**Industrial PC**  
Rack PC IL 43

simatic

**SIEMENS**



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## SIMATIC

### Industrial PC Rack PC IL 43

#### 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.



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### Danger

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

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### Warning

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

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### Caution

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

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### Caution

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

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### Notice

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

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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:



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### 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.**

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## 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

## Purpose of this document

This Getting Started documentation contains all the information you need for commissioning and using the SIMATIC Rack PC IL 43.

## Scope of validity of this document

This documentation is valid for all supplied variations of the SIMATIC Rack PC IL 43 and describes the state of delivery as of September 2005.

## Operating instructions SIMATIC Rack PC IL 43

Additional information is available on the supplied CD "Rack PC IL 43 Documentation and Drivers". To view and print the operating instructions, run **Start** and follow the instructions on the screen.

The operating instructions provide many useful topics dealing with items such as hardware expansion options, changing the device configuration and technical data.

## Conventions

The abbreviation Rack PC or device is also used within this documentation for the product name SIMATIC Rack IL PC 43.

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### Note

#### Safety-related 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-related information and, depending on the potential hazard, is shown as follows:

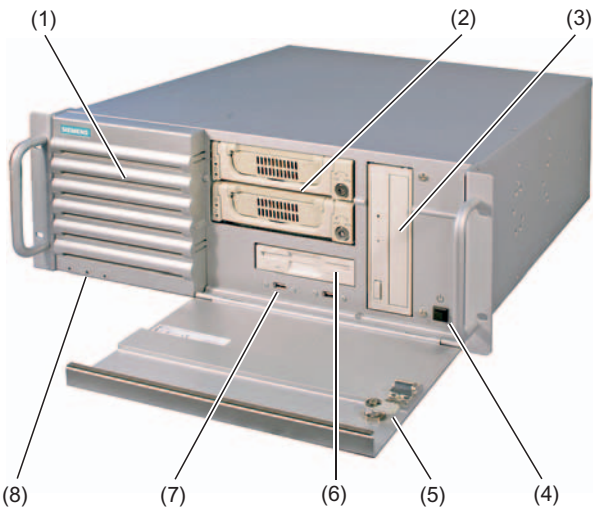
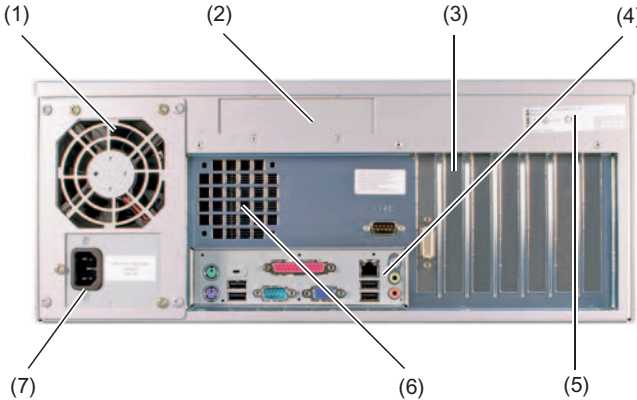
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## Description

### 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)	Option for installing DVD-ROM, DVD-ROM/CD-RW drives, DVD burner and removable racks for hard disks
	(3)	Option for installing DVD-ROM, DVD-ROM/CD-RW drive, DVD burner
	(4)	On/off button
	(5)	Front door with lock, provides protection against dirt and unauthorized access. Keep the door closed during normal operation.
	(6)	Floppy disk
	(7)	USB ports
	(8)	Status displays
Rear view of the device	Pos	Description
	(1)	Power unit fan
	(2)	Option for installing a cover for external ports
	(3)	Expansion slots 4 x PCI, 2x PCIe x1, 1x PCIe x16
	(4)	Connecting elements
	(5)	Rating plate (may also be mounted on the inside of the front panel door)
	(6)	Fan aperture Installation option for 60 mm fan
	(7)	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>

