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SIEMENS

SIMATIC HMI

HMI Device
TP 177A, TP 177B, OP 177B
(WinCC flexible)

Operating Instructions

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Safety Guidelines

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

CAUTION

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

NOTICE

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

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

Qualified Personnel

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

Prescribed Usage

Note the following:

⚠ WARNING

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

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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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℗ 08/2008

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Preface

Purpose of the Operating Instructions

These operating instructions provide information based on the requirements defined by DIN EN 62079 for mechanical engineering documentation. The information relates to the HMI device, its place of use, transportation, storage, installation, use, and maintenance.

These operating instructions are intended for:

- Users
- Commissioning engineers
- Service technicians
- Maintenance technicians

Please read the section "Safety instructions and general notes" carefully.

The help integrated in WinCC flexible, the WinCC flexible Information System, contains detailed information. The information system contains instructions, examples and reference information in electronic form.

Basic Knowledge Requirements

General knowledge of automation technology and process communication is needed to understand the operating instructions.

It is also assumed that those using the manual have experience in using personal computers and knowledge of Microsoft operating systems.

Range of Validity for the Operating Instructions

These operating instructions apply to the HMI devices TP 177A, TP 177B and OP 177B in combination with the WinCC flexible software package.

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Position in the Information Scheme

These operating instructions form part of the SIMATIC HMI documentation. The following provides an overview of the information landscape for SIMATIC HMI.

User manuals

- WinCC flexible Micro

  Describes the basics of configuration with the WinCC flexible Micro engineering system.

- WinCC flexible Compact/Standard/Advanced

  Describes basic principles of configuration using the WinCC flexible Compact/ WinCC flexible Standard/WinCC flexible Advanced engineering systems.

- WinCC flexible Runtime

  Describes how to commission and operate your runtime project on a PC.

- WinCC flexible Migration
  - Describes how to convert an existing ProTool project to WinCC flexible.
  - Describes how to convert an existing WinCC project to WinCC flexible.
  - Describes how to convert an existing ProTool project including a change of the HMI device, for example from OP3 to OP 73 or from OP7 to OP 77B
  - Describes how to convert an existing ProTool project including a change from a graphics device to a Windows CE device.
- Communication
  - Communication Part 1 describes the connection of the HMI device to SIMATIC PLCs.
  - Communication Part 2 describes the connection of the HMI device to third-party controllers.

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Operating instructions

- Operating instructions for SIMATIC HMI devices.
  - OP 73, OP 77A, OP 77B
  - TP 170micro, TP 170A, TP 170B, OP 170B
  - OP 73micro, TP 177micro
  - TP 177A, TP 177B, OP 177B
  - TP 270, OP 270
  - MP 270B
  - MP 277
  - MP 370
  - MP 377
- Operating instructions for mobile SIMATIC HMI devices
  - Mobile Panel 170
  - Mobile Panel 177
  - Mobile Panel 277
- Operating Instructions(Compact) for SIMATIC HMI devices
  - OP 77B
  - Mobile Panel 170
  - Mobile Panel 177

Getting Started

- WinCC flexible for first time users

  Based on an example project, this is a step-by-step introduction to the basics of configuring screens, alarms, recipes and screen navigation.
- WinCC flexible for power users

  Based on an example project, this is a step-by-step introduction to the basics of configuring logs, project reports, scripts, user management, multilingual projects and integration in STEP 7.
- WinCC flexible Options

  Based on an example project, this is a step-by-step introduction to the basics of configuring the WinCC flexible Sm@rtServices, Sm@rtAccess and OPC server options.

Online Availability

Technical documentation on SIMATIC products and SIMATIC systems is available in

PDF format in various languages at the following addresses:

- SIMATIC Guide Technical Documentation:
  "http://www.automation.siemens.com/simatic/portal/html_00/techdoku.htm"

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Conventions

Configuration and runtime software differ with regard to their names as follows:

- "WinCC flexible 2008," for example, refers to the configuration software.

  The term "WinCC flexible" is used in a general context. The full name, for example "WinCC flexible 2008", is always used when it is necessary to differentiate between different versions of the configuration software.

- "WinCC flexible Runtime" refers to the runtime software that can run on HMI devices.

The name "TP 177B" is the umbrella term for the following HMI devices:

- TP 177B 4"
- TP 177B 6"

Text is highlighted as follows to simplify reading the operating instructions:

Notation	Scope
"Add screen"	• Terms that appear in the user interface, for example, dialog names, tabs, buttons, menu commands • Required input, for example, limits, tag values. • Path information
"File > Edit"	Operator actions, for example, menu commands, shortcut menu commands.
<F1>, <Alt+P>	Keyboard operation

Please observe notes labeled as follows:

Note

Notes contain important information concerning the product, its use or a specific section of the documentation to which you should pay particular attention.

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- SIMATIC®
- SIMATIC HMI®
- SIMATIC ProTool®
- SIMATIC WinCC®
- SIMATIC WinCC flexible®
- SIMATIC TP 177A®
- SIMATIC TP 177B®
- SIMATIC OP 177B®

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Representatives and offices

If you have any further questions relating to the products described in this manual, please contact your local representative at the SIEMENS branch nearest you.

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- The newsletter provides up-to-date information relating to your products.
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- A forum for global exchange of information by users and experts
- Current product information, FAQs and downloads
- Your local Automation & Drives representative
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1 Overview

1.1 Product Overview

Advanced applications with the Touch Panels TP 177A, TP 177B and OP 177B

The 177 series of panels represents a further advance in the development of the well-known 170 HMI devices. The new TP 177A, TP 177B and OP 177B panels make for more efficient use of text or graphic-based projects for simple to medium level HMI operating and monitoring tasks in machines and plants. Projects with Asian and Cyrillic character sets can be configured, as usual. The ability to vertically mount the TP 177A and the non-volatile alarm buffer of the TP 177B offer new application possibilities. In addition, the TP 177B and OP 177B – depending on the models – provide interfaces for connecting to PROFIBUS and PROFINET.

The TP 177B 4" features a 4.3" TFT display with wide-screen format. This display extends the visible area on the HMI device by approximately 25 % compared to similar displays with 4:3 format. The HMI device also features four function keys with tactile feedback.
In combination with the intuitive touch operation, it offers maximum operating efficiency.
In addition to MMC cards, the TP 177B 4" supports SD cards and USB memory sticks.

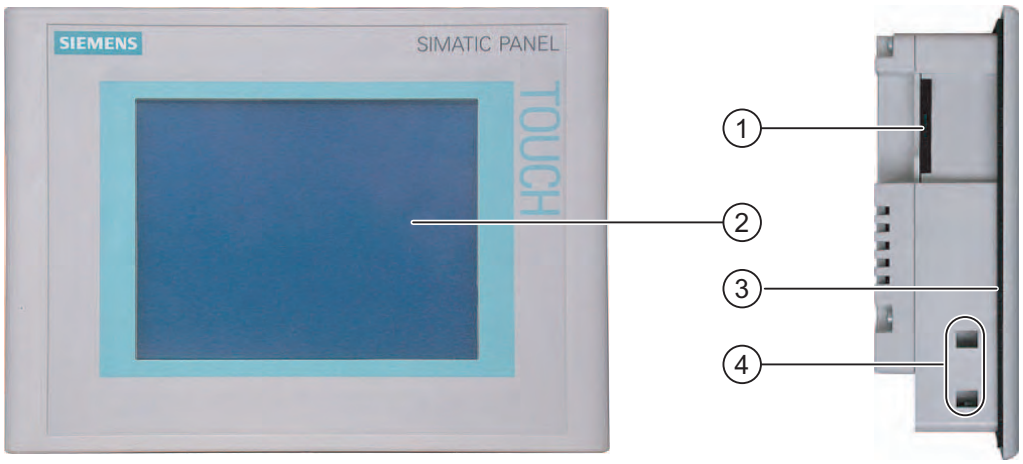
OP 177B offers an additional feature. It can now be operated using widely-available touch screens in addition to the membrane keyboard. The function keys can be configured to system keys for specific screens.

The TP 177A, TP 177B and OP 177B panels offer quick commissioning times, large user memory and high performance, and they are optimized for projects based on WinCC flexible.

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1.2 Design of the TP 177A HMI Device

Front view and side view



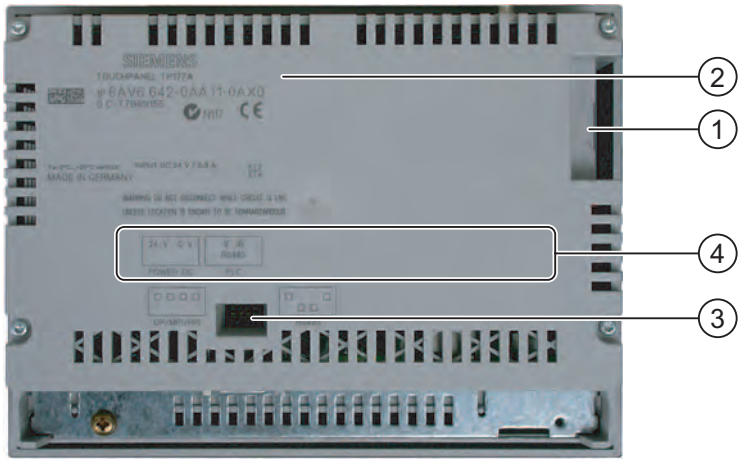
① Opening caused by design - not a slot for a memory card
② Display / touch screen
③ Mounting seal
④ Mounting clamp recess

Bottom view



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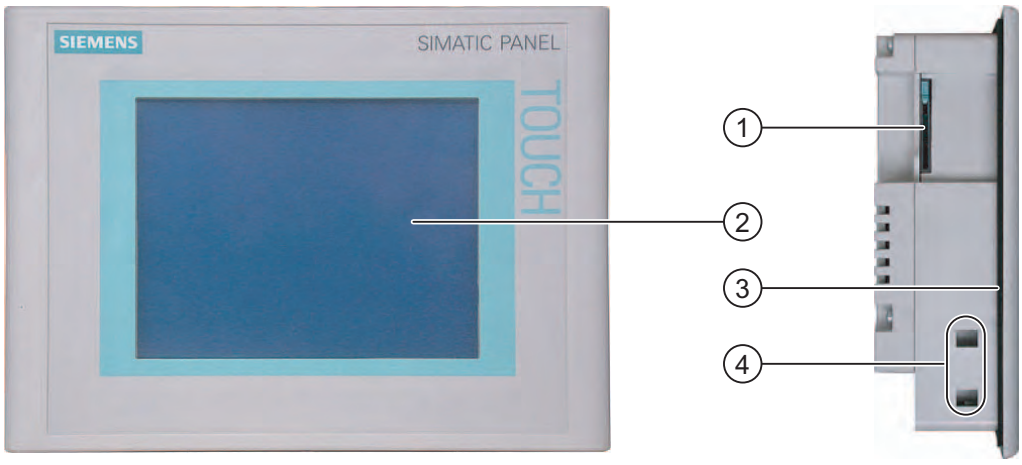
Rear view



① Opening caused by design - not a slot for a memory card
② Rating label
③ DIP switch
④ Interface name

1.3 Design of the TP 177B 6" HMI device

Front view and side view



① Slot for a MultiMedia card
② Display / touch screen
③ Mounting seal
④ Mounting clamp recess

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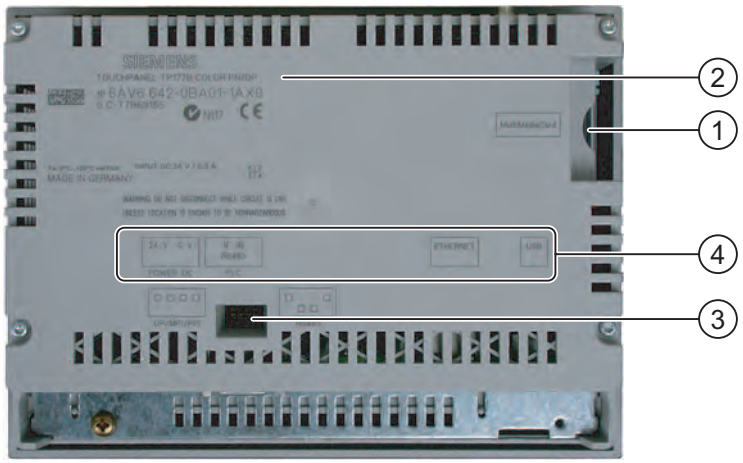
Bottom view of a TP 177B 6" DP



Bottom view of a TP 177B 6" PN/DP



Rear view

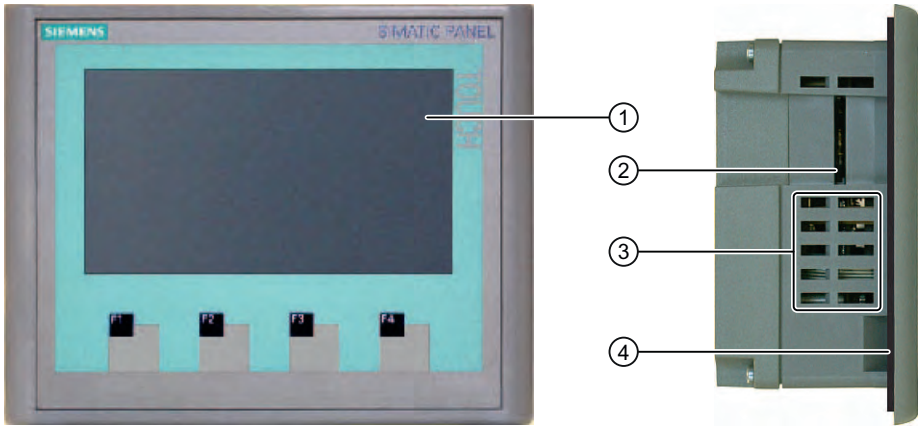


① Slot for a MultiMedia card
② Rating label
③ DIP switch
④ Interface name

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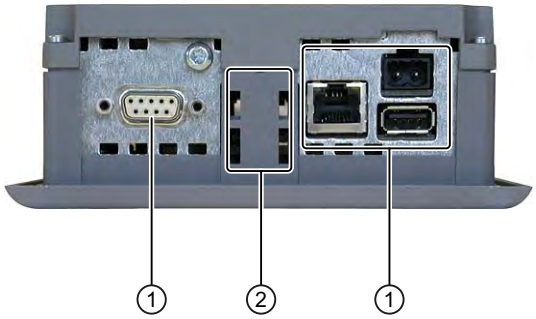
1.4 Design of the TP 177B 4" HMI device

Front view and side view



① Display / touch screen
② Slot for a MultiMedia / Secure Digital card
③ Recess for mounting clamps
④ Mounting seal

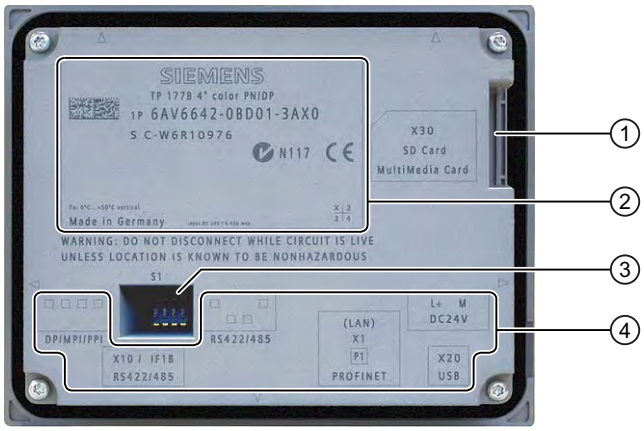
Bottom view



① Interfaces
② Recess for mounting clamps

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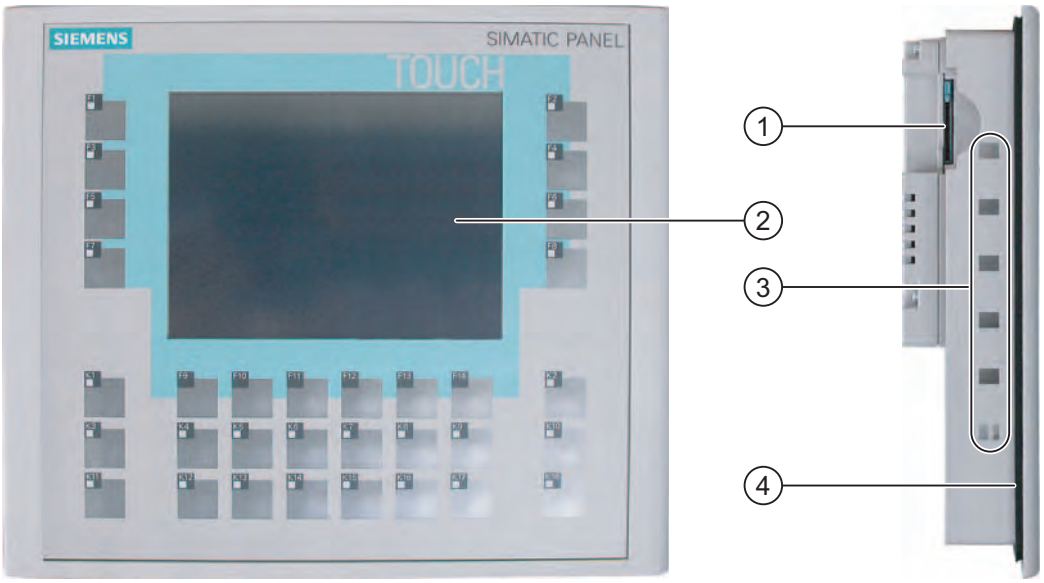
Rear view



① Slot for a MultiMedia / Secure Digital card
② Rating label
③ DIP switch
④ Interface name

1.5 Design of the OP 177B HMI Device

Front view and side view



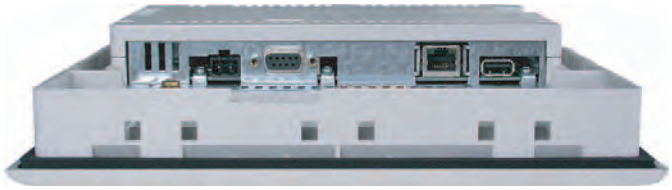
① Slot for a MultiMedia card
② Display / touch screen
③ Recesses for mounting clamps
④ Mounting seal

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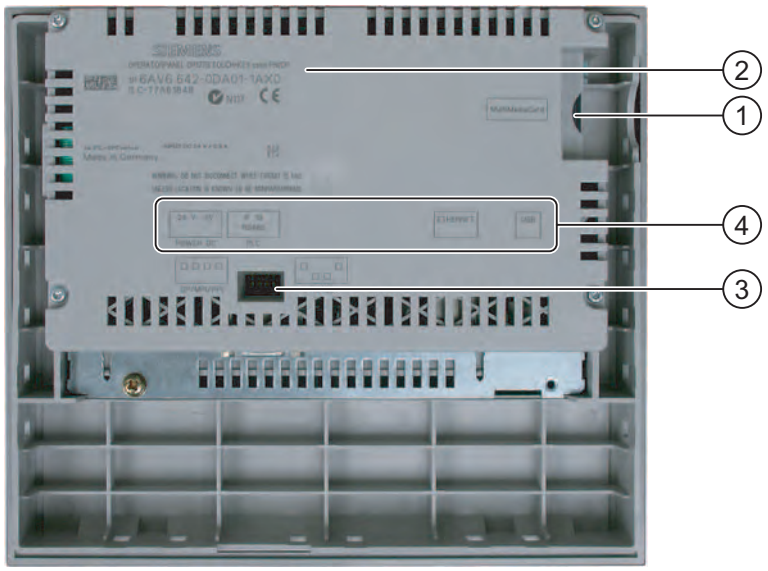
Bottom view of an OP 177B DP



Bottom view of an OP 177B PN/DP



Rear view



① Slot for a MultiMedia card
② Rating label
③ DIP switch
④ Interface name

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1.6 Accessories

Accessory kit

The accessory kit contains the following:

- For the power supply: a plug-in terminal strip
- To install the TP 177A, TP 177B 6", and the OP 177B: Plastic mounting clamps
- For the installation of the TP 177B 4": Metal mounting clamps

Additional documents may be enclosed with the accessory kit.

1.7 Miscellaneous

RS 422 / RS 232 converter

The converter is required to connect a SIMATIC S5 controller and controllers from other manufacturers. Connect the RS 422-RS 232 converter to the RS 422 / RS 485 interface. The converter converts the input signals to RS-232 signals.

The converter is not part of the scope of delivery of the HMI device. The converter can be ordered separately using order number 6AV6 671-8XE00-0AX0.

PC / PPI cable

You need the PC / PPI cable for TP 177A, TP 177B 6" and OP 177B to update the operating system by resetting it to the factory settings. In addition, with TP 177B and OP 177B you can use the cable for transferring purposes. Connect the PC/PPI cable to the RS 422/RS 485 interface. The cable converts the input signals to RS-232 signals.

The cable is not included the scope of delivery for the HMI device. The cable can be ordered separately under the order number 6ES7 901-3CB30-0XA0.

Note

If the connection fails during the operating system update, set the system to a lower bit rate. If you use a higher bit rate, you must use the PC / PPI cable release 3 or higher.
The version code is printed on the cable (e.g., "E stand 3" corresponds to version 3).

90° elbow adapter

If space is limited, e.g. to install the TP 177A in vertical format, you can use an elbow adapter at the RS 422 / RS 485 interface.

The adapter is not part of the scope of delivery of the HMI device. The adapter can be ordered separately with order number 6AV6 671-8XD00-0XA0.

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PROFIBUS bus connector

We recommend using straight PROFIBUS bus connectors. The connectors are not included in the scope of supply for the HMI device. The connectors can be ordered separately with order number 6GK1 500-0FC10.

Memory card

Only use SD memory cards or MultiMediaCards tested and approved by Siemens AG for the respective HMI device.

Protective foil

Protective foil is available for the HMI devices. Suitable protective foil can be ordered separately under the following order numbers:

- TP 177A, TP 177B 6", OP 177B: Order number 6AV6 671-2XC00-0AX0
- TP 177B 4": Order number 6AV6 671-2EC00-0AX0

Protective cover set

A protective cover set can be ordered for the TP 177A and TP 177B 6" HMI devices with the order number 6AV6 574-1AE00-4AX0.

1.8 Functional scope with WinCC flexible

General

The following tables show the objects which can be integrated in a project for a TP 177A, TP 177B and OP 177B.

Note

The specified values are maximum values for the respective objects. It is not possible to use the maximum values for all objects because the available memory of the HMI device is limited. For additional information on calculation of the system limits see the WinCC flexible online help.

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Alarms

Object	Specification	TP 177A	TP 177B	OP 177B
Alarm	Number of discrete alarms	1000	2000	
	Number of analog alarms	15	50	
	Length of the alarm text	80 characters		
	Number of tags in an alarm	Max. 8		
	Display	Alarm view, Alarm window		
	Acknowledge single error alarms	Yes		
	Acknowledge several error alarms simultaneously (group acknowledgement)	Yes	16 acknowledgment groups	
	Edit alarm	Yes		
	Alarm indicator	Yes		
Alarm buffer	Memory characteristics	Volatile	Non-volatile	
	Alarm buffer capacity	256 alarms		
	Simultaneously queued alarm events	Max. 64		
	View alarm	Yes		
	Delete alarm buffer	Yes		
	Print alarm line by line	No	Yes	

Tags, Values, Lists and Calculation Functions

Object	Specification	TP 177A	TP 177B	OP 177B
Tag	Number	500	1000	
Limit monitoring	Input/Output	Yes		
Linear scaling	Input/Output	Yes		
Text List	Number	300		

Screens

Object	Specification	TP 177A	TP 177B	OP 177B
Screen	Number	250	500	
	Fields per screen	30	50	
	Tags per screen	30	50	
	Complex objects per screen (e.g. bars)	5		
	Template	Yes		

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Recipes

Object	Specification	TP 177A	TP 177B	OP 177B
Recipe	Number	5	100	
	Data Records per Recipe	20	200	
	Entries per Recipe	20	200	
	Recipe screens	No	Yes	

Info texts

Object	Specification	TP 177A	TP 177B	OP 177B
Infotext	Length (no. of characters)	320		
	For alarms	Yes		
	For screens	Yes		
	For screen objects (e.g. IO fields)	Yes		

Additional functions

Object	Specification	TP 177A	TP 177B	OP 177B
Screen settings	Touch screen calibration	Yes		
	Contrast setting [1)]	Yes		
	Brightness setting[2)]	Yes		
Screen saver	-	Yes		
Language change	Number of languages	5	16	
Graphic object	Vector and pixel graphics	Yes		
Trend views	Number	25	50	
Trends per view	Number	4	8	
Task Planner	Number of tasks	-	10	
Text object	Number	1000	2500	
Security	Number of Users	100	50	

1) not with TP 177B 4"
2) not with TP 177B 4"

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1.9 Software options

The following software options are available for the TP 177B and the OP 177B:

- WinCC Flexible/Sm@rtService

  The Sm@rtService option enables you to access a remote HMI device from the HMI device or PC via Ethernet.

- WinCC Flexible/Sm@rtAccess

  The Sm@rtAccess option enables you to set up communication between different HMI systems.

The following software options are available for the TP 177B 4":

- Uninterruptable Power Supply (UPS) with USB support

  When interfacing an uninterruptible power supply, the HMI device is shut down in a controlled manner after a buffer time in the event of a power failure. The TP 177B 4" supports SITOP DC UPS modules connected via the USB port.

1.10 Communication Using the TP 177A

Number of Connections

Interconnection	TP 177A
Number with MPI/PROFIBUS DP	4 (on the same bus)

Siemens Controllers

The following table shows the Siemens controllers and protocols or profiles that can be used.

Controller	Protocol/Profile	TP 177A
SIMATIC S7-200	PPI	yes
	MPI [1)]	yes
SIMATIC S7-300/400	MPI	yes
	PROFIBUS DP up to 1.5 Mbps	yes
	PROFIBUS DP up to 12 Mbps	no

1) If you require a baud rate of 9.6 Kbps, use the "DP" profile in WinCC flexible

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1.11 Communication Using the TP 177B and OP 177B

Number of Connections

Interconnection	TP 177B	OP 177B
Number using a point-to-point connection	1	
Number using a bus connection	4 on the same bus	

Siemens Controllers

The following table shows the Siemens controllers and protocols or profiles that can be used.

Controller	Protocol/Profile	TP 177B 4" PN/DP	TP 177B 6" DP	TP 177B 6" PN/DP	OP 177B DP	OP 177B PN/DP
SIMATIC S7-300/400	MPI	Yes	Yes	Yes	Yes	Yes
	PROFIBUS DP up to 12 Mbps	Yes	Yes	Yes	Yes	Yes
	PROFINET	Yes	No	Yes	No	Yes
SIMATIC S5	PROFIBUS DP up to 12 Mbps	Yes	Yes	Yes	Yes	Yes
SIMATIC S7-200	PPI	Yes	Yes	Yes	Yes	Yes
	MPI	Yes	Yes	Yes	Yes	Yes
	PROFIBUS DP CPU 215	Yes	Yes	Yes	Yes	Yes
	PROFIBUS DP standard	Yes	Yes	Yes	Yes	Yes
SIMATIC 500/505	NITP	Yes [1]	Yes [1]	Yes [1]	Yes	Yes
	PROFIBUS DP up to 12 Mbps	Yes	Yes	Yes	Yes	Yes

1) PROFINET IO must be locked.

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Third-party controllers

The following table shows controllers of other manufacturers and protocols or profiles that can be used.

Controller	Protocol
Allen-Bradley PLC series SLC500, SLC501, SLC502, SLC503, SLC504, SLC505, MicroLogix	• DF1 [1) 3) 4) 6)] • DH+ via DF1 gateway (KF2 module) [2) 3) 4) 6)] • DH485 via DF1 gateway (via KF3 module)[3) 4) 6)] • DH485
Allen Bradley PLC series PLC 5/11, PLC5/20, PLC 5/30, PLC 5/40, PLC 5/40L, PLC 5/60, PLC 5/60L, PLC 5/80	• DF1 [4) 6)] • DH+ via DF1 gateway (KF2 module) [3) 4) 6)]
Allen Bradley PLC series ControlLogix 5500 (with 1756-ENBT) and CompactLogix 5300 (1769-L32E and 1769-L35E)	• Ethernet/IP [5)]
GE Fanuc Automation PLC series 90-30, 90-70, 90-Micro	SNP [4) 6)]
LG Industrial Systems (Lucky Goldstar)/IMO PLC series GLOFA-GM/G4, G6, G7M	Dedicated communication [4) 6)]
Mitsubishi Electric PLC series MELSEC FX, MELSEC FX0	FX (Mitsubishi PG) [4) 6)]
Mitsubishi Melsec PLC series FX, A, Ans, Q, QnAS	Protocol 4 [4) 6)]
Modicon (Schneider Automation) PLC series Modicon 984, TSX Quantum and TSX Compact PLC series Quantum, Momentum, Premium und Micro PLC series Compact and 984 via Ethernet bridge	• Modbus RTU [3) 4) 6)] • Modbus TCP/IP (Ethernet) [5)]
OMRON PLC series SYSMAC C, SYSMAC CV, SYSMAC CS1, SYSMAC alpha, CP	Hostlink/Multilink (SYSMAC Way) [4) 6)]
Telemecanique PLC series: • TSX 7 with P47 411 • TSX 7 with P47/67/87/107 420 • TSX 7 with P47/67/87/107 425 • Module TSX SCM 21.6 with the aforementioned TSX 7 CPUs • TSX 17 with module SCG 1161 • TSX 37 (Micro) • TSX 57 (Premium)	Uni-Telway [4) 6)]

1) Applies to controllers SLC503, SLC504, SLC505, MicroLogix
2) Applies to controllers SLC504, via DF1.
3) Only with converter RS 422-RS 232 6AV6 671-8XE00-0AX0 (Option)
4) PROFINET IO must be locked.
5) Not approved for TP 177B 6" DP or OP 177B DP
6) Deactivate the "Remote Control" check box under "Channel 1" in the "Transfer Settings".

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Safety Instructions and General Notes 2

2.1 Safety Information

Working on the cabinet

⚠ WARNING
Open equipment The HMI device is an open equipment. This means that the HMI device may only be installed in cubicles or cabinets, whereby the device can be operated from the front panel. Access to the cubicle or cabinet in which the HMI device is installed should only be possible by means of a key or tool and for personnel who have received instruction or are authorized. **Danger, high voltage** Opening the cabinet will expose high voltage parts. Contact with these parts could be fatal. Switch off the power supply to the cabinet before opening it.

Hazardous areas

When operating the HMI device in hazardous areas the following warning applies.

⚠ WARNING
Explosion Hazard Do not disconnect while circuit is live unless area is known to be non-hazardous. Substitution of components may impair suitability for Class I, Division 2 or Zone 2.

High frequency radiation

NOTICE
Unintentional operating situations High frequency radiation, from mobile phones for example, can cause unintentional operating situations.

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2.2 Standards and Approvals

Valid certifications

CAUTION
Valid certifications The overview below provides information on available certifications. The HMI device itself is certified as shown on the label on its rear panel.

CE Certification

The automation system meets the general and safety-related requirements of the following EC directives and conforms to the harmonized European standards (EN) for programmable logic controllers published in the official gazettes of the European Union:

- 2004/108/EC "Electromagnetic Compatibility" (EMC Directive)
- 94/9/EC "Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres" (Explosion Protection Directive)

EC Declaration of Conformity

The EC Declarations of Conformity are available to the relevant authorities at the following address:

Siemens Aktiengesellschaft
Industry Sector
I IA AS RD ST PLC
P.O. Box 1963
D-92209 Amberg

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UL approval



Underwriters Laboratories Inc. conforming to

- UL 508 (Industrial Control Equipment)
- CSA C22.2 No. 142, (Process Control Equipment)

or



Underwriters Laboratories Inc. conforming to

- UL 508 (Industrial Control Equipment)
- CSA C22.2 No. 142, (Process Control Equipment)
- UL 1604 (Hazardous Location)
- CSA-213 (Hazardous Location)

Approved for use in

- Class I, Division 2, Group A, B, C, D or
- Class I, Zone 2, Group IIC or
- non-hazardous locations

FM Approval



Factory Mutual Research (FM) conforming to

- Approval Standard Class Number 3611, 3600, 3810

Approved for use in

- Class I, Division 2, Group A, B, C, D T4
- Class I, Zone 2, Group IIC T4

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Ex Certification

The following certifications apply to the HMI device in accordance with

- EN 60079-0:2006
- EN 60079-15:2005
- EN 61241-1:2004
- IEC 61241-0:2004+Cor.2005

valid:

	II 3 G	Ex nA II T**x**
	II 3 D	Ex tD A22 IP6X T **xx** °C **x** ... Temperature values, see EU design examination certificate

The EU design examination certificates are available on the Internet at "http://support.automation.siemens.com".

The table below describes the test numbers of the HMI device classes.

Manufacturer site	HMI device class	Test number
Siemens AG Industry Sector Werner-von-Siemens-Strasse 50 D92224 Amberg Germany	177	KEMA 04ATEX1297X

Label for Australia



The HMI device fulfills the requirements of standard AS/NZS 2064 (Class A).

IEC 61131

The HMI device fulfills the requirements and criteria conforming to IEC 61131-2, Programmable Logic PLCs, Part 2: Operating resource requirements and tests.

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2.3 Notes about Usage

Use in Industrial Environments

The HMI device is designed for industrial use. It conforms to the following standards:

- Requirements for unintentional emissions EN 61000-6-4: 2007
- Requirements for interference immunity DIN EN 61000-6-2:2005

Use in Residential Areas

Note

The HMI device is not suitable for use in residential areas. If you use the HMI device in residential areas, the radio/TV reception may be impeded.

If the HMI device is used in residential areas, you must take measures to achieve limit class B conforming to EN 55011 for RF interference.

A suitable measure for achieving the required RF interference level for limit class B includes for example:

- Use of filters in electrical supply lines

Individual acceptance is required.

Use in Potentially Explosive Atmosphere, Zones 2 and 22.

⚠ CAUTION

The following overview shows possible certifications.

The HMI device itself is certified as shown on the label on its rear panel.

⚠ DANGER

Explosion hazard

Operate the HMI device in a potentially explosive zone 2 atmosphere only if it has been approved and certified for such environments.

⚠ WARNING

Personal Injury and Property Damage Can Occur

Personal injury and property damage can occur in potentially explosive atmospheres if an electric plug is disconnected from the HMI device while the system is in operation.

In potentially explosive atmospheres, always turn off power to the HMI device before disconnecting any connectors.

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Potentially Explosive Atmospheres Zones 2 and 22

Potentially explosive atmospheres are classified by zones. The zones are classified according to the probability of the presence of an explosive atmosphere.

Zone	Explosion hazard	Example
2	Explosive gas atmospheres occur seldom and briefly	Areas around flanged pipe joints with flat gaskets in closed rooms
22	Explosive dust atmospheres occur seldom and briefly	-
Safe zone	No	• Outside zone 2 • Outside zone 22 • Standard applications for distributed IO

Approval

The following certifications apply to the HMI device in accordance with

- EN 60079-0:2006
- EN 60079-15:2005
- EN 61241-1:2004
- IEC 61241-0:2004+Cor.2005

valid:

	II 3 G	Ex nA II T**x**
	II 3 D	Ex tD A22 IP6X T **xx** °C **x** ... Temperature values, see EU design examination certificate

The EU design examination certificates are available on the Internet at "http://support.automation.siemens.com".

The table below describes the test numbers of the HMI device classes.

