SIEMENS

SIMATIC

Industrial PC SIMATIC Panel PC 477B

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

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Disclaimer of Liability

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

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Operating Instructions (compact)

1.1 Safety instructions



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 correct 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.

1.2 Product documentation

Product documentation

The detailed operating instructions for Panel PC 477B is provided as a PDF file that is available on the Documentation and Drivers CD or can be downloaded on the Internet under the following address: http://support.automation.siemens.com

1.3 Unpacking and checking the delivery

- 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.

Notice

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.

Note

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 contents of the package for completeness and transportation damage. Check for completeness using the enclosed scope of delivery list.
- 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".



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

8. Note the identification information (see chapter "Identification data of the device").

1.4 Components of the Product

Amount	Designation	Description
1	SIMATIC Panel PC 477B	
1	Documentation and Drivers CD	Contains the documentation and the hardware drivers.
1	Operating Instructions (compact) SIMATIC Panel PC 477B	Printed copies in German and English of the SIMATIC Panel PC 477B Operating Instructions (Compact). Additional language versions (French, Spanish, Italian and Chinese simplified) are provided as PDF files on the Documentation and Drivers CD.
6	Clamp	Mounting clamp for the SIMATIC Panel PC 477B.
1	DC power plug	Only supply variant with 24 V DC power supply.

1.5 Device identification data

Enter the identification data of the device into the table.

Serial number (on the type plate)	S VP
Order no. of the device	
Microsoft Windows Product Key from the "Certificate of Authenticity" (COA).	
Ethernet address 1:	
Ethernet address 2: BIOS Setup (F2 key) under Main > Hardware Options > Ethernet Address	

1.6 Accessories

These accessories are not included in the product package.

Accessories	Order No.
PCI-104 / PC/104Plus expansion kit	6AG4070 - 0BA00 - 0XA0
512 MB Compact Flash card	6ES7648 - 2BF01 - 0XD0
1 GB Compact Flash card	6ES7648 - 2BF01 - 0XE0
2 GB Compact Flash card	6ES7648 - 2BF01 - 0XF0
SIMATIC USB-Flash Drive, USB 2.0, 512 MB	6ES7648 - 0DC20 - 0AA0
SIMATIC USB Flash Drive, USB 2.0, 1 GB	6ES7648 - 0DC30 - 0AA0
256 MB DDR2 SODIMM memory module	6ES7648-2AG20-0GA0
512 MB DDR2 SODIMM memory module	6ES7648-2AC30-0GA0
1 GB DDR2 SODIMM memory module	6ES7648-2AG40-0GA0
2 GB DDR2 667, SODIMM memory module	6ES7648 - 2AG50 - 0HA0
Screw mounting 19" device	6AV7672-8KE00-0AA0

1.7 Affixing Labeling Strips for Function Keys and Softkeys

Note

The following table applies only to devices with a key panel.

The control unit has two horizontal and two vertical keypads for the function keys and the softkeys. Assign user specific functions to the keys as needed. You can mark these keys with labeling strips. A4 films for creating the labeling strips are available as accessories.

Proceed as follows to affix the labeling strips:

Preparing the labeling strips

- 1. Label the DIN A4 film with a laser printer, for example using the printing templates provided on the Documentation and Drivers CD.
- 2. Cut the labeling strips along the pre-printed lines.

Note

Do not insert handwritten labeling strips until the ink has dried.

Separating the control unit from the computer unit

Caution

Work on the open device may only be carried out by authorized and qualified personnel. Within the warranty time, you are only allowed to install expansions for memory and expansion card modules.

Caution

The device contains electronic components that can be destroyed by electrostatic charges. You should therefore follow safety precautions when opening the device. Refer to the (ESD) guidelines for handling electrostatic sensitive devices.

Tool required to separate the computer unit from the control unit: Torx T10 screwdriver

1. Disconnect the device from the power supply.

/ Warning

Unauthorized opening of the device may result in substantial damage to equipment or endanger the user. Always disconnect the device from the power supply before opening it.

- 2. Unplug all peripherals (mouse, keyboard, external monitor, for example) from the device.
- 3. Loosen the indicated screws that secure the computer unit to the control unit.

