

Operating Instructions Edition 04/2006



SIMATIC
Field PG M

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PROGRAMMING DEVICE

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Programming Device Field PG M

Operating Instructions

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Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.



Danger

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



Warning

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



Caution

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

Caution

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

Notice

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

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:



Warning

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

Trademarks

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

1.1 Preface

Purpose of this documentation

This manual contains all the information you need for commissioning and using the SIMATIC Field PG M.

It is intended both for programming and testing/debugging personnel who commission the device and connect it with other units (automation systems, further programming devices), as well as for service and maintenance personnel who install expansions or carry out fault/error analyses.

Where is this documentation valid?

This documentation is valid for all available versions of the SIMATIC Field PG M and describes the delivery state as of April 2006.

Position in the information scheme

These operating instructions are a constituent part of the supplied "Software for Field PG" DVD.

For supplementary instructions on how to handle the software, please refer to the corresponding manuals.

Conventions

The abbreviation PG or device is also used within this documentation for the product name SIMATIC Field PG M.

History

Currently released versions of this operating manual:

Issue	Comment
07/2005	First edition
04/2006	<ul style="list-style-type: none"> • Troubleshooting • Notes on the new graphics driver • Addition to accessories • Notes on WinCC flexible

1.2 Guideline to the operating instructions

Contents format	Contents
Table of Contents	Organization of the documentation, including the index of pages and chapters
Introduction	Purpose, layout and description of the important topics
Safety Information	Refers to all the valid safety-technological aspects which are derived from statutory regulations and should be adhered to when installing, commissioning and operating the product/system
Description	Fields of application, the features and the structure of the product/system
Application Planning	Aspects of storage, transport, environmental and EMC conditions to be considered in the preparatory stage
Connecting	Options of connecting the product and connection instructions
Commissioning	Commissioning the product/system.
Integration	Options of integrating the product into existing or planned system environments/networks
Operation	Operating the SIMATIC software
Expansions / Configuration	Procedure for installing expansion devices (memory).
Maintenance and service	Replacement of hardware components, restoring and setup of the operating system, installation of drivers and software
Troubleshooting/FAQs	Problems, cause, remedy
Specifications	General specifications in compliance with relevant standards and current/voltage values
Detailed descriptions	Structure, function and features of the vital components, allocation of system resources and use of the BIOS Setup
Appendix	Guidelines and certifications, service and support
ESD guidelines	General ESD guidelines.

Safety Information

2.1 General safety instructions



Caution

Please observe the safety instructions on the back of the cover sheet of this documentation. You should not expand your device unless you have read the relevant safety instructions.

This device is compliant with the relevant safety measures to IEC, EN, VDE, UL, and CSA. If you have questions about the validity of the installation in the planned environment, please contact your service representative.

Repairs

Only authorized personnel are permitted to repair the device.



Warning

Unauthorized opening and improper repairs can cause considerable damage to property or danger for the user.

System expansions

Only install system expansion devices designed for this device. The installation of other expansions can damage the system and violate the radio-interference-suppression regulations. Contact your technical support team or where you purchased your PC to find out which system expansion devices may safely be installed.

Caution

If you install or exchange system expansions and damage your device, the warranty becomes void.

Battery

This device is equipped with a Lithium battery. Batteries may only be replaced by qualified personnel.



Caution

There is the risk of an explosion if the battery is not replaced as directed. Replace only with the same type or with an equivalent type recommended by the manufacturer. Dispose of used batteries in accordance with local regulations.



Warning

Risk of explosion and release of harmful substances!

Therefore do not throw Lithium batteries into fire, do not solder on cell body, do not reverse polarity, do not heat above 100 °C, dispose of in accordance with regulations and protect against direct solar radiation, moisture and condensation.

ESD guidelines

Modules containing electrostatic sensitive devices (ESDs) can be identified by the following label:



Strictly follow the guidelines mentioned below when handling modules which are sensitive to ESD:

- Always discharge your body's static electricity before handling modules which are sensitive to ESD (for example, by touching a grounded object).
- All devices and tools must be free of static charge.
- Always pull the power plug and disconnect the battery before you install or remove modules which are sensitive to ESD.
- Handle modules fitted with ESDs by their edges only.
- Do not touch any wiring posts or conductors on modules containing ESDs.

2.2 Additional safety information when using wireless LAN

As your device has an integrated wireless LAN card, you must absolutely observe the following safety information:

- The transmitted radio waves can cause an unpleasant droning in hearing aids.
- Switch off the device if traveling by airplane or car.
- Switch off the radio components on the device if you are in a hospital or in the proximity of a medical electronic system. The transmitted radio waves can have a negative effect on the function of medical equipment.
- Keep the device at least 20 cm away from pacemakers, as otherwise the proper function of the pacemaker could be negatively affected by the radio waves.
- When the radio components are switched on, do not allow the device in the vicinity of flammable gases or in a potentially explosive atmosphere (e.g. paintworks), as the transmitted radio waves could trigger an explosion or a fire.
- The range of the radio connection depends on the environmental and surrounding conditions.
- With data traffic via a wireless connection, it is also possible for unauthorized third parties to receive data.

Siemens is not responsible for radio or television interference that has been caused by unauthorized changes to this device. Furthermore, Siemens shall not be held responsible for the use or replacement of connection lines and devices that have not been recommended by Siemens. The user alone is responsible for remedying faults that have been caused by such an unauthorized change, or for the use or the replacement of the device.

Description

3.1 Overview

The SIMATIC Field PG is a complete, ready-to-operate, pre-configured programming tool for the components of SIMATIC industrial automation.



Figure 3-1 SIMATIC Field PG

3.2 Application areas

The compact SIMATIC Field PG is designed for mobile use, e.g. for

- configuring, programming as well as simulating automation solutions in the office
- commissioning, maintenance and servicing automation solutions on site at the plant
- teleservicing via integrated modem
- use of modern office applications in the office or when traveling

On account of its sturdy construction - more or less impact-proof and distortion-proof magnesium die cast housing and extensive bumpers on the corners - the Field PG is particularly suited to tough industrial daily routine.

3.3 Highlights

Highlights Field PG M

Greatest possible mobility guaranteed by:

- Notebook structure (dimensions, weight) optimal for use in cramped spaces at the plant as well as when traveling
- High-performance Li-ion battery with 74 Wh ensures long network-independent operation
- Die-cast-magnesium casing with soft plastic corners - providing good protection for the electronics inside
- Powerful graphics controller for dual display support
- Large 15" display with XGA and SXGA+ resolution guarantees ergonomic working

Industrial functionality:

- Integrated PROFIBUS DP/MPI interface
- COM/TTY interface
- Programming interface to memory card, micro memory card and S5 EPROM modules
- Link to company networks without additional hardware costs due to integrated fast Ethernet interface
- Triband Wireless LAN (corresponding to IEEE 802.11 a/b/g)
- Fast, easy to replace SATA hard disk
- 4 USB 2.0 ports (high-current capable)
- HDA (high definition audio) interface for sound and modem
- Integrated modem (V.92)

System availability:

- Symantec Ghost data backup software

3.4 Features

General features	
Type of construction	Mobile device
Processor	Pentium M 1.6 or 2 GHz, 533 MHz Front Side Bus (FSB), 2048 KB Second Level Cache
RAM	<ul style="list-style-type: none"> • 512 MB DDR2 SDRAM • Expandable up to 2 GB SDRAM (DDR2)
Graphics	<ul style="list-style-type: none"> • Graphics memory 8 to 128 MB SDRAM, some using dynamic sharing of system RAM • VGA: 1600 x1200 / 32 Bit color depth / 85 Hz
Power supply	120/230 V AC, wide range
Drives and storage media	
Hard disk	>= 60 GB serial ATA 2.5" hard disk
Floppy disk	Standard (1.44 MB or 720 KB)
Optical drive	DVD-ROM/CD-RW or DVD+-R/+-RW
Interfaces	
PROFIBUS/MPI (12 Mbps)	12 Mbps (isolated potential, compatible to CP 5611)
Ethernet	10/100 Mbps (RJ45)
USB	2 x left, 2 x back; (high-current)
Modem	V.92 (connection via RJ11)
Serial	COM1 (V.24) or AG (TTY)
Parallel	LPT
VGA	Interface for external monitor
Keyboard	Standard notebook
LEDs	Num-Lock Shift-Lock WLAN active Device state Battery state Access to HD / FD / CD/DVD S5 module / memory card MPI/DP active

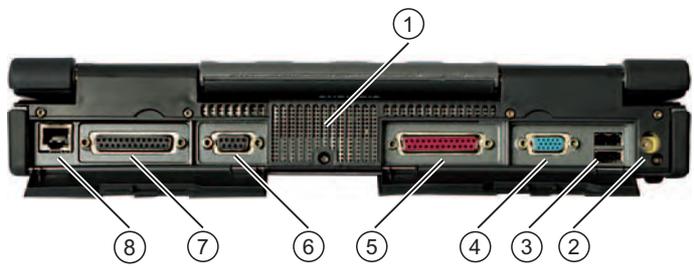
Software	
Operating systems	Pre-installed: <ul style="list-style-type: none"> • Windows 2000 Professional - German • Windows 2000 Professional English MUI • Windows XP Professional MUI • MUI: Multi Language User Interface; 5 languages (English, German, French, Spanish, Italian)

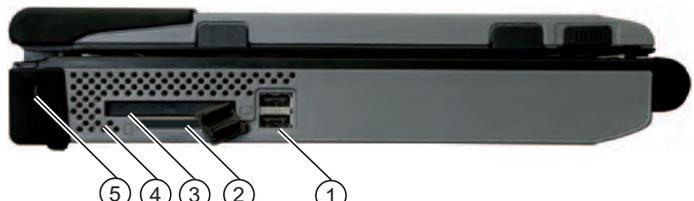
3.5 Layout

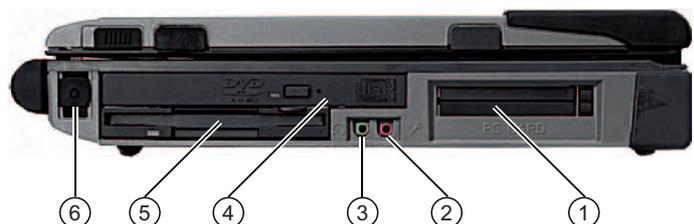
3.5.1 Exterior design

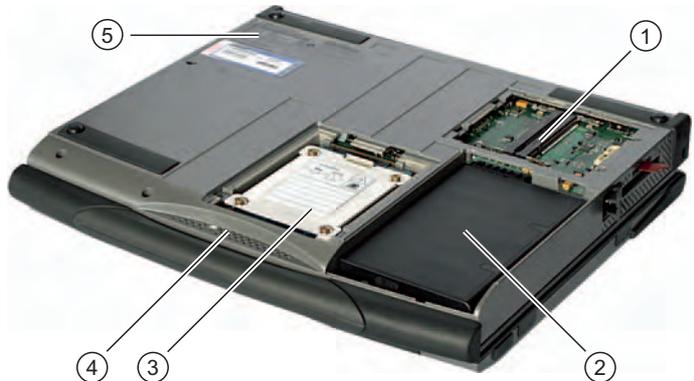
View with closed display	Pos	Description
	(1)	Device handle
	(2)	Keyboard LEDs
	(3)	System LEDs

Front view with open display	Pos	Description
	(1)	Display latch
	(2)	Display
	(3)	Stereo speakers
	(4)	On/off button (power)
	(5)	Mouse buttons
	(6)	Touchpad
	(7)	Keyboard

Rear view	Pos	Description
	(1)	Ventilation air outlet
	(2)	DC IN 18.5 V
	(3)	USB
	(4)	VGA
	(5)	LPT
	(6)	MPI/DP Multipoint Interface
	(7)	COM1/TTY
	(8)	Ethernet

View of left side	Pos	Description
	(1)	USB with open cover
	(2)	Micro Memory Card interface with dummy for transport
	(3)	Memory card interface
	(4)	Ventilation air inlet
	(5)	Opening for Kensington lock

View of right side	Pos	Description
	(1)	PC card slots
	(2)	Microphone
	(3)	Headphones
	(4)	optical drive
	(5)	Floppy disk drive
	(6)	Modem port (RJ11)

View below	Pos	Description
	(1)	Memory expansion
	(2)	Rechargeable battery
	(3)	Exchangeable hard disk unit
	(4)	Ventilation openings
	(5)	Rating plate and Certificate of Authenticity

3.5.2 Operator Controls

3.5.2.1 On/off button

On/off button	Pos	Description
	(1)	The on/off button (power) has the following functions: <ul style="list-style-type: none">• Switch on/off the PG (press the button for approximately 1 second, the behavior depends on the Windows Power Options settings)• Switch off the PG (press for more than 7 seconds)

Configuring the on/off button

Via the on/off button (Power Button), by closing the display lid or via the Windows Start menu you can change the Field PG from normal operation to the following states:

- Standby mode (Save to RAM),
- Hibernate (save to disk), default setting
- Off (Windows is brought down).

When the device is brought down from Windows, the device automatically switches off. If the device is not in Windows it can be switched off via the on/off button.

Note

Via Settings > Control Panel > Power Options under Windows 2000 and Windows XP you can configure the reaction of the on/off button and of the display lid.

To completely disconnect from the power supply network you must pull out the power cord and dismantle the battery.

Caution

In accordance with the settings in the Windows Power Options, the Field PG supports different operating states. The Power Options have been preset by the factory in such a way that in the factory state the device always adopts defined operating states (On, Standby, Hibernation, Off).

By changing these settings as well as expanding the device with additional hardware (e.g. USB components) or additional software, the operating states can be influenced in such a way that the device can no longer adopt Hibernation or Standby mode. Even though the screen display is dark, relevant consumers remain switched on in the device.

Please remember to always bring down the Field PG or set it to Hibernation prior to transporting in the backpack. You will recognize these states as after removing the power supply, all status LEDs of the device are switched off. This way you can ensure the device is not switched on and the battery is not unintentionally discharged during transportation.

In order to reactivate the PG out of Standby mode or Hibernation, briefly press the on/off button. In Standby mode the device LED flashes, and in Hibernation all the displays are switched off.

3.5.2.2 Touchpad

Touchpad	Pos	Description
	(1)	Mouse buttons An object is selected by pressing the left button. The reaction to the right button depends on the user program involved.
	(2)	Touchpad The touchpad is used by many programs (operated by mouse) as an input device for controlling the cursor and menus. You can position the touch sensitive cursor anywhere on the screen.

Note

The touchpad function (mouse pointer and mouse buttons) can be switched on and off with hotkeys, Fn + F4.

The extended functions of the touchpad can be configured with the "Mouse" setting in the Windows Control Panel.

3.5.2.3 Keyboard

Keyboard arrangement

The keyboard is divided into the following function groups:

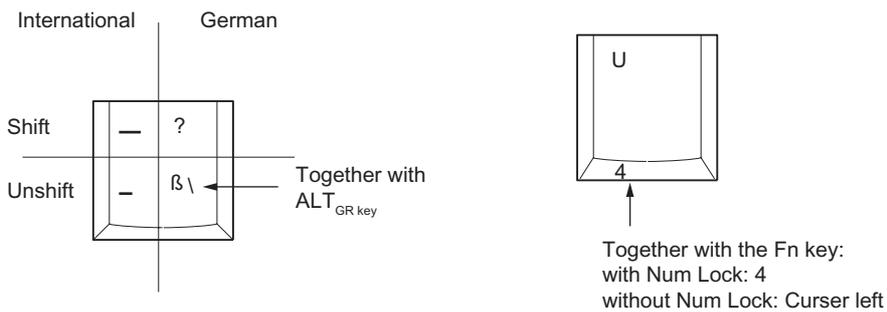
- Alphanumeric keyboard field with hotkeys
- Function keys
- Control keys

Repeat function

All the keys of the keyboard are equipped with a repeat function, i.e. the character is repeated for as long as the key is pressed.

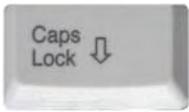
Keyboard labeling

The keyboard comes with international and German labeling.



Alphanumeric keyboard field

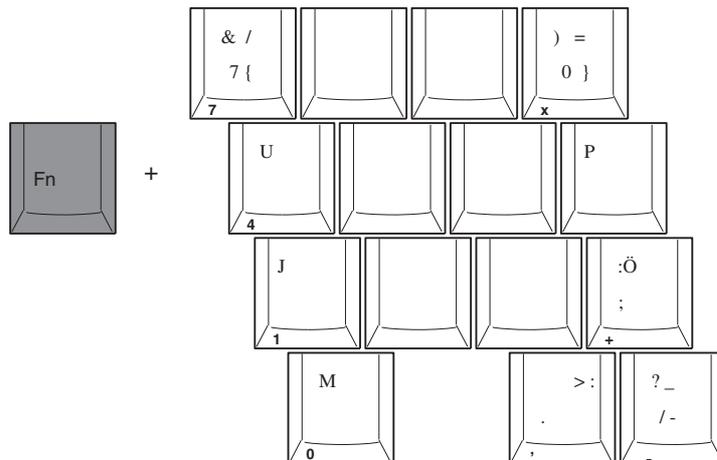
The largest block of keys is the alphanumeric keyboard with all the keys for letters, numerals and special characters. The arrangement of the characters essentially corresponds to that of a normal typewriter. However, there are a few keys that undertake specific special functions for the PG.

Key	Function
	Caps Lock The caps lock key activates uppercase mode. All the characters are then output as capital letters. With a multiple labeled key, the upper left character is displayed. You can switch off the caps lock by pressing the shift key.
	Num Lock key This toggles the emulated number pad between alphanumeric keys and number keys. The LED display lights up.

Key	Function
	Scroll Lock With this key you can freeze the soft copy and then release it again.
	Start Key (under Windows) The start key calls up the Windows start menu.
	Menu key (under Windows) The menu key calls up the menu for the selected object.

Number pad with Fn key

The characters and numbers labeled on the front of the number pad keys can be used by simultaneously pressing Fn and one of these keys. Num lock must be active for this.



Function keys

Twelve programmable function keys are arranged in the topmost row of keys. The arrangement of these keys depends on the software loaded.

Hotkeys (combination keys)

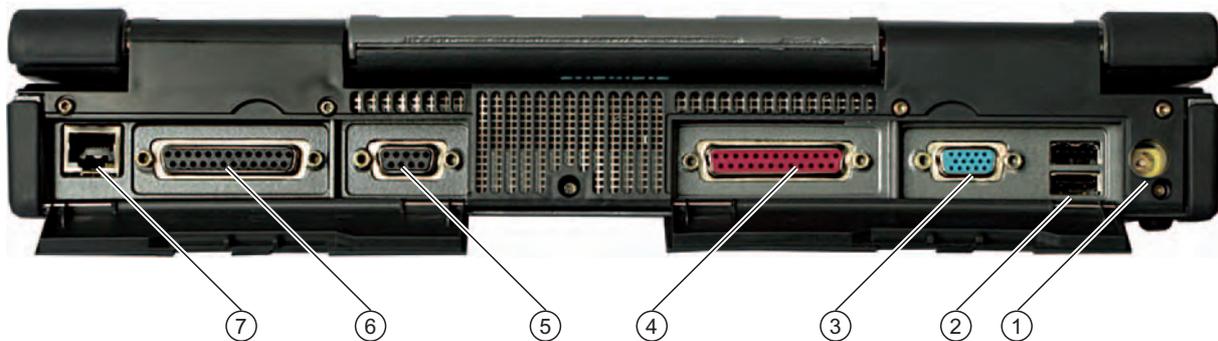
Using the Fn key and a 2nd key (e.g. a function key) you activate further key codes for specific applications.

Key	Function
Fn + Home	Cursor at start
Fn + End	Cursor at end
Fn + ESC	Lock PG (only with Windows XP)
Fn + F1	Switch speaker on/off
Fn + F2	Control menu for the display/monitor display
Fn + F3	Switch WLAN on/off
Fn + F4	Switch touchpad function (mouse pointer and mouse button) on/off
Fn + F5	Standby mode (depending on the configuration of the Power Button in the Windows Power Options)
Fn + F6	Hibernation (depending on the configuration of the Power Button in the Windows Power Options)
Fn + F7	Reduce volume
Fn + F8	Increase volume
Fn + F9	Reduce brightness of screen
Fn + F10	Increase brightness of screen

3.5.3 Connecting elements

Interfaces

Layout of the interfaces on the rear of the device



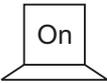
Pos	Designation	Description
(1)	DC IN 18.5 V	Connector for supplied power unit
(2)	USB 2.0	2 ports for USB devices
(3)	VGA	Connector for compatible external monitor
(4)	LPT	Connector for devices with parallel ports such as printers or scanners
(5)	PROFIBUS / MPI	MPI interface (RS485, electrically isolated), 9-pin Cannon socket
(6)	COM1 V.24	COM1(TTY) for connecting S5 automation devices or standard V.24 via supplied "Serial Port Adaptors D9/D25" adapter for connecting serial devices such as modems or mice.
(7)	ETHERNET	RJ 45 Ethernet connection 10/100 Mbps

3.5.4 Status displays



System LEDs

The system LEDs show the operating state of the battery, the device, the disk drives, the MPI/DP and the memory card interface. The LEDs can also be seen when the display is closed.

