SIEMENS

SIMATIC

PC BI10/FI10/FI15

Product Information Bulletin C79000-Z7076-C772-02

This bulletin contains important information
on your PC BI10/FI10/FI15.

Safety Guidelines

This product information bulletin contains notices which you should observe to ensure your own personal safety, as well as to protect the product and connected equipment. These notices are highlighted in the manual by a warning triangle and are marked as follows according to the level of danger:

Warning

indicates that death, severe personal injury, or substantial property damage can result if proper precautions are not taken.

Caution

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

Note

draws your attention to particularly important information on the product, handling the product, or to a particular part of the documentation.

Correct Usage

Please observe the following:

Note

You can set up and operate your programming device in conjunction with the following instructions. You should only connect external devices and work with memory cards in conjunction with the Technical Description.

Only **qualified personnel** should be allowed to install and work on this equipment using the Technical Description. Qualified persons are defined as persons who are authorized to commission, to ground, and to tag equipment, systems, and circuits in accordance with established safety practices and standards.

Warning

This device may only be used for the applications described in the catalog or technical description, and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens.

This product can only function correctly and safely if it is transported, stored, and set up carefully and correctly, and operated and maintained as recommended.

Trademarks

SIMATIC®, SIMATIC NET® and SIMATIC HMI ® are registered trademarks of SIEMENS AG.

Disclaimer of Liability

We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual are reviewed regularly and any necessary corrections included in subsequent editions. Suggestions for improvement are welcomed.

Siemens AG
Bereich Automatisierungs- und Antriebstechnik
Geschaeftsgebiet Industrie-Automatisierungssysteme
Postfach 4848, D-Nuernberg

C79000-Z7076-C772

Safety Instructions

1

Chapter Overview

This chapter provides you with safety instructions which you must follow when operating your PC and its components.

This device conforms to the pertinent safety requirements according to IEC, VDE, EN, UL, and CSA. If you have questions about the admissibility of installation in the selected environment, please contact one of our service departments. You will find a list of addresses in Chapter 5.

1.1 General Notes

Transport

We recommend that you transport the device only in the original packaging (protection against shock and impact).

Installation

Condensation can occur if the device is transported from a cold environment to the operating area. The device must be dry prior to startup. You must therefore provide an acclimatization time of at least four hours.

During installation and prior to operation, please read the information on ambient conditions provided in the section entitled “Technical Specifications” as well as the information concerning installation of the device presented in Section 2.1 of this manual.

The device must be installed in such a way that it presents no danger of any kind (for instance if it is overturned).

Make sure that the ventilation slots are open so that a sufficient amount of air can be drawn in to cool the housing interior.

If the PC is to be permanently installed (in a rack, for example), the drive protection cover in front of the drives on the front side must be kept closed for safety reasons (fire protection according to UL 1950/EN 60950). The drive protection cover may be opened only to service the drives. Removal of the cover is not permitted.

Warning

When installing the systems, the permissible mounting positions must be observed (see Section 2.2.1).

Installation in an impermissible mounting position invalidates certification in accordance with UL 1950 and EN 6095.

Power Connection

Check to make sure that the rated voltage for the device is the same as the local mains voltage.

This device is equipped with a safety-tested power supply cable, and may be connected only to a socket outlet with earthing contact.

Make sure that the socket outlet on the device or the grounding contact for the building wiring systems is freely accessible and located as near to the device as possible.

The PCs have no power switch. To completely disconnect one of these PCs from the mains power, you must pull the plug. This connection must be easily accessible. For cabinet mounting, a central disconnector must be provided.

Lay the cables so that no one can step on or trip over them. When connecting the device, carefully observe the pertinent information given in Chapter 2.

Never connect or disconnect power cables or data transmission lines during a thunderstorm.

In an emergency situation (for instance damage to housing, operating elements or power cable, penetration of liquids or foreign bodies), pull the power plug and contact the authorized service department.

The PC must be switched off before connecting/disconnecting I/O devices (keyboard, mouse, printer, etc.). Failure to do so can result in damage to the PC.

Country-Specific Notes

For operation in Canada and the United States, use CSA or UL-listed power cables.

For the USA and Canada:
Both a UL approval and a CSA marking are required for the cable in the USA and Canada. The connector must comply with the NEMA 5-15 specification.

For 120 V devices
A flexible cable with UL approval and CSA marking and the following features must be used: SJT design with three conductors, at least 18 AWG cross-section, a maximum length of 4.5 meters and parallel grounding-type plug (15 A, at least 125 V).

For 240 V devices (used in Germany)
A flexible cable with UL approval and CSA marking and the following features must be used: SJT design with three conductors, at least 18 AWG cross-section, a maximum length of 4.5 meters and Tandem ground-type plug (15 A, at least 250 V).

For 230 V devices (outside the USA)
A flexible cable with the following features must be used: At least 18 AWG cross-section and grounding-type plug (15 A, 250 V). The cables must conform to the relevant safety guidelines of the country in which they are installed and bear the specified markings.

The device is intended for connection to grounded power supply systems (TN networks to VDE 0100 Part 300 or IEC 364-3).

No provision is made for connection to non-grounded or impedance-grounded power supply systems (IT networks).

The power cable should comply with the safety guidelines of the country concerned.

Repairs

Only authorized personnel are permitted to repair the device. Unauthorized opening and improper repairs on the device can result in significant danger to the user.

Always pull the power plug before opening the device.

Install only system expansion equipment intended for this computer. If you install other expansion equipment, you can damage the system or violate the safety requirements and regulations for radio interference suppression. Contact your technical customer service or dealer to find out which expansion devices may be safely installed.

Installation or exchange of system expansions which result in defects to your PC invalidate the warranty.

Only authorized service personnel may remove or replace the power supply unit.

Battery

The device is equipped with a battery, which is located on the mother board. Batteries may be replaced by service personnel only. Please refer to the documentation for the CPU module.

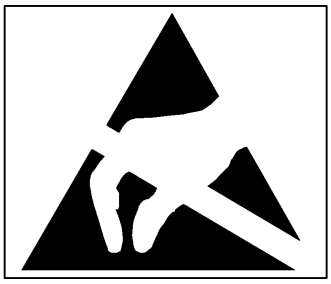
Dispose of used batteries in accordance with local regulations for special waste.

Caution

Improper replacement of the battery poses danger of explosion. The battery must be replaced only with an identical battery or a battery type recommended by the manufacturer. Dispose of used batteries in accordance with the manufacturer's recommendations.

ESD Guidelines

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



The following guidelines must always be observed and carefully followed when handling modules equipped with electrostatically sensitive devices:

- Always discharge your body before handling modules equipped with ESDs (for example by touching a grounded object).
- Devices and tools you use must be free of static electricity.
- Always pull the power plug before connecting or disconnecting modules containing ESDs.
- Touch modules fitted with ESDs by their edges only.
- Never touch wiring posts or printed conductors on modules containing ESDs.

1.2 Notes on the CE Symbol

CE

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

EC Directive

This product fulfills the requirements of EC directive 89/336/EEC on "Electromagnetic Compatibility," and is designed for the following fields of application as per the CE marking:

Field of Application	Requirement For	
	Emitted Interference	Noise Immunity
Residential, commercial and small businesses	EN 50081-1: 1992	EN 50082-1: 1992
Industrial	EN 50081-2: 1993	EN 50082-2: 1995

Low Voltage Directive

This product fulfills the requirements of EC directive 73/23/EEC on "Low Voltage Directive." Observance of this standard was tested to EN60950:A4:1997.

Declarations of Conformity

In accordance with the above-mentioned EU directives, the EC declarations of conformity and the associated documentation are held at the disposal of the competent authorities at the address below:

Siemens AG
Bereich Automatisierungs- und Antriebstechnik
A&D AS E 4
Postfach 1963
D–92209 Amberg

Products which do not carry the CE marking fulfill the requirements and standards as described in the chapter entitled "Technical Specifications."

Observing the Installation Guidelines

The installation guidelines and safety instructions discussed in the manual must be observed on startup and during operation.

1.3 Approvals for the USA and Canada

UL/CSA Approval

Important for the USA and Canada:

	One of the following markings on a device is indicative of the corresponding approval:
	Unterwriters Laboratories (UL) to the UL 1950 standard.
	Unterwriters Laboratories (UL) to Canadian standard C22.2 No. 950.
	UL Recognition Mark
	Canadian Standard Association (CSA) to standard C22.2 No. 950.
	Canadian Standard Association (CSA) to American standard UL 1950.

1.3.1 FCC Approval for USA and Canada

Federal Communications Commission
Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded Cables

Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

Modifications

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Conditions of Operations

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Notice

This equipment does not exceed the Class A limits for radiated emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

Avis Canadien

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Réglement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

1.4 Technical Specifications

Dimensions SIMATIC PC FI10	(W x H x D in mm) 330 x 290 x 120 front (305 x 265 cutout)				
Dimensions SIMATIC PC BI10	(W x H x D in mm) 295 x 235 x 100				
Dimensions SIMATIC PC FI15	(W x H x D in mm) 455 x 335 x 120 front (305 x 420 cutout)				
Weight of SIMATIC PC FI10	Approx. 7.5 kg				
Weight of SIMATIC PC BI10	Approx. 5 kg				
Weight of SIMATIC PC FI15	Approx. 8 kg				
Line voltage	120 - 240 VAC tolerance range (85 to 265 VAC)				
Line voltage frequency	50/60 Hz (47 to 63 Hz)				
Brief voltage interruption acc. to NAMUR	Max. 20 ms at full load				
Max. power consumption	< 120 W, rated current 1.4/0.8A at 120/240 V				
Max. current delivery (internal)	5V 8 A	12V 1.5A (2.5A max 10s)	3.3V 2.2A	-12V 0.2 A	5V isolated * 0.24A
Degree of protection for SIMATIC PC FI10	Front IP65, otherwise IP20				
Degree of protection for SIMATIC PC FI15	Front IP65 (with drive cover closed)				
Degree of protection for SIMATIC PC BI10	Front IP20				
Safety					
Protection class	Protection class I to VDE 0106 T1;1982 (IEC 536)				
Safety requirements	EN60950 corr. to IEC 950 A4: 1996 corr. to VDE 0805 A4:1997				
Electromagnetic Compatibility (EMC)					
Emitted interference	EN 55022 Class B				
Noise immunity: Line-fed interference on supply lines	+- 2 kV (to IEC 1000-4-4:1995; burst) +- 1 kV (to IEC 1000-4-5:1995; surge symm) +- 2 kV (to IEC 1000-4-5:1995; surge unsymm)				
Noise immunity on signal lines	+- 1 kV (to IEC 1000-4-4:1995; burst; length < 3m) +- 2 kV (to IEC 1000-4-4:1995; burst; length > 3m) +- 1 kV (to IEC 1000-4-4:1995; surge symm; length > 3m) +- 2 kV (to IEC 1000-4-4:1995; surge unsymm; length > 3m)				
Noise immunity to discharges of static electricity	+- 6 kV contact discharge (to IEC 1000-4-2:1995) +- 8 kV air discharge (to IEC 1000-4-2:1995)				
Noise immunity to high-frequency radiation	10 V/m 80-1000 Mhz, 80% AM (to ENV 50140:1993) 10 V/m 900 Mhz, 50% ED (to ENV 50204:1995)				
Ambient Conditions					
Temperature - operation - storage/transport - gradient	Tested to DIN EN 60068-2-2, DIN IEC 68-2-1, DIN IEC 68-2-14 + 5°C to +45°C - 20°C to +60°C Max. 10 degrees C/h (no condensation)				
Relative humidity - operation - storage/transport	Tested to DIN IEC 68-2-3, DIN IEC 68-2-30, DIN IEC 68-2-56 5 % to 85 % at 25°C (no condensation) 5 % to 95 % at 25°C (no condensation)				