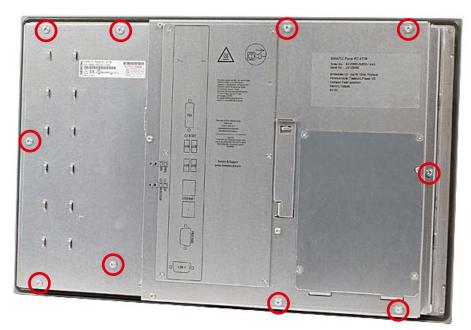


Figure 1-1 Example 12" touch screen device

Note

Device variants

The number of screws to be screwed out varies depending on the device variants.

1.7 Affixing Labeling Strips for Function Keys and Softkeys

4. Fold out the computer unit along the articulated joint.



Figure 1-2 Example 12" touch screen device: Separating the computer unit from the control unit

Affixing the labeling strips

Notice

Risk of damage

Do not under any circumstances touch exposed components of the control unit.

Insert the labeling strips into the slots provided on the rear of the control unit.



Figure 1-3 Device rear with connections and slots for the labeling strips

- 1 Slots for long labeling strips, vertical keypads
- 2 Slots for short labeling strips, horizontal keypads
- 3 Slots for labeling strips, horizontal keypads

Screwing the computer unit onto the control unit

Mount the computer unit back onto the control unit using the screws that were removed beforehand.

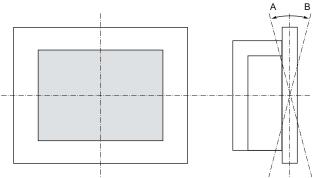
1.8 Installing/Mounting

1.8.1 Permitted mounting positions

Mounting positions

Only vertical installation with two mounting directions of up to +15° and -15° or up to +30° and -30° are permitted for the device.

With installed Compact Flash card



Temperatur	e at the device	Angle A	Angle B
Rear	Front		
5° - 50°C	Max. 40°C	15°	15°
5° - 45°C	5° - 45°C	15°	15°
5° - 40°C	5° - 40°C	30°	30°

Mechanical environmental conditions

Vibration

- Operation, tested in accordance with DIN IEC 60068-2-6 10 to 58 Hz: 0.075 mm 58 to 200 Hz: 9.8 m/s2
- Storage/transport, tested according to IEC 60068-2-27, IEC 60068-2-29 50 m/s2, 30 ms, 250 m/s2, 6 ms,

1.8.2 Preparing the mounting cut-out

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

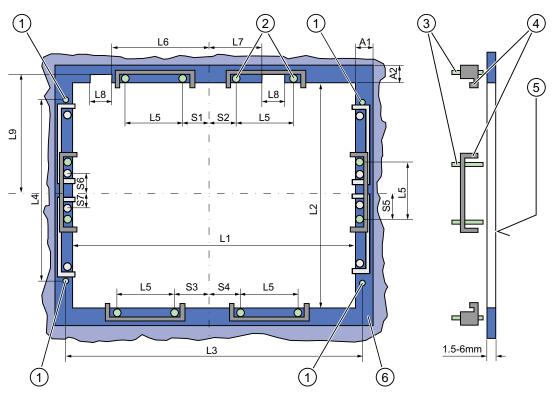


Figure 1-4 Drill holes for the screws and pressure points for the clamp screws

- (1) Drill hole for screw attachment
- (2) Pressure points for clamp
- (3) Setscrews

- (4) Clamp
- (5) R_Z 120 in the seal area
- (6) Seal area

Note

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

1.8 Installing/Mounting

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	±0.2	±0.5	±0.5	±0.5	±0.5	+1	±1	±1	±1	±1	±1	±1
Key panel 12" TFT 15" TFT	450 450	290 321	465 465	235 279	112 112	<u> </u>	<u> </u>	<u> </u>	<u> </u>	16 16	10 17	78 51	78 51	56 56	_
Touch panel 12" TFT	368	290	_	_	112	_	_	_	_	16	10	19	35	56	_
15" TFT 19" TFT	450 450	290 380	465 465	235 235	112 112 112	_	_	_	_	16 16	10 10 10	81 46	81 46	56 —	33

¹⁾ M6 thread or drill holes with a diameter of 7 mm

Preparing the mounting cut-out

Ste	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 dimensions, 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.				

²⁾ Cut-outs for the shafts of the insert strips are only necessary for 15" key panels.

³⁾ Two clamps necessary for vertically securing clamps only for 19" touch panel fronts.

