

SIMATIC PC

Panel PC 670 / 870 Operating Unit

Equipment Manual

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Safety information

This manual contains information which you must observe for your personal safety and to prevent material damage. The information is denoted by a warning triangle and is differentiated as follows, depending on the degree of danger:



Danger

indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious injury.



Warning

indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.



Caution

used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Caution

used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Notice

indicates a situation which, if not avoided, could give rise to an undesirable result or state.

Note

is an important piece of information about the product, the handling of the product or a particular part of the documentation to which attention is to be drawn.

Qualified personnel

Only **qualified personnel** are permitted to start up and operate the device. Qualified personnel for the purposes of the safety information in this manual are persons who hold the necessary authorization to install, ground and label devices, systems and circuits in accordance with the standards of safety engineering.

Correct usage

Please note the following:



Warning

The device may only be used for the application cases specified in the catalog and the technical description and may only be used in combination with third-party equipment and components recommended or approved by Siemens.

Startup must not take place until it is established that the machine which is to accommodate this component is in conformity with the guideline 98/37 EC.

Appropriate transport, and appropriate storage, installation and assembly, as well as careful operation and maintenance, are required to ensure that the product operates perfectly and safely.

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We have checked the content of this publication for compliance with the described hardware and software. However, discrepancies cannot be excluded, with the result that we cannot guarantee total compliance. The information in this publication is, however, checked regularly, and any necessary corrections are included in the following editions. We welcome any suggestions for improvement.

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Preface

Purpose of the manual

This manual contains information which you require when using the operating unit of the SIMATIC Panel PC 670 or PC 870. With this information you can:

- become acquainted with the functions and components of the operating unit,
- separate the operating unit from the computing unit,
- install the Panel PC
 1. Centrally (installed with operating unit and computing unit integrated), or
 2. in remote mount form factor (operating unit and computing unit installed separately, refer to Chapter 5)
- perform upgrades and install spare parts, providing you fulfill the necessary conditions.

Target group

The manual is supplied as an electronic document in PDF-format together with the SIMATIC Panel PC 670 or PC 870 and has been written for the following readers:

- users who commission the device themselves or work with the Panel PC (editing, testing),
- service and maintenance engineers who perform conversions and install upgrades or spare parts.

Documentation

- *Commissioning Instructions*
The Commissioning Instructions are supplied as a paper document. The document is intended for commissioning engineers and system administrators. The Commissioning Instructions describe briefly the most important steps for commissioning the hardware and software.
- *SIMATIC Panel PC 670/PC 870 Operating Unit Equipment Manual*
The manual is supplied on CD together with the SIMATIC Panel PC 670 or PC 870 as an electronic document in PDF-format. It is intended for the commissioning engineers and service and maintenance technicians who install the Panel PC and perform maintenance work on the operating unit. Furthermore, the Equipment Manual provides an overview of how to use the controls of the operating unit.
- *SIMATIC Panel PC 670 Computing Unit Equipment Manual*
The manual is supplied on CD together with the SIMATIC Panel PC 670 as an electronic document in PDF-format. It is intended for the commissioning engineers, and service and maintenance technicians who install upgrades or perform error analyses on the computing unit.
- *SIMATIC Panel PC 870 Computing Unit Equipment Manual*
The manual is supplied on CD together with the SIMATIC Panel PC 870 as an electronic document in PDF-format. It is intended for the commissioning engineers, and service and maintenance technicians who install upgrades or perform error analyses on the computing unit.

Notation

The following conventions are used in this manual:

<i>Motor off</i>	Text that is displayed on the operating unit is printed in Courier typeface.
<i>Variable</i>	Symbolic names that stand for variable values appearing on the screen are printed in Courier italic typeface.
<i>Screens</i>	Selectable functions are printed in standard italic typeface.
ESC	Names of keys and buttons are shown in a different typeface.

History

Edition	Comments
03/00	Initial release of the equipment manual SIMATIC Panel PC 670 – Operating Unit.
07/01	Initial release of the equipment manual SIMATIC Panel PC 670/870 – Operating Unit.
12/01	Extension to include the "remote mount form factor" option of the SIMATIC Panel PC 670/870 – operating Unit equipment manual.
07/02	Technical update of the SIMATIC Panel PC 670/870 – Operating unit equipment manual.

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Siemens offers a number of training courses to familiarize you with the SIMATIC S7 automation system. Please contact your regional training center or our central training center in D 90327 Nuremberg, Germany for details.

Telephone: +49 (911) 895–3200

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Other Sources of Assistance

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The addresses can be found:

- in the Siemens Catalogue ST 80
- in the Internet under
<http://www.siemens.com/automation/partner>
- in the Interactive Catalogue CA01
<http://www.siemens.com/automation/ca01>

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Product Overview

Usage

The SIMATIC Panel PC 670/870 is an industry-standard PC platform for demanding tasks in the field of PC-based automation. The Panel PC is designed for on-site use on the machine, installed for example in

- 19" cabinets/racks,
- Control cabinets and consoles,
- Swivel arms (booms).

The SIMATIC Panel PC 670/870 is available in two configurations:

- Panel PC in standard mount form factor (computing unit and operating unit integrated)
- or as a Panel PC in remote mount form factor (computing unit and operating unit spatially separated, refer to Chapter 5).

The present equipment manual describes

- Chapters 2 to 4 basically describe the specific characteristics of the operating unit, but also make reference to the complete unit where necessary – for example, with regard to the dimensions for mounting, maintenance and technical specifications.
- Chapter 5 describes the remote mount form factor of the Panel PC.

1.1 Panel PC 670: Computing and operating units

The computing unit is screwed to the rear of the operating unit with two mounting rails and can be separated from the latter. Figure 1-1 shows an example of the complete device and indicates the connection between the computing unit and the operating unit (2 of the 4 screw joints are marked with circles). Details on how to separate the two components are contained in Section 4.2.1.

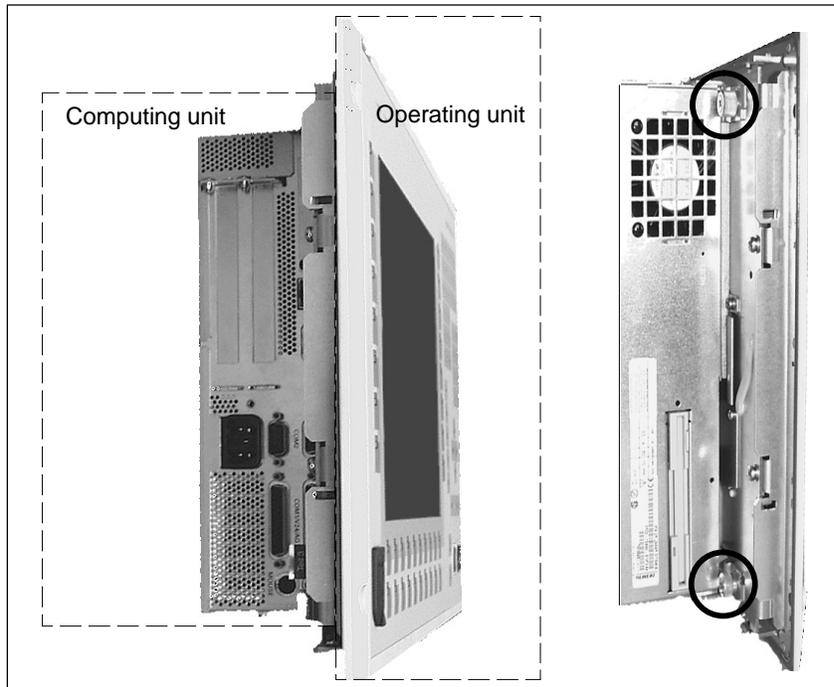


Fig. 1-1 Panel PC: Computing unit and operating unit

Brief description

The SIMATIC Panel PC 670 can be supplied with various operating units, which differ by way of their display size and style of operation, which is either by **membrane keyboard** or **touchscreen**.

The following different versions are available:

Keyboard versions

- Color display with back-lighting
 - 10.4" TFT screen; 640 x 480 pixel resolution
or
 - 12.1" TFT screen; 800 x 600 pixel resolution
or
 - 15.1" TFT screen; 1024 x 768 pixel resolution

- Membrane keyboard with alpha, numeric, cursor and control keypad
- Function keys/soft keys
 - 2 x 8 vertical rows of keys with soft-key and optional direct-key functions
 - 2 x 10 horizontal rows of keys with soft-key functions
 - labeling strips for the rows of soft keys
- Shift key for switching to the second level of key functions
- Integrated piezo mouse
- Status LEDs for power supply and temperature
- USB interface on front side for connecting external peripheral devices
- Degree of protection up to IP 65 ¹⁾ depending on version
- Mounting: Clamps on rear side or 19" screw fixing

Touchscreen versions

- Color display with back-lighting
 - 12.1" TFT screen; 800 x 600 pixel resolution or
 - 15.1" TFT screen; 1024 x 768 pixel resolution
- Status LEDs for power supply and temperature
- USB interface on front side for connecting external peripheral devices ²⁾
- Degree of protection up to IP 65 / NEMA 4 ¹⁾ depending on version
- Mounting: Clamps on rear side; alternatively 19" screw fixing for 15.1" version

¹⁾ see Technical Data (Appendix)

²⁾ not for option "operating unit without front side USB interface" (see Technical Data in Appendix)

1.2 Panel PC 870: Computing and operating units

The computing unit is screwed to the rear of the operating unit with two mounting rails and can be separated from the latter (see Section 4.2.2).

Figure 1-2 shows an example of the complete device:

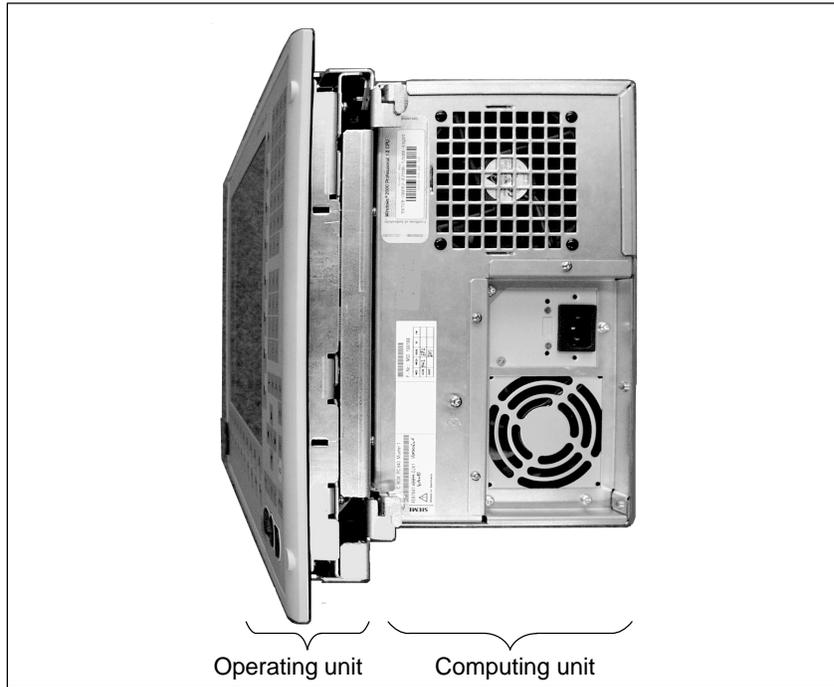


Fig. 1-2 Panel PC 870: Complete device, comprising computing unit and operating unit

Brief description

The SIMATIC Panel PC 870 can be supplied with various operating units, which differ by way of their display size and style of operation, which is either by **membrane keyboard** or **touchscreen**.

The following different versions are available:

Keyboard versions

- Color display with back-lighting
 - 12.1" TFT screen; 800 x 600 pixel resolution
 - or
 - 15.1" TFT screen; 1024 x 768 pixel resolution
- Membrane keyboard with alpha, numeric, cursor and control keypad

- Function keys/soft keys
 - 2 x 8 vertical rows of keys with soft-key and optional direct-key functions
 - 2 x 10 horizontal rows of keys with soft-key functions
 - labeling strips for the rows of soft keys
- Shift key for switching to the second level of key functions
- Integrated piezo mouse
- Status LEDs for power supply and temperature
- USB interface on front side for connecting external peripheral devices
- Degree of protection up to IP 65 ¹⁾ depending on version
- Mounting: Clamps on rear side or 19" screw fixing

Touchscreen version

- Color display with back-lighting,
 - 12.1" TFT screen; 800 x 600 pixel resolution ³⁾
 - or
 - 15.1" TFT screen; 1024 x 768 pixel resolution
- Status LEDs for power supply and temperature
- USB interface on front side for connecting external peripheral devices ²⁾
- Degree of protection up to IP 65 / NEMA 4 ¹⁾ depending on version
- Mounting: Clamps on rear side; alternatively 19" screw fixing

¹⁾ see Technical Data (Appendix)

²⁾ not for option "operating unit without front side USB interface" (see Technical Data in Appendix)

³⁾ available only in remote mount form factor

Description of Device

2

Table 2-1 indicates which combinations of operating units and computing units can be delivered.