Mechanical Specifications		
Vibration - operation - transport	Tested to DIN IEC 68-2-6 10 to 58 Hz: 0.075 mm, 58 to 500 Hz: 5 m/s^2 5 to 9 Hz: 3.5 mm, 9 to 500 Hz: 5 m/s^2	
Shock - operation - storage	Tested to DIN IEC 68-2-29 50 m/s^2, 30 ms, 100 shocks 250 m/s^2, 6 ms, 1000 shocks	
Mother Board		
Processor	Pentium	
Internal processor cache	8 Kbytes code + 8 Kbytes data	
Main memory	Max. 128 Mbytes	
Second level cache	None	
Free expansion slots	1 ISA 290 mm long ** + 1 shared ISA/PCI 290 mm long	
Max. admissible power consumption per ISA slot Max. admissible power consumption per PCI slot	5V 2A; 12V 0.3A; -12V 0.05A; 5V 2A; 12V 0.5A; -12V 0.1A; The sum of 5V 8A must not be exceeded	
Drives		
Floppy disk drive	3.5” (1.44 Mbytes)	
Hard disk drive	3.5” EIDE	
LC Display (SIMATIC PC FI15)		
	FI15 (VGA-TFT)	**FI15 (SVGA-TFT)**
Display size/display type	10.4”– VGA–TFT	10.4”–SVGA–TFT
Picture resolution/colors	640 x 480 (VGA)/256K	800 x 600 (SVGA)/256K
Contrast	100:1	60:1
Brightness	250 cd/m^2	150 cd/m^2
Response Time	30/50 ms	30/50 ms
Permitted fault locations	high/low level: < 12/25 spots green high level: < 5 spots	high/low level: < 12/25 spots green high level: < 5 spots
LC Display (SIMATIC PC FI10)		
	FI10 (VGA–DSTN)	**FI10 (VGA–TFT)**
Display size/display type	10.4”–VGA	10.4”– VGA–TFT
Picture resolution/colors	640 x 480 (VGA)/256	640 x 480 (VGA)/256K
Contrast	30:1	100:1
Brightness	80 cd/m^2	250 cd/m^2
Response Time	270 ms	30/50 ms
Permitted fault locations		high/low level: < 12/25 spots green high level: < 5 spots
Graphics		
Graphics chip	SVGA-LCD Cirrus GD7548 controller with Windows accelerator on the PCI bus.	
Graphics memory	1 Mbytes DRAM	
Resolutions/frequencies/ colors	With LCD: Max. 800 x 600/256 colors With CRT: Max. 1024 x 768/256 colors at 72 Hz	

Interfaces	
COM1	Serial port 1 (V.24/RS232C), 25-pin sub D socket connector NS 16550-compatible or 20mA TTY interface (active/passive to 1000m)
COM2	Serial port 2 (V.24/RS232C), 9-pin sub D socket connector NS 16550-compatible
LPT1	Parallel port (standard, EPP and ECP mode) Interface for printer with parallel port
VGA	VGA interface, for external monitor
Keyboard	PS/2 keyboard interface
Mouse	PS/2 mouse port
MPI/DP Interface, optically isolated *	9-pin sub D socket connector, screw-type locking
Data signalling rate	9.6 Kbaud to 1.5 Mbaud, software-selectable
Operating mode	Isolated*: Data lines A, B Control lines RTS_AS, RTS_PG 5V supply voltage (max. 90 mA) Ground connection: MPI/DP connector cable shield
Physical interface	RS485, optically isolated
PMCIA Interface	PCMCIA 2.1/JEIDA 4.1-compatible, bootable
Function Displays	
LEDs on FI10/FI15	POWER Floppy drive RUN (in conjunction with SafeCard) TEMP (in conjunction with SafeCard)
LEDs on BI10	Floppy drive

* Optically isolated within the safety extra–low voltage circuit (SELV)

** In the case of a direct key submodule, you can only install a short ISA module.

Starting Up your PC

2

Chapter Overview

In this chapter, you will learn:

- What to consider when installing your PC
- Which interface port to use for connecting standard I/Os and
- How to connect your PC to the mains voltage.

2.1 Unpacking and Checking the Delivered Components

Unpacking

Proceed as follows to unpack your PC:

1. Remove the packaging.
2. Do not throw the original packaging away. Keep it in case you have to transport your PC at some time in the future.
3. Please be sure to keep the enclosed documentation. It belongs to the device and you will need it to put your PC into operation (see Chapter 3).

Checking the Contents

Proceed as follows:

1. Check the contents of the consignment using the supplement for device configuration.
2. Check the packaging and the package contents for any visible damage.
3. Inform your dealer immediately if there is any damage or if there is a discrepancy between the packing list and the package contents.

Setting Up Your PC

Your SIMATIC PC is suitable for installation in consoles, switchgear cubicles, and control panels. For detailed information, see Sections 2.2.1, 2.2.2, and 2.2.3.

2.2 Installation

Please observe the following when installing your SIMATIC PC:

- Position the PC so as to avoid reflections on the screen as much as possible.
- Base your choice of mounting height on the position of your monitor, which should always be at an optimal height for the operator.
- Do not expose your PC to direct sunlight.
- Do not install the PC in such a way that the ventilation slots in the PC housing are covered.
- The cabinet or control panel in which you install the PC should always provide sufficient space for proper air circulation.

Warning

Avoid extreme environmental conditions whenever possible. Protect your SIMATIC PC from dust, moisture, and heat (refer to the section entitled “System Unit” in the “Technical Description”).

The clearance at the sides and rear of the system unit must be at least 100 mm in order for the unit to be sufficiently ventilated.

Do not cover the ventilating slots of the system unit.

When installing the system, remember to observe the permissible mounting positions (refer to Section 2.2.1).

Installation of a system in an inadmissible mounting position invalidates the UL 1950 and EN60950 approvals.

2.2.1 Installing the BI10

The SIMATIC BI10 PC is equipped with two mounting brackets, which are located on the sides of the unit. Six M3 bolts (three for each bracket) are needed to mount the unit.

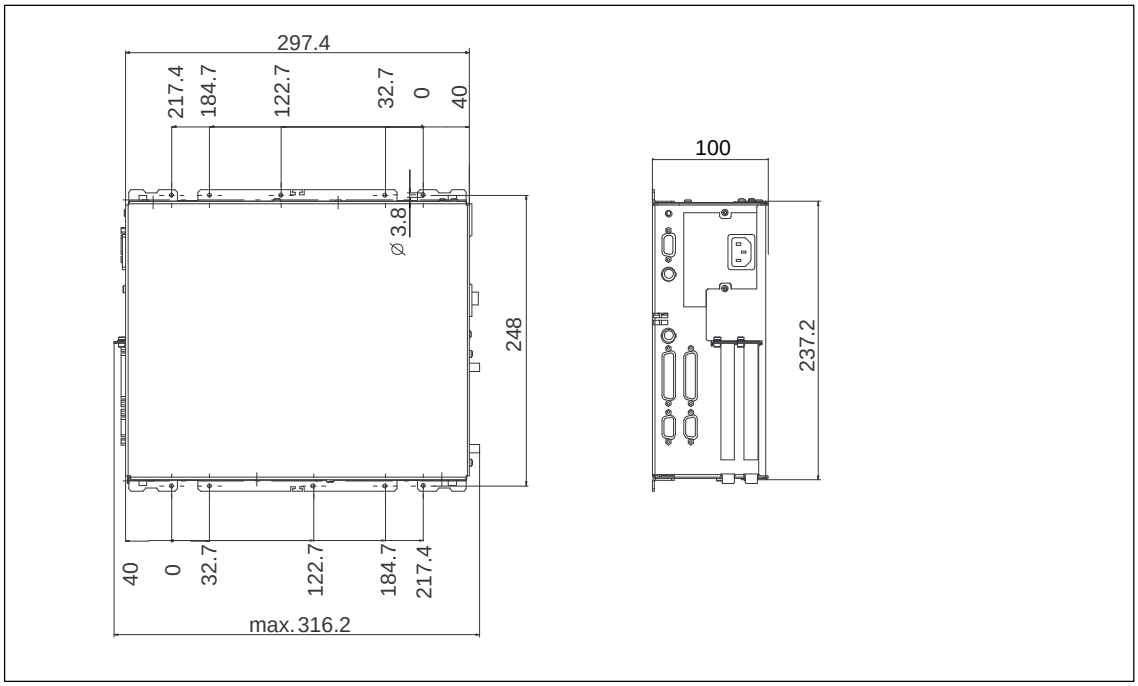


Figure 2-1 Installing the BI10

Note

The permissible mounting positions for the box also apply for the FI10 and FI15 systems, whose main component is also a box.

Permissible Mounting Positions

Figure 2-2 shows the permissible mounting positions for the SIMATIC BI10 PC.