Manufacturer site	HMI device class	Test number
Siemens AG Industry Sector Werner-von-Siemens-Strasse 50 D92224 Amberg Germany	177	KEMA 04ATEX1297X

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Operating conditions for Zones 2 and 22

- The HMI device must be installed in some form of enclosure. In accordance with EN 60529, the enclosure must guarantee the following:
  - Protection type IP54 or higher for zone 2
  - Protection type IP5x or higher for zone 22

  Installation must ensure that at least IP65 degree of protection is given (according to EN 60529).

  Make allowances for the ambient conditions under which you install the HMI device. A manufacturer declaration must be provided for the enclosure in accordance with EC directive 94/9, stating that it is fit for purpose.

  Follow the operating instructions to ensure that the protection type on the front panel is guaranteed.
- The ambient temperature range is 0 °C ≤ T ≤ 50 °C. Under these conditions, the HMI device will satisfy temperature class T**x** for category 3G and support a maximum surface temperature of **xx** °C for category 3D. (**x** ... temperature values, see design examination certificate).

  Refer to the operating instructions for details of limitations resulting from the ambient temperature range.
- In situations where the temperature on the cable at the cable inlet of this enclosure exceeds 70 °C, or where the temperature on the wire branching point exceeds 80 °C under operating conditions, the temperature specifications of the cables must match the actually measured temperatures.
- Put measures in place to ensure the rated voltage is not exceeded.

  Any transient interference voltages above the rated value must not exceed 40 %.
- The HMI device should be protected from mechanical loads > 4 J or > 2 J in the region of the display.
- Ensure that the atmosphere is not explosive during servicing.

  Measures that impair or remove the protection type of the HMI device are not permitted while the system is in operation.
- If the HMI device was dismantled, check the mounting seal for damage before reassembling the HMI device. A damaged, porous or used mounting seal no longer meets the requirements of the protection type. In this case, the mounting seal must be replaced.
- Turn the HMI device off if any cracks appear in the front coating, holes are damaged or the front coating starts to peel off.

  Exchange the HMI device. Restart the system again after the device has been exchanged.

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Repairs

The HMI device is maintenance-free. In case of repair, the HMI device must be shipped to the Return Center in Fürth. The HMI device may only be repaired there. The address is:

Siemens AG
Industry Sector
Returns Center
Siemensstrasse 2
90766 Fürth
Germany

Additional Information

Please also observe the product information "Use in potentially explosive atmospheres, zones 2 and 22."

The product information is located on the mini CD that is enclosed with the HMI device upon delivery.

Approval

Note

HMI devices with approval to II 3G Ex nA II T4 may only be used on SIMATIC systems of device category 3.

2.4 Electromagnetic Compatibility

Introduction

The HMI device fulfills requirements of the EMC directive of the domestic European market and other requirements.

EMC-compliant mounting of HMI devices

EMC-compliant mounting of the HMI device and the use of interference-proof cables will ensure trouble-free operation. The "Directives for Interference-free installation of PLCs" and the "PROFIBUS Networks" manual also apply for the installation of the HMI device.

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Pulse-shaped Interference

The following table shows the EMC properties of the modules with respect to pulse-shaped interference. The HMI device must fulfill the specifications and directives relating to electrical installation as a basic prerequisite.

Pulse-shaped interference	Tested with	Corresponds to test intensity
Electrostatic discharge conforming to IEC 61000-4-2	Air discharge: 8 kV Contact discharge: 6 kV	3
Burst pulses (high-speed transient interference) conforming to IEC 61000-4-4	2 KV power cable 2 KV signal cable, > 30 m 1 KV signal cable, < 30 m	3
High-power surge pulses conforming to IEC 61000-4-5, external protective circuit required (refer to the manual, Programmable Controller S7-300, Installation, chapter "Lightning and Overvoltage Protection").		
• Asymmetric coupling	2 kV power cable DC voltage with protective elements 2 KV signal/data cable, > 30 m, with protective elements as required	3
• Asymmetric coupling	1 kV power cable DC voltage with protective elements 1 KV signal cable, > 30 m, with protective elements as required	3

Sinusoidal Interferences

The table below shows the EMC properties of the modules as they relate to sinusoidal interference. The HMI device must fulfill the specifications and directives relating to electrical installation as a basic prerequisite.

Sinusoidal interference	Test values	Corresponds to test intensity
RF interference (electromagnetic fields) • Conforming to IEC 61000-4-3 • Conforming to IEC 61000-4-3	80% amplitude modulation at 1 kHz with 10 V/m in the range of 80 MHz to 1 GHz with 3 V/m in the range 1.4 GHz to 2 GHz with 1 V/m the range 2 GHz to 2.7 GHz 10 V/m with 50% pulse modulation at 900 MHz 10 V/m with 50% pulse modulation at 1.89 GHz	3
RF interference current on cables and cable shielding conforming to IEC 61000-4-6	Test voltage 10 V, with 80% amplitude modulation of 1 kHz in the 10 MHz to 80 MHz range	3

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Emission of Radio Interference

Emission of electromagnetic interference conforming to 55011,
Limit value class A, Group 1, measured at a distance of 10 m:

From 30 to 230 MHz	< 40 dB (V/m) quasi-peak
From 230 to 1000 MHz	< 47 dB (V/m) quasi-peak

Additional Measures

Before you connect an HMI device to the public electricity supply, ensure that it is compliant with Limit Class B conforming to 55022.

2.5 Transport and Storage Conditions

Mechanical and Climatic Transport and Storage Conditions

The transport and storage conditions of this HMI device exceed requirements conforming to IEC 61131-2. The following specifications apply to the transport and storage of an HMI device in its original packing.

The climatic conditions comply to the following standards:

- IEC 60721-3-3, Class 3K7 for storage
- IEC 60721-3-2, Class 2K4 for transport

The mechanical requirements are compliant with EC 60721-3-2, Class 2M2.

Type of Condition	Permissible range
Drop test (in transport package)	≤ 1 m
Temperature	from –20 to +60° C
Air pressure	from 1080 to 660 hPa, corresponds to an elevation of -1000 to 3500 m
Relative humidity	from 10 to 90% without condensation
Sinusoidal vibration conforming to IEC 60068-2-6	5 to 8.4 Hz: 3.5 mm 8.4 Hz to 150 Hz: 9.8 m/s^2
Shock conforming to IEC 60068-2-29	250 m/s^2, 6 ms, 1000 shocks

NOTICE
Ensure that no condensation (dewing) develops on or inside the HMI device after transporting it at low temperatures or after it has been exposed to extreme temperature fluctuations. The HMI device must have acquired room temperature before it is put into operation. Do not expose the HMI device to direct radiation from a heater in order to warm it up. If dewing has developed, wait approximately four hours until the HMI device has dried completely before switching it on.

Prerequisite for the trouble-free and safe operation of the HMI device is proper transport and storage, installation and assembly and careful operation and maintenance.

Warranty for the HMI device is deemed void if these specifications are ignored.

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Planning Use

3

3.1 Mounting Information

Mechanical and Climatic Conditions of Use

The HMI device is intended for installation in weatherproof permanent locations.
The conditions of use are compliant with requirements to DIN IEC 60721-3-3:

- Class 3M3 (mechanical requirements)
- Class 3K3 (climatic requirements)

Use with Additional Measures

Examples of applications where the use of the HMI device requires additional measures:

- In locations with a high degree of ionizing radiation
- In locations with extreme operating conditions resulting from situations such as the following:
  - Corrosive vapors, gases, oils or chemicals
  - Electrical or magnetic fields of high intensity
- In plants requiring special monitoring features, for example:
  - Elevator systems
  - Systems in especially hazardous rooms

Mechanical ambient conditions

The mechanical ambient conditions for the HMI device are specified in the following table in terms of sinusoidal vibration.

Frequency range in Hz	Constant	Intermittent
10 ≤ f ≤ 58	Amplitude 0.0375 mm	Amplitude 0.075 mm
58 ≤ f ≤ 150	Constant acceleration 0.5 g	Constant acceleration 1 g

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Reduction of Vibration

If the HMI device is subjected to greater shocks or vibrations, you must take appropriate measures to reduce acceleration or amplitudes.

We recommend fitting the HMI device to vibration-absorbent material (on metal shock absorbers, for example).

Testing for Mechanical Ambient Conditions

The following table provides information on the type and scope of tests for mechanical ambient conditions.

The check includes	Test standard	Comments
Vibrations	Vibration test conforming to IEC 60068, part 2–6 (sinusoidal)	Type of vibration: Transitional rate of the frequency: 1 octave/minute. 10 ≤ f ≤ 58, Constant amplitude 0.075 mm 58 ≤ f ≤ 150, Constant acceleration 1 g Vibration duration: 10 frequency cycles per axis in each of the three axes vertical to each other
Shock	Shock testing in accordance with IEC 60068, Part 2 –29	Type of shock: half sine Shock intensity: Peak value 15 g, duration 11 ms Direction of impact: 3 shocks in ± direction of axis in each of the three axes vertical to each other

Climatic ambient conditions

The HMI device may be used under the following climatic ambient conditions:

Ambient conditions	Permissible range	Comments
Temperature • Vertical installation • Inclined mounting	 0 to 50° C 0 to 40° C	See the "Mounting positions and type of fixation" section
Relative humidity	10 to 90%	Without condensation, corresponds to a relative humidity, stress class 2 conforming to IEC 61131, part 2
Air pressure	1080 to 795 hPa	Corresponds to an elevation of -1000 to 2000 m
Pollutant concentration	SO_2: < 0.5 vpm; Relative humidity < 60 %, no condensation H_2S: < 0.1 vpm; relative humidity < 60 %, no condensation	Check: 10 vpm; 4 days Check: 1 vpm; 4 days

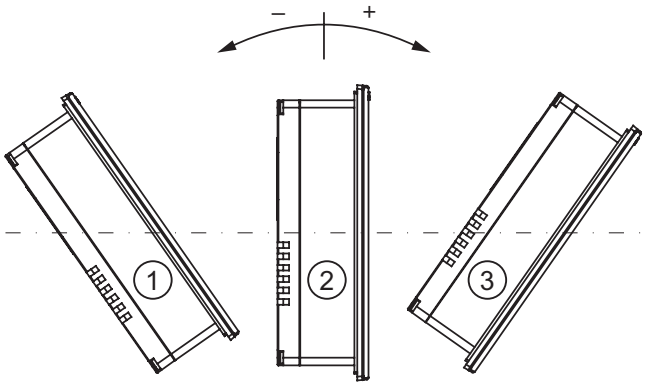
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3.2 Mounting Positions and Fixation

Mounting position

The HMI device is designed for mounting in racks, cabinets, control boards and consoles. In the following, all of these mounting options are referred to by the general term "cabinet".

The HMI device is self-ventilated and approved for vertical and inclined mounting in stationary cabinets.



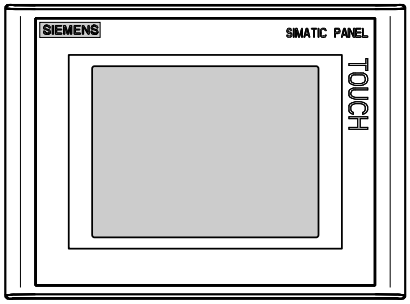
	Mounting position	Deviation from the vertical
①	Inclined	≤ –35°
②	Vertical	0°
③	Inclined	≤ 35°

CAUTION
Impermissible ambient temperatures Do not operate the HMI device without auxiliary ventilation if the maximum permissible ambient temperature is exceeded. The HMI device may otherwise get damaged and its certifications and warranty will be void.

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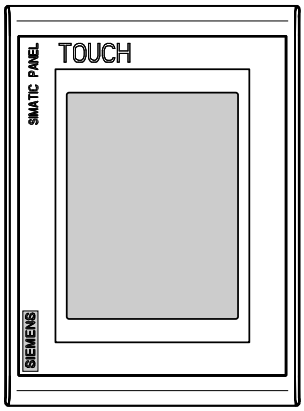
Horizontal mounting for TP 177A, TP 177B and OP 177B

When mounted horizontally, the cable inlets are located at the bottom.



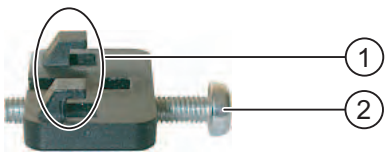
Vertical mounting for TP 177A

When mounted vertically, the cable inlets are located on the right.



Securing the TP 177A, TP 177B 6" and OP 177B

Plastic mounting clamps are provided for mounting the device. The mounting clamps hook into recesses on the HMI device. The overall HMI device dimensions are not exceeded by this.

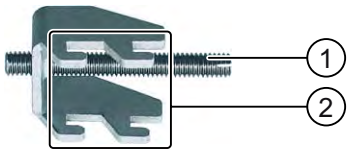


① Hook
② Cross-tip screw

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Securing the TP 177B 4"

Metal mounting clamps are provided for mounting. The mounting clamps hook into recesses on the HMI device. The overall HMI device dimensions are not exceeded by this.



① Threaded stud
② Hook

3.3 Preparing for Mounting

Select the mounting location of the HMI device

Points to observe when selecting the mounting location:

- Position the HMI device so that it is not subjected to direct sunlight.
- Position the HMI device such that it is ergonomically accessible for the user. Choose a suitable mounting height.
- Ensure that the air vents of the HMI device are not covered as a result of the mounting.
- Observe the permissible mounting positions for the HMI device.

Degrees of protection

The degrees of protection are only guaranteed when the following is observed for the mounting cut-out:

- Material thickness at the mounting cut-out for IP65 degree of protection:
  2 to 6 mm
- Material thickness at the mounting cut-out for NEMA 4X/NEMA 12 degree of protection (indoor use only):
  3 mm to 6 mm
- Permitted deviation from plane at the mounting cut-out: ≤ 0.5 mm

  This condition must be fulfilled for the mounted HMI device.
- Permissible surface roughness in the area of the seal: ≤ 120 µm (R_z 120)

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Dimensions of the mounting cut-out

The following table shows the dimensions of the mounting cut-out required.

Mounting cut-out	TP 177A horizontal mounting	TP 177A vertical mounting	TP 177B 6" Horizontal	TP 177B 4" horizontal mounting	OP 177B Horizontal
Width	198^{+1} mm	142^{+1} mm	198^{+1} mm	123^{+1} mm	228^{+1} mm
Height	142^{+1} mm	198^{+1} mm	142^{+1} mm	99^{+1} mm	196^{+1} mm
Depth	50 mm	50 mm	50 mm	50 mm	55 mm

Maintaining clearances

The HMI device must be installed with the following clearances:

- 50 mm above and below the mounting cut-out for ventilation
- 15 mm to the right and left of the mounting cut-out for inserting the mounting clamps for installation
- At least 10 mm clearance in addition to the depth of the HMI device is required at the rear

NOTICE
Ensure that the maximum ambient temperature is not exceeded when mounting the device in a cabinet and especially in a closed enclosure.

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3.4 Specifications for Insulation Tests, Protection Class and Degree of Protection

Test Coltages

Insulation resistance is demonstrated in the type test with the following test voltages conforming to IEC 61131-2:

Circuits with a nominal voltage of U_e to other circuits or ground	Test voltage
< 50 V	500 V DC

Protection Class

Protection Class I conforming to IEC 60536, i.e. equipotential bonding conductor to profile rail required!

Protection from foreign objects and water

Degree of protection conforming to IEC 60529	Explanation
Front	When mounted: • IP65 • NEMA 4X/NEMA 12 (indoor use only)
Rear	IP20 Protection against touch with standard test fingers. There is no protection against ingress by water.

The degree of protection provided by the front side can only be guaranteed when the mounting seal lies completely against the mounting cut-out.

3.5 Nominal Voltages

The following table details the allowed rated line voltages and associated tolerance ranges.

HMI device	Rated voltage	Tolerance range
TP 177A, TP 177B 6", OP 177B	+24 VDC	20.4 to 28.8 V (–15%, +20%)
TP 177B 4"	+24 VDC	19.2 to 28.8 V (–20 %, +20 %)

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Installation and connection

4

4.1 Checking the package contents

Check the package contents for visible signs of transport damage and for completeness.

NOTICE
Damaged parts Do not install parts damaged during shipment. In the case of damaged parts, contact your Siemens representative.

The following is contained in the delivery:

- HMI device
- Accessory kit

  The accessory kit contains the following:

  – 1 terminal block for the power supply

  – Mounting clamps for mounting the HMI device

  Additional documents may be enclosed with the accessory kit.

Keep the supplied documentation in a safe place. The documentation belongs to the HMI device and is required for subsequent commissioning.

4.2 Mounting the HMI Device

Requirement

All packaging components and protective foils should be removed from the HMI device.

You need the mounting clamps from the accessories kit for the installation. The mounting seal must be available on the HMI device. If the mounting seal is damaged, order a replacement seal. The mounting seal is part of the associated service pack.

Note

Plastic mounting clamps are enclosed in the TP 177A, TP 177B 6" and the OP177B.

Metal mounting clamps are included with the TP 177B 4".

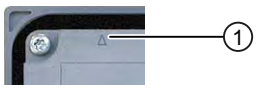
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Mounting clamps on the TP 177A and TP 177B 6"

Use a plastic mounting clamp on each side of the HMI device to secure it in the mounting cut-out.

Mounting clamps TP 177B 4"

The recesses required to suspend the metal mounting clamps are marked with an arrow on the back of the HMI device.



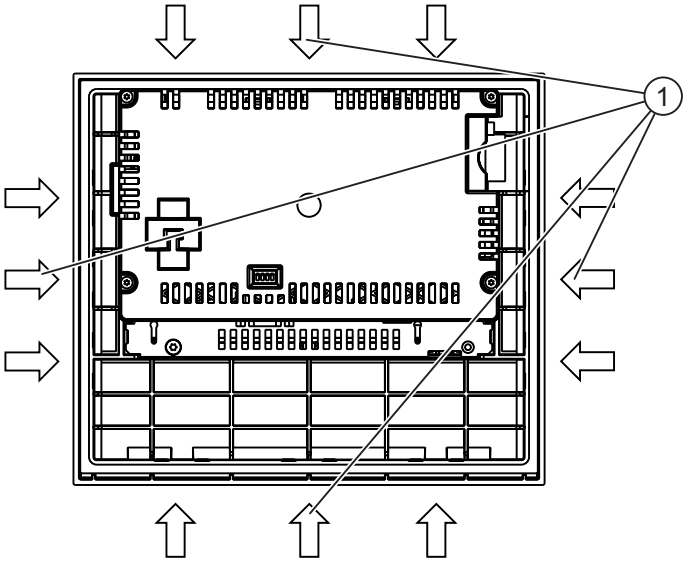
① Marking for position of a mounting clamp

To ensure one of the degrees of protection IP65 or NEMA 4, suspend the metal mounting clamps in the marked recesses.

In each case use one metal mounting for the right, left and bottom, and two at the top.

Mounting clamps on the OP 177B

If IP65 or NEMA 4 degrees of protection are required for the OP 177B, the mounting clamps must be installed as follows.



① Additionally required plastic mounting clamps for IP65 and NEMA 4 degrees of protection

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Mounting

NOTICE
Always mount the HMI device according to the instructions in this manual. **Risk of guaranteed level of protection not being met** If the mounting seal is damaged or protrudes beyond the HMI device, the level of protection is not ensured. Check the fit of the mounting seal.

Note

Tighten the set screw or the cross-tip screw of the mounting clamps until the HMI device is flush with the surface of the control cabinet. As an alternative, you can tighten the mounting clamps using the following torque:

- Plastic mounting clamps: max. 0.15 Nm
- Metal mounting clamps: max. 0.2 Nm

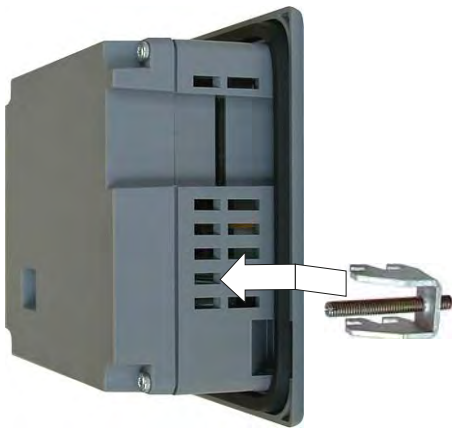
Proceed as follows:

1. Check that the mounting seal is fitted on the HMI device.

   Do not install the mounting seal turned inside out. This may cause leaks in the mounting cut-out.
2. Insert the HMI device into the mounting cut-out from the front.
3. Insert a mounting clamp into the intended recesses on the HMI device.



Example: Inserting plastic mounting clamps on the TP 177A



Example: Inserting metal mounting clamps on the TP 177 4"

4. Tighten the mounting clamp using a threaded stud or a cross-tip screwdriver.
5. Repeat steps 3 and 4 for all mounting clamps.
6. Check the fit of the mounting seal.

   If necessary, repeat steps 1 to 6.

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Result

The HMI device is mounted and the relevant level of protection is ensured at the front.

See also

Accessories (Page 22)

4.3 Connecting the HMI Device

Requirement

- The HMI device must be mounted according to the specifications of these operating instructions.
- Always use standard shielded cables.

Note

Connector on the TP 177B 4"

Use only straight connectors on the TP 177B 4". Angled connectors could conceal neighboring ports.

You can find more information about this on the Internet at "http://mall.automation.siemens.com".

Connection sequence

Connect the HMI device in the following sequence:

1. Equipotential bonding
2. Power supply

   Perform a power-up test to ensure the power supply is connected with the correct polarity.
3. PLC / configuring PC if needed

NOTICE
Connection sequence Always follow the correct sequence for connecting the HMI device. Failure to do so may result in damage to the HMI device.

Connecting the cables

When connecting the cables, ensure that the contact pins are not bent. Secure the connectors with screws.

The pin assignment of the ports is described in the technical specifications.

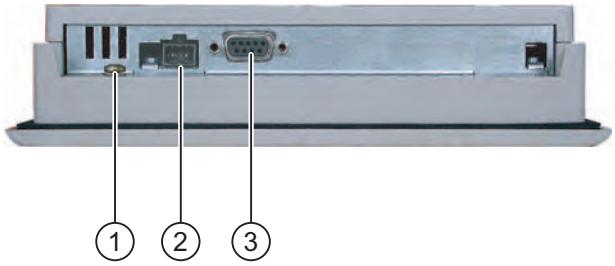
See also

Safety Information (Page 29)

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4.3.1 Interfaces on the TP 177A

The figure below shows the interfaces of the TP 177A HMI device.



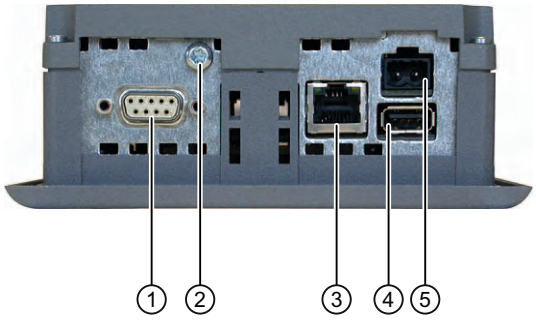
① Chassis terminal for equipotential bonding
② Power supply connector
③ RS 422 / 485 interface (IF 1B)

See also

Power Supply (Page 332)
X10/IF 1B (RS 422/RS 485) (Page 332)

4.3.2 Interfaces on the TP 177B 4"

The figure below shows the interfaces of the TP 177B 4" HMI device.



① RS 422 / RS 485 port X10 / IF 1B
② Chassis terminal for equipotential bonding
③ PROFINET interface X1 P1
④ USB port X20
⑤ Power supply connector

You connect the PROFIBUS DP or MPI to the X10 / IF 1B port.

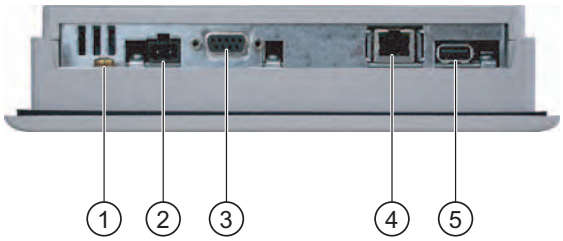
See also

Connecting the Power Supply (Page 55)
Connecting the Controller (Page 58)
X20 (USB) (Page 333)
X1 (PROFINET) (Page 333)

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4.3.3 Interfaces on the TP 177B 6"

The figure below shows the interfaces of the TP 177B 6" HMI device.



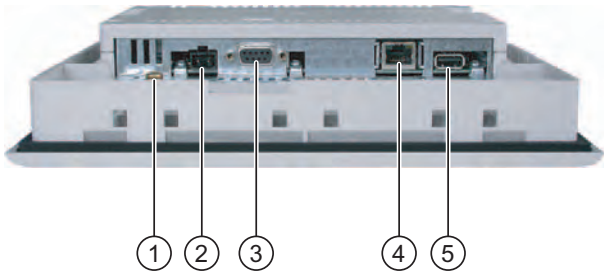
① Chassis terminal for equipotential bonding
② Power supply connector
③ RS 422 / 485 interface (IF 1B)
④ PROFINET connection (applies to TP 177B 6" PN/DP)
⑤ USB connection

See also

Power Supply (Page 332)
X10/IF 1B (RS 422/RS 485) (Page 332)
X20 (USB) (Page 333)
X1 (PROFINET) (Page 333)

4.3.4 Interfaces on the OP 177B

The figure below shows the interfaces of the OP 177B HMI device.



① Chassis terminal for equipotential bonding
② Power supply connector
③ RS -485/RS -422 interface (IF 1B)
④ PROFINET connection (applies to OP 177B PN/DP)
⑤ USB connection

See also

Power Supply (Page 332)
X10/IF 1B (RS 422/RS 485) (Page 332)
X20 (USB) (Page 333)
X1 (PROFINET) (Page 333)

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4.3.5 Connecting the Equipotential Bonding Circuit

Potential Differences

Differences in potential between spatially separated system parts can lead to high equalizing currents over the data cables and therefore to the destruction of their interfaces.
This situation may arise if the cable shielding is terminated at both ends and grounded at different system parts.

Potential differences may develop when a system is connected to different mains.

General Requirements for Equipotential Bonding

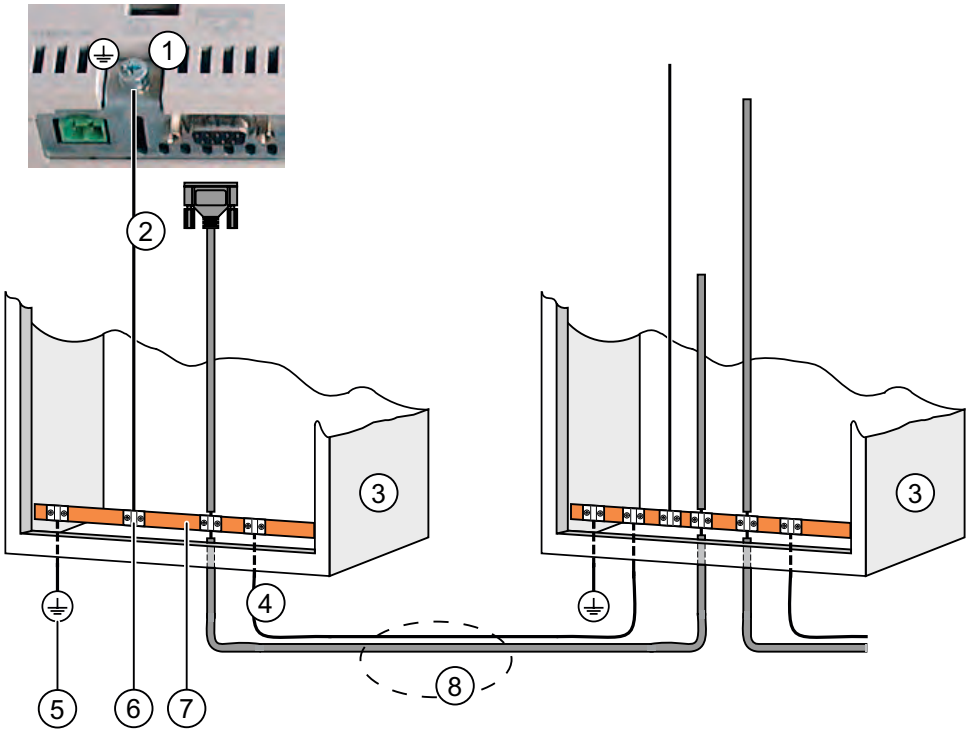
Potential differences must be reduced by means of equipotential bonding in order to ensure trouble-free operation of the relevant components of the electronic system. The following must therefore be observed when installing the equipotential bonding circuit:

- The effectiveness of equipotential bonding increases as the impedance of the equipotential bonding conductor decreases or as its cross-section increases.
- If two system parts are connected to each other via shielded data lines with shielding connected to the grounding/protective conductor on both sides, the impedance of the additionally installed equipotential bonding cables may not exceed 10% of the shielding impedance.
- The cross-section of a selected equipotential bonding conductor must be capable of handling the maximum equalizing current. The best results for equipotential bonding between two cabinets were achieved with a minimum conductor cross-section of 16 mm^2.
- Use equipotential bonding conductors made of copper or galvanized steel. Establish a large-surface contact between the equipotential bonding conductors and the grounding/protective conductor and protect these from corrosion.
- Terminate the shielding of the data cable on the HMI device flush and near the equipotential busbar using suitable cable clamps.
- Route the equipotential bonding conductor and data cables in parallel with minimum clearance between these. See following wiring diagram.

NOTICE
Equipotential Bonding Conductor Cable shielding is not suitable for equipotential bonding. Always use the prescribed equipotential bonding conductors. The minimum cross-section of a conductor used for equipotential bonding is 16 mm^2. When you install MPI and PROFIBUS DP networks, always use cables with a sufficient crosssection since otherwise the interface modules may be damaged or destroyed.

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Wiring diagram



① Chassis terminal on the HMI device (example)
② Equipotential bonding conductor cross-section: 4 mm²
③ Cabinet
④ Equipotential bonding conductor cross-section: min. 16 mm²
⑤ Ground connection
⑥ Cable clip
⑦ Voltage bus
⑧ Parallel routing of the equipotential bonding conductor and data cable

See also

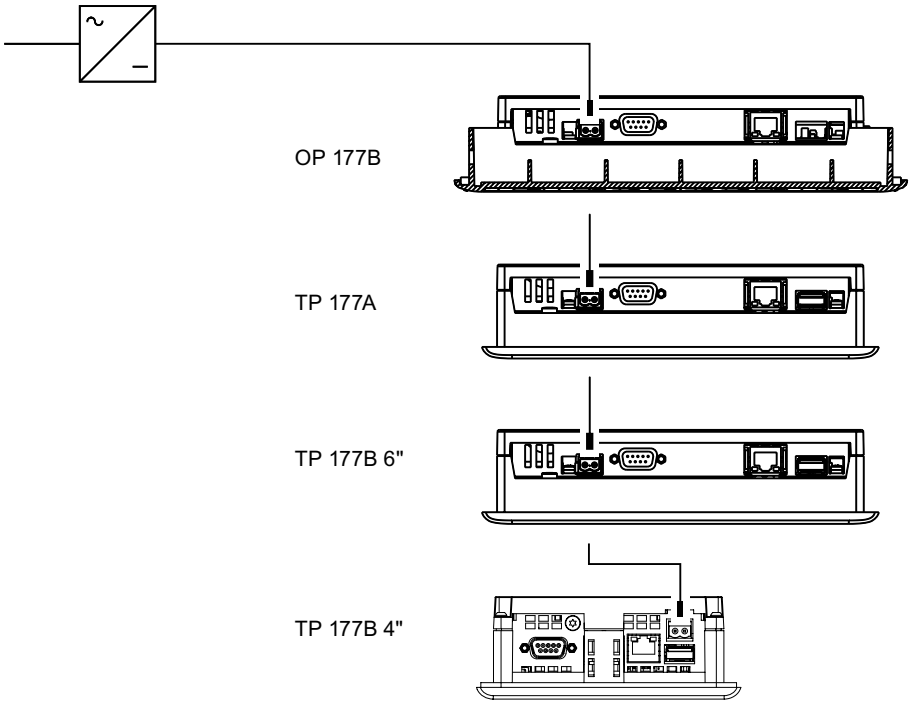
Electromagnetic Compatibility (Page 36)

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4.3.6 Connecting the Power Supply

Wiring diagram

The figure below illustrates the connection between the power supply and the HMI device.



Note when connecting

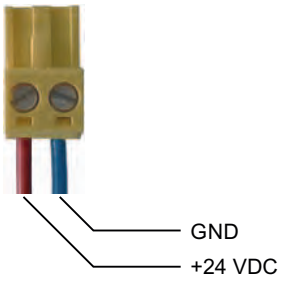
The power terminal block is included in the assembly kit and is designed for conductors with a maximum cross-section of 1.5 mm^2.

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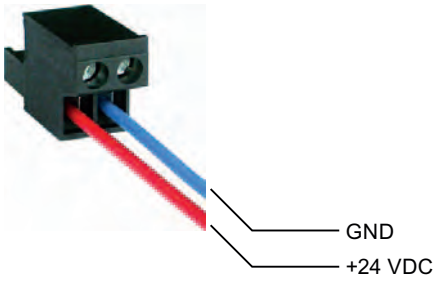
Connecting the terminal block

NOTICE
Damage The pressure of the screwdriver may damage the socket if the terminal strip is plugged into the HMI device when you tighten the screws. Only connect the wires when the plug-in terminal strip is withdrawn.

There are two types of plug-in terminal strips that can be used for the TP 177A, TP 177B and OP 177B.



Plug-in terminal strip, version 1



Plug-in terminal strip, version 2

Connect the power supply cables to the terminal strip as shown in the figure above. Ensure that the lines are connected properly to the correct terminals. Refer to the label for the contact pins on the rear of the HMI device.

Reverse polarity protection

The HMI device is equipped with a reverse polarity protection.

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Connecting the power supply

CAUTION
Supply voltage With the supply voltage, pay attention to a secure electrical separation. Always use power supply modules that conform to IEC 364-4-41 or HD 384.04.41 (VDE 0100, Part 410). Always use power supply modules that comply to SELV (Safety Extra-Low Voltage) and PELV (Protective Extra Low Voltage) standards. The power supply voltage must always be within the specified range to prevent malfunctions on the HMI device. **Equipotential bonding** Connect the 24 V DC voltage to the GND conductor at a central connection point for equipotential bonding. This ensures the GND supply for the HMI device.

See also

Interfaces on the TP 177A (Page 51)
Interfaces on the TP 177B 4" (Page 51)
Interfaces on the TP 177B 6" (Page 52)
Interfaces on the OP 177B (Page 52)

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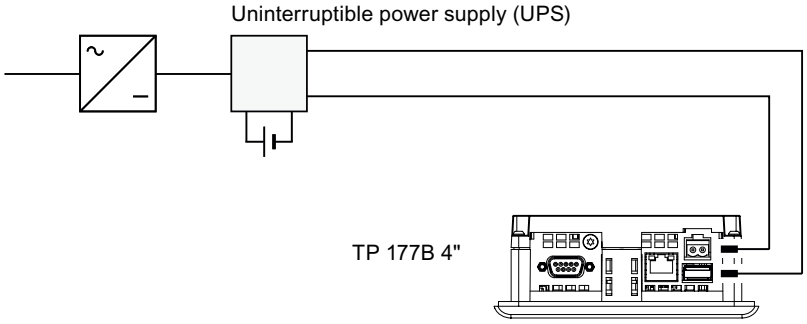
4.3.7 Connecting uninterruptible power supply on the TP 177B 4"

Wiring diagram

The following figure shows the connection between the uninterruptible power supply and HMI device. The uninterruptible power supply is connected to the 24-V input and one of USB ports of the HMI device.