Table 2-1 Combinations of operating units and computing units which can be delivered

Available in combination with	10"	12"	12" Touch	15"	15" Touch
PC 670	x	x	x	x	x
PC 870	–	x	x *)	x	x
PC 670 / 870 without front side USB interface	–	–	x	–	x

*) available only in remote mount form factor

2.1 Operating units with key-based front panels

The number of keys, their labeling and their functionality are identical on all operating units featuring key-based front panels. The various types of front panel differ only in the arrangement the keys and the size and type of display. Figure 2-1 shows the front view of the 12" version as an example to illustrate the status indicators, the different keypads, the USB interface, display and mouse.

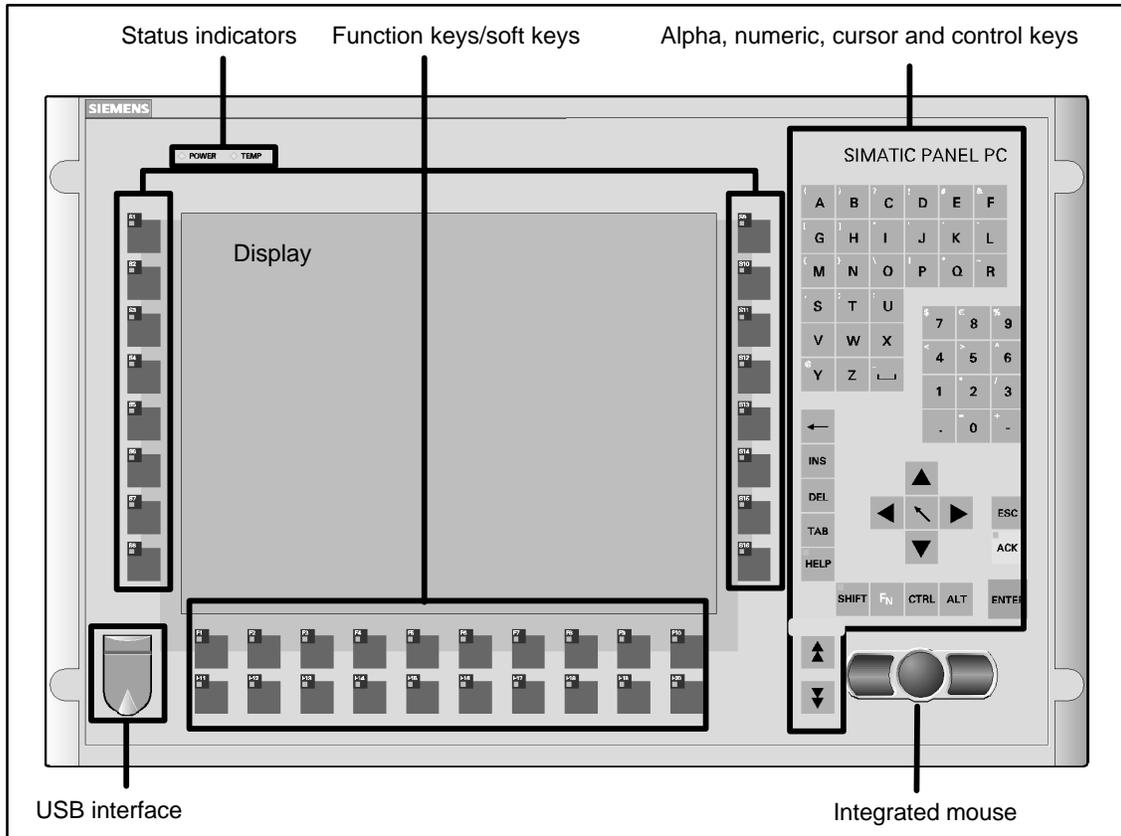


Fig. 2-1 Example: 12" version of the operating unit with key-based front panel

2.1.1 Status indicators

Information about the operation status is supplied by the two LEDs at the upper left side of the keyboard:

- The left LED ("POWER") lights when the power supply works
- The right LED ("TEMP") lights when a temperature threshold is exceeded (see "SOM-program" in chapter 7 of the "Computing Unit" manual).

2.1.2 Keyboard

The keyboard is subdivided into different functional groups of keys:

- function keys, soft keys
- control keys
- alpha keys
- numeric keys
- cursor keys

Function keys, soft keys

The function keys arranged on the left and right of the display and in two rows at the bottom of the display possess LEDs and can be assigned freely.



Fig. 2-2 Function keys

Control keys

The control keys are used for higher-level editing and control functions in the different applications:

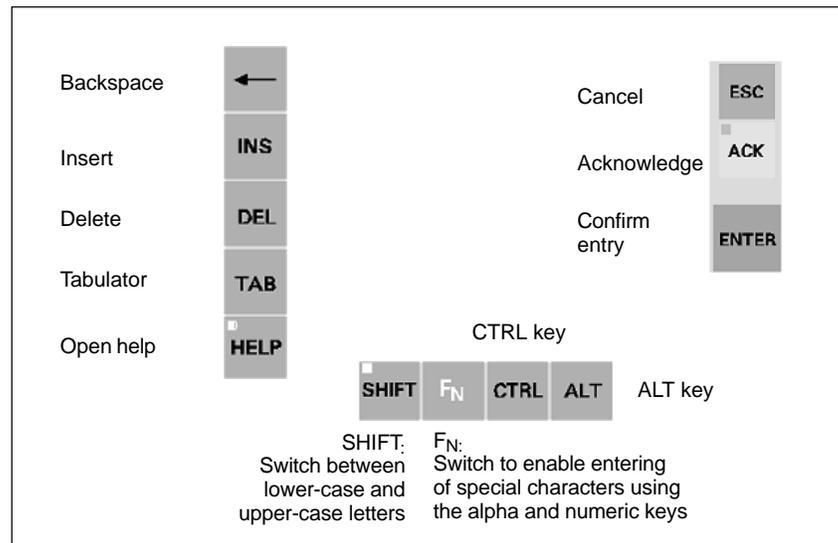


Fig. 2-3 Control keys

Alpha keys

The alpha keys are used to enter letters, special characters, spaces and underscores:

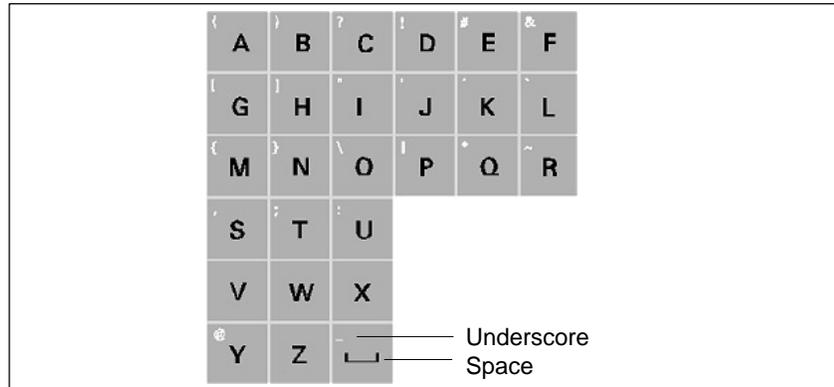


Fig. 2-4 Alpha keys

Switching between upper-case and lower-case letters

In their basic assignment, the alpha keys are used to enter lower-case letters. To enter upper-case letters, press and hold down SHIFT (see Figure 2-3). The LED on the SHIFT key lights and you can then enter upper-case letters with the corresponding alpha keys.

To enter lower-case letters again, release SHIFT. The LED on the SHIFT key goes out and you can enter lower-case characters again.

Entering special characters

Most of the alpha keys are also assigned special characters. The special characters are identified in white, in the top left corner of the keys concerned.

To enter the special character you require, press the F_N control key (see Figure 2-3) and, *in addition*, the appropriate alpha key. If you release the F_N key, you can return to entering the characters of the basic alpha key assignment.

Numeric keys

The numeric keys are used to enter the digits "0" to "9", various special characters, and the signs "+", "-", as well as hyphens ("—") and decimal points "·":

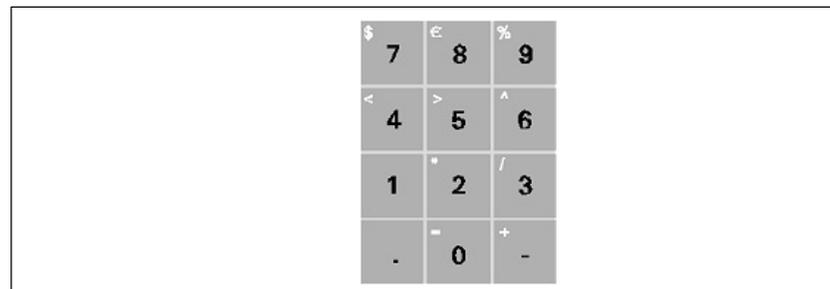


Fig. 2-5 Numeric keys

Entering special characters, arithmetic characters and signs

Most of the numeric keys have also been assigned special characters, arithmetic characters or the plus sign. The special characters are identified in white, in the top left corner of the keys concerned.

To enter the plus sign, the special character or the arithmetic character you require, press the F_N control key (see Figure 2-3) and, *in addition*, the appropriate numeric key.

If you release the F_N key, you can return to entering the characters of the basic numeric key assignment.

Cursor keys

The cursor keys are used for navigation (e.g. for scrolling) or to move the cursor. The following figure indicates the equivalents of the Panel PC cursor keys on conventional PC keyboards:

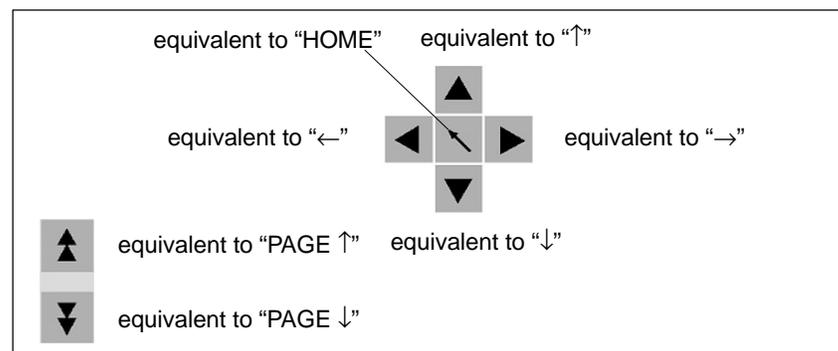


Fig. 2-6 Cursor keys and their PC keyboards equivalents

Connecting external keyboards

The keyboard layout for Windows 98 has been set to "English/USA International". When using an external keyboard with the "English/USA International" layout, the key codes of the internal and external keyboards are identical; for example, if you enter a "y" on the external keyboard and a "y" on the internal keyboard, you get a "y" on the display in either case.

2.1.3 Integrated mouse

The integrated USB mouse with the two mouse buttons is a "piezo mouse", i.e. the direction of the mouse pointer movement is determined by the pressure position on the center circular button and the speed of the mouse pointer movement by the intensity of the pressure. The parameters can be modified under "System Setting/Mouse".

If you wish, you can also connect an external mouse via the front USB (refer to Section 2.3).

2.2 Operating units with touchscreen front panels

The 12.1" version and the 15.1" version of the touchscreen front panels differ in their dimensions and the size of their displays. The 12.1" version does not have drill holes (covers) at the sides.

Figure 2-7 shows the 15.1" version as an example to illustrate the status indicators, the USB interface and the display.