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**Caution**

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

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**Warning**

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


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## 2.3 Connecting elements

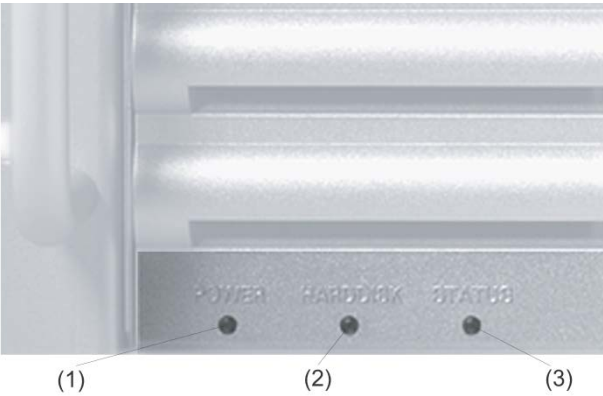
### Interfaces

Layout of the interfaces on the rear of the device		
Pos	Name	Description
(1)	MOUSE	Connection for a PS/2 mouse
(2)	USB C and D	USB connector
(3)	LPT	Parallel interface, 25-pin
(4)	LAN	RJ 45 Ethernet connection 10/100/1000 Mbps
(5)	COM 2	Serial port 1 (V.24), 9-pin Cannon connector (optional)
(6)	VGA 1	Dual Head VGA adapter (optional)
(7)	VGA 2	Dual Head VGA adapter (optional)
(8)	Micro (input)	Microphone connection
(9)	Audio (output)	Headphone connection
(10)	Audio (input)	Connection for linear audio source
(11)	USB A and B	USB connector
(12)	VGA	Connection for VGA monitor
(13)	COM 1	Serial port 1 (V.24), 9-pin Cannon connector
(14)	KEYBOARD	Connection for a PS/2 keyboard

Power supply

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

2.4 Status displays

Status displays				
				
	Display	Meaning	LED	Description
(1)	POWER	PC status display	OFF YELLOW GREEN	<ul style="list-style-type: none"> <li>• Hibernate, switched off or power off</li> <li>• Windows standby</li> <li>• PC in operation</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)	STATUS	Fan status	FLASH RED	<ul style="list-style-type: none"> <li>• CPU temperature critical</li> <li>• CPU heatsink fan fault</li> <li>• Enclosure fan fault</li> <li>• Power supply fan fault</li> </ul>

## Application Planning

### 3.1 Transport

Although the Rack PC has a 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 shipment of the device.

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#### 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, make sure that condensation does not develop on or inside the device.

If condensation develops, wait at least 12 hours before switching on the device.

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### 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 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 type 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: You find the Ethernet address of the device in your BIOS Setup (**F2 function key**) , under **Info > (F1 function key) > LAN Address**.
- Microsoft Windows "Product Key" from the "Certificate of Authenticity" (COA). The COA label is found on 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.	6AG ...
Microsoft Windows Product Key	
Ethernet address	

**Device equipment**

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

### 3.3 Ambient and environmental conditions

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

- Note the climatic and mechanical environmental conditions specified in the technical data in your operating manual.
- Avoid extreme ambient conditions as much 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 satisfies protection class IP 30 on 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.



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#### 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.

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# Mounting

## 4.1 Installing the device

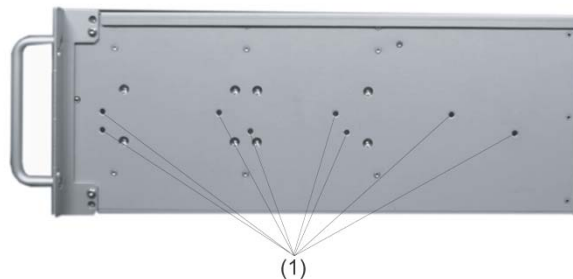
### Possible areas of installation

The device may be installed in control desks, switching cabinets and 19`` rack systems, both horizontally and vertically.

### Possible mounting methods

Options of mounting the device

- Mounting on angle brackets
- Installation on device bases
- Tower installation: a separate tower kit can be ordered for tower installation.
- Installing with telescopic rails  
When telescopic rails are used, the devices can be completely removed from 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

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### Caution

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

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**Note**

For vertical operation, install 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.

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**Caution**

**Danger of bodily harm!**

It is not permitted to install the device only on the 19" brackets of the front panel.

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## 4.2 Technical data of the telescopic rails

Ultimate load per pair	Minimum 30 kg
Full extraction length	Minimum 470 mm
Rail thickness	Maximum 9.7 mm
Fixing 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

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**Notice**

Connect only I/O modules approved for industrial applications to EN 61000-6-2:2001.

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**Note**

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

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**Caution**

I/O devices not capable of hot-plugging may only be connected after the device has been disconnected from the power supply.

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**Caution**

Strictly adhere to the specifications for I/O modules.