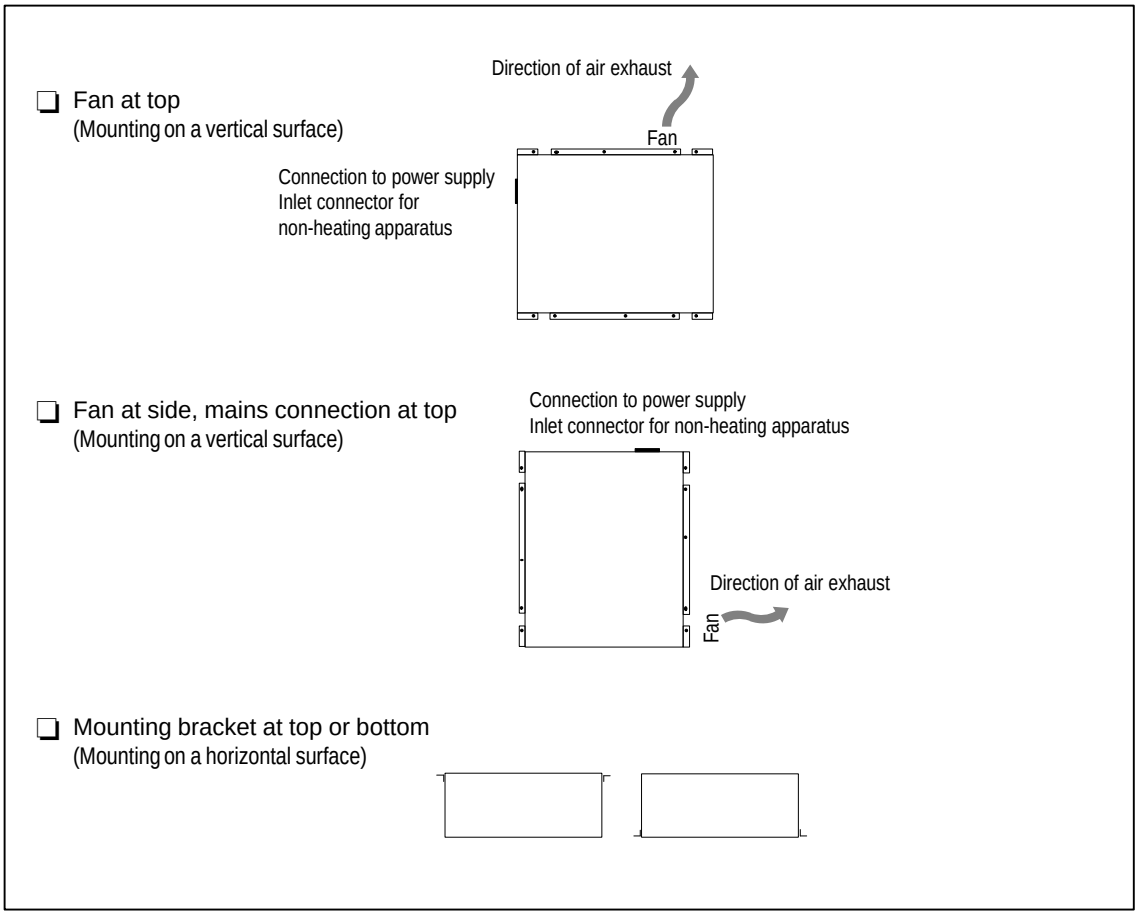


Figure 2-2 Permissible Mounting Positions for the SIMATIC BI10 PC

Inadmissible Mounting Positions

The mounting positions for the SIMATIC BI10 PC shown in Figure 2-3 are inadmissible.

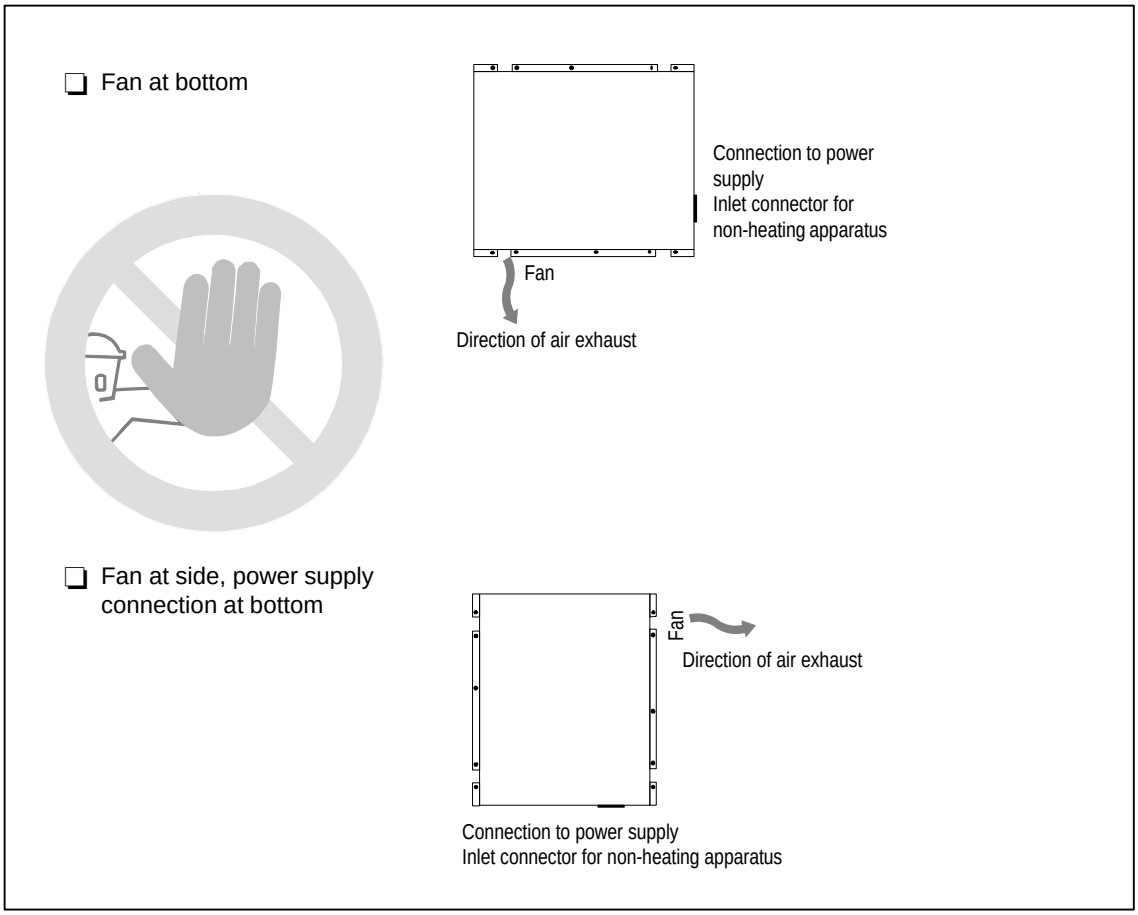


Figure 2-3 Inadmissible Mounting Positions for the SIMATIC BI10 PC

2.2.2 Installing the FI10

Panel Mounting

Proceed as follows:

- Place the device in the prepared panel cutout (see Figure 2-6) and protect it against falling out until it can be permanently secured.
- Make sure that the seal is properly attached.
- Clamp the device in the panel with the six screw spanners (threaded spindles) provided by hooking a screw spanner onto the front frame of the PC and turning the threaded spindle from the back toward the panel.

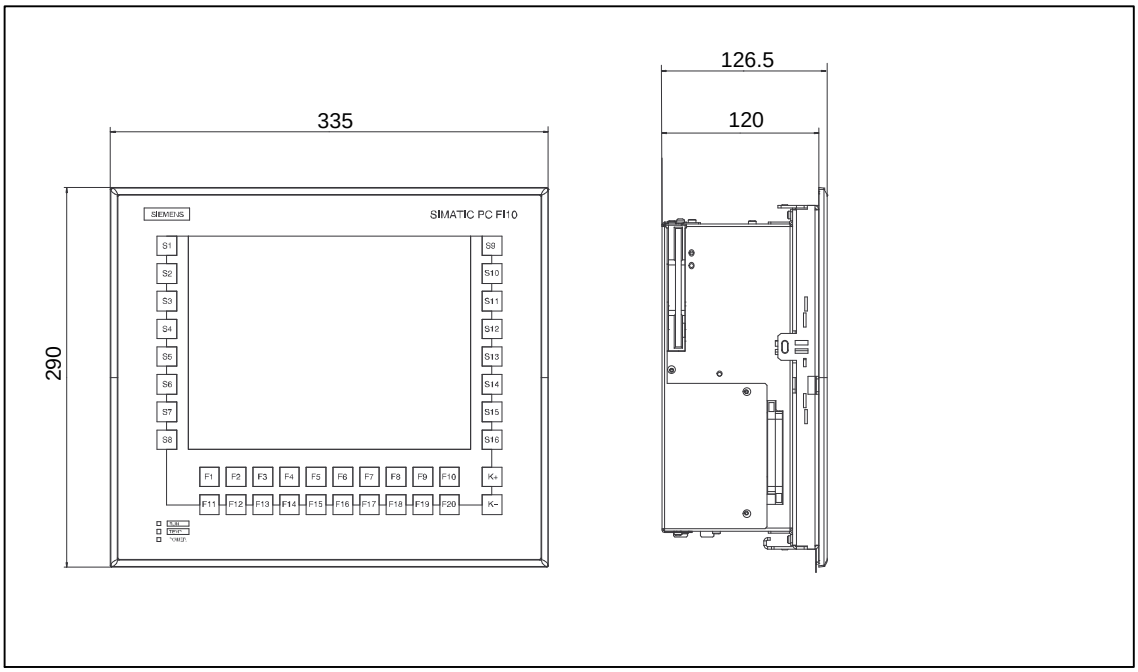


Figure 2-4 Installing the FI10

When tightening the threaded spindles, make sure that

- All six spindles are equally tight and
- The seal is not completely compressed. A gap of one millimeter should be left all the way round between the front of the control panel and the rear of the front panel of the FI10.