When connected to the USB port of the HMI device, the following uninterruptible power supplies are supported:

SITOP DC UPS modules as of a rated power value of 6 A, e.g. 6EP1931-2DC42.



Note

Observe all the notes relating to connecting a power supply.

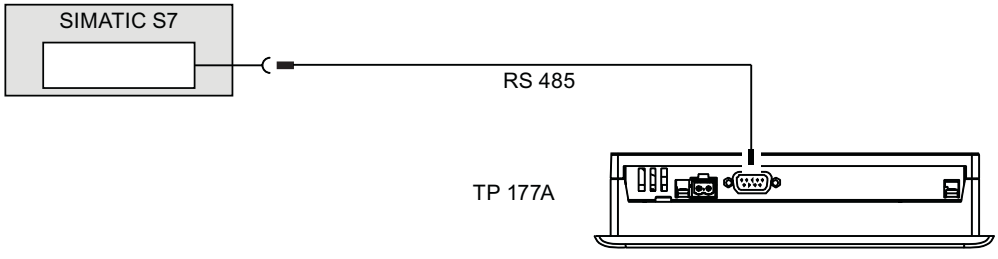
See also

Interfaces on the TP 177B 4" (Page 51)

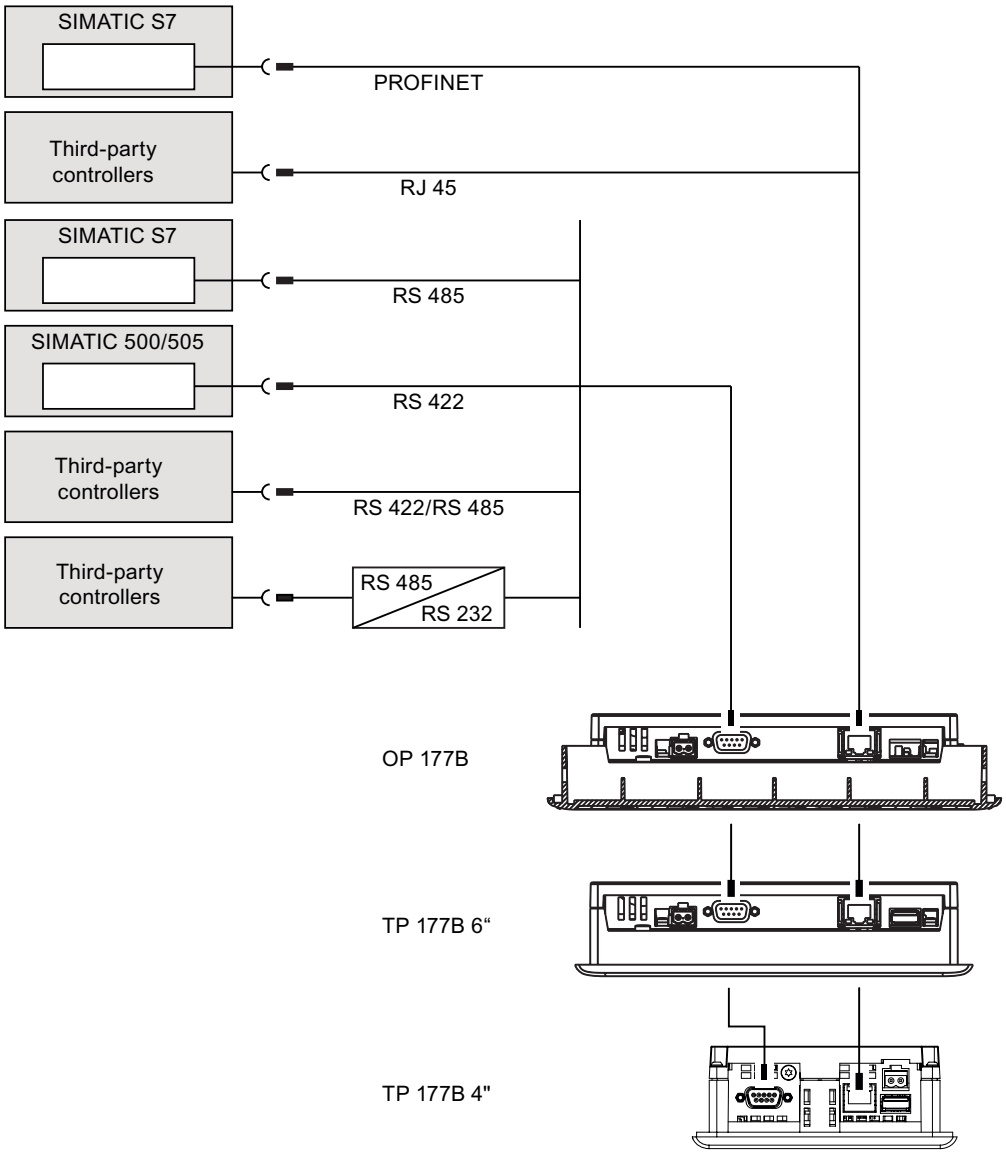
4.3.8 Connecting the Controller

Wiring diagram

The figure below illustrates the connection between the HMI device and controller.



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NOTICE
Cables
Always use the approved cables to connect a SIMATIC S7 PLC.

Standard cables are available for the connection. You can find more information about this on the Internet at "http://mall.automation.siemens.com".

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Connecting PROFINET

NOTICE
Use a cross-cable for the PROFINET connection of the TP 177B 6" and the OP 177B when using a point-to-point connection.

NOTICE
PROFINET IO is not capable of function If you connect the HMI device directly to the controller, it could cause PROFINET IO direct keys not to function properly. Connect the switch with a PROFINET cable to the HMI device. For detailed instructions regarding the installation of PROFINET networks, please refer to the PROFINET system description manual.

Only connect the HMI device to public Ethernet networks using a switch or comparable device.

Configuring the RS-485 Interface

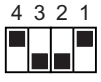
A DIP switch for the configuration of the RS -485 interface is located on the back side of the HMI device.

In the factory state, the DIP switch is set for communication with the SIMATIC S7 controller.

Note

Note the diagrams of the DIP switch settings on the back of the HMI device.

The following table shows the settings of the DIP switch. The transmitting and receiving directions will be switched over internally with the RTS signal.

Communication	Switch setting	Meaning
RS 485		No RTS on plug, for data transfer between PLC and HMI device (factory state)
		RTS on pin 4, same as PLC, for example, for commissioning
		RTS on pin 9, same as programming device, for example, for commissioning
RS 422		RS-422 port is active.

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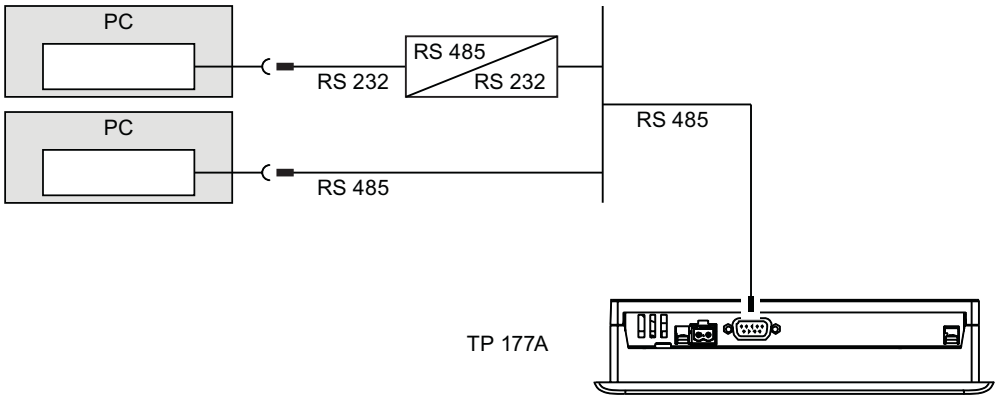
See also

Interfaces on the TP 177A (Page 51)
Interfaces on the TP 177B 4" (Page 51)
Interfaces on the TP 177B 6" (Page 52)
Interfaces on the OP 177B (Page 52)

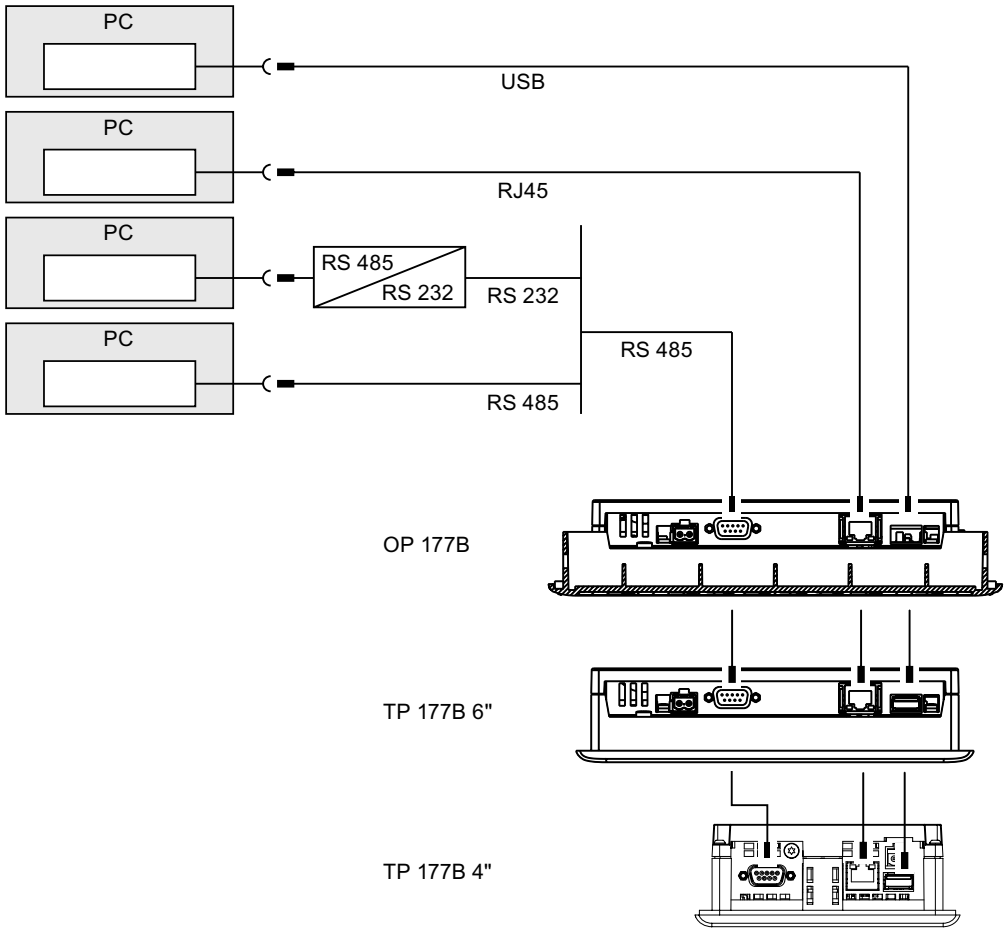
4.3.9 Connecting a configuration PC

Wiring diagram

The figure below illustrates the connection between the HMI device and the configuration PC. You can use this connection to transfer the image, the project and further project data.



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Use a cross-cable for the Ethernet connection of the TP 177B 6" and the OP 177B when using a point-to-point connection.

You can use a standard cable for the Ethernet connection of the TP 177B 4", as this HMI device has an automatic cross-over function.

The interfaces are described in the technical specifications.

For RS-485-RS-232 conversion, you can order the PC / PPI cable from Siemens AG using order number 6ES7 901-3CB30-0XA0.

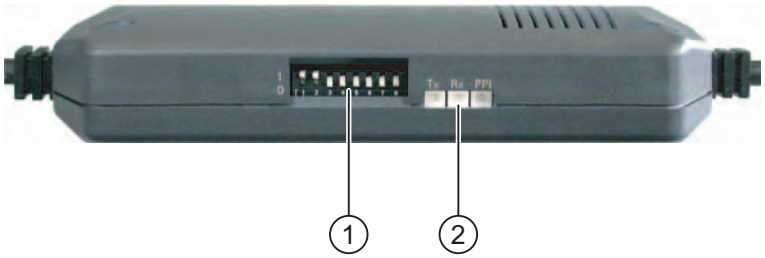
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Configuring a PC / PPI cable

Use the DIP switches to configure the transfer rate of the PC / PPI cable.

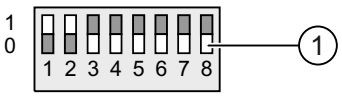
Note

If the connection fails during the operating system update, set the system to a lower bit rate. If you use a higher bit rate, you must use the PC / PPI cable release 3 or higher. The version code is printed on the cable (e.g., "E stand 3" corresponds to version 3).



① DIP switch
② LEDs

Set the DIP switches 1 to 3 to the same bit rate as in WinCC flexible. DIP switches 4 to 8 must be set to "0".



① DIP switch

The following bit rates can be set:

Bit rate in kbit/s	DIP switch 1	DIP switch 2	DIP switch 3
115.2	1	1	0
57.6	1	1	1
38.4	0	0	0
19.2	0	0	1
9.6	0	1	0
4.8	0	1	1
2.4	1	0	0
1.2	1	0	1

In the figure, the bit rate is set to 115.2 kbit/s.

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Note when connecting

NOTICE
USB connection sequence Observe the following sequence when connecting by USB: 1. HMI device 2. PC **USB host-to-host cable** Use only the driver for the USB host-to-host cable that is included in the WinCC flexible package. Never use the driver supplied with the USB host-to-host cable. **Updating the operating system** If there is no HMI device image on the HMI device or the HMI device image is corrupt, the operating system can only be updated via the HMI device's RS 485 interface or the PC / PPI cable.

See also

Interfaces on the TP 177A (Page 51)

Interfaces on the TP 177B 4" (Page 51)

Interfaces on the TP 177B 6" (Page 52)

Interfaces on the OP 177B (Page 52)

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4.3.10 Connecting USB devices to TP 177B and OP 177B

You can connect the following devices to the USB port of the HMI device:

- External mouse
- External keyboard
- Printer
- USB memory stick
- Industrial USB Hub 4

  Industrial USB hub 4 can be obtained using order number 6AV6671-3AH00-0AX0.

Note when connecting

NOTICE
Functional problem with USB port If you connect an external device with an independent power supply without equipotential bonding to the USB port, you may experience functional problems. Ensure a non-insulated installation. **Excessive rated load on port** A USB device with too high a power load may possibly cause functional problems. Observe the values for the maximum load of the USB port. You will find the values in the technical specifications.

See also

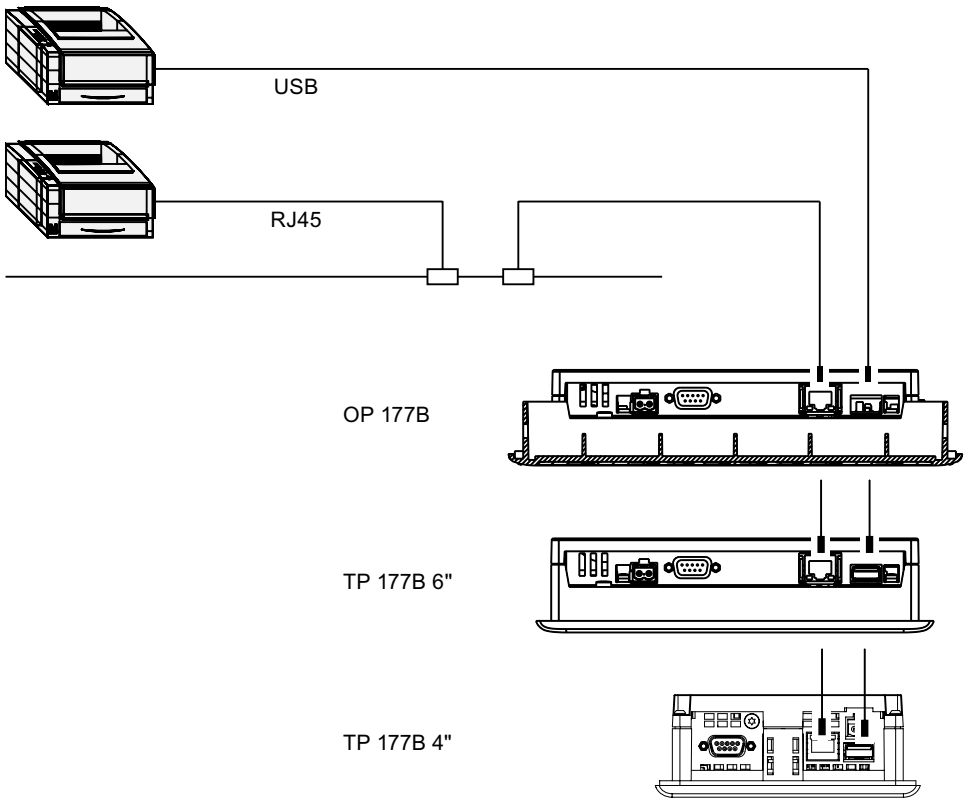
Specifications (Page 325)
Interfaces on the TP 177B 4" (Page 51)
Interfaces on the TP 177B 6" (Page 52)
Interfaces on the OP 177B (Page 52)

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4.3.11 Connecting printers to TP 177B and OP 177B

Wiring diagram

You can connect a printer as a peripheral.



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Note when connecting

NOTICE
Only use cables with two-ended grounded metal braided shielding between the HMI device and printer. Use a cross-cable for the Ethernet connection of the TP 177B 6" and the OP 177B when using a point-to-point connection.

The list of current printers and required settings for HMI devices can be found on the Internet under "http://support.automation.siemens.com/WW/view/en/11376409".

NOTICE
Rated load of the USB port Observe the values given in the specifications for the load on the USB port. Loads greater than those specified may result in malfunctions in connected devices.

Note

Documentation for peripherals

Also, read the documentation provided with the printer before connecting it.

See also

Interfaces on the TP 177B 4" (Page 51)

Interfaces on the TP 177B 6" (Page 52)

Interfaces on the OP 177B (Page 52)

Specifications (Page 325)

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4.4 Switching on and Testing the HMI Device

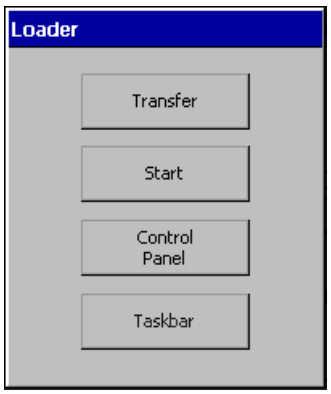
Procedure

Proceed as follows:

1. Connect the plug-in terminal strip on the HMI device.
2. Restart the power supply.

   The display lights up after power on. A progress bar is displayed during startup.

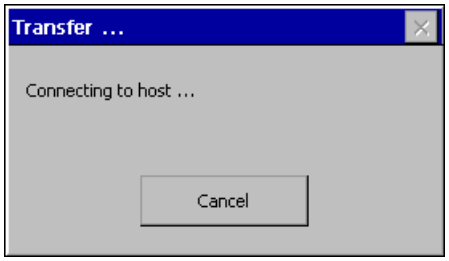
   If the HMI device does not start, it is possible the wires on the terminal block have been crossed. Check the connected wires and change the connections if necessary.
   The Loader opens once the operating system has started.



   The HMI device automatically switches to "Transfer" mode during initial startup under the following conditions:

   – No project is loaded on the device.
   – At least one data channel has been configured.

   The following dialog appears:



3. Press "Cancel" to stop the transfer.

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Result

The Loader appears again.

Note

When restarting the system, a project may already be loaded on the HMI device.
In this case, the project will then start after an adjustable delay or when you press the "Start" button.

Use the relevant operator control object to close the project.

Refer to your plant documentation to find any additional information on this topic.

Function test

Perform a function test following commissioning. The HMI device is fully functional when one of the following states is indicated:

- The "Transfer" dialog is displayed.
- The Loader opens.
- A project is started.

Switching off the HMI Device

You have the following options for switching off the HMI device:

- Shut down the power supply.
- Disconnect the plug-in terminal strip on the HMI device.

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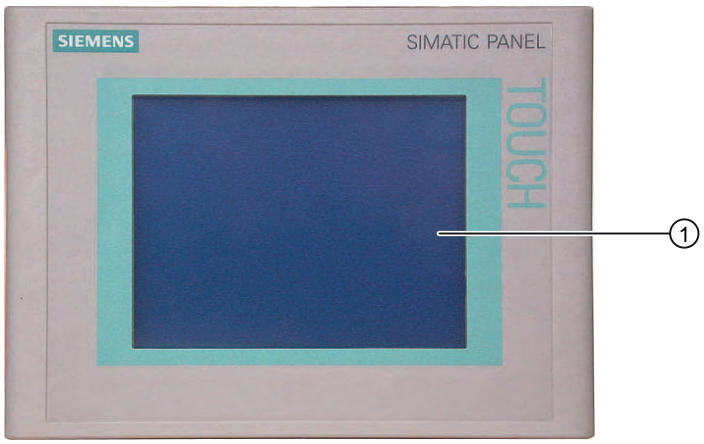
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Operator Controls and Displays

5

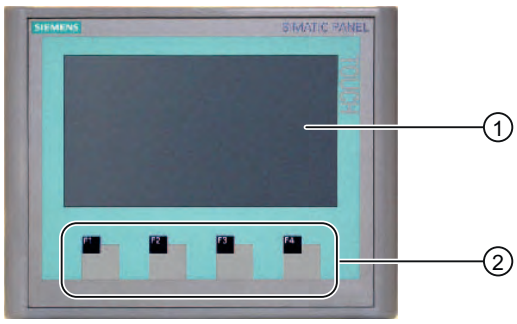
5.1 Front-side Operator Controls

Operating elements on the TP 177A and TP 177B 6"



① Display with touch screen

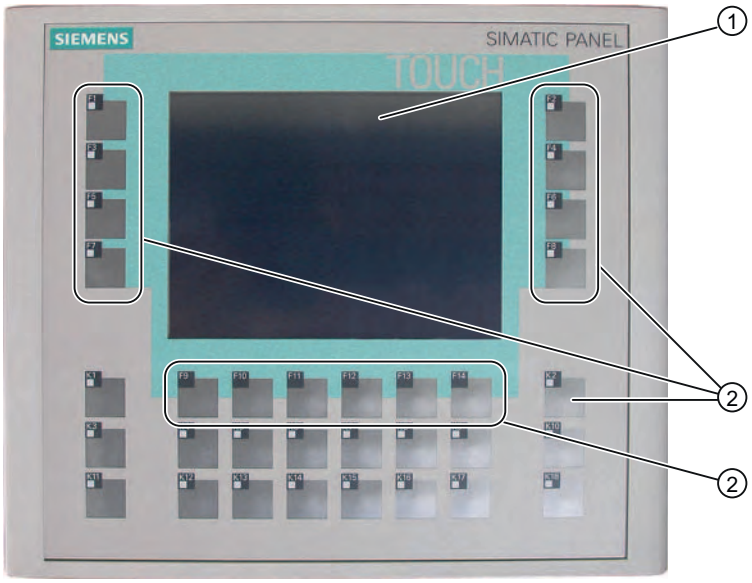
TP 177B 4" operating elements



① Display with touch screen
② Function keys without LED

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Operating elements on the OP 177B



① Display with touch screen
② Function keys with LED
③ Function keys without LED

Touch screen

The standard input unit on the HMI device is the touch screen. All operator controls required for operation are displayed on the touch screen once the HMI device has started.

CAUTION
Damage to the touch screen
Pointed or sharp objects can damage the plastic surface of the touch screen.
Always operate the touch screen with your fingers or with a touch pen only.
Triggering unintended actions
Touching several operator controls at the same time can trigger unintended actions.
Always touch only one operator control on the screen.

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Function keys

On the TP 177B 4" you can also use the function keys F1 to F4 for inputs.

Information can be also entered on the OP 177B using the function keys F1 to F14 and K1 to K18.

The function assigned to a specific function key is defined during configuration. The function keys have no function before a project has been opened.

NOTICE
Damage to the keyboard possible Always use your fingers to operate the keys of your HMI device. Using hard instruments to press the keys considerably reduces the service life of the key mechanism.

See also

Design of the TP 177A HMI Device (Page 16)

Design of the TP 177B 4" HMI device (Page 19)

Design of the TP 177B 6" HMI device (Page 17)

Design of the OP 177B HMI Device (Page 20)

5.2 Connecting a memory card to the TP 177B 6" and OP 177B

Approved memory cards

Only use MultiMediaCards tested and approved by Siemens AG for the respective HMI device.

NOTICE
The SIMATIC S7 MultiMedia card can no longer be used If you format a MultiMedia card for the SIMATIC S7 in the HMI device, this MultiMedia card can no longer be used in the SIMATIC S7. Only use MultiMedia cards that are approved for the HMI device.

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Procedure - Inserting a memory card

Proceed as follows:

1. Insert the memory card into the relevant slot.

   When inserting the memory card, please note that it can only be inserted in the slot when the front side of the memory card is visible.

   The following figure shows you how to insert the memory card, for example, in the TP 177B 6".



1	Memory card interlock
2	Memory card
3	Memory card slot

2. Check that the memory card is properly seated.

   If the memory card is inserted correctly in the memory card slot, the memory card lock engages behind the memory card.

Using a memory card for the first time

NOTICE
Data loss
When requested by the HMI device to format a memory card for first time use, you should save a backup copy of memory card data to a PC.

Proceed as follows to prevent data loss:

1. Cancel the formatting procedure by pressing "ESC".
2. Save a backup copy of vital data to a PC.
3. Format the memory card on the HMI device.
4. If you require on the HMI device data that has been saved on the PC, transfer the data back to the memory card.

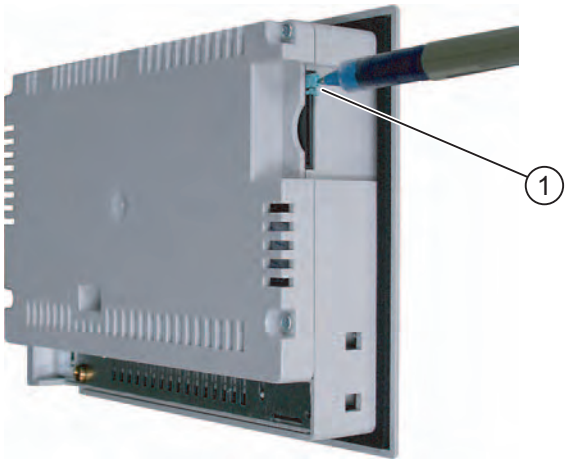
   You can now transfer the backup data from the memory card to the HMI device.

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Procedure – Ejecting a Memory Card

NOTICE
Loss of data possible The data on the memory card is lost if you attempt to remove it while the HMI device is accessing its data. Do not remove the memory card while data is being accessed. Observe the corresponding alarms on the screen.

The following figure shows you how to eject the memory card on the example of the TP 177B.



① Eject button

Proceed as follows:

1. Press the ejection button.

   This ejects the memory card out of the slot.

NOTICE
Do not force the ejector. This could damage its mechanism.

2. Unplug the memory card from the memory card slot.
3. Store the memory card in a safe place.

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5.3 Insert a memory card in the TP 177B 4"

Approved memory cards

Only use SD memory cards or MultiMediaCards tested and approved by Siemens AG for the respective HMI device.

NOTICE
The SIMATIC S7 MultiMedia card can no longer be used If you format a MultiMedia card for the SIMATIC S7 in the HMI device, this MultiMedia card can no longer be used in the SIMATIC S7. Only use MultiMedia cards that are approved for the HMI device.

Procedure - Inserting a memory card

The memory card can be inserted during operation.

Proceed as follows:

1. Insert the memory card in the slot until it stops.

   When inserting the memory card, please note that it can only be inserted in the slot when the front side of the memory card is visible.



2. Check that the memory card is properly seated.

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Using a memory card for the first time

NOTICE
Data loss When requested by the HMI device to format a memory card for first time use, you should save a backup copy of memory card data to a PC.

Proceed as follows to prevent data loss:

1. Cancel the formatting procedure by pressing "ESC".
2. Save a backup copy of vital data to a PC.
3. Format the memory card on the HMI device.
4. If you require on the HMI device data that has been saved on the PC, transfer the data back to the memory card.

   You can now transfer the backup data from the memory card to the HMI device.

Procedure – removing a memory card

NOTICE
Loss of data possible The data on the memory card is lost if you attempt to remove it while the HMI device is accessing its data. Do not remove the memory card while data is being accessed. Observe the corresponding alarms on the screen.

Proceed as follows:

1. Unplug the memory card from the memory card slot.
2. Store the memory card in a safe place.

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5.4 Labeling function keys on the TP 177B 4" and OP 177B

Introduction

You can label the function keys as required for your project. Use labeling strips to do so.

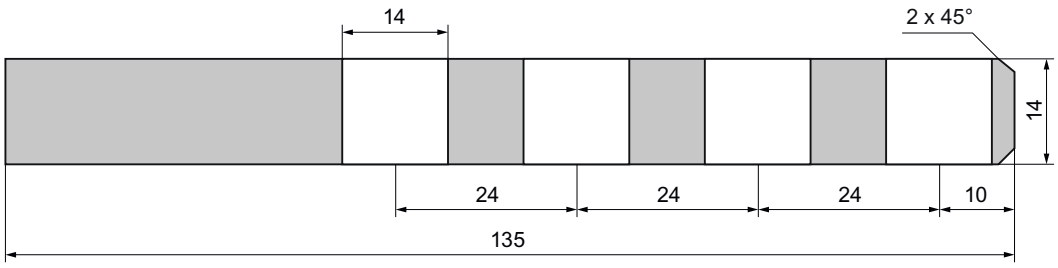
NOTICE
Do not write on the keyboard to label the function keys.

Printing Labeling Strips

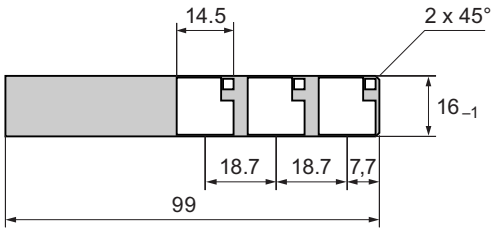
WinCC flexible comes with a range of labeling strip templates. You will find further information regarding the location of the templates in the WinCC flexible online help.

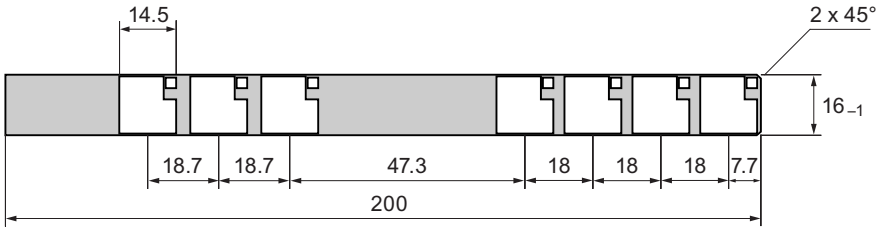
Any printable and writable foil can be used as labeling strips. You can use transparency film, the keyboard membrane of the HMI device is printed on the reverse side. Use transparent foil so that the LEDs of the function keys can be seen. The permitted thickness of the labeling strip is 0.15 mm. Paper should not be used as labeling strips.

Dimensions for the labeling strips of the the TP 177B 4"



Dimensions for the labeling strips of the OP 177B





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Procedure

Note

With TP 177B 4" the slots are located at the sides of the HMI device.

With OP 177B, the slots for the labeling strips are located on the bottom of the HMI device.

Proceed as follows:

1. Edit and then print the template.

   You can also print out an empty template and later write on it by hand.

2. Spray the labeling strips with fixing spray.

   The fixing spray ensures that the text is water resistant and does not smear, and that the printer ink on the keyboard membrane does not run.

3. Cut out the labeling strip.

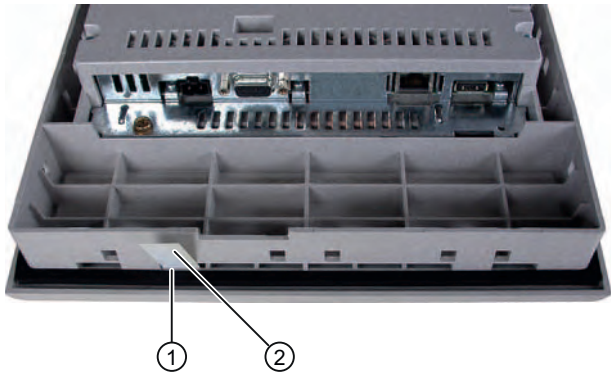
   Ensure that the corners are cut according to the diagram shown above as this makes it easier to slide them into the slot.

4. Remove any existing labeling strips.

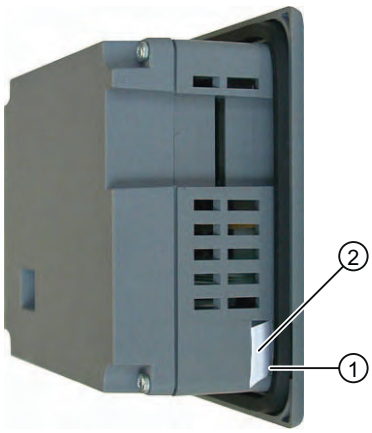
   Note

   Wait for the printed labeling strips to dry before you insert them.

5. Slide the labeling strips ② into the slot ①.



Labeling strips on the OP 177B



Labeling strips on the TP 177B 4"

6. Slide the labeling strips into the slot up to the stop.

   The labeling strips will protrude approximately 3 cm out of the slot. The template dimensions for the labeling strips are designed so that the labeling is correctly placed for the function keys. It is not necessary to secure the labeling strip.

When mounting the HMI device, ensure that the labeling strips do not become jammed between the mounting cut-out and the HMI device.

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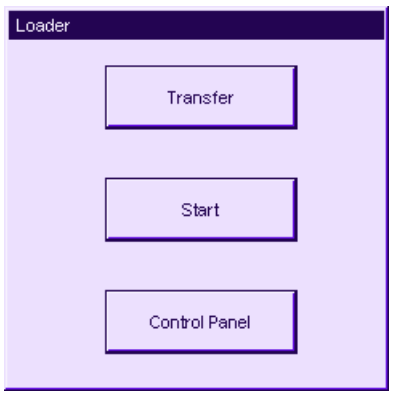
6 Configuring the Operating System

6.1 Configuring the Operating System on the TP 177A

6.1.1 Overview

Loader

The figure below shows the Loader. It appears briefly when the HMI device starts up.



The Loader buttons have the following functions:

- Use the "Transfer" button to set "Transfer" mode on the HMI device.
- Press the "Start" button to open the project stored on the HMI device
- Press "Control Panel" to open the HMI device Control Panel

  The Control Panel is used to configure various settings such as the transfer settings.

The loader also appears every time you close the project.

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Protecting the Control Panel with a password

You can protect the Control Panel and taskbar from unauthorized access. Without a password, you can still read the settings in the Control Panel, but you cannot change all the settings.

This prevents inadvertent operations and increases security for the plant or machine because the settings cannot be changed when a project is not open.

NOTICE
If the password is no longer available, you cannot change settings in the Control Panel and taskbar unless you update the operating system. All data on the HMI device will be overwritten when you update the operating system!

