

SIMATIC

Industrial PC SIMATIC Panel PC 877

Operating Instructions (Compact)

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

All names identified by ® are registered trademarks of the Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

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

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Operating Instructions (Compact)

1.1 Unpacking and checking the delivery

Procedure

1. Please check the packaging material for transport damage upon delivery.
2. If any transport damage is present at the time of delivery, lodge a complaint at the shipping company in charge. Have the shipper confirm the transport damage immediately.
3. Unpack the device.

Caution

Do not lie the device on its back. This will avoid any damage to an optical drive which may be present. Lie the front side on a soft surface to avoid damaging the front panel USB port.

4. Keep the packaging material in case you have to transport the unit again.

Notice

The packaging protects the device during transport and storage. Therefore, never dispose of the original packaging material!

5. Please keep the enclosed documentation in a safe place. You will need the documentation when you start up the device for the first time.
6. Check the package contents for completeness and any visible transport damage. Check for completeness using the enclosed scope of delivery list.
7. Should the contents of the package be incomplete or damaged, please inform the responsible supply service immediately and fax us the enclosed form "SIMATIC IPC/PG quality control report".



Warning

Make sure that a damaged device is not installed nor put into operation.

8. Note the identification information as described in the chapter "Identification data of the device".

1.2 Device identification data

Enter the identification data of the device into the table:	
SVP number (on the type plate)	
Order number of the device	
For the Windows 2000 / XP Professional variants: Microsoft Windows Product Key from the "Certificate of Authenticity" (COA). The COA label is attached to the device	
Ethernet addresses: BIOS Setup (F2 Key) under Main > Hardware Options > Ethernet Address	

1.3 Product documentation

The detailed operating instructions for Panel PC 877 can be downloaded as a PDF file on the Internet under the following address: <http://www.ad.siemens.com>

1.4 Safety instructions



Caution

In order to avoid substantial damage and for your own safety, note the safety instructions in this documentation and in the operating instructions.



Warning

Function test while installing the device in machines or execute systems

Following the results of a risk analysis, additional protection equipment on the machine or the system is necessary to avoid endangering persons. With this, especially the programming, configuration and wiring of the inserted I/O modules have to be executed, in accordance with the safety performance (SIL, PL or Cat.) identified by the necessary risk analysis. The intended use of the device has to be ensured.

The proper use of the device has to be verified with a function test on the system. This test can detect programming, configuration and wiring errors. The test results have to be documented and, if necessary, entered into the relevant documents that verify safety.

1.5 Installation / panel-mounting

1.5.1 Permitted mounting positions

Mounting positions

Only vertical installation with a deviation of up to $+20^\circ$ and -20° in the specified directions is permitted for the device.

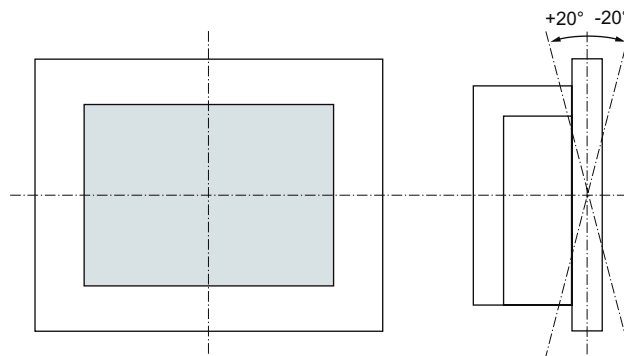


Figure 1-1 Permitted mounting positions

1.5.2 Preparing the mounting cut-out

The following illustration show the dimensions for the mounting cut-out.