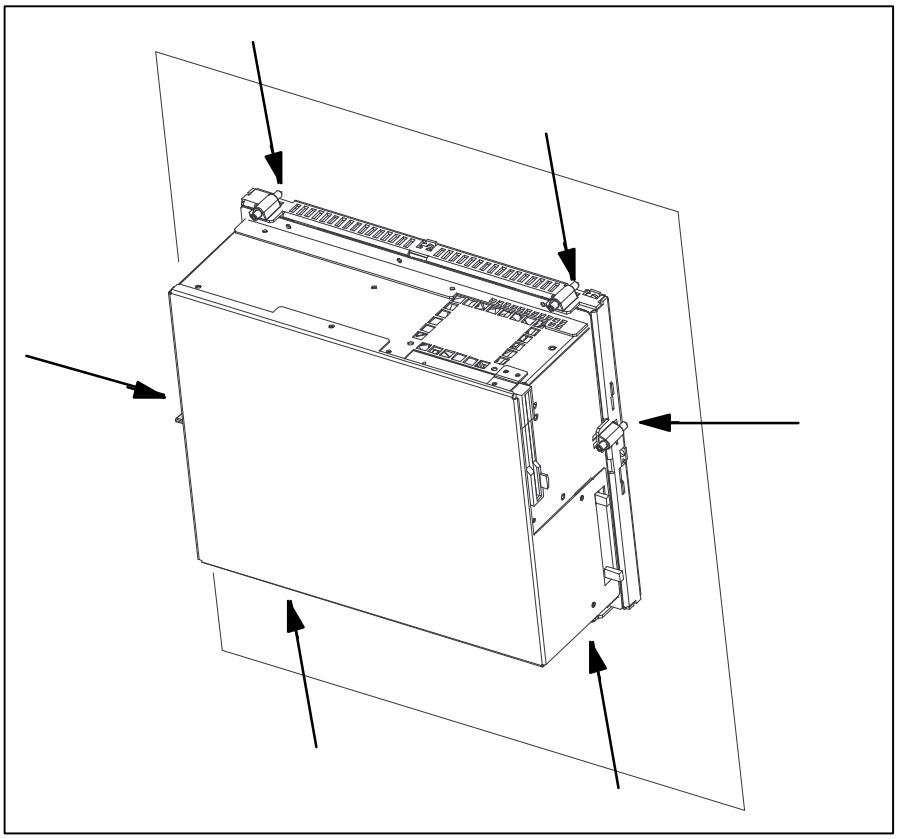


Figure 2-5 Rear of the FI10 Front Panel

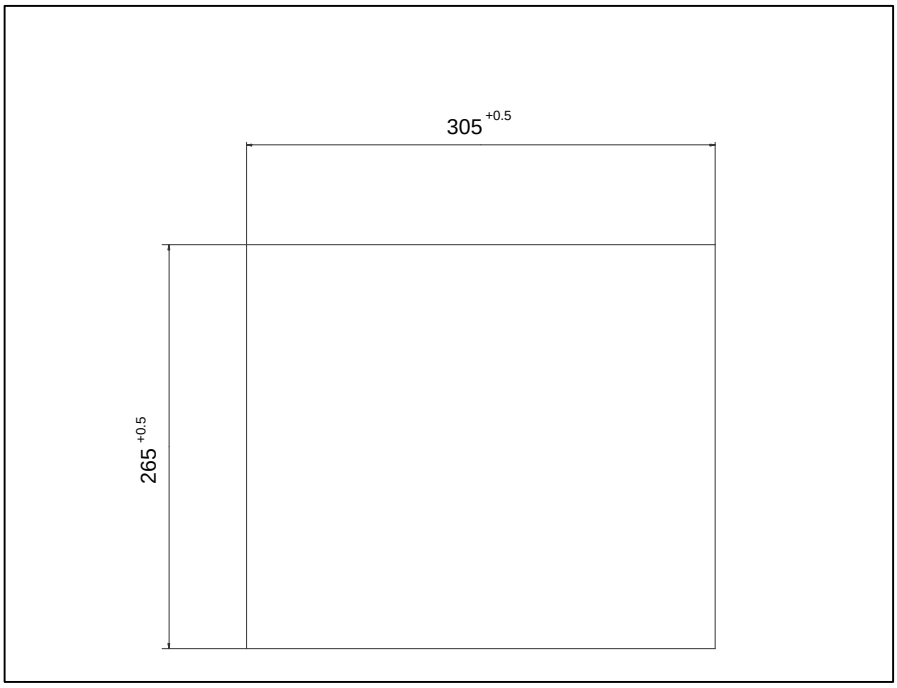


Figure 2-6 Control Panel Cutout for the FI10

2.2.3 Installing the FI15

The SIMATIC PC FI15 is equipped with four threaded bolts on each longitudinal and two on each lateral side (M5 x 11) for installing the industrial PC directly on a machine.

The drilling template included in the document supplement can be used to size the panel cutout and drill the holes.

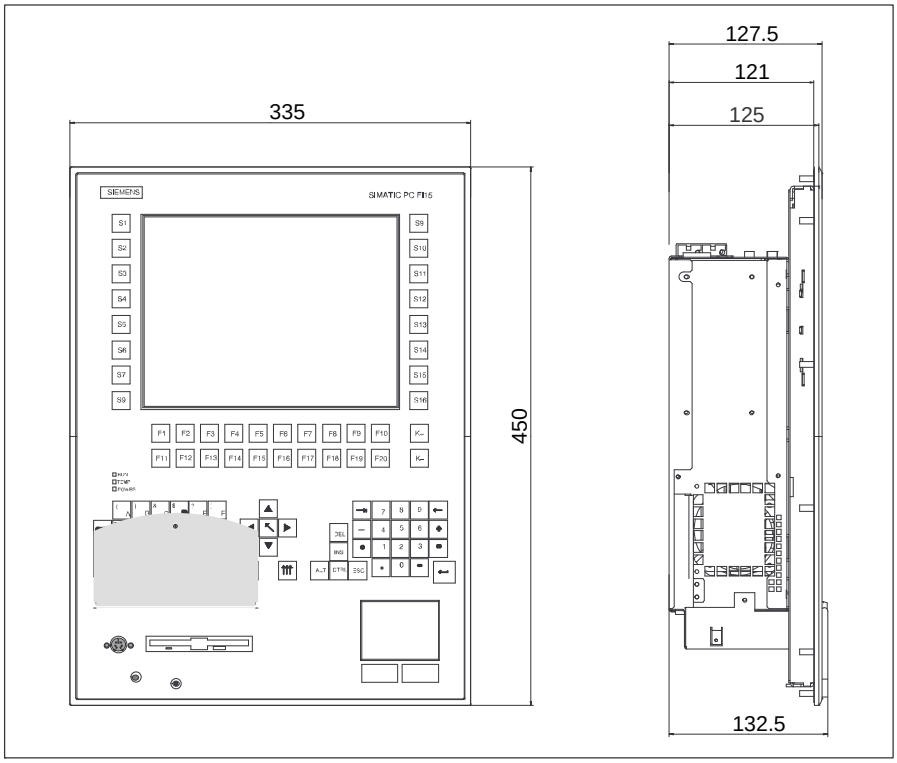


Figure 2-7 Installing the FI15

2.3 Connecting the I/O Devices

The SIMATIC PC BI10, FI10 and FI15 are designed so that the box represents the core component of all three systems. This means that all interfaces and connections provided on the BI10 are also provided on the FI10 and FI15 systems. The differences in the three are listed in the table below.

Connections	Function	BI10	FI10	FI15
VGA	VGA port for connecting an external monitor 15-pin, sub D socket connector	Yes	Yes	Yes
COM1	Serial port 1 (V.24/RS232C) 25-pin, sub D socket connector	Yes	Yes	Yes
COM2	Serial port 2 (V.24/RS232C) 9-pin, sub D connector	Yes	Yes	Yes
Mouse	PS/2 mouse port	Yes	Yes	Assign.*1
Keyboard	PS/2 keyboard port	Yes	Yes	Yes *2
LPT1	Parallel port Port for devices with a parallel port (such as a printer) 25-pin, sub D socket connector	Yes	Yes	Yes
MPI	Multipoint interface For connecting an S7 programmable controller 9-pin, sub D socket connector	Yes	Yes	Yes
Inlet connector for non-heating apparatus	115/230 VAC power supply	Yes	Yes	Yes
PCMCIA	PCMCIA connector with Eject and Lock for 2 x PCMCIA Card Type II or 1 x PCMCIA Card Type III	Yes	Yes	Yes

The use of expansion boards increases the number of interfaces. Please read the literature accompanying these boards for descriptions of the interfaces provided by them.

*1: On the FI15, the PS/2 mouse port is reserved for (that is, used by) the standard built-in finger mouse (touch pad). It is not possible to connect an external mouse.

*2: On the FI15, a PS/2 keyboard can be interfaced to thefront panel of the PC. The port is located behind the front cover. The box's PS/2 keyboard port can be used only alternatively, not at the same time as the front-panel port.

*3: When using the optional touch screen (see 3.9) you must not use the external COM2 interface.

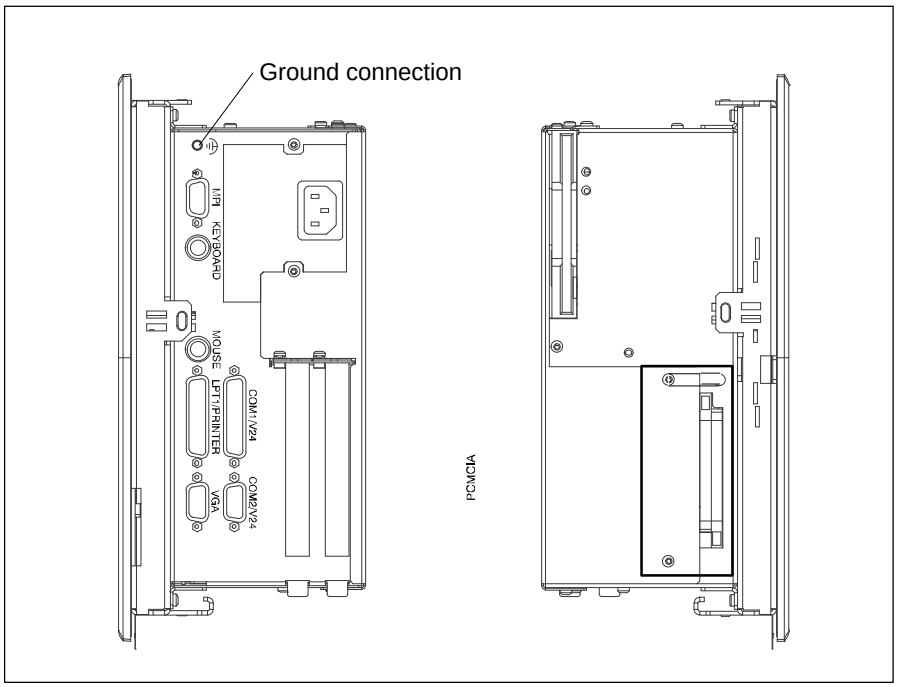


Figure 2-8 System Box Connections

Note

Always be sure to use shielded cables and metal connectors to avoid invalidating your operating permit. Use a screwdriver to fasten the interface cable connectors on the PC housing to improve electrical shielding.

If you are not using PCMCIA modules (PC cards), cover the PCMCIA receptacle with the blind provided.

PCMCIA modules and PC cards must be UL-approved. Failure to observe this regulation will invalidate both the UL 1950 and EN 60950 approvals.

2.4 Connecting the Power Supply

The power supply unit in the SIMATIC BI10, FI10, and FI15 is designed for an a.c. input voltage of 120V/240V + 6% – 10% with input currents of 1.4/0.8A for a.c. networks with 50/60 Hz. Because it is a varying voltage power supply unit, voltage selection is unnecessary.