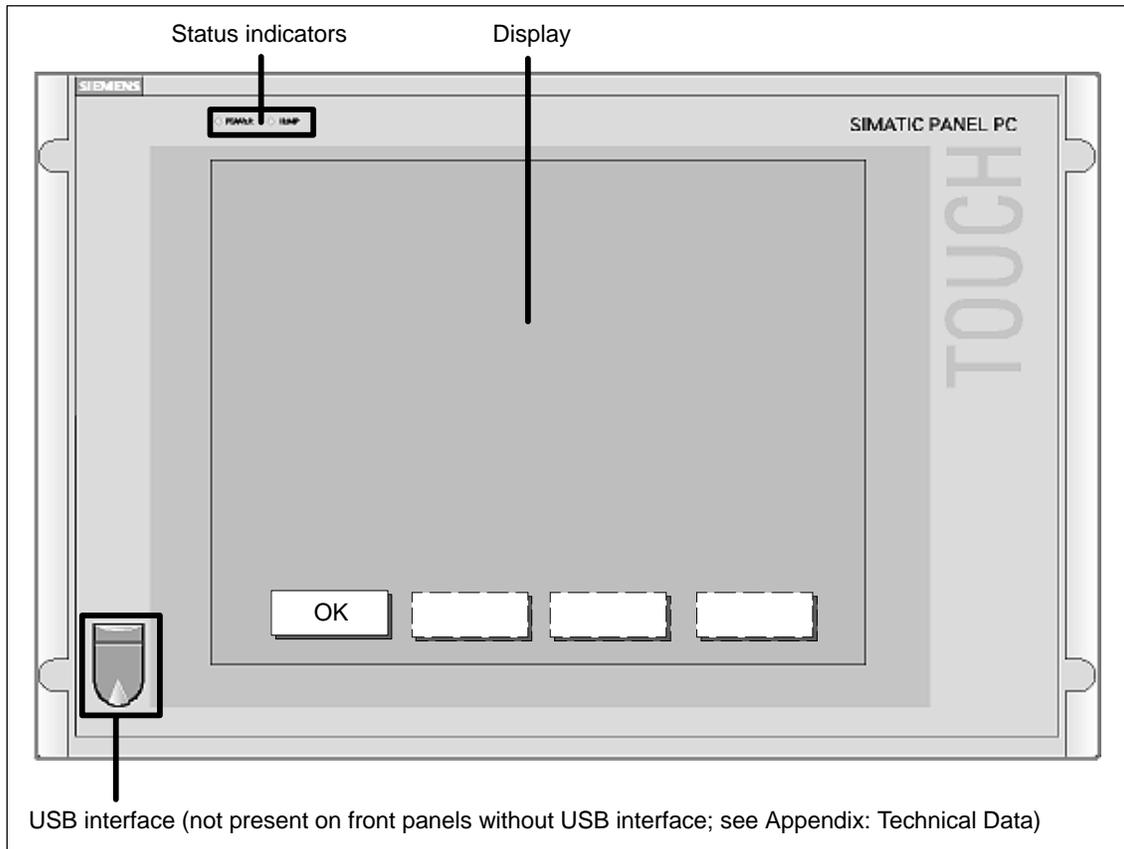


Fig. 2-7 Example: 15.1" operating unit with touchscreen front panel

Operation

The device is operated by touching the touch-sensitive display with your finger in accordance with the functions displayed for that specific application, e.g. by applying pressure to a displayed button.

Status indicators

Information about the operation status is supplied by the two LEDs at the upper left side of the keyboard (see paragraph 2.1.1):

- The left LED ("POWER") lights when the power supply works
- The right LED ("TEMP") lights when a temperature threshold is exceeded (see "SOM-program" in chapter 7 of the "Computing Unit" manual).

2.3 Interfaces

The operating unit has interfaces on the front and rear sides.

2.3.1 Front-side USB interface

On the front side of the panel (see Figures 2-1 and 2-7) there is a USB interface *) protected by a rubber cover. This can be used, for example, to connect an external keyboard or an external mouse.

*) not present on front panels without front side USB interface (refer to Appendix "Technical Data")

Note

When using generally available USB peripheral devices, you should note that their electromagnetic compatibility is frequently designed only for an office environment.

Such devices are adequate for commissioning and for servicing purposes; for industrial applications, however, we recommend the use of industry-standard components.

2.3.2 Rear-side interfaces

On the rear side (see Figure 2-8) there are two ribbon cables for connection of the computing unit:

- the I/O USB cable K1 at X1 for all signals, apart from the display interface, relevant for the connection of operating units.
- the display cable K2.

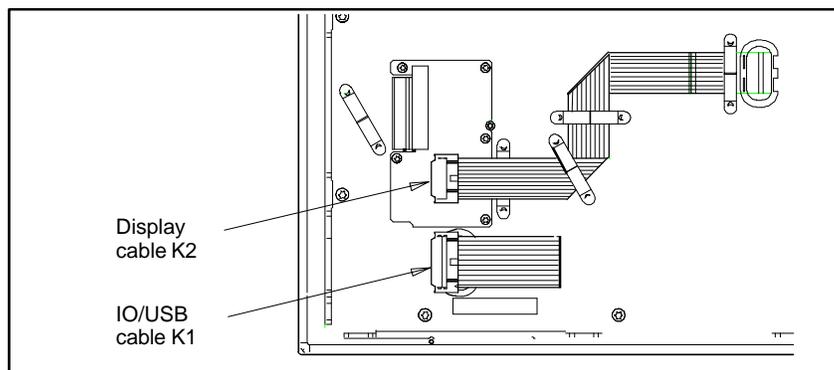
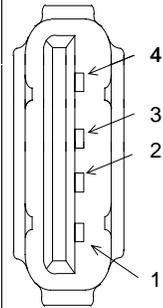


Fig. 2-8 Interfaces on the rear side of the operating unit

2.3.3 Interface assignment

Front-side USB interface

Table 2-2 Pin assignment of front-side USB interface

	Pin	Name	Type	Remark
	4	USB_GND	V	Chassis ground for external USB interface
	3	USB_D0P	B	Data+, USB channel 0
	2	USB_D0M	B	Data-, USB channel 0
	1	USB_P5V_fused	V	+ 5V (fused) for external USB interface; max. 100 mA, use an external power supply for devices requiring higher currents

Signal type

B	Bi-directional
O	Output
V	Voltage

2.4 Device dimensions

The following pages specify the unit dimensions for the Panel PC 670/870 in a central installation position.

The dimensions of the remote mount form factor you will find in chapter 5

2.4.1 Dimensions of Panel PC 670 in standard mount form factor

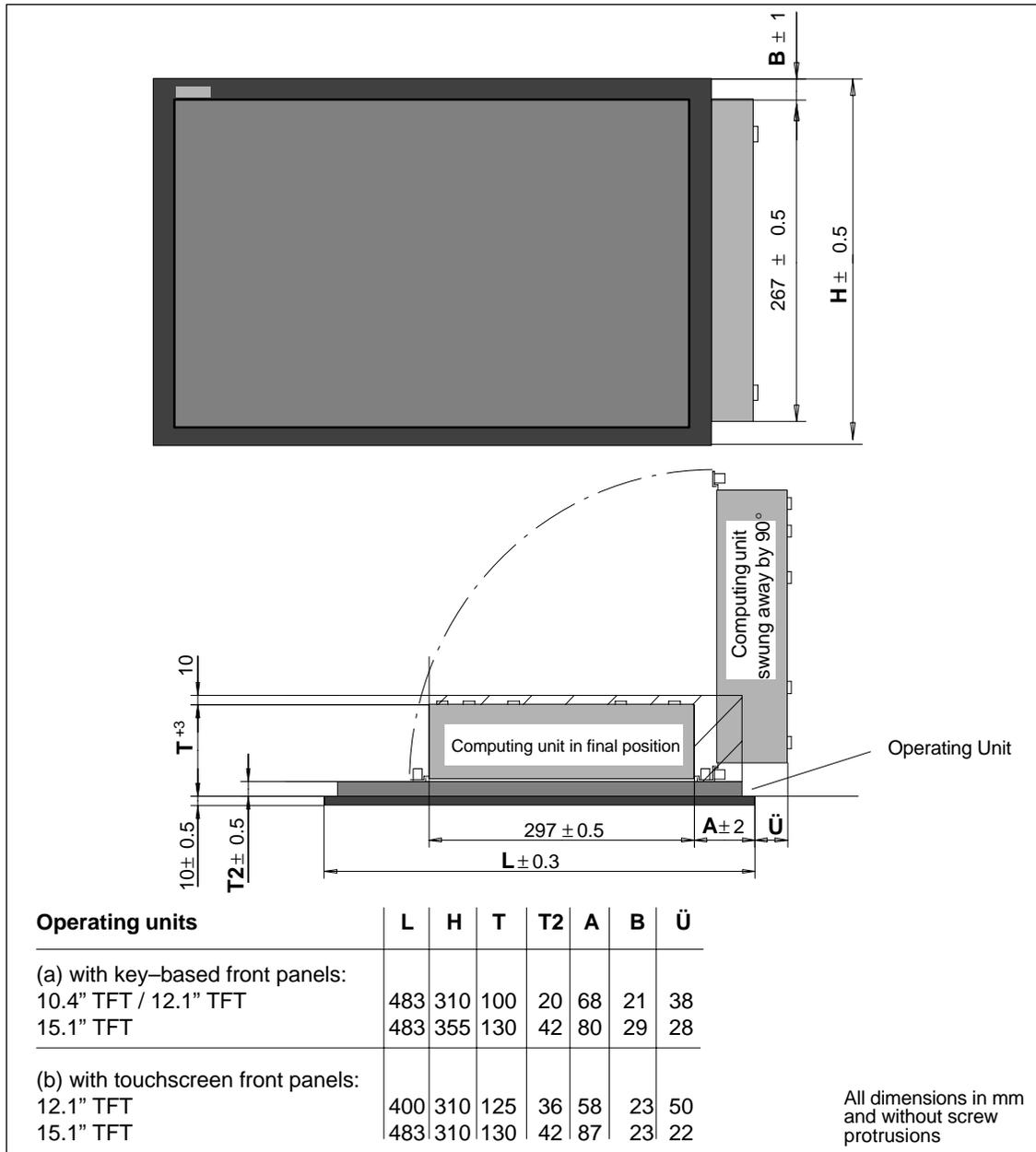


Fig. 2-9 Device dimensions Panel PC 670 in standard mount form factor without a CD-ROM drive

The computing unit contains a CD-ROM or CD-RW/DVD drive, depending on the unit version. The installation depth of the computing unit is increased by 21 mm as a result of its installation.

2.4.2 Dimensions of Panel PC 870 in standard mount form factor

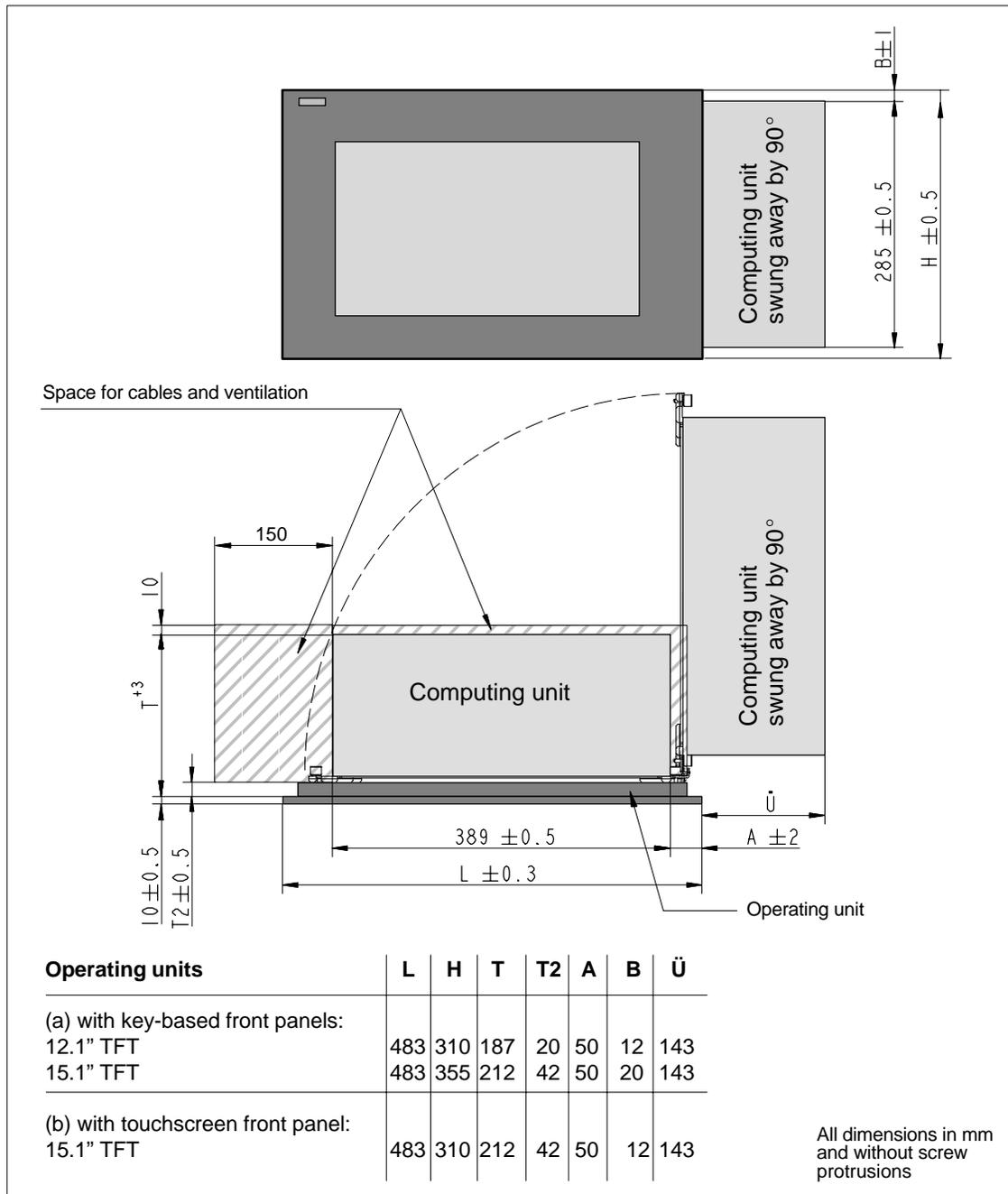


Fig. 2-10 Device dimensions Panel PC 870 in standard mount form factor without a CD-ROM drive

The computing unit contains a CD-ROM or CD-RW/DVD drive, depending on the unit version. The installation depth of the computing unit is increased by 21 mm as a result of its installation.