See also

Switching on and Testing the HMI Device (Page 68)

Changing the Password Settings (Page 89)

Configuring the Data Channel (Page 93)

6.1.2 Control Panel

6.1.2.1 Overview

Control Panel of the HMI Device

The HMI device Control Panel can be used to modify the following HMI device settings:

- Screen settings
- Transfer settings

Opening the Control Panel

Open the Control Panel using the HMI device Loader.

The following options are available to open the Loader:

- The Loader appears briefly after starting the HMI device.
- During runtime:

  If configured, touch the relevant operator control object to stop the project. The Loader opens. Refer to your plant documentation to find any additional information on this topic.

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Touch the "Control Panel" button in the Loader to open the HMI device Control Panel.



OP	Changing screen settings, displaying information about HMI device, calibrating the touch screen
Password	Setting password protection for the Control Panel
MPI/DP settings	Changing MPI/DP Settings
Screen saver	Configuring the screen saver
Transfer	Change transfer settings, configure the data channel

Procedure

Proceed as follows to change settings in the Control Panel:

1. You must exit the project before changing settings in the Control Panel. Use the relevant operator control object provided in the project.
2. Open the Control Panel as described above.
3. Open the desired dialog by double-clicking on the corresponding icon in the Control Panel.
4. To change settings, touch the respective input field or check box and use the displayed screen keyboard if necessary. Enter the required password if the Control Panel is protected against unauthorized access. Change the HMI device settings in the dialog.
5. Press ✕ or OK to close the dialog.
6. Press ✕ or OK to close the dialog.
7. Start the project using the Loader.

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6.1.2.2 Changing Screen Settings

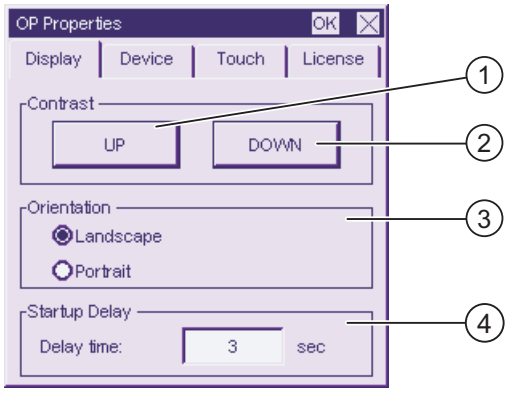
Requirement

The "OP Properties" dialog has been opened with the "OP" icon.

Procedure

Proceed as follows:

1. From the "OP Properties" dialog, select the "Display" tab.



① Button for increasing the contrast
② Button for reducing the contrast
③ Setting the orientation of the screen
④ Input field for the startup delay on the HMI device

2. The buttons "UP" and "DOWN" are located in the "Contrast" group. Proceed as follows to change contrast of the screen:
   - Touch the "UP" button to increase the contrast of the screen
   - Touch the "DOWN" button to decrease the contrast of the screen
3. The radio buttons "Landscape" and "Portrait" are located in the "Orientation" group. Proceed as follows to change the orientation of the screen:
   - Enable the "Landscape" radio button to orientate the screen of the HMI device diagonally
   - Enable the "Portrait" radio button to orientate the screen of the HMI device vertically
4. In the input field "Delay time", which is located in the "Startup Delay" group, set the delay time for the startup of the HMI device. The delay time is the time in seconds that is waited from the appearance of the loader until the start of the project.

   With the value "0", the project starts immediately. It is then no longer possible to call the loader after switching on the HMI device. In this case, an HMI device with the function "End project" would have to be configured.

   Valid value range is 0 s to 60 s.
5. Close the dialog and save your entries with OK. Touch ✕ to discard the entries

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Result

The regional settings for the HMI device screen have now been changed

Screen orientation

The orientation of the screen has already been configured by the configuration engineer when setting up the project. When transferring the project to the HMI device, a suitable orientation of the screen is set automatically.

NOTICE
When a project is available on the HMI device, do not change the screen orientation afterwards.

You can, for example, change the orientation of the screen in the Control Panel if you need to operate the loader on a vertically mounted HMI device without a project.

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6.1.2.3 Displaying Information about the HMI Device

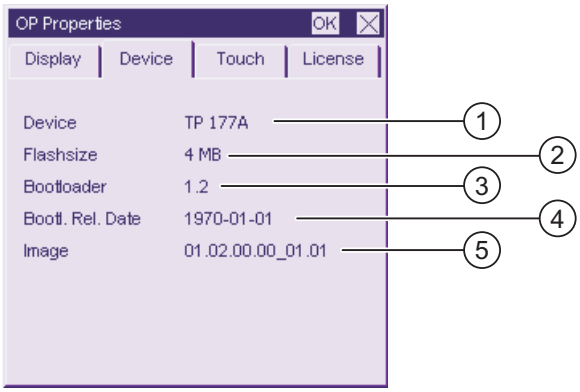
Requirement

The "OP Properties" dialog has been opened with the "OP" icon.

Procedure

Proceed as follows:

1. Open the "OP Properties" dialog and select the "Device" tab.



① HMI device name
② Size of the internal flash memory in which the HMI device image and project are stored
③ Version of the boot loader
④ Boot loader release date
⑤ Version of the HMI device image

2. The "Device" tab displays the HMI-device-specific information and is read-only.

   You will need this information if you contact A&D Technical Support.

3. Use OK or × to close the dialog when the information is no longer required.

Note

The size of the internal flash memory does not correspond to the available working memory for a project.

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6.1.2.4 Calibrating the Touch Screen

Introduction

Depending on the mounting position and viewing angle, it is possible that parallax may occur when operating the HMI device. In order to prevent any operating errors as a result, calibrate the touch screen again in the startup phase or during runtime.

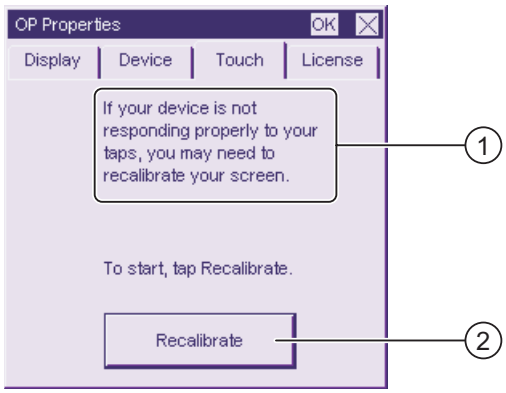
Requirement

The "OP Properties" dialog has been opened with the "OP"  icon.

Procedure

Proceed as follows:

1. Open the "OP Properties" dialog, then select the "Touch" tab.

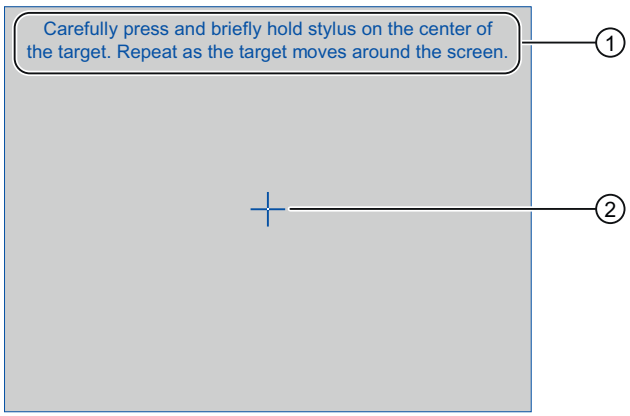


① If the HMI device does not react precisely to a touch, the touch screen may require calibration.

② Button for calibrating the touch screen

2. Touch the "Recalibrate" button.

   The following dialog appears.



① Carefully press the center of the calibration crosshairs. Repeat the process as long as the calibration crosshairs move on the touch screen.

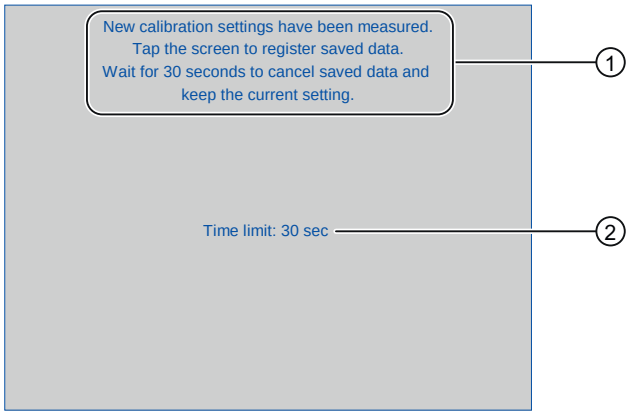
② Calibration crosshair

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3. Briefly touch the calibration crosshairs.

   The calibration crosshairs then goes to four more positions. Touch the center of the calibration crosshairs for each position. If you do not touch the center of the calibration crosshair, the procedure is repeated.

   Once you have touched the calibration crosshairs for all positions, the following dialog appears:



   ① The new calibration values are measured. Touch the touch screen to save the calibration values. If you do not touch the screen within 30 seconds, the new calibration values will be discarded.

   ② Time remaining until the calibration values are discarded

4. Touch the screen within 30 seconds

   The new calibration is saved. If you wait longer than 30 seconds, the new calibration is discarded and the original calibration remains in effect.

5. Close the dialog with OK

   The Control Panel is displayed.

Result

The HMI device touch screen is now recalibrated.

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6.1.2.5 Display License Information

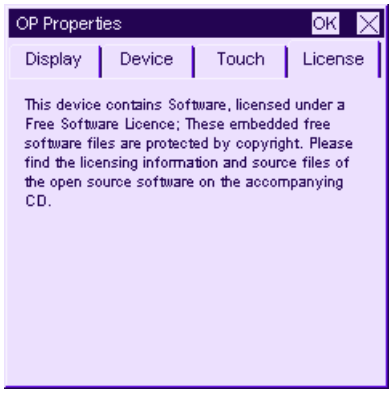
Requirement

The "OP Properties" dialog has been opened with the "OP" icon.

Procedure

Proceed as follows:

1. From the "OP Properties" dialog, select the "License" tab.



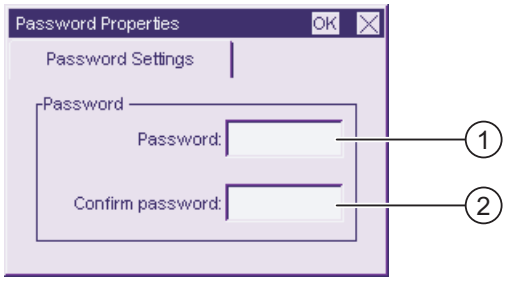
   The "License" tab displays the license information for the software of the HMI device.

2. Use × or OK to close the dialog when the information is no longer required.

6.1.2.6 Changing the Password Settings

Requirement

The "Password Properties" dialog has been opened with the "Password" icon.



① Input field for the password
② Input field for repeating the password

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Procedure – entering a password

Proceed as follows:

1. Enter a password in the "Password" input field.

   Touch the input field. The alphanumerical screen keyboard is displayed.
2. Repeat the password entry in the "Confirm Password" input field.
3. Close the dialog with OK.

NOTICE
Your password must not contain blank spaces or special characters * ? . % / \ ' ".

Result

The Control Panel is now protected against unauthorized access. Without entering a password, you can read some settings but you cannot change them.

NOTICE
If the password is no longer available, you cannot change settings in the Control Panel and taskbar unless you update the operating system. All data on the HMI device will be overwritten when you update the operating system!

Procedure – deleting a password

Proceed as follows:

1. Delete the entries in the "Password" and "Confirm password" input fields.
2. Close the dialog with OK.

Result

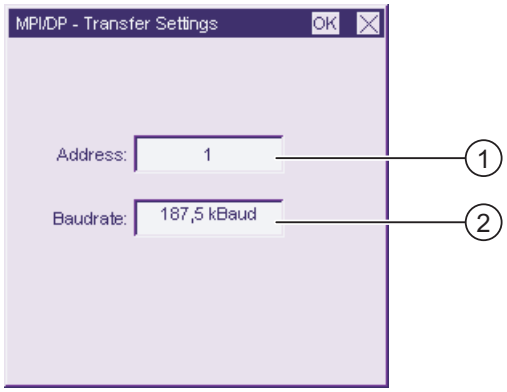
The password protection for the Control Panel has been removed.

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6.1.2.7 Changing MPI/DP Settings

Requirement

The "MPI/DP - Transfer Settings" dialog has been opened with the "MPI/DP Settings" icon.



① Bus address of the HMI device
② Data transmission rate

Procedure

Proceed as follows:

1. Enter the bus address for the HMI device in the "Address" input field

   Touch the input field. The numerical screen keyboard is displayed.
2. Select the data transfer rate for communication in the "Baud rate" input field.

   Touch the input field. The symbolic screen keyboard is displayed.
3. Close the dialog with OK.

NOTICE
Address in the MPI / PROFIBUS DP network
The value specified in the "Address" input field should be used in an MPI / PROFIBUS DP network just once.

Note

During the transfer of a project to the HMI device, the MPI / DP settings will be overwritten with the values from the transferred project.

Result

The MPI / DP settings of the HMI device have been changed.

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General information

NOTICE
Transfer mode using MPI / PROFIBUS DP The bus parameters for MPI / PROFIBUS DP transfer, e.g. the MPI / PROFIBUS DP address of the HMI device, will be read from the project currently loaded on the HMI device. You can change the settings for MPI / PROFIBUS DP transfer. To do this, you must first end the project and then change the settings on the HMI device. Then return to transfer mode. The HMI device uses the new MPI / PROFIBUS DP settings until you transfer another project to it. During the transfer of a project to the HMI device, the MPI / PROFIBUS DP settings will be overwritten with the values from the transferred project. You can thus edit the MPI / DP settings for the TP 177A irrespective of the project settings. **Transfer settings** A project can only be transferred from the configuration PC to the HMI device when at least one of the data channels is enabled on the HMI device. Do not change the transfer settings if a project is running or the HMI device is in transfer mode.

6.1.2.8 Setting the Screen Saver

Introduction

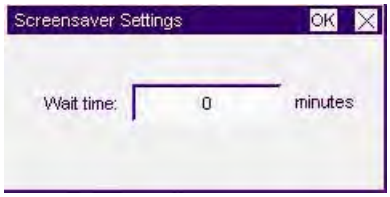
You can set a period of time for automatic activation of the screen saver on the HMI device. The screen saver is automatically activated if the HMI device is not operated within the specified period of time.

The screen saver switches off in the following cases:

- When you touch the touch screen.
- A message is displayed.

Requirement

The "Screen Saver Settings" dialog has been opened with the "Screen Saver"  icon.



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Procedure

Proceed as follows:

1. Enter the number of minutes before the screen saver is to be activated.

   Touch the input field. You can enter a value between 5 and 360 minutes. Entering "0" deactivates the screen saver.

2. Close the dialog and save your entries with OK. Touch × to discard the entries.

NOTICE
Activating the screen saver You should always activate the screen saver. Otherwise, the screen contents may leave a burn-in effect in the background if they appear too long. This effect is reversible, however.

Result

The screen saver for the HMI device has now been set.

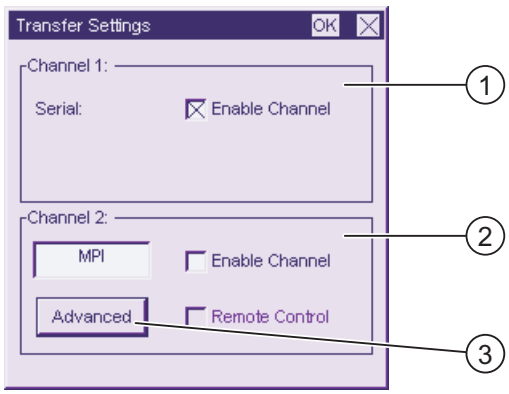
6.1.2.9 Configuring the Data Channel

Introduction

If you block all data channels, the HMI device is protected against unintentional overwriting of the project data and HMI device image.

Requirement

The "Transfer Settings" dialog has been opened with the "Transfer"  icon.



① Group for the data channel 1 (channel 1)
② Group for the data channel 2 (channel 2)
③ Button for the "MPI / DP Transfer Settings" dialog

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Procedure

Proceed as follows:

1. Configure the data channel that you want to use.

   You can clear the required data channel by activating the associated "Enable Channel" check box in the "Channel 1" or "Channel 2" group. In the "Channel 1" group, the RS 485 port is configured for the serial data transfer.

   – Activate the "Enable Channel" check box to enable the data channel.

   – Deactivate the "Enable Channel" check box to lock the data channel.

2. Automatically configure the transfer for the data channel 2.

   – Deactivate the "Remote Control" check box to disable automatic transfer.

   – Activate the "Remote Control" check box to enable automatic transfer.

   ⚠ WARNING

   Unintentional transfer mode

   Ensure that the configuration PC does not inadvertently switch the HMI device to transfer mode during the open project. This could cause unintentional actions to be triggered in the plant.

3. Using the "Advanced" button, go to the "MPI / DP - Transfer Settings" dialog where you can change the MPI / DP settings

   Close the "MPI / DP - Transfer Settings" dialog after changing the MPI / DP settings with OK.

4. Close the "Transfer Settings" dialog and save your entries with OK to accept the entries.

   Touch × to discard the entries

Result

The data channel is configured.

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General information

NOTICE
Transfer mode using MPI / PROFIBUS DP The bus parameters for MPI / PROFIBUS DP transfer, e.g. the MPI / PROFIBUS DP address of the HMI device, will be read from the project currently loaded on the HMI device. You can change the settings for MPI / PROFIBUS DP transfer. To do this, you must first end the project and then change the settings on the HMI device. Then return to "Transfer" mode. During the transfer of a project to the HMI device, the MPI / DP settings will be overwritten with the values from the transferred project. **Transfer settings** A project can only be transferred from the configuration PC to the HMI device when at least one of the data channels is enabled on the HMI device.

See also

Changing MPI/DP Settings (Page 91)

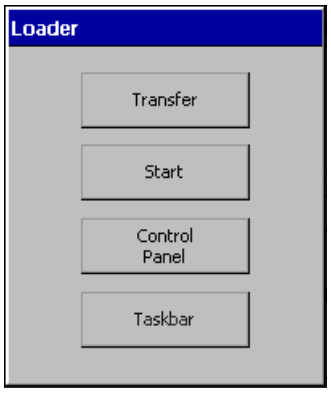
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6.2 Configuring the operating system for TP 177B 6" and OP 177B

6.2.1 Overview

Loader

The figure below shows the Loader.

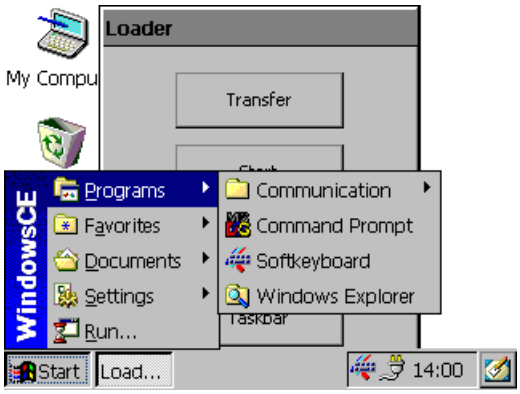


The Loader buttons have the following functions:

- Use the "Transfer" button to set "Transfer" mode on the HMI device.

  The transfer mode can only be activated when at least one data channel has been enabled for the transfer.
- Press the "Start" button to open the project stored on the HMI device.
- Press "Control Panel" to open the HMI device Control Panel

  The Control Panel is used to configure various settings such as the transfer settings.
- Press the "Taskbar" button to activate the taskbar containing the open Windows CE Start menu.



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Password protection

You can protect the Control Panel and taskbar from unauthorized access. When password protection is enabled, the message "password protect" is displayed in the Loader.

If the password is not entered, only the "Transfer" and "Start" buttons are operable.

This prevents inadvertent operations and increases security for the plant or machine because the settings cannot be changed when a project is not open.

NOTICE
If the password is no longer available, you cannot change settings in the Control Panel and taskbar unless you update the operating system. All data on the HMI device will be overwritten when you update the operating system!

See also

Changing the Password Settings (Page 115)

Switching on and Testing the HMI Device (Page 68)

Configuring the Data Channel (Page 126)

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6.2.2 Control Panel

6.2.2.1 Overview

Control Panel of the HMI Device

The settings you can make in the Control Panel of the HMI device include:

- Communication
- Date/time
- Screen saver
- Backup and restore
- Regional settings
- Transfer settings
- Delay time
- Password

Opening the Control Panel

Touch the "Control Panel" button in the Loader to open the HMI device Control Panel.

The following options are available to open the Loader:

- The Loader appears briefly after starting the HMI device.
- Closing a Project

  If configured, touch the relevant operator control object to stop the project. The Loader opens. Refer to your plant documentation to find any additional information on this topic.



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"Backup / Restore"	Backing up and restoring the HMI device image and the project on memory cards
"Communication Properties"	Setting device names for network operation
"Date / Time"	Setting the date and time of day on the HMI device
"InputPanel"	Configuring the screen keyboard
"Keyboard"	Setting the character repeat for the screen keyboard
"Mouse"	Setting the double-click on the touch screen
"Network"	Setting network parameters
"OP"	Changing screen settings, displaying information about HMI device, calibrating the touch screen
"Password"	Setting password protection for the Control Panel
"Printer"	Configuring printers
"Regional Settings"	Making local region settings
"S7 Transfer Settings"	Setting the transfer parameters for MPI / DP
"Screen Saver"	Configuring the screen saver
"System"	Displaying information about the operating system, processor and memory
"Transfer"	Configuring a data channel for the transfer
"WinCC Internet Settings"	Parameters for using the Internet - for PN HMI devices only

Procedure

Proceed as follows to change settings in the Control Panel:

1. You must exit the project before changing settings in the Control Panel.

   Use the provided operating element.
2. Open the Control Panel as described above.
3. Open the desired dialog by double-clicking on the corresponding icon in the Control Panel.

   Enter the required password if the Control Panel is protected against unauthorized access.
4. Change settings for your HMI device in the Control Panel

   To change settings, touch the respective input field or check box and use the displayed screen keyboard if necessary.
5. Press OK or use the button to close the dialog.
6. Press the button or OK to close the Control Panel.
7. Start the project in the loader.

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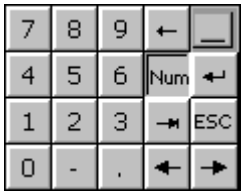
6.2.2.2 Input Using the Screen Keyboard

Introduction

A variety of screen keyboards are available to input information outside an open project, for example in the Control Panel. A screen keyboard appears as soon as you touch an input field. You can switch the screen keyboard and change its position on screen. Confirm your entries with ↵ or discard your entries with ESC. Either action closes the screen keyboard.

Screen Keyboard Outside an Open Project

- Numerical screen keyboard



- Alphanumerical screen keyboard



The alphanumerical keyboard has multiple levels.

1. Normal level
2. Shift level
3. Level on which the control keys are activated

The figure shows the normal level of the alphanumeric screen keyboard.

You can also reduce both screen keyboards:



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Switching between Screen Keyboards

- Num switches between the alphanumerical and numerical screen keyboards
- ⇧ switches between the normal level and Shift level of the alphanumerical screen keyboard
- Ctrl activates and deactivates the numerical and alphanumerical keys of the alphanumerical screen keyboard
- _ switches from full display to reduced display
- switches from reduced display to full display
- × closes the reduced display of the screen keyboard

Moving the Screen Keyboard on the Touch Screen

You can move the screen keyboard if it blocks you from operating a dialog in any way.

1. Touch .

   Keep touch contact to move the screen keyboard on the touch screen. Release touch contact on the icon when the required position is reached.

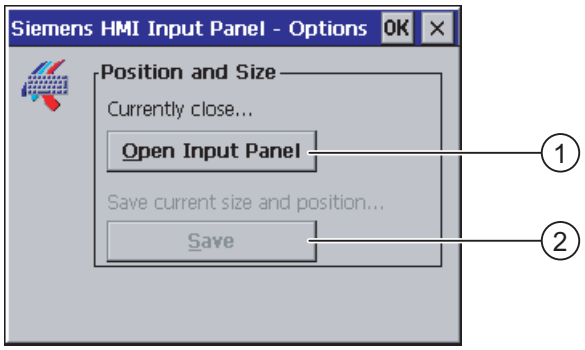
6.2.2.3 Configuring the Screen Keyboard

Introduction

In the Control Panel you can configure the screen keyboard that is used to make entries outside an open project.

Requirement

The "Siemens HMI Input Panel - Options" dialog has been opened with the "Input Panel" icon.



① Button for displaying the screen keyboard
② Button for saving the screen keyboard

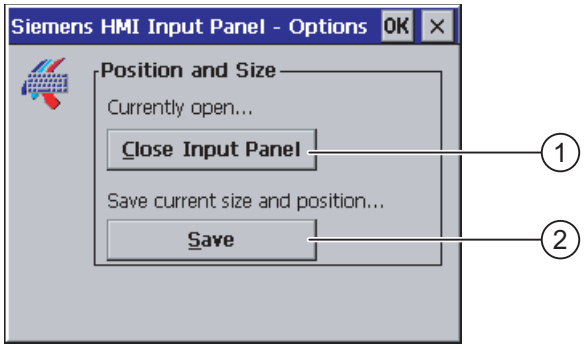
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Procedure

1. Touch the "Open Input Panel" button.

   The screen keyboard is displayed.

   The "Siemens HMI Input Panel – Options" dialog changes its appearance.



① Button for closing the screen keyboard
② Button for saving the screen keyboard

2. Touch the <Num> button of the screen keyboard two toggle between the numerical and alphanumerical screen keyboard.

   Set the position of the screen keyboard.
3. Touch the "Save" button to save the settings.
4. Touch the "Close Input Panel" button to close the screen keyboard.
5. Close the dialog with OK or ×.

Result

The screen keyboard settings have been modified.

See also

Input Using the Screen Keyboard (Page 100)

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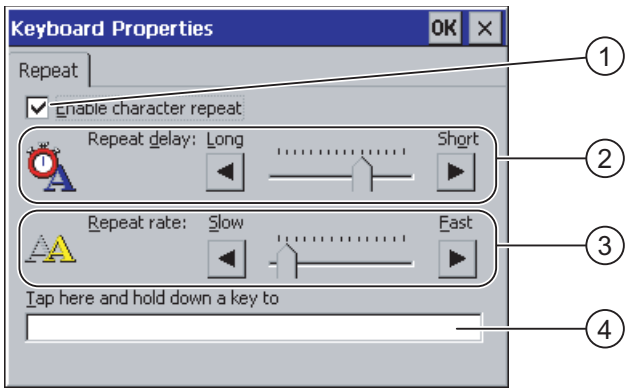
6.2.2.4 Setting the Character Repeat for the Screen Keyboard

Introduction

In the Control Panel you can set the character repeat for the screen keyboard that is used to make entries outside an open project.

Requirement

The "Keyboard Properties" dialog has been opened with the "Keyboard" icon.



① Check box for activating the character repeat
② Slider control and buttons for the delay time before character repeat
③ Slider control and buttons for the rate of the character repeat
④ Test field

You can change the settings in the "Keyboard Properties" dialog with the buttons or the slide bar.

Procedure

Proceed as follows:

1. Specify whether or not the character repeat of the keyboard should be activated
   - Activate the "Enable character repeat" check box to enable the character repeat
   - Deactivate the "Enable character repeat" check box to disable the character repeat
2. Use the buttons or slide bar to set the use and rate of the character repeat
3. Verify your settings
   - Touch the test field. The screen keyboard opens.
   - Move the screen keyboard as needed.
   - Touch any character and keep it pressed
   - Check the activation of the character repeat and its rate in the test field
   - Correct your setting if necessary
4. Close the dialog and save your entries with OK. Touch ✕ to discard the entries.

Result

The character repeat for the keyboard is now set.

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6.2.2.5 Setting the Double-click on the Touch Screen

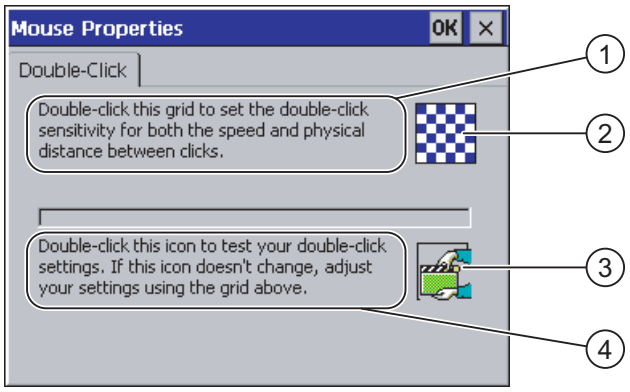
Introduction

You can start application in the Control Panel and in Windows CE with a double-click, two brief touches is sequence.

Set the time between two touches in the Control Panel.

Requirement

The "Mouse Properties" dialog has been opened with the "Mouse" icon.



① Touch the pattern ② twice in sequence to set the time and spatial distance between the touches on the screen.

② Specimen

③ Icon

④ Touch the ③ icon twice in sequence to check the settings of your double-click. If the icon does not change, adjust your settings using the ② pattern again.

Procedure

Proceed as follows:

1. Touch the pattern twice
   - The pattern is displayed in inverse colors at the second touch

2. Touch the icon twice

   If the double-click is detected, the icon is displayed as follows at the second touch.

3. If the icon remains unchanged, double-click on the pattern again.
4. Close the dialog and save your entries with OK. Touch × to discard the entries.

Result

The double-click on the touch screen is now set.

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6.2.2.6 Backup and Restore Using a Memory Card

Introduction

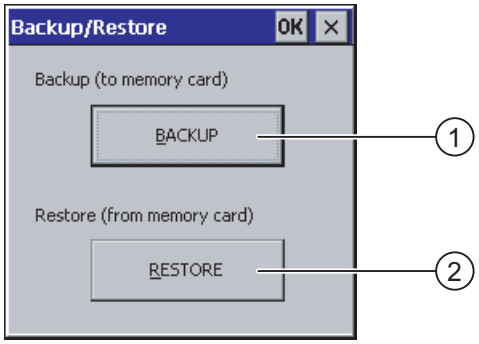
A backup involves copying the operating system, applications and data in flash memory of the HMI device to a memory card.

A restore operation deletes all old data from flash memory of the HMI device on confirmation. The data stored on the memory card is then copied to the internal flash memory.

Requirement

A memory card with ≥16 MB capacity is inserted in the HMI device.

The "Backup/Restore" dialog has been opened with the "Backup/Restore" icon.



① Button for data backup
② Button for data restore

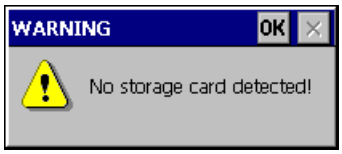
Procedure for backup

Proceed as follows:

1. Touch the "BACKUP" button.

   The message "Starting backup" is displayed.

   The following message appears if no memory card is inserted in the card slot or if the memory card is damaged:

   Then perform steps 2 and 3.
2. Touch OK.

   This message is displayed: "Backup aborted".
3. Confirm with "OK."

   The Control Panel is displayed again.

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Repeat the procedure with a suitable memory card.

1. Using the memory card
2. Touch the "BACKUP" button.

   The message "Storage card detected" is displayed.

   – A warning is displayed if the available space is insufficient. The backup is aborted. Delete any unneeded data on the memory card using the Windows CE Explorer.

   – If the memory card contains data, the following message is displayed: "You have an old backup on the storage card. Do you want to delete it?".
3. Press "Yes" if you want to delete the data.

   Press "No" if you want to retain the data.

   The messages "Checking the registry settings" and "Saving CE image" are displayed in sequence when the backup begins. A progress bar shows the status of the process.

   The backup ends with the following message: "Backup successfully completed. Touch OK and remove memory card."
4. Touch the "OK" button.

   The Control Panel is displayed.

Result

The HMI device data is now saved on the memory card.

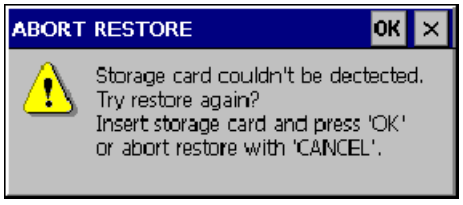
Procedure for restoring

Proceed as follows:

1. Touch the "RESTORE" button.

   The message "Restore started" is displayed.

   The following message appears if no memory card is inserted in the card slot or if the memory card is damaged:



   Then perform steps 2 and 4.
2. Touch OK.

   This message is displayed: "Restore aborted". Remove the memory card".
3. Remove the memory card.
4. Confirm with "OK."

   The Control Panel is displayed again.

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Repeat the procedure with a suitable memory card.

1. Using the memory card
2. Touch the "RESTORE" button.

   This message is displayed: "Restore started". The following message appears: "Checking data". When the data has been checked, the following message appears: "You are starting a restore. All files except those on the memory card and the registry files will be deleted. Are you sure?"
3. Press "Yes" if you want to restore the data.

   Press "No" if you want to cancel the restore.

   The messages "Deleting files in the internal Flash memory" and "Restoring CE image" are displayed in sequence once the restore process begins. A progress bar shows the status of the process.

   The restore ends with the message "The restore of the CE images is completed. The HMI device will now be restarted. Do not remove the memory card."
4. Touch the "OK" button.

   The operating system boots, opening the Loader and Control Panel in sequence. Two messages appear.

   Then the final message appears: "Restore successfully completed. Touch OK and remove memory card."
5. Touch the "OK" button.

   The HMI device boots. The Control Panel is displayed.
6. Remove the memory card, if necessary.

   Store the memory card in a safe place.

Result

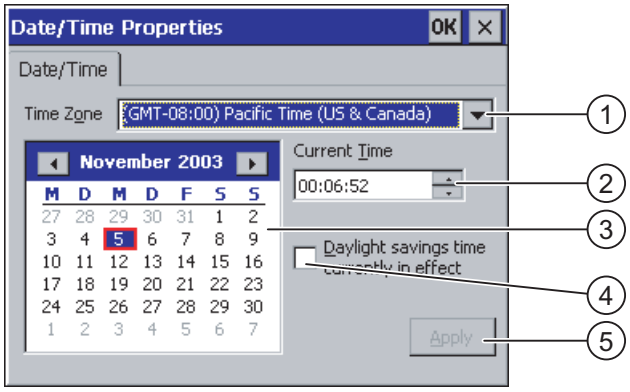
The data from the memory card is now on the HMI device. The existing licenses are retained on the HMI device, all other files have been deleted.

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6.2.2.7 Setting the Date and Time

Requirement

The "Date/Time Properties" dialog has been opened with the "Date/Time Properties"  icon.



① Time zone
② Time
③ Date
④ "Daylight savings" check box
⑤ Button for applying changes

Procedure

Proceed as follows:

1. Select the appropriate time zone for the HMI device from the "Time Zone" selection list.
2. Touch the "Apply" button to confirm your entry.

   The time of day shown in the "Current Time" box is adjusted correspondingly to the selected time zone.
3. Set the date in the selection field.
4. Set the current time of day in the "Current Time" text box.
5. Touch the "Apply" button to confirm your input.

   The values you have set are now in effect.

Note

The system does not automatically switch between winter and summer time!

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6. If you want to switch from winter to summer time, select the "Daylight savings time currently in effect" check box.

   When you press the "Apply" button, the time is brought forward by one hour.

7. If you want to switch from summer to winter time, deactivate the "Daylight savings time currently in effect" check box.

   When you press the "Apply" button, the time is moved backwards by one hour.

8. Close the dialog and save your entries with OK.

   Touch × to discard the entries.

NOTICE
Reboot the HMI device if you have made changes to the time zone.