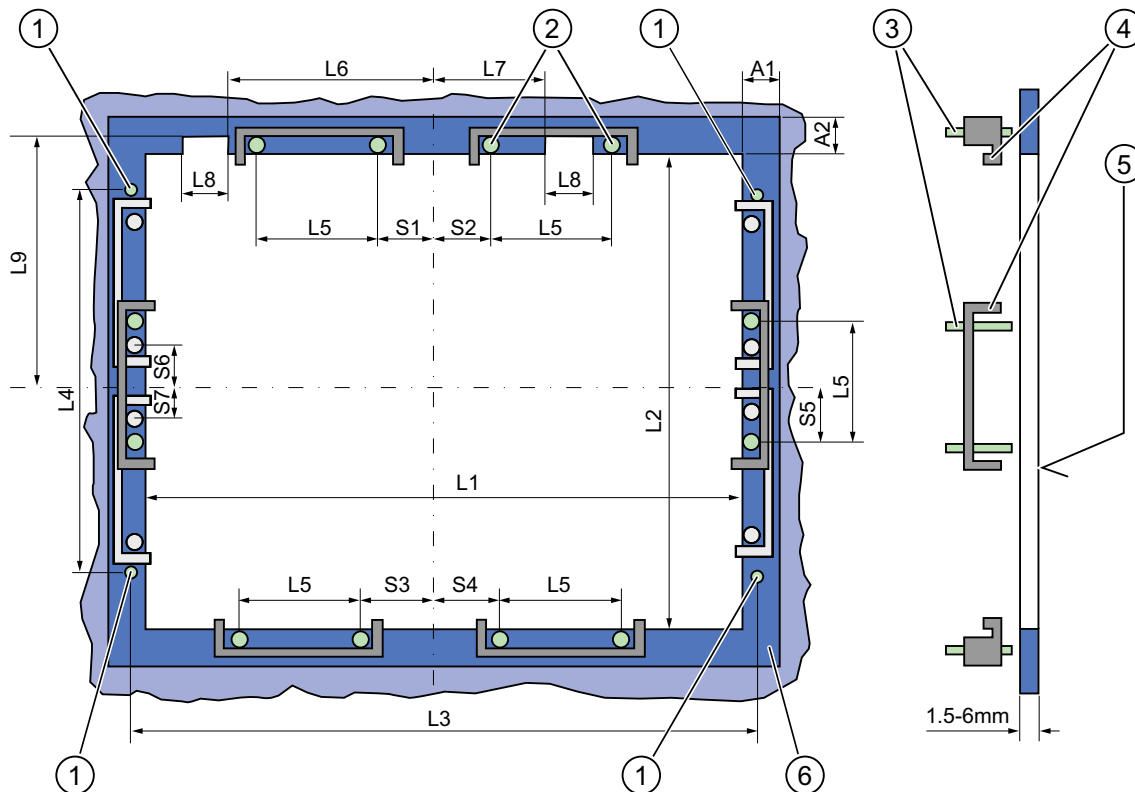


Figure 1-2 Drill holes for the screws and pressure points for the clamp screws

- | | |
|-------------------------------------|-----------------------------|
| (1) Drill hole for screw attachment | (4) Clamp |
| (2) Pressure points for clamp | (5) Rz 120 in the seal area |
| (3) Setscrews | (6) Seal area |

Note

Installed dimensions can be read from the dimension overview or they can be transferred to the cabinet from the mounting template supplied.

Table 1-1 Dimensions for the mounting cut-out in mm

Control unit	L1	L2	L3 ¹⁾	L4 ¹⁾	L5	L6 ²⁾	L7 ²⁾	L8 ²⁾	L9 ²⁾	A1	A2	S1	S2 S3 S4	S5 ³⁾	S6 ³⁾ S7 ³⁾
Tolerance	+1	+1	±0.2	±0.5	±0.5	±0.5	±0.5	+1	±1	±1	±1	±1	±1	±1	
Key panel															
12" TFT	450	290	465	235	112	—	—	—	—	16	10	78	78	56	—
15" TFT	450	321	465	279	112	186	135	25	165	16	17	51	51	56	—
Touch panel															
15" TFT	450	290	465	235	112	—	—	—	—	16	10	81	81	56	—
19" TFT	450	380	465	235	112	—	—	—	—	16	10	46	46	—	33