Symbol	LEDs	Description
	GREEN ORANGE RED OFF	Battery is charged Battery is being charged Battery capacity too low (only with battery operation) No battery
	GREEN ORANGE GREEN flashing ORANGE flashing OFF	Line operation Battery operation Line operation, device is in Standby Battery operation, device is in Standby Device is switched off
	GREEN	Access to the external memory (hard disk, optical drive, diskette drive)
MPI/DP	GREEN	MPI interface active
	GREEN	Module programming, memory card or micro memory card active

The access displays of the disk drives are located on the right of the device for the respective drives.

Keyboard LEDs

The keyboard LEDs show the current state of the shift keys Num Lock and Shift Lock. After switching on the device, the operating displays of the keys light up briefly. The keyboard is ready.

Symbol	LEDs	Description
	GREEN OFF	Num Lock switched on Num Lock switched off
	GREEN OFF	Shift Lock switched on Shift Lock switched off

WLAN LED

The LED to the far right next to the keyboard LEDs indicates if WLAN is active.

Symbol	LED	Description
	ORANGE OFF	WLAN switched on WLAN switched off

Application Planning

4.1 Transport

Before you set off

Observe the following information when you are traveling with the PG:

- Save important data from the hard drive.
- For safety reasons, switch off the radio components (Wireless LAN) if you can't be sure that the transmitted radio waves will not interfere with any electric or electronic equipment in your vicinity.
- If you want to use your PG during a flight, first of all ask the airline company if you are permitted to do so.
- When traveling abroad, ensure the power adapter can be used with the local mains voltage. If this is not the case, you must acquire the appropriate adapter for your PG. Do not use any other voltage transformers!

Notice

If you are traveling to a different country, check to see if the local voltage and the specifications of the mains are compatible. If this is not the case, purchase a mains cable that corresponds to the local circumstances. Do not use connection adapters for electrical appliances in order to connect the PG to them.

If you are using the modem, there could be incompatibilities with the local telecommunications system.

Caution

The integrated Wireless LAN (2.4 GHz frequency) and modem is approved for use in Europe.

In the 5 GHz frequency band the Wireless LAN is approved for use in Germany, France, Italy, Spain, UK and Austria.

Please make sure to observe the relevant country-specific directives when operating the system outside these countries.

Transport

Despite the fact that the device is of a rugged design, its internal components are sensitive to severe vibrations or shock. With just a few simple transport precautions you can help to create a trouble-free operation.

- Ensure that the PG is no longer accessing the disk drives or remove all data medium (e.g. CDs) from the disk drives.
- Switch off the PG (refer to on/off button).
- Disconnect the peripheral devices from the PG.
- Close the display and the interface covers on the back of the device.
- Use the integrated handle for brief transportation.
- For longer transport, put the PG with all its accessories into the provided backpack.

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

Notice

If your Field PG M was equipped with a dummy card in the Micro Memory Card slot, use this card every time you transport the unit.

Caution

Risk of damage to the device!

If you are transporting the PG in extreme weather conditions with large fluctuations in temperature, care must be taken to ensure that no moisture forms on or in the device (condensation).

If condensation has developed, wait at least 12 hours before you switch on the device.

4.2 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.
- Check the delivery and your specially ordered accessories against the packaging list to ensure nothing is missing. Please inform your local dealer of any disagreements or transport damages.

4.3 Device identification data

Noting the device identification data

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

Enter the following data in the table below:

- Serial number: The serial number (S VP) is located on the rating plate on the bottom of the device.

Rating plate



Figure 4-1 Rating plate

- Order number of the device
- Ethernet address: The Ethernet address of the device can be viewed in the BIOS Setup (F2) under Main > Hardware Options > Onboard Ethernet Address.
- Microsoft Windows "Product Key" from the "Certificate of Authenticity" (COA). The COA label is stuck to the bottom on the device. The Product Key is always required to reinstall the operating system.

COA label



Figure 4-2 COA label

Serial number	S VP ...
Order No.	6ES ...
Microsoft Windows Product Key	
Ethernet address	

Positioning

5.1 Positioning the device

- Position the programming device to ensure comfortable operation and safety.
- Position the programming device with its bottom on a flat surface and at a comfortable height and distance.
- Ensure that a power outlet is easily accessible near your workplace.
- Ensure that there is enough space for connecting peripherals.
- Do not obstruct any ventilation slots when you position the device.
- Open the display by sliding the lock in direction of the arrow.
- Flip the display open and adjust it to a convenient viewing angle. The display can be adjusted within any inclination angle from 0 to 180°.



Caution

Always set the programming device bottom down. If you set it down on the port side, there is a risk that it will fall over and damage sensitive components of the unit.



Warning

The outer housing is made of Magnesium. Contact with an external open fire source bears the risk of fire / spreading fire.

Connecting

6.1 Connecting peripheral equipment

To be noted before you connect the device

Caution

Peripheral 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 for peripheral equipment.



Warning

When connecting long signal lines (particularly with connections spanning buildings), ensure the signal lines are always integrated in the local potential equalization (connecting the screen with the grounding wire).

Connecting the external screen

Notice

Ensure the screen used is suitable for the set resolution and vertical refresh rate. Otherwise, this could lead to damage.

Note

The default settings for the display are the simultaneous operation of flat display and external screen. In doing so, the display is optimized to the display format 1024x768 pixels (XGA) or 1400 x 1050 pixels (SXGA+). Modes with less resolution and text modes will be expanded in this format.

If an external screen is connected that supports just one lower resolution than the display, in simultaneous mode the resolution of the display is reduced to the resolution of the external screen.

A display optimized to the external screen can be achieved in the BIOS setup in the Main menu, Hardware Options submenu, via the setting "CRT/LCD selection: CRT only".

With the Hotkey Fn + F2 you can call up the control menu for the display/monitor settings and set for far-reaching graphics functions.

Note

For notes on graphics drivers version 14.18 or later, see Peripherals section.

Connect USB devices

Connect to the USB 2.0 ports devices like disk drives, mouse, keyboard and printer.

Notice

All four ports are designed as high-current USB 2.0 (500 mA). However, you can't use all four at once with a high current (refer to Specifications section)

Connect the microphone

You can connect an external microphone to the 3.5 mm jack for the microphone (pink).

To record using the microphone, in the Windows Start menu, select **Programs > Accessories > Entertainment > Sound Recorder**.

Connect headphones

You can connect headphones or external speakers that are equipped with a 3.5 mm stereo jack plug to the headphones jack (green)

Control the volume via the speaker button in the task bar or via the Hotkey Fn + F7 / F8.

6.2 Connecting the device to power

To be noted before you connect the device

Note

The external power supply serves as the power supply of the Field PG in line operation with 120 V and 230 V power supply networks. The setting of the voltage range takes place automatically.

The battery is charged in line operation, that's why you need to install the supplied battery before you connect the device to the power supply.



Warning

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



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.



Warning

The Field PG may only be operated using the supplied power supply and / or using the supplied battery.

The external power supply may not be covered (risk of overheating).



Caution

The mains connector must be disconnected to fully isolate the device from mains.

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 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 SVT or SJT with three leads, min. 18 AWG conductor cross-section, max. 4.5 m long and parallel 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	Turn the PG so that the closed display unit is lying on the table.	
2	Unlock and fold up the battery cover on the underside of the device.	
3	Insert battery.	
4	Close the cover and turn the device round again.	
5	Plug the supplied power supply cable into the external power supply.	
6	Plug the low plug into the connection on the device.	
7	Connect the external power supply to a power point with grounded grounding wire.	

6.3 Connect the modem to the telephone outlet

1	Connect the supplied modem cable to the telephone adapter for the local country.	
2	Open the port cap.	
2	Connect the modem cable to the modem connection of the PG.	
3	Connect the modem cable to your telephone outlet.	

Notice

If you are connecting your modem to a TAE N connection, this telephone or data channel is occupied. It can not be used simultaneously for other communication devices. After data transmission, remove the modem plug out of the TAE N power point, as no other communication devices can be used if the cable is connected.

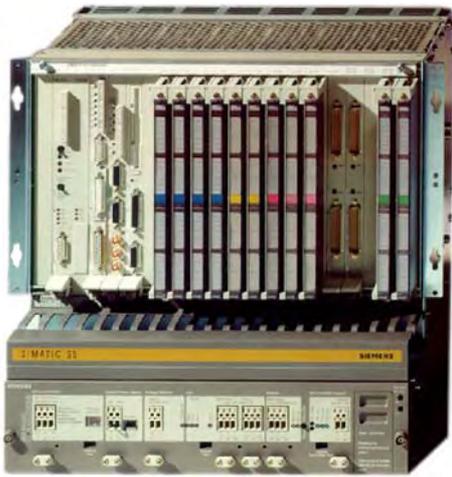
6.4 Connect the PG to the S5 automation device

To be noted before you connect the device

Notice

The port is non-isolated.

The SIMATIC STEP 5 programming software and the cable (order number: 6ES5734-2BD20) for connecting to the S5 automation device is not included with all delivery variants.

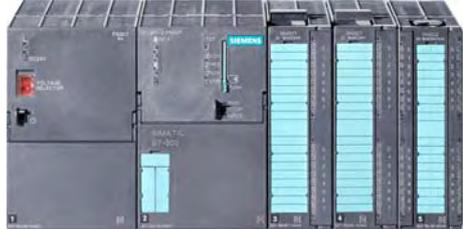
How to connect to an S5 automation device		
1	Switch off the device.	
2	Plug the cable into the COM1/V.24 modem/AG port.	
3	Screw the connector into place.	
4	Insert the cable into the respective port on the CPU in the automation device.	

Caution

You could damage the port if you use the wrong cable.

6.5 Connect the PG to the S7 automation system or the PROFIBUS network

You can connect the PG to a SIMATIC S7 automation system or a PROFIBUS network via the isolated potential*) PROFIBUS/MPI interface. The MPI cable (5 m) for connecting to the SIMATIC S7 CPUs (order number: 6ES7901-0BF00-0AA0) is included in the delivery scope. With this cable only transmission rates of up to 187.5 Kbps are possible. To achieve baud rates over 1.5 Mbps, you require a 12 Mbps PROFIBUS cable (Order number 6ES7901-4BD00-0XA0).

How to connect to an S7 automation system		
1	Switch off your device.	
2	Plug the cable into the COM1/V.24 modem/AG port.	
3	Screw the connector into place.	
4	Insert the cable into the respective port on the CPU. In the disturbed environment: Bus plug 6ES7972-0BB10-0XA0 or 6ES7972-0BB20-0XA0 6ES7901-0BF00-0AA0 (5m length)	

*) Electrically isolated within the safety extra-low voltage circuit (SELV)

Caution

You could damage the port if you use the wrong cable.

Commissioning

7.1 Requirements for commissioning

The operating system and system software of your device are preinstalled on the hard disk.

Caution

Risk of damage to the device!

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

7.2 Basic commissioning - initial startup

The operating system is set up automatically on the programming device when it is **first** started. The following tasks need to be performed:

1. Press the on/off button and hold it down for at least 1 second. The PG conducts a self-test. During the self-test, this message appears:

Press <F2> to enter SETUP or <ESC> to display the boot menu

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 programming device may not be switched off at any time during the installation process.

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 PG 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.

Startup with Microsoft Windows

The menus, dialog and keyboard layout appear in English under Windows XP MUI and Windows 2000 MUI. You can set another language and another keyboard layout by selecting **Start > Control Panel > Date, Time, Language, and Regional Options > Add other languages**.

Installation of the Windows 2000 version English and the backup image of the delivery state

The backup image of the delivery state of your device is located on the D drive: in the D:\Restore\ directory

In the 2000 version of the Field PG, you can set your system language to English by saving the backup image to the D:\Restore\English directory.

To restore the delivery state or another language from the D:\Restore\ drive, proceed as follows:

1. Insert the supplied "Norton Ghost" in your DVD drive and reboot it by means of the On/Off button of the Field PG.
2. To boot from the "Norton Ghost" CD press the <ESC> button for the BIOS message Press <F2> to enter Setup or <ESC> to show Boot menu appears. After initialization, a "Boot Menu" is displayed.
3. Use the cursor key to select the CD/DVD drive and acknowledge the "Press any key to boot from CD" message.
The Symantec Recovery Disk program loads.
4. Select the English or German language in the "Choose your language" menu.
5. Now select the "advanced restore tasks..." in the "Symantec Recovery Disk" menu and then "System Restore"
6. In the System Restore assistant, select "Restore Drive" and "Single Drive".
You can use the "Browse" function to select the required backup image. For Windows 2000 in German, for example the image data (D:) > Restore > German > *.V2I
7. Select the storage location Disk 1, SYSTEM, Type Primary.

Caution

This function deletes all data on the system partition of your C drive:
All data, user settings and any authorizations on the C drive will be lost in the process.

8. Confirm the confirmation prompt. The System Restore assistant program transfers the selected image to the target partition.

Authorization / License key

A product specific authorization or a License Key (user authorization) is required to use the STEP 5-, STEP 7- and WinCC flexible programming software. This protected software may only be used with the requisite release. Authorizations and license keys for the SIMATIC software are included on the supplied License Key diskette.

To unlock the software:

- Insert the License Key disk into your floppy drive.
- Click on the Start button in Windows and
- Open the Automation License Manager with the menu command **Simatic > License Management > Automation License Manager**. Use this program to install the authorization or license key to your hard disk.

Notice

The License Key diskette supplied with the Field PG only contains authorizations or license keys for the SIMATIC software you have ordered. The SIMATIC software you receive will correspond to your order form.

The License Key diskette of the supplied "Upgrade Installation" version only contains the software for upgrading authorizations or license keys that are already installed.

Software installed on the PG for which there is no authorization or a license key in the delivery package, cannot be used or will only run in Trial mode.

Keep the License Key diskette with its authorization or license key in a safe place.

7.3 Windows XP Security Center

Warning from the Windows Security Center

A warning from the Windows Security Center appears the first time you switch on your device. The Security Center checks the status of the device in regard to the three important security aspects listed below. If a problem is detected (an outdated antivirus program, for example), the Security Center issues a warning and makes recommendations on how you can better protect the device.

- **Firewall:** The Windows Firewall adds protection to the device by blocking network or Internet access to the device by unauthorized users. Windows checks if the device is protected by a software firewall.
The firewall is enabled by default in the factory state.
- **Antivirus software:** Antivirus programs add protection to the device by searching for and eliminating viruses and other security threats. Windows checks if a full-range, up-to-date antivirus program is running on the device.
No antivirus software is installed in the factory state.
- **Automatic updates:** Using the Automatic Update feature allows Windows to regularly search for the latest critical updates for the device and to install them automatically.
This feature is disabled in the factory state.

Configure the Security Center according to your requirements.

7.4 Notes on operation

7.4.1 Rechargeable battery

Battery operation

The battery (lithium ion) enables mobile use of the device, independently of an external power supply. It also protects against data loss in the even of a power failure.

Notice

You should install the battery before you connect the device to the power supply. Use only the battery supplied with the device.

As soon as the external power supply is connected, the battery will start charging. In doing so, the following conditions are important:

- When the device is switched off the charging process takes around 3 hours.
- When the device is switched on, the charging process takes between 3 and 6 hours (depending on the system load).
- The charging process is cancelled as soon as the battery is full.
- A full battery will discharge itself when stored (depending on the temperature and whether or not it is built in) in approx. 2 - 4 months. It will then have to be recharged.
- The battery charging ends when the battery is full or if, for example, the temperature threshold for loading has been exceeded. The loading status can be queried in Windows 2000 and Windows XP.

If, with a connected power supply, the battery LED lights up green, the battery is full and will not be charged any further.

Notice

If the device is not going to be used for a longer period of time (> 1 week), switch the Field PG off after use and remove the battery.

During commissioning, the battery can become partially or fully discharged (e.g. from self-discharge). Prior to completion of the discharge, when merely a residual charge is existent, the LED battery in the battery operation lights up red as a warning. End your work and save your data. There are now only a few minutes battery running time left.

Please note that for a complete disconnection from the mains the mains connector must be removed.

Charge status display

Your battery includes electronics that display the current charge status. The charge status of the battery can also be established directly on the battery itself. To do this, press the marked area on the battery. The charge status is then shown by means of 4 LEDs.

The capacity of the Lithium ion battery used in the Field PG reduces with each charge / discharge. A gradual reduction in capacity also takes place if stored at too high or too low temperatures. The operating times of one battery charge in a network-independent operation can therefore gradually reduce over time.

The battery has a typical life span of c. 300 charges and is therefore designed in such a way that with standard handling within six months after purchase of your PG it can still be charged and discharged. A loss of capacity over time is technology-dependent and, as with all manufacturers of comparable devices, it is excluded from the warranty. In the case of a significant drop of efficiency we recommend that you replace the battery. Buy only original Siemens batteries.

You should note the following with regard to the life span of the battery:

- If possible, the battery should always be completely discharged/charged.
- Frequency of use: The more often the battery is used, the faster it reaches the end of its effective life span. A Lithium ion battery has a typical life of c. 300 charges.
- If the computer is almost always connected to the mains power supply, the battery should be removed from the computer (but fully charged) and stored elsewhere.



Warning

Do not dismantle or damage. Batteries can cause combustion.

Do not light or heat up. Batteries can cause combustion, can explode or release toxic substances.

Do not short circuit. This can cause combustion. Keep away from children.

7.4.2 Floppy disk drive

You can use 3.5" disks (1.44 MB or 720 KB).

When the disk drive is being used, the access display on the drive and the access display to the external memory at the front of on the keyboard lights up.

Caution

Danger of data loss!

Remove the disk only when the access display on the disk drive has gone out.

7.4.3 Hard disk

Hard disk drives with differing capacities can be used.

Note

Please use only hard disk drives recommended by Siemens. The order data for removable hard disks can be found in the catalog.

When the hard disk drive is being used, the respective system LED lights up on the touchpad. Refer to the chapter on Status displays.



Caution

Drives are sensitive to inadmissible vibrations. Shocks during operation can lead to the loss of data or damage to the drive or data carrier.

7.4.4 Optical drive

Depending on the device configuration, a DVD-ROM/CD-RW or DVD+R/+RW drive is installed. With this drive you can, for example, read the operating instructions on the supplied "Software for Field PG" DVD.

Burner/DVD player software

To utilize the full functionality of our DVD-ROM/CD-RW or DVD±R/±RW drive, you need to install additional software (burning or DVD player software). This software is included on the CD supplied with the device. Insert the CD in the drive, run setup and follow the instructions on the screen.

Information on burning CD-RWs or DVD±RWs

Caution

Danger of data loss!

Burning is permissible only in an undisturbed environment, i.e. shock and vibration stress must be avoided. Because of heavy fluctuation in the quality of CD-Rs, data may be corrupted in a burning session, even if no error message is initially displayed. The written data can only be verified by comparing these with the source. To be on the safe side, data should be verified after every burning session.

Emergency removal

When the device is switched off, you can use a pin (e.g. bent paperclip) to forcibly remove the disk.

Notice

To avoid too much force being used on the pulled out drawer, when inserting removing a disk always hold one hand against it by touching/holding the drawer on the front facing.

After closing the drawer, the data medium is initially tested and then the access display on the drive starts to flash:

- continuous flashing means this is a bad but still readable data medium,
 - continuous repeated flashing means the inserted data medium is no longer readable and is faulty.
-

7.4.5 SIMATIC S5 memory module

Modifying SIMATIC S5 memory modules

Via the memory card interface you can read and program SIMATIC S5 memory module (EPROMs or EEPROMs). To do so, use the S5 adapter for S5 memory modules, which is contained in the scope of delivery for devices with STEP 5 full license. The S5 adapter consists of a memory card connector with an interface for connecting the S5 memory modules. Refer to the STEP 5 manual for information regarding the operation of the programming software.

How to use S5 memory modules	
1	Switch on the PG.
2	In your STEP 5 software, launch the function Administration > Edit EPROM.
3	Plug the S5 adapter with its ID plate facing upwards into the memory card interface and after this the S5 memory module.
4	Read, program or delete (only EEPROMs) the S5 memory module with the EPROM functions of the STEP 5 software.
5	Remove the S5 memory module.
6	End the EPROM functions of your STEP 5 software.