Result

The settings for the date and time of day have now been changed.

Synchronizing the date and time with the PLC

The date and time of the HMI device can be synchronized with the controller, if this has been configured in the project and the controller program.

Additional information on this subject is available in the "WinCC flexible" system manual.

NOTICE
Synchronize the date and time if time-based reactions are to be triggered in the PLC.

6.2.2.8 Saving Registry Information

Introduction

If you are running your own programs on the HMI device under MS Windows CE, you should back up the registry information after installing the programs. There are several ways to save files:

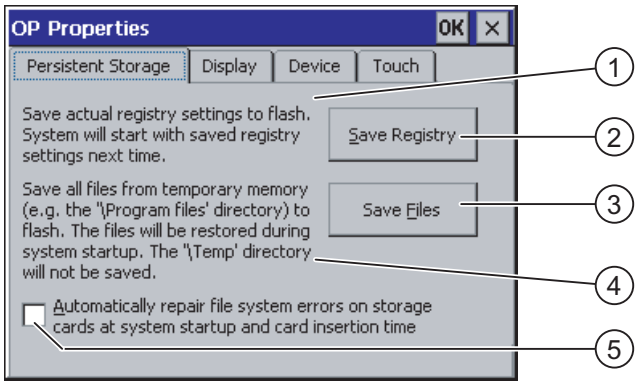
- Save the registry information to the Flash memory.
- Save files in a temporary folder to the Flash memory.

Saving to the Flash memory allows you to automatically restore the file system on the HMI device.

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Requirement

The "OP Properties" dialog has been opened with the "OP" icon.



① Saves the current registry information to the flash memory. The HMI device loads the saved registry information the next time it boots.

② Button for saving registry information

③ Button for saving temporary files

④ Saves all the files in temporary storage to the flash memory (for example, from the "Program Files" directory). These files are written back the next time the HMI device starts. The "\Temp" directory is not saved.

⑤ Check box for automatically restoring the file system on the memory card when the HMI device starts up and when a memory card is inserted.

Procedure

Proceed as follows:

1. Touch the "Save Registry" button to save the current registry settings
2. Touch the "Save Files" button to save temporary files
3. Specify whether or not the file system on the memory card should be restored when the HMI device starts up or when a memory card is inserted.
   - Activate the check box "Automatically Repair ...", if you wish to have the files system restored automatically.
   - Deactivate the check box "Automatically Repair ...", if you wish to have the files system restored only upon prompting.
4. Close the dialog and save your entries with OK. Touch × to discard the entries.

Result

The HMI device uses the saved registry information the next time it starts. The temporary files are copied back.

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6.2.2.9 Changing Screen Contrast

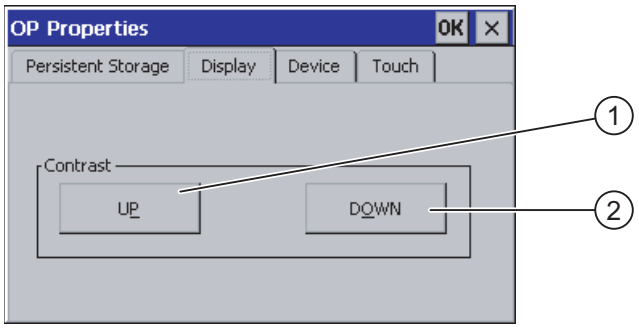
Requirement

The "OP Properties" dialog has been opened with the "OP" icon.

Procedure

Proceed as follows:

1. From the "OP Properties" dialog, select the "Display" tab.



① Button for increasing the contrast
② Button for reducing the contrast

2. Proceed as follows to change contrast of the screen:
   - Touch the "UP" button to increase the contrast of the screen
   - Touch the "DOWN" button to decrease the contrast of the screen
3. Close the dialog and save your entries with OK. Touch × to discard the entries

Result

The HMI device screen contrast has now been changed.

Note

You can also adjust the contrast within an open project. Refer to the corresponding system documentation for more information in this regard.

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6.2.2.10 Displaying Information about the HMI Device

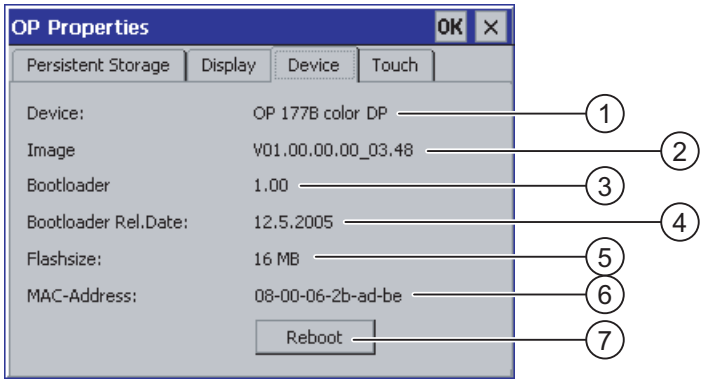
Requirement

The "OP Properties" dialog has been opened with the "OP" icon.

Procedure

Proceed as follows:

1. Open the "OP Properties" dialog, then select the "Device" tab.



① HMI device name
② Version of the HMI device image
③ Version of the boot loader
④ Boot loader release date
⑤ Size of the internal flash memory in which the HMI device image and project are stored
⑥ MAC address of the HMI device
⑦ Button for restarting the HMI device

2. The device-specific information is displayed in the "Device" tab.

   You will need this information if you contact A&D Technical Support.

3. Activate the "Reboot" button if you want to reboot the HMI device

   After you have activated the "Reboot" button, a warning is displayed on the screen. If you acknowledge this with "OK", the HMI device is rebooted immediately.

4. Use OK or × to close the dialog when the information is no longer required.

CAUTION

Data loss when the HMI device is restarted

All volatile data is lost when the HMI device is rebooted. No check is carried out as to whether or not the project on the HMI device is running, the communication is active whether or not data are currently being written into the flash memory.

Note

The size of the internal flash memory does not correspond to the available working memory for a project.

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6.2.2.11 Calibrating the Touch Screen

Introduction

Depending on the mounting position and viewing angle, it is possible that parallax may occur when operating the HMI device. In order to prevent any operating errors as a result, calibrate the touch screen again in the startup phase or during runtime.

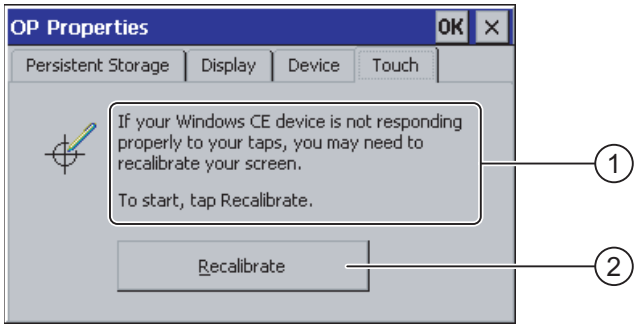
Requirement

The "OP Properties" dialog has been opened with the "OP"  icon.

Procedure

Proceed as follows:

1. Open the "OP Properties" dialog, then select the "Touch" tab.

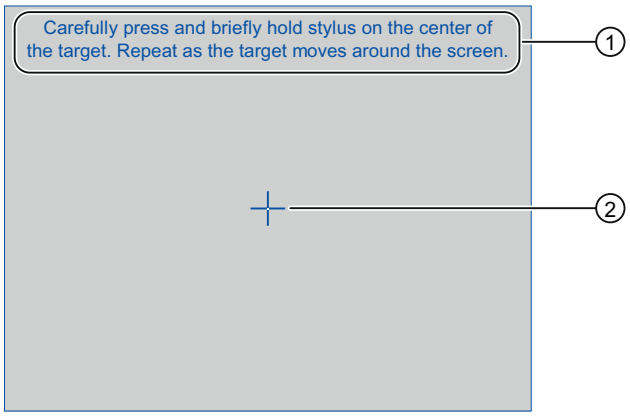


① If the HMI device does not react precisely to a touch, the touch screen may require calibration.

② Button for calibrating the touch screen

2. Touch the "Recalibrate" button.

   The following dialog appears.



① Carefully press the middle of the calibration crosshairs. Repeat the process as long as the calibration crosshairs move on the touch screen.

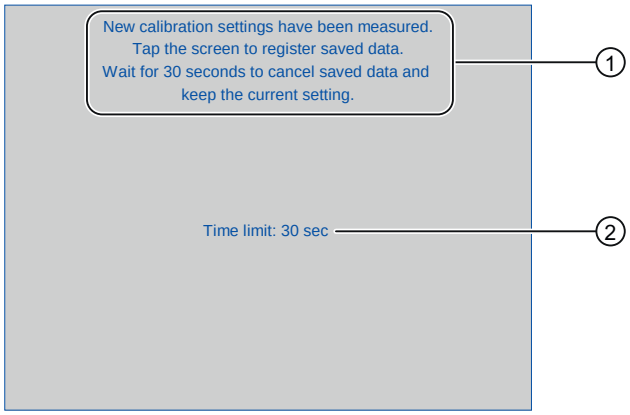
② Calibration crosshair

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3. Briefly touch the calibration crosshairs.

   The calibration crosshairs then goes to four more positions. Touch the middle of the calibration crosshairs for each position. If you do not touch the middle of the calibration crosshairs, the procedure is repeated.

   Once you have touched the calibration crosshairs for all positions, the following dialog appears:



   ① The new calibration values are measured. Touch the touch screen to save the calibration values. If you do not touch the screen within 30 seconds, the new calibration values will be discarded.

   ② Time remaining until the calibration values are discarded

4. Touch the screen within 30 seconds

   The new calibration is saved. If you wait longer than 30 seconds, the new calibration is discarded and the original calibration remains in effect.

5. Close the dialog with OK.

   The Control Panel is displayed.

Result

The HMI device touch screen is now recalibrated.

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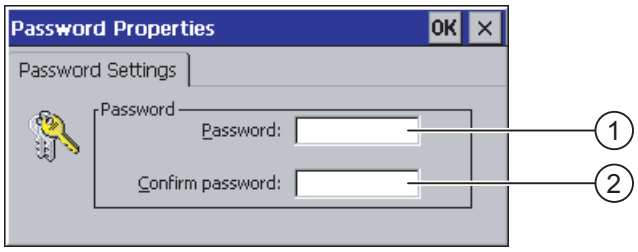
6.2.2.12 Changing the Password Settings

Introduction

You can protect the Control Panel and Windows CE taskbar with a password.

Requirement

The "Password Properties" dialog has been opened with the "Password" icon.



① Input field for the password
② Input field for repeating the password

Procedure – entering a password

Proceed as follows:

1. Enter a password in the "Password" input field.
   Touch the input field. The alphanumerical screen keyboard is displayed.
2. Repeat the password entry in the "Confirm Password" input field.
3. Close the dialog with OK

NOTICE
Your password must not contain blank spaces or special characters * ? . % / \ ' ".

Result

You cannot open the Control Panel or Windows CE taskbar without entering a password.

NOTICE
If the password is no longer available, you cannot make changes in the Control Panel or use the Windows CE taskbar unless you update the operating system. All data on the HMI device will be overwritten when you update the operating system!

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Procedure – deleting a password

Proceed as follows:

1. Delete the entries in the "Password" and "Confirm password" input fields
2. Close the dialog with OK

Result

Password protection for the Control Panel and Windows CE taskbar has been removed.

6.2.2.13 Changing Printer Settings

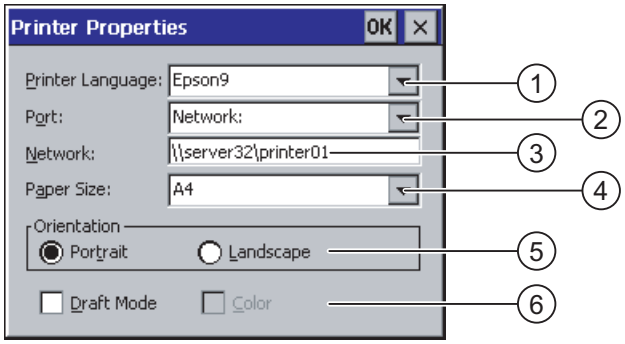
Printing on Network Printers

HMI devices with a PROFINET interface can also print on network printers.

Hardcopies and logs can be printed on network printers. Individual new incoming or outgoing alarms cannot be printed.

Requirement

The "Printer Properties" dialog has been opened with the "Printer" icon.



① Printer selection list
② Interface
③ Network address of the printer (applies to TP 177B 6" PN/DP and OP 177B PN/DP)
④ Paper size selection list
⑤ Orientation setting
⑥ Print quality setting

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Procedure

Proceed as follows:

1. Touch the "Printer Language" selection list and select a printer
2. Touch the "Port" selection list and set the port for the printer
3. Applies to TP 177B 6" PN/DP and OP 177B PN/DP with a "Network" interface:

   Touch the "Network" selection field to enter the network address of the printer.
   The alphanumerical screen keyboard is displayed.
4. Touch the "Paper Size" selection field and select the format of the paper.
5. Touch the desired check box in the "Orientation" field:
   - "Portrait"
   - "Landscape"
6. Select the print quality.
   - Activate the check box "Draft Mode", if you wish to print a draft.
   - Deactivate the check box "Draft Mode", if you wish to print with higher quality.
7. Set the color mode.
   - Activate the check box "Color", if you wish to print in color. Deactivate it to print in monochrome.
8. Close the dialog and save your entries with OK. Touch × to discard the entries.

Result

The settings for the printer have now been changed.

Note

The list of current printers and required settings for HMI devices can be found on the Internet under "http://support.automation.siemens.com/WW/view/en/11376409".

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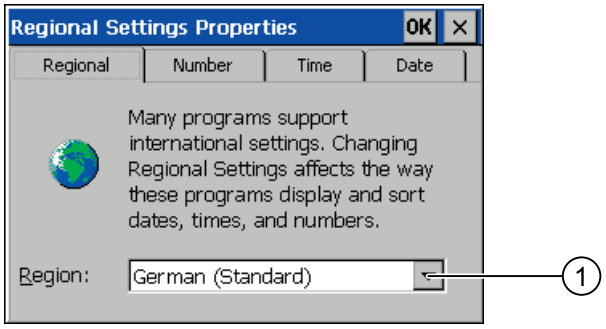
6.2.2.14 Changing Regional Settings

Introduction

The display format of the date, time and decimal point etc. differ from region to region. You can adjust the regional settings on the HMI device to meet local requirements.

Requirement

The "Regional Settings Properties" dialog has been opened with the "Regional Settings" icon.



① Region selection list

Procedure - Changing Regional Settings

Proceed as follows:

1. Touch the "Regional" selection list for the language in the "Regional Settings" tab
2. Select the desired language.

   To do this, touch the input field. The symbolic screen keyboard is displayed.

Procedure - Changing the Number Format

Proceed as follows:

1. Open the "Number" tab.
2. Set the following in the selection lists:
   - The character for the decimal separator
   - The character for the thousand separator
   - The separator character for number sequences
3. Touch the respective selection list and set the desired value using the screen keyboard

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Procedure - Changing the Time Format

1. Open the "Time" tab.
2. Set the following in the selection lists:
   - Time of day format
   - Define the separator between hours, minutes and seconds.
   - The format for the time before 12:00 noon.
   - The format for the time after 12:00 noon.
3. Touch the respective selection list and set the desired value using the screen keyboard

Procedure - Changing the Date Format

1. Open the "Date" tab.
2. Set the following in the selection lists:
   - Define the separator between year, month and day.
   - The abbreviated format of the date
   - The full format of the date
3. Touch the respective selection list and set the desired value using the screen keyboard

Procedure - Closing the Dialog

1. Close the dialog and save your entries with OK.
   Touch ✕ to discard the entries.

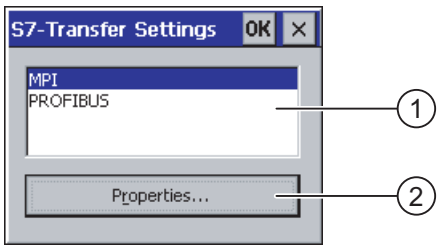
Result

The regional settings for the HMI device screen have now been changed.

6.2.2.15 Changing MPI/PROFIBUS DP Settings

Requirement

The "S7 Transfer Settings" dialog has been opened with the "S7 Transfer" icon.



① Network selection
② Button for opening the properties dialog

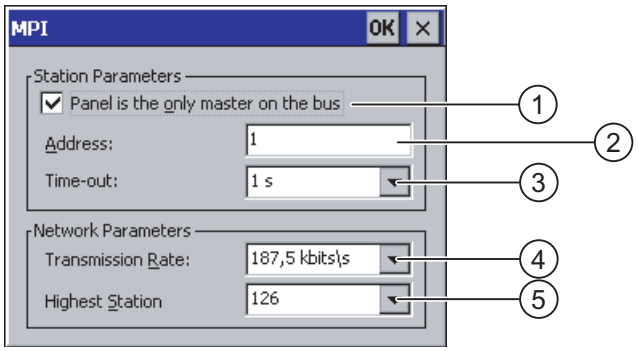
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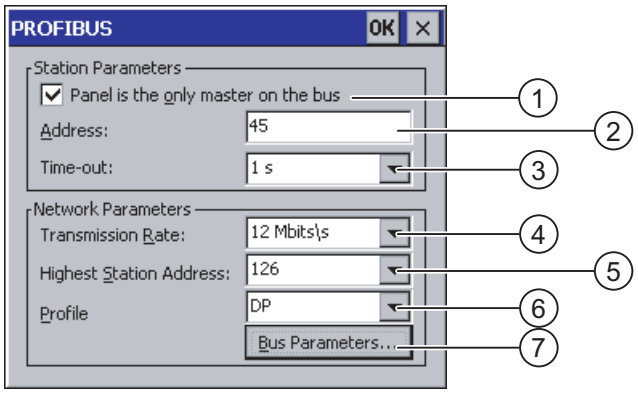
Procedure

Proceed as follows:

1. Select a network and then touch the "Properties" button

   One of the two following dialogs is displayed.





① The HMI device is the only master on the bus.
② Bus address of the HMI device
③ Time-out
④ Data transmission rate in total network
⑤ Highest station address in the network
⑥ Profile
⑦ Button for displaying the bus parameters

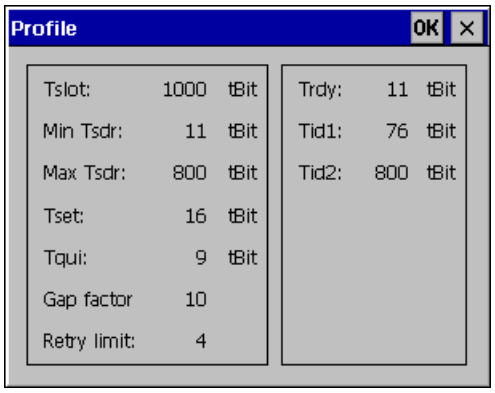
2. If more masters are connected to the bus, deactivate the check box "Panel is the only master on the bus"
3. Enter the bus address for the HMI device in the "Address" input field

   Touch the input field. A selection list is displayed.
4. Select the highest transmission rate from the "Transmission rate" input field

   Touch the input field. The symbolic screen keyboard is displayed.

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5. Select the highest station address on the bus in the "Highest Station Address" input field. Touch the input field. The symbolic screen keyboard is displayed.
6. Select the desired profile from the "Profile" selection field. Touch the input field. The symbolic screen keyboard is displayed.
7. The profile data is displayed when you press the "Bus Parameters" button in the PROFIBUS dialog. This dialog is read-only.



Press the button OK or × to close the dialog.

8. Close the dialog and save your entries with OK. Touch × to discard the entries.

NOTICE
Address in the MPI / PROFIBUS DP network The value specified in the "Address" input field should be used in an MPI / PROFIBUS DP network just once. **Bus parameters in the MPI / PROFIBUS DP network** The bus parameters must be the same for all stations in the MPI / PROFIBUS DP network.

Note

When a project is opened, the MPI / DP settings are overwritten with the values from the project.

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General information

NOTICE
Transfer mode using MPI / PROFIBUS DP The bus parameters for MPI / PROFIBUS DP transfer, e.g. the MPI / PROFIBUS DP address of the HMI device, will be read from the project currently loaded on the HMI device. You can change the settings for MPI / PROFIBUS DP transfer. To do this, you must first end the project and then change the settings on the HMI device. Then return to transfer mode. The HMI device uses the new MPI / PROFIBUS DP settings until you start a project or transfer a project to it. The MPI / PROFIBUS DP settings are then overwritten by the values from this project. **Transfer settings** A project can only be transferred from the configuration PC to the HMI device when at least one of the data channels is enabled on the HMI device. Do not change the transfer settings if a project is running or the HMI device is in transfer mode.

Result

The MPI / DP settings of the HMI device have been changed.

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6.2.2.16 Setting the Delay Time

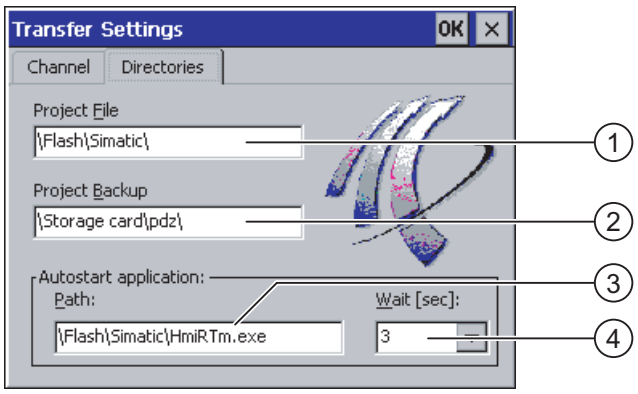
Introduction

The project is opened following a delay time when the HMI device is switched on. The Loader is displayed during the delay time.

Requirements

The "Transfer Settings" dialog has been opened with the "Transfer" icon.

You have opened the "Directories" tab.



① Memory location for the project file

② Memory location for the compressed source file of your project for backtransfer.

The external memory card or the network connections can be defined as the memory location. During the next backup process, the project's source file is stored in the specified location.

③ Storage location and initialization file of the HMI device for process operation

④ Selection list for the delay time

NOTICE
Settings in "Project File" and "Path" Do not change the setting in the "Project File" and "Path" fields if you are working on a project. The project may not open at the next start of the HMI if changes are made here.

Procedure for setting the delay time

1. Touch the "Wait [sec]" section list.

   A selection list is displayed. Select the desired delay time.

   With the value "0", the project starts immediately. It is then no longer possible to call the loader after switching on the HMI device. If you still wish to access the loader, an operating element must be configured to close the project.

2. Close the dialog and save your entries with OK. Touch ✕ to discard the entries.

Result

The delay time for the HMI device is now set.

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6.2.2.17 Setting the Screen Saver

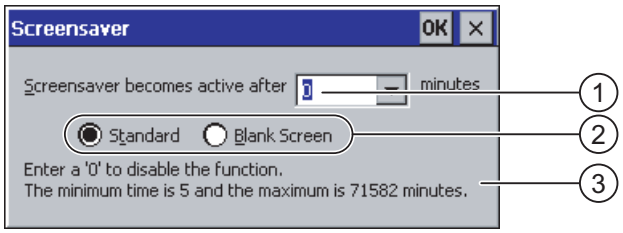
Introduction

You can set a period of time for automatic activation of the screen saver on the HMI device. The screen saver is automatically activated if the HMI device is not operated within the specified period of time.

The screen saver is deactivated when any key is pressed or the touch screen is touched. The function assigned to that key is not triggered.

Requirement

The "Screen Saver" dialog has been opened with the "Screen Saver"  icon.



① Period of time in minutes before the screen saver is activated

② Screen saver setting

③ Enter '0' to disable the screen saver. The minimum value is 5 and the maximum value is 71582 minutes.

Procedure

Proceed as follows:

1. Enter the number of minutes before the screen saver is to be activated.

   Touch the input field. A selection list is displayed. Entering "0" disables the screen saver.
2. Select either the standard screen saver or an empty screen.
   - Activate the "Standard" radio button to enable the screen saver
   - Activate the "Blank Screen" radio button to enable a blank screen as the screen saver
3. Close the dialog and save your entries with OK. Touch ✕ to discard the entries.

NOTICE
Activating the screen saver Generally, you should always activate the screen saver. Otherwise, the screen contents may leave a burn-in effect in the background if they appear for too long. This effect is reversible, however.

Result

The screen saver for the HMI device has now been set.

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6.2.2.18 Displaying System Information

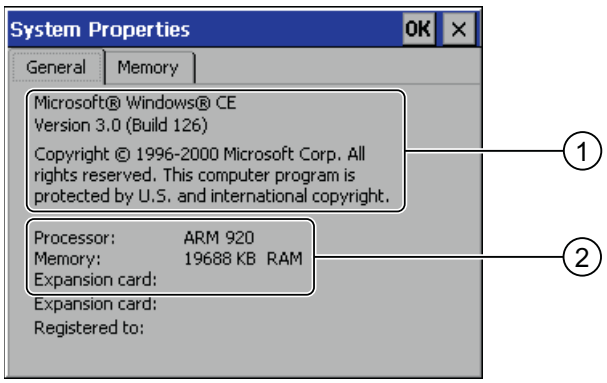
Requirement

The "System Properties" dialog has been opened with the "System" icon.

Procedure - Displaying System Information

Proceed as follows:

1. Open the "General" tab.
   The system information is displayed. This dialog is read-only.



① Copyright to Microsoft Windows CE

② Information about the processor, amount of the internal Flash memory, and capacity of a memory card when inserted

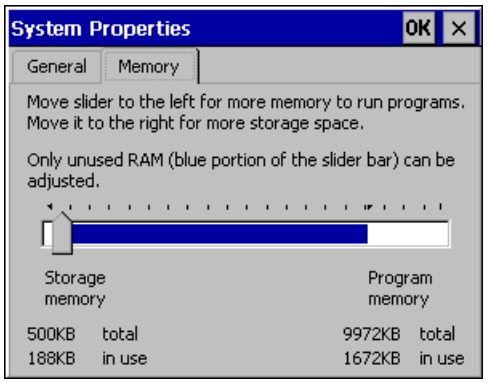
2. Close the dialog with OK or ×.

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Procedure - Displaying Memory Information

Proceed as follows:

1. Open the "Memory" tab.
   The memory information is displayed.



2. Close the dialog with OK or ×.

NOTICE
"Memory" Tab Do not change the amount of memory in the "Memory" tab.

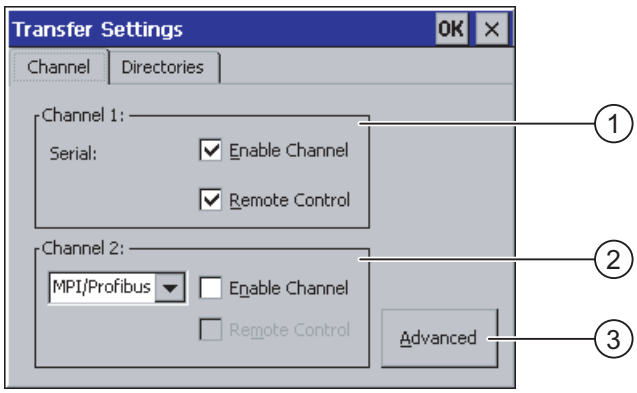
6.2.2.19 Configuring the Data Channel

Introduction

If you block all data channels, the HMI device is protected against unintentional overwriting of the project data and HMI device image.

Requirement

The "Transfer Settings" dialog has been opened with the "Transfer" icon.



① Group for the data channel 1 (channel 1)
② Group for the data channel 2 (channel 2)
③ Button for the "MPI / DP Transfer Settings" or "Network Configuration" dialog

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Procedure

Proceed as follows:

1. Configure the data channel that you want to use

   You can clear the required data channel by activating the associated "Enable Channel" check box in the "Channel 1" or "Channel 2" group. In the "Channel 1" group, the RS -485 port is configured for the serial data transfer.

   – Activate the "Enable Channel" check box to enable the data channel
   – Deactivate the "Enable Channel" check box to lock the data channel

2. Configure the automatic transfer
   – Deactivate the "Remote Control" check box to disable automatic transfer
   – Activate the "Remote Control" check box to enable automatic transfer

   ⚠ WARNING

   Unintentional transfer mode

   Ensure that the configuration PC does not inadvertently switch the HMI device to transfer mode during the open project. This could cause unintentional actions to be triggered in the plant.

3. Enter the required protocol for "Channel 2".

   Touch the input field. A selection list is displayed.

4. Touch the "Advanced" button
   – Applies to the "MPI / PROFIBUS DP" protocol:

     Touch the "Advanced" button if you wish to switch to the "S7 Transfer Settings" dialog. You can change the settings for MPI / PROFIBUS DP there.

     Close the "S7 Transfer Settings" dialog with OK.
   – Applies to the "ETHERNET" protocol:

     Touch the "Advanced" button if you wish to switch to the "Network Configuration" dialog. You can change the settings for TCP / IP there.

     Close the "Network Configuration" dialog with OK after making the changes.

5. Close the "Transfer Settings" dialog and save your entries with OK to accept the entries.

   Touch × to discard the entries

Result

The data channel is configured.

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General information

Note

Changes during the "Transfer" mode

If the HMI device is in "Transfer" mode while changes are made to the transfer settings, the settings only go into effect after the transfer function is restarted. This may occur if the Control Panel is opened to change the transfer properties in an active project.

NOTICE

Transfer mode via channel 2

The bus parameters, such as the address of the HMI device, are read from the project currently loaded on the HMI device.

You can change the settings for the transfer via channel 2. To do this, you must first end the project and then change the settings on the HMI device. Then return to "Transfer" mode.

The next time the project is started on the HMI device, the settings will be overwritten by the values from the project.

Transfer settings

A project can only be transferred from the configuration PC to the HMI device when at least one of the data channels is enabled on the HMI device.

See also

Changing Network Settings (Page 133)

Changing MPI/PROFIBUS DP Settings (Page 119)

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6.2.2.20 Overview of Network Operation

Introduction

The HMI device with a PROFINET interface can be connected to a TCP/IP network. Connection to a TCP/IP network can offer the following advantages:

- Printing via a network printer
- Saving recipe records to a server
- Exporting recipe records
- Importing recipe records
- Transferring a project
- Backing up data

These advantages are not available with a direct PC connection. However, peripherals connected to the PC can be used. For example, you can use a local printer for printing.

NOTICE
The HMI device can only be used in TCP/IP and PROFINET networks. The HMI device only has client functionality in the PC network. This means that users can access files of a subscriber with TCP/IP server functionality from the HMI device via the network. However, it is not possible to access files on the HMI device via the network from a PC.

Note

Information on communication using SIMATIC S7 via PROFINET is provided in the "WinCC flexible Communication" user manual.

Requirements

Within a TCP/IP or PROFINET network, computers are addressed using network names. These network names are translated from a DNS or WINS server to TCP/IP and PROFINET addresses. Direct addressing via TCP/IP and PROFINET addresses is also supported by the operating system. This is why a DNS or WINS server is needed for addressing via device name names when the HMI device is in a TCP/IP or PROFINET network. Appropriate servers are available in common TCP/IP and PROFINET networks. Consult your network administrator if you have questions in this regard.

Printing via a Network Printer

The HMI device's operating system does not support the direct alarm logging via a network printer. All other printer functions, such as printing hardcopies or logs, are possible via the network without restriction.

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General Procedure for Configuring the Network

The HMI device must be appropriately configured before setting into network operation. The configuration is basically divided into the following steps:

- Set device name of the HMI device.
- Configure the network address.
- Set the logon information.
- Save the settings.
- Switch off the HMI device once the network is configured.

  If your network address is assigned automatically:

  Before switching the HMI device on, insert the network cable in the corresponding interface so that a unique IP address for the HMI device can be assigned during startup.
- Switch on the HMI device.

Preparation

Before beginning the configuration, request the following network parameters from your network administrator.

- Does the network use DHCP for dynamic assignment of network addresses?

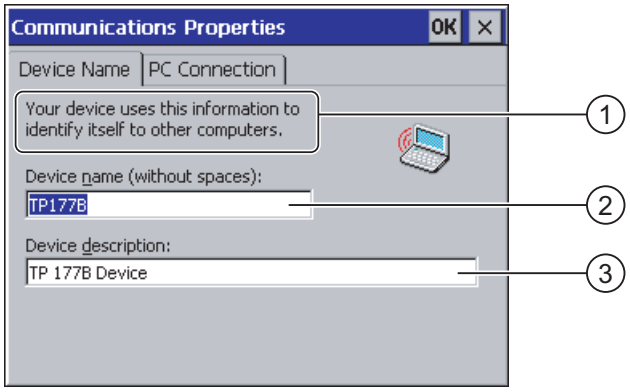
  If not, get a new TCP/IP network address for the HMI device.
- What is the TCP/IP address of the default gateway?
- If a DNS network is used, what is the address of the name server?
- If a WINS network is used, what is the address of the name server?

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6.2.2.21 Setting the Device Name of the HMI Device

Requirement

The "Communications Properties" dialog has been opened with the "Communications" icon.



① The HMI device uses this information to identify itself to other PCs.
② Device name of the HMI device
③ Description for the HMI device (optional)

Procedure

Proceed as follows:

1. Enter the device name for the HMI device in the "Device name" input field.
   Touch the input field. The screen keyboard is displayed.
2. Enter a description for the HMI device in the "Device description" input field.
   Touch the input field. The screen keyboard is displayed.
3. Close the dialog and save your entries with OK. Touch × to discard the entries.

Result

The device name for the HMI device is now set.

Note

Change the device name for the HMI device in the "Device name" input field to activate the network functions.

See also

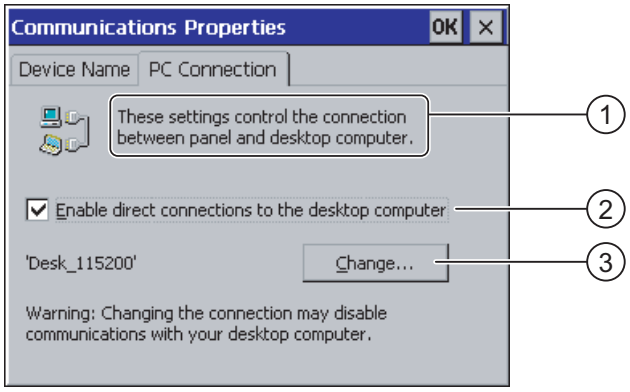
Overview of Network Operation (Page 129)

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6.2.2.22 Activating a Direct Connection

Requirement

The "Communications Properties" dialog has been opened with the "Communications" icon.



① These settings control the connection between the HMI device and a desktop computer.
② Enabling a direct connection
③ Button for changing the desktop computer

Procedure

Proceed as follows:

1. Open the "PC Connection" tab.

   The information about the direct connection is displayed.
2. Close the dialog with ×.

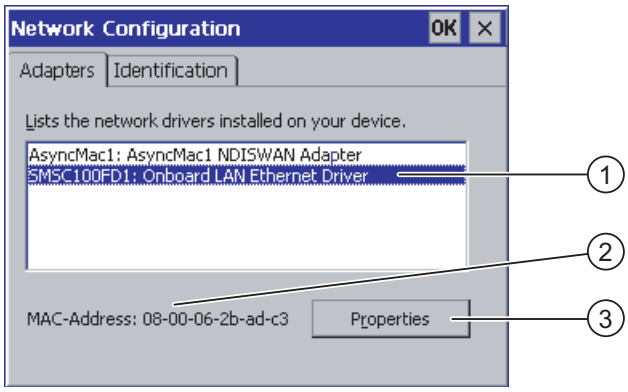
NOTICE
"PC Connection" Tab If you want to operate a project on the HMI device, do not change the information in the "PC Connection" tab.