1.8.3 Securing the Device with Clamps

You require 6 clamps in order to mount the device. These are supplied with the device. Required tool for fasting the clamps: Allen wrench 2.5 mm



Figure 1-5 Clamp assembly

Rack mounting

Ste	Steps for fastening the device with clamps				
1.	Follow the installation instructions.				
2.	Disconnect the device from the power supply.				
3.	Working from the front, insert the device into the 19" rack.				
4.	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 mounting

Ste	Steps for fastening the device with clamps				
1.	Follow the installation instructions.				
2.	Disconnect the device from the power supply.				
3.	Working from the front, place the device onto the swivel arm.				
4.	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

Ste	Steps for fastening the device with clamps				
1.	Follow the installation instructions.				
2.	Disconnect the device from the power supply.				
3.	Working from the front, insert the device into the mounting cut-out.				
4.	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 IP65 degree of protection is only provided for a clamp mounting together with a ring seal.

1.8 Installing/Mounting

Notice

Switchgear 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 of the mounting cut-out in relation to the external dimensions for an installed HMI device is ≤ 0.5 mm.

1.8.4 Securing the Device with Screws

IP54 degree of protection

This degree of protection is ensured for screw mounting.

Notice

Switchgear 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 of the mounting cut-out in relation to the external dimensions for an installed HMI device is ≤ 0.5 mm.

Note

Securing with screws is not possible with the 12" touch screen variant.

Required tool for fasting with screws: 7 mm drill

Notice

Only use the catalog-listed mounting material (order number 6AV7672-8KE00-0AA0) for 19" devices for screw mounting.

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.

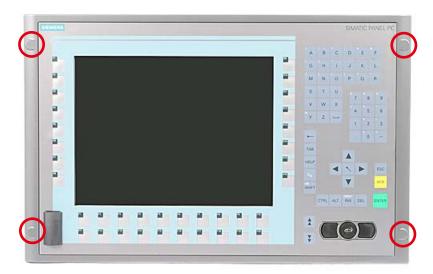


Figure 1-6 Designated location for holes on the control unit

Rack mounting

Ste	Steps for fastening the device with screws				
1.	Follow the installation instructions.				
2.	Carefully drill the respective holes in the control unit at the designed location from the rear.				
3.	Working from the front, insert the device into the 19" rack.				
4.	Secure the control unit by inserting suitable screws through the holes and attaching nuts.				

Swivel arm mounting

Ste	Steps for fastening the device with screws				
1.	Follow the installation instructions.				
2.	Carefully drill the respective holes in the control unit at the designed location from the rear.				
3.	Working from the front, place the device onto the swivel arm.				
4.	Secure the control unit by inserting suitable screws through the holes and attaching nuts.				