The SIMATIC BI10, FI10, and FI15 have no on/off switch. To turn one of these devices on or off, you must either switch off the mains power or pull the power plug.

The socket outlet on the device or the grounding contact for the building wiring systems must be accessible. The grounding contact for the building wiring system must be located as near to the device as possible.

Additional equipotential bonding between PC and environment can be established via the grounding terminal on the box.

Setting Up and Operating the PC

3

Chapter Overview

In this chapter, you will learn:

- How to start up your PC for the first time, and
- How to use the electronic manual.

3.1 Setting Up and Operating the PC

3.1.1 Operating Elements and Displays

The operating elements for the three systems can be broken down as follows:

Operating Element	Function	B10	FI10	FI15
Keypads on the sealed keyboard				
Function keys	Entering function codes	——	Included	Included
Contrast control keys K+ and K-	Setting the contrast on an STN display	——	Included *2	Included *2
Alphanumeric and symbol keys	Entering text	——	Not included	Included
Numeric keypad, cursor control, and control keys	Entering numbers, positioning the cursor, scrolling	——	Not included	Included
Sensor field (finger mouse, touch pad)	Positioning the cursor, triggering functions, mouse replacement	——	Not included	Included
Reset key	Resetting the device (complete restart)	Included *3	Included *3	Included *4
Floppy disk drive	Loading programs/data	Included	Included	Included *1
PCMCIA slot	Using PCMCIA cards (memory/MODEM/FAX, etc.)	Included	Included	Included

*1: On the FI15, the floppy disk drive is located at the front, behind a sealing cover. The IP 65 protection provided for the front panel can be maintained only when this cover is closed.

*2: Contrast control keys K+ and K- are available on the front panel of both the FI10 and FI15. They are effective only on systems with an STN display. On systems with a TFT display, contrast control is unnecesary, and the K+ and K- keys have no function.

*3: The reset key is located on the box near the ISA slot boards.

*4: The reset key is located on the front panel behind the sealing cover. The reset key can only be activated by means of a pointed object (for example, a pen or the tip of an extended paper clip).

3.1.2 Front Panel Keypads

Function Keys and Contrast Control Keys

The function key assignments depend on the operating system and/or user program.

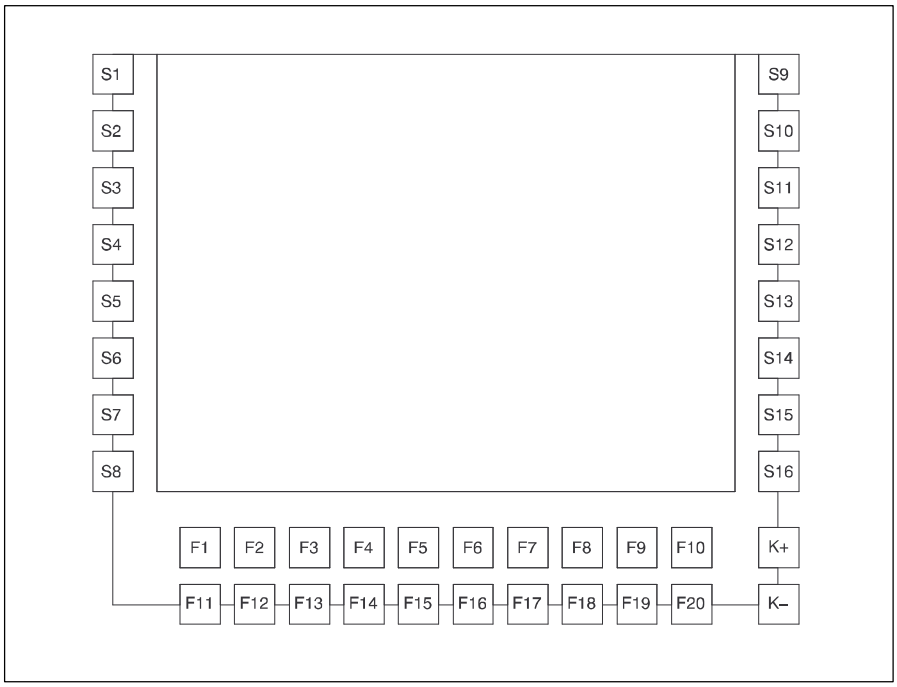


Figure 3-1 Function Keys and Contrast Control Keys

Note

Key combinations: F18 + F19 + F20 ≅ CTRL ALT DEL
F18 + F17 ≅ CTRL C

The function keys are set as follows at the factory:
S1 – S12 ≅ F1 – F12 ≅ Function keys F1 – F12 on standard PC
F17 ≅ C, F18 ≅ CTRL, F19 ≅ ALT, F19 ≅ ALT, F20 ≅ DEL
For changes in key assignments, see Chapter 3 of the Technical Description.

Alphanumeric / Symbol Keys

The letters and symbols are arranged alphabetically in a matrix (see 3-2):

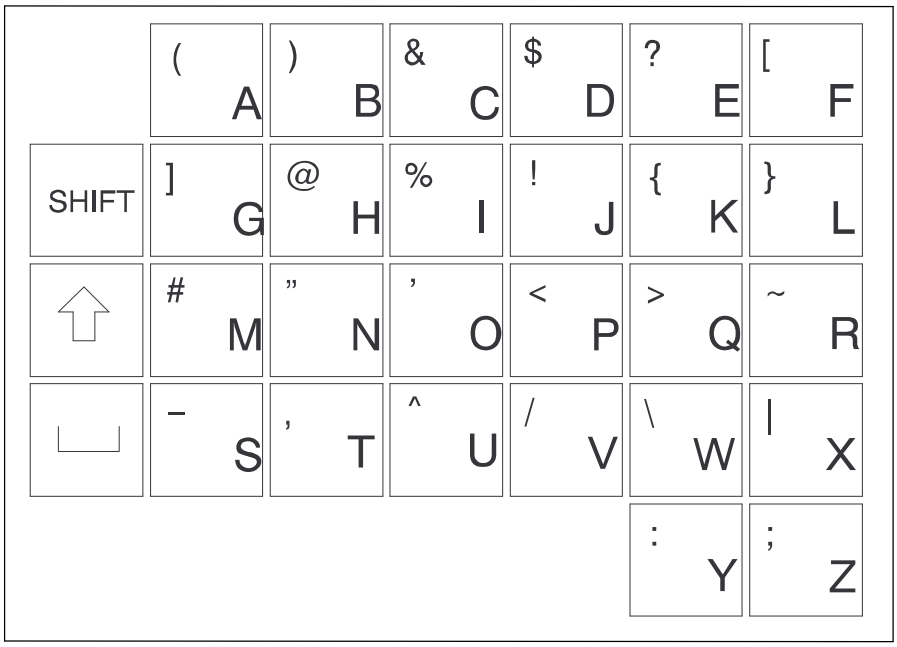


Figure 3-2 Alphanumeric / Symbol Keypad

Note

Key combinations: SHIFT + KEY = Symbol
⇑ + KEY = Upper-case letter

Numeric Keypad, Cursor Control Keys, and Control Keys

In addition to digits, the numeric keypad also contains the spacebar, the decimal point, the symbols for the four basic arithmetic functions, and the tabulator, backspace and enter keys; the control keys are at the left of the numeric keypad.

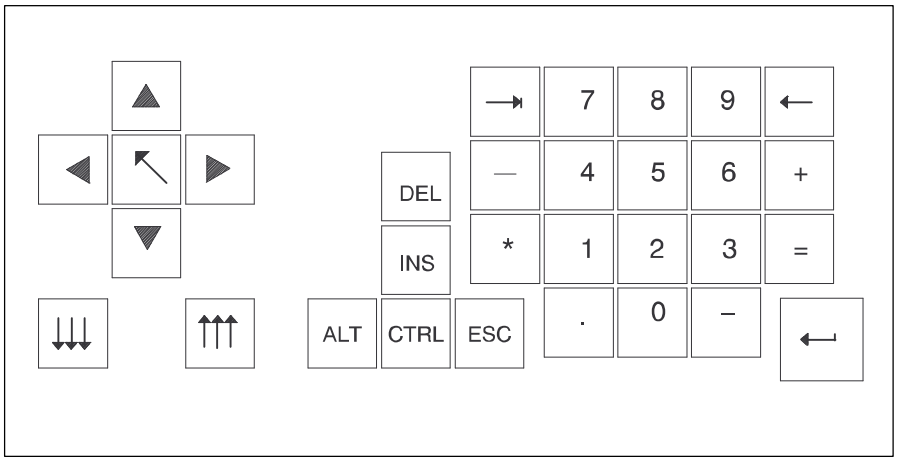


Figure 3-3 Numeric Keypad, Cursor Control Keys, and Control Keys

Important Key Combinations

Key combinations are formed with the CTRL and/or Alt keys, and are entered as follows:

- Press and hold the CTRL and/or Alt keys.
- Press the key for the required function.

Ctrl + C

Abort current operation
Aborts the operation currently in progress, but does not clear the line buffer.

Ctrl + Alt + Del

Warm restart
This key combination restarts your PC.

Note

For additional key combinations, please refer to the documentation provided with your operating system as well as that for your user program.

Sensor Field (Finger Mouse or Touch Pad)

You can use the sensor field as though it were a mouse. The mouse pointer makes the same moves on the screen as your finger makes as it moves over the surface of the sensor field. The two small fields shown in the diagram below represent the two mouse buttons.

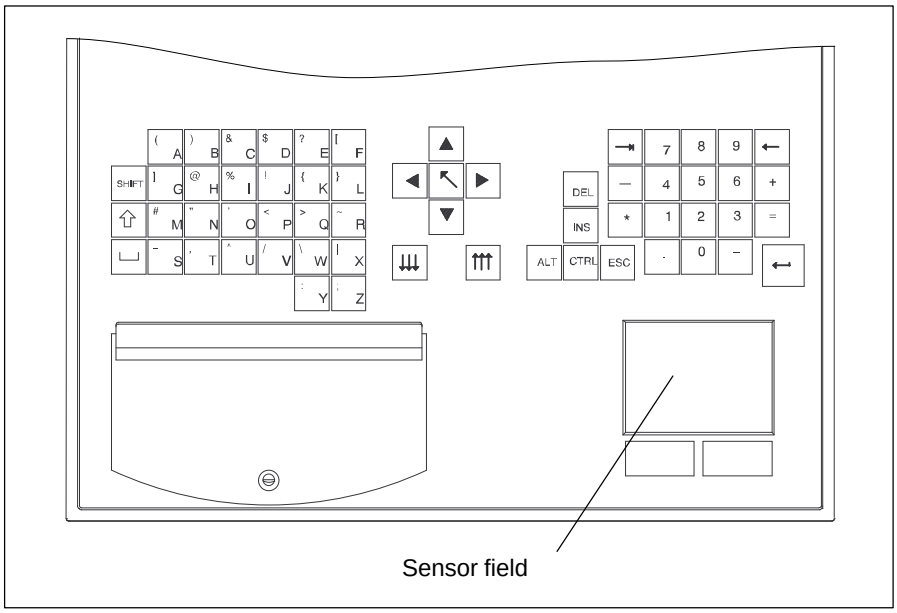


Figure 3-4 Sensor Field

You can click on symbols or texts using the two mouse buttons. First, move the mouse pointer to the symbol you want, then press the left mouse button to select that symbol.