¹⁾ M6 thread or drilled holes of 7 mm diameter

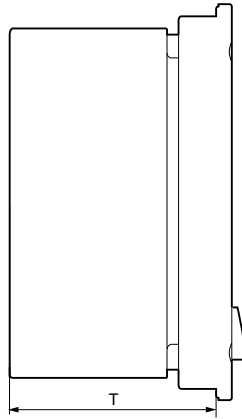
²⁾ Cut-outs for the slots or inserted labels are required for 15" key panels only

³⁾ Two clamps are required vertically for clamp mounting for the 19" touch panels only

Preparing the mounting cut-out

Steps for preparing the mounting cut-out	
1	Select a location suitable for mounting, taking into account the mounting position.
2	On the basis of the dimension diagrams, check whether the required screw and pressure points on the rear and the seal area are easily accessible after the completion of the mounting cut-out. Otherwise the mounting cut-out is useless.
3	Complete the mounting cut-out in accordance with the dimensions.

1.5.3 Mounting depth of the device



Panel PC with operator units	T
Key panel with 12" TFT	192 mm
Key panel with 15" TFT	211 mm
Touch panel with 15" TFT	209 mm
Touch panel with 19" TFT	217 mm

Note

Additional mounting depth with optical drive

The installation depth increases by 21 mm when an optical drive is installed in the device.

1.5.4 Securing the device with clamps

You require 6 clamps in order to mount the device with a 12"/15" display. A device with a 19" display must be mounted with 8 clamps. The required number of clamps is included in your Panel PC delivery package.

Required tool for fastening the clamps: 2.5 mm hexagonal spanner



Figure 1-3 Clamp assembly

Rack installation

Steps for fastening the device with clamps	
1	Disconnect the device from the power supply.
2	Working from the front, insert the device into the 19" rack.
3	Fasten the control unit in the rack from the rear using the clamps. Tighten the setscrews to a torque of 0.4-0.5 Nm.

Swivel arm installation

Steps for fastening the device with clamps	
1	Disconnect the device from the power supply.
2	Working from the front, place the device onto the swivel arm.
3	Fasten the control unit on the swivel arm from the rear using the clamps. Tighten the setscrews to a torque of 0.4-0.5 Nm.

Switchgear cabinet installation

Steps for fastening the device with clamps	
1	Disconnect the device from the power supply.
2	Working from the front, insert the device into the mounting cut-out.
3	Secure the control unit in the mounting cut-out from behind with the clamps, as shown in the mounting cut-out in the dimensions. Tighten the setscrews to a torque of 0.4-0.5 Nm.

IP65 degree of protection

The plant builder is responsible for the correct installation of the device.

The degree of protection IP65 is only guaranteed for the front of the device if the ring seal is properly applied with the correct size of cutout, the unit has been clamped in place, and the instructions below are observed.

Notice

Control cabinet installation; Material strength at the mounting cut-out

Please ensure that the material strength at the mounting cut-out is a maximum of 6 mm. Please follow the specifications for the dimensions in the "Preparing the mounting cut-out" section.

The degree of protection can only be guaranteed when the following requirements are met:


1. The material strength at the mounting cut-out must be at least 2 mm.
 2. The deviation from the plane in relation to the external dimensions for an installed HMI device is ≤ 0.5 mm
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1.5.5 Securing the device with screws

Note

To secure the 19" front panel with screws, backing plates with Order No. 6AV7672-8KE00-0AA0 are required on the front.

Drilling holes

Steps for drilling holes	
1	Drill holes (\varnothing approx. 2.5 mm) from the rear in the 4 recesses of the control unit. 
2	Use a \varnothing 5.5 mm bit for M5 and a \varnothing 6.5 mm bit for M6
3	Deburr the holes from the front of the control unit

Notice

Risk of damage

Ensure that no metal cuttings enter the device when the holes are drilled. Cover the device with film or when drilling, use removal by suction.