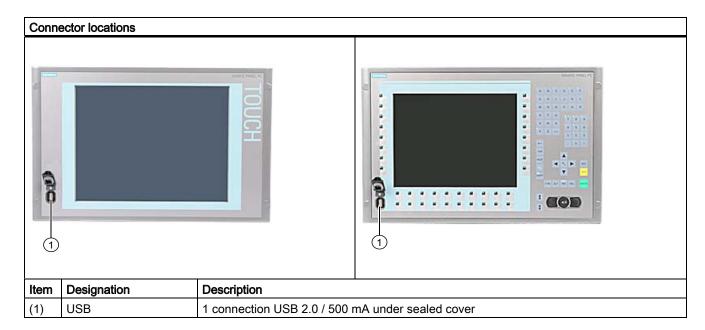
Switchgear cabinet installation

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

1.9 Connecting

1.9.1 Connection components

Connectors of control unit

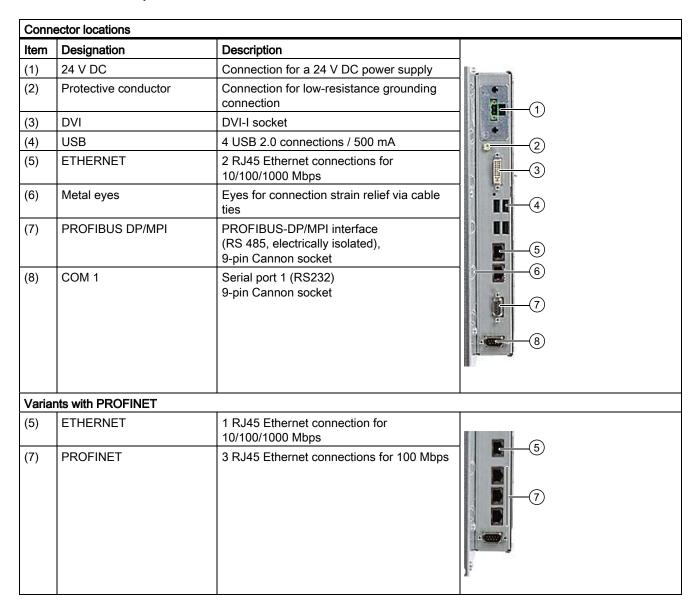


Notice

Ensuring of protective class

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

Connectors of computer unit



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. 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.

1.9.2 Connecting the 24 V DC power supply

Note before connecting

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

/ Warning

The device is only allowed to be connected to a power supply VDC 24 according to NEC class 2 or LPS (Limited Power Source).

Use the special plug supplied to connect the supply voltage.

The protective conductor on the device needs to be connected to the protective earth conductor which is integrated in the cabinet.

Notice

The 24V DC power source must be adapted to the input data of the device (see technical specifications).

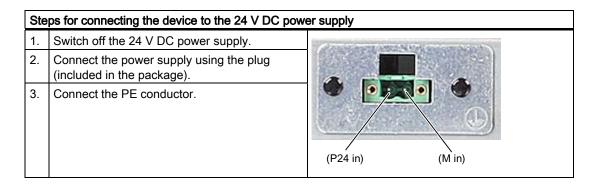
Notice

The permitted cable cross-section for the 24 V DC connection is 0.75 mm² to 2,5 mm².

Notice

If a Compact Flash card is used in the device, be sure that the card is properly installed before you connect it.

Connecting 12" and 15" devices



Power consumption

The power consumption at 24 V amounts to 70 W.

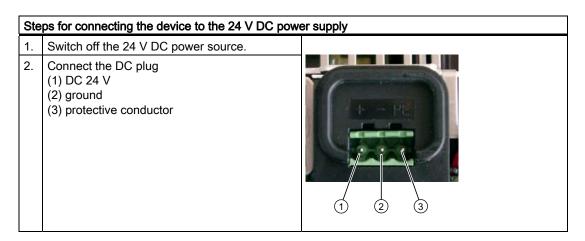
Implementing the protective conductor

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

Required tool for protective conductor: TORX T20 screwdriver.

1. Connect the protective conductor (M4 threads) (1) on the device (large surface, large-area contact) with the protective earth conductor of the cabinet or plant in which the device is to be installed. The minimum conductor cross-section may not amount to less than 5 mm².

Connecting 19" devices



Power consumption

The power consumption at 24 V amounts to 90 W.

1.10 Commissioning

1.10.1 Commissioning Information

Note

Starting up Windows XP Embedded for the first time

System startup can take longer than usual for the initial commissioning. Only a blue screen is displayed for several minutes.

Notice

Windows XP Embedded: Observe EWF Information

A configurable write filter (Enhanced Write Filter) is available under Windows XP Embedded. Please observe the EWF rules during activation and use, since a data loss may otherwise occur.

Note

Refer to the supplied Operating Instructions Compact (Software) to learn about the procedure for installing the Compact Flash card with the Windows XP Embedded operating system.

1.10.2 Basic commissioning - initial startup

Setting up the operating system

When the computer starts up for the **first** time, the Windows XP operating system on the Compact Flash card or hard disk is configured automatically. Proceed as follows:

1. Connect the device to the 24 V DC 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 this 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. Restart

After you have entered all the necessary information and the operating system is configured,

you are prompted to restart the system. Acknowledge this prompt with Yes.

Note

System startup can take longer than usual for the basic commissioning. A blue screen is displayed for several minutes.

Note

Errors and warnings can be displayed in the status bar, with the first and second switch on of the initial commissioning or after a restore procedure This will have no effect on the device functions.

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

Note

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

Switching off the Device

When you work with Windows XP Embedded, always shut down the PC with the command **Start > Shut Down**.

Note

The Enhanced Write Filter should be enabled following the installation of Windows XP Embedded on a Compact Flash card. The device can then be switched off by disconnecting the power supply.