Mounting

3

Note

The Panel PC 670/870 is permitted for indoor use only.

The display should not be exposed to direct sun light or other strong light sources.

High frequency radiation, e.g. by mobile telephone equipment, may cause abnormal operational situations.

3.1 Mounting cut-out

3.1.1 Panel PC 670

A mounting cut-out is required as shown in the figure below:

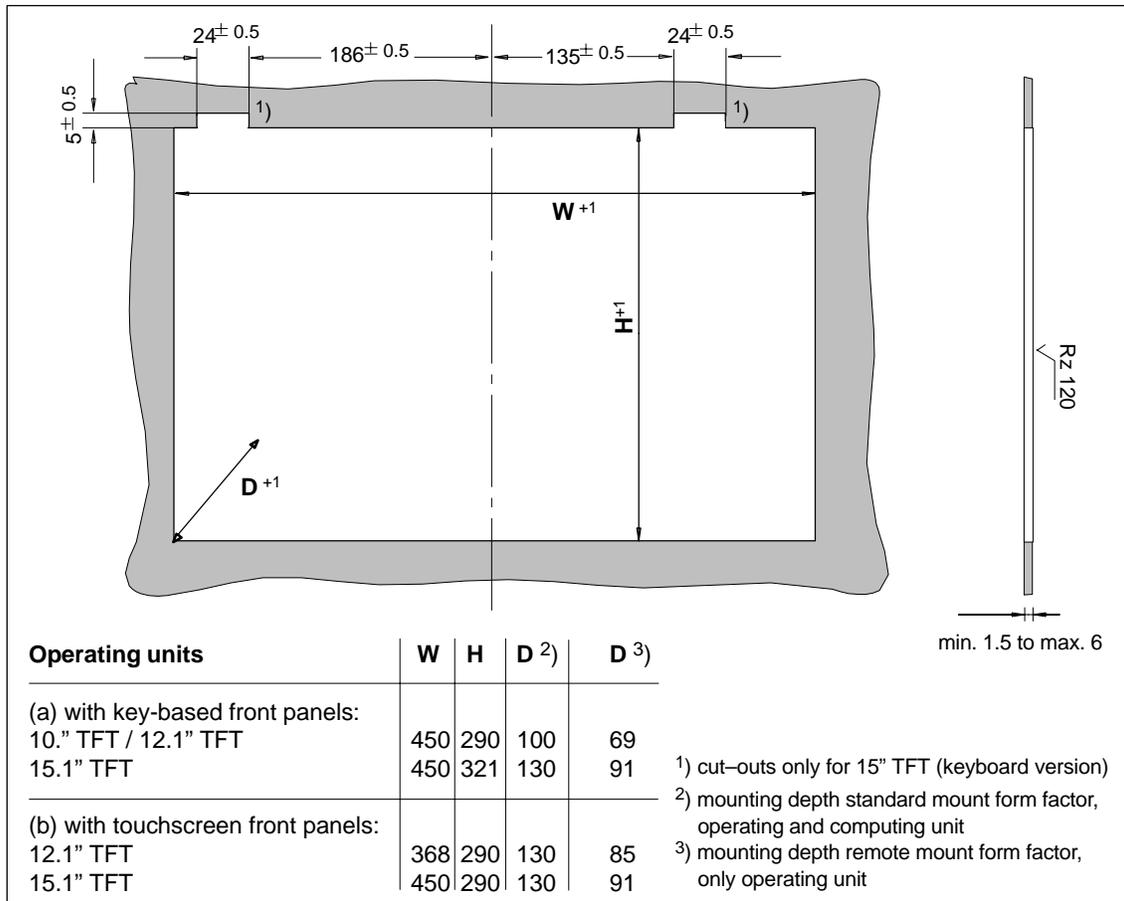


Fig. 3-1 Mounting cut-out for standard mounting of Panel PC 670 (width x height x depth in mm)

When installing in an enclosed housing, ensure that there is sufficient volume for air circulation and, if necessary, for swinging out the computing unit (see also Figure 2-9 and 4-1).

The maximum air intake temperature must not exceed 45°C.

3.1.2 Panel PC 870

A mounting cut-out is required as shown in the figure and explanatory table below:

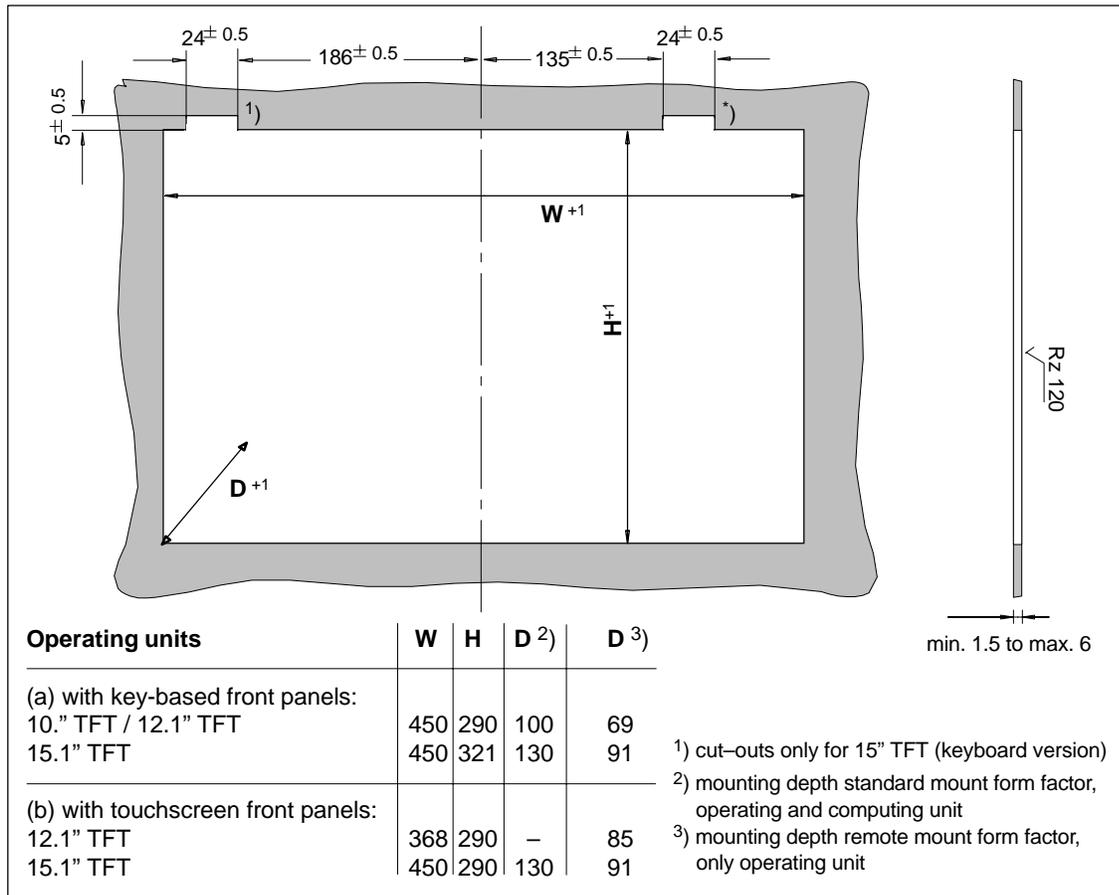


Fig. 3-2 Mounting cut-out for standard mounting of Panel PC 870 (width x height x depth in mm)

When installing in an enclosed housing, ensure that there is sufficient volume for air circulation and, if necessary, for swinging out the computing unit (see also Figure 2-10 and 4-1).

The maximum air intake temperature must not exceed 45°C.

3.2 Installation

3.2.1 Panel PC 670

The operating unit can be fitted in the mounting cut-out with either clamps or screws. Screwed joints are **not possible** with the **12.1" touchscreen version!**

Protection class IP 65 is possible when the operating unit is secured with clamps (in conjunction with a continuous gasket).

Protection class IP 54 is achieved with screw fixings.

Mounting location and dimensions

The permissible mounting locations will depend on the attached computing unit.

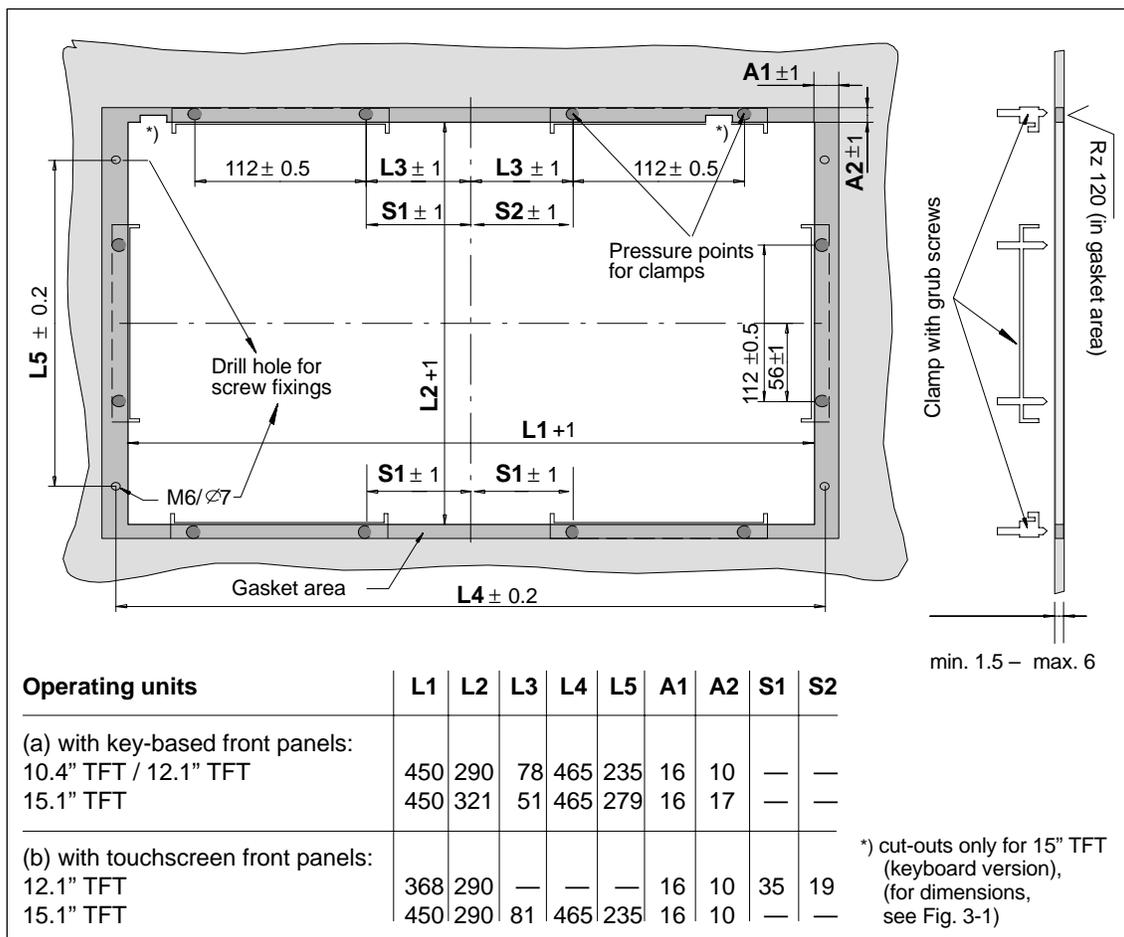


Fig. 3-3 Dimensions for installation of the operating unit of Panel PC 670

Installation with clamp fixing

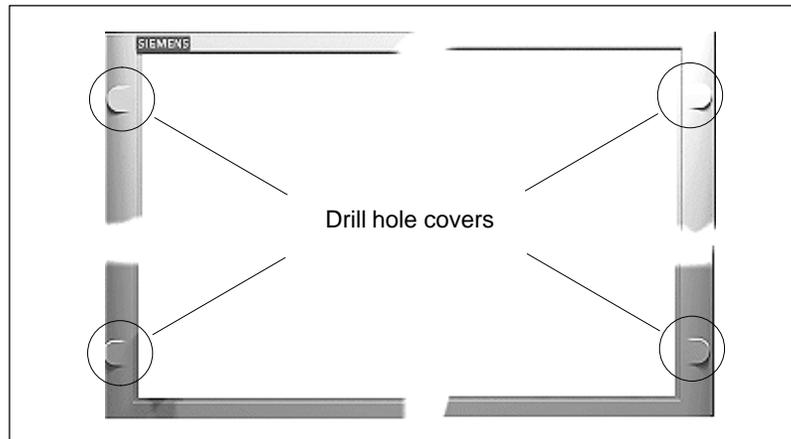
The clamps and grub screws required for installation are supplied with the device. Proceed as follows:

1. Insert the complete operating unit and computing unit into the mounting cut-out prepared as described in Section 3.1, working from the front.
2. From the rear, fix the operating unit in position in the mounting cut-out using the six clamps (see Figure 3-3) by tightening the grub screws (torque 0.4 - 0.5 Nm).

Installation with screw fixing

The 12.1" touchscreen version is not suitable for installation with screw fixings. With the other operating units, proceed as follows:

1. Drill suitable holes around the prepared mounting cut-out (see Section 3.1) as specified for L4 and L5 in Figure 3-3.
2. Carefully knock out the drill hole covers on the front side of the operating unit:



3. Working from the front, insert the complete operating unit and computing unit into the mounting cutout, ensuring that it is flush with the drill holes.
4. Fix the operating unit at the drill holes using suitable screws and nuts.

3.2.2 Panel PC 870

The operating unit can be fitted in the mounting cut-out with either clamps or screws.

- Protection class IP 65 is possible when the operating unit is secured with clamps (in conjunction with a continuous gasket).
- Protection class IP 54 is achieved with screw fixings.

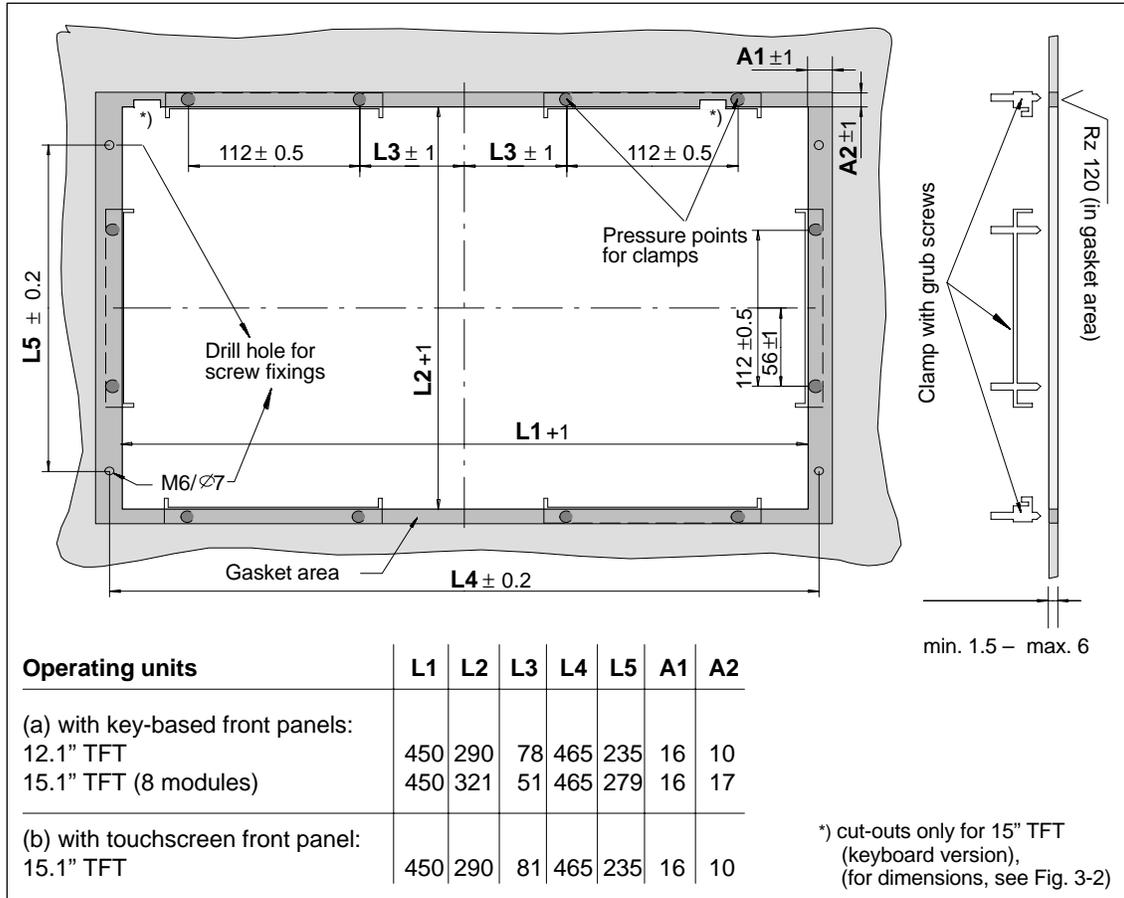


Fig. 3-4 Dimensions for installation of the operating unit of Panel PC 870

Installation with clamp fixing

The clamps and grub screws required for installation are supplied with the device. Proceed as follows:

1. Insert the complete operating unit and computing unit into the mounting cut-out prepared as described in Section 3.1, working from the front.
2. From the rear, fix the operating unit in position in the mounting cut-out using the six clamps (see Figure 3-3) by tightening the grub screws (torque 0.4 - 0.5 Nm).
3. Hook the computing unit into the two hinges (see Figure 3-5).
4. Make the electrical connections.
5. Swing the computing unit to the operating unit and fix in position by tightening the four knurled screws.

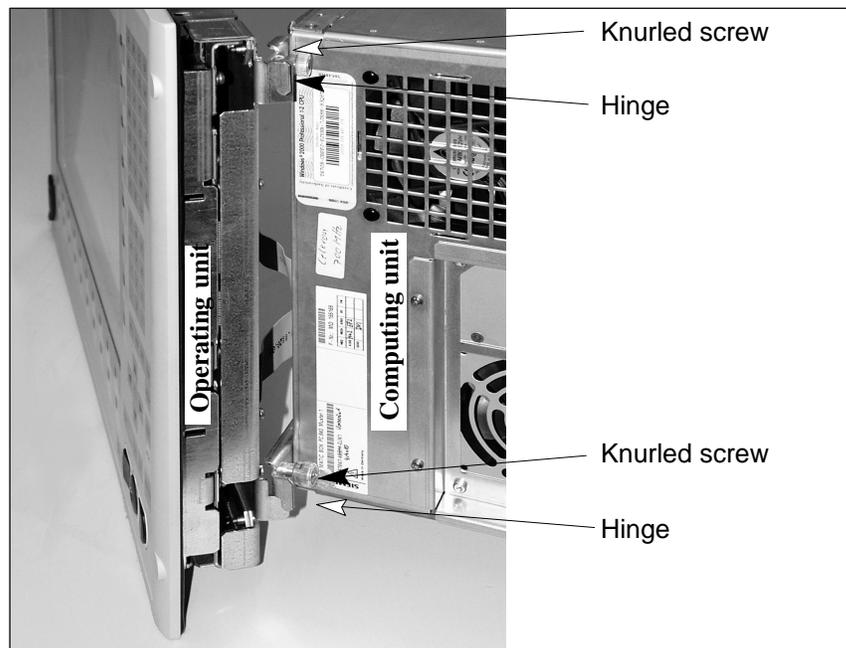


Fig. 3-5 Joining the operating and computing units

**Installation with
screw fixing**

Proceed as follows (Figure 3-6):

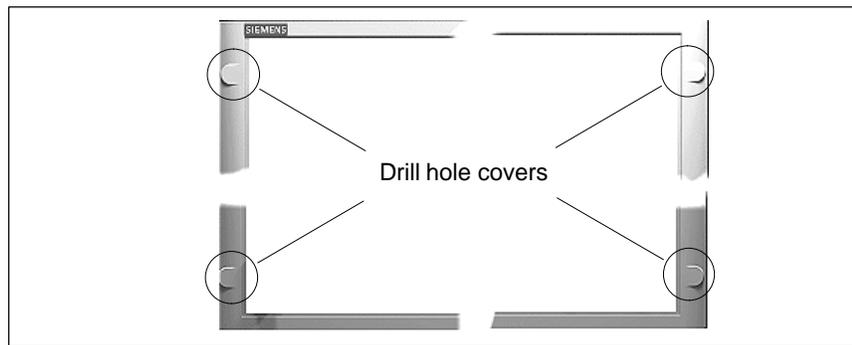


Fig. 3-6 Installation with screw fixing

1. Drill suitable holes around the prepared mounting cut-out (see Section 3.1) as specified for L4 and L5 in Figure 3-3.
2. Carefully knock out the drill hole covers on the front side of the operating unit.
3. Fix the operating unit at the drill holes using suitable screws and nuts.
4. Continue as from step 3 for clamp fixing.

Maintenance

4.1 Spare parts and accessories

4.1.1 Spare parts

The following are available as spare parts:

- For the Panel PC in standard and remote mount form factor: the complete operating unit.
It is not possible to quote a generally valid order number for the operating unit, since it depends on the current equipment configuration (operating unit plus computing unit) and its order number. You can obtain it from your Siemens office.
- For the Panel PC in remote mount form factor: the interconnecting cable as well (refer to Section 5.3).
The order numbers for the cable are listed in Table 4-1.

Table 4-1 Order numbers for interconnecting cables

2 m	5 m	10 m	20 m
6XV1440-7AH20	6XV1440-7AH50	6XV1440-7AN10	6XV1440-7AN20

4.1.2 Accessories

You can get the following accessories:

item	order no.
direct key module	6AV7671-7DA00-0AA0
protection foil for protecting the touch screen against pollution or scratching – for 12" touch screen – for 15" touch screen	6AV7671-2BA00-0AA0 6AV7671-4BA00-0AA0
soft key labeling strips for Panel PC 670 – for 10" keyboard version – for 12" keyboard version – for 15" keyboard version	6AV7671-0CA00-0AA0 6AV7671-3CA00-0AA0 6AV7671-5CA00-0AA0
printing form pattern for labeling strips: purchasing opportunity by download from the customer support (see preface)	

4.2 Detaching the operating unit in standard mount form factor from the computing unit

It may at some stage become necessary to separate the operating unit from the computing unit, e.g. to replace the operating unit.