Alternatively, when using a full-graphics operator interface, such as Windows, you can click on a symbol and move the mouse pointer to that symbol. Then briefly press the sensor field with your finger twice in succession to open the symbol.

You need not put pressure on the sensor field surface. The sensor does not respond to the pressure of your finger, but rather to the change in capacitance at the point of contact.

3.1.3 Floppy Disk Drive

Floppy disk drives are equipped with an access slot for the diskettes; this slot is covered by a flap. When a floppy disk is inserted incorrectly, it will not fit in the slot. A disk can be ejected by pushing the eject button on the drive.

The eject button must never be pressed while the green LED on the drive is on. Caution: This could result in loss of data.

3.1.4 PCMCIA Slot

A maximum of two Type II or one Type III PCMCIA cards can be inserted in the PCMCIA slot. The slot has two ejectors for removing inserted cards.

3.1.5 Reset Key

If your PC is equipped with a reset key, a hardware reset is triggered when you press this key. The PC is restarted.

On the FI15, the reset key is integrated in the front panel under the cover next to the floppy disk drive. The reset key can only be activated with a pointed object (for example, a pen or the tip of an extended paper clip).

On the FI10 and BI10, the reset key is situtated on the box near the slot boards. You can activate the reset key by hand, without using any additional tool.

3.1.6 CD-ROM Drive

An external CD-ROM drive can be connected to the LPT interface of the PC. Details on the type of drive can be obtained from the SIMATIC PC Hotline (see Chapter 5).

3.1.7 Display

The FI10 and FI15 are equipped with 10.4” LCD displays. These displays are precabled and preset at the factory. VGA monitors can be operated in parallel to these displays. The specification as to whether to operate only a display or a VGA monitor in parallel is made in BIOS Setup.

3.1.8 LEDs

At the bottom left on the FI10 and at the left center on the FI15 you will find three light-emitting diodes. The Power LED is a single LED (green), the RUN and TEMP LEDs are dual LEDs (red/green). RUN and TEMP are controlled by the SafeCard (optional).

Designation	Color	Description
RUN	Red/ green	Off: No SafeCard or watchdog timer started or no power Green: Watchdog timer started or not expired Red: Watchdog timeout
TEMP	Red/ green	Off: No SafeCard or no power Green: Temperature within admissible range Red: Temperature out of range or no temperature sensor connected or cable to temperature sensor interrupted.
POWER	Green	Off: No power On: Power on

3.2 Starting Up Your PC for the First Time

Switching ON

Once the I/Os and the system unit have been connected, your PC is ready to be put into operation.

Plug your PC into the mains power supply.

Switching OFF

Disconnect your PC from the mains supply.

Note

The SIMATIC BI10/FI10/FI15 has no ON/OFF switch. In order to disconnect the PC from the power supply, you must pull the plug (see also Section 2.4).

When the PC is on, the POWER LED green light is lit (except on the BI10).

3.3 Setting Up Your PC

Overview

Your PC's operating system and system software were preinstalled on the hard disk at the factory. You will have either the English version of MS-DOS 6.22 or the multi-language version of Windows 95.

When powering up the PC, you must distinguish between the following:

- Cold start (also called an initial start)
- Complete restart

Cold Start

Your PC software is set up during a cold start. Proceed as follows:

1. Switch on your PC.
2. Set the monitor's brightness control to the brightest setting (refer to the monitor's operating instructions) and switch on the monitor (applies to external monitor only).

   The PC executes a self-test. The following message appears on the screen during the self-test:

   ```
   Press <F2> to enter SETUP
   ```

3. Wait until the message disappears, then follow the instructions displayed on the screen.

   Your operating system is loaded upon completion of the self-test. The load procedure itself depends on the operating system (see Sections 3.4 and 3.5).

Complete Restart

Once it has been set up, the DOS prompt or operator interface of the operating system you are using is displayed following system startup every time you switch on or reset the PC.

3.4 Electronic Manual

Overview

Your PC features an online manual. The manual consists of two parts:

- The Product Information Bulletin (the part you are now reading) in five languages (German, English, French, Italian and Spanish) and
- The Technical Description in two languages (German and English).

User's Guide

The User's Guide is in the following directory:

`c:\docu` in file `U_MAN [D, E, F, I, S].PDF`

D = Deutsch (German), E = English, F = French, I = Italian, S = Spanish

Technical Description

The Technical Description is in the following directory:

`c:\docu` in file `T_DES [D, E].PDF`

ADOBE Acrobat Reader

You need the ADOBE Acrobat Reader to print out the User's Guide and the Technical Description. The ADOBE Acrobat Reader software is located in directory

`c:\acrodos or c:\acroread`

Due to license agreements, the software is not preinstalled and the user must install it himself.

3.5 Installing the ADOBE Acrobat Reader

Installing the ADOBE Acrobat Reader

We recommend that you connect a mouse and install a mouse driver before installing the ADOBE Acrobat Reader software. Although it is possible to use a keyboard, using a mouse to operate the Acrobat Reader is considerably easier.

Proceed as follows to install the ADOBE Acrobat Reader:

1. Start by entering the following:

- `Install.exe` in directory `c:\acrodos` (MS-DOS 6.22) or
- `acroread.exe` in directory `c:\acroread` (Windows 95).

The following message is displayed:
`Adobe Acrobat Reader for DOS Installation, version x.y` or
`Adobe Acrobat Reader for WINDOWS Installation, version x.y`

2. Confirm by pressing any key.

A license agreement is displayed:
`Adobe Systems Incorporated License Agreement`

3. Acknowledge with `Accept`.
4. You are prompted to enter your name.
   Press `ENTER`.
5. Your are prompted to enter your company/department.
   Press `ENTER`.
6. You are prompted to enter the directory for the installation. Use the suggested directory.
   Press `ENTER`.

Under Windows 95, the installation from this point on is automatic, and ends with the appearance of the Acrobat Reader icon in a window.

Additional Steps for MS-DOS

Additional steps are required for MS-DOS:

1. You are prompted to select a directory for print fonts. Accept the suggested directory by simply pressing ENTER.
2. You are asked whether you want to install the Reader Tour, a tutorial which requires approximately 0.5 Mbytes on the hard disk. Make your choice and press ENTER.
3. You are prompted to specify your working directory (temporary directory). Confirm the suggested directory by pressing ENTER.
4. You are prompted to specify a directory for the Swap-out File. Accept the suggested directory by pressing ENTER.
5. You are asked whether you want the installation program to make changes in the CONFIG.SYS and AUTOEXEC.BAT files or whether you want to make them yourself. We recommend that you accept the suggested option, i.e.
   Go ahead and modify
   and confirm it by pressing ENTER.
6. If you failed to connect a mouse or install a mouse driver, an appropriate message to this effect is displayed on the monitor. You can install the mouse and/or mouse driver after the ADOBE Reader installation has been completed. Press ENTER.
7. If the installation was successful, you are prompted to reboot your PC. Acknowledge by pressing ENTER. Reboot your PC (CTRL-ALT-DEL or Reset key).

3.6 Using Adobe Acrobat

Working with the Acrobat Reader

Proceed as follows to use the Acrobat Reader:

1. Start the Acrobat Reader by typing in **acrobat** (MS-DOS 6.22) or clicking on the Acrobat Reader icon under Windows 95. You can start the Acrobat Reader from any directory if you followed the recommendations given during installation.

   An operator interface similar to the MS-DOS Shell appears. Use the TAB key or the mouse to change from window to window. Use the keyboard's cursor control keys (or the mouse) to move the cursor within a given window (remember, your selection has not been made until the line is displayed in reverse video; that is, white characters on a black background).

2. Open the file you want to read

`U_MAN[D,E,F,I,S].PDF`	Product Information Bulletin
`T_DES[D,E].PDF`	Technical Description

   D = Deutsch (German), E = English, F = French, I = Italian, S = Spanish

   These files are in the `c:\docu` directory.

3. Use the FILE menu to print out the opened file. First choose PRINTER SETUP from the FILE menu and choose your printer from the list of printers. Then choose PRINT from the FILE menu to print out the file.

3.7 SafeCard

Please take information on the SafeCard module from the Technical Description. To install the SafeCard driver for different operating systems, see the **ReadMe.TXT** file in the **C:\SAFECARD** directory.

3.8 Direct Key Submodule

Notes on installing and operating the the direct key submodule can be found in the Technical Description.
The direct key submodule cannot be used in the BI10.

3.9 Touch Screen Display

For notes on installing and operating the touch screen display, please refer to the Technical Description. To install the drivers for the touch screen, change to directory **C: \Touch**. The **ReadMe.TXT** files for the various operating systems can be found in the DOS, Win311, Win95, WinNT and OS2 subdirectories.

Note

You must not use the COM2 port of the box with device versions which have a touch screen display.

3.10 Saving Hard Disk Data on Floppy Disk

Overview

Your industrial PC is delivered with a hard disk containing important data and programs (such as the operating system) which you must copy to diskette, as these data could be lost in the event of an operator error or hard disk defect.

Saving under MS-DOS 6.22

Your industrial PC is delivered with a Batch routine which greatly simplifies data backup during the initial installation. The saving of hard disk data is menu-driven:

- Follow the instructions given by the backup program. To back up the hard disk data, you will need a number of formatted, empty diskettes (at least 16).

Saving under Windows 95

During the initial installation of the operating system, you are prompted to make backup copies. To do so, you will need 40 formatted, empty diskettes (1.44 Mbytes).

Refer to Section 4.7 for instructions on setting up your PC once again.

3.11 Protective Functions

Use passwords in Setup to prevent unauthorized persons from changing entries in Setup. For further information on Setup passwords, refer to Chapter 2, Mother Board in the Technical Description (see Section 2.10.3, the Security Menu).

Error Diagnostics

4

Chapter Overview

In this chapter you will find information on how to localize and troubleshoot frequently recurring problems.