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## 5.2 Connecting the device to power

### To be noted before you connect the device

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**Note**

The long-range power supply module is designed for operation on 100-240 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.

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**Warning**

The device is designed for operation 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.

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**Warning**

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

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**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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## 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 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 shockproof connector. The cable set must be compliant with the safety regulations and stipulated IDs of the country where the system is to be installed.

### For the USA and Canada:

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

The connector must be compliant with NEMA 5-15.

### 120 V AC power supply

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

### 240 V supply voltage

Use a flexible power cord with UL approval and with CSA label, and with the following features: Type SJT with three leads, min. 18 AWG conductor cross-section, max. 4.5 m long and tandem ground contact connector 15 A, min. 250 V.

## Connecting

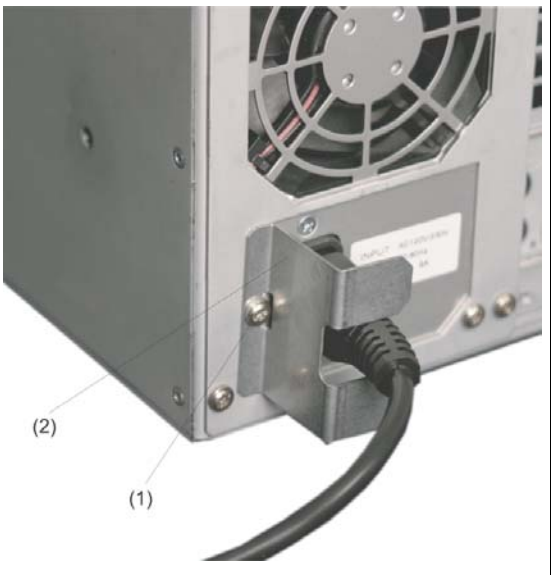
Steps for connecting the device to mains	
1	Connect the IEC connector.
2	<p>Connect the power cord to the mains outlet, then switch on the mains isolation switch (if this exists).</p> <p>The yellow power LED (standby) on the front panel of the PC lights up.</p>



### Secure the power plug

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

Steps in securing the power plug	
1	Remove the fastening screw (1) on the power supply module.
2	Power plug clamp (2) screw it to the power supply module



#### 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.

## Commissioning

### 6.1 Prerequisites for commissioning

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

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**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.

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### 6.2 Basic commissioning - initial power-up

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 this 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 can find this key on the "Certificate of Authentication", in the "Product Key" line.

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**Notice**

The PC may not be switched off when you run setup.

**Do not** change the default BIOS settings as this will disrupt the operating system installation.

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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.

### Switch off the device

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#### Note

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

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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, the Documentation and Drivers CD or the Restore DVD.

- **Recovery CD:** The new recovery procedure is based on Windows PE (Preinstall Environment). The CD contains the Windows PE user interface with tools for configuring the hard drives and the operating system.
- **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 using the on/off switch.
- During the BIOS self-test, press the F12 key. After initialization, a "Boot Menu" is displayed.
- Select the optical drive with the cursor keys.
- Now follow the instructions on the screen.

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#### Caution

All existing data, programs, user settings, authorizations and license keys on the drives will be deleted and are therefore lost.