Caution

Plugging in or removing the module while the module is being changed could damage the module.

The S5 memory module must not be removed while the operating displays of the module programming are lit.

Please adhere to the ESD guidelines.

7.4.6 SIMATIC Memory Card

Modifying SIMATIC memory cards

You can use the Memory Card port read, program delete SIMATIC Memory Cards. Memory Cards are available for SIMATIC S5- and SIMATIC S7 software.

How to use memory cards	
1	Switch on the PG.
2	In your STEP 5 software, launch the function Administration > edit EPROM.
3	Plug the SIMATIC S5 memory card or the S5 adapter with the ID plate facing upwards into the memory card interface and then the S5 memory module.
4	Read, program or delete (only EEPROMs) the S5 memory module with the EPROM functions of the STEP 5 software.
5	Remove the S5 memory module.
6	End the EPROM functions of your STEP 5 software.



Caution

Plugging in or removing the module while the module is being changed could damage the module.

The S5 memory module must not be removed while the operating displays of the module programming are lit.

Please adhere to the ESD guidelines.

7.4.7 SIMATIC Micro Memory Card

Modifying SIMATIC Micro Memory Cards

You can use the Micro Memory Card interface to read, program delete Micro Memory Cards (MMC). It is possible to use the micro memory card as of STEP 7, version V5.1.

How to use micro memory cards	
1	Switch on the PG.
2	Launch your SIMATIC programming function.
3	If a dummy card is inserted, remove this first and then insert the Micro Memory Card in the slot on the left-hand side of the device. The pin contacts are marked, and the card can only be inserted in this direction (with the slope to the rear). The PG housing has a symbol showing the plugging direction.
4	Use the programming function of your SIMATIC programming software to read, program or delete the micro memory card.
5	End the programming function of your SIMATIC programming software.
6	Remove the Micro Memory Card from the interface.



Notice

The dummy card that was located in the bay upon delivery of the PG should always be inserted during transportation.

Caution

Plugging in or removing the module while the module is being changed could damage the module.

Do not remove the Micro Memory Card if the status light is lit.

Please adhere to the ESD guidelines.

7.4.8 PC Cards

Working with PC Cards

You can use Cardbus Cards (32 bit) and PCMCIA Cards (16 bit) in the PC card interface. The PG is equipped with two PC Card interfaces. Communication boards for MODEM, FAX MODEM, ISDN, Token Ring, ETHERNET, memory extensions and SCSI interfaces can be inserted in checkcard format. Either two type II cards or one type III card can be inserted.



The PC Card ejectors have a spring-coil mechanism. ### Before you insert the card, ensure that the ejector is engaged. To remove the PC Card, press the ejector once to unlock it and a second time to eject the PC Card.

Caution

The label of the PC Card must face upward during insertion.

Only take out the card when data is no longer being transferred (risk of loss of data and system crash).

If you try to insert the PC card the wrong way round, the PG and PC card can be damaged.

Please adhere to the ESD guidelines.

7.4.9 Wireless LAN

The Field PG is equipped with a network card for Wireless LAN (WLAN), i.e. you are **not** assigned to a cable network. With WLAN, the same as with cable network, you have access to files, the printer and to the Internet.

Depending on the surrounding conditions, you can create connections through walls or at distances in the open air of up to 100 m. The built-in network card works in accordance with the latest standards:

- IEEE 802.11 a: The maximum theoretically achievable data rate, with optimum surrounding conditions and low power capacity is 11 Mbps.
- IEEE 802.11 b: The maximum theoretically achievable data rate, with optimum surrounding conditions and low power capacity is 11 Mbps.
- IEEE 802.11 g: The maximum theoretically achievable data rate, with optimum surrounding conditions and low power capacity is 54 Mbps.

The IEEE standard offers two modes of operation, the adhoc mode (Peer to Peer) and the infrastructure mode.

Adhoc mode

The adhoc network refers to a wireless network that is established directly between several computers, whereby all computers must have a WLAN facility. No additional devices are necessary.

Infrastructure mode

The infrastructure network combines computers (via so-called access points) with the aid of Wireless LAN with cable networks. In doing so, this can concern local (e.g. company networks) or also global (e.g. Internet) networks.

More detailed information on configuring and operating the Wireless LAN can be found in the online help of the WLAN network adapter.

7.4.9.1 Safety information for WLAN operation

The radio waves necessary for Wireless LAN can cause interference in hearing aids and in the onboard electronics of vehicles. To prevent interference, switch off the Field PG in airplanes or when in the car.

The radio waves caused by Wireless LAN can cause interference to life-saving systems, therefore you should switch off the Wireless LAN device when in the vicinity of such systems (you can deactivate the WLAN of the Field PG via the Hotkey Fn + F3).



Caution

To prevent adverse effects on pacemakers, when the Wireless LAN is active it should be a minimum distance of 20 cm away from pacemakers.

Notice

Please note that the device is not suitable for operation in potentially explosive atmospheres.

The range and the attainable data transmission rate depends on the environment. A Wireless LAN connection is not bug-proof.

To protect the transmitted data, Wireless LAN has different encoding methods. We recommend that you activate an encoding in accordance with your Wireless LAN environment.

If possible, do not bring the WLAN connection in the vicinity of the following devices:

- Microwaves
- Wireless video-audio transmission systems
- Wireless telephones (DECT)

These can lead to interference or the complete breakdown of the WLAN connection.

7.4.10 Notes on the graphics driver

Creation of display templates of the graphics driver

The new graphics drivers, Version 14.18 or later, give you the option of saving separate graphics settings as templates. These templates can then be simply opened, making it very easy to use external display equipment such as beamers or external monitors.

You should first create a standard profile designed for operation without external display device, i.e. the integrated display is used:

1. To do so, disconnect any connected external monitor.
2. Use the <Fn + F2> key combination to open the graphics driver and adjust the advanced settings under the Display Settings tab.
3. To open the corresponding menu, click the template options button.
4. Enter a name (Mobile, for example) for this template and click Save to save these settings.
5. To close the Profile Options dialog box, click OK
6. Click OK to exit the Display Settings dialog box

Proceed as follows to create multi-screen profiles:

1. Connect the external display device to the Field PG M and switch this on.
2. Press the <Fn + F2> key combination to open the graphics driver
3. In the Display Device selection, select single-screen mode (notebook or monitor) or multi-screen mode (select Twin field). Depending on your requirements you can now set the advanced properties here.

Note

Right-click the corresponding entry to obtain a description of possible settings.

4. To open the corresponding menu, click the template options button.
5. Enter a name (second screen mode) for this profile and click Save to save these settings.
6. To close the Profile Options dialog box, click OK
7. Click OK to exit the Display Settings dialog box

To select the profile, click the symbol of the graphics driver on the Start menu. Click the symbol to open the shortcut menu; currently available profiles are shown under the item *Select a profile*.

Note

You can only make the settings for an external display device if this is connected. Profiles only appear for selection if the relevant (external) display device is connected.

Integration

The following options are available for the integration of the device in existing or planned system environments/networks:

Ethernet

The integrated Ethernet port (10/100 Mbps) can be used for communication and for data exchange with automation devices such as SIMATIC S7.

To this purpose you require the software package "SOFTNET S7".

PROFIBUS / MPI

The optional potentially isolated Profibus interface (12 Mbps) can be used to interconnect distributed field devices or to carry out coupling to the SIMATIC S7.

To couple the device to an S7 PLC, you need the software package "SOFTNET for PROFIBUS".

COM1/TTY

Via the TTY interface you can connect the Field PG to a SIMATIC S5 automation device.

You require the "STEP 5 V7.23" software in order to interconnect to S5 automation devices.

WLAN

Via the integrated WLAN interface you can link the Field PG to an industrial Wireless LAN network.

You can find more information on industrial Wireless LAN at SIMATIC® NET :

<http://www2.automation.siemens.com/net>

Further information

For further information, refer to the catalog and to the online ordering system of Siemens A&D.

Internet address: <https://mall.ad.siemens.com>

Operation

9.1 SIMATIC Software

Starting STEP 5 (not included in all delivery variants)

Please note, you must have authorization to work with STEP 5 (refer to Initial Commission - First Switch-on section).

- In Windows, click on the **Start** button and select the desired program with **Simatic > STEP 5**.

Notice

When using the P tools (editing PCP/M files) supplied with STEP 5 note that these are no longer supported fully by the operating systems Windows 2000 Professional and Windows XP Professional.

Starting STEP 7

Please note, you must have a license key to work with STEP 7 (refer to Initial Commission - First Switch-on section).

- In the Windows desktop, click on the SIMATIC Manager icon or
- Click on the Start button and select the desired program with Simatic > STEP 7.

Note

The acceptance of the STEP 7 project from one PG to another is supported by the function archive/retrieve in STEP 7. To transmit, in the SIMATIC Manager select **File > Archive** or **File > Retrieve**. You can find the precise procedure in the online help for STEP 7 in section "Steps for File Archiving/Retrieval".

Starting WinCC flexible

Please note that a license key is required to use WinCC flexible.

- In the Windows desktop, click the SIMATIC Manager icon or
- Click the Start button and select the desired program with Simatic > WinCC flexible.

Expansions and configuration

10.1 Installing / removing memory modules

Memory expansion options

The motherboard is equipped with 2 slots for SO-DIMM memory modules. For 200-pin DDR2 RAM chips, unbuffered, no ECC. This allows you to expand the memory capacity of your PG to a maximum of 2 GB. Maximum memory module size: 1 Gbyte.

Preparation

1. Make sure the device is not in Standby mode (unsaved data could be lost) and that the device cannot get damaged.
2. Isolate the device from mains and remove the battery.
3. Remove all connection cables from the device.
4. Close the display unit.
5. Place the PG with the display unit face down on an level surface.

Caution

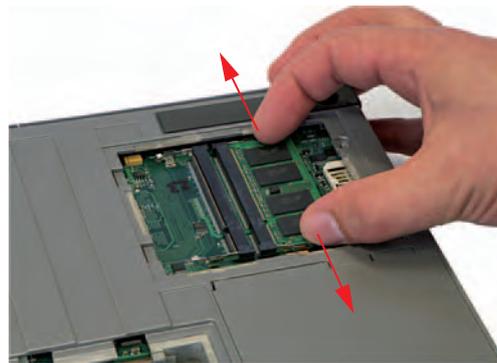
The electronic components on the PCBS are highly sensitive to electrostatic discharge. It is therefore vital to take precautionary measures when handling these components. Refer to the directives for handling components which are sensitive to electrostatic charge.

Notice

Please use only Siemens memory modules as these have been qualified and cleared for use in this device. You can find the order data in the catalog.

Removing a memory module

How to remove a memory module	
1	Remove the battery.
2	Remove the two screws that secure the cover.
3	Remove the cover.
4	Carefully push the two clamps to the side. The memory module folds up.
5	Pull the memory module out of the slot.



Installing the memory module

How to install a memory module	
1	Insert the memory module into the slot with the connection contacts in front. Pay attention to the notch (locking element) on the side of the connector.
2	Carefully push the module downwards until the lock engages.
3	Put the cover back over the slot and fasten this with the two screws.
4	Insert the battery again and connect the device to the mains



Caution

After insertion the module must be securely fixed in the slot; otherwise the module could fall out or be damaged.

Display of the current memory configuration

The memory expansion is automatically detected. The allocation of the "base memory and extended memory" is automatically displayed when you switch on the device.

Maintenance and Service

11.1 Removing and installing hardware components

11.1.1 Replacing a hard disk bay

To be noted prior to replacing

1. Make sure the device is not in Standby or Hibernate mode. Unsaved data might be lost and the device can get damaged.
2. Isolate the device from mains and remove the battery.
3. Remove all connection cables from the device.



Caution

Please adhere to the ESD guidelines.

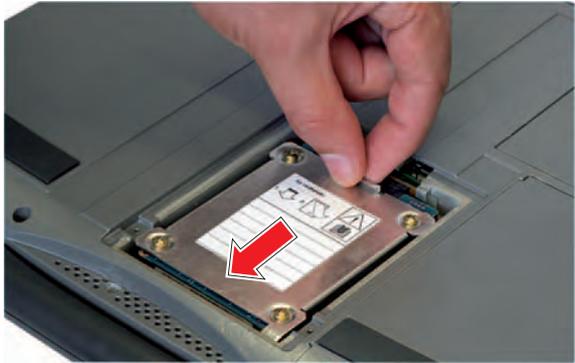


Warning

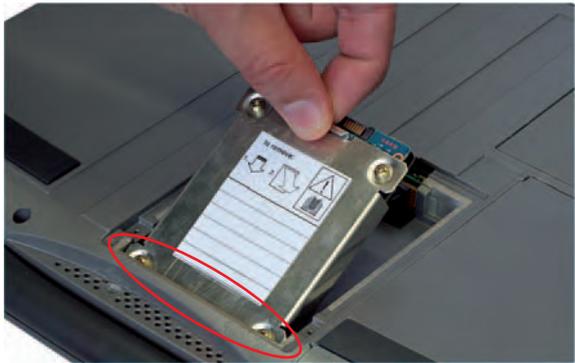
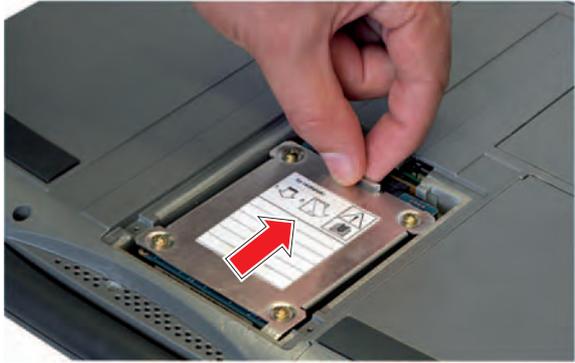
Replace the hard disk only with one of the same type. The hard disk is available as a spare part. You can find the order data in the catalog.

Remove the hard disk bay

How to remove the hard disk bay	
1	Turn the PG so that the closed display unit is lying on the table.
2	Remove both screws (Torx T8) on the cover of the hard disk bay.

How to remove the hard disk bay		
3	Push the disk bay in the direction of the arrow and then remove it.	

Insert the hard disk bay

How to insert the hard disk bay		
1	Insert the hard disk bay again. Ensure the metal nose is located under the base of the housing.	
2	Push the hard disk bay in the direction of the arrow until the connector is sitting in the jack.	

How to insert the hard disk bay	
3	Attach the cover with the two screws and turn the device round again.
	

11.1.2 Hard disk kit

You can order the hard disk kit under the order number 6ES7791-2BA00-0AA0. It consists of a hard disk module (for details regarding the hard disk capacity, please refer to the order documents), a Torx screwdriver and a transport and storage bag.

With the help of the SATA to USB Adapters (order no. 6ES7790-1AA00-0AA0) it is easy to make an image of your system for backup purposes or as basis for system specific installations.



11.1.3 Replace the battery

To be noted before you replace the battery



Warning

Replace the battery only with a battery of the same type. The battery is available as a spare part. You will find the order information in the catalog.

Disposal

Lithium ion batteries can be recycled. Their components can be used as raw materials for new batteries or other products. The prerequisite for an effective recycling is to sort the used batteries according to type.

Notice

Observe the local conditions for the disposal of recyclable materials.

Replace the battery

How to replace the battery	
1	Turn the PG so that the closed display unit is lying on the table.
2	Unlock and fold up the battery cover on the underside of the device.
3	Replace the battery (1)
4	Close the cover and turn the device round again.



11.1.4 Replacing the backup battery

The Field PG has a backup battery. This supplies the hardware clock with power even when the device has been switched off.

Batteries are wearing parts and should be replaced after five years in order to ensure proper functioning of the PG.

Notice

The backup battery should only be replaced by the repair center. If you have any queries, please contact your service office or your sales partner.

Caution

Risk of damage!

The lithium battery may only be replaced with an identical battery or with a type recommended by the manufacturer (Order No.: A5E00047601).



Warning

Risk of explosion and release of harmful substances!

Therefore, do not throw Lithium batteries into an open fire, do not solder or open the cell body, do not short-circuit or reverse polarity, do not heat up above 100° C, dispose as regulated and protected against direct exposure to sunlight, humidity and dewing.

Caution

Batteries must be disposed of in accordance with local regulations.

11.2 Reinstalling the software

11.2.1 General installation procedure

If errors occur during the installation of your software, use the Recovery CD and "Software for Field PG" DVD to reinstall the software.

Recovery CD:

Contains the tools for setting up hard disk drives and the operating system.

"Software for Field PG" DVD:

Contains the documentation, the SIMATIC software and the hardware drivers.

11.2.2 Restore the system

Retrieving an authorization or license key from the hard disk

- Check to see if, using the Automation License Manager, you can retrieve your authorization or the license key from the hard disk and back it up onto a license key disk or another data medium.
- If it is not possible to backup your authorization, please contact the Customer Support Hotline. There you can obtain information necessary for your software authorization.

Restoring the factory condition

The program Norton Ghost 9.0 from Symantec allows you to backup and restore the data of your PG. The program enables you to create a backup image of a disk drive and retrieve a disk drive from a backup image.

In order to be able to use Norton Ghost under Windows, you must install it on your PG. To start the installation either double-click the Ghost icon on the Desktop or run the Setup routine from the Symantec Ghost CD.

The backup takes place:

- on a disk drive of the internal hard disk or on an external hard disk
- on CD-R, CD-RW, DVD+-R or DVD+-RW

Using Norton Ghost 9.0 you can save a disk drive of a hard disk in a file (a so-called backup image) and then retrieve the disk drive from this backup image.

The backup image of the delivery state of your device is contained in the directory D:\Restore\deutsch or D:\Restore\english

Notice

Any data on the partition on which you are recording the image will be lost with this procedure. Before you record the image make sure to save your SIMATIC license keys with the Automation License Manager (ALM) to a floppy disk or USB stick.

Follow the instructions on the screen.

Note

We recommend, after the installation of your user software, that you make backups cyclically.

Caution

Please observe the safety instructions in the documentation. Incorrect handling of the program could result in the loss of the operating system, the programs and the saved data.

11.2.3 Installing Windows

Use the Recovery CD to install Windows to meet your special requirements. The operating system used is Windows Preinstall Environment (WinPE). Furthermore, you require the provided "Software for Field PG" DVD.

Booting with the CD Recovery

1. Insert the Recovery CD in your drive and reboot the device. When the BIOS message Press <F2> to enter Setup or <ESC> to show Boot Menu appears, press the ESC key. After initialization, a "Boot Menu" is displayed.
2. Follow the on-screen instructions and acknowledge the "Press any key to boot from CD" message. The "Siemens SIMATIC Recovery" window appears.

11.2.3.1 Setting up the partitions for Windows operating systems

After you have installed a new hard disk, or if partitions are faulty, or when you wish to change the partitioning on your hard disk, you need to create or reconfigure partitions on the hard disk

Caution

When you delete or create partitions or logical DOS partitions, you lose all data on the hard disk. All partitions on the hard disk will be deleted.

With the Windows 2000 and Windows XP operating systems, the factory state features two partitions with an NTFS file system on the hard disk. To restore the partitions to factory state, proceed as follows:

Setting up partitions

1. Boot from the Recovery CD and then follow the screen instructions until the Recovery functions window is displayed.
2. Start the DiskPart program in the "Siemens SIMATIC Recovery" window and enter the following commands in the displayed command interface:

list disk	Displays all available hard disks.
select disk 0	Selects the disk where you wish to change the configuration. 0 selects the first hard disk.
list partition	Displays all partitions on the selected hard disk.
clean	Completely wipes the selected hard disk. All information stored there is lost.
create partition primary size=n	Creates a primary partition with the n MB on the selected hard disk. Factory state values: n = 15000 for Windows 2000 or XP
select partition 1	Select the primary partition
active	Activates the selected partition
exit	Closes DiskPart.

Additional DiskPart functions:

Help	Shows all available DiskPart commands. When a command is supplemented with other parameters, the command is described with additional information. Example: create partition help
------	--

Note

Once you have changed the configuration of your hard disk with DiskPart, you will need to reboot the device for the changes to take effect.

Boot again from the Recovery CD to format the partitions.

Format primary partition

1. Boot from the Recovery CD to format the partitions. Follow the screen instructions until the Recovery functions window is displayed.
2. Select "Start command prompt" in the Recovery functions window. In the command interface that opens, enter the following command:
`format DL:/FS:File System`
DL = Drive letter of the partition to be formatted. Valid values: C, D, E, F etc.
File system = Specifies the type of file system. Valid values: FAT, FAT32, NTFS.

NTFS is the factory setting for all Windows operating systems.

Example for a master hard disk on the IDE bus

```
format C:/FS:NTFS
```

`format /?` Shows all parameters of the command.

