

SIEMENS

SIMATIC NET

PG/PC - Industrial Ethernet CP 1623




Operating Instructions

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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
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.


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, 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 complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of 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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Preface

What the consignment contains

The following components are supplied with the CP 1623:

- CP 1623 communications processor
- Driver CD for CP 1623
- Connector for connecting an external power supply (use is optional)

Please check that the consignment you have received is complete. If the consignment is incomplete, contact your supplier or your local Siemens office.

Validity of this documentation

These operating instructions are valid for the following product:

- CP 1623
order number: 6GK1162-3AA00

Content of this documentation

These operating instructions contain information about the installation and configuration of the CP 1623 communications processor.

Updated operating instructions on the Internet

You will find the current version of these operating instructions on the Product Support pages under the following entry ID:
62607733 (<http://support.automation.siemens.com/WW/view/en/62607733>)

Further documentation

The documents listed below contain more detailed information on commissioning and using the communications processor. You will find this documentation on the Product Support pages on the Internet under the following entry link:
Support (<http://support.automation.siemens.com/WW/view/en>)

Enter the entry ID shown below of the relevant manual as the search item.

- **Configuration manual Commissioning PC Stations**

This provides you with detailed information on commissioning and configuring SIMATIC NET PC communications modules.

Entry ID:

13542666 (<http://support.automation.siemens.com/WW/view/en/13542666>)

- **System manual SIMATIC NET Industrial Communication with PG/PC**

- **Volume 1– Basics**

Entry ID:

42783968 (<http://support.automation.siemens.com/WW/view/en/42783968>)

- **Volume 2– Interfaces**

Entry ID:

42783660 (<http://support.automation.siemens.com/WW/view/en/42783660>)

The system manuals introduce the topic of industrial communication and explain the communications protocols used. There is also a description of the OPC interface as user programming interface.

- **Installation manual SIMATIC NET PC Software**

This document contains detailed information on installing the SIMATIC NET PC software.

Entry ID:

61630923 (<http://support.automation.siemens.com/WW/view/en/61630923>)

- **System manual Industrial Ethernet Network Manual**

In this document you will find detailed information about setting up an Industrial Ethernet network.

Entry ID:

27069465 (<http://support.automation.siemens.com/WW/view/en/27069465>)

SIMATIC NET documentation

You will find the entire SIMATIC NET documentation on the pages of Product Support: 10805878 (<http://support.automation.siemens.com/WW/view/en/10805878>)

Go to the required product group and make the following settings:

→ Entry list → Entry type "Manuals / Operating Instructions"

Service & Support

In addition to the product documentation, the comprehensive online information platform of Siemens Automation Customer Support supports at any time and at any location in the world. You will find the Service & Support pages on the Internet at the following address:

(<http://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo2&aktprim=99&lang=en>)

Apart from news, you will also find the following information there:

- Product information, Product Support, Applications & Tools
- Technical Forum
- Technical Support - Ask the Siemens experts
- Our service offer:
 - Technical Consulting, Engineering support
 - Field Service
 - Spare parts and repairs
 - Maintenance, optimization, modernization and more

You will find contact data on the Internet at the following address:

(<http://www.automation.siemens.com/partner/guiwelcome.asp?lang=en>)

See also

(<https://support.automation.siemens.com/WW/llisapi.dll?func=cslib.csinfo&lang=en&objid=38718979&caller=view>)

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You will find detailed information on the training curriculum and how to contact our customer consultants at the following Internet address:

(www.siemens.com/sitrain)

SIMATIC NET glossary

Explanations of the specialist terms used in this documentation can be found in the SIMATIC NET glossary.

You will find the SIMATIC NET glossary here:

- SIMATIC NET Manual Collection
 - The DVD ships with certain SIMATIC NET products.
- On the Internet under the following entry ID:
50305045 (<http://support.automation.siemens.com/WW/view/en/50305045>)

Description of the device

Product features

The CP 1623 is a PCIe module for connecting PGs/PCs to Industrial Ethernet. The essential properties are as follows:

- Two RJ-45 ports for Industrial Ethernet for connecting twisted-pair cables
- The following data rates are supported:
 - 10/100 Mbps (half/full duplex)
 - 1000 Mbps (full duplex)
- Can be used as a 2-port switch (both RJ-45 connectors lead to the integrated switch)
- Own processor on the CP 1623 relieves the PC/PG CPU
- Autosensing, autocrossover, autonegotiation
- ISO and TCP/IP transport protocol onboard

Note

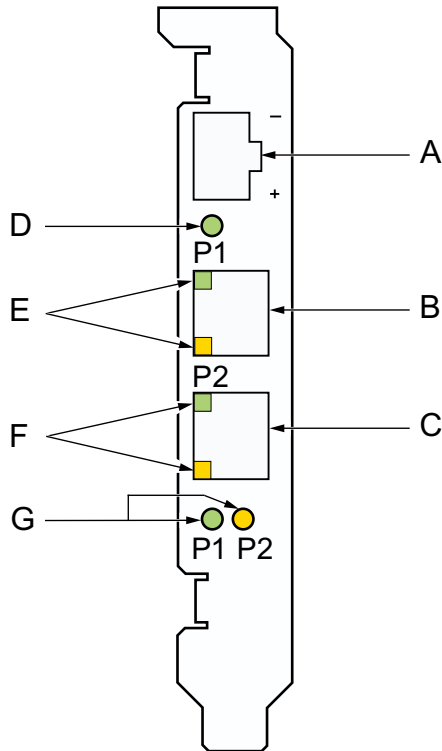
All CP 1613 software products can be operated with the CP 1623.