4.2.1 Panel PC 670

Swinging open the computing unit

To swing the computing unit away from the operating unit, proceed as follows:

1. Undo the knurled screws which secure the computing unit to the rear side of the operating unit.
2. Swing the computing unit away to the left, whereby the two left clips act as hinges and thus prevent an unintentional releasing of the computing unit:

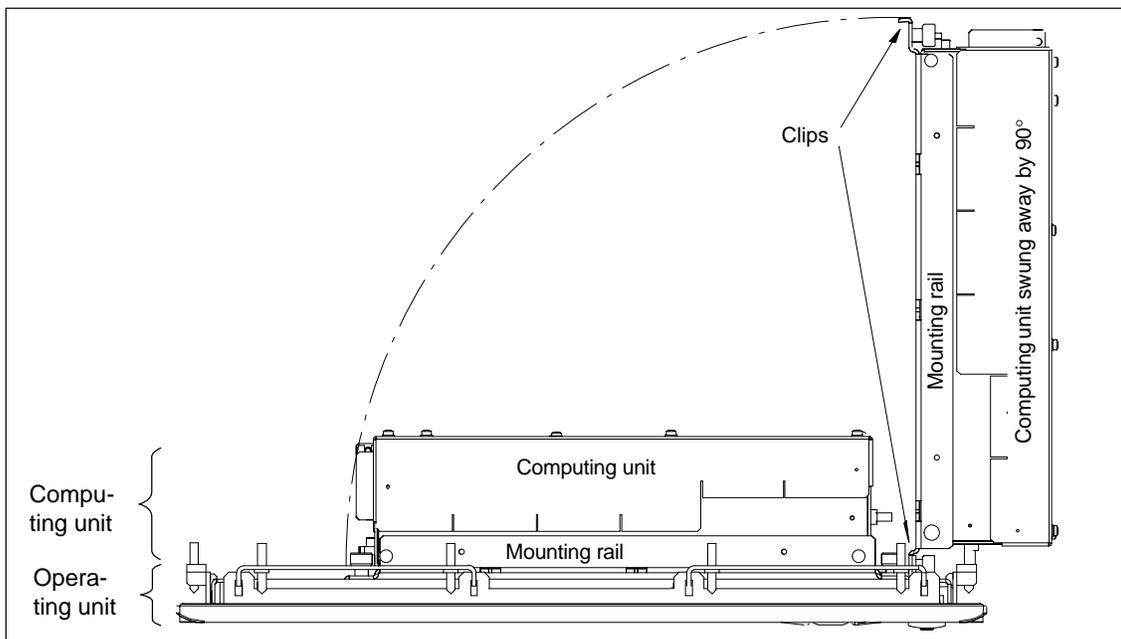


Fig. 4-1 Swinging the computing unit away from the operating unit (viewed from above)

You can now access the connections on the rear panel of the operating unit.

Removing the computing unit completely

To remove the computing unit completely, continue as follows:

3. Remove the cable connectors K1 and K2 of the operating unit (see Figure 4-2) from their corresponding counterparts on the computing unit.

Two mounting rails are screwed to the computing unit. The two ends of these rails are formed as clips (see Figure 4-1).

4. Lift the computing unit off horizontally by removing these clips from the corresponding slits on the operating unit (see Figure 4-2 below).
5. Place the computing unit down carefully.

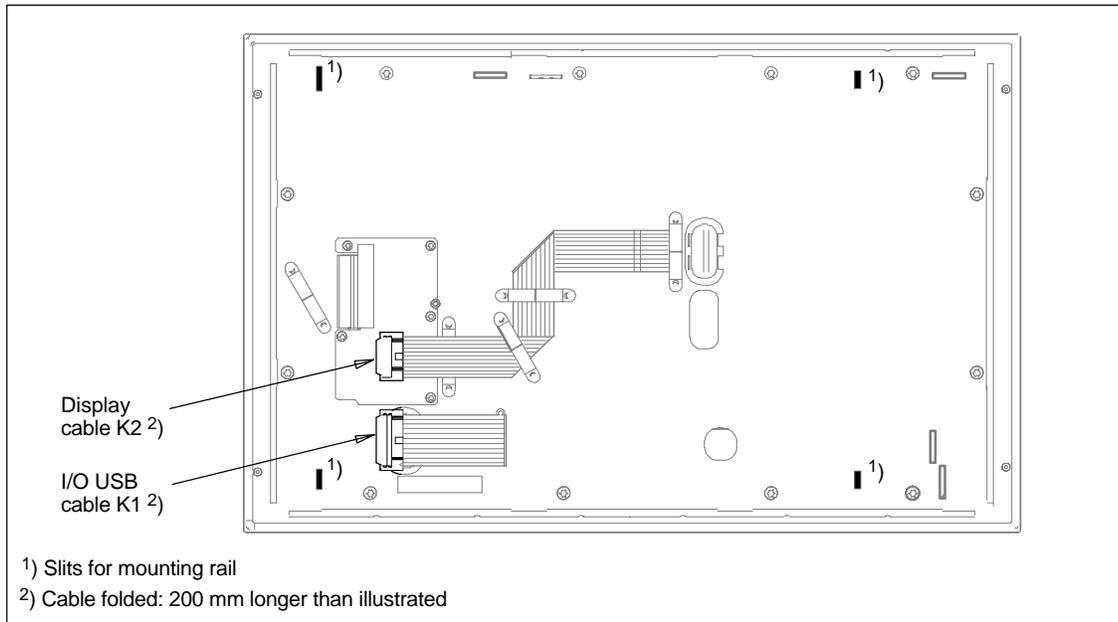


Fig. 4-2 Rear side of operating unit with positions of interfaces

If necessary, you can now remove the operating unit by loosening the six clamps which secure the operating unit to the mounting panel (see Figure 3-3).

Securing the computing unit

Reinstall and swing the computing unit back into place in the reverse order to that described above.

4.2.2 Panel PC 870

Removing the computing unit

Proceed as follows:

1. Disconnect the power supply.
2. Swing open the mounting panel to obtain access to the rear of the PC 870.
3. Loosen the four (retained) knurled screws which secure the computing unit to the rear side of the operating unit (see also Figure 3–3).
4. Swing the computing unit away to the left, whereby the two left clips act as hinges and thus prevent an unintentional releasing of the computing unit.

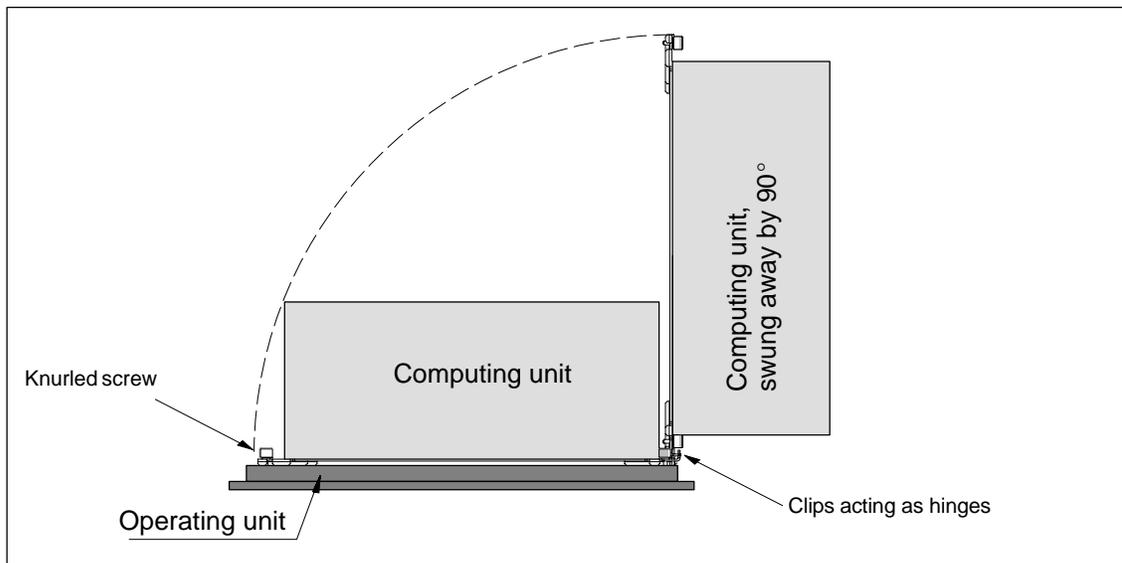


Fig. 4-3 Swinging the computing unit away from the operating unit (viewed from above)

5. Remove the cable connectors K1 and K2 of the operating unit (see Figure 4-4) from their corresponding counterparts on the computing unit.
6. Lift the computing unit off the hinges of the operating unit and place it down carefully.

If necessary, you can now remove the operating unit by loosening either the screws or, depending on the version, the six clamps which secure the operating unit to the mounting panel (see Figure 3-3).

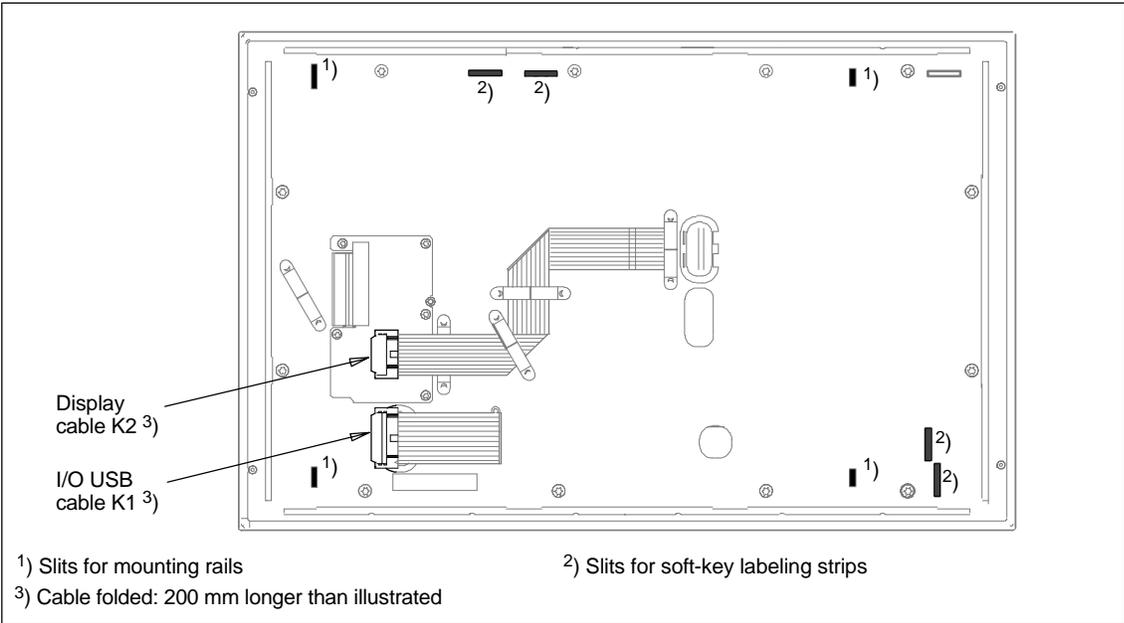


Fig. 4-4 Rear side of operating panel with positions of interfaces

Securing the computing unit

Reinstall and swing the computing unit back into place in the reverse order to that described above (see also Section 3.2).

4.3 Replacing soft key labeling (operating units with key-based front panels only)

The two horizontal and two vertical rows of soft keys of the operating units with key-based front panels can be assigned user-specific functions. You can use two printed labeling strips to identify the soft keys.

A4 foil sheets are available for you to prepare the strips for insertion.

Procedure:

1. Print the foil with a laser printer.
2. Cut the labeling strips along the preprinted lines.
3. Insert the strips through the slits provided on the rear side of the operating unit (see Figure 4-5).

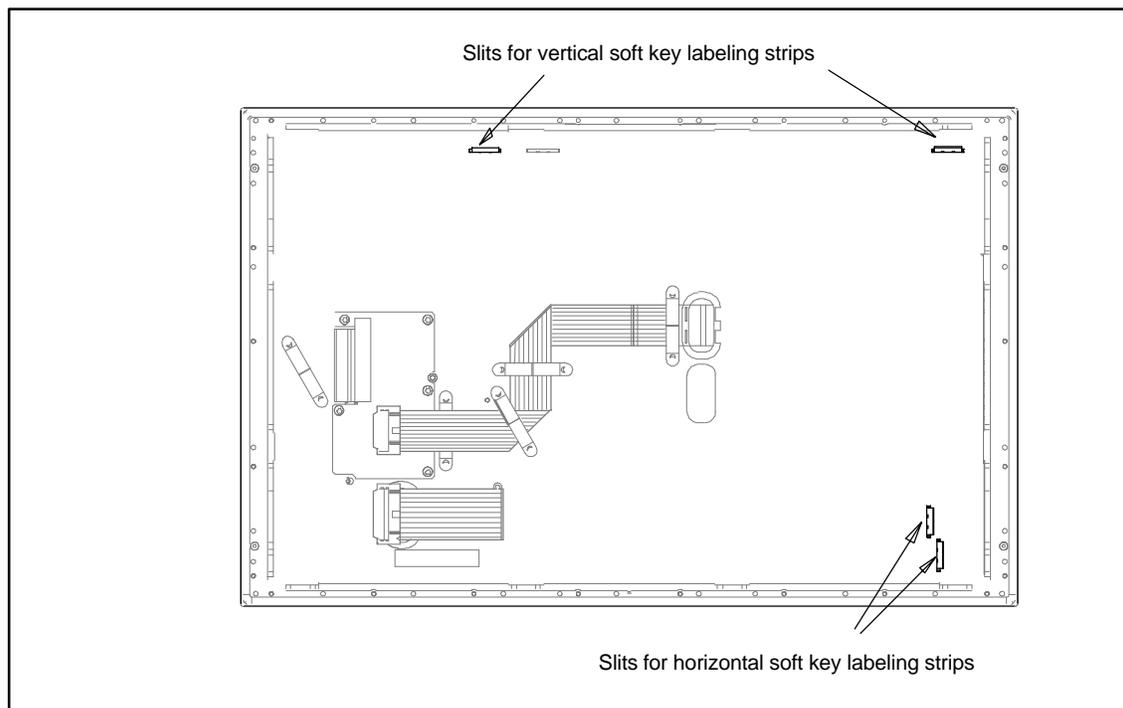


Fig. 4-5 Rear side of the operating unit with connections and slits for the soft key labeling strips

5

Remote Mount Form Factor

This chapter describes the specific features of the Panel PC in a remote mount form factor to the extent that they vary from the standard mount form factor (described in Chapters 2 to 4).