11.2.3.2 Installing Microsoft Windows operating systems

This CD contains encrypted data that can only be transferred to this system.

1. Boot from the Recovery CD and then follow the screen instructions until the Recovery functions window is displayed.
2. Select "Recovery Windows ..." in the "Siemens SIMATIC Recovery" window.
3. Follow the instructions on the screen.

Note

Note that there has to be the following available space on the drive after transfer of the selected recovery data:

500 MB for Windows 2000

1500 MB for Windows XP

4. Select "Open command prompt" in the Recovery functions window.
5. Enter the following command in the displayed command prompt interface:
Drive:
cd \I386
Winnt32.bat
Drive: Drive letter of the folder containing the I386 directory.
6. The preparation of the Windows installation is displayed.
7. When this is completed, close the command prompt with the `exit` command.
8. Close the Siemens SIMATIC Recovery window with the "Finish" button.
9. The Windows installation is completed following an automatic restart of the system.
10. Follow the instructions on the screen.

Note

If you are using Microsoft Windows 2000 Professional or Windows XP as a professional user, you should have the following manuals at your disposal (not included in the product package):

Microsoft Windows 2000 Professional Resource Kit (MS Press No. 24) or

Microsoft Windows XP Professional, The Technical Reference" (MS Press No. 934).

These manuals contain special information for administrators involved in installing, managing and integrating Windows in networks or multi-user environments.

11.2.4 Setting up the language selection for Windows 2000 MUI

Setting up the language selection for Windows 2000 MUI

The Multilanguage User Interface (MUI) allows you to set up the Windows 2000 menus and dialogs for additional languages.

To set the required languages for the Windows 2000 menus, dialogs and keyboard layout, select:

Start > Settings > Control Panel > Regional Options > General tab, Setting for the current user field and Language settings for the system field and the Keyboard layout field in the Input Locales tab.

In addition to the menu and dialog language settings, you also need to set the default language by selecting **Set Default...** from the **Regional Options** dialog box.

The default language setting of your Windows 2000 installation is English and a US keyboard layout. To change to another language and keyboard layout, open the Control Panel and select:

Start > Settings > Control Panel > Regional Options > General tab, Setting for current user field and Language settings for the system field and the Input language field in the Input Locales tab.

11.2.5 Setting up the language selection for Windows XP Professional

Setting up the Language Selection for Windows XP Professional

The Multilanguage User Interface (MUI) allows you to set up the Windows XP Professional menus and dialogs for additional languages.

The default setting on your device is Windows XP MUI with English menus and dialog boxes and a US keyboard layout. You can change the language in the Control Panel. Select:

Start > Control Panel > Regional and Language Options Languages tab, Language used in menus and dialogs field.

For the **Regional and Language Options**, set the default as **non-Unicode programs** under **Advanced** in addition to the language for menus and dialogs.

11.2.6 Installing drivers and software

Notice

In the case of multilingual operating systems (MUI versions) you have to set menu, dialog boxes and default language to English (US) in the regional settings **before** installing the new drivers and operating system updates.

Installing the drivers

1. Insert the "Software for Field PG" DVD.
2. You must have Acrobat Reader installed.
3. Navigate to the driver list (language-, OS- and device-specific.)
4. Install the relevant driver according to the specifications in the driver list.

Installing the SIMATIC software

1. Insert the "Software for Field PG" DVD.
2. Launch the "Simatic Setup".

Notice

The license key disk with the authorizations or license keys necessary for operating the SIMATIC software is only available with the delivery variants that include the respective SIMATIC software.

The installation of the authorizations or enabling the license key is described in section "Initial Commissioning - First Switch-on".

Installation of SIMATIC WinCC flexible software

1. Insert the "Software for Field PG" DVD.
2. Start the "Setup" installation program in the "WinCC flexible\CD_1" folder.

11.2.7 Installing burner/DVD software

The supplied CD provides information about installation of the burner/DVD software.

Troubleshooting

12.1 General problems

This chapter provides you with tips on how to locate and troubleshoot common problems.

Problem	Possible cause	To correct or avoid error
The device is not operational.	There is no power supply to the device.	Check the power supply, the power cord or the power plug.
	PG is switched off	Press the power button
	The battery is empty or not installed	Charge the battery
You can move the mouse pointer with the touchpad under Windows	Touchpad is switched off	Switch on the touchpad via the Hot Key Fn + F4
Wrong time and/or date on the PG.		<ol style="list-style-type: none"> 1. Press <F2> within the boot sequence to open the BIOS Setup. 2. Set the time and date in the setup menu.
Although the BIOS setting is OK, the time and data are still wrong.	The backup battery is dead.	In this case, please contact your technical support team.
USB device not responding.	The USB ports are disabled in your BIOS.	Use a different USB port or enable the port.
	USB 2.0 device connected but USB 2.0 is disabled.	Enable USB 2.0.
	Operating system does not support the USB port.	Enable USB Legacy Support for the mouse and keyboard. For all other devices you need USB drivers for the specific operating system.
DVD/CD: The front loader does not open.	The device is switched off, or the open/close button is disabled by a software application.	Emergency removal of the data medium: <ol style="list-style-type: none"> 1. Switch off the device. 2. Insert a 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 message "Invalid configuration information... Press the F1 key for continue, F2 to run Setup utility" appears on the display.	Defective configuration data	Press the "F2" key and in the SETUP program check the configuration data, enter any default values, check error messages in the first SETUP form

12.2 Problems with Wireless LAN

Problem	Possible cause	To correct or avoid error
The following message appears on the display: "No boot device available" NTLDR not found, check the boot data medium...	No bootable disk in the disk drive	Insert a bootable disk
	Incorrect hard disk type entered in SETUP	Use the "Autodetect Fixed Disk" function
The following message appears on the display: "Keyboard stuck key failure"	A key has been blocked during system self-test of the keyboard	Check the keyboard and, if necessary, restart the system
A beep sounds when a key is pressed but no character is displayed	Keyboard buffer is full	<CTRL> <PAUSE>
< \ > key not available	incorrect keyboard driver is being used	with German keyboard drivers: <ALTGr> < ß > with international keyboard drivers: < \ >

12.2 Problems with Wireless LAN

The following lists the possible causes for problems with Wireless LAN:

Cannot connect with WLAN
<ul style="list-style-type: none"> • Check if you have activated the Wireless LAN. You can switch the Wireless LAN on or off with the Hot Key Fn + F3. • Check if the other Wireless LAN partner is active. • Check the settings for the Wireless LAN connection (in doing so, observe the information on configuring and operating the Wireless LAN in the online help of the WLAN network adapter).
Data transmission speed is too low
<ul style="list-style-type: none"> • Please note that the data rate stipulated and that is given under Windows is only a theoretical value / corresponds to the gross value. Determined by the transmission procedure, the actual applicable data rate for the data transmission is usually around 50% of the gross value. • The maximum data transmission speed is dependent on many factors. First of all check to see if all the network components comply with the standard IEEE 802.11 a/b/g and this method of transmission (54 Mbps) is set. • The spatial arrangement of the network components can also negatively influence the transmission. <ul style="list-style-type: none"> – The distances between the components should be as short as possible – Masonry or reinforced concrete walls have a negative effect on the transmission performance and can, under some circumstances, prevent a connection from being established. For the best performance, a line-of-sight connection of the network components is preferred. – A high load on the network, perhaps from too many simultaneous access attempts from different nodes, can lead to lower data rates or communication problems.

Specifications

13.1 General specifications

General specifications	
Order nos.	see the order documents
Dimensions	328 x 294 x 52 (WxHxD in mm)
Weight	Approx. 4 kg
Supply voltage (U _N)	100 V to 240 V AC (+10%-15%), sinoidal
Line voltage frequency	50 - 60 Hz (47 to 63 Hz)
max. power consumption AC Output voltage of the power supply unit (DC) Output current of the power supply unit (DC) Output power of the power supply unit (DC) Standby power (in battery mode) Lithium-Ion battery (9 cells) with recording of charging condition	c. 90 W 18.5 V max. 4.3 A max. 80 W type 1.5 W c. 6 Ah, 11.1 V with thermo switch and multifuse, recyclable, chargeable up to 40°C, high number of cycles with tough use, low self-discharge
Noise emissions	< 45 dB(A) to DIN 45635
Degree of protection (entire device)	IP 30 (with closed covers) according to IEC 60529
Safety	
Protection class	Safety class I according to IEC 61140
Safety specifications	According to VDE 0805 corresponds to EN 60950-1 and IEC 60950-1
Electromagnetic compatibility (EMC)	
Emitted interference	Limit class B in accordance with EN 55022, EN 61000-3-2 class D and EN 61000-3-3
Noise immunity: Mains borne disturbance variables on supply lines	± 2 kV; (according to IEC 61000-4-4; Burst) ± 1 kV; (according to IEC 61000-4-5; Surge sym./line to line) ± 2 kV; (according to IEC 61000-4-5; Surge sym./line to earth)
Noise immunity on signal lines	± 2 kV; (according to IEC 61000-4-4; Burst; length > 3 m) ± 2 kV; (according to IEC 61000-4-5; Surge sym./line to earth, length > 20 m)
Immunity to discharges of static electricity	± 4 kV contact discharge (according to IEC 61000-4-2; ESD) ± 8 kV air discharge (according to IEC 61000-4-2; ESD)

Specifications

13.1 General specifications

General specifications	
Immunity to RF interference	10 V (in modem mode max. 3 V), with 80% amplitude modulation at 1 kHz, 9 kHz - 80 MHz (acc. to IEC 61000-4-6) 10 V/m (in modem mode max. 3 V), with 80 % amplitude modulation at 1 kHz, 1.4 kHz - 2 MHz (acc. to IEC 61000-4-3)
Magnetic field	100 A/m, 50 Hz and 60 Hz (acc. to IEC 61000-4-8)
Climatic Conditions	
Temperature in operation * storage/transport	tested to IEC 60068-2-1, IEC 60068-2-2 + 5 °C to + 40 °C max. 10°C /h (no condensation) - 20 °C up to + 60 °C max. 20°C /h (no condensation)
Relative humidity in operation storage/transport	tested to IEC 60068-2-78, IEC 60068-2-30, IEC 60068-2-14 5 % to 80% max. 25°C /h (no condensation) 5 % up to 95% max. 25°C /h (no condensation)
Mech. Ambient conditions	
Vibration Operation * transport	tested to DIN IEC 60068-2-6 10 to 58 Hz; amplitude 0.0375 mm 58 to 500 Hz; acceleration 4.9 m/s ² 5 to 9 Hz; amplitude 3.5 mm, 9 to 500 Hz: Acceleration 9.8 m/s ²
Shock resistance operation * storage / transport	tested to DIN IEC 60068-2-27 half sine: 50 m/s ² , 30 ms, 100 shocks half sine: 250 m/s ² , 6 ms, 1000 shocks
Special Features	
Quality assurance	to ISO 9001
Motherboard	
Processor	Pentium M 1.6 or 2 GHz, 533 MHz Front Side Bus (FSB), 2048 KB Second Level Cache
RAM	Expandable up to 2 GB SDRAM (DDR2)
Disk drives	
Floppy disk	3.5" (1.44 MB)
Hard disk	2.5" SATA hard disk capacity refer to BIOS
Optical drive	DVD-ROM/CD-RW (24x CD-ROM, 8x DVD, 10 CD-RW) DVD+-R/+ -RW (24x CD-ROM, 8x DVD, 10x CD-RW, 2x DVD-R, 1x DVD-RW) Refer to BIOS for features
Graphics	
Graphic controller	Intel 915GM
Graphic controller memory	<ul style="list-style-type: none"> • Graphics memory 8 to 128 MB DDR2 RAM, some using dynamic sharing of system RAM • VGA: 1600 x1200 / 32 Bit color depth / 85 Hz
Resolutions/frequencies/colors	CRT: 1600x1200 with 85 Hz / 32 Bit colors CRT: 1280 x 1024 at 100 Hz / 32-bit colors

General specifications	
LCD display	
Display type	TFT (Thin Film Transistor)
Display size	304.1 x 228.1 mm corresponding to 31 cm (15")
Screen resolution	1024 x 768 pixels (XGA) 1400 x 1050 pixels (SXGA+)
Possible colors	maximum 256 k
Vertical frequency	60 Hz
Contrast	> 200 : 1
Brightness	> 150 cd/m ²
Permissible defective areas	light and dark pixel: Max. 10
Audio	
Sound controller	Analog Devices AD1986A
Compatibility	Sound Blaster Pro and Microsoft Sound System (corresponding to PC98 / PC99 and WHQL specification)
Record and Playback Features	Up to 16 Bit stereo 48 kHz sampling rate, full duplex 3D Audio Effects and ESFM(T) music synthesizer
Internal loudspeaker	Maximum output 2 x 0.5 W
WLAN	IEEE 802.11. a/b/g
Keyboard	
Variant	Standard notebook
Key distance	19 mm
Key drop	3 mm
Labeling	International / German
Pointing device integrated	Touchpad with 2 mouse buttons
Interfaces	
COM TTY/V.24	Serial interface TTY (20 mA), active up to 100 m (25-pin jack) no electrical isolation or serial interface V.24
LPT	Parallel port
VGA	Interface for external monitor (15-pin VGA jack)
Cardbus	2 interfaces for PC cards (type I, type II and type III) controller from TI: PCI 1520
Memory Card	Programming interface for SIMATIC memory card and S5 memory module
Micro Memory Card	Interface for micro memory card
USB 2.0	4 interfaces for High Speed Universal Serial Bus max. 2 high current (500 mA) - for each interface block only 1 interface can be used for high current.

Specifications

13.1 General specifications

General specifications	
PROFIBUS/MPI interface	9-pin sub-D socket
Transmission speed	9.6 Kbaud to 12 Mbaud, software configured
Operating mode	Electrically isolated: - data channels A, B - control lines RTS AS, RTS_PG - 5 V supply voltage (max. 90 mA) grounded: - shielding of the DP12 connection line
Physical port	RS485, electrically isolated
Memory address area	0CC00h ... 0CC7FFh or 0DC000h ... 0DC7FFh
Interrupts	IRQ 5, 10, 11 or 15 software configured
Ethernet	Ethernet port (RJ45), Intel MAC GD82562GZ
Modem	RJ11 V.92 Castlenet
DC In	DC voltage supply input, jack plug
Headphones and microphone	Connection for in each case 3.5 mm jack plug
Status displays on the device	
	Caps Lock Num Lock WLAN active battery state device state access to FD / HD / DVD S5 module / memory card MPI/DP

* You are only permitted to burn with optical drives only in an undisturbed environment and up to a maximum ambient temperature of 35°C.

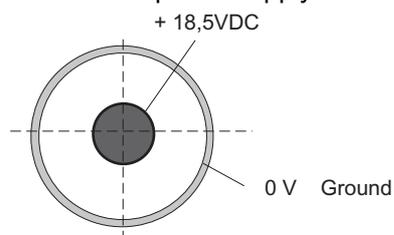
Detailed Descriptions

14.1 Interfaces

14.1.1 External interfaces

DC-In

The AC/DC power supply is connected to this jack. This has the following charge:



USB

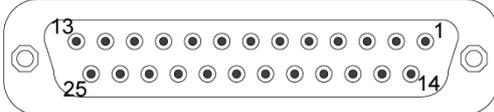
The Universal Serial Bus port (2.0) has the following pinout:

USB 2.0 interface			
Pin No.	Designation	Meaning	Input /Output
1	VCC	+ 5 V (fused)	Output
2	- Data	Data channel	Input /Output
3	+ Data	Data channel	Input /Output
4	GND	Chassis ground	-

The connectors are of type A.

The ports are rated as high-current USB 2.0 (500 mA). However they cannot be operated simultaneously with high current.

Serial port COM1 (V.24/TTY)

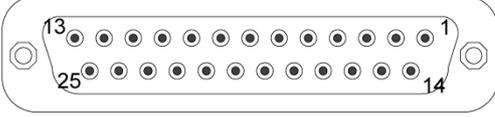
Serial port COM 1 (socket)			
			
PinNo.	Designation	Meaning	Input /Output
1	-	Shielding	-
2	TxD (D1)	Serial transmit data	Output
3	RxD (D2)	Serial receive data	Input
4	RTS (S2)	Request to send	Output
5	CTS (M2)	Clear to send	Input
6	DSR (M1)	Ready for operation	Input
7	GND (E2)	Functional ground (reference potential)	-
8	DCD (M5)	Data carrier detect	Input
9	+TTY RxD	Current loop receive	Input
10-17	-	Not assigned	-
18	+TTY TxD	Current loop send	Output
19	+20 mA	Potentially isolated power source	-
20	DTR (S1)	Data terminal ready	Output
21	-TTY TxD	Current loop send	Output
22	RI (M3)	Incoming call	Input
23-25	-	Not assigned	-

Gender changer for COM1

With the gender changer (25-pin / 9-pin) the COM1/V.24/AG port can be converted to the usual 9-pin male connector. For this, you only have to plug the adapter onto the COM1 socket and secure it with the two hexagonal head screws.

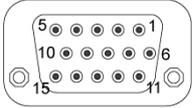
The V.24 and TTY ports of the COM1 can be used alternatively.

Parallel port LPT1

Parallel port LPT1			
			
PinNo.	Designation	Meaning	Input /Output
1	/ Strobe (CLK)	Data message	Output (open collector)
2	Data - Bit 0	Data channel 0	Output (TTL level)
3	Data - Bit 1	Data channel 1	Output (TTL level)
4	Data - Bit 2	Data channel 2	Output (TTL level)
5	Data - Bit 3	Data channel 3	Output (TTL level)
6	Data - Bit 4	Data channel 4	Output (TTL level)
7	Data - Bit 5	Data channel 5	Output (TTL level)
8	Data - Bit 6	Data channel 6	Output (TTL level)
9	Data - Bit 7	Data channel 7	Output (TTL level)
10	/ACK	Data acknowledge	Input (4.7 kΩ pull up)
11	BUSY	Not ready	Input (4.7 kΩ pull up)
12	PE (PAPER END)	Paper end	Input (4.7 kΩ pull up)
13	SELECT	Device selection	Input (4.7 kΩ pull up)
14	/ AUTO FEED	Automatically new line	Output (open collector)
15	/ ERROR	Device error	Input (4.7 kΩ pull up)
16	/ INIT	Reset / Initialization	Output (open collector)
17	/ SELECT IN	Printer selection	Output (open collector)
18 – 25	GND	Chassis ground	–

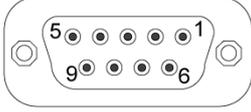
VGA port

The VGA socket has the following pinout:

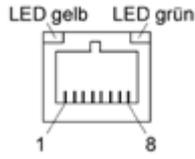
VGA port			
			
PinNo.	Designation	Meaning	Input /Output
1	R	Red	Output
2	G	Green	Output
3	B	Blue	Output
4	–	Unassigned	–
5	GND	Chassis ground	–
6	GND	Chassis ground	–
7	GND	Chassis ground	–
8	GND	Chassis ground	–
9	+ 5 V	+ 5 V (fused)	Output
10	GND	Chassis ground	–
11	–	Unassigned	–
12	DDC_DAT	Display Data Channel Data	Input/output
13	EXT_H	Horizontal synchronizing pulse	Output
14	EXT_V	Vertical synchronizing pulse	Output
15	DDC_CLK	Display Data Channel Clock	Input/output

PROFIBUS/MPI interface

The PROFIBUS/MPI socket has the following pinout:

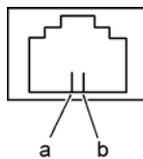
PROFIBUS/MPI interface			
			
PinNo.	Designation	Meaning	Input /Output
1	–	Unassigned	–
2	–	Unassigned	–
3	LTG_B	Signal line B of MPI module	Input/output
4	RTS_AS	RTSAS, control signal for received data stream. The signal is "1" active when the directly connected PLC is sending.	Input
5	M5EXT	M5EXT return line (GND) of the 5 V power supply. The current load caused by an external consumer connected between P5EXT and M5EXT must not exceed the maximum of 90 mA.	Output
6	P5 EXT	P5EXT power supply (+5 V) of the 5 V power supply. The current load caused by an external consumer connected between P5EXT and M5EXT must not exceed the maximum of 90 mA.	Output
7	–	Unassigned	–
8	LTG_A	Signal line A of MPI module	Input/output
9	RTS_PG	RTS output signal of the MPI module. The control signal is "1" when the PG is sending.	Output
Shielding		on connector casing	

Ethernet RJ45 connection

Ethernet RJ45 connection			
			
PinNo.	Designation	Meaning	Input /Output
1	TD+	Transmitted data	Output
2	TD-	Transmitted data	Output
3	RD+	Received data	Input
4, 5 ¹	SYMR	Internal 75-Ohm terminating resistor	-
6	RD-	Received data	Input
7, 8 ¹	SYMT	Internal 75-Ohm terminating resistor	-
S		Shielding	-
	LED yellow	Activity	-
	LED green	Connection	-

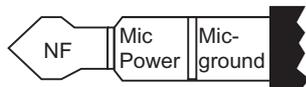
¹ is not necessary for data transfer

RJ11 (connection for modem)



Micro-In

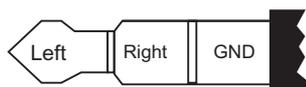
The socket has the following pinout:



3,5-mm Microphone phono plug

Headphones

The socket has the following pinout:

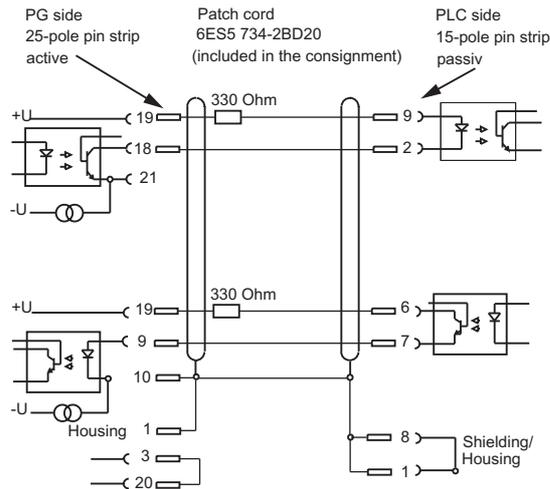


3,5-mm Stereo phono plug

14.2 Connecting cables

SIMATIC S5 cabling

Using the SIMATIC S5 cable (not included in all delivery variants) you can connect your SIMATIC Field PG to a SIMATIC S5 automation device. Please observe the information in chapter "Connecting the PG to an S5 automation device".