Rack installation

Steps for fastening the device with screws	
1	Make drill holes at the prepared mounting cut-out in accordance with the specifications for L4 and L5, as shown at the dimensions in the mounting cut-out
2	Working from the front, insert the device into the 19" rack
3	Secure the control unit by inserting suitable screws through the holes and attaching nuts

Swivel arm installation

Steps for fastening the device with screws	
1	Make drill holes at the prepared mounting cut-out in accordance with the specifications for L4 and L5, as shown at the dimensions in the mounting cut-out
2	Working from the front, place the device onto the swivel arm
3	Secure the control unit by inserting suitable screws through the holes and attaching nuts

Switchgear cabinet installation

Steps for fastening the device with screws	
1	Make drill holes at the prepared mounting cut-out in accordance with the specifications for L4 and L5, as shown at the dimensions in the mounting cut-out
2	Carefully drill the respective holes in the control unit at the designated location from the rear
3	Working from the front, insert the device into the mounting cut-out
4	Secure the control unit by inserting suitable screws through the holes and attaching nuts

IP54 degree of protection

The IP54 degree of protection is guaranteed for screw mounting together with the ring seal.



Caution

Observe the panel seal when mounting

Ensure you do not damage the panel seal when mounting the device.

Notice

Control cabinet installation; Material strength at the mounting cut-out

Please ensure that the material strength at the mounting cut-out is a maximum of 6 mm. Please follow the specifications for the dimensions in the "Preparing the mounting cut-out" section.

The degree of protection can only be guaranteed when the following requirements are met:

1. The material strength at the mounting cut-out must be at least 2 mm.
 2. The deviation from the plane in relation to the external dimensions for an installed HMI device is ≤ 0.5 mm
-

1.6 Connecting

1.6.1 Connection and operator control components

Connection and operator control components of the computer unit

Connection and operator control components of the left-hand side of the device			
	Pos	Designation	Description
	(1)	PCI / ISA	5 slots for PCI/ISA expansion module
	(2)	LPT 1	Parallel interface 25-pin Sub-D connector
	(3)	DVI/VGA	DVI/VGA socket for CRT or LCD monitor with DVI interface or VGA monitor via DVI/VGA adapter
	(4)	PS/2	Mouse connection
	(5)	Reset button	-
	(6)	PS/2	Keyboard connection
	(7)	COM 2	Serial interface 9-pin Sub-D connector
	(8)	USB	2 USB 2.0 connections high current (500 mA)
	(9)	Ethernet	RJ45 connection for 10/100 Mbit/s
	(10)	PROFIBUS/MPI /DP	MPI interface (RS485 electrically isolated) 9-pin Sub-D connector
	(11)	COM 1	Serial interface 25-pin Sub-D connector

Reset button

The Reset key can trigger the following function during active operation:

Hardware reset: Immediate shutdown of the device without correct shutdown of the operating system

This function is used to shut down the device when it no longer responds. This triggers a hardware reset. Press the key briefly with a pointed object. Following a hardware reset, the device automatically boots up.



Caution

Data loss

A hardware reset can result in a loss of data.


Connection and operator control components of the right-hand side of the device			
	Pos	Designation	Description
	(1)	100 / 240 V AC or 24 V DC	Connection for AC or DC power supply (depending on the product variant, the figure shows the AC power plug) The relevant angle is included with the device for interlocking the connector.
	(2)	On / Off switch	-
	(3)	Equipotential bonding	Connection for low-resistance grounding connection

Notice

On / Off switch

The On / Off switch does not disconnect the device from mains. When the switch is in 0 position, the device is still connected to the auxiliary voltage.

Connection components of the control unit

USB connection control unit			
	Pos	Designation	Description
	(1)	USB	1 connection USB 2.0 high current (500 mA) under sealing flap (not available with every product variant).

Notice

Guarantee for the IP 65 degree of protection

When the sealed cover over the USB interface is removed in order to connect a USB component, the IP 65 degree of protection for the device is no longer guaranteed.

Note

Use of USB devices

- Wait at least 10 seconds between the unplugging and replugging of USB devices. This also applies in particular to touch control in control units with touch screen panels.
- When using standard USB peripherals, bear in mind that their EMC immunity level is frequently designed for office applications only. These devices may be used for commissioning and servicing. However, only industry-standard devices are allowed for industrial operation.
- Peripherals are developed and marketed by individual vendors. The respective manufacturers offer support for the peripherals. Moreover, the terms of liability of the individual vendors or suppliers apply here.