The present document centers around the operating unit.

The part of the description referring to the remote mount form factor of the computing unit will be found in "Panel PC 670 Computing Unit" and "Panel PC 870 Computing Unit" manuals.

5.1 Overview

5.1.1 Configuration

Figure 5-1 shows the components in a remote mount form factor:

1. The receiver and (optionally) a direct key module are mounted on a mounting plate that is screwed to the rear panel of the operating unit, instead of the computing unit.
2. The transmitter is fitted between the mounting rails beneath the computing unit.
3. The receiver and transmitter are interconnected by a cable up to 20 m long (refer to Section 5.3).

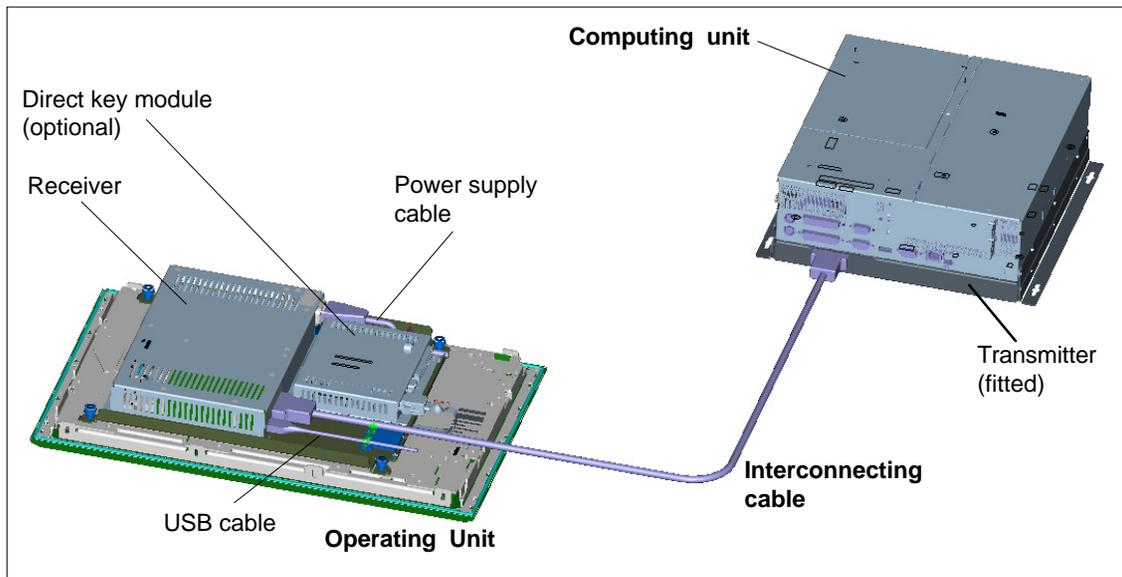


Fig. 5-1 Overview of remote mount form factor

Components

The components required for the remote mount form factor are listed below. A component has to be selected from each of items 1 to 4 for a complete system.

1. PC 670/870 operating units with receiver:
 - 12" remote
 - 12" touch, remote *)
 - 15" remote
 - 15" touch, remote *)

*) Includes operating units without USB port on front panel
2. Receiver power supplies:
 - 120 – 240 V AC
 - 24 V DC
3. Interconnecting cable:
 - 2 m
 - 5 m
 - 10 m
 - 20 m
4. Computing unit with transmitter:
 - Panel PC 670 remote
 - Panel PC 870 remote

The order will be configured before leaving the works.

5.1.2 Block diagram

The logical design of the remote mount form factor can be seen in Figure 5-2:

- The transmitter is mounted on the computing unit.
- The receiver is mounted on the operating unit.
- The distance between the transmitter and the receiver (not more than 20 m) is bridged by the interconnecting cable.

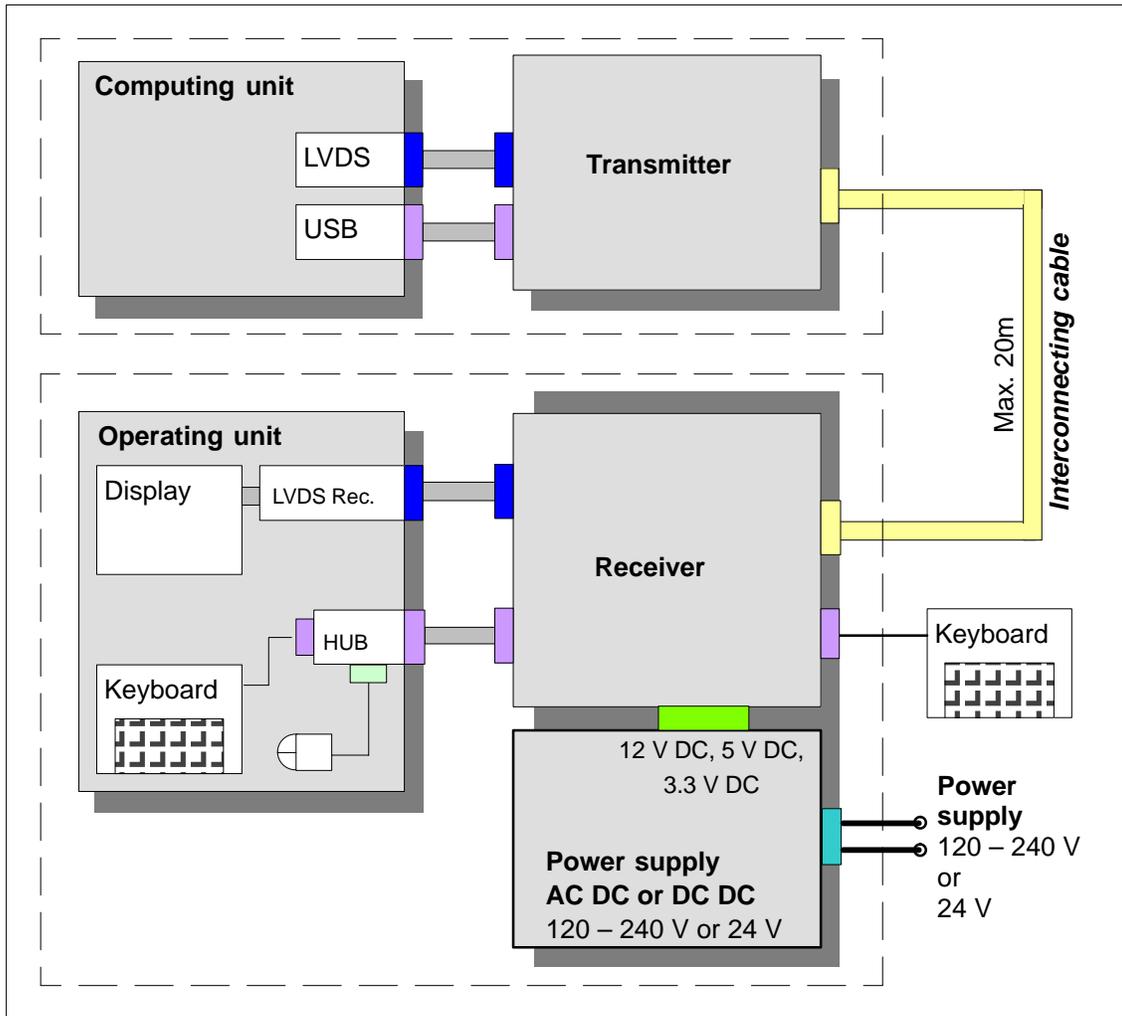


Fig. 5-2 Block diagram of central configuration

5.2.3 Mounting

The operating unit is supplied as a complete combination: operating unit with mounting plate, on which the receiver is mounted, on the rear panel.

The procedure for installation in a cabinet or housing is the same as that described in Chapter 3.

The mounting depth has to be taken into account (refer to Figure 5-4).

It results from $D + 48,6 \text{ mm} + 10 \text{ mm}$ (10 mm additional space for ventilation).

With a Panel PC 670/870 in remote mount form factor, the operating unit can be operated in an inclined position of up to 70° .

Note

Please note the correct installation of the strain relief devices for the connecting cables.

5.3 Cable connection

The transmitter (refer to "Computing Unit" manual) and receiver are interconnected by a cable not longer than 20 m (example shown in Figure 5-5).

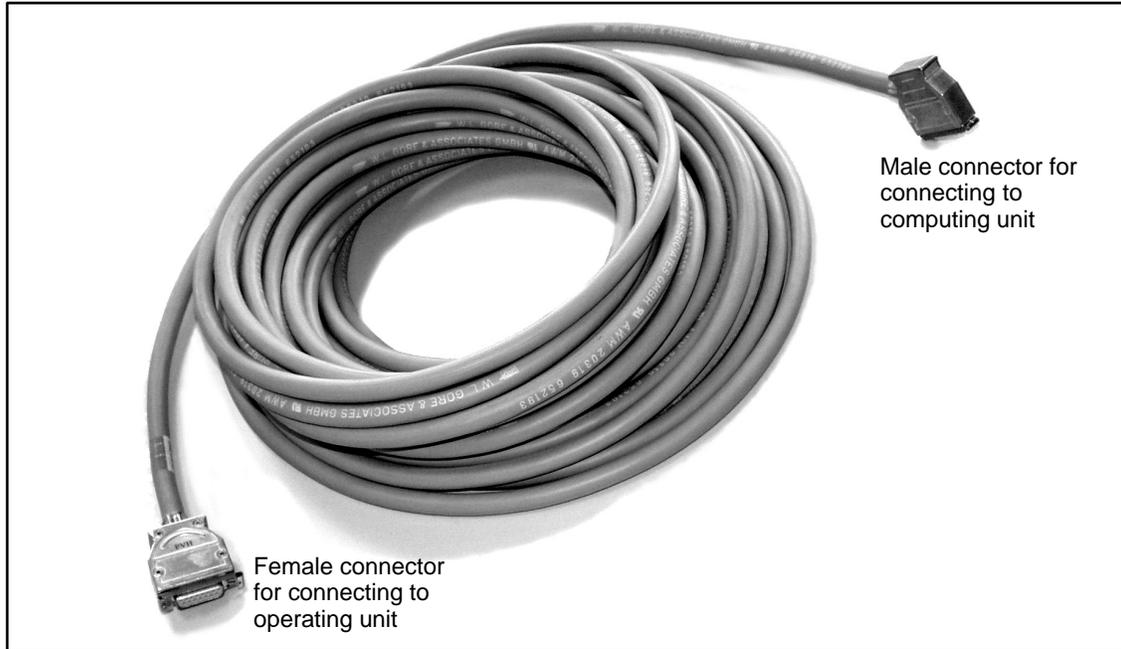


Fig. 5-5 Cable assembly for connecting operating and computing unit (20 m example)

Table 5-1 Properties of cable connectors

	Connector on computing unit	Connector on operating unit
Connector type	15-pin sub D male connector	15-pin sub D female connector
Connector design	Angled at 45°	Straight

5.4 Spare parts

For spare parts relating to the remote mount form factor refer to Chapter 4.

5.5 Technical specifications

For the technical specifications relating to the remote mount form factor refer to Appendix A.