SIMATIC S7 cable for MPI/DP

The 6ES7901-0BF00-0AA0 cable is used to connect your SIMATIC Field PG to a SIMATIC S7 automation system. Please observe the information in chapter "Connecting the PG to an S7 automation system".

14.3 System resources

All system resources (hardware address, memory configuration, IRQ, DMA channel) are assigned dynamically by the Windows OS, depending on the hardware configuration, drivers and connected peripheral devices. You can view the current configuration of system resources or possible conflicts with the following operating systems:

Windows 2000/XP	Start > Run : in the Run dialog, enter <i>msinfo32</i> and confirm with OK .
-----------------	--

14.4 BIOS Setup

14.4.1 Overview

BIOS Setup program

The BIOS SETUP program is stored in the ROM BIOS. Information about the system configuration is stored in the battery-backed RAM of the device.

You can use SETUP to set the hardware configuration (for example, the hard disk type) and define the system properties. You can also use SETUP to set the time-of-day and date.

Changing the device configuration

Your device configuration is preset for working with the software supplied with the unit. You should only change the preset values if you have modified your device in any way, or if a fault occurs when the unit is powered up.

14.4.2 Starting BIOS Setup

Starting BIOS SETUP

Run SETUP as follows:

1. Reset the device (warm or cold restart).

With the default setting of your PG, the display shown below appears following power-on, **for example**:

```
Phoenix cME FirstBIOS Desktop Pro - A5E000xxxxx-ES0x
Copyright 1985-2003 Phoenix Technologies Ltd.
All Rights Reserved.
SIMATIC Field PG M Version Vxx.xx.xx
CPU = Intel® Pentium® M processor 2.00 GHz
503M System RAM Passed
2048k Cache SRAM Passed
System BIOS shadowed
Video BIOS shadowed
ATAPI CD/DVD-ROM: TOSHIBA CD/DVDW SD-R6472
Fixed Disk 0: FUJITSU MHT2080BH
Mouse initialized
Press <F2> to enter SETUP or <ESC> to show Boot menu
```

2. On completion of the POST, the BIOS gives you the opportunity of starting the SETUP program. The following message appears on the screen:

```
Press <F2> to enter SETUP or <ESC> to show boot menu
```

3. Press the F2 key as long as the BIOS prompt appears on the screen.

14.4.3 BIOS Setup menus

The various menus and submenus are listed on the next pages. You can obtain information on the selected SETUP item from the context-sensitive help in the respective menu.

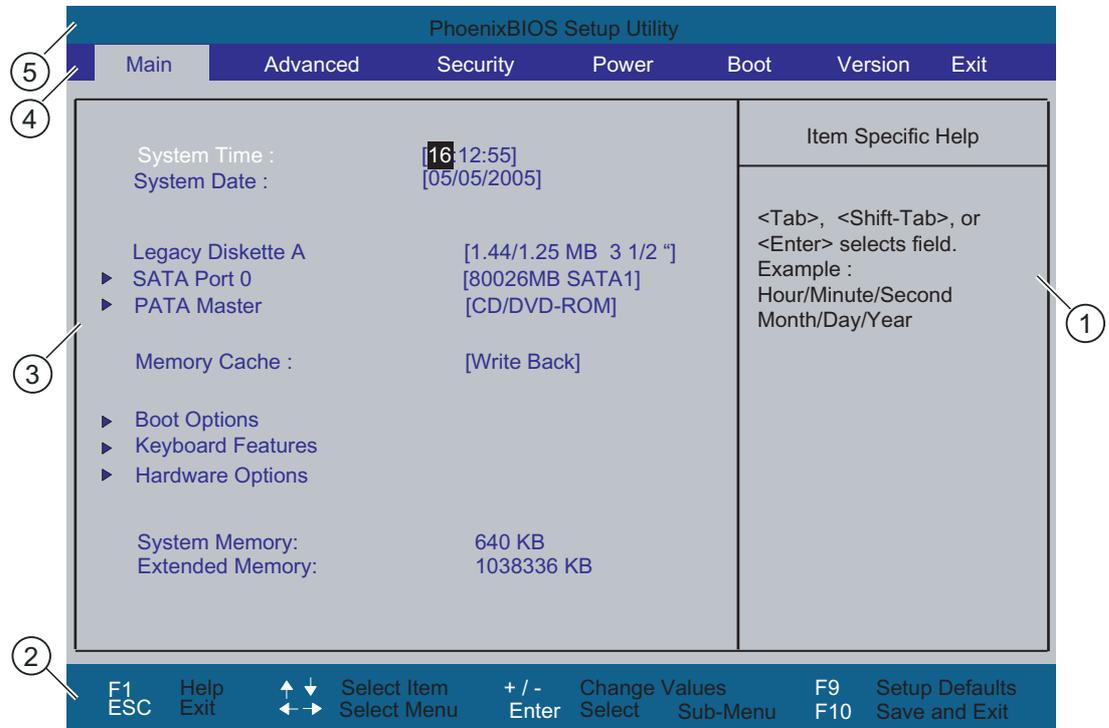


Figure 14-1 SETUP Main Menu (Example)

(1) Help view	(4) Menu line
(2) Input line	(5) Header
(3) Selectable submenu	

Menu layout

The screen is divided into four sections. In the top part (4), you can select the menu forms [Main], [Advanced], [Security], [Power], [Boot Sequence], [Version], [Exit]. In the left of the center section (3) you can select various settings or submenus. Brief help texts appear on the right (1) for the currently selected menu entry. The bottom section contains information for operator input.

The figures below represent examples of specific device configurations. The screen content changes based on the supplied equipment configuration.

Yellow stars to the left of the interface designation (for example, Internal COM 1) indicate a resource conflict between the interfaces managed by the BIOS. In this case you should select the default settings (F9) or eliminate the conflict.

You can move between the menu forms using the cursor keys [←] left and [→] right.

Menu	Meaning
Main	System functions are set here
Advanced	An extended system configuration can be set here
Security	Security functions are set here, for example, a password
Power	Power-saving functions can be selected here
Boot	This is where the boot priority is specified.
Version	Information about the programming device (for example, release status) can be found here
Exit	Used for terminating and saving

14.4.4 Main menu

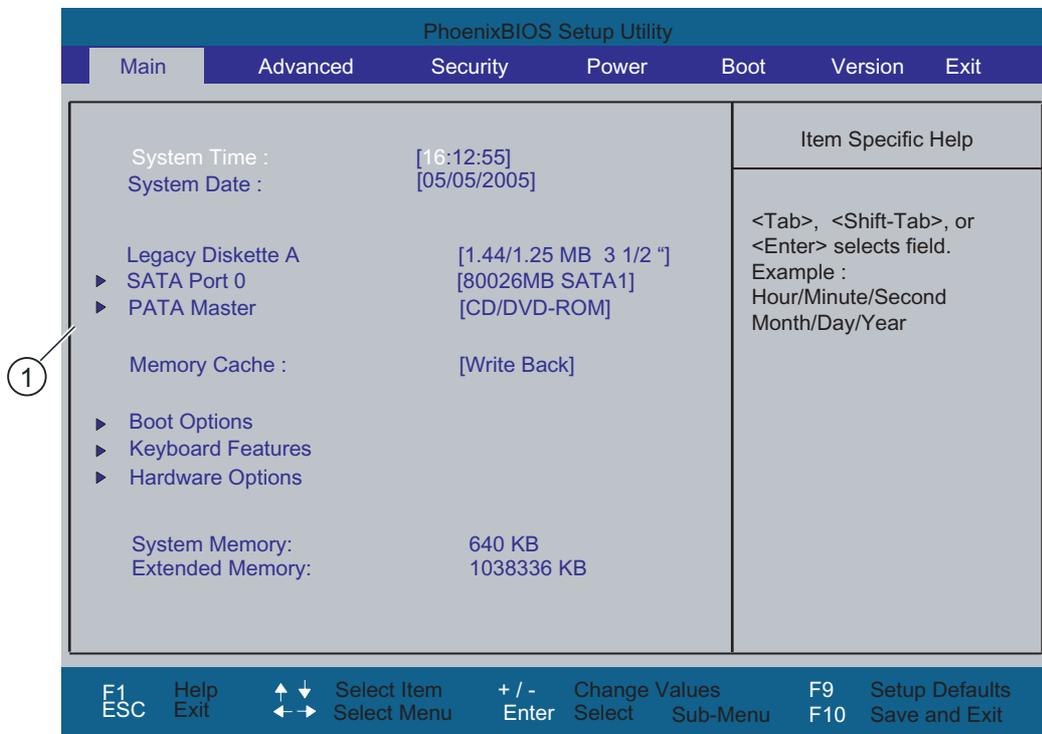


Figure 14-2 SETUP Main Menu (Example)

(1) Selectable submenu

Settings in the main menu

In the main menu, you can move up and down to select the following system configuration boxes by means of the [↑] up and [↓] down cursor keys:

Field	Meaning
System Time	For viewing and setting the current time
System Date	For viewing and setting the current date
Diskette	Type of installed floppy disk drive
Memory Cache	Used for setting the cache options
by submenus	
SATA Port 0	Type of installed disk drives
PATA Master	Type of installed disk drives
Boot options	Used for setting the boot options
Keyboard Features	Used for setting of keyboard interface (for instance, NUM-LOCK, auto report rate)
Hardware Options	Used for setting the hardware options

System time and date

System Time and System Date indicate the current values. Once you have selected the appropriate option, you can use the [+] and [-] keys to modify the time setting

Hour: Minute: Second

and for the date

Month/Day/Year

You can move between the entries in the date and time fields (for example, from hour to minute) using the tab key.

Floppy disk A (Floppy disk drive)

The type of floppy drive installed in the PG is set here. The following entries are possible:

[Disabled]	if no disk drive is available.
[1.44 MB, 3 1/2"]	Default setting for an installed disk drive A

SATA port 0, PATA Master

The system jumps to the following submenu when you select this type of menu field:

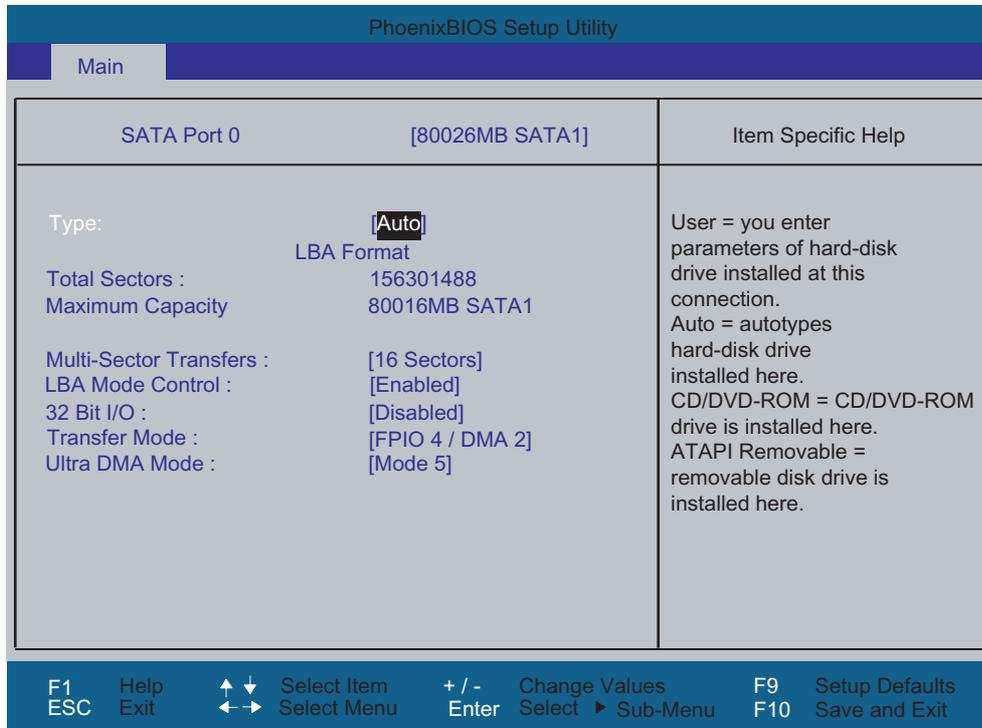


Figure 14-3 Primary Master (Example)

"Type" Field	<p>The parameters which you can select here are usually saved on the respective IDE drive. The 'Auto' setting in the 'Type' field means that these values are automatically read from the drive and written to memory (Autodetect).</p> <p>If Type is selected for a drive that cannot be detected, a time-out is triggered within approximately 1 minute and the entries remain unchanged. You should always check that the interfaces for which you select 'Auto' are in fact connected to drives.</p> <p>Select "User" if you want to define the hard disk drive. You also need to configure the other options, for example, Cylinder, Heads, Sectors/Track, or other properties of the hard disk drive.</p> <p>Select "None" if you have not connected a disk drive. This setting reduces the system waiting time.</p>
Option "Multi-Sector Transfers"	<p>The number of sectors which are transmitted per interrupt are transferred in the option "Multi-Sector Transfers." The value depends on the drive and should be set only to "Auto" in the "Type" field.</p> <p>Disabled 2,4,8,16 sectors</p>
Option "LBA Mode Control"	<p>If the LBA Mode Control field (enabled, disabled) is set to 'Enabled', the system supports hard disks with capacities greater than 528 MB. The value depends on the drive and should be set only to "Auto" in the "Type" field.</p>

In the 32-bit IO field	In the field 32-bit I/O you define the drive access mode	
	Disabled	16-bit access
	Enabled	32-bit access (default)
Option "Transfer Mode" and "Ultra DMA Mode"	The settings in these fields define the interface data transfer rate. The value depends on the drive and should be set only to "Auto" in the "Type" field. You leave the submenu using the ESC key.	

The "Memory Cache" field

The following shortcut menu appears when you select the "Memory cache" option in the main menu:

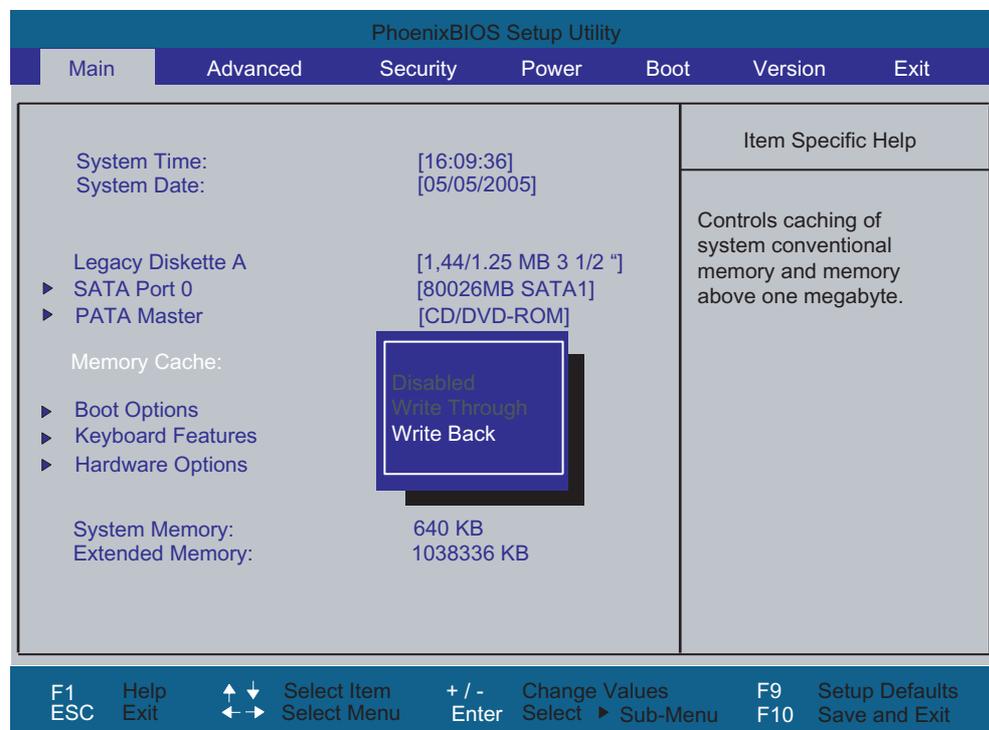


Figure 14-4 "Memory Cache" field

The cache is a high-speed memory buffer between the CPU and memory (DRAM). Repeated memory access operations are executed in the fast cache, and not in the main memory, provided the feature is enabled. In some cases it may be necessary to disable the cache for certain hardware and software because intentional program runtimes or delay times may be prevented by the fast cache.

[Disabled]	Cache is disabled
[Write Through]	Write access is not concluded until the entry has been made in main memory
[Write Back]	Write access is concluded immediately, the entry in main memory takes place in the background (default)

"Boot Options" field

The following submenu appears when you select the "Boot Options" field in the main menu:

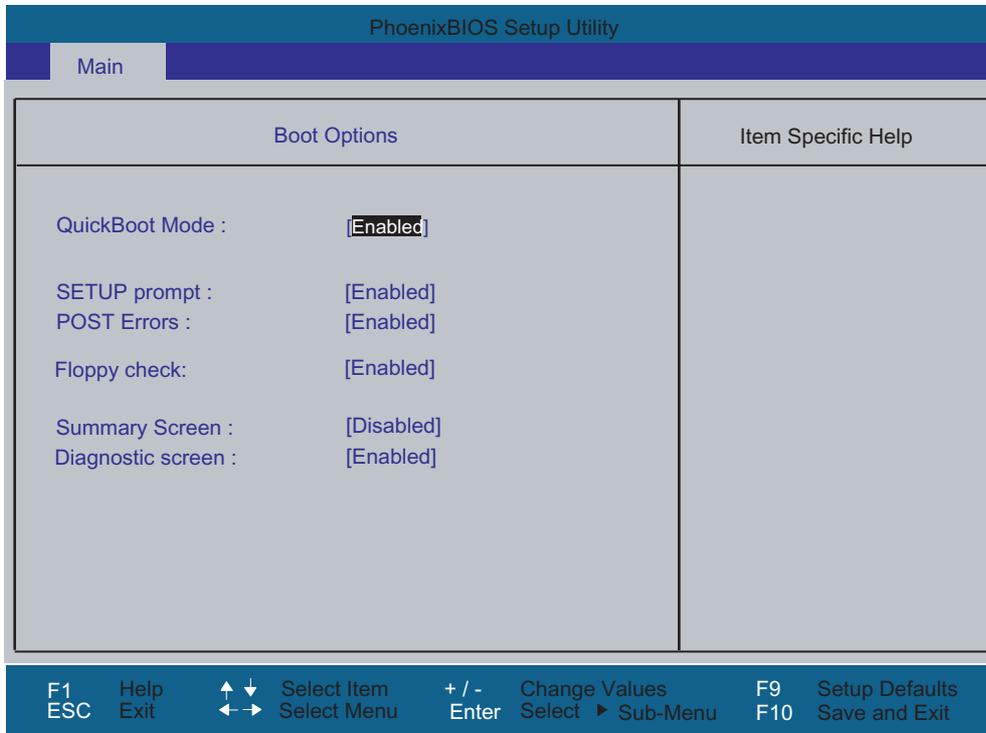


Figure 14-5 "Boot Options" submenu (Example)

Quick Boot Mode	Some hardware tests are skipped to speed up the boot sequence.
SETUP prompt	The message PRESS <F2> to enter Setup is output at the bottom of the screen during the system boot phase.
POST errors	The boot sequence is stopped if an error is detected; you must press F1 to acknowledge. Enter "Disabled" to avoid the necessity of acknowledging errors, for example, if no keyboard is connected.
Floppy check	The floppy head is stepped inward and then back to its original position during the system boot phase. This test reinitializes the drive.
Summary screen	The most important system parameters are displayed when the system boot phase completes.
Diagnostic screen	Shows the diagnostics messages on the monitor during booting.