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



## Dimension drawings

### 7.1 Dimensional drawing of the device

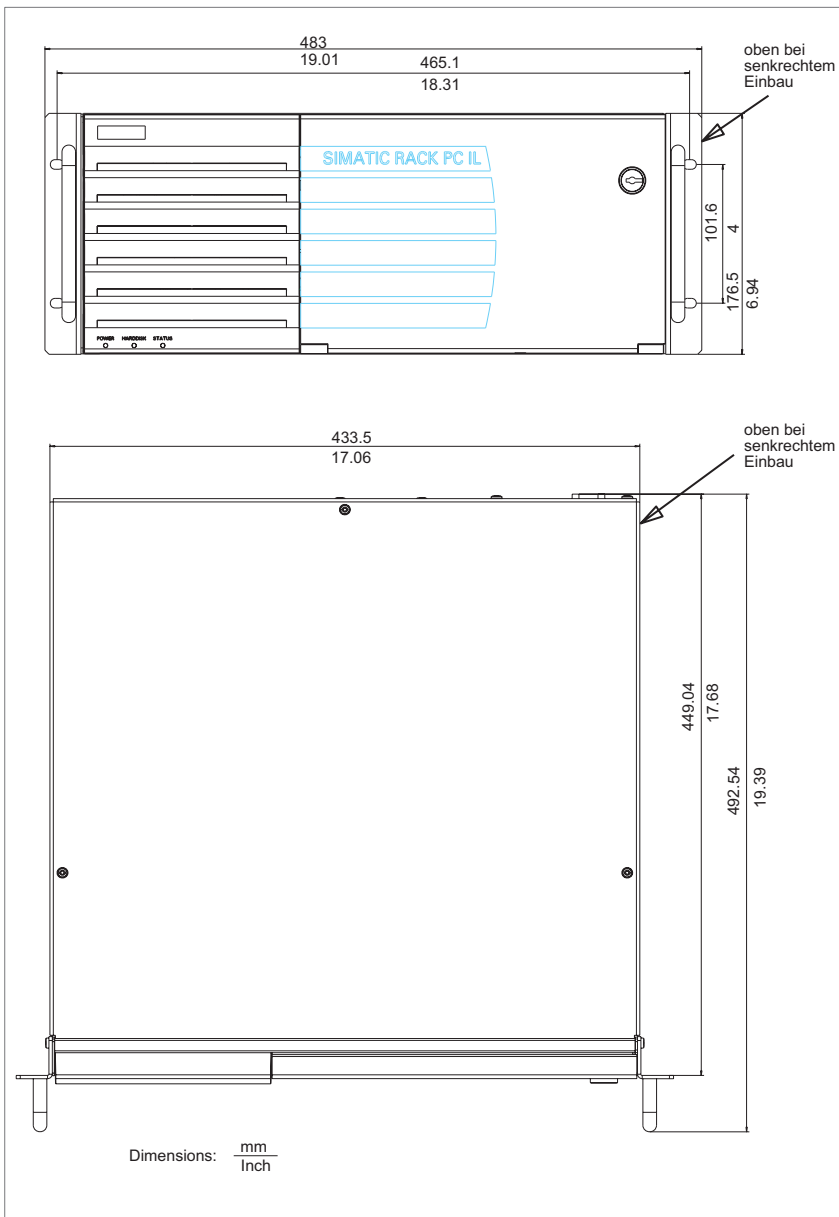


Figure 7-1 Dimensional drawing of the device

## 7.2 Dimensional drawing for the use of telescopic rails

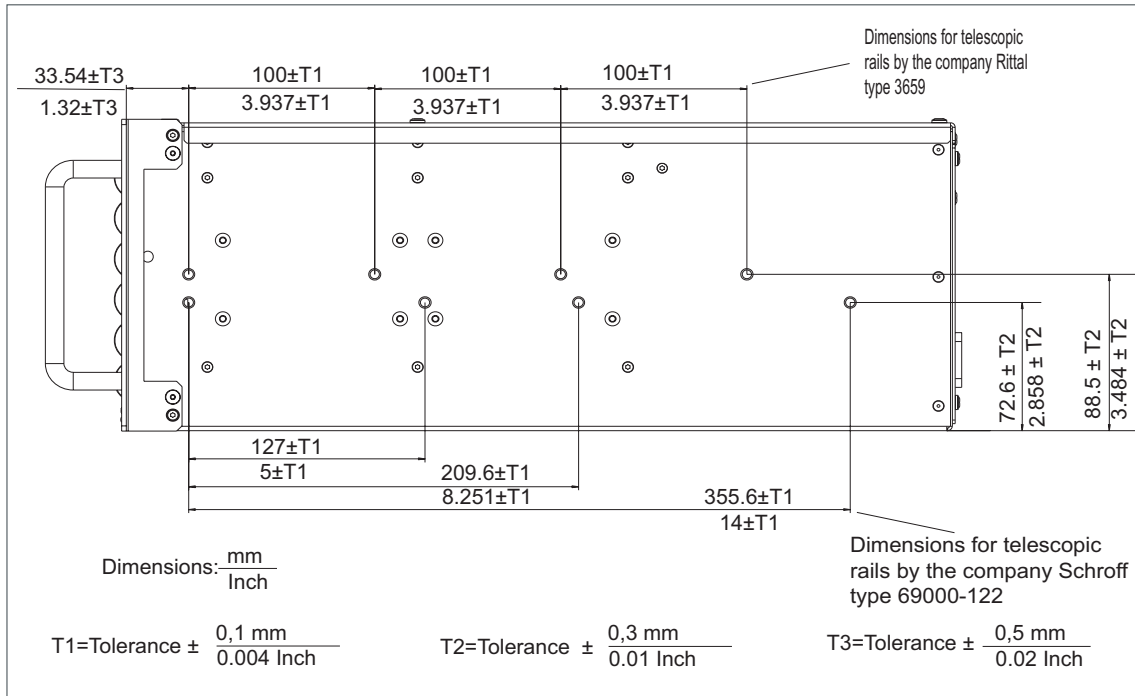


Figure 7-2 Dimensional drawing for the use of telescopic rails

## Appendix

### A.1 Guidelines and declarations

#### Notes on the CE Label

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

#### EMC Guidelines

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

Area of application	Requirements for	
	Emitted interference	Noise Immunity
Industry	EN 61000-6-4: 2001	EN 61000-6-2: 2001
Residential and commercial areas and small businesses	EN 61000-6-3: 2001	EN 61000-6-1: 2001

The device complies with the standards EN 61000-3-2:2000 (harmonic currents) and EN 61000-3-3:1995 (voltage fluctuation and flicker.)

#### Low-voltage directive

The devices complies with the requirements of the EC Directive 73/23/EEC "Low Voltage Directive." Conformance with this standard has been verified according to EN 60950.

#### 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.

#### Observing the Installation Guidelines

The installation guidelines and safety instructions given in this documentation must be observed during commissioning and operation.

#### Connecting peripherals

The requirements regarding noise immunity to EN 61000-6-2:2001 are met when you connect a peripheral suitable for an industrial environment. Peripheral devices are only be connected via shielded cables.

## A.2 Certificates and approvals

### DIN ISO 9001 certificate

The quality assurance system for the entire product process (development, production, and marketing) at Siemens fulfills the requirements of ISO 9001 (corresponds to EN29001: 1987).

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







EQ-Net certificate no.: 1323-01

### Software License Agreement

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

### Certification for the USA, Canada and Australia


#### Safety

One of the following markings on a device is indicative of the corresponding approval:	
	Underwriters Laboratories (UL) to UL 60950 Standard (I.T.E), or to UL508 (IND.CONT.EQ)
	Underwriters Laboratories (UL) according to Canadian standard C22.2 No. 60950 (I.T.E) or C22.2 No. 142 (IND.CONT.EQ)
	Underwriters Laboratories (UL) according to standard UL 60950, Report E11 5352 and Canadian standard C22.2 No. 60950 (I.T.E) or UL508 and C22.2 No. 142 (IND.CONT.EQ)
	UL recognition mark