- For error messages from the operating system, please refer to your operating system documentation.
- For messages about errors caused by the processor module, refer to the chapter entitled **"CPU Module"** in the Technical Description. Error messages output during the self-test (tone sequences, screen messages) are listed in this manual in Sections 4.8 and 4.9.

Note

If you want to connect or disconnect cables, please observe the safety instructions given in Chapters 1 and 2.

4.1 No Response from the PC

Error Manifestation

Although switched on, the PC shows no reaction whatsoever: the Power LED does not light up.

Cause

Problem with power supply.

Remedy

Proceed as follows:

- Check to make sure that the power supply cable is plugged in.
- Make sure that the plug is properly inserted in the socket.

Note

If the Power LED still does not light up after taking the corrective measures suggested above, contact your technical customer service (Chapter 5).

4.2 Problems When Using Non-Siemens Modules

Error Manifestation

The PC crashes during startup.

Cause

The following causes are possible:

- Multiple assignments of input/output addresses
- Multiple assignments of hardware interrupts and/or DMA channels
- Signal frequencies or signal levels are not maintained
- Deviations in connector pin assignments

Remedy

Use the Logbook (located inside the PC) to check your computer configuration:

- If the current configuration is the same as the original configuration, please contact your technical customer service (Chapter 5).
- If the configuration has been modified, restore the original configuration by removing any non-Siemens modules and restarting the PC:
  - If the PC still crashes, contact your technical customer service.
  - If the problem no longer occurs, the non-Siemens module(s) was/were probably the cause. Replace these with Siemens modules or contact the module supplier.

4.3 The External Monitor Remains Dark

Cause/ Remedy

The following causes are possible:

The monitor has been switched off

- Switch on the monitor.

The monitor has been blanked

- Press any key on the keyboard.

The brightness control has been turned to the darkest setting

- Set the brightness control to “bright.” For detailed information, refer to the instruction manual for your monitor.

The power supply cable or monitor cable is not connected

- Switch off the monitor and the system unit.
- Check to make sure that the power supply cable is properly connected to the monitor and the system unit and is plugged properly into the mains outlet.
- Check to make sure that the monitor cable is correctly connected to the system unit and the monitor (if there is a plug-in connector).
- Switch on the monitor and the system unit.

Incorrect monitor settings specified in SETUP

- Press and hold the INSERT key during booting. This forces SIMULTANEOUS mode. Afterwards, in SETUP (function key F2 in response to the prompt), set the correct mode under menu item “HW Options,” CRT/LCD Parameter Selection.

Note

If the monitor still remains dark after taking all of the corrective measures recommended above, contact your technical customer service (Chapter 5).

4.4 No Display or Drifting Display on External Monitor

Cause/ Remedy

The wrong line frequency and/or the wrong resolution has been set for the monitor or the user program.

- Terminate the user program. If the error still occurs, switch off the monitor and wait at least three seconds before switching it on again.
- Make the proper entries for your monitor in the *CONFIG.SYS* file (on the hard disk).
- Correct the settings for monitor and graphics in your user program.
- Select the right screen driver for your user program.

4.5 No Mouse Pointer on Monitor or Display

Cause/ Remedy

The mouse pointer may fail to appear for one of the following reasons:

Mouse driver not loaded

- Check to make sure that the mouse driver has been properly installed, and that it is available when the user program is started. For detailed information on the mouse driver, please refer to the mouse manual or application manual.

Mouse not connected

- Terminate your user program and exit the operating system.
- Switch off your PC by removing the power supply plug.
- Check to make sure that the mouse cable is properly connected to the system unit. If you are using an adapter or extension cord for the mouse cable, check that connection as well.
- Switch on the PC by removing the power supply plug.

Note

If the mouse pointer still does not appear after you have taken all of the corrective measures listed above, contact your technical customer service (Chapter 5).

4.6 PC Shows Incorrect Time and/or Date

Remedy

Set the time or date in the Setup menu.

Press <F2> to invoke Setup while booting your PC.

Note

If the time and/or date are still incorrect after you have switched the PC off and on again, the battery is low or fully discharged. In this case, contact your technical customer service (Chapter 5).

4.7 Restoring the Hard Disk (Data Erased)

Cause/ Remedy

If you have a system disk and a backup copy of the hard disk, you can restore your hard disk. This process restores the directories and files that were on the hard disk at the time the backup copy was made.

1. Start the PC with the system disk inserted.
2. Partition the hard disk with the MS-DOS FDISK command (this requires thorough knowledge of the system).
3. Format the hard disk with the `MS-DOS FORMAT` command and the `/s` option (for example, `FORMAT C: /s`). The /s option is used to copy to the hard disk those system files needed to start the operating system.

Under MS-DOS 6.22

Restore your files on the hard disk. To do so, use `MS-DOS's XCOPY` command and the backup diskettes you made as described in Section 3.10. Insert the first backup diskette.

1. The command

```
A: <CR>
XCOPY *.* C:\ /s<CR>
```

   copies the data back to the hard disk.

2. When the first diskette has been copied, insert the next diskette, repeating this step until all diskettes have been copied. You have now restored the hard disk to its original state.
3. If your hard disk still does not work properly after it has been restored, it must be replaced.

Under Windows 95

Follow the instructions given in the section entitled *Installing Windows 95* in the User's Guide entitled **Introduction to Microsoft Windows 95**. Some additional information is listed below:

Starting the SETUP program for Windows 95

1. Start SETUP.EXE.
2. Confirm the start message by pressing **Enter**.
3. After it has checked your drives, exit SCANDISK by pressing **Exit**.
4. The Welcome screen for the Setup program is displayed. Acknowledge with **Next**. Setup executes several routine PC checks and readies the Setup Assistant.
5. When you are prompted to do so, insert further diskettes and confirm with **OK**.

License Agreement for Windows 95

6. Read the MICROSOFT WINDOWS 95 END USER LICENSE AGREEMENT carefully and agree to its conditions with **Yes**.

Windows 95 Setup Assistant

7. Then you see *Request system information*, which you start by selecting **Next**. You must first choose a directory. Select **C:\Windows** and confirm with **Next**.
8. The standard setup mode is suggested. Confirm with **Next**.

Hardware Identification

9. Make sure that all devices and modules have been properly connected or installed, and activate the check boxes of any additional components. Confirm with **Next**. This procedure can take several minutes.

Communication without Limits

10. Activate the checkboxes for the communications programs you want to install. Confirm your selection with **Next**.

Windows Components

11. As recommended, select *Install standard components*, confirming your selection with **Next**.

Create Start Diskette

12. Respond to the *Create start diskette* prompt with **No** and confirm with **Next**.

Start Copying the Windows 95 Files

13. Confirm *Copy Windows 95 files* with **Next**. The Windows files are then copied to the hard disk.

System Restart

14. When the files have been copied, preparations are made for the restart. Confirm *Restart the system and terminate installation* with **Next**. The system restart then begins.

Preparations are made for the initial startup of Windows 95, and the configuration files are updated. The system control is generated, the programs entered in the Start menu, Windows Help is prepared, and MS-DOS programs are configured.

Time Zone

15. Now you can select the time zone of the area in which you live by choosing your country with the mouse. Confirm your selection with **Close**.

This completes the Windows 95 installation.

4.8 An Error Message Appears on the Monitor or Display

Error Messages

The error messages output by the BIOS system are listed below. For a list of error messages output by the operating system or the various programs, please refer to the respective manuals.

Press <F2> during booting to invoke Setup.

On-Screen Error Message	Description / Suggestions
Address conflict	Plug & Play problem Contact your technical customer service.
Combination not supported	Plug & Play problem Contact your technical customer service.
IO device IRQ conflict	Plug & Play problem Contact your technical customer service.
Invalid System Configuration Data	Plug & Play problem Please set the RESET CONFIGURATION DATA option in Setup's Advanced menu. Contact your technical customer service.
Allocation Error for	Plug & Play problem Please undo the last hardware modification. Contact your technical customer service.
System battery is dead Replace and run SETUP	Battery on the CPU module is defective or discharged. Contact your technical customer service.
System CMOS checksum bad run SETUP	Call SETUP, make the necessary entries, and save them. If this message always appears on runup, contact your technical customer service.
Incorrect Drive A type run SETUP	Check the SETUP entries for drive A.
Incorrect Drive B type run SETUP	Check the SETUP entries for drive B.
Diskette drive A error	Error while accessing drive A. Contact your technical customer service.
Diskette drive B error	Fundamental error. Contact your technical customer service.
Failure Fixed Disk	Error while accessing the hard disk. Check the SETUP entries. Contact your technical customer service.
Keyboard error	Check to make sure that the keyboard is properly connected.
Stuck Key	Check the keyboard to see if a key is stuck.
K System RAM Failed at offset:	Memory error. Contact your technical customer service.
K Shadow RAM Failed at offset:	Memory error. Contact your technical customer service.
K Extended RAM Failed at offset:	Memory error. Contact your technical customer service.
Failing Bits:	Memory error. Contact your technical customer service.

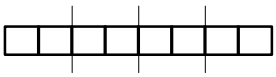
On-Screen Error Message	Description / Suggestions
Operating system not found	Possible causes: No operating system. Wrong drive addressed (diskette in drive A/B). Wrong active boot partition. Incorrect drive entries in SETUP.
Previous boot incomplete Default configuration used	Previous boot was aborted, for example due to power failure. Correct the SETUP entries.
System cache error Cache disabled	Cache error on the CPU module. Contact your technical customer service.
Monitor type does not match CMOS Run SETUP	Monitor conflicts with SETUP entries. Make proper SETUP entries for the monitor you are using.
System timer error	Hardware fault. Contact your technical customer service.
Real time clock error	Clock chip error. Contact your technical customer service.
Keyboard controller error	Keyboard error. Contact your technical customer service.

4.9 Error Messages from the Self-Test (POST Codes)

At the start of the system startup, the hardware executes a self-test called a POST (Power On Self Test). The individual steps executed during the self-test are output to I/O port 80h. Errors can be diagnosed via the associated tone sequence (codes 01 to 4A).

Always contact your customer service representative and tell him the tone sequence if necessary.

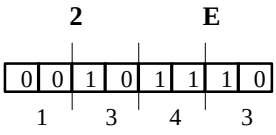
Until the video controller has been tested (codes 01 to 4A), errors are sometimes indicated in the form of tone sequences. The tone generation mode is structured as follows:



Subdivision of the byte into 2-bit combinations

Output of these combinations as tone sequence, e.g.
0 –> One tone
1 –> Two tones
2 –> Three tones
3 –> Four tones
A brief pause serves as separator.