'Enabled' means that the feature is active. 'Disabled' means that the feature is inactive.

Example of a summary screen:

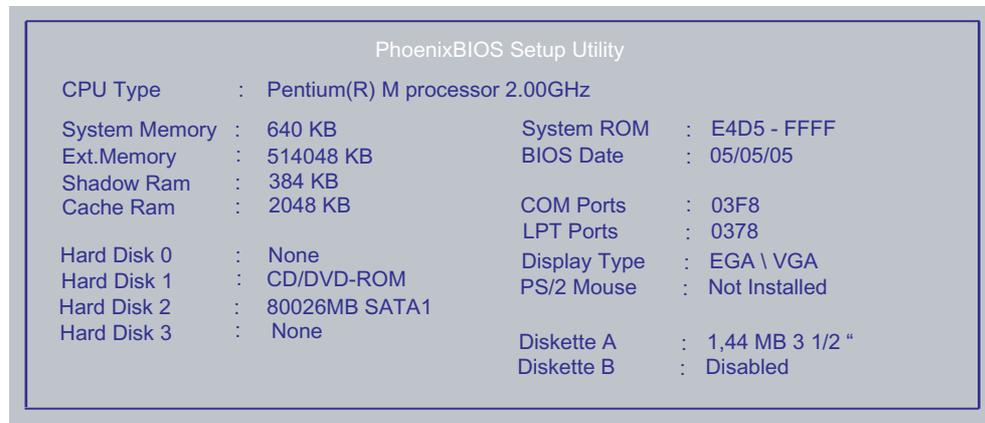


Figure 14-6 Summary Screen (Example)

The Summary screen appears when the system boot phase completes.

"Keyboard Features" field

The following submenu appears when you select the "Keyboard Features" field in the main menu:

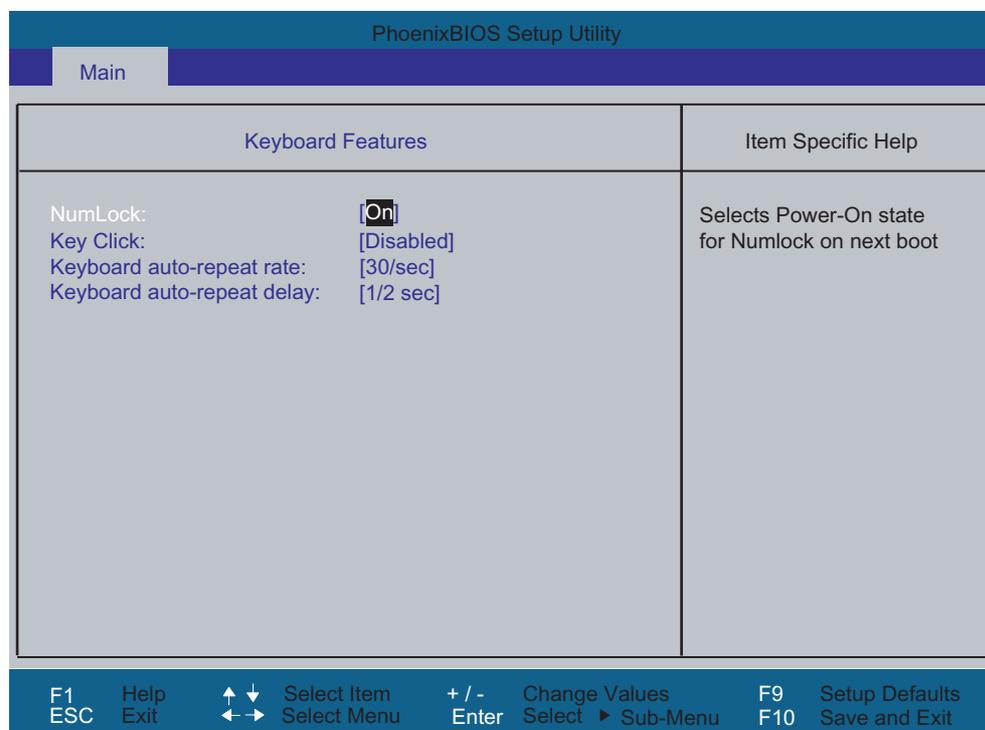


Figure 14-7 "Keyboard Features" submenu (Example)

Numlock	Switches Numlock on or off following power on. If "Auto" is set, this will be remembered the next time the device is switched on.
Key Click	A keystroke can be heard
Keyboard auto-repeat rate	Increase in automatic key repeat rate
Keyboard auto-repeat delay	On-delay of automatic keyboard repeat

"Hardware Options" field

The following submenu appears when you select the "Hardware Options" field in the main menu:

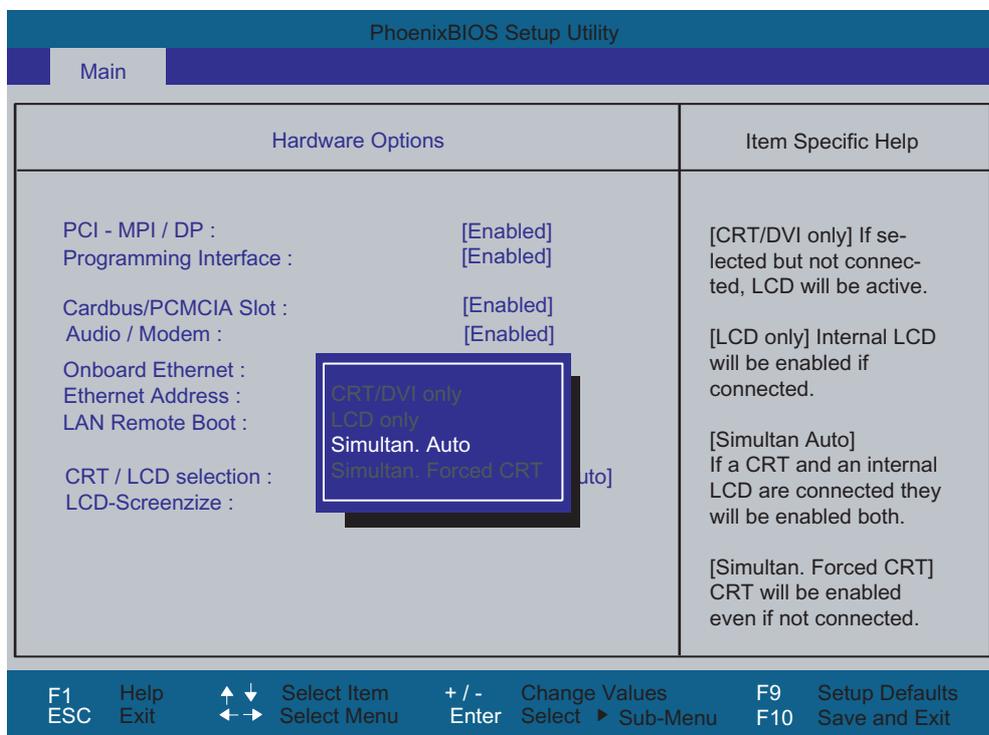


Figure 14-8 "Hardware Options" submenu (Example)

The parameters of the interfaces present on the motherboard are set here.

Entry	Meaning	
PCI-MPI/DP	Enables the CP5611-compatible MPI/DP interface.	
Programming interface	Here the enable or disable of the SIMATIC memory card interface is displayed. The enable takes place when the PCI-MPI/DP is enabled.	
Cardbus/PCMCIA slot	[Enabled]	The resources are managed by the BIOS PCI Plug&Play mechanism.
	[Disabled]	Use of Cardbus/PCMCIA interface is disabled.
Audio / Modem	[Disabled]	Switch off to make additional resources available.

Entry	Meaning	
On-board Ethernet	Use of onboard Ethernet interface. The resources are managed by the BIOS PCI Plug&Play mechanism.	
	[Disabled]	Ethernet disabled. The Ethernet interface hardware is switched off. It is not possible to operate the interface within the operating system.
	[Enabled]	Ethernet enabled. It is possible to insert the network cable and operate it at any point (hot plug). If no cable is inserted when the system is started, whilst booting the device checks every 30 seconds or so and, when returning from the suspend system, every 40 seconds or so to see if an Ethernet connection is available. As long as an active network connection is given, there will be no noticeable delays.
Ethernet Address	This shows the individual Ethernet address.	
LAN Remote Boot	[Enabled]	Booting via a connected LAN is possible. The respective boot source is displayed as Intel® Boot-Agent in the boot sequence menu.
	[Disabled]	Booting via LAN is not possible.
CRT / LCD selection	In Windows mode these settings can be overwritten by graphics driver.	
	[CRT only]	for highest resolution, the display signals are only output on the 15-pin VGA port, the LCD interface of the VGA controller is switched off.
	[LCD only]	all data is only output on the internal LCD, the 15-pin VGA port is switched off.
	[Simultan. Auto]	With a connected monitor, both display interfaces are operated
	[Simultan. Forced CRT]	The two display interfaces are operated simultaneously. Not all resolutions can be displayed on the LCD.
LCD screen size	[Normal]	The presentation of text and the graphic modes are not expanded to the full screen size.
	[Expanded]	The text-based and graphic modes are expanded to the full screen size.

14.4.5 Advanced Menu

Menu layout

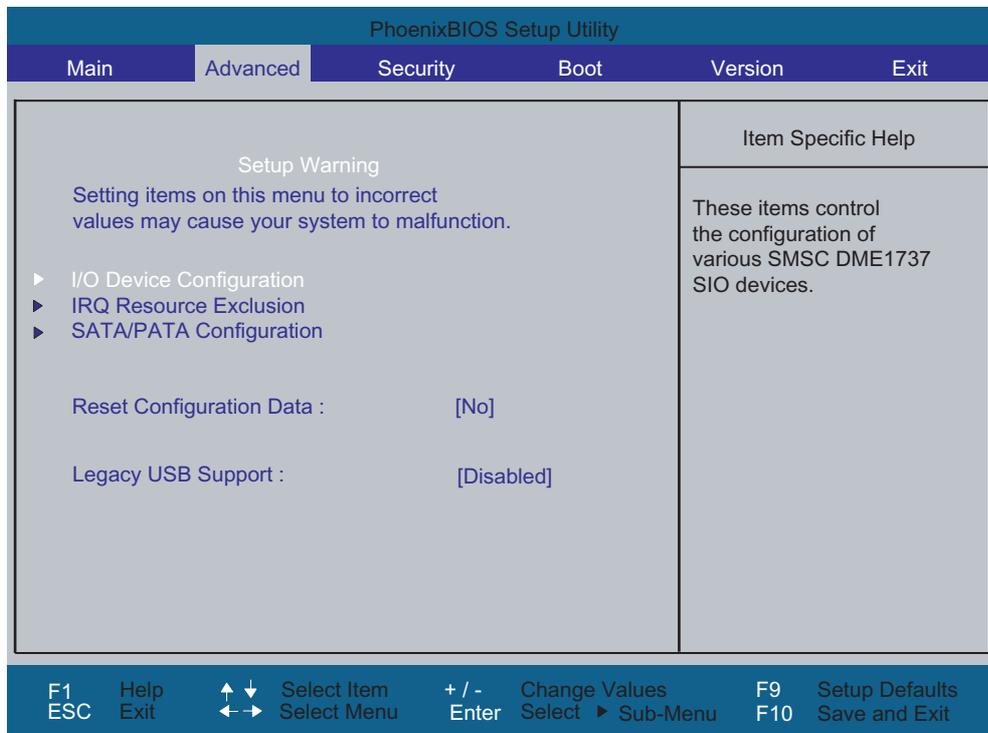
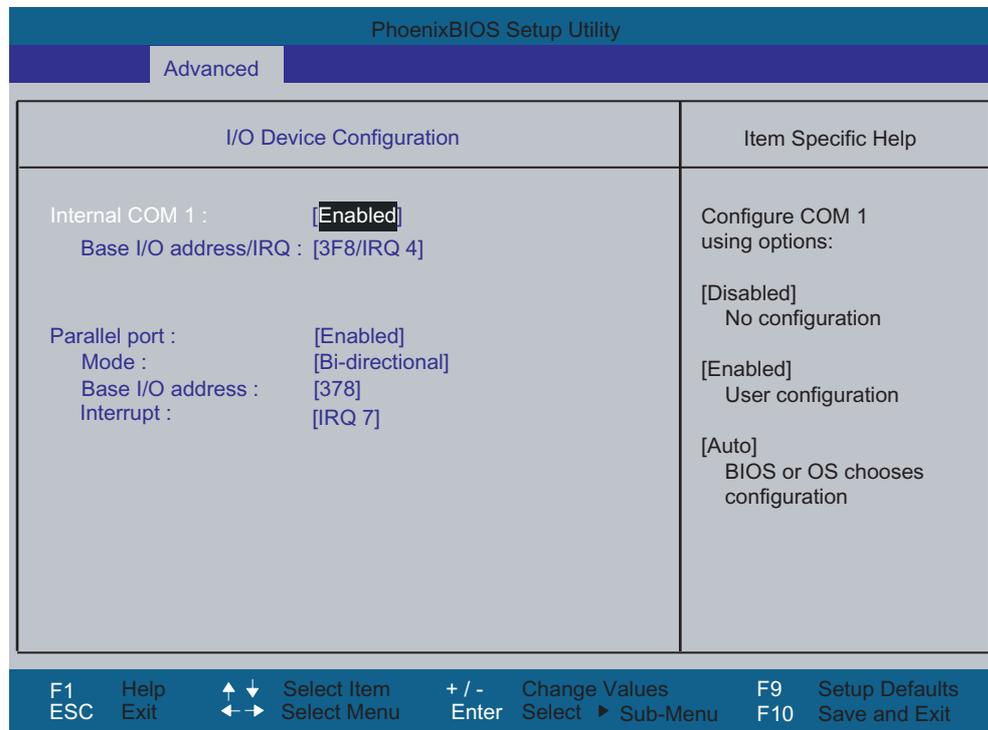


Figure 14-9 "Advanced" menu example

Settings in the Advanced Menu

Reset Configuration Data	[Yes]	All installations under Plug&Play are deleted and the configuration is retrigged the next time the system boots. The entry is then reset to [No]. System components that do not support Plug&Play have to be entered manually.
	[No]	The Plug&Play system components are initialized after the next system start.
Legacy USB support	[Disabled]	Disables Legacy Universal Serial Bus support.
	[Enabled]	Disables Legacy Universal Serial Bus support.

"I/O Device Configuration" submenu



The resources used by an interface are released when you disable the interface in question. The I/O addresses and interrupts are pre-assigned; it is advisable not to change these default assignments.

"IRQ Resource Exclusion" submenu

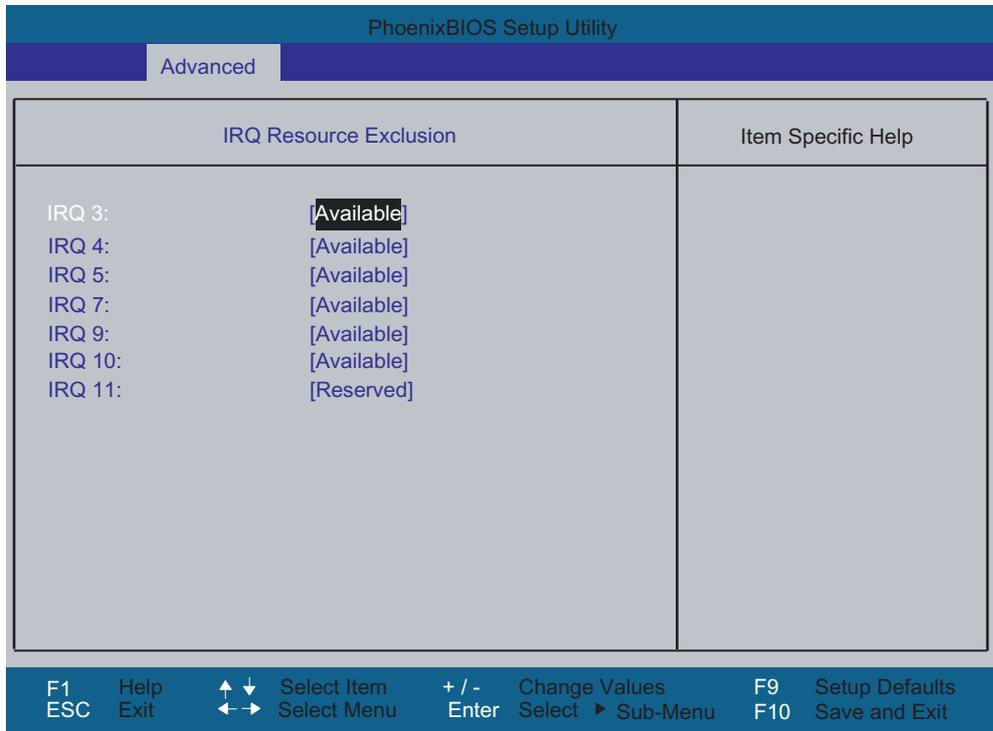
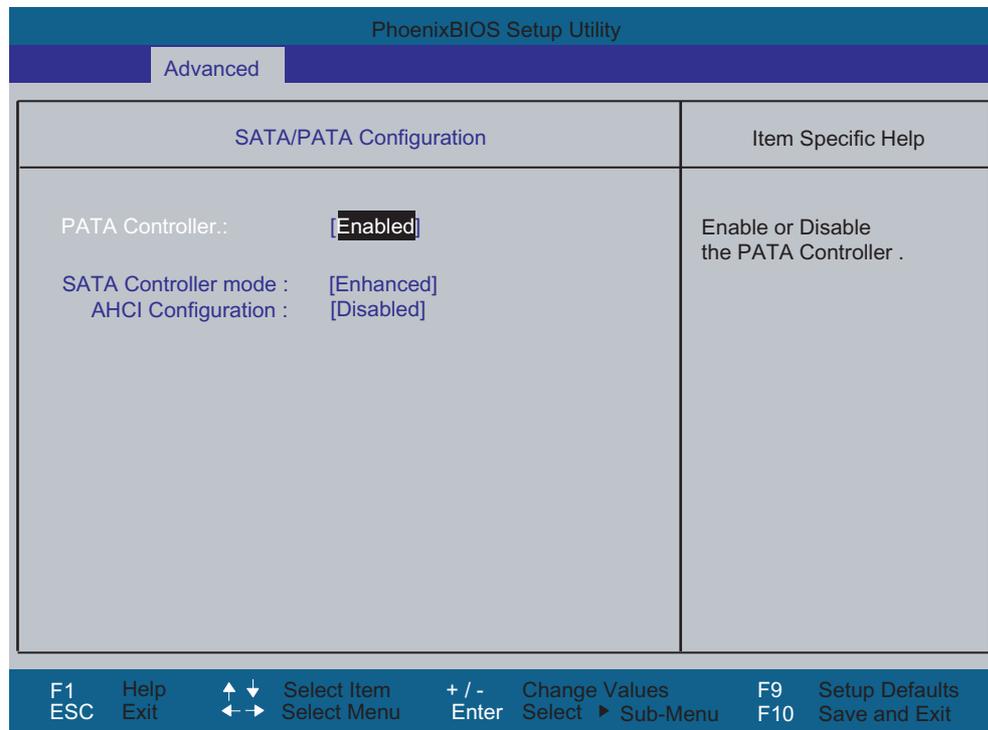


Figure 14-10 IRQ Resource Exclusion submenu (example)

IRQ	Available	IRQ can be assigned from the Plug&Play mechanism of the BIOS to Plug&Play capable modules or motherboard functions.
	Reserved	Must only be set if the respective interrupt is specifically to be allocated to PCMCIA modules that do not support Plug&Play.