1.10.3 Setting the Panel Type

Once the device has rebooted, several dialogs appear on the screen. Drivers and applications can be installed from these dialogs.

Setting the panel type

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

Note

The devices with touch panel require a USB mouse or USB keyboard for commissioning.



Figure 1-7 Panel Wizard, Welcome dialog

2. In the "Panel Wizard Touch" dialog, click on the screen size that corresponds to your device. The screen resolution is set correspondingly for the device.



Figure 1-8 Touch panel; selection of the screen size

The next step only applies to control units with touch screen panels.

Once the screen size is selected, the wizard will search for new hardware, the touch controller. The Panel Wizard closes and the Touch Base calibration appears. Carry out the following steps carefully.

Touch screen calibration

After concluding the "Panel Wizard" dialog, the touch controller is installed.

1. Calibrate the touch screen.



Figure 1-9 Start touch screen calibration

2. Confirm with "OK".

1.10.4 Device with key panel

1.10.4.1 Activating KeyTools

SIMATIC KeyTools is one selection of the applications for SIMATIC 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 und deactivation.
- Security features: Lock function that prevents two function keys from being activated simultaneously. This prevents incorrect operations and undefined states of the application program.

Note

For a detailed description of the SIMATIC KeyTools, refer to the help menu and the application description on the Documentation & Drivers DVD.

Opening Keytools

- 1. Open Keytools with the command **Start > 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 F13 to S16 are used or if own key code tables are used.

1.10.5 Device with touch screen

1.10.5.1 Recalibrating the Touch Screen

If the touch screen does not react as expected when touched, repeat the calibration.

Procedure

Select "Start > Programs > UPDD > Settings".
 The "UPDD Console" dialog box opens.

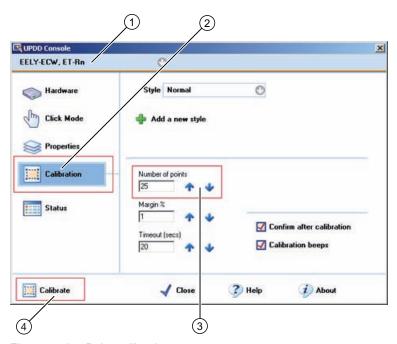


Figure 1-10 Point calibration

- 2. Select the screen (1) you wish to calibrate.
- 3. Click on "Calibration" (2).
- 4. Activate "25-point calibration" (3).
- 5. Click on "Calibrate" (4).

The calibration mask is output on the selected display.

6. Touch the blue arrow.

The input is confirmed by a tick, and the next arrow is displayed.

7. Confirm all input prompts (arrows, or crosses in the center) until the complete screen has been calibrated.



Faulty operation

If you touch the touch screen while configuring it or if the screen saver is active, the SIMATIC process visualization software, e.g. ProTool/Pro, will carry out the functions which happen to be behind it.

Caution

Only touch one point on the touch screen and not several points at one time. You may otherwise trigger unintended reactions.

Do not touch the screen in the following situations:

- During the booting process
- When plugging or unplugging USB components
- While Scandisk is running

1.10.5.2 Activating the Screen Keyboard

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 the mouse.

Starting Touch Input

Start the "Touch Input" application on the desktop. The screen keyboard is displayed.



(1) Button for language selection: German, English, Italian, Spanish, French

1.11 Service and support

Local information

If you have questions about the products described in this document, you can find help at: http://www.siemens.com/automation/partner

Technical documentation for SIMATIC products

Further documentation for SIMATIC products and systems can be found at: http://www.siemens.de/simatic-tech-doku-portal

Easy shopping with the A&D Mall

Catalog & online ordering system http://www.siemens.com/automation/mall

Training

All the training options are listed at: http://www.siemens.com/sitrain

Find a contact at: Phone: +49(911) 895-3200

Technical support

Tel +49 180 5050 222

Fax +49 180 5050 223

http://www.siemens.com/automation/service

You will find support request web form at:

http://www.siemens.de/automation/support-request

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

Online support

Information about the product, Support and Service, right through to the Technical Forum, can be found at: http://www.siemens.com/automation/service&partner

After-sales information system for SIMATIC PC / PG

Information about contacts, drivers, and BIOS updates, FAQs and Customer Support can be found at: http://www.siemens.com/asis