Example:



Error detected during basic RAM test

Tone sequence

The POST codes in the order of their occurrence:

Code(hex)	Meaning	Description
02	TP_VERIFY_REAL	Test to see if CPU is in Real mode
04	TP_GET_CPU_TYPE	Determine CPU type
06	TP_HW_INIT	Initialize basic hardware (DMA, IRQ)
18	TP_TIMER_INIT	Initialize timers
08	TP_CS_INIT	Initialize chipset
0C	TP_CACHE_INIT	Initialize cache
16	TP_CHECKSUM	EPROM checksum test
28	TP_SIZE_RAM	Determine RAM capacity
3A	TP_CACHE_AUTO	Determine cache size
2A	TP_ZERO_BASE	Set 512K base RAM to 0
2C	TP_ADDR_TEST	Test base RAM address lines
2E	TP_BASERAML	Test 1.64K base RAM
38	TP_SYS_SHADOW	BIOS shadow
20	TP_REFRESH	Refresh chip test
09	TP_SET_IN_POST	Start Power On Self-Test
0A	TP_CPU_INIT	Initialize CPU
0B	TP_CPU_CACHE_ON	Switch on cache
0F	TP_FDISK_INIT	Initialize hard disk
14	TP_8742_INIT	Initialize 8742 chip
1A	TP_DMA_INIT	Initialize DMA chips
1C	TP_RESET_PIC	Reset interrupt controller
22	TP_8742_TEST	Test 8742 chip
32	TP_COMPUTE_SPEED	Determine clock pulse
34	TP_CMOS_TEST	Test CMOS RAM
C1	TP_7xx_INIT	Initialize PG 7xx I/Os
3C	TP_ADV_CS_CONFIG	Configure advanced chipset
42	TP_VECTOR_INIT	Initialize interrupt vectors
46	TP_COPYRIGHT	Check copyright
47	TP_PCI_OP_INIT	Initialize the PCI interface
49	TP_PCI_INIT	Initialize PCI interface
48	TP_CONFIG	Check configuration
4A	TP_VIDEO	Initialize video interface
4C	TP_VID_SHADOW	Copy video BIOS to RAM
52	TP_KB_TEST	Keyboard available?
54	TP_KEY_CLICK	Switch keyboard click on/off
76	TP_KEYBOARD	Test keyboard
58	TP_HOT_INT	Test for unexpected interrupts
4B	TP_QUIETBOOT_START	Disable boot messages, if any
4E	TP_CR_DISPLAY	Display copyright notice

Code(hex)	Meaning	Description
50	TP_CPU_DISPLAY	Display CPU type
5A	TP_DISPLAY_F2	Display F2 message for “SETUP”
5B	TP_CPU_CACHE_OFF	Disable cache where applicable (SETUP entry)
5C	TP_MEMORY_TEST	Test system memory
60	TP_EXT_MEMORY	Test extended memory
62	TP_EXT_ADDR	Test A20 address line
66	TP_CACHE_ADVNCD	Determine and enable cache size
68	TP_CACHE_CONFIG	Configure and test cache
6A	TP_DISP_CACHE	Display cache configuration
6C	TP_DISP_SHADOWS	Display configuration and size of shadow RAM
72	TP_TEST_CONFIG	Check for SETUP inconsistencies
74	TP_RTC_TEST	Test REAL-TIME CLOCK
7C	TP_HW_INTS	Set IRQ vectors
7E	TP_COPROC	Check for availability of coprocessor
94	TP_DISABLE_A20	Disable A20 line
80	TP_IO_BEFORE	Disable IO chips
85	TP_PCI_PCC	Check for PCI chips
82	TP_RS232	Check for serial interfaces
84	TP_LPT	Check for parallel interface
86	TP_IO_AFTER	Reenable IO chips
88	TP_BIOS_INIT	Initialize BIOS data area
8C	TP_FLOPPY	Initialize floppy controller
90	TP_FDISK	Initialize hard disk controller
8A	TP_INIT_EXT_BDA	Initialize extended BIOS data area
8B	TP_MOUSE	Test internal mouse interface
98	TP_ROM_SCAN	Search for BIOS expansions
69	TP_PM_SETUP	Initialize power management
9E	TP_IRQS	Enable hardware IRQ
A0	TP_TIME_OF_DAY	Set date and time
A8	TP_ERASE_F2	Delete F2 message
AA	TP_SCAN_FOR_F2	Check on whether to activate SETUP
AC	TP_SETUP_CHEK	Output F1/F2 message, if any
AE	TP_CLEAR_BOOT	Reset self-test flag
B0	TP_ERROR_CHECK	Test for errors
B2	TP_POST_DONE	End of self-test
B6	TP_PASSWORD	Query password (option)
BC	TP_PARITY	Reset parity flag
BD	TP_BOOT_MENU	Display boot menu (option)
BE	TP_CLEAR_SCREEN	Clear screen
C0	TP_INT19	Boot via interrupt 19

Service for SIMATIC PCs

5

Chapter Overview

For all your service needs, contact your regional service department or repair center (service shop). You can obtain the addresses from the SIMATIC Customer Support Hotline.

SIMATIC Customer Support Hotline

Open round the clock, world-wide:

SIMATIC Hotline

Nuremberg
SIMATIC BASIC Hotline

Local time:	Mo.-Fr. 7:00 to 17:00
Phone:	+49 (911) 895-7000
Fax:	+49 (911) 895-7002
E-Mail:	simatic.support@ nbgm.siemens.de
GMT:	+1:00

Johnson City
SIMATIC BASIC Hotline

Local time:	Mo.-Fr. 8:00 to 17:00
Phone:	+1 423 461-2522
Fax:	+1 423 461-2231
E-Mail:	simatic.hotline@ sea.siemens.com
GMT:	–5:00

Singapore
SIMATIC BASIC Hotline

Local time:	Mo.-Fr. 8:30 to 17:30
Phone:	+65 740-7000
Fax:	+65 740-7001
E-Mail:	simatic@ singnet.com.sg
GMT	+8:00

Nuremberg
SIMATIC Authorization Hotline

Local time:	Mo.-Fr. 7:00 to 17:00
Phone:	+49 (911) 895-7200
Fax:	+49 (911) 895-7201
E-Mail:	authorization@ nbgm.siemens.de
GMT	+1:00

SIMATIC Premium Hotline

(Calls charged, only with SIMATIC Card)

Time:	Mo.-Fr. 0:00 to 24:00
Phone:	+49 (911) 895-7777
Fax:	+49 (911) 895-7001
GMT	+01:00

The working languages of the SIMATIC Hotlines are generally English and German; the Authorization Hotline can also be contacted in French, Italian, or Spanish.

SIMATIC Customer Support Online Services

The SIMATIC Customer Support team offers you substantial additional information about SIMATIC products via its online services:

- General current information can be obtained from:
  - the **Internet** under `http://www.ad.siemens.de/simatic-cs`
  - the **Fax-Polling** number 08765-93 02 77 95 00
- Current product information leaflets and downloads which you may find useful are available:
  - on the **Internet** under `http://www.ad.siemens.de/support/html_00/`
  - via the **Bulletin Board System** (BBS) in Nuremberg (*SIMATIC Customer Support Mailbox)* under the number +49 (911) 895-7100.

    To access the mailbox, use a modem with up to V.34 (28.8 Kbps) with parameters set as follows: 8, N, 1, ANSI; or dial in via ISDN (x.75, 64 Kbps).

5.1 Regional Repair Centers

Region	Phone	Fax
Augsburg	+49 (821)2595 599	+49 (821)2595 546
Berlin	+49 (30)386 34926	+49 (30)386 34933
Bielefeld	+49 (521)291 323	+49 (521)291 538
Bremen	+49 (421)364 2093	+49 (421)364 2107
Chemnitz	+49 (371)475 3860	+49 (371)475 3888
Cologne Ossendorf	+49 (221)576 6633	+49 (221)576 6630
Erlangen	+49 (9131)7 31048	+49 (9131)7 35263
Essen	+49 (201)816 1580	+49 (201)816 1522
Frankfurt	+49 (69)797 7358	+49 (69)797 7131
Hamburg	+49 (40)2889 4230	+49 (40)2889 4430
Hanover Laatzen	+49 (511)877 2241	+49 (511)877 1320
Karlsruhe	+49 (721)595 4183	+49 (721)595 6667
Langen	+49 (69)797 5608	+49 (69)797 5567
Leipzig	+49 (341)210 2049	+49 (341)210 2049
Mannheim	+49 (621)456 1328	+49 (621)456 1460
Munich	+49 (89)9221 6213	+49 (89)9221 6201
Nuremberg	+49 (911)654 6127	+49 (911)654 7630
Saarbrücken	+49 (681)386 2598	+49 (681)386 2397
Stuttgart Weilimdorf	+49 (711)137 6001	+49 (711)137 6210

Country	Phone	Fax
Argentina	+54 (1) 3408400	+54 (1) 3408400 3163
Australia	+61 (3) 9420 7274	+54 (3) 9420 7500
Austria	+43 (1) 1707 29886	+43 (1) 1707 53730
Belgium	+32 (2) 536 2905	+32 (2) 536 2880
Brazil	+55 (11) 7947 1999 ext. 3013	+55 (11) 7947 1888
China	+86 (21) 6213 2050 ext. 301	+86 (21) 6213 5538
Denmark	+45 (7640) 5151	+45 (7640) 5143
England	+44 (161) 446 5760	+44 (161) 446 5772
Finland	+358 (9) 5105 3303	+358 (9) 5105 3661
France	+33 1 49 22 31 60	+33 1 49 22 29 42
India	+91 22 7577115	+91 22 7577106
Italy	+39 (02) 6676 3490	
Japan	+81 (3) 5423 8502	+81 (3) 5423 8737
Mexico	+52 (5) 328 2456	+52 (5) 328 2058
Netherlands	+31 (70) 333 3858	+31 (70) 333 3878
Poland	+48 (22) 670 9166	+48 (22) 670 9169
Portugal	+351 (1) 75 73234	+351 (1) 75 89333
Singapore	+65 (740) 7150	+65 (740) 7196
South Africa	+27 (12) 309 0149	+27 (12) 309 0142
South Korea	+82 (2) 3420 4880	+82 (2) 3420 4889
Spain	+34 (91) 514 8400	+34 (91) 514 9217
Sweden	+46 (8) 728 1462	+46 (8) 728 1703
Switzerland	+41 (1) 749 1304	+41 (1) 749 1284
Taiwan	+886 (2) 2376 1849	+886 (2) 2378 8958
Thailand	+66 (2) 716 4609	+66 (2) 716 4601
USA	+1 (423) 461 2497	+1 (423) 461 2094

In countries not listed above, please contact your local service representative. He will arrange for your repairs to be carried out.

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C79000-Z7076-C772
Printed in the Federal Republic of Germany