"SATA/PATA Configuration" submenu



PATA Controller:	[Enabled] [Disabled]	Disables or enables the PATA controller
SATA Controller mode	[Enhanced]	SATA drive = Primary on the SATA controller in native mode. PATA drive = Primary on the PATA controller in legacy mode.
	[Compatible]	SATA drive = Primary on the SATA controller, in legacy mode PATA drive = drive on the SATA controller in legacy mode
AHCI Configuration	[Disabled] [Enabled]	Enhanced AHCI: WinXP-SP1 + IAA driver supports AHCI mode

14.4.6 Security Menu

You can only edit the fields enclosed in square brackets. Two passwords can be assigned to protect your PG from unauthorized use. The Supervisor password can be used to restrict usage of the hard disk.

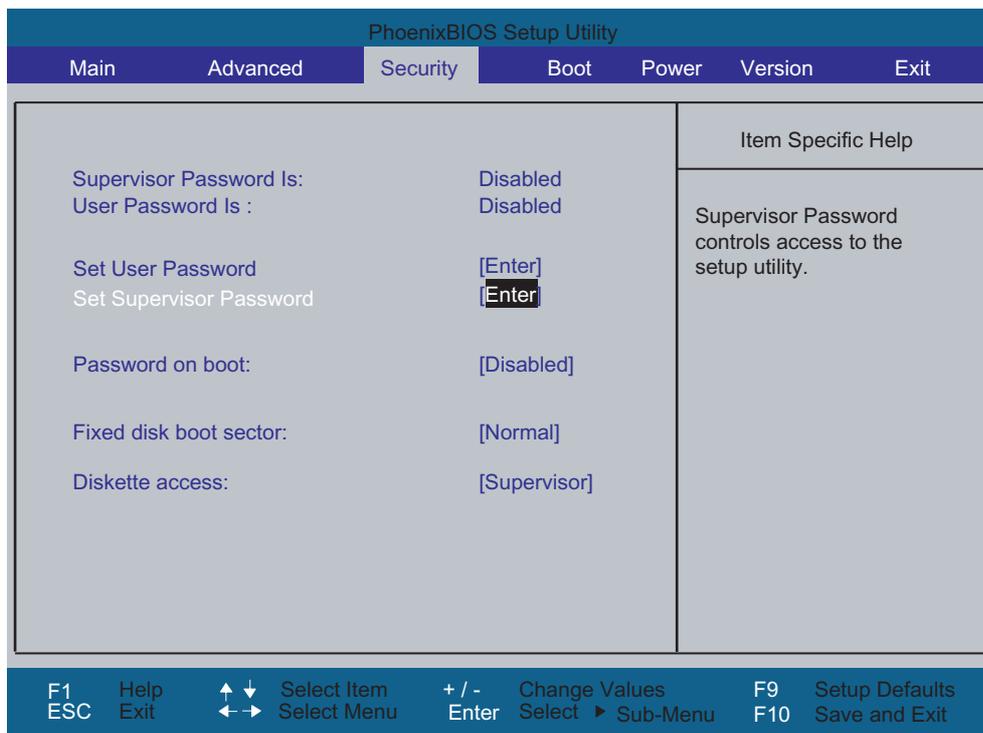


Figure 14-11 Security menu

User Password is	[Disabled]	The password is disabled.
	[Enabled]	Certain Setup fields are thus configurable by the user, including the user password.
Set User Password	This field opens the dialog box for entering a password. Once it has been entered correctly, the user password can be changed or deleted by pressing "Return" and thus deactivated.	
Set Supervisor Password	This field opens the dialog box for entering a password. Once it has been entered, the supervisor password can be changed or deleted by pressing "Return" and thus deactivated.	
Password on boot	[Disabled]	No password required for system boot.
	[Enabled]	Supervisor or user password must be entered for system boot.
Fixed disk boot sector	[Normal]	All types of hard-disk access are permitted.
	[Write protect]	the user can not install an operating system. This is a way of protecting against boot viruses.

Floppy disk drive access	This mode of protection is not enabled unless "Password on boot " is [enabled].	
	[Supervisor]	Diskette access is not possible unless the supervisor password was entered during system boot.
	[User]	Diskette access is not possible unless the user password was entered during system boot. Attention: This function cannot be used under Windows NT/2000, since this operating system does not access the diskette via BIOS routines. Please use the Windows NT/2000/XP system programs for this purpose.

14.4.7 Power menu

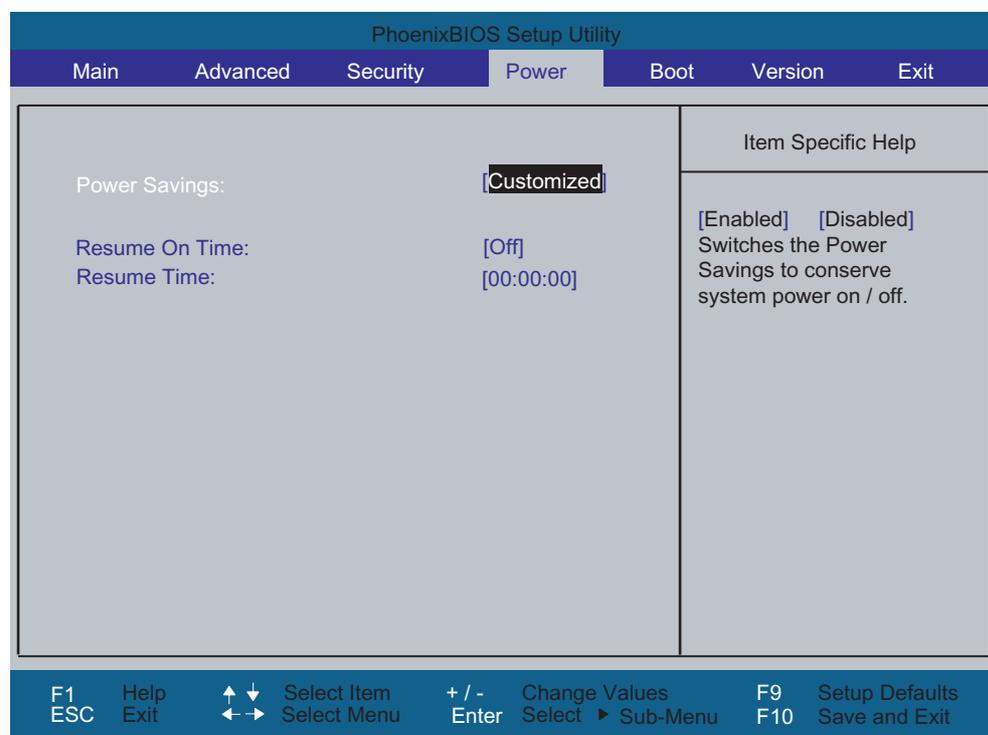


Figure 14-12 Power menu

The power management of the Field PG is controlled by the operating system via ACPI (Advanced Configuration and Power Management Interface). The BIOS power management functions can only be used with NONE-ACPI operating systems.

Power Savings	[Disabled]	Power management is controlled only via ACPI.
	[Enabled]	The power saving functions are set.
Resume On Time	[On]	This function can be used to switch on the device automatically at a time specified at the bottom.
	[Off]	When Off is set, this function is disabled.
Resume Time	Time for automatic restart	

14.4.8 Boot menu

This menu allows you to assign a priority for the boot devices.

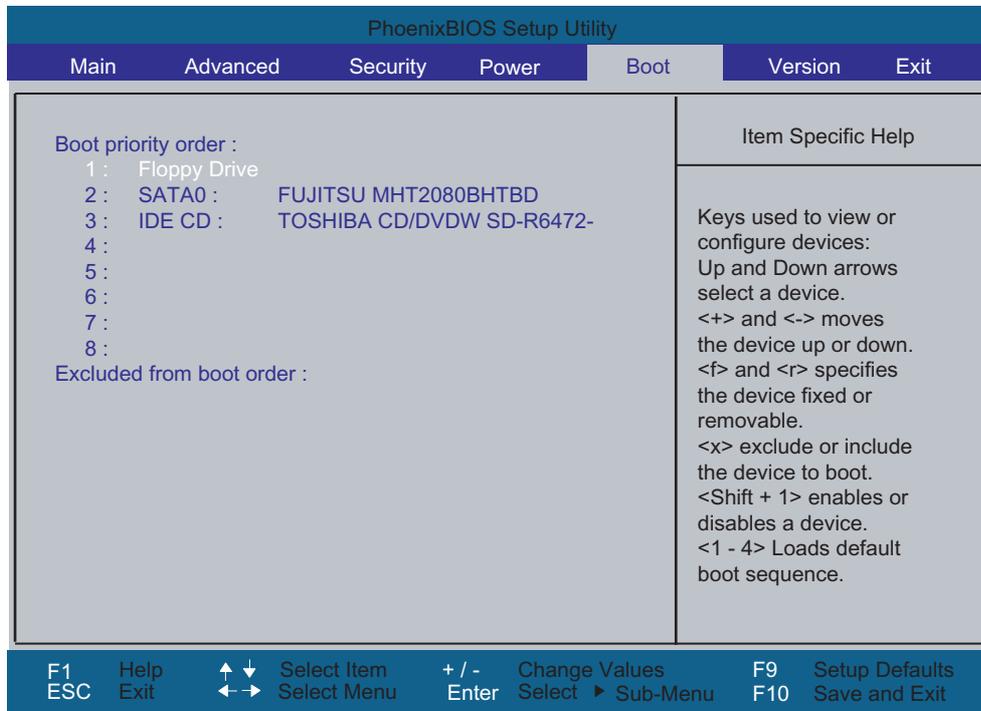


Figure 14-13 Boot Menu

This screen shows all possible boot devices. The boot source with the highest boot priority is at the top. To change the sequence:

Select the boot source with the ↑ ↓ keys, move to the desired position with + or -.

Note

During startup the boot drive can be selected using the ESC key.

If a boot device is not available, the next device in the sequence is automatically checked to ascertain whether or not it is bootable.

14.4.9 Version menu

This menu contains the information you will have to quote when you send us technical questions about your system.



Figure 14-14 Version menu

14.4.10 Exit menu

The setup program is always closed from this menu.

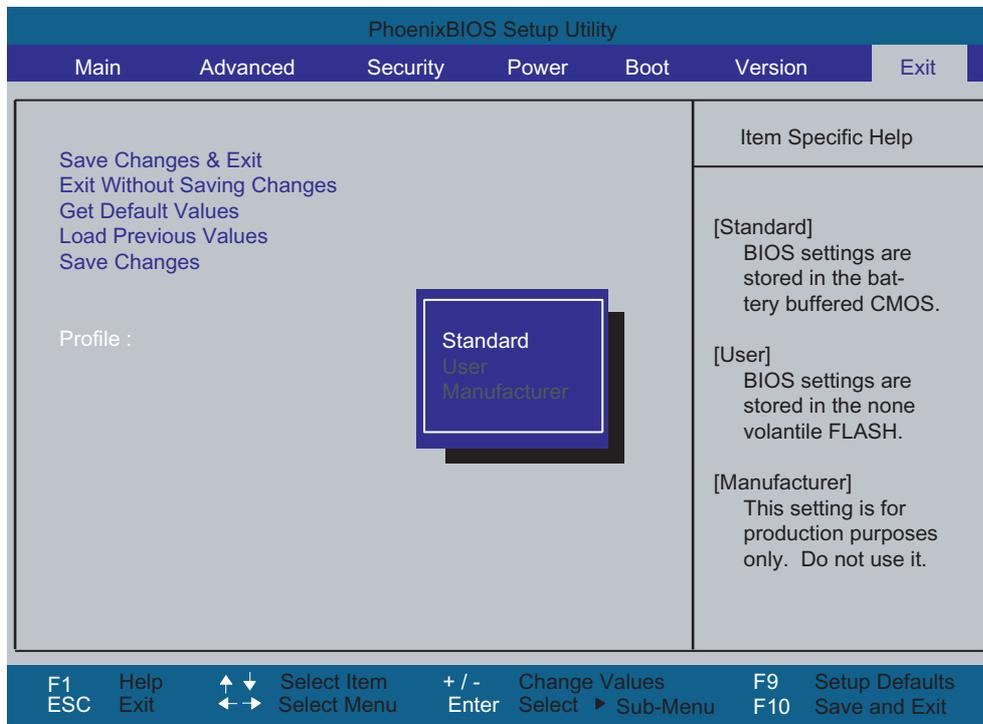


Figure 14-15 Exit menu

Save Changes & Exit	All changes are saved; a system restart is carried out with the new parameters.	
Exit Without Saving Changes	All changes are discarded and the system performs a restart based on the old parameters.	
Get Default Values	All parameters are set to safe values.	
Load Previous Values	The last saved values are reloaded.	
Save Changes	Save all Setup settings.	
Profile	Standard	The BIOS settings are saved in the battery-backed CMOS
	User	The BIOS settings are saved
	Manufacturer	This setting is only used for production purposes. Do not use.

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 "89/336/EEC Electromagnetic Compatibility", and the following fields of application apply according to this CE label:

Area of Application	Requirement for	
	Emitted Interference	Noise immunity
Domestic housing area, business and trade areas and small businesses.	EN 61000-6-3: 2001	EN 61000-6-1: 2001
Industry	EN 61000-6-4: 2001	EN 61000-6-2: 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

This product meets the requirements of EG guidelines 73/23/EEC "Low-Voltage Directive". Conformance with this standard has been verified according to EN 60950.

RTTE Directive

This product meets the requirements of the EC directive "Radio plant and telecommunication terminal equipment".

Radio spectrum Matters: EN 300 328-2 V1.2.1 / EN 301 893 V1.2.3

Safety: see Low-voltage Directive

EMC: see EMC Directive

Modem interface network capability: TBR21

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 have to be noted 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.

Certifications for the United States, Canada, and Australia

Security

One of the following markings on a device is indicative of the corresponding approval:	
The UL logo consists of the letters 'UL' inside a circle. To the left of the circle is the letter 'C' and to the right is the letter 'US'.	Underwriters Laboratories (UL) acc. to Standard UL 60950-1 and Canadian Standard C22.2 No. 60950-1-3

WLAN

Caution

The integrated Wireless LAN (2.4 GHz frequency) and modem is approved for use in Europe.

In the 5 GHz frequency band the Wireless LAN is approved for use in Germany, France, Italy, Spain, UK and Austria.

Please make sure to observe the relevant country-specific directives when operating the system outside these countries.

A.3 Service and support

Additional 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 at:

<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 D 90327 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

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 paper documentation, we offer our complete knowledge base on the Internet at:

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

There, you will find the following information:

- 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.

A.4 Accessories

You can order accessories for the Field PG M through the following order numbers:

Order no.	Accessories
6ES7798-0CA00-0XA0	S5 EPROM Adapter
6ES7648-2AG30-0GA0	Memory module 512 MB DDR2 RAM
6ES7648-2AG40-0GA0	Memory module 1 GB DDR2 RAM
6ES5734-2BF00	S5 AG cable 5m
6ES7901-0BF00-0AA0	MPI cable
6ES7791-2BA00-0AA0	Hard disk kit (hard disk module, screwdriver, protective case)
6ES7790-1AA00-0AA0	USB to SATA adapter (for connecting the hard disk kit by means of USB interface)

ESD Guidelines

What does ESD mean?

All electronic modules are equipped with highly integrated modules or components. Based on their design, these electronic components are highly sensitive to overvoltage and thus to discharge of static electricity.

The electrostatic sensitive components/modules are commonly referred to as ESD devices. You can also find the commonly used international designation ESD for electrostatic sensitive device.

Electrostatic sensitive modules are identified by the following symbol:



Caution

Electrostatic sensitive devices may be destroyed by voltages and energies that are undetectable to a human. Voltages of this kind occur as soon as a component or an assembly is touched by a person who is not grounded against static electricity. The damage to a module as a result of overvoltage cannot usually be detected immediately. It may only become apparent after a long period of operation.

Electrical charge

Anyone who is not connected to the electrical potential of their surroundings can be electrostatically charged.

The figure below shows the maximum electrostatic voltages that can accumulate in a person who is operating equipment when he/she comes into contact with the materials indicated. These values correspond with specifications to IEC 801-2.

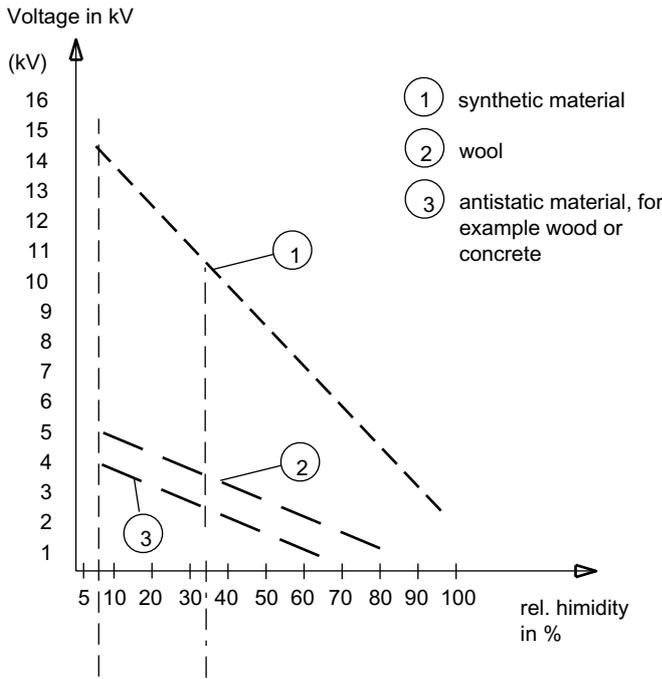


Figure B-1 Electrostatic voltages on an operator

Basic protective measures against discharge of static electricity

- Ensure good equipotential bonding:
When handling electrostatic sensitive devices, ensure that your body, the workplace and packaging are grounded. This helps you avoid static charge.
- As a general rule, only touch electrostatic sensitive devices when this is unavoidable (e.g. during maintenance work). When you touch modules, make sure that you do not touch either the pins on the modules or the printed conductors. This prevents any discharge of static electricity to sensitive component and thus avoids damage.

Discharge electrostatic energy from your body before you perform measurements on a module. To do so, touch a grounded metallic object. Always use grounded measuring instruments.