Hardware requirements

The CP 1623 requires a PCIe slot (PCI express x1; can also be operated in x4, x8 or x16 slots).

LED display

The following graphic shows the front panel of the CP 1623 communications processor:



A socket for external power supply

B Port 1

C Port 2

D Power/fault LED

E 2 port LEDs for Port 1

F 2 port LEDs for Port 2

G LEDs for displaying the transmission speed of Port 1 and Port 2

The table describes the LED displays that indicate the operating states:

LED	Display	Description
Power/fault LED	off	No external power supply connected, no fault
	green	External power supply connected
	red (flashing)	Module fault

LED	Display	Description
2 LEDs in each port (green and yellow)	<ul style="list-style-type: none"> green, off yellow, off 	No cable connected.
	<ul style="list-style-type: none"> green, lit permanently yellow, off 	Link exists, no data traffic
	<ul style="list-style-type: none"> green, lit permanently yellow, flashing 	<ul style="list-style-type: none"> Link exists, sending/receiving data
LEDs for displaying data transmission rate P1 and P ports	off	<ul style="list-style-type: none"> 10 Mbps or No cable connected
	green, lit permanently	100 Mbps
	yellow, lit permanently	1000 Mbps

External power supply

If an external power supply is connected via this socket (12 to 24 V DC), the CP 1623 can also be operated as a 2-port switch even if the PC is turned off.

Software installation

3.1 Installing the driver

Installation

After the computer has booted, the Windows plug-and-play mechanism searches for a driver for the communications processor. This can be found on the "SIMATIC NET PC Software" DVD.

Selecting the suitable driver

Which driver you need to install depends on the communications processor and the conditions in which it is used:

- **Office**
If the communications processor is used only in an office environment in a PC network (without SIMATIC NET PC software), install the driver from the supplied driver CD.
- **Industry**
If the communications processor is operated in an industrial network along with a SIMATIC NET communications processor software product, install the supplied "SIMATIC NET PC Software" CD.
If you use Edition 2007, you also have to install Hotfix 1.

3.2 Uninstalling the driver

Uninstalling after using the CP 1623 with SIMATIC NET PC software

- The "SIMATIC NET, PC Software" CD is installed on the computer.
- Uninstall the SIMATIC NET PC software as described in the Installation Instructions of the "SIMATIC NET, PC Software" CD.

Note

The procedure recommended here deletes the entire SIMATIC NET PC software on the computer not only the driver for the CP 1623.

Uninstalling after using the CP 1623 without SIMATIC NET PC software

If you remove the CP 1623 from your computer and want to uninstall the driver, follow the steps below:

1. Open the Control Panel and go to the "Hardware" tab.
2. Click on the "Device Manager" button in the "Device Manager" group box.
3. Right-click on the driver of the "SIMATIC Miniport CP1623 PCIe Adapter" communications processor in the path of the "SIMATIC NET" icon, select "Uninstall" and confirm removal with "OK".
4. Restart your computer to completely remove the driver.

3.3 Installing the SIMATIC NET PC software

SIMATIC NET PC software

The SIMATIC NET PC software is one of several software packages with which you can operate the CP in your PG/PC. You will find information on alternatives in the section "Alternative software packets (Page 15)".

To configure the CP, you require additional configuration software. You will find information on the configuration software in the section "Configuration (Page 19)".

Condition

The plug and play function is activated in the BIOS of your PG/PC.

Prior to hardware installation

Install the software as described in the installation manual "SIMATIC NET PC Software". You will find this installation manual on the Product Support pages under the following entry ID:

61630923 (<http://support.automation.siemens.com/WW/view/en/61630923>)

You should also note the current information on the SIMATIC NET PC software on the Product Support pages in:

(<http://support.automation.siemens.com/WW/view/en/43409428/133400>)

After the hardware installation

After installing the CP, your PG/PC automatically searches for a suitable driver.

1. Follow the instructions of the Hardware Wizard of Windows.
2. Do not activate the search for drivers on the Internet.

3.4 Uninstalling the SIMATIC NET PC software

Condition

The SIMATIC NET PC software is installed on the PG/PC.

Procedure

Note

The procedure recommended here deletes the entire SIMATIC NET PC software on the PG/PC not only the driver for the communications processor.

Uninstall the entire software package as described and recommended in the installation manual "SIMATIC NET PC Software".