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6.2.2.23 Changing Network Settings

Requirement

The "Network Configuration" dialog has been opened with the "Network" icon.



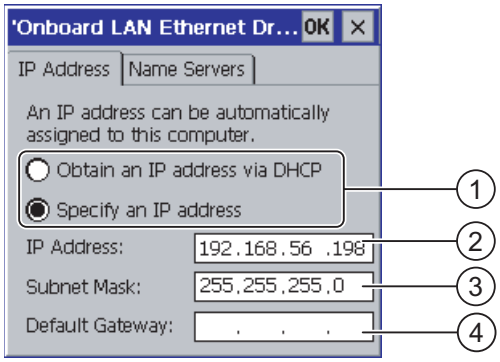
① Selection for PROFINET adapters
② MAC address of the HMI device
③ Button for the properties dialog

Procedure

Proceed as follows:

1. Touch the " SMSC100FD1: Onboard LAN Ethernet Driver"
2. Touch the "Properties" button

   The "Onboard LAN Ethernet Driver" dialog is displayed.

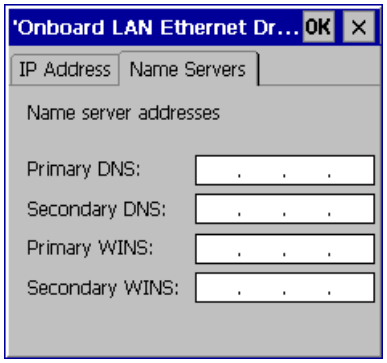


① Address assignment setting
② Input field for the IP address
③ Input field for the address of the subnet mask
④ Input field for the address of the default gateway

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3. Select either automatic address assignment via DHCP or manual address assignment
4. If you set the address yourself, use the screen keyboard and enter the respective addresses in the input fields for "IP Address", "Subnet Mask" and, if used, "Default Gateway."
5. If a name server (DNS) is used in the network, open the "Name Server" tab.

   The "Name Servers" tab of the "Onboard LAN Ethernet Driver" dialog is displayed:



6. Enter the respective addresses in the input fields using the screen keyboard.
7. Close the dialog and save your entries with OK. Touch × to discard the entries

   Once you have applied the settings, you are prompted to reboot the HMI device.
8. When prompted, open the "Device" tab of the "OP Properties" dialog and reboot the HMI device

Result

The network parameters for the HMI device have now been set.

See also

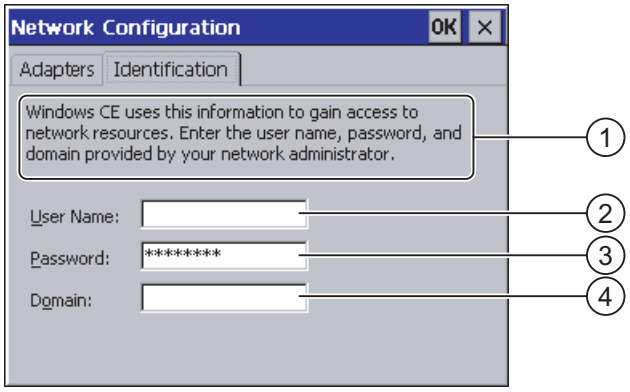
Displaying Information about the HMI Device (Page 112)
Overview of Network Operation (Page 129)

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6.2.2.24 Changing the Logon Information

Requirements

The "Network Configuration" dialog has been opened with the "Network" icon.



① Windows CE uses this information to gain access to the network resources.
Enter the user name, password and domain you have received from your administrator
② Input field for the user name
③ Input field for the password
④ Input field for the domain

Procedure

Proceed as follows:

1. Enter the user name in the "User name" input field
2. Touch the input field. The screen keyboard is displayed.
3. Enter your password in the "Password" input field
   Touch the input field. The screen keyboard is displayed.
4. Enter the domain name in the "Domain" input field
   Touch the input field. The screen keyboard is displayed.
5. Close the dialog and save your entries with OK. Touch × to discard the entries.

Result

The logon data has now been set.

See also

Overview of Network Operation (Page 129)

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6.2.2.25 Changing Internet Settings

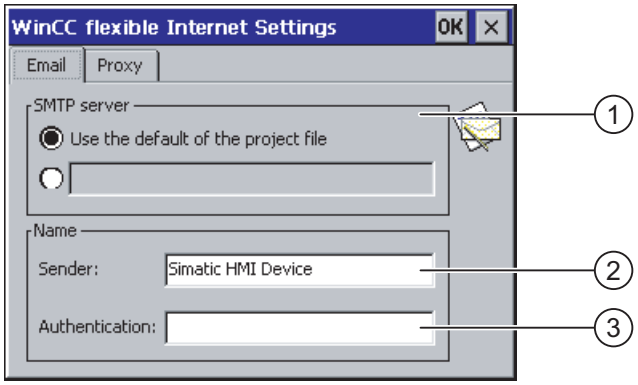
Requirement

The "WinCC flexible Internet Settings" dialog has been opened with the "WinCC Internet Settings" icon.

Procedure - Changing E-mail Settings

Proceed as follows:

1. Select the "Email" tab.



① Setting for the SMTP server
② Name for the sender
③ E-mail account

2. Specify the SMTP server
   - Activate the check box "Use the default of the project file" if you want to use the SMTP server permanently configured in the project
   - Deactivate the check box "Use the default of the project file" if you do not want to use the SMTP server permanently configured in the project

     Touch the input field to enter the SMTP server. The screen keyboard is displayed.
3. Enter the name for the sender in the "Sender" input field

   Touch the input field. The screen keyboard is displayed.
4. Enter the e-mail account for your e-mail in the "Authentication" input field

   Touch the input field. The screen keyboard is displayed.

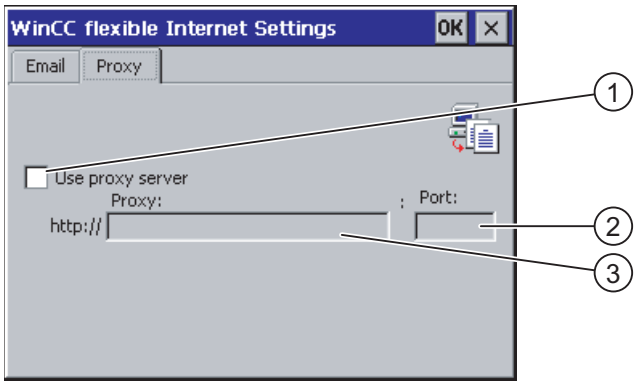
   Some e-mail providers only allow you to send mail if you specify the e-mail account. The "Authentication" input field can remain empty if your e-mail provider allows you to send mail without checking the account.

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Procedure - changing proxy settings

Proceed as follows:

1. Select the "Proxy" tab



① Check box for using a proxy server
② Address of the proxy server
③ Port

2. Activate the check box "Use proxy server" if you want to use a proxy server
3. If you use a proxy server:

   Specify the address of the proxy server and the desired port. Touch the corresponding input field. The screen keyboard is displayed.
4. Close the dialog and save your entries with OK. Touch × to discard the entries.

Result

The Internet settings have been changed.

Note

Options

Additional tabs may appear in the "WinCC Internet Settings" tab. This depends on the options that have been enabled for network operation in the project.

Refer to your plant documentation to find any additional information on this topic.

See also

Overview of Network Operation (Page 129)

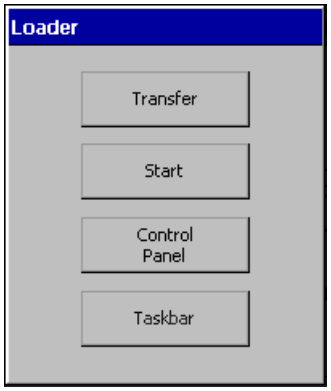
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6.3 Configuring the operating system on the TP 177B 4"

6.3.1 Loader

Overview

The figure below shows the Loader. The header line contains details of the loader version. These details are not shown in the following figure.



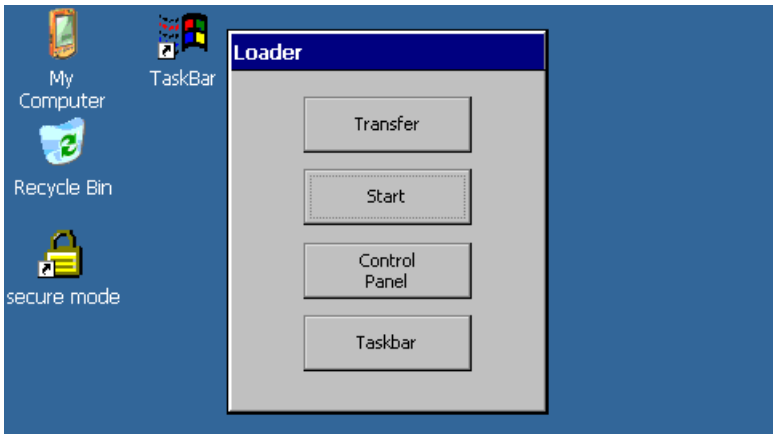
The Loader buttons have the following functions:

- Press the "Transfer" button to set the HMI device to "Transfer" mode.

  The transfer mode can only be activated when at least one data channel has been enabled for the transfer.
- Press the "Start" button to start the project on the HMI device.

  If you do not perform an operation, the project on the HMI device will automatically start after a delay.
- Press the "Control Panel" button to open the HMI device Control Panel.

  You can change various settings in the Control Panel, for example, the transfer settings.
- Press the "Taskbar" button to activate the taskbar with the Windows CE start menu open.



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Open Loader

The following options are available to open the Loader:

- The Loader appears briefly after starting the HMI device.
- The Loader appears when the project is closed.

  If configured, use the relevant operating element to close the project.

  For further information on this, refer to your plant documentation.

Protection against unauthorized access

You can use a password to protect the Control Panel and taskbar from unauthorized access.

In addition, you can protect the taskbar and the desktop with the aid of the SecureMode. If the HMI device is protected, the label "secure mode" will be displayed on the Windows CE desktop. For more information, refer to SecureMode in section "Setting up and disabling SecureMode (Page 140)".

The "Transfer" and "Start" buttons can always be operated without a password entry.

Password protection prevents maloperation. This in turn increases security on the plant or machine. The settings for the active project can only be changed by entering the password.

NOTICE
Password not available If the password is no longer available, you can execute the following once you have first reset the computer to factory settings: • Change settings in the Control Panel • Operating the Windows CE taskbar All data on the HMI device will be deleted when you update the operating system! Therefore use the password to protect against loss.

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6.3.2 Setting up and disabling SecureMode

Overview

You can use a password to protect the Control Panel against unauthorized access.
You can also protect the taskbar and the desktop with the aid of the SecureMode.

Function of SecureMode

You set up the SecureMode by setting up a password in the Control Panel.
The SecureMode is then automatically activated. The label "secure mode" will be displayed on the Windows CE desktop.

For more information, refer to the "Changing password protection (Page 151)" section.

If you now operate a function in the taskbar or the desktop, you must enter a password.

After entering the password, the label "secure mode" is no longer displayed. All functions in the taskbar and the desktop can now be operated. To reactivate SecureMode, double-click the  symbol on the desktop. The label "secure mode" will be shown again.

The HMI device is protected again.

Disabling SecureMode

To completely disable SecureMode, delete the password.

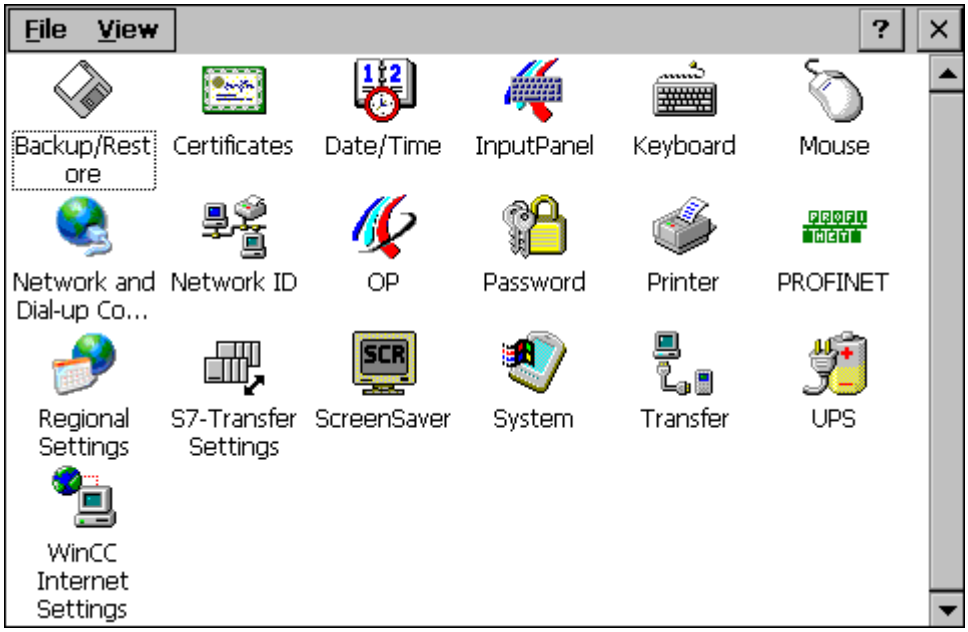
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6.3.3 Control Panel

6.3.3.1 Overview

The HMI device's Control Panel is similar to the control panel on a PC.

The Control Panel looks like this:



The control panel can be used to modify the following settings:

- Date and time
- Screen saver
- Regional settings
- Transfer settings
- Network settings
- Delay time
- Password

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6.3.3.2 Opening the Control Panel

Introduction

The HMI device Control Panel can be opened as follows:

- Independently of a running project
  - Press the "Control panel" button in the loader.
  - By calling up from the Windows CE start menu.
- With active project

  An operating element must be configured to open the Control Panelfor this purpose.

Procedure – open the Control Panel via the Start menu

Proceed as follows:

1. Open the Windows CE start menu.

   Alternatively, press the  key twice on the alphanumerical screen keyboard.
2. Select "Settings > Control panel".

Result

The control panel is opened.

6.3.3.3 Reference for functions

Overview of functions

The following table shows the settings in the Control Panel.

Icon	Function	Tab / entry
	Saving and restoring with external storage device	–
	Importing, displaying and deleting certificates	"Stores"
	Setting the date and time	"Date/Time"
	Configuring the screen keyboard	–
	Setting the character repeat for the keyboard	"Repeat"
	Setting the double-click	"Double-Click"

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Icon	Function		Tab / entry
	Configuring the LAN connection		"LAN9115"
	Setting the IP address	"'LAN9115'Settings"	"IP Address"
	Set name server	"'LAN9115'Settings"	"Name Servers"
	Changing Ethernet settings	"'LAN9115'Settings"	"Ethernet Parameters"
	Changing the logon data		"Network ID"
	Backup registry information		"Persistent Storage"
	Changing monitor settings		"Display"
	Displaying information about the HMI device		"Device"
	Restarting the HMI device		"Device"
	Calibrating the touch screen		"Touch"
	Activate memory management		"Memory Monitoring"
	Changing password protection		"Password Settings"
	Changing the printer properties		–
	Changing the PROFINET IO setting		–
	Changing regional settings		"Regional Settings"
	Changing the number format		"Number"
	Changing the currency format		"Currency"
	Changing the time format		"Time"
	Changing the date format		"Date"
	Changing transfer settings		"MPI"
	Changing the PROFIBUS DP transfer settings		"PROFIBUS"
	S7 Ethernet settings		"S7-Ethernet"
	Setting the screen saver Reducing the backlit display		–
	Displaying system properties		"General"
	Displaying memory information		"Memory"
	Setting the device name of the HMI device		"Device Name"
	Configuring the data channel		"Channel"
	Setting the delay time		"Directories"
	Setting the uninterruptible power supply		"Configuration"
	State of uninterruptible power supply		"Current Status"
	Changing e-mail settings[1)]		"Email"

1) Additional tabs may appear in the "WinCC flexible Internet Settings" dialog. This depends on the options that have been enabled for network operation in the project.

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6.3.3.4 Operator control options for the Control Panel

Entries using the touch screen

The operating elements shown in the dialogs are touch-sensitive. Touch objects are basically operated in the same way as mechanical keys. You activate operating elements by touching them with your finger. To double-click them, touch an operating element twice in succession.

Entries using an external USB keyboard

An external keyboard can be used to operate the Control Panel in exactly the same way as the HMI device keyboard. Use the keys of the external keyboard which correspond to the HMI device keys in the description.

Operating using an external USB mouse

An external mouse can be used to operate the Control Panel in exactly the same way as the HMI device touch screen. Click the described operating elements with the mouse.

6.3.3.5 Operating the Control Panel with the touch screen

Introduction

The control panel is operated with the HMI device touch screen or a connected mouse.

Requirement

An active project has been terminated. The Loader appears.

Procedure

Proceed as follows to change settings in the Control Panel:

1. Open the Control Panel with the "Control Panel" button.
2. To open the required dialog, double-click on its icon.
3. Change the tab as required.
4. Make the necessary changes.

   Touch the corresponding input object.
   - Use the screen keyboard of the HMI device to enter the new values in the text boxes.
   - Touch a button to operate it.
   - To open a selection list, touch the triangle at the end of the field. Touch the required entry from the selection list.
   - Touch the check box to activate or deactivate a check box.
   - Touch a radio button to select it.
5. Confirm the selection with the OK button or abort the entry with the ✕ button.

   The dialog closes.
6. Close the Control Panel with the ✕ button.

   The Loader appears.

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Input with the screen keyboard

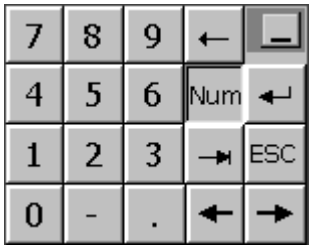
A screen keyboard is available for data input. The screen keyboard is displayed as soon as you touch a text box. You can also call up the screen keyboard directly from the Control Panel.

Display methods for the screen keyboard

You can change the display method for the screen keyboard and fix the position on the screen. Confirm the entry with the ↵ button or abort the entry with the ESC key.

Either action closes the screen keyboard.

- Numerical screen keyboard



- Alphanumerical screen keyboard



The alphanumerical keyboard is organized in the following two layers:

  – Normal level
  – Shift level

- Reduced screen keyboard



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Changing the display of the screen keyboard

Key	Function
	Switching between the numerical and alphanumerical keyboard
	Switching between the normal level and Shift level of the alphanumerical screen keyboard
	Switching from full display to reduced display
	Switching from reduced display to full display
	Closing the reduced display on the screen keyboard

6.3.4 Changing settings for operation

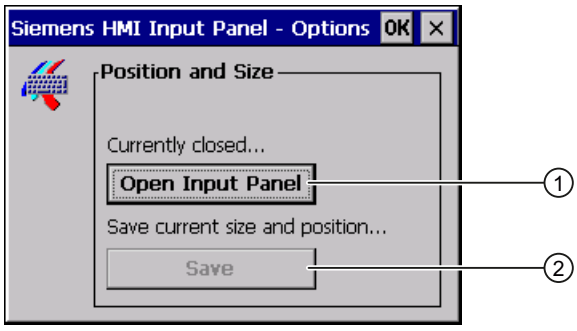
6.3.4.1 Configuring the screen keyboard

Introduction

You can set at which screen position and in which view the screen keyboard will open.

Requirements

You have opened the "Siemens HMI Input Panel - Options" dialog with the "InputPanel"  icon.



① Button for displaying the screen keyboard
② Button for saving the screen keyboard settings

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Procedure

Proceed as follows:

1. Use the "Open Input Panel" button to open the screen keyboard.
2. If you want to switch between the numerical and alphanumerical screen keyboard, press the Num key.
3. If you want to change the position of the screen keyboard, use the mouse pointer to select a free space between the keys.

   Move the screen keyboard to the required position and release the mouse pointer once you have reached the required position.
4. If you want to save the settings, press the "Save" button.
5. Confirm your entries.

   The dialog closes.

Result

The screen keyboard settings have been modified.

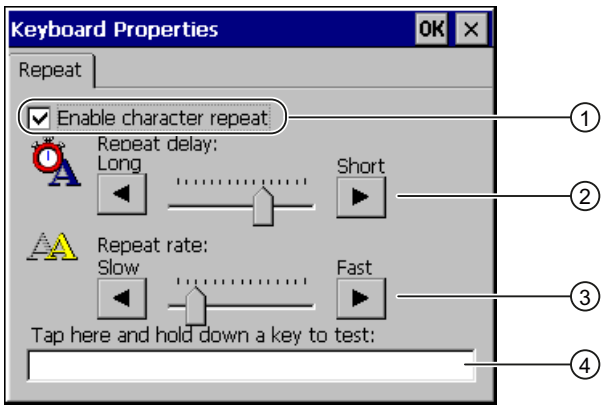
6.3.4.2 Setting the character repeat

Introduction

You can use this function to set the character repeat and associated delay for the screen keyboard.

Requirement

You have opened the "Keyboard Properties" dialog with the "Keyboard" icon.



① Check box for activating the character repeat
② Slider control and buttons for the delay time before character repeat
③ Slider control and buttons for the rate of the character repeat
④ Test field

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Procedure

Proceed as follows:

1. If you want to enable character repetition, activate the "Enable character repeat" check box.
2. If you want to change the delay, press a button or the slider in the "Repeat delay" group.

   Moving the slider to the right will shorten the delay. Moving to the left will extend the delay.
3. If you want to change the repeat rate, press a button or the slider in the "Repeat rate" group.

   Moving the slider to the right will shorten the repeat rate. Moving to the left will extend the repeat rate.
4. Touch the test field in order to check the settings.

   The screen keyboard opens.
5. Move the screen keyboard as needed.
6. Press an alphanumeric key and keep the key pressed down.

   Check the implementation of the character repetition and the rate of the character repetition in the test field.
7. If the settings are not perfect, correct them.
8. Confirm your entries.

   The dialog closes.

Result

The character repetition and delay are set.

6.3.4.3 Setting the double-click

Introduction

You can start applications in the Control Panel and in Windows CE with a double-click. A double-click corresponds to two brief touches in sequence.

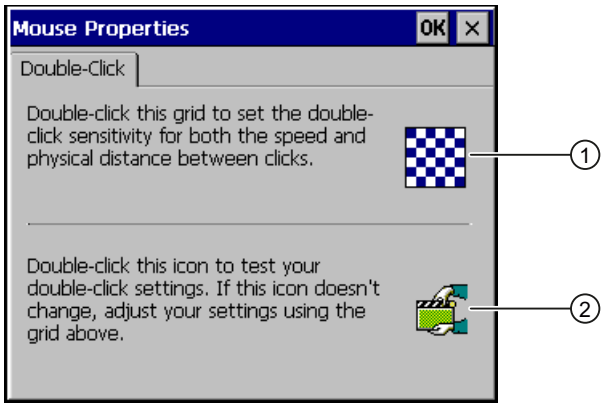
In the "Mouse Properties" dialog, make the following adjustments for touch screen operation and operation with external mouse:

- Interval between touch contacts on the touch screen
- Interval between mouse clicks

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Requirement

You have opened the "Mouse Properties" dialog with the "Mouse" icon.



① Pattern
② Icon

Procedure

Proceed as follows:

1. Click the pattern twice.

   After one double-click, the grid is shown in inverse colors. The white fields change to grey. The time before the second click is saved.

2. Check the double-click.

   Click on the icon twice in succession to do this. If the double-click is recognized, the icon is displayed as follows:

3. If the settings are not perfect, correct them.

   To do this, repeat steps 1 to 2.

4. Confirm your entries.

   The dialog closes.

Result

The double-click adjustment is completed.

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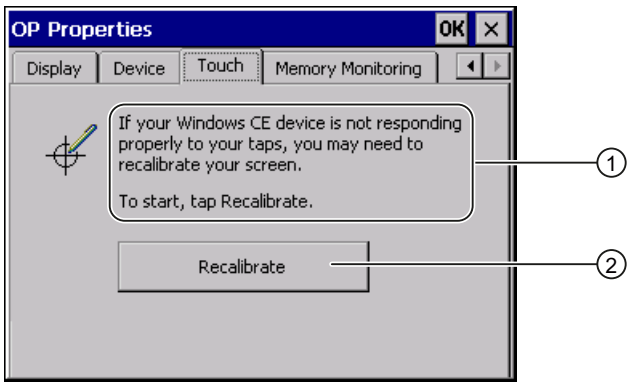
6.3.4.4 Calibrating the touch screen

Introduction

Depending on the mounting position and viewing angle, it is possible that parallax may occur when operating the touch screen. In order to prevent any operating errors as a result, calibrate the touch screen again in the startup phase or during runtime.

Requirement

You have opened the "OP Properties" dialog box, "Touch" tab, by touching the "OP" icon.



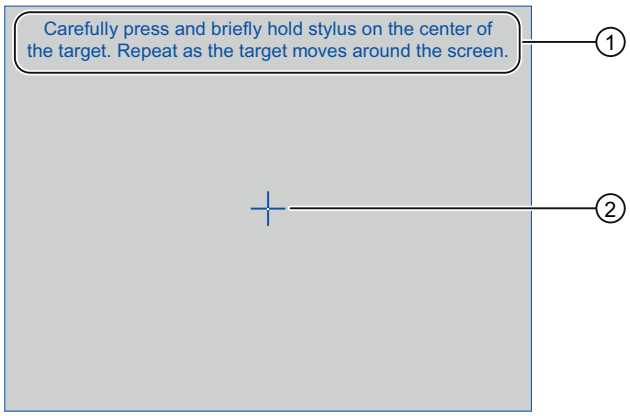
① If the HMI device does not react precisely to a touch, the touch screen may require calibration.
② Button for calibrating the touch screen

Procedure

Proceed as follows:

1. Click on the "Recalibrate" button.

   The following dialog opens:



① Carefully press the center of the calibration crosshairs. Repeat this process as long as the calibration crosshair moves on the touch screen.
② Calibration crosshair

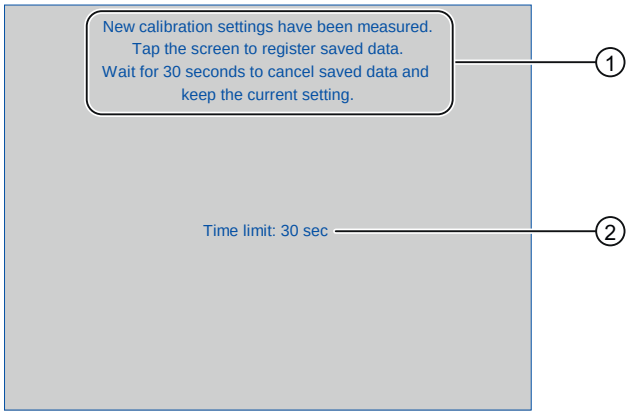
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2. Briefly touch the center of the calibration crosshairs ②.

   The calibration crosshairs is then displayed at four more positions.

3. Briefly touch the middle of the calibration crosshairs for each position.

   Once you have touched all the positions of the calibration crosshairs, the following dialog appears:



① The new calibration values are measured. Touch the touch screen to save the calibration values. If you do not touch the screen within 30 seconds, the new calibration values will be discarded.

② Time remaining until the calibration values are discarded

4. Touch the touch screen.

   The calibration is saved. The "OP Properties" dialog box, "Touch" tab is displayed again. If you do not touch the touch screen within the time shown, your original setting will be retained.

5. Close the dialog.

Result

The HMI device touch screen is calibrated.

6.3.5 Changing password protection

Introduction

You can protect access to the Control Panel and the Windows CE taskbar with a password. When you set up the password protection, the SecureMode is activated automatically. For more information, refer to SecureMode in section "Setting up and disabling SecureMode (Page 140)".

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Requirements

You have opened the "Password Properties" dialog with the "Password"  icon.



NOTICE
Password not available If the password is no longer available, you can execute the following once you have first reset the computer to factory settings: • Change settings in the Control Panel • Use the Windows CE taskbar All data on the HMI device will be deleted when you update the operating system! Therefore use the password to protect against loss.

Procedure – setting up password protection

Note

The following characters cannot be used in passwords:

- Blank
- Special characters * ? . % / \ ' "

Proceed as follows:

1. Enter a password in the "Password" text box.
2. Repeat the password entry in the "Confirm password" text box.
3. Confirm your entries.

   The dialog closes.

Result

You cannot open the Control Panel or Windows CE taskbar without entering a password.

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Procedure – disabling password protection

Proceed as follows:

1. Delete the entries in the "Password" and "Confirm password" input fields.
2. Confirm your entries.

   The dialog closes.

Result

Password protection for the Control Panel and the Windows CE taskbar is disabled. There is free access to these applications.

6.3.6 Changing the HMI device settings

6.3.6.1 Setting the date and time

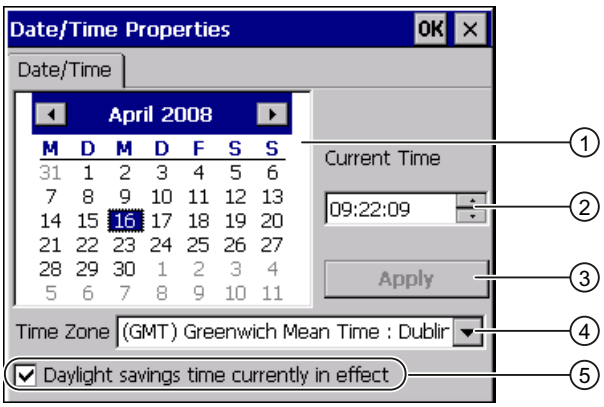
Introduction

You can set the date and time on the HMI device. The HMI must be restarted in the following cases:

- You have changed the time zone setting.
- You have changed the "Daylight savings time currently in effect" check box setting.

Requirements

You have opened the "Date/Time Properties" using the "Date/Time Properties" icon.



① Date selection field
② Input field for the time
③ Button for applying changes
④ Time zone selection list
⑤ "Daylight savings" check box

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Procedure

Proceed as follows:

1. Select the appropriate time zone for the HMI device from the "Time Zone" selection list.
2. Touch the "Apply" button to confirm your entry.

   The time of day shown in the "Current Time" field is adjusted correspondingly to the selected time zone.
3. Set the date in the selection field.
4. Set the current time of day in the "Current Time" text box.
5. Touch the "Apply" button to confirm your input.

   The values you have set are now in effect.

   Note

   The system does not automatically switch between winter and summer time.
6. If you want to switch from winter to summer time, activate the "Daylight savings time currently in effect" check box.

   When you press the "Apply" button, the time is brought forward by one hour.
7. If you want to switch from summer to winter time, deactivate the "Daylight savings time currently in effect" check box.

   When you press the "Apply" button, the time is moved backwards by one hour.
8. Confirm your entries.

   The dialog closes.

Result

The settings for the data and time of day have now been changed.

Internal clock

The HMI device has an internal buffered clock. The buffering is time-restricted.

Synchronizing the date and time with the PLC

The date and time of the HMI device can be synchronized with the PLC if this has been configured in the project and the PLC program.

Further information on this subject is available in the "WinCC flexible" system manual.

NOTICE
Time-dependent reactions You have to synchronize the date and time when time-controlled responses are triggered in the PLC by the HMI device.

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6.3.6.2 Changing regional settings

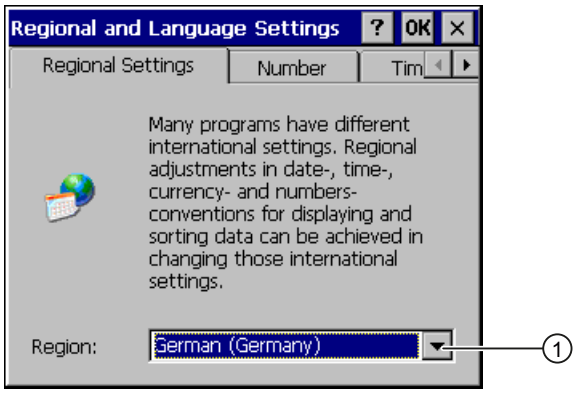
Introduction

In different countries, for example, the date, time and decimal points are displayed differently. You can adjust this display to meet the requirements of different regions.

The country-specific settings apply to the current project. If the project language is changed, the country-specific settings are also changed.

Requirements

You have opened the "Regional and Language Settings" dialog with the "Regional Settings"  icon.



① Region selection list

Procedure

Proceed as follows:

1. Select the region from the selection list.
2. Change to the "Number", "Currency", "Time" and "Date" tabs and set the selection lists to the desired settings.
3. Confirm your entries.

   The dialog closes.

Result

The HMI device's regional settings have been changed.

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6.3.6.3 Backup registry information

Registry information and temporary data

You can install and uninstall your own programs on the HMI devices under Windows CE. You must save the registry settings after installation or uninstallation.

You can save the following data to the flash memory:

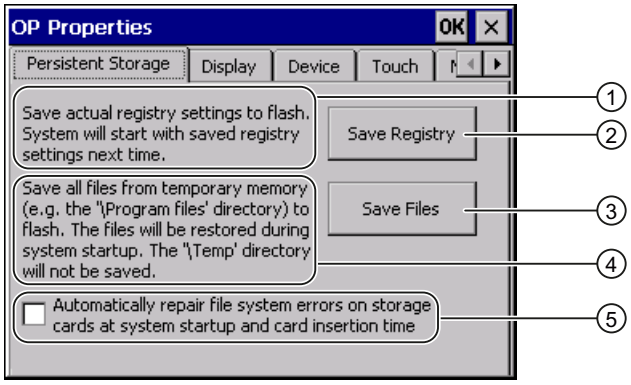
- Registry Information
- Temporary files

Restoring the file system of a memory card

If memory cards are used, the file system on the memory card may become damaged, perhaps due to a power failure. The HMI device detects the defective file system on start-up or when the memory card is inserted. The HMI device can restore the file system automatically or on request.

Requirements

You have opened the "OP Properties" dialog, "Persistant Storage" tab with the "OP"  icon.



① Saves the current registry information to the flash memory. The HMI device loads the saved registry information the next time it boots.

② Button for saving registry information

③ Button for saving temporary files

④ Saves all the files in temporary storage to the flash memory (for example, from the "Program Files" directory). These files are written back when the HMI device is started. The "\Temp" directory is not saved.

⑤ Automatically restores the file system on the memory card when the HMI device starts up and when a memory card is inserted.

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Procedure

Proceed as follows:

1. If you want the system to be restored automatically, activate the "Automatically repair file system errors ..." check box.

   If the check box is unchecked, the system is restored only once prompted to do so.
2. Click on the necessary buttons.
3. Confirm your entries.

   The dialog closes.

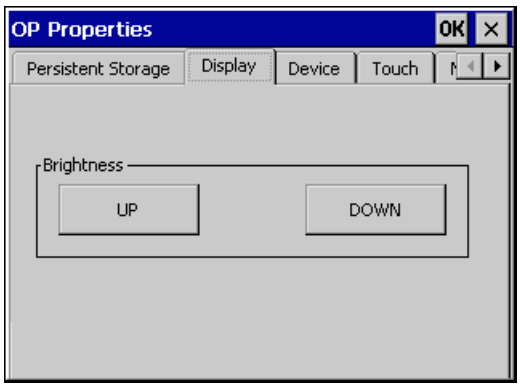
Result

The HMI device uses the saved registry information the next time it starts. The temporary files are copied back.

6.3.6.4 Changing monitor settings

Requirements

You have opened the "OP Properties", dialog "Display" tab with the "OP"  icon.