Appendix A: Technical Data

A

A.1 Technical data of operating unit standard mount form factor

Table A-1 Panel PC technical data

Color display ¹⁾	10.4" TFT	12.1" TFT	15.1" TFT	12.1" TFT Touchscreen	15.1 " TFT Touchscreen
Resolution	640 x 480	800 x 600	1024 x 768	800 x 600	1024 x 768
MTBF of back-lighting	Typically 60,000 (24 h continuous operation, temperature-dependent)				
Keyboard and mouse					
Touchscreen, analog resistive	—		✓		
Membrane keyboard with alpha/numeric block	✓		—		
Function keys	36 with LEDs		—		
Labeling strips for function keys	✓		—		
Direct-key module	optional		—		
Front-side integrated mouse	✓		—		
Dimensions/weight					
Front panel (HM = height modules)	19" 7 HM	19" 8 HM	400 mm 7 HM	19" 7 HM	
– in mm	483 x 310	483 x 355	400 x 310	483 x 310	
– in inches	19.0 x 12.2	19.0 x 14.0	15.75 x 12.2	19.0 x 12.2	
Mounting dimensions PC 670 ²⁾ W x H x D ³⁾					
– in mm	450 x 290 x 100	450 x 327 x 127	368 x 290 x 121	450 x 290 x 125	
– in inches	17.7 x 11.4 x 3.13	17.7 x 12.9 x 4,99	14.5 x 11.4 x 4,76	17.7 x 11.4 x 4,91	
Mounting dimensions PC 870 ²⁾ W x H x D ³⁾					
– in mm	450 x 290 x 187	450 x 327 x 212	–	450 x 290 x 212	
– in inches	17.7 x 11.4 x 7.36	17.7 x 12.9 x 8.34	–	17.7 x 11.4 x 8.34	
Weight	Operating unit alone: approx. 6 kg depending on configuration				

- 1) A small number of defects on the display is inevitable:
- permanently light plus permanently dark color dots: ≤ 12
 - permanently light green color dots: ≤ 5

2) operating unit combined with computing unit

3) mounting depth; equipped with CDROM drive: + 20 mm (+ 0.79 ")

Interfaces		
USB standard mount form factor	1 x front panel ¹⁾	
USB remote mount form factor	1 x front panel ¹⁾ , 1 x rear panel	
Safety		
Protection class	Conforms to VDE 0106 T1: 1982 (IEC 536)	
Degree of protection	a.	with clamp fixing, gasket and inserted rubber plug for USB interface
	b.	touchscreen version without front-side USB interface, with clamp fixing and gasket
	c.	with screw fixing
Safety regulations	IEC, corresponding to DIN VDE 0805/11.93	
Electromagnetic compatibility	CE, EN 50081-2, EN 50081 (EN 55022), IEC 1000-4-2, IEC 1000-4-4, IEC 1000-4-5, ENV 50140, ENV 50204	
Certification	CE, UL 508/CSA, FCC	
Power supply	Typically approx. 13 W, max. approx. 21 W	
Oscillation load in operation	10 to 58 Hz: 0.075 mm, 58 to 500 Hz: 1 g	
tested to	DIN IEC 68-2-6	
Shock load in operation	50 m/s ² , 30 ms, 100 shocks	
tested to	DIN IEC 68-2-29	
Ambient conditions		
Heat dissipation	by natural convection	
Temperature limit values	5°C ... 45°C	
	-20°C ... 60°C	
tested to	DIN EN 60068-2-2: 1994, DIN IEC 68-2-1, DIN IEC 68-2-14	
Limit values for rel. humidity	5 ... 85 % at 25 °C	
	5 ... 95 % at 25 °C	
tested to	DIN IEC 68-2-3, DIN IEC 68-2-30, DIN IEC 68-2-56	
Temperature variation	max. 10 K/h	
Mositure condensation	not permissible	
Intake air	without aggressive gases	
Warranty period	24 months	

¹⁾ not for option “operating unit without front side USB interface” (see “Degree of protection”, version b.)

²⁾ indoor use only

A.2 Technical specifications for Panel PC operating unit with remote mount form factor

This section describes the technical specifications that differ from those of the standard mount form factor.

Table A-2 Properties of the operating unit with receiver

Electrical data				
Power input	AC power supply		DC power supply	
	Max. 0.67 A (120 V) / max. 0.48 A (240 V)		Max. 1.7 A (24 V)	
Power input	Max. approx. 70 VA		Max. approx. 41 W	
Safety	IEC corresponding to DIN VDE 0805/11.93 Approvals: CE, cULus to UL508/, FCC			
Dimensions/weight	12"	15"	12" Touchscreen	15" Touchscreen
Mounting dimensions W x H x D 1)				
	– in mm	450 x 290 x 69	450 x 327 x 91	368 x 290 x 85
– in inches	17.7 x 11.4 x 2.71	17.7 x 12.9 x 3.58	14.5 x 11.4 x 3.34	17.7 x 11.4 x 3.58
Weight	Operating unit alone: approx. 8,4 kg depending on configuration			
Mounting	Up to 70° inclination from vertical			

1) Mounting depth exclusive space for cables and ventilation

Table A-3 Properties of Interconnecting Cable

Design	SIMATIC HMI Cu Link cable			
Connectors at both ends	15-pin sub D connectors			
	Diameter	Bending radius	Torsion	Tensile stress
	11 mm	Min. 66 mm	Max. 30 ° / m	Max. 50 N / mm ²
	Travel rate	Acceleration	Number of bending cycles	Insulating material
	Max. 3 m / s	Max. 5 m / s ²	10 000 000	Free from silicone and CFCs
Sheath material	PU, flame-retarding to IEC 60 332.1; Oil-resistant to VDE 0472, Part 803, Test category B			
Order numbers (MLFBs)	2 m	5 m	10 m	20 m
	6XV1440-7AH20	6XV1440-7AH50	6XV1440-7AN10	6XV1440-7AN20

A.3 Possible operating unit and computing unit combinations

Table A-4 Possible operating unit and computing unit combinations

Display	10.4" TFT	12.1" TFT	15.1" TFT	12.1" TFT touchscreen	15.1" TFT touchscreen
PC 670, standard	✓	✓	✓	✓	✓
PC 670, remote	–	✓	✓	✓	✓
PC 870, standard	–	✓	✓	–	✓
PC 870, remote	–	✓	✓	✓	✓

A.4 Keyboard table (operating units with key-based front panels)

By using the following table, you can check the standard keyboard assignment and the corresponding key codes.

Table A-5 Standard keyboard assignment

Key number	Code	Key label/name
1	43	F10
2	41/s	F20 (Shift F8)
3	09	f
3a1	24/s	&
4	08	e
4a1	20/s	#
5	07	d
5a1	1e/s	!
6	06	c
6a1	38/s	?
7	05	b
7a1	27/s)
8	04	a
8a1	26/s	(
9	42	F9
10	40/s	F19 (Shift F7)
11	0f	l
11a1	35	'
12	0e	k
12a1	34/A	'
13	0d	j
13a1	34	'
14	0c	i
14a1	34/s	"
15	0b	h
15a1	30]
16	0a	g
16a1	2f	[
17	41	F8
18	3f/s	F18 (Shift F6)
19	15	r
19a1	35/s	~

Key number	Code	Key label/name
20	14	q
20a1	33/AS	°
21	13	p
21a1	31/s	'
22	12	o
22a1	31	\
23	11	n
23a1	30/s	}
24	10	m
24a1	2f/s	{
25	40	F7
26	3e/s	F17 (Shift F5)
27	26	9
27a1	22/s	%
28	25	8
28a1	22/A	€
29	24	7
29a1	21/s	\$
30	18	u
30a1	33/s	:
31	17	t
31a1	33	;
32	16	s
32a1	36	,
33	3f	F6
34	3d/s	F16 (Shift F4)
35	23	6
35a1	23/s	^
36	22	5
36a1	37/s	>
37	21	4
37a1	36/s	<
38	1b	x
39	1a	w
40	19	v
41	3e	F5
42	3c/s	F15 (Shift F3)

Key number	Code	Key label/name
43	20	3
43a1	38	/
44	1f	2
44a1	25/s	*
45	1e	1
46	2c	(BLANK)
46a1	2d/s	_
47	1d	z
48	1c	y
48a1	1f/s	@
49	3d	F4
50	3b/s	F14 (Shift F2)
51	56	-
51a1	57	+
52	27	0
52a1	2e	=
53	37	.
56	2a	(Backspace)
57	3c	F3
58	3a/s	F13 (Shift F1)
61	52	(CURSOR UP)
62	4b	(PAGE UP)
63	4e	(PAGE DOWN)
64	49	(INSERT)
65	3b	F2
66	45	F12
67	29	(ESC)
68	4f	(CURSOR RIGHT)
69	4a	(HOME)
70	50	(CURSOR LEFT)
72	4c	(DELETE)
73	3a	F1
74	44	F11
75	3a/a	(ACK - ALT F1)
76	28	(ENTER)
77	51	(CURSOR DOWN)
79	0b/a	(HELP)

Key number	Code	Key label/name
80	2b	(TAB)
80A1	2b/s	(SHIFT TAB)
81	00/c	(CONTROL)
82	00/s	(SHIFT)
82A1	39	(CAPS LOCK)
83	00/a	(ALT)
89	42/s,1	S1 (Shift F9)
90	43/s,2	S2 (Shift F10)
91	44/s,3	S3 (Shift F11)
92	45/s,4	S4 (Shift F12)
93	3a/c,5	S5 (control F1)
94	3b/c,6	S6 (control F2)
95	3c/c,7	S7 (control F3)
96	3d/c,8	S8 (control F4)
97	3e/c,9	S9 (control F5)
98	3f/c,10	S10 (control F6)
99	40/c,11	S11 (control F7)
100	41/c,12	S12 (control F8)
101	42/c,13	S13 (control F9)
102	43/c,14	S14 (control F10)
103	44/c,15	S15 (control F11)
104	45/c,16	S16 (control F12)

Explanation of values in the table

<key number>a1:	Press F _N key at the same time.
<code value>/s :	SHIFT is also transmitted
<code value>/a :	ALT is also transmitted
<code value>/as :	ALT+SHIFT is also transmitted
<code value>/c :	CTRL is also transmitted

Appendix B: ESD Guidelines

B

What does ESD mean?

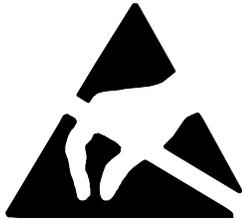
Virtually all present-day modules incorporate highly integrated MOS devices or components. Due to the technologies used, these electronic components are very sensitive to overvoltages and consequently therefore to electrostatic discharge:

These devices are referred to in German as Elektrostatisch Gefährdeten Baelemente/Baugruppen: **EGB**.

The more frequent international designation is:

ESD (Electrostatic Sensitive Device).

The following symbol on plates on cabinets, mounting racks or packages draws attention to the use of electrostatic sensitive devices and thus to the contact sensitivity of the assemblies concerned:



ESDs may be destroyed by voltages and energies well below the human perception threshold. Voltages of this kind occur as soon as a device or an assembly is touched by a person who is not electrostatically discharged. Devices exposed to such overvoltages cannot immediately be detected as defective in the majority of cases since faulty behavior may occur only after a longer period of operation.

Precautions against electrostatic discharge

Most plastics are capable of carrying high charges and it is therefore imperative that they be kept away from sensitive components!

When handling electrostatic sensitive devices, make sure that persons, workplaces and packages are properly grounded!

Handling ESD assemblies

A general rule is that assemblies should be touched only when this cannot be avoided in the course of the work that has to be performed on them. Under no circumstances should you touch device pins or circuitry when handling printed-circuit boards.

You should touch devices only if

- you are grounded by permanently wearing an ESD wrist strap or
- you are wearing ESD shoes or ESD shoe-grounding protection straps in conjunction with an ESD floor.

Before you touch an electronic assembly, your body must be discharged. The simplest way of doing this is to touch a conductive, grounded object immediately beforehand (e.g. bare metal parts of a cabinet, water pipe, etc.).

Assemblies should not be brought into contact with charge-susceptible and highly insulating materials such as plastic films, insulating table tops and items of clothing etc. containing synthetic fibers.

Assemblies should be deposited only on conductive surfaces (tables with an ESD coating, conductive ESD cellular material, ESD bags, ESD shipping containers).

Do not place assemblies near visual display units, monitors or television sets (minimum distance to screen > 10 cm).

Measuring and modifying ESD assemblies

Perform measurements on ESD assemblies only if

- the measuring instrument is grounded (e.g. by means of a protective conductor) or
- the measuring head has been briefly discharged before measurements are made with a potential-free measuring instrument (e.g. by touching a bare metal control cabinet).

When soldering, use only grounded soldering irons.

Shipping ESD assemblies

Always store and ship assemblies and devices in conductive packing, e.g. metallized plastic boxes and tin cans.

If packing is not conductive, assemblies must be conductively wrapped before they are packed. You can use, for example, conductive foam rubber, ESD bags, domestic aluminum foil or paper (never use plastic bags or foils).

With assemblies containing fitted batteries, make sure that the conductive packing does not come into contact with or short-circuit battery connectors. If necessary, cover the connectors beforehand with insulating tape or insulating material.

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