You will find the installation manual on the SIMATIC NET DVD or on the Product Support pages under the following entry ID:

61630923 (<http://support.automation.siemens.com/WW/view/en/61630923>)

3.5 Alternative software packets

Alternatives to SIMATIC NET PC software

To operate the CP, alternative software packages such as STEP 7 V5.5 or STEP 7 Professional V11 are also available. You will find current information on this on the Product Support pages under the following entry ID:

47071380 (<http://support.automation.siemens.com/WW/view/en/47071380>)

Hardware installation

Note on lightning protection

Note

The requirements of EN61000-4-5, surge immunity tests on power supply lines, are met only when a Blitzductor is used with 12 to 24 V DC:

12 - 24 V DC: VT AD 24V item no. 918 402

Vendor: DEHN+SÖHNE GmbH+Co.KG, Hans Dehn Str. 1, Postfach 1640, D - 92306 Neumarkt, Germany

Number of permitted communications processors

Note

A maximum of four CP 1623 modules can be installed in one PG/PC.

Procedure

To install and connect up the CP 1623 follow the steps outlined below:

Note

When handling the module, make sure that you do not touch the connectors or the electronic components.

1. Turn off your computer and pull out the power cable connector from the socket.
2. Open the housing of the computer as described in the manual for your PG/PC and remove the cover of a free PCIe slot in your computer.
3. Remove the CP 1623 from its packaging.
4. Insert the CP 1623 in the PCIe slot.
Make sure that the CP 1623 is inserted and secured correctly.
5. Close the computer housing as described in the manual accompanying your PG/PC
6. Plug the connecting cable (TP) into one of the two jacks on the front panel of the CP 1623.
7. Plug the power supply connector into the socket again and turn on your computer.

Optional: If required, connect the external power supply to the CP 1623.

Configuration

Now configure the SIMATIC NET communications software to commission the communications processor. The rest of the procedure is described in the "Commissioning PC Stations" manual (Start menu **Start → ... → Commissioning PC Stations**).

Note

The CP 1613 configuration can be downloaded to the CP 1623.

Technical specifications

CP 1623

The following technical specifications apply to the CP 1623 communications processor:

Data transmission	
Transmission rate	<ul style="list-style-type: none"> • 10/100 Mbps (half/full duplex) • 1000 Mbps (full duplex)

Interfaces	
Connection to 10BaseT/100BaseTx/ 1000BaseT	RJ-45 ports (two)
Connector for PG/PC	PCI Express x1; can also be operated in x4, x8 or x16 slots.

Voltage	
PCIe power supply	3.3 V DC and 12 V DC

External power supply	
Rated voltage	12 to 24 V DC
Limit voltages	Min. 10.5 V DC Max. 32 V DC

Current consumption	
PCIe power at 3.3 V DC	max. 0.85 A
PCIe power at 12 V DC	max. 0.4 A

Permitted ambient conditions	
Operating temperature	+ 5 to + 55 °C
Transportation/storage temperature	- 20 to + 60 °C

Technical specifications

Construction

Module format	<ul style="list-style-type: none">• Standard height• Half width
Dimensions (H x W x D) in mm	126.3 x 21.6 x 180.5
Weight	124 g
Space required	PCIe slot

External power supply

The following technical specifications refer to the external power supply:

Requirements of the external power supply	
Electrical isolation	required
Rated voltage range	12 to 24 V DC
CP 1623 current consumption	<ul style="list-style-type: none">• at 12 V DC: 0.55 A• at 24 V DC: 0.3 A

Connection of external power supply	
Socket strip, 2-pin	Use the supplied connector.

Note

If supplied from a separate source, this must meet the requirements to comply with NEC Class 2.

Approvals

Note

The specified approvals apply only when the corresponding mark is printed on the communications processor.

Electromagnetic compatibility - EMC directive

The communications processor meets the requirements of the EC Directive:2004/108/EEC (EMC directive).

The communications processor is designed for use in the following areas:

Area of application	Requirements	
	Emission	Immunity
Residential areas, business and commercial operations, and small businesses	EN 61000-6-3	EN 61000-6-1
Industrial environment	EN 61000-6-4	EN 61000-6-2

EC declaration of conformity

You will find the EC declaration of conformity for this communications processor on the Product Support pages under the following entry ID:

63367995 (<http://support.automation.siemens.com/WW/view/en/63367995>)

Machinery directive

This communications processor is not a machine in the sense of the EC directive 2006/42/EEC (Machinery Directive). There is therefore no declaration of conformity relating to this EC Directive for the communications processor.

If the communications processor is part of the equipment of a machine, it must be included in the procedure for obtaining the declaration of conformity by the manufacturer of the machine.

C-TICK approval

The communications processor meets the requirements of the Australian AS/NZS 3548 standard.

CSA approval

The communications processor has an approval in accordance with the Canadian CAN/CSA C22.2 No. 60950-1 standard.

ICES conformity

The communications processor meets the requirements of the Canadian standard ICES-003. It is rated as a digital device of Class B ("Class B digital apparatus").

FCC approval

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Siemens AG is not responsible for any radio television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Siemens AG. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user. The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

UL approval

The communications processor has an approval in accordance with the US standard UL 60950-1.

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