1.6.2 Connecting the 100 V to 240 V AC power supply

General connection information

Note the following in order to operate the device safely and according to regulation:

Note

Voltage range

The power supply module is designed for operation on 100 to 240 V AC networks. The device adjusts automatically to the voltage.

Notice

Risk of damage

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

Notice

Power supply network

The device is designed for operation on grounded power supply networks (TN systems to VDE 0100, Part 300, or IEC 60364-3).

It is not permissible for operation on ungrounded or impedance-grounded power networks (IT networks).

Notice

Permitted mains voltage

The local rated voltage must be within the voltage range of the device.

Notice

Power disconnection

The built-in switch does not disconnect the device from mains. The mains connector on the device must be disconnected to fully isolate the device from mains. The mains connector must be easily accessible.

If this cannot be guaranteed, in cabinet installation, for example, or the mains connector clamp is used, an easily accessible power switch **must** be built into the device.

Power Factor Correction

The power supply contains an active PFC (Power Factor Correction) circuit to conform to the EMC guidelines.

Uninterruptible AC power systems (UPS) must supply a sinusoidal output voltage in the normal and buffered mode when used with SIMATIC PCs with an active PFC.

UPS characteristics are described and classified in the standards EN 50091-3 and IEC 62040-3. Devices with sinusoidal output voltage in the normal and buffered mode are identified with the classification "VFI-SS-...." or "VI-SS-....".

Notice

Risk of damage

Operation of the device on a non-sinusoidal mains voltage can cause damage to the power supply unit.

Country-specific connection information

For the USA and Canada

A UL-listed power supply cable must be used in the United States and Canada. Power cables are provided as an accessory for the specific country of delivery.

- **120 V supply voltage**
Use a flexible power cable with UL approval and the following features: Type SJT with three leads, min. 18 AWG conductor cross-section, max. 4.5 m long and parallel 15 A ground contact connector, minimum rating 125 V.
- **230 V supply voltage**
Use a flexible power cable with UL approval and the following features: Type SJT with three leads, min. 18 AWG conductor cross-section, max. 4.5 m long and tandem 15 A ground contact connector, minimum rating 250 V.

For countries other than the USA and Canada

- **Please note local supply voltages**
This device is equipped with a safety-tested power cord which may only be connected to a ground contact 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.

Connecting the power supply

Steps for connecting the device to the 100 / 240 V AC power supply	
1	Switch off the AC power source
2	Connect the power supply using the connector

Power consumption

The maximum AC power consumption is 360 W.

1.6.3 Connecting the 24 V DC power supply

General connection information

Note the following in order to operate the device safely and according to regulation:

Notice

Power supply

The device must only be connected to 24 V DC power supply systems or 24 V DC power supplies which meet the requirements of a safe extra-low voltage (SELV). Use the supplied connector to connect it to the supply voltage.


Notice

Connecting the protective conductor

A protective conductor must be connected to the device. The conductors must withstand the short-circuit current of the 24 V DC power source, so that a short-circuit will not damage the cable. You may use cables with a cross section of 5 mm².

Connecting the power supply

Steps for connecting the device to the 24 V DC power supply	
1	Ensure that the ON/OFF switch is in the '0' (OFF) position to prevent unintentional startup of the device when connecting it to the 24 V DC power supply
2	Switch off the 24 V DC power supply
3	Connect the 24 V DC power supply to the screw terminals: (1) +24 V DC (2) 0 V DC (3) protective ground conductor



Power consumption

The maximum DC power consumption is 265 W.

1.6.4 Connecting the equipotential bonding circuit

A low resistance ground connection ensures that interference signals generated by external power supply cables, signal cables or cables to the I/O modules are safely discharged to ground.

The equipotential bonding connection of the device is located on the right-hand side of the computer unit and is identified by the following symbol:



Figure 1-4 Equipotential bonding

Connecting the equipotential bonding circuit

You require a TORX T20 screwdriver to connect the equipotential bonding conductor.

Steps for connecting the equipotential bonding	
(1)	Connect the equipotential bonding connection (M4 thread) (1) on the device (large surface, large-area contact) with the central grounding point of the control cabinet. The minimum permissible cross-section is 5 mm ² .