	Canadian Standard Association (CSA) according to the standard C22.2. No. 60950 (LR 81690) or C22.2 No. 142 (LR 63533)
	Canadian Standard Association (CSA) to the American Standard UL 60950 (LR 81690), or to the UL 508 (LR 63533)

## 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.

CANADA	
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.

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

## A.3 Service and support

### Further support

If you have any further questions relating to the products described in this documentation, contact your local representative at the SIEMENS office nearest you.

You can locate your contact partner on this Internet URL:

<http://www.siemens.com/automation/partner>

A guide to our technical documentation for the various SIMATIC products and systems is available at:

<http://www.siemens.de/simatic-tech-doku-portal>

The online catalog and the online ordering system is available at:

<http://mall.automation.siemens.com/>

## Training center

Siemens offers a number of training courses to familiarize you with the SIMATIC automation system. Please contact your regional Training Center, or the central Training Center in D90327 Nuremberg.

Telephone: +49 (911) 895-3200.

Internet: <http://www.sitrain.com>

## Technical Support

You can reach Technical Support for all A&D products using the Web form for Support Request available under <http://www.siemens.de/automation/support-request>

Further information about our technical support is available in the Internet at [www.siemens.com/automation/service](http://www.siemens.com/automation/service)

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

## Service & Support on the Internet

In addition to our documentation services, you can also make use of all our online knowledge base on the Internet.

<http://www.siemens.com/asis>

There you find:

- The Newsletter contains the latest information on your products.
- Numerous documents are available by searching through Service & Support.
- The current BIOS version.
- A forum is available for users and specialists to exchange experiences.
- You can find your local contact for Automation & Drives in our contacts database.
- Information about on-site services, repairs, spare parts. Lots more is available on the "Services" page.

**You can find the latest information about industrial PCs at the following address**

<http://support.automation.siemens.com>





**Siemens AG**

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Federal Republic of Germany

[www.siemens.de/automation](http://www.siemens.de/automation)

ID: A5E00432882-01