Abbreviations



Abbreviation	Term	Meaning
AC	Alternating current	Alternating current
ACPI	Advanced Configuration and Power Interface	
PLC	Automation device	
AGP	Accelerated Graphics Port	High speed bus system
APIC	Advanced Programmable Interrupt Controller	Extended programmable interrupt controller
APM	Advanced Power Management	Tool for monitoring and reducing power consumption of the PC
PLC	Automation system	
AT	Advanced Technology	
ATA	Advanced Technology Attachment	
ATX	AT-Bus-Extended	
AWG	American Wire Gauge	US standard for the cable diameter
BIOS	Basic Input Output System	Basic Input Output System
CAN	Controller Area Network	
CD-ROM	Compact Disc – Read Only Memory	Removable storage medium for large data volumes
CD-RW	Compact Disc – Rewritable	Rewritable CD
CE	Communauté Européenne	CE label
CF	Compact Flash	
CGA	Color Graphics Adapter	Standard monitor interface
CLK	Clock pulse	Clock signal for controllers
CMOS	Complementary Metal Oxide Semiconductors	Complementary metal oxide semiconductors
COA	Certificate of Authentication	Microsoft Windows Product Key
CoL	Certificate of License	License authorization
COM	Communications Port	Term for the serial interface
CP	Communication Processor	Communication computer
CPU	Central Processing Unit	CPU
CSA	Canadian Standards Association	Canadian standardization organization
CTS	Clear To Send	Clear to send
DRAM	Dynamic Random Access Memory	
DC	Direct Current	DC current
DCD	Data Carrier Detect	Data carrier signal detection

Abbreviations

A.4 Accessories

Abbreviation	Term	Meaning
DMA	Direct Memory Access	Direct memory access
DOS	Disc Operating System	Operating system without GUI
DP	Decentralized peripherals	
DQS	Deutsche Gesellschaft zur Zertifizierung von Qualitätsmanagement mBH	
DDRAM	Double Data Random Access Memory	Memory chip with high-speed interface
DSR	Data Set Ready	Ready for operation
DTR	Data Terminal Ready	Data terminal is ready
DVD	Digital Versatile Disc	Digital versatile disk
DVI	Digital Visual Interface	Digital display interface
ECC	Error Correction Code	Error correction code
ECP	Extended capability port	Extended parallel port
EGA	Enhanced Graphics Adapter	PC to monitor interface
ESD	Components sensitive to electrostatic charge	
DM	Electronic Manual	
EIDE	Enhanced Integrated Drive Electronics	An enhancement of the IDE standard
EISA	Extended Industry Standard Architecture	Extended ISA standard
EMM	Expanded Memory Manager	Manages memory expansions
EM64T	Extended Memory 64 technology	
EN	European standard	
EPROM / EEPROM	Erasable Programmable Read-Only Memory / Electrically Erasable Programmable Read-Only Memory	Plug-in submodules with EPROM/EEPROM chips
EPP	Enhanced Parallel Port	Bi-directional Centronics interface
ESC	Escape Character	Control character
EWf	Enhanced Write Filter	
FAQ	Frequently Asked Questions	FAQs
FAT 32	File Allocation Table 32-bit	32-bit file allocation table
FD	Floppy disk	Disk drive, 3.5"
FSB	Front Side Bus	
GND	Ground	Chassis ground
HD	Hard disk	Hard disk drive
HDA	High Definition Audio	
HU	Height unit	
HMI	Human Machine Interface	User interface
HT	Hyper-Threading	
HTML	Hyper Text Markup Language	Script language for creating Internet pages.
HTTP	Hypertext Transfer Protocol	Protocol for data transfer on the Internet
Hardware	Hardware	
I/O	Input/Output	Data input/output on computers
IDE	Integrated Device Electronics	
IEC	International Electrotechnical Commission	

Abbreviation	Term	Meaning
IP	Ingress Protection	Degree of protection
IR	Infrared	Infrared
IRDA	Infrared Data Association	Standard for data transfer via IR module
IRQ	Interrupt Request	Interrupt request
ISA	Industry Standard Architecture	Bus for expansion modules
IT	Information Technology	Information technology
LAN	Local Area Network	Computer network that is limited to a local area.
LCD	Liquid Crystal Display	Liquid crystal display
LEDs	Light Emitting Diode	Light emitting diode
LPT	Line Printer	Printer port
LVDS	Low Voltage Differential Signaling	
LW	Disk drive	
MAC	Media access control	Media access control
MC	Memory Card	Memory card in credit card format
MLFB	Machine-readable product designation	
MMC	Micro Memory Card	Memory card with the format 32 x 24.5 mm
MPI	Multipoint-capable interface for programming devices	
MS-DOS	Microsoft Disc Operating System	
MTBF	Mean Time Between Failures	
MUI	Multilanguage User Interface	Language localization in Windows
NA	Not Applicable	
NAMUR	Normenarbeitsgemeinschaft für Mess- und Regelungstechnik in der chemischen Industrie	
NC	Not Connected	Not connected
NCQ	Native Command Queuing	Automatic re-sorting of the file and disk access, for increased performance
NEMA	National Electrical Manufacturers Association	Syndicate of manufacturers of electrical components in the USA
NMI	Non Maskable Interrupt	Interrupt the processor can not reject
NTFS	New Techniques File System	Secure file system for certain versions of Windows (NT, 2000, XP)
OPC	OLE for Process Control	Standardized interface for industrial processes
PATA	Parallel ATA	
PC	Personal computer	
PCI	Peripheral Component Interconnect	High-speed expansion bus
PCMCIA	Personal Computer Memory Card International Association	
PE	Protective Earth	PE conductor
PG	Programming device	
PIC	Programmable Interrupt Controller	Programmable interrupt controller
POST	Power On Self Test	

Abbreviations

A.4 Accessories

Abbreviation	Term	Meaning
PXE	Preboot Execution Environment	Software for running new PCs without hard disk data via the network
RAID	Redundant Array of Independent Disks	Redundant hard disk array
RAM	Random Access Memory	
RI	Ring Input	Incoming call
ROM	Read-Only Memory	
RS 485	Reconciliation Sublayer 485	Bi-directional bus system designed for up to 32 nodes
RTC	Real Time Clock	Real-time clock
RTS	Reliable Transfer Service	Request to send
RxD	Receive Data	Data transfer signal
SATA	Serial ATA	
SCSI	Small Computer System Interface	
SDRAM	Synchronous DRAM	
SELV	Safety Extra Low Voltage	Safety extra-low voltage
SMART	Self Monitoring Analysis and Reporting Technology	Hard disk error diagnostics program
SMS	Short Message Service	Short message via telecommunication network
SNMP	Simple Network Management Protocol	Network protocol
SO-DIMM	Small Outline Dual Inline Memory Module	
SOM	SafeCard on Motherboard (SOM)	
SPP	Standard Parallel Port	Synonym for parallel port
SVGA	Super Video Graphics Array	Enhanced VGA standard with at least 256 colors
SVP	Serial number of the device	
SW	Software	
TCO	Total Cost of Ownership	
TFT	Thin-Film-Transistor	Type of LCD flat-screen
TTY	Tele Type	Asynchronous data transfer
TxD	Transmit Data	Data transfer signal
TWD	Watchdog Time	Watchdog monitoring time
UL	Underwriters Laboratories Inc.	
UMA	Unified Memory Architecture	
URL	Uniform Resource Locator	Designation of the full address of an Internet page
USB	Universal Serial Bus	
UXGA	Ultra Extended Graphics Array	Graphic standard, maximum resolution 1.600 x 1.200 pixels
V.24		ITU-T standardized recommendation for data transfer via serial ports
VDE	Verein deutscher Elektrotechniker	
VGA	Video Graphics Array	Video adapter which meets industrial standard
VRM	Voltage Regulator Module	
W2k	Windows 2000	
WAV	Wave Length Encoding	Loss-free file format for audio data

Abbreviation	Term	Meaning
WD	Watchdog	Program monitoring with error detection and alarming.
WLAN	Wireless LAN	Wireless local area network
WWW	World Wide Web	
XGA	Extended Graphics Array	Graphic standard, maximum resolution 1.024 x 768 pixels

Glossary

Application

An application is a program that runs directly on the MS-DOS / Windows operating system. Applications on your PG or PC, for example, are STEP 7, STEP 7-Micro/WIN.

ATAPI CD-ROM Drive

AT-Bus Attachment Packet Interface (connected to AT bus) CD-ROM drive

Automation device (AG)

The programmable logical controllers (PLC) of the SIMATIC S5 systems consist of a central controller, one or more CPUs, and various other modules (e.g. I/O modules).

Automation system (AS)

The programmable logical controllers (PLC) of the SIMATIC S7 system consist of a central controller, one or more CPUs, and various I/O modules.

Backup

Duplicate of a program, data carrier or database, used either for archiving purposes or for the protection of vital and non-replaceable data against loss when the working copy is corrupted. Some applications automatically generate backup copies of data files, and manage both the current and the previous versions on the hard disk.

Baud

Physical unit for the step speed in signal transmission. Defines the number of transferred signal states per second. With only two states, one baud is equivalent to a transmission rate of 1 bps.

BEEP code

If the BIOS detects a boot error, it outputs an audible warning based on the current test result

Boot diskette

A diskette that contains a boot sector and an initial loader for the operating system. This can be used to load the operating system from the disk.

Booting

Start or restart of the computer. During booting the operating system is transferred from the system data carrier to the work memory.

Cache

High-speed access buffer for interim storage (buffering) of requested data.

CE marking

Communauté Européene (EC label of goods)

Chip set

Located on the motherboard, connects the processor with the RAM, graphic card, PCI bus and external interfaces.

Cold start

A start sequence, starting when the computer is switched on. The system usually performs some basic hardware checks within the cold start sequence, and then loads the operating system from the hard disk to work memory -> boot

COM interface

The COM interface is a serial V.24 interface. The interface is suitable for asynchronous data transfer.

Configuration files

These are files containing data which define the configuration after restart. Examples of such files are CONFIG.SYS, AUTOEXEC.BAT and the registry .

Configuration software

The configuration software updates the device configuration when new modules are installed . This is done either by copying the configuration files supplied with the module or by manual configuration using the configuration utility.

Controller

Integrated hardware and software controllers that control the functions of certain internal or peripheral devices (for example, the keyboard controller).

Device configuration

The configuration of a PC or programming device contains information on hardware and device options, such as memory configuration, drive types, monitor, network address, etc. The data are stored in a configuration file and enable the operating system to load the correct device drivers and configure the correct device parameters. . If changes are made to the hardware configuration, the user can change entries in the configuration file using the SETUP program. .

Disc-at-once

With this burning technique, data are written to a CD in a single session, and the CD is then closed. Further write access is then no longer possible.

Drivers

Program parts of the operating system. They adapt user program data to the specific formats required by I/O devices such as hard disk, printers, and monitors.

Drop-down menu

In programs supported by GUI, a menu bar is found on the top margin of the screen. The menu titles contained in this line can be set either as drop-down or pull-down menus. Drop-down menus "roll" down as soon as the mouse pointer passes over a menu title. Pull-down menus only "roll" down when the menu title is clicked on. From the menus you can then call functions by moving the cursor with the mouse and clicking a menu item.

EMC directive

Directive concerning **E**lectromagnetic **C**ompatibility.

Energy management

The energy management functions of a modern PC allow individual control over the current consumption of vital computer components (e.g. of the monitor, hard disk and CPU), by restricting their activity based on the current system or component load. Energy management is of particular importance for mobile PCs.

Energy options

The energy options can be used to reduce energy consumption of the computer, while keeping it ready for immediate use. This can be configured in Windows by selecting Settings > Control Panel > Energy options.

ESD directives

Directive for using electrostatic sensitive components.

Ethernet

Local network (bus structure) for text and data communication with a transfer rate of 10/100 Mbps.

Formatting

Basic partitioning of memory space on a magnetic data carrier into tracks and segments. Formatting deletes all data on a data carrier. All data carriers must be formatted prior to their first use.

Gender changer

Using the gender changer (25-pin / 25-pin), the COM1/V24/AG interface of the SIMATIC PC family can be converted to the usual 25-pin male connector.

Hard disks

Hard disks represent a form of magnetic disk storage medium (Winchester drives, hard disks) with integrated magnetic disks.

Hot swapping

The SATA interface provides the hard disk system in the IPC with hot swap capability. The prerequisite for this is a RAID1 system, comprising a SATA RAID controller (onboard or as a slot board, and at least two SATA swap frames. The advantage of hot swapping is that defective hard disks can be replaced without the need for rebooting.

Hub

A term in network technology. In a network, a device joining communication lines at a central location, providing a common connection to all devices on the network.

Hyper Threading

HT technology enables the parallel processing of tasks. HT is only effective when all relevant system components, such as processors, operating systems and applications are supported.

Image

This refers to the image, for example, of hard disk partitions saved to a file in order to restore them when necessary.

Intel chip set 915 GM

The chip set organizes the data traffic between the main processor, working memory, cache, slots and other interfaces.

Functions of the 915 GM: Front side bus with 533 MHz, Intel® graphical media accelerator 900, support for up to 2 GB dual-channel DDR2 memories, Intel® High definition audio, Intel® display power-saving technology 2 (Intel® DPST 2)

Interface

see Interface

Interface, multi-point

MPI is the programming interface of SIMATIC S7/M7. Allows central access to programmable modules, text-based displays and OPs. The MPI nodes can intercommunicate.

LAN

Local Area Network: LAN is a local network that consists of a group of computers and other devices that are distributed across a relatively restricted range and are linked with communication cables. The devices connected to a LAN are called nodes. The purpose of networks is the mutual use of files, printers or other resources.

Legacy USB support

Support of USB devices (e.g. mouse, keyboard) on the USB ports without driver.

License key

The license key represents the electronic license stamp of a license. Siemens provides the license keys for protected software.

License key diskette

The license key diskette contains the authorizations or license keys required to enable protected SIMATIC software.

LPT interface

The LPT interface (Centronics interface) is a parallel interface that can be used to connect a printer.

Memory card

Memory cards in credit card format. Memory for user programs and parameters, for example, for programmable modules and CPs.

Module

Modules are plug-in units for PLCs, programming device or PCs. They are available as local modules, expansion modules, interfaces or mass storage (Mass storage module).

Motherboard

The motherboard is the core of the computer. Here, data are processed and stored, and interfaces and device I/Os are controlled and managed.

Operating system

Summarizing term describing all functions for program execution, allocation of system resources to the various user programs, and for controlling and monitoring consistency of the operating mode in cooperation with the hardware (e.g. Windows XP Professional).

Packet writing

The CD-RW is used as a diskette medium. The CD can then be read only by packet-writing compatible software or has to be finalized. Finalization of a CD closes the CD within an ISO9660 shell. You can still write to the CD-RW several times in spite of finalization. Not all CD drives can read packet-written CDs. There are restrictions to using this method in general data transfer.

PATA

An interface for hard disk drives and optical drives with parallel data transfer of up to 100 Mbps.

PC card

Trademark of the Personal Computer Memory Card International Association (PCMCIA). Designation for auxiliary cards that conform with PCMCIA specifications. A PC card that has roughly the size of a credit card can be plugged into a PCMCIA slot. Version 1 specifies cards of Type I with a thickness of 3.3 millimeters, which is conceived mainly for use as external memory. Version 2 of the PCMCIA specification also defines a card Type II with a thickness of 5 mm and a card of the Type III with a thickness of 10.5 mm. Type II cards can realize devices such as modems, fax and network interface cards. Type III cards are equipped with devices that require more space, for example wireless communication modules or rotary storage media (hard disks, for example).

PC/104 / PC/104-Plus

Two bus architectures are especially fashionable today in the industrial world. PC/104 and PC/104-*Plus*. Both are standard in single-board computers of the PC class. The electrical and logical layout of the two bus systems is identical with ISA (PC/104) and PCI (PC/104-*Plus*). Software cannot usually detect a difference between them and normal desktop bus systems. Their advantage is the compact design and the resulting space they save.

PCMCIA

Association consisting of approx. 450 member companies of the computer industry. Their focus is set on providing worldwide standards for miniaturization and flexible use of PC expansion cards, and thus to provide a basic technology to the market.

Pentium M

Intel processor type: The architecture of the processor is designed for mobile computing; the processor features superior performance characteristics for computer applications and enhanced power-saving functions

Pixel

PixElement (picture point). The pixel represents the smallest element that can be reproduced on-screen or on a printer.

POST

Self-test performed by the BIOS after the computer is switched on. Performs a RAM test and a graphic controller test, for example. The system outputs audible signals (beep codes) if the BIOS detects any errors; the relevant message indicating cause of error is output on the screen.

PROFIBUS/MPI

Process Field Bus (standard bus system for process applications)

PXE server

A **Preboot Execution Environment** server is part of a network environment and can provide software to connected computers even before they boot. This can involve operating system installations or servicing tools, for example.

RAID

Redundant Array of Independent Disks: Data storage system which is used to store data along with the error correction codes (e.g. parity bits) on at least two hard disks, in order to increase system reliability and performance. The hard disk array is controlled by management programs and a hard disk controller for error correction. The RAID system is usually implemented in network servers.

Recovery CD

Contains the tools for setting up the hard disks and the Windows operating system.

Remove module bracket

The module bracket is used to fasten modules and ensure safe contact and transport. Shocks and vibrations especially affect large, heavy modules. It is therefore recommended to use the module bracket for this type of module. There are also short, compact and light modules on the market. The module bracket was not designed for these modules because the standard fastening is sufficient for them.

Reset

Hardware reset: Reset/restart of the PC using a button/switch.

Restart

Warm start of a computer in operating state without switching off the power supply (Ctrl + Alt + Del)

Restore DVD

The Restore DVD is used to restore the system partition or the entire hard disk to factory state if the system has crashed. The bootable DVD contains all the necessary image files. You can also create a boot disk allowing restoration via the network.

ROM

Read-Only Memory ROM is read-only memory in which every memory location can be addressed individually. They contain factory set programs and data that are not lost in the event of a power failure.

SCSI interface

Small Computer System Interface Interface for connecting SCSI devices (e.g. hard disk or optical drives)

Session at once

In session at once, the CD can be written to both with an audio session and a data session. The two sessions are written to at once (as in disc at once).

SETUP (BIOS Setup)

A program in which information about the device configuration (that is, the configuration of the hardware on the PC/PG) is defined. The device configuration of the PC/PG is preset with defaults. Changes must therefore be entered in the SETUP if a memory extension, new modules or a new drive are added to the hardware configuration.

Track-at-once

In track-at-once recording, a CD can be written to in bits in several sessions if the CD was not closed.

Troubleshooting

Error cause, cause analysis, remedy

User Program

The User Program contains all instructions and declarations, as well as data for the signal processing, through which a system or process can be controlled. It is assigned to a programmable module (Module, programmable) (e.g. CPU, FM) and can be structured into smaller units (blocks).

V.24 interface

The V.24 interface is a standardized interface for data transmission. Printers, modems, and other hardware modules can be connected to a V.24 interface

Warm restart

The restart of a computer after a program was aborted. The operating system is loaded and restarted again. The hot key CTRL+ ALT+ DEL can be used to perform a warm start.

Windows

Microsoft Windows is a multitasking graphical user interface. Windows provides a standard graphical interface based on drop-down menus, windowed regions on the screen, and allows operation with a pointer device such as a mouse.

WLAN

Wireless LAN or wireless LAN is a local network that transmits data via radio waves, infrared light or another wireless technology. Wireless LAN is mainly used in connection with mobile computers in the office or in factory environments.

Work Memory

The work memory is a PAM memory, which the processor draws on while executing the user program.

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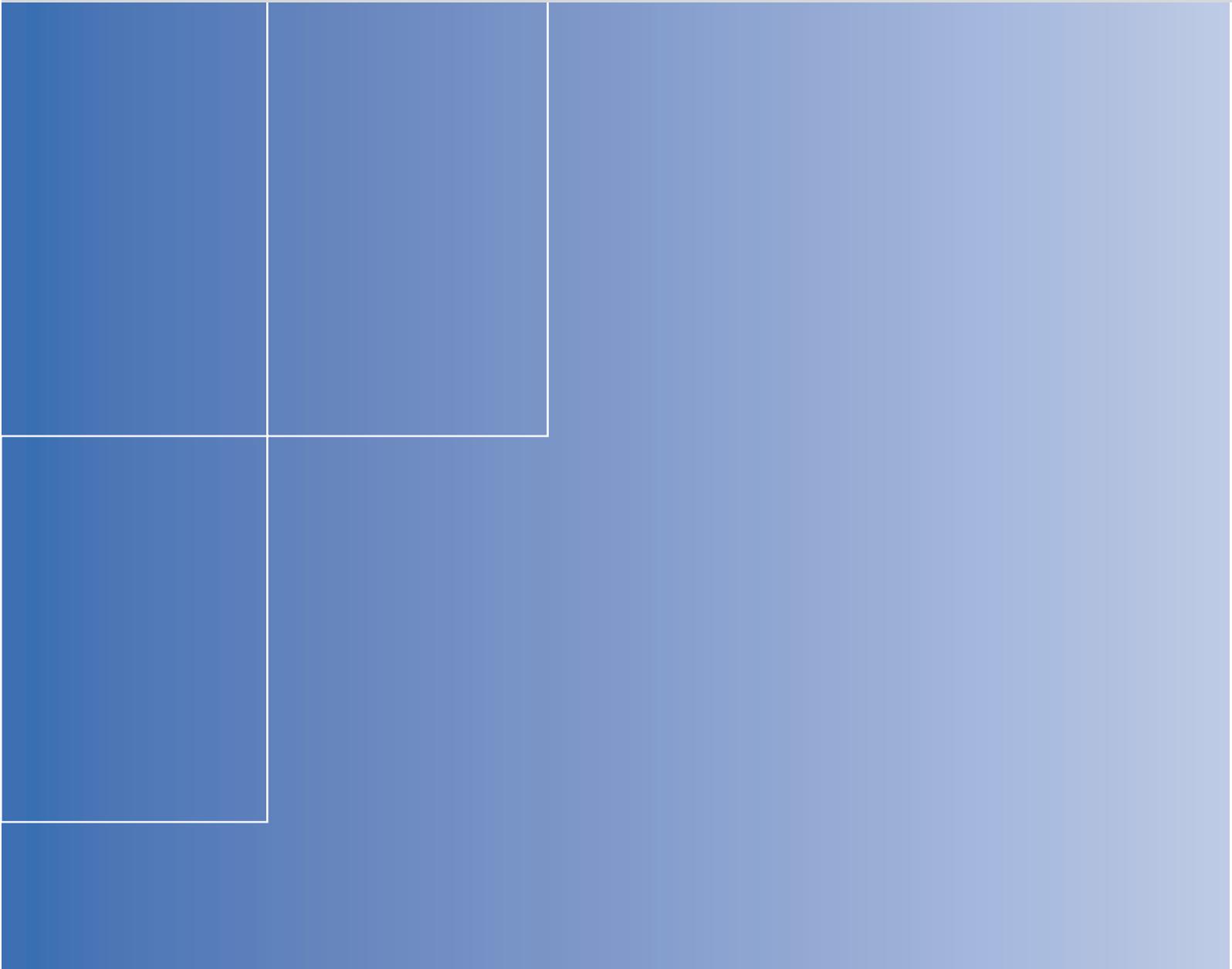
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