1.7 Commissioning

1.7.1 Initial startup

Configuring the operating system

Note

Requirements for initial start-up

Before switching on the computer for the first time, check that the equipotential bonding is connected and that all connecting cables are plugged in correctly. Also check that a USB keyboard and a USB mouse are connected to the PC.

When the computer starts up for the **first** time, the Windows 2000 / Windows XP Professional operating system on the hard disk is configured automatically. Proceed as follows:

1. Connect the device to the power supply. The PC performs a self-test (POST). During the self-test, this message appears:

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

2. Wait until the message is cleared, then follow the instructions on the screen.

Notice

The 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.

3. Automatic Restart

After you have entered all necessary information and the operating system is configured, the PC automatically restarts and displays the user interface of the operating system.

Note

System startup can take longer than usual for the initial commissioning.

When you switch on the PC now, the user interface of the Windows 2000 / Windows XP Professional operating system is automatically opened when the startup routine is completed.

Note

Windows login

If you have assigned an administrator password, you must log in before you can access the operating system. For Touch devices, it is possible to log in using the OSKGina screen keypad.

Note

To prevent data loss, it is advisable to create an image of your system partition after initial commissioning.

Switching off the device

When you work with Windows 2000 / Windows XP Professional, always shut down the PC with the command **Start > Turn Off Computer**.

1.7.2 Setting up the language selection

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

The default setting on your device is Windows 2000 / 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 to **non-Unicode programs** under **Advanced** in addition to the language for menus and dialog boxes

1.7.3 Setting the panel type

After the device is restarted, different dialogs appear on the screen. Drivers and applications can be installed from these dialogs.

1. In the "Panel Wizard" dialog, click the type of panel that corresponds to your device.



Figure 1-5 Panel Wizard, selection of the panel type

2. Follow the instructions on the screen.

1.7.4 KeyTools (for key panel devices only)

SIMATIC KeyTools is one selection of the applications for your Panel PC. These applications allow you to adapt key codes that are sent by the key panel of the control unit. SIMATIC KeyTools consists of the following applications:

- Key code table: Loading and editing of key code tables
- WinCC hotkey function: WinCC hotkey function activation and deactivation
- Security features: Lock function that prevents two function keys from being activated simultaneously. This prevents incorrect operations and undefined states of the user program.

Note

For a detailed description of the SIMATIC KeyTools please refer to the help menu and the application description on the "Documentation and Drivers" CD.

Calling up KeyTools

1. Call KeyTools using the "Start" menu and command "Settings > Control Panel > SIMATIC KeyTools"
2. Select the desired application and follow the instructions on the screen.

Notice

Malfunctions of the user software

For security reasons always use the "Security features". If you deactivate it nevertheless, serious malfunctions of the user software may occur when the additional function keys and softkeys F11 to F20 and S1 to S16 are used or if own key code tables are used.

1.7.5 Screen keyboard (for touch panel device only)

You can operate the device by means of a virtual screen keyboard. You can use it to enter the characters directly on the touch screen or with an externally connected mouse.

Calling up TouchInput

Call up the "TouchInput" application on the desktop. The screen keyboard is displayed.



- (1) Key for selecting the keyboard layouts for specific countries: German, English, Italian, Spanish, French

1.8 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.

Find your contact partner at:

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

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

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

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

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

Training center

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

Phone: +49 (911) 895-3200.

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

Technical support

You can reach technical support for all A&D products at:

- Support request form on the web:
<http://www.siemens.com/automation/support-request>
- Phone: +49 180 5050 222
- Fax: +49 180 5050 223

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

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

There you will find:

- The newsletter which provides the latest information on your products
- Relevant documentation for your application which you can access via the search function in our service & support database.
- The current BIOS version
- A forum is available for users and specialists from all over the world to exchange experiences
- Your local Siemens partner for Automation & Drives in our partner database
- Information about on-site service, repairs, spare parts. Lots more is available under "Services"

You can find the latest information about your device at the following address:

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