Procedure

Proceed as follows:

1. If you want to increase the brightness, press the "UP" button.
2. If you want to decrease the brightness, press the "DOWN" button.
3. Confirm your entries.

   The dialog closes.

Result

The screen settings have been changed.

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6.3.6.5 Setting the screen saver

Introduction

You can activate a screen saver for the HMI device. You can also set the HMI device so that the backlighting of the screen is reduced if it is not used for a while. This has the following advantages:

- The service life of the screen LEDs is extended.
- The HMI device uses less power.

You can set the following time intervals on the HMI device:

- For the automatic activation of the screen saver
- For the automatic reduction in the screen's backlighting

When you do not undertake an operation within the configured interval, the configured function will be activated automatically.

The screen saver and the reduced screen backlighting functions are switched back off by means of the following actions:

- By pressing any key
- By touching the touch screen

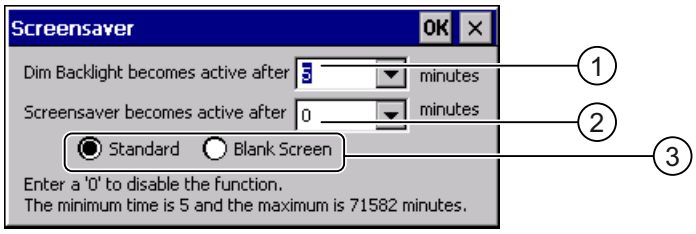
The function associated to the key or button will not be executed by this.

NOTICE
Reduce backlighting The brightness of the backlighting decreases incrementally during its operational life. In order to not shorten the operational lifetime of the backlighting unnecessarily, activate the backlighting reduction. **Activating the screen saver** Screen contents which remain unchanged for long periods can remain dimly visible in the background. This effect is reversible. Therefore activate the screen saver. When the screen saver is active, the backlighting is also reduced. If you set the screen saver "Blank Screen", the backlighting is switched off completely.

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Requirements

You have opened the "Screensaver" dialog with the "ScreenSaver"  icon.



① Time interval in minutes until backlighting is reduced
② Period of time in minutes before the screen saver is activated
③ Radio buttons for the screensaver

Procedure

Proceed as follows:

1. Enter the interval in minutes after which the backlighting is to be reduced.

   Entering "0" will deactivate the backlighting reduction.
2. Enter the number of minutes before the screen saver is to be activated.

   The minimum time is 5 minutes and the maximum time is 71582 minutes.
   Entering "0" disables the screen saver.
3. Select either the screen saver or an empty screen.
   - If you want the screen saver to function, activate the "Standard" radio button.
   - If you do not want the screen saver to function, activate the "Blank Screen" radio button. With this setting, the backlighting of the HMI device is switched off completely if the set interval for activating the screen saver expires.
4. Confirm your entries.

   The dialog closes.

Result

The screen saver and the reduced backlighting for the HMI device is set.

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6.3.6.6 Changing the printer properties

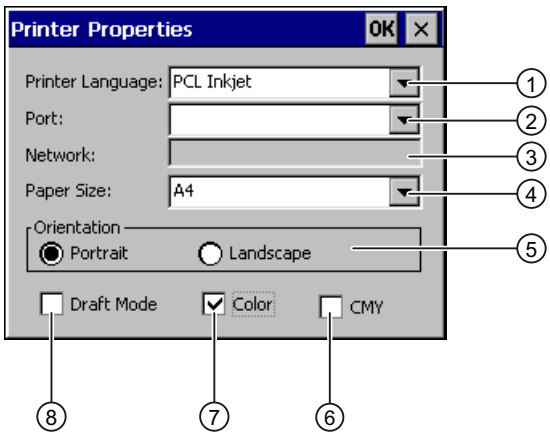
Introduction

The HMI device can print on local printers or network printers. You can print hardcopies and reports on a network printer. Line printing of alarms is not possible on a network printer.

The list of current printers and required settings for HMI devices can be found on the Internet under "http://support.automation.siemens.com/WW/view/en/11376409".

Requirements

You have opened the "Printer Properties" dialog with the "Printer" icon.



① Selection list for the printer
② Selection list for the interface
③ Network address of the printer
④ Paper format selection list
⑤ "Orientation" group with radio buttons for print orientation
⑥ Check box to improve the color quality (only for Brother HL 2700 printers)
⑦ Color printing check box
⑧ Print quality check box

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Procedure

Proceed as follows:

1. Select a printer from the "Printer Language" selection list.
2. Select the port for the printer from the "Port" selection list.
3. If you wish to print via the network, enter the printer's network address in the "Network" text box.
4. Select a paper format in the "Paper Size" selection list.
5. Activate a radio button in the "Orientation" group.
   - "Portrait" for portrait
   - "Landscape" for landscape
6. Select the print quality.
   - Select the "Draft Mode" check box if you wish to print in draft mode.
   - Deactivate the "Draft Mode" check box if you wish to print with higher quality.
7. If the printer selected can print in color and you wish it to do so, select the "Color" check box.
8. If you use the Brother HL 2700 printer model, enable the "CMY" check box. In this way you can increase the color quality when printing.
9. Confirm your entries.

   The dialog closes.

Result

The settings for the printer have now been changed.

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6.3.6.7 Restarting the HMI device

Introduction

You can restart the HMI device or reset it to factory settings prior to the restart.
For more information, refer to the section "Resetting factory settings (Page 213)".

Essential restart

The HMI device must be restarted in the following cases:

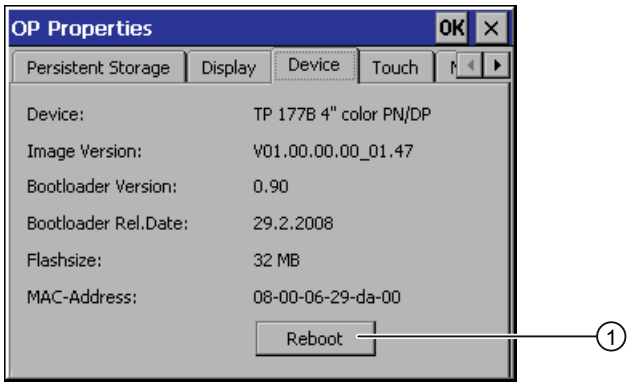
- You have activated or deactivated the PROFINET IO direct keys.
- You have changed the time zone setting.
- You have changed the automatic daylight savings and standard setting.

NOTICE
Data loss when the HMI device is restarted All volatile data is lost when the HMI device is rebooted. Check the following: • The project on the HMI device is complete. • No data is being written to the flash memory.

The HMI device must be restarted in the following cases:

Requirement

- You have opened the "OP Properties", dialog "Device" tab with the "OP"  icon.



① Button for restarting the HMI device

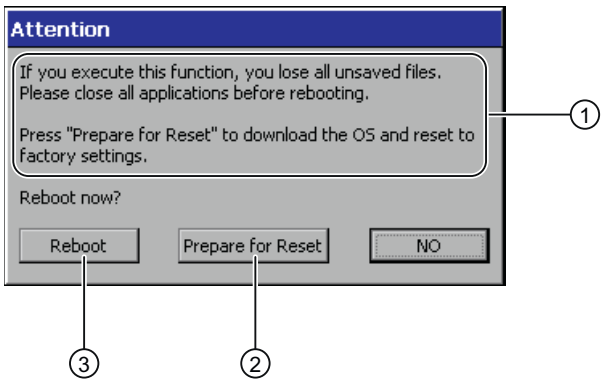
- If you wish to start the HMI device by resetting to factory settings: The HMI device is connected via PROFINET to a configuration PC.

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Procedure

1. If you want to restart the HMI device, press the "Reboot" button.

   The following message is displayed:



①	If you run this function, all data which has not been backed up will be lost. Please close all applications before restarting.
②	Button for resetting factory settings and subsequent restart
③	Button for the restart

2. Click on one of the buttons.

- If you want to restart the HMI device, press the "Reboot" button.

  The HMI device restarts without delay.

- If you want to reset the HMI device to factory settings and then perform a restart, press the "Prepare for Reset" button.

  You are given the option to reset the HMI device via ProSave to factory settings. Then restart the HMI device.

- If you want do not want to restart the HMI device, press the "No" button.

  The message ends. There will be no restart.

Result

The HMI device starts.

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6.3.6.8 Displaying information about the HMI device

Introduction

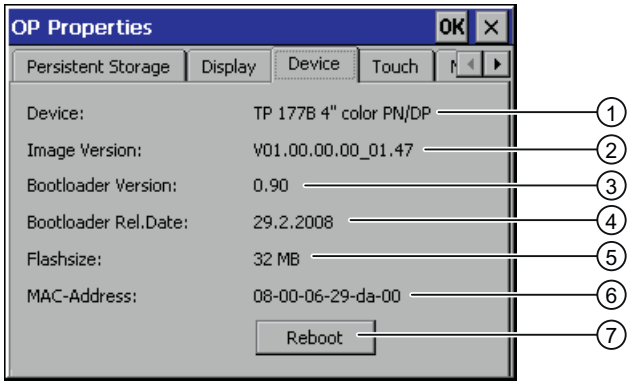
You will need the device-specific information if you contact A&D Technical Support.

Requirements

You have opened the "OP Properties", dialog "Device" tab with the "OP"  icon.

The HMI device-specific information is displayed in the "Device" tab.

The data displayed are device-specific and may therefore deviate from that of your HMI device.



① HMI device name
② Version of the HMI device image
③ Version of the boot loader
④ Boot loader release date
⑤ Size of the internal flash memory in which the HMI device image and project are stored
⑥ MAC address of the HMI device
⑦ See section Restarting the HMI device (Page 162)

Note

The size of the internal flash memory does not correspond to the available working memory for a project.

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6.3.6.9 Displaying system properties

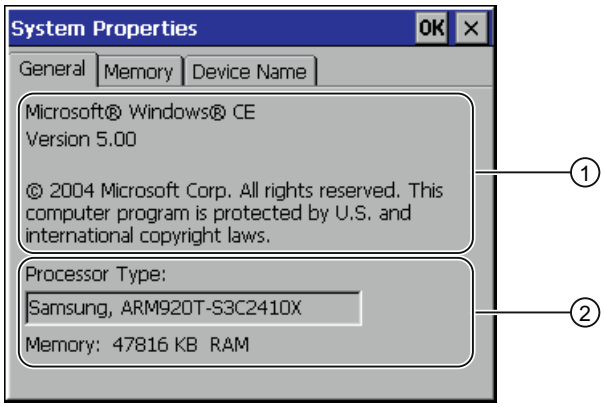
Introduction

The general system-specific information provides you with information about the processor, operating system and memory.

Requirements

You have opened the "System Properties" dialog box, "General" tab, by touching the "System"  icon.

The data displayed are device-specific and may therefore deviate from that of your HMI device.



① Copyright to Microsoft Windows CE
② Details on processor and size of internal Flash memory

Result

The system properties are displayed. This dialog is read-only. Close the dialog.

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6.3.6.10 Displaying memory distribution

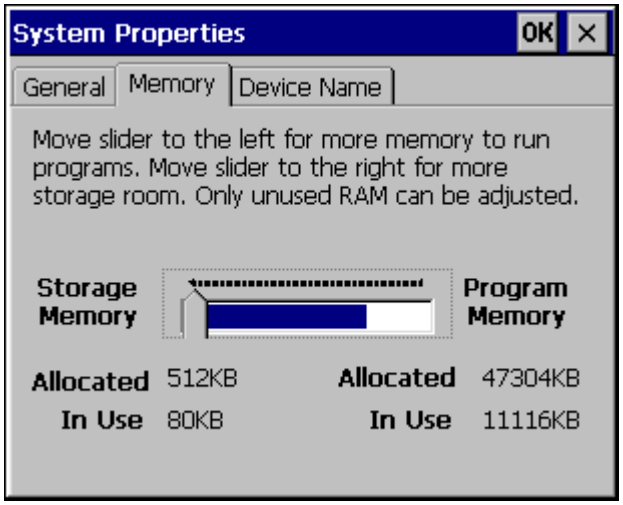
Introduction

The "Memory" system-specific information provides you with information about the distribution and size of the memory in the HMI device.

NOTICE
"Memory" tab Do not change the memory distribution in the "Memory" tab. Applies for the usage of options: An alteration to the memory distribution may be necessary. Please refer to the accompanying documentation for further information.

Requirements

You have opened the "System Properties" dialog box, "Memory" tab, by touching the "System"  icon.



Procedure

1. Determine the HMI device's current memory structure.
2. Close the dialog.

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6.3.6.11 Activate memory management

Memory management

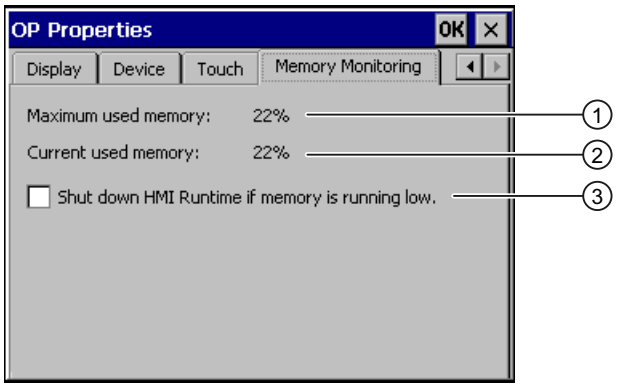
Provided the memory management is activated, the HMI device will automatically close the project if the memory needs reorganizing during an active project.

The project is shut down and the HMI device will display a message. You have to restart the project.

NOTICE
Memory management If you do not activate memory management, undefined states can occur during the runtime of the project. Activate the memory management.

Requirements

You have opened the "OP Properties" dialog, "Memory Monitoring" tab with the "OP" icon.



① Maximum memory used since the HMI device was last switched on
② Percentage of memory currently used
③ Activate memory management

Procedure

Proceed as follows:

1. If you want to enable memory management, activate the check box.

   If memory management is active and there is not enough working memory, the SIMATIC HMI runtime and therefore the current project will be closed.

2. Confirm your entries.

   The dialog closes.

Result

Memory management is activated.

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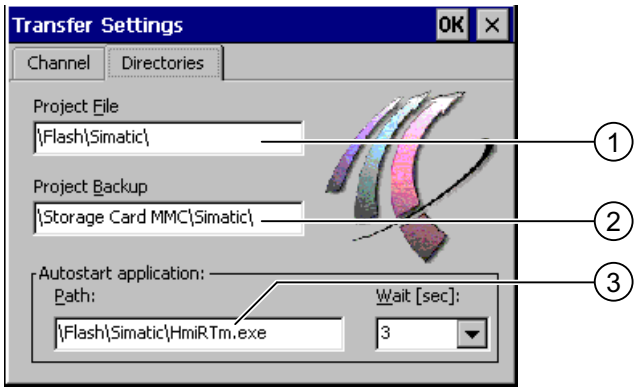
6.3.7 Setting storage location

Introduction

There are various storage locations available for storing the compressed source file of your project. The following describes how you can set the storage location.

Requirements

You have opened the "Transfer Settings", dialog "Directories" tab with the "Transfer"  icon.



① Memory location for the project file
② Memory location for the compressed source file of your project for backtransfer
③ Storage location and initialization file of the HMI device for process operation

NOTICE
Settings under "Project File" and "Path" The project may not open the next time the HMI device is started if changes are made in the "Project File" and "Path" text boxes. Do not change the entries in the "Project File" and "Path" text boxes.

Procedure

1. Select a memory location from the "Project Backup" input field.

   The external memory card or the location in the data network can be defined as the storage location. During the next backup process, the project's source file is stored in the specified location.

2. Confirm your entries.

   The dialog closes.

Result

The storage location for the source file is now set.

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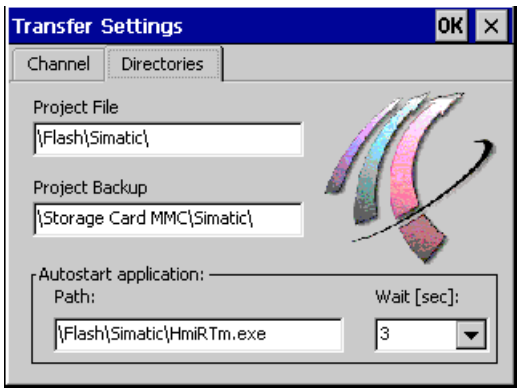
6.3.8 Setting the delay time

Introduction

Once the HMI device has been switched on, a project can be started after a delay. The Loader is displayed during the delay time.

Requirements

You have opened the "Transfer Settings", dialog "Directories" tab with the "Transfer" icon.



NOTICE
Settings under "Project File" and "Path" The project may not open the next time the HMI device is started if changes are made in the "Project File" and "Path" text boxes. Do not change the entries in the "Project File" and "Path" text boxes.

Procedure

1. Select the desired delay time in seconds from the "Wait [sec]" selection list.

   With the value "0", the project starts immediately. It is then no longer possible to call the Loader after switching on the HMI device. If you still wish to access the loader, an operating element must be configured to close the project.

2. Confirm your entries.

   The dialog closes.

Result

The delay time for the HMI device is now set.

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6.3.9 Enabling PROFINET IO

PROFINET IO

If the HMI device is connected to the PLC via PROFINET, function keys or buttons, for example, can be configured as PROFINET IO direct keys. If PROFINET IO direct keys are used in the project, they must be enabled.

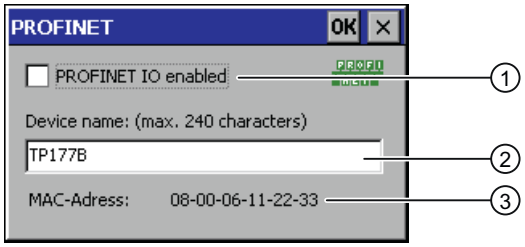
Note

If you enable PROFINET IO direct keys, you cannot use the RS 422 / RS 485 port for serial communication.

PROFINET IO direct keys and PROFIBUS DP direct keys are mutually exclusive.

Requirements

You have opened the "PROFINET" dialog with the "PROFINET" icon.



① Activating or deactivating the PROFINET IO direct keys
② Text box for the device name
③ MAC address of the HMI device

NOTICE

Inconsistent device name

If the device name does not match the device name entered in the HW Config of STEP 7, the direct keys do not work.

Use the device name from the HW Config of STEP 7. This device name does not correspond to the device name used under Windows CE.

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Within the ETHERNET data network, the device name must be unique and satisfy the DNS conventions. These include:

- The device name can consist of maximum 240 characters.
- If the device name is longer than 63 characters, it must be classified in the name component. Each name component can consist of maximum 63 characters. Name components are separated from each other by means of points.

  Example: <Subdomain-Name>.<Domain-Name>.<Top-Level-Domain-Name>
- The device name may include characters, figures, hyphens or points.
- The device name must not start or end with a "-" character.
- The device name must not take the form n.n.n.n (n = 0 to 999).
- The device name must not start with the character sequence "port-xyz-" (x, y, z = 0 to 9).

Procedure

Proceed as follows:

1. If you want to enable the PROFINET IO direct keys, activate the "PROFINET IO enabled" check box.
2. Enter the device name of the HMI device.
3. Confirm your entries.

   The dialog closes.

Result

The PROFINET IO direct keys are enabled.

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6.3.10 Changing transfer settings

6.3.10.1 Configuring the data channel

Introduction

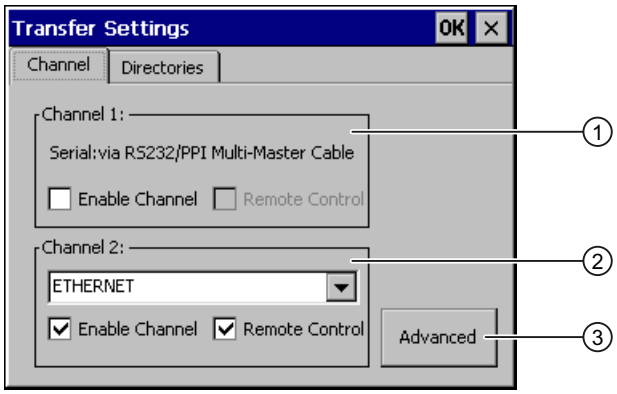
If you block all data channels, the HMI device is protected against unintentional overwriting of the project data and HMI device image.

Note

A project can only be transferred from the configuring PC to the HMI device when at least one of the data channels is enabled on the HMI device.

Requirements

The "Transfer Settings" dialog, "Channel" tab has been opened with the "Transfer Settings" icon.



① Group for the data channel 1 (Channel 1)
② Group for the data channel 2 (Channel 2)
③ Button for the "S7-Transfer Settings" and / or "Network and Dial-Up Connections" dialog

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⚠ WARNING

Unintentional transfer mode

Unintentional transfer mode could cause unintentional actions to be triggered in the plant.

Ensure that the configuring PC does not inadvertently switch the HMI device to transfer mode during the open project.

NOTICE

"Remote control" for "Channel 1"

If the "Remote Control" check box is activated during "Online" operating mode, the X10 / IF 1B port cannot be used for communication.

The "Remote Control" check box must be deactivated for "Online" operating mode. Once the serial transfer is complete, in the "Channel 1" group you must therefore deactivate the "Remote Control" check box.

Transfer mode using "Channel 2"

When the project on the HMI device starts, transfer parameters, e.g. HMI device address, for MPI / PROFIBUS DP are overwritten with the values from the project.

You can change the settings for the transfer via "Channel 2".

The following steps are required:

- Close the project.
- Change the settings on the HMI device.
- Then return to "Transfer" mode.

The next time the project is started on the HMI device, the settings will be overwritten by the values from the project.

Note

If the HMI device is in "Transfer" mode while changes are made to the transfer settings, the settings only go into effect after the transfer function is restarted.

This may occur if the Control Panel is opened to change the transfer properties in an active project.

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Procedure

Proceed as follows:

1. If you want to enable a data channel, activate the "Enable Channel" check box in the "Channel 1" or "Channel 2" group.

   In the "Channel 1" group, the RS-422/RS-485 port is enabled for the serial data transfer. The network port is enabled in the "Channel 2" group.

2. If you want to enable the automatic transfer, activate the associated "Remote Control" check box.
3. If you have enabled the data channel for "Channel 2", select the log from the selection list.
4. Enter further parameters if required.

   Applies to "MPI / PROFIBUS / S7 Ethernet":

   – Press the "Advanced" button to switch to the "S7-Transfer Settings" dialog box. You can change the settings for MPI / PROFIBUS / S7 Ethernet there.
   – Confirm your entries.
   – The "S7-Transfer Settings" dialog box closes.

   Applies to "ETHERNET":

   – Use the "Advanced" button to change to "Network&Dial-Up Connections".
   – Open the "LAN9115" entry. You can change the TCP/IP settings there.
   – Confirm your entries.
   – Close "Network&Dial-Up Connections".

   Applies to "USB":

   – No settings are needed for "USB".
5. Confirm your entries.

   The dialog closes.

Result

The data channel is configured.

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6.3.10.2 Changing MPI/PROFIBUS DP settings

Introduction

The communication settings for MPI, PROFIBUS DP and S7 Ethernet are defined in the HMI device project.

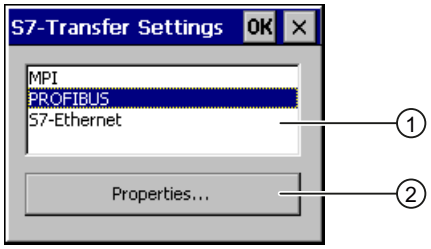
In the following cases, the transfer settings might have to be changed:

- With the first project transfer.
- If changes are made to the project but are only applied later.

NOTICE
Transfer mode using MPI / PROFIBUS DP The bus parameters are read from the project currently loaded on the HMI device. You can change the settings for MPI / PROFIBUS DP transfer. The following steps are required: • Close the project. • Change the settings on the HMI device. • Then return to "Transfer" mode. The changed MP/PROFIBUS DP settings will be overwritten in the following cases: • The project is started again. • A project is transferred and started. **Transfer settings** If the HMI device is in "Transfer" mode while changes are made to the transfer settings, the settings only go into effect after the transfer function is restarted.

Requirements

You have opened the "S7-Transfer Settings" dialog with the "S7-Transfer Settings"  icon.



① Network selection
② Button for opening the properties dialog

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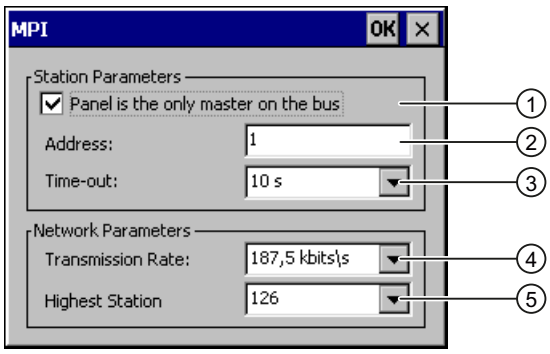
Procedure

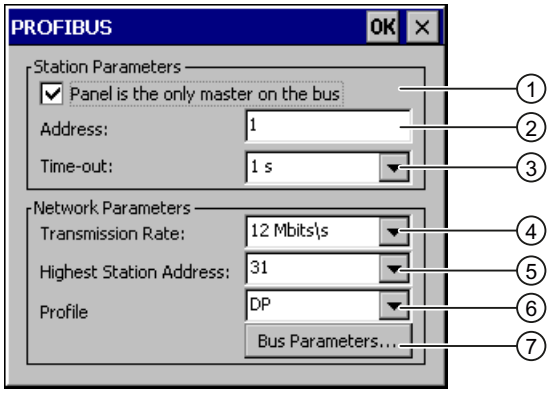
Proceed as follows:

1. Select a network.

   If you have chosen S7 Ethernet, continue as described under Changing the network configuration (Page 181).

2. Use the "Properties" button to open the "MPI" or "PROFIBUS" dialog.





① The HMI device is the only master on the bus.
② Bus address of the HMI device
③ Time-out
④ Data transmission rate in total network
⑤ Highest station address in the network
⑥ Profile
⑦ Button for displaying the bus parameters

3. If there are several masters connected on the bus, deactivate the "Panel is the only master on the bus" check box.

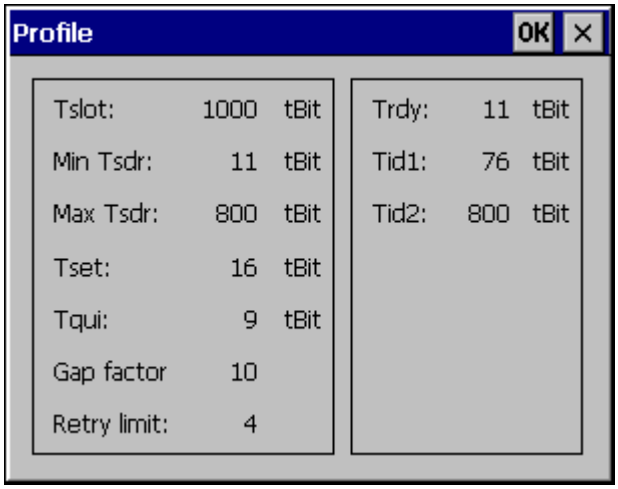
NOTICE
The bus address in the "Address" text box must be unique throughout the MPI/PROFIBUS DP network.

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4. Enter the bus address for the HMI device in the "Address" text box.
5. Select the transmission rate from the "Transmission Rate" selection list.
6. Enter the highest station address on the bus in the "Highest Station Address" or "Highest Station" text box.
7. With PROFIBUS settings: Select the required profile in the "Profile" selection list.
8. With PROFIBUS settings: If you want to view the profile data, press the "Busparameter" button of the PROFIBUS dialog.

   The profile data are displayed. The "Profile" dialog is read-only.

NOTICE
The bus parameters must be the same for all stations in the MPI/PROFIBUS DP network.



9. Close the "Profile" dialog.
10. Confirm your entries.

    The dialog closes.

Result

The MPI/PROFIBUS DP settings of the HMI device have been changed.

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6.3.11 Network operation

6.3.11.1 Overview

Introduction

You can connect the HMI device to a PROFINET network via the Ethernet port.

Note

The HMI device can only be used in PROFINET networks.

If Sm@rtService or Sm@rtAccess are not used on the HMI device, the following applies:

The HMI device only has client functionality in the PC network. This means that users can access files of a node with TCP / IP server functionality from the HMI device via the network. However, you cannot, for example, access data on the HMI device from a PC via the network.

The Sm@rtService or Sm@rtAccess options enable access to an HMI device located somewhere else.

Note

Information on communication using SIMATIC S7 via PROFINET is provided in the "WinCC flexible communication" user manual.

The connection to a network offers, for example, the following options:

- Printing via a network printer
- Saving, exporting and importing of recipe data records on or from a server
- Transferring a project
- Saving data

Addressing

Within a PROFINET network, computers are usually addressed using computer names. These computer names are translated from a DNS or WINS server to TCP/IP addresses. This is why a DNS or WINS server is needed for addressing via computer names when the HMI device is in a PROFINET network.

The corresponding servers are generally available in PROFINET networks.

Note

The use of TCP / IP addresses to address PCs is not supported by the HMI device's operating system.

Consult your network administrator if you have questions in this regard.

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Printing via a network printer

The HMI device's operating system does not support line by line alarm logging via a network printer. All other printing functions, for example hardcopy or logs are available without restriction via the network.

Preparation

Before beginning the configuration, request the following network parameters from your network administrator.

- Does the network use DHCP for dynamic assignment of network addresses?

  If not, get a new TCP/IP network address for the HMI device.
- Which TCP/IP address does the default gateway have?
- If a DNS network is used, what are the addresses of the name server?
- If a WINS network is used, what are the addresses of the name server?

General procedure for configuring the network

The HMI device must be configured prior to network operation. The configuration is basically divided into the following steps:

1. Enter the computer name of the HMI device.
2. Configure the network address.
3. Set the logon information.
4. Save the settings.

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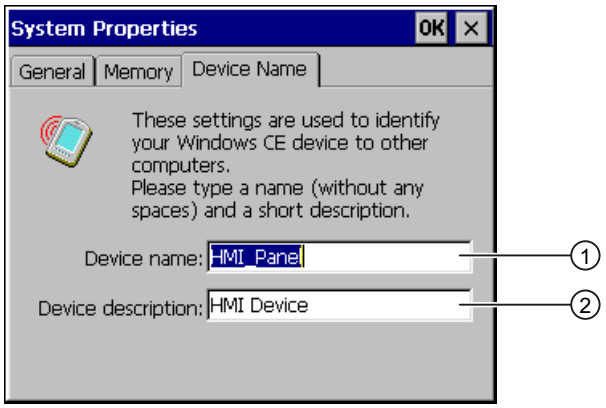
6.3.11.2 Setting the device name of the HMI device

Introduction

The HMI device uses the device name to identify itself in the communication network.

Requirements

You have opened the "System Properties" dialog box, "Device Name" tab, by touching the "System"  icon.



① Device name of the HMI device
② Description for the HMI device (optional)

Note

To activate the network functions, enter a unique computer name in the Device name input field.

Procedure

Proceed as follows:

1. Enter the device name for the HMI device in the "Device name" text box.
2. If necessary, enter a description for the HMI device in the "Device description" text box.
3. Confirm your entries.

   The dialog closes.

Result

The device name for the HMI device is now set.

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6.3.11.3 Changing the network configuration

Introduction

You can change the network settings for the LAN connection under "Network&Dial-Up Connections".

Requirements

You have opened the following display by touching the "Network&Dial-Up Connections" icon.

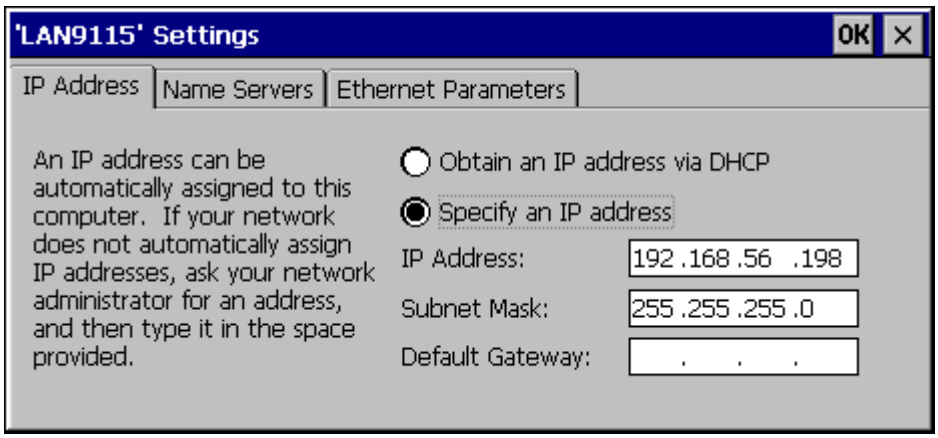


Procedure

Proceed as follows:

1. Open the "LAN9115" entry.

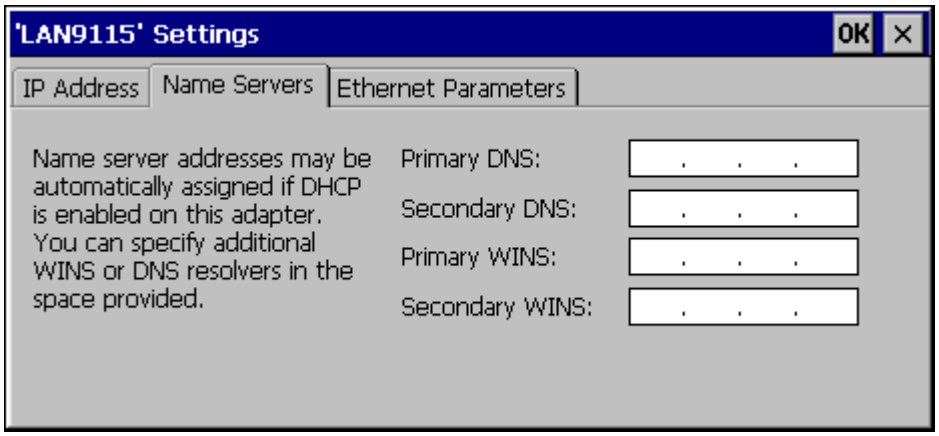
   The "'LAN9115' Settings" dialog opens.



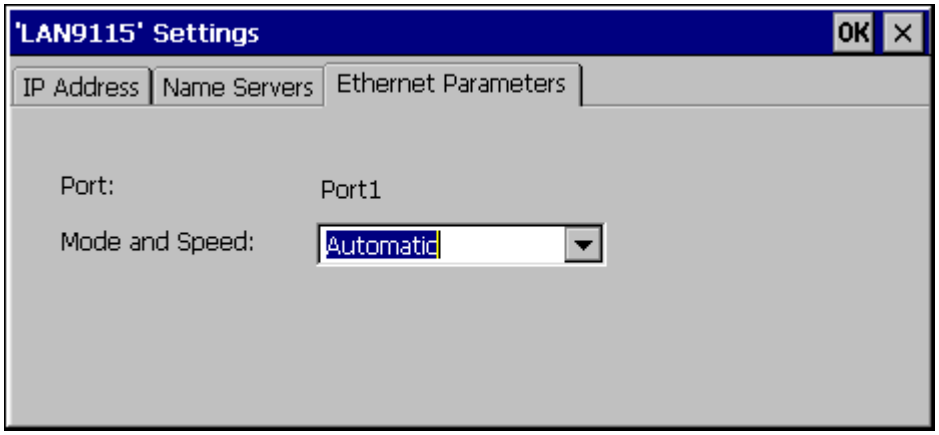
2. If you need automatic issuing of addresses, select the "Obtain an IP address via DHCP" radio button.
3. If you need manual issuing of addresses, select the "Specify an IP address" radio button.
4. If you have selected manual issuing of addresses, enter the corresponding addresses in the following input fields:
   - "IP Address"
   - "Subnet Mask"
   - If necessary: "Default Gateway"

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5. If a name server is used in the network, change to the "Name Servers" tab.



6. If you wish to change the Ethernet settings, switch to the "Ethernet Parameters" tab.



   For the data rate and the transmission speed of the Ethernet connection, the following is set as default "Mode and Speed" "Automatic". With this setting, the HMI device detects the data rate and the speed of communication via the Ethernet and automatically employs it.

7. If you do not want to use these settings, select the required combination of data rate and transmission speed in the selection list.
8. Confirm your entries.

   The dialog closes.

9. Close the "Network&Dial-Up Connections" display.

   The Control Panel is displayed again.

Result

The LAN connection parameters for the HMI device have been changed.

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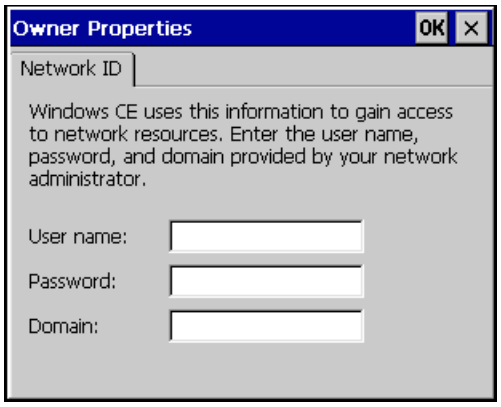
6.3.11.4 Changing the logon data

Introduction

Windows CE uses this logon data to gain access to the network resources. Enter the user name, password and domain you have received from your administrator.

Requirements

You have opened the "Owner Properties" dialog with the "Network ID"  icon.



Procedure

Proceed as follows:

1. Enter the user name in the "User name" text box.
2. Enter your password in the "Password" text box.
3. Enter the domain name in the "Domain" text box.
4. Confirm your entries.

   The dialog closes.

Result

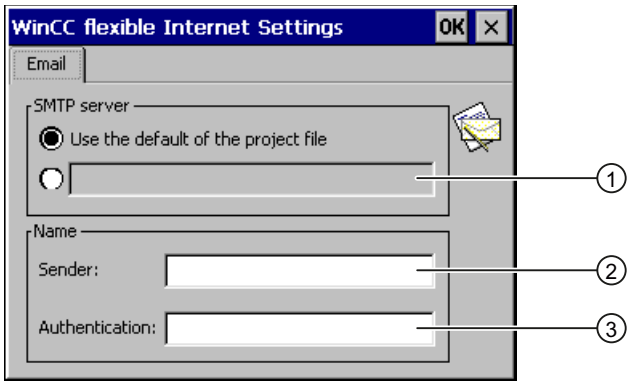
The logon information has now been set.

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6.3.11.5 Changing e-mail settings

Requirements

You have opened the "WinCC flexible Internet Settings" dialog with the "WinCC Internet Settings"  icon.



① Setting the SMTP server
② Name for the sender
③ E-mail account

Note

Additional tabs may appear in the "WinCC flexible Internet Settings" dialog. This depends on the options that have been enabled for network operation in the project.

Procedure

Proceed as follows:

1. Specify the SMTP server.
   - Activate the "Use the default of the project file" radio button if you want to use the SMTP server configured in the project.
   - Deactivate the "Use the default of the project file" radio button if you do not want to use the SMTP server configured in the project. Specify the required SMTP server.
2. Enter the name for the sender in the "Sender" text box.
3. Enter the e-mail account for your e-mail in the "Authentication" text box.

   Some e-mail providers only allow you to send mail if you specify the e-mail account. The "Authentication" text box can remain empty if your e-mail provider allows you to send mail without checking the account.
4. Confirm your entries.

   The dialog closes.

Result

The e-mail settings have been changed.

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6.3.11.6 Importing and deleting certificates

Overview

You can import, view and delete certificates that have been imported for the HMI device. The certificates differ in the following ways:

- Certificates that you trust
- Own certificates
- Other certificates

You can import additional certificates and delete certificates that are not required.

The required settings can be obtained from your network administrator.

Requirements

You have opened the "Certificates" dialog with the "Certificates" icon.



Procedure

Proceed as follows:

1. Select the type of certificate from the selection list:
   - "Trusted Authorities"
   - "My Certificates"
   - "Other Certificates"
2. If required, start the importing process with the "Import" button.

   A dialog with source details will open.
3. If required, delete certificates with the "Remove" button.

   Mark the desired certificate.
4. If you want to list the properties of the certificate marked, press the "View" button.
5. Confirm your entries.

   The dialog closes.

Result

The certificates have been changed.

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6.3.12 Backup and restore

6.3.12.1 Saving to external storage device (backup)

Introduction

A backup involves copying the operating system, applications and data from the internal in flash memory of the HMI device to an external storage device.

Requirements

- The HMI device features an external storage device with sufficient free space.
- You have opened the "Backup/Restore" dialog with the "Backup/Restore" icon.



Procedure - using a memory card for the first time

NOTICE
Loss of data possible The first time you use a memory card the HMI device will request that you format the card. Save a backup copy of memory card data to a PC before formatting.

Proceed as follows:

1. Cancel the formatting procedure by pressing "ESC".
2. Remove the memory card from the HMI device.
3. Save a backup copy of vital data to a PC.
4. Insert the memory card into the HMI device.
5. Format the memory card on the HMI device.

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Procedure

Proceed as follows:

1. Press the "BACKUP" button to open the "Select Storage Card" dialog.

   The --- no storage card available --- message appears if there is no external memory in the HMI device or if this memory is defective. Insert an external memory or a different one.

2. Select the external memory for backup from the "Please select a Storage Card" selection field.

3. Click on the "Start Backup" button.

   The HMI device checks the external memory.

   If an external memory with a greater memory capacity is needed, a message is displayed. Acknowledge this message. Backup is aborted. Insert an external memory with a greater memory capacity and restart the backup process.

   If the "You may have an old backup on the storage card. Do you want to delete it?" message appears, there is already a backup on the external memory. If you do not want to overwrite the backup, press the "No" button. Otherwise, click on the "Yes" button.

   Several messages are displayed in sequence during the backup process:

   – "Saving registry data"

   – "Copy files"

   A progress bar shows the status of the backup process. When the backup process is completed, the following message is displayed:

   "The operation completed successfully."

4. Acknowledge this message.

   The dialog closes.

Result

The HMI device data is now saved on the external memory.

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6.3.12.2 Restoring from external storage device

Introduction

A restore operation deletes the old data from flash memory of the HMI device on confirmation. The data stored on the external memory is then copied to the internal flash memory.

Requirements

- The external memory holding the backed up data is inserted in the HMI device.
- You have opened the "Backup/Restore" dialog with the "Backup/Restore" icon.



NOTICE
Loss of data possible All data on the HMI device will be deleted during a restore operation. License keys are deleted after counter-inquiry. Back up the HMI device's data before restoring if required. **External memory with data backup** If several external memories with data backups are plugged in, the data cannot be restored. Remove the external memory with the data backups not needed.

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Procedure

Proceed as follows:

1. Select "RESTORE" to start restore.

   The HMI device checks the external memory.

   The HMI device issues messages in the following situations:

   – The external memory is not available or is defective:

     Acknowledge the displayed messages.

     The Control Panel is displayed again.

     Replace the external memory.

   – More than one external memory with valid backup is available:

     Remove all external memories with backups that are not needed.

     If necessary, you can check the available external memories using the "REFRESH" button.

2. If necessary, start the restore process with the "RESTORE" button.

   The data to be restored is checked.

   When the check is complete, one of the following prompts is displayed:

   – "You are starting RESTORE now. All files (except files on storage cards) and the registry will be erased. Are you sure?"

     At this point you can cancel the restore using the "No" button to prevent the data on the HMI device from being deleted.

   – You are now starting RESTORE. All files on the panel and the licenses listed below as well as the registry will be erased. Are you sure?

     This query is displayed when license keys are available both on the HMI device and in the backup data. If necessary, cancel the restore process with the "No" button and first back up the HMI device's license keys. For more information, refer to the section "Transferring and transferring back license keys (Page 225)".

   – Then restart the restore process.

3. Start to restore the data by selecting "Yes".

   A progress bar shows the status of the restoration of the Windows CE image.

4. After successful restoration of the Windows CE image, the following message is displayed: "Restore of CE Image is finished. The device will be rebooted now. Don`t remove the storage card."

   Acknowledge this message.

5. The HMI device starts. The operating system boots, opening the Loader and Restore dialog in sequence.

6. The restore process is resumed. All data stored on the flash file system is restored. Afterwards the following message is displayed: "Restore succesfully finished. Press ok, remove your storage card and reboot your device."

7. Remove the external memory.

8. Acknowledge this message.

   The HMI device starts.

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Result

The data from the external memory is now on the HMI device.

Note

Calibrating the touch screen

After the reset, you may have to recalibrate the touch screen.

6.3.13 Setting the uninterruptible power supply

Introduction

UPS monitoring is an option you load as an add-on with ProSave.

A UPS ensures that the HMI device is shut down in a controlled manner after a buffer time in the event of a power failure. This avoids the loss of data.

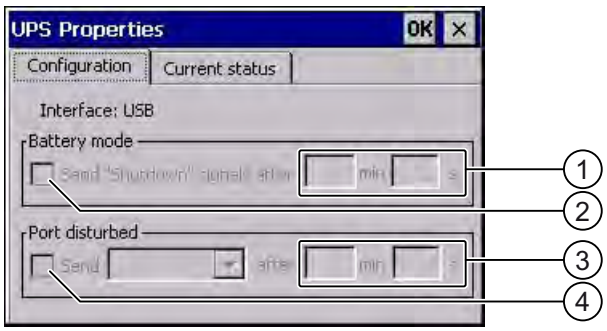
The following uninterruptible power supplies are supported:

- SITOP DC UPS modules as of a rated power value of 6 A, e.g. 6EP1931-2DC42

Connect the UPS to the 24-V input and a USB port. Configure the USB port for UPS monitoring.

Requirements

You have opened the "UPS Properties", dialog "Configuration" tab with the "UPS" icon.



① Text box for the time after which the "Battery mode activated" message is displayed
② Check box for enabling battery mode
③ Text box for the time after which the "Faulty port" message is displayed
④ Check box for the "Faulty port" message

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Procedure for setting the UPS

Proceed as follows:

1. Activate the "Battery mode" check box to enable battery mode.
2. Delete the entries in the "min" and "s" input fields.

   You will receive a message when UPS takes effect.

   If battery mode is enabled, the applications on the HMI device are closed after the specified interval.
3. If the port to which the UPS is connected is faulty and you therefore want to receive a message, activate the "Port disturbed" check box.
4. Select the desired message from the selection list.
5. Enter the time after which the "Faulty port" message is displayed in the "min" and "s" input fields.

Result

Port monitoring for the UPS is set.

Procedure for displaying the USP status

To display the monitoring status of the USP, switch to the "Current Status" tab. If you want to refresh the display, press the "Update" button.

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Commissioning a project

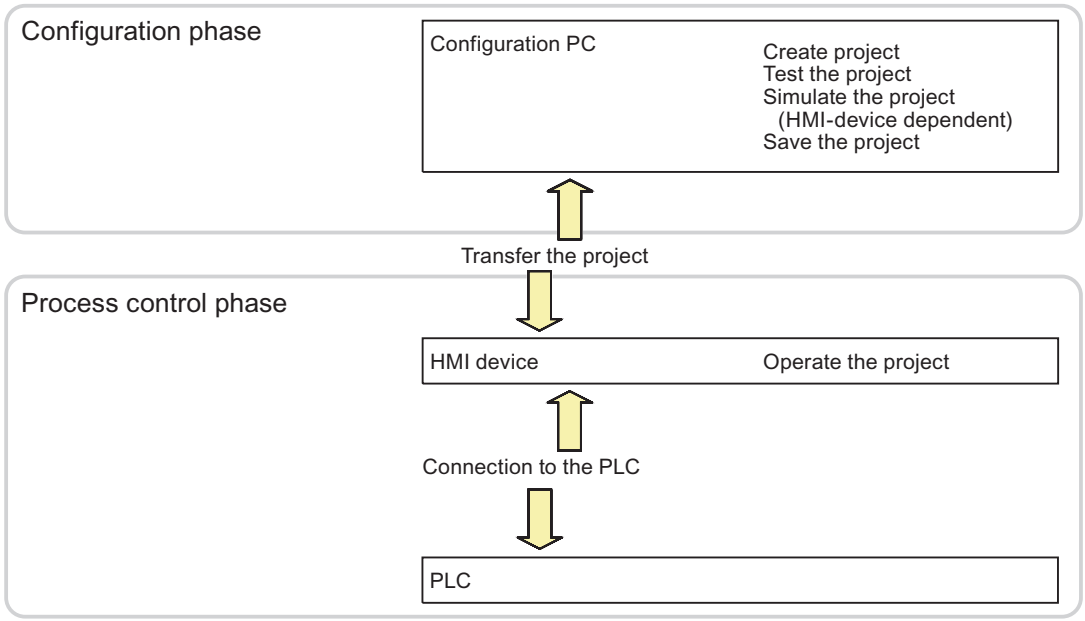
7

7.1 Overview

Configuration and Process Control Phases

HMI devices can be used to operate and monitor tasks in process and production automation. The plant screens on the HMI devices are used to provide a clearer overview of active processes. The HMI device project, which includes the plant screens, is created during the configuration phase.

Once the project is transferred to the HMI device and the HMI device is connected to a PLC in the automation system, processes can be operated and monitored in the process control phase.



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Transferring the project to the HMI device

To transfer a project to an HMI device, the following procedures can be selected:

- Transfer from the configuration PC
- Restore from a PC using ProSave

  In this case, an archived project is transferred from a PC to the HMI device. The configuration software need not be installed on this PC.
- On the TP 177B and OP 177B: Restoring from an external storage device

These procedures can be selected both during the initial startup as well as in the recommissioning of a project.

Initial startup and recommissioning

- When the HMI device is initially started up there is no project at first.

  The HMI device is also in this state after the operating system has been updated.
- When recommissioning, any project already on the HMI device is replaced.

See also

Transfer (Page 198)

Backup and Restore using WinCC flexible (Page 204)

Backup and Restore using ProSave (Page 206)

Backup and Restore Using a Memory Card (Page 105)

Restoring from external storage device (Page 188)

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7.1.1 Setting the Operating Mode

Operating Modes

Operating modes of the HMI device:

- Offline
- Online
- Transfer

"Offline mode" and "Online mode" can be set on the configuration computer and on the HMI device. To set these modes on the HMI device, use a corresponding operator control object of the project.

Switching the Operating Mode

The configuration engineer must have configured an appropriate operator control object to allow a change of the operating mode on the HMI device during ongoing operation.

Refer to your plant documentation to find any additional information on this topic.

"Offline" Operating Mode

In this mode, there is no communication between the HMI device and PLC. Although the HMI device can be operated, it cannot exchange data with the PLC.

"Online" Operating Mode

In this mode, the HMI device and PLC communicate. You can operate the plant on the HMI device according to your system configuration.

"Transfer" Operating Mode

In this mode, you can transfer a project from the configuration computer to the HMI device or backup and restore HMI device data, for example.

The following options are available for setting "Transfer" mode on the HMI device:

- When the HMI device starts up

  Start "Transfer" mode manually in the HMI device Loader.

- During ongoing operation

  Start the "Transfer" mode manually within the project using an operator control object. The HMI device toggles to "Transfer" mode when automatic mode is set and a transfer is initiated on the configuring PC.

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7.1.2 Reusing Existing Projects

You can reuse existing projects from the following HMI devices:

- Projects from TP 170A on the TP 177A or TP 177B
- Projects from TP 170B on the TP 177B
- Projects from OP 17 on the OP 177B
- Projects from OP 170B on the OP 177B
- Projects for the OP 77B for the TP 177B 4"
- Projects for the TP 177B 6" for the TP 177B 4"

The following cases are possible:

1. A project created with ProTool is available.

   Migrate the project to WinCC flexible and then switch the HMI device.

2. A project created with WinCC flexible is available.

   Switch the HMI device in WinCC flexible.

   If you switch to TP 177B 4", the available images will automatically adapt to the broader screen on the HMI device.

For more information, please see the online help for WinCC flexible or the "WinCC flexible Migration" user manual.

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7.1.3 Data Transmission Options

Overview

The table below shows the channels for data transfer between TP 177A, TP 177B or OP 177B and a configuration computer.

Type	Data channel	TP 177A	TP 177B 6", OP 177B	TP 177B 4"
Backup	Serial	Yes	Yes	Yes
	MPI/PROFIBUS DP	Yes	Yes	Yes
	USB [3]	–	Yes	Yes
	PROFINET [4]	–	Yes	Yes
	Serial	Yes	Yes	Yes
Restoring	Serial, with reset to factory setting	Yes [1] / No [2]	No	No
	Serial	Yes	Yes	Yes
	MPI/PROFIBUS DP	Yes	Yes	Yes
	USB [3]	–	Yes	Yes
	PROFINET [4]	–	Yes	Yes
Updating the operating system	Serial, with reset to factory setting	Yes	Yes	No
	Serial	Yes	Yes	Yes
	MPI/PROFIBUS DP	Yes	Yes	Yes
	USB [3]	–	Yes	Yes
	PROFINET [4]	–	Yes	Yes
	PROFINET [4], with restore to factory setting	–	No	Yes
Transferring a project	Serial	Yes	Yes	Yes
	MPI/PROFIBUS DP	Yes	Yes	Yes
	USB [3]	–	Yes	Yes
	PROFINET [4]	–	Yes	Yes
Install or remove option [3]	Serial	–	Yes	Yes
	MPI/PROFIBUS DP	–	Yes	Yes
	USB [3]	–	Yes	Yes
	PROFINET [4]	–	Yes	Yes
Transferring license keys and uploading license keys [3]	Serial	–	Yes	Yes
	MPI/PROFIBUS DP	–	Yes	Yes
	USB [3]	–	Yes	Yes
	PROFINET [4]	–	Yes	Yes

1) Applies to complete restoring
2) Applies to restoring the password list
3) Applies to TP 177B 6" DP, TP 177B 4" PN/DP, TP 177B 6" PN/DP, OP 177B DP, and OP 177B PN/DP when using a USB master-master cable.

   You will find more information about transferring via USB on the Internet at "http://support.automation.siemens.com/WW/view/en/19142034."
4) Applies to TP 177B 4" PN/DP, TP 177B 6" PN/DP, and OP 177B PN/DP

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Serial data transmission with the TP 177A

You can use one of the following adapters for serial transmission between TP 177A and a configuration PC:

- RS 232/PPI cable MM Multimaster
- USB/PPI cable MM Multimaster (as of manufacturer version 05 of the cable)

Serial data transmission with TP 177B and OP 177B

Use a PC / PPI cable, order number 6ES7 901-3CB30-0XA0, for serial transmission between TP 177B or OP 177B and a configuration PC .

Resetting to factory settings via USB with TP 177B 6" and OP 177B

You can only use the USB/PPI cable MM Multimaster adapter (as of manufacturer version 05) if you have updated the operating system with reset to factory setting in stand-alone mode via ProSave.

7.2 Transfer

7.2.1 Overview

Transfer

During transfer, the project is downloaded from the configuration computer to the HMI device.

The "Transfer" mode can be started manually or automatically on the HMI device.

Transferred data is written directly to the flash memory on the HMI device. The transfer function uses a data channel you need to configure before you initiate any transfers.

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7.2.2 Starting Manual Transfer

Introduction

You can manually switch the HMI device to "Transfer" mode as follows:

- With a configured operating element during ongoing operation.
- In the Loader of the HMI device.

Requirements

- The project "*.hmi" is opened in WinCC flexible.
- The HMI device is connected to a configuring PC.
- The data channel is configured on the HMI device.
- The HMI device is in "Transfer" mode.

Procedure

Proceed as follows:

1. On the configuring PC, select the "Transfer settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Select devices for transfer" dialog opens.
2. Select the HMI device in the left area of the dialog.
3. Select the type of connection between the HMI device and the configuring PC.

   Set the connection parameters.
4. Set the transfer parameters in the right area of the dialog.
5. Start transfer in WinCC flexible with "Transfer".

   The configuring PC checks the connection to the HMI device. The project is transferred to the HMI device. If the connection is not available or is defective, an error message is displayed on the configuring PC.

Result

When the transfer is completed successfully, the project can be found on the HMI device. The transferred project is then started automatically.

See also

Configuring the data channel (Page 172)

Setting the Operating Mode (Page 195)

Data Transmission Options (Page 197)

Overview (Page 198)

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7.2.3 Starting Automatic Transfer

Introduction

The HMI device can be automatically switched to "Transfer" mode during runtime as soon as transfer is started on the configuring PC connected.

Automatic transfer is particularly suited for the test phase of a new project since transfer is completed without interfering with the HMI device.

Automatic transfer is available for the following data channels:

HMI device	Serial	MPI/PROFIBUS DP	USB	PROFINET
TP 177A	No	Yes	-	-
TP 177B, OP 177B	Yes	Yes	Yes	Yes

NOTICE

If the automatic transfer has been activated on the HMI device and a transfer is initiated on the configuring PC, the project currently running is automatically stopped. The HMI device then automatically switches to "Transfer" mode.

After the commissioning phase, deactivate the automatic transfer so that the HMI device cannot be inadvertently switched to transfer mode. The transfer mode can trigger unintentional actions in the device.

You can set a password for the Loader of the HMI device to restrict access to the transfer settings and thus avoid unauthorized modifications.

Requirements

- The project *.hmi is opened in WinCC flexible.
- The HMI device is connected to a configuring PC.
- The data channel is configured on the HMI device.
- The automatic transfer is activated in the data channel for the transfer.
- The project is started on the HMI device.

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Procedure

Proceed as follows:

1. On the configuring PC, select the "Transfer settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Select devices for transfer" dialog opens.
2. Select the HMI device in the left area of the dialog.
3. Select the type of connection between the HMI device and the configuring PC.

   Set the connection parameters.
4. Set the transfer parameters in the right area of the dialog.
5. Start transfer in WinCC flexible with "Transfer".

   The configuring PC checks the connection to the HMI device. The HMI device shuts down the current project and automatically switches to "Transfer" mode. The project is transferred to the HMI device. If the connection is not available or is defective, an error message is displayed on the configuring PC.

Result

When the transfer is completed successfully, the project can be found on the HMI device. The transferred project is then started automatically.

See also

Configuring the data channel (Page 172)

Setting the Operating Mode (Page 195)

Data Transmission Options (Page 197)

Overview (Page 198)

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7.2.4 Testing a Project

Introduction

There are two options to test a project:

- Test the project on the configuring PC

  You can test a project at a configuring PC, using a simulator. For detailed information, refer to the "WinCC flexible" user manual and to the WinCC flexible Online Help.

- Offline testing of the project on the HMI device

  Offline testing means that communication between the HMI device and PLC is down while the test is being carried out.

- Online testing of the project on the HMI device

  Online testing means that the HMI device and PLC communicate with each other during testing.

Perform the tests, starting with the "Offline test", followed by the "Online test".

Note

You should always test the project on the HMI device on which the project will be used.

Check the following:

1. Check the correct layout of the screens.
2. Check the screen navigation.
3. Check the input objects.
4. Enter the tag values.

The test increases the certainty that the project will run error-free on the HMI device.

Requirements for offline testing

- The project has been transferred to the HMI device.
- The HMI device is in "Offline" mode.

Procedure

In "Offline" mode, you can test individual project functions on the HMI device without them being affected by the PLC. PLC tags, therefore, are not updated.

Test the operating elements and visualization of the project as far as possible without connecting to the PLC.

Requirements for online testing

- The project has been transferred to the HMI device.
- The HMI device is in "Online" mode.

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Procedure

In "Online" mode, you can test individual project functions on the HMI device without them being affected by the PLC. PLC tags are updated in this case.

You have the option to test all communication-dependent functions, for example alarms, etc.

Test the operating elements and views of the project.

See also

Setting the Operating Mode (Page 195)

7.3 Backup and Restore

7.3.1 Overview

Backup and restoring

You can back up and restore the following data found in the internal flash memory of the HMI device with a PC:

- Project and HMI device image
- User administration
- Recipe data
- License keys

Use one of the following tools for backup and restoring:

- WinCC flexible
- ProSave

General information

NOTICE
Power failure If a complete restore operation is interrupted due to power failure on the HMI device, the operating system of the HMI device may be deleted! In this case, you have to reset the HMI device to its factory settings. **Compatibility conflict** If a message is output on the HMI device warning of a compatibility conflict during the restore operation, the operating system must be updated.

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7.3.2 Backup and Restore using WinCC flexible

Requirements

- The HMI device is connected to a configuring PC.
- No project is open in WinCC flexible.
- The data channel is configured on the HMI device.

Procedure for backup

Proceed as follows:

1. On the configuring PC, select the "Communication settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Communication Settings" dialog opens.
2. Select the type of HMI device.
3. Select the type of connection between the HMI device and the configuring PC.

   Set the connection parameters.
4. Close the dialog with "OK".
5. Select the "Backup" command in the menu "Project > Transfer" in WinCC flexible.

   The "SIMATIC ProSave [Backup]" dialog opens.
6. Select the data to be backed up.
7. Select a destination folder and a file name for the "*.psb" backup file.
8. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the HMI device automatically sets "Transfer" mode when a backup is initiated.
9. Start the backup operation in WinCC flexible with "Start Backup" on the configuration PC.

   Follow the instructions in WinCC flexible.

   A status view opens to indicate the progress of the operation.

Result

The system outputs a message when the backup is completed.

The relevant data is now backed up on the configuration PC.

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Procedure for restoring

Proceed as follows:

1. On the configuring PC, select the "Communication settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Communication Settings" dialog opens.
2. Select the type of HMI device.
3. Select the type of connection between the HMI device and the configuring PC.
4. Set the connection parameters.
5. Close the dialog with "OK".
6. Select the "Restore" command in the menu "Project > Transfer" in WinCC flexible.

   The "SIMATIC ProSave [Restore]" dialog opens.
7. Select the "*.psb" backup file to be restored from the "Open" field.

   You can see the HMI device for which the backup file was created and the type of backup data the file contains.
8. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when a restore operation is initiated.
9. Start the restore operation in WinCC flexible with "Start Restore" on the configuration PC.

   If there are license keys both on the HMI device and in the backup, a dialog box will appear. Use this dialog to establish whether you want to overwrite the license keys or abort the restore process.

   – If necessary, abort the backup and first back up the License Keys of the HMI device. For more information, refer to the section "Transferring and transferring back license keys (Page 225)".

   – Then restart the restore process.
10. Follow the instructions in WinCC flexible.

    A status view opens to indicate the progress of the operation.

Result

When the restore is successfully completed, the data backed up on the configuring PC is now on the HMI device.

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7.3.3 Backup and Restore using ProSave

Requirement

- The HMI device is connected to a PC on which ProSave is installed.
- The data channel is configured on the HMI device.

Procedure for backup

Proceed as follows:

1. From the Windows Start menu, start ProSave on the PC.
2. Select the HMI device type in the "General" tab.
3. Select the type of connection between the HMI device and the PC.

   Set the connection parameters.
4. Select the data to be backed up in the "Backup" tab.
5. Select the folder and file name for the backup file "*.psb."
   If you are working with the TP 177A with WinCC flexible 2008 or higher and backup recipes in CSV format, then select a folder. A CSV file is created for each recipe in this folder.
6. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the HMI device automatically sets "Transfer" mode when a backup is initiated.
7. Start the backup operation in ProSave with "Start Backup".

   Follow the instructions in ProSave.

   A status view opens to indicate the progress of the operation.

Result

The system outputs a message when the backup is completed.

The relevant data is now backed up on the PC.

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Procedure for restoring

Proceed as follows:

1. From the Windows Start menu, start ProSave on the PC.
2. Select the HMI device type in the "General" tab.
3. Select the type of connection between the HMI device and the PC.
4. Set the connection parameters.
5. Select the "*.psb" backup file to be restored from the "Restore" tab.

   You will receive information for which HMI device the backup file was created and which type of backup data are available in the file.
   If you are working on a TP 177A with WinCC flexible 2008 or higher and want to restore recipes in CSV format, then select one or more CSV files from the source directory.
6. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when a restore operation is initiated.
7. Start the restore operation in ProSave on the PC with "Start Restore".

   If there are license keys both on the HMI device and in the backup, a dialog box will appear. Use this dialog to establish whether you want to overwrite the license keys or abort the restore process.

   – If necessary, abort the backup and first back up the License Keys of the HMI device. For more information, refer to the section "Transferring and transferring back license keys (Page 225)".
   – Then restart the restore process.
8. Follow the instructions in ProSave.

   A status view opens to indicate the progress of the operation.

Result

When the restore is successfully completed, the data backed up on the PC is now on the HMI device.

Procedure for restoring by resetting to factory settings on the TP 177A

On the TP 177A, when restoring data you can also reset the HMI device to factory settings.

Proceed as follows:

1. Switch off power to the HMI device.
2. Execute steps 1 through 5 as described in "Procedure for restoring".
3. Select the "Bootstrap" check box.
4. Execute steps 7 through 8 as described under "Procedure for restoring".
5. Switch on the power supply of the HMI device.

Result

When the restore is successfully completed, the data backed up on the PC is now on the HMI device.

The HMI device is reset to factory settings.

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7.4 Updating operating systems on the TP 177A, TP 177B 6" and OP 177B

7.4.1 Overview

Updating the operating system

A compatibility conflict may occur when transferring a project to the HMI device. This is caused by different versions of the configuration software used and the HMI device image available on the HMI device. If there are different versions, the transfer is aborted.
A message indicating a compatibility conflict is displayed on the configuring PC.

There are two ways to match the versions:

- Update the HMI device image if the project was created with the most recent version of the configuration software.
- Transfer a matching older version of the HMI device image if you do not want to adapt the project to the most recent version of the configuration software for the project.

NOTICE
Data loss All data on the HMI device, such as the projects and passwords, will be deleted when you update the operating system. **Data channels** An operating system update resets all parameters for the data channels. The transfer can only be started in the Loader following reconfiguration of the data channels.

Note

Calibrating the touch screen

After updating, you may have to re-calibrate the touch screen.

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7.4.2 Resetting to factory settings

Resetting to factory settings

In ProSave or WinCC flexible, you can update the operating system with or without resetting to factory settings, depending on the HMI device used.

- Updating the operating system without reset to factory setting

  First, set "Transfer" mode on the HMI device or use the automatic transfer function if the project is active. Then start the operating system update in ProSave or WinCC flexible.

- Updating the operating system with reset to factory setting

  First, start the operating system update in ProSave or WinCC flexible. Then switch the power on the HMI device off and on again.

Note

Updating the operating system by resetting to factory settings must be carried out in the following cases:

- No operating system is loaded on the HMI device.
- The operating system of the HMI device is damaged.

Point-to-point coupling with a PC / PPI cable is necessary in order to update the operating system with reset to factory settings.

In ProSave or WinCC flexible, set the "Reset to factory state" check box status according to your selected operating system update mode.

7.4.3 Updating the operating system with WinCC flexible

Requirements

- The HMI device is connected to a configuring PC.
- No project is open in WinCC flexible.
- When updating the operating system without reset to factory setting only:

  The data channel is configured on the HMI device.

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Procedure

Proceed as follows:

1. When updating the operating system with reset to factory setting only:

   Switch off power to the HMI device.
2. On the configuration PC, select the "Communication settings" command in the menu "Project > Transfer" in WinCC flexible. The dialog "Communication settings" opens.
3. Select the type of HMI device.
4. Select the type of connection between the HMI device and the configuration PC, then set the connection parameters.
5. Close the dialog with "OK".
6. In WinCC flexible, select the command "OS Update" in the "Project > Transfer" menu.
7. Select whether to update the operating system with / without resetting to factory settings by setting the "Reset to factory settings" check box accordingly.
8. In "Image path", select the HMI device image file "*.img".

   The HMI device image files are available under "WinCC flexible Images" in the WinCC flexible installation folder or on the WinCC flexible installation CD.

   In the output area, you are provided information on the version of the HMI device image file after it is opened.
9. When updating without reset to factory setting only:

   Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when an update is initiated.
10. In WinCC flexible, select "Update OS" on the configuration PC to run the operating system update.
11. When updating with reset to factory setting only:

    Switch on the power supply to the HMI device.
12. Follow the instructions in WinCC flexible.

    During the operating system update a status view opens to indicate progress.

Result

A message is displayed when the operating system update is successfully completed.

This operation has deleted the project data from the HMI device.

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7.4.4 Updating the operating system with ProSave

Requirement

- The HMI device is connected to a PC on which ProSave is installed.
- When updating the operating system without reset to factory setting:

  The data channel is configured on the HMI device.

Procedure

Proceed as follows:

1. When updating the operating system with reset to factory setting:

   Switch off power to the HMI device.
2. From the Windows Start menu, start ProSave on the PC.
3. Select the HMI device type in the "General" tab.
4. Select the type of connection between the HMI device and the PC, then set the connection parameters.
5. Select the "OS Update" tab.
6. Select whether to update the operating system with / without resetting to factory settings by setting the "Reset to factory settings" check box accordingly.
7. In "Image path", select the HMI device image file "*.img".

   The HMI device image files are available under "WinCC flexible Images" in the WinCC flexible installation folder or on the WinCC flexible installation CD.

   In the output area, you are provided information on the version of the HMI device image file after it is opened.
8. When updating without reset to factory setting:

   Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when an update is initiated.
9. Select "Update OS" on the PC to run the operating system update.
10. When updating with reset to factory setting only:

    Switch on the power supply to the HMI device.
11. Follow the instructions in ProSave.

    During the operating system update a status view opens to indicate progress.

Result

A message is displayed when the operating system update is successfully completed.

This operation has deleted the project data from the HMI device.

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7.5 Updating the operating system on the TP 177B 4"

7.5.1 Overview

Updating the operating system

A compatibility conflict may occur when transferring a project to the HMI device. This is caused by different versions of the configuration software used and the HMI device image available on the HMI device. If there are different versions, the transfer is aborted.
A message indicating a compatibility conflict is displayed on the configuring PC.

There are two ways to match the versions:

- Update the HMI device image if the project was created with the most recent version of the configuration software.
- Transfer a matching version of the HMI device image if you do not want to adapt the project for the HMI device to the most recent version of the configuration software for the project.

NOTICE
Data loss All data on the HMI device, such as the project and passwords, will be deleted when you update the operating system.

Note

Calibrating the touch screen

After updating, you may have to re-calibrate the touch screen.

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7.5.2 Resetting factory settings

In ProSave or WinCC flexible, you can update the operating system with or without resetting to the factory setting.

- Updating the operating system without resetting to factory settings

  First, switch into "Transfer" mode on the HMI device or use the automatic transfer function if the project is active. Then start the operating system update in ProSave or WinCC flexible.

- Updating the operating system with resetting to factory settings

Note

Updating the operating system by resetting to factory settings must be carried out in the following cases:

- No operating system is loaded on the HMI device.
- The operating system of the HMI device is damaged.

NOTICE

Loss of license keys

The license keys on the HMI device will be deleted when resetting to factory settings. The license keys on the HMI device will be retained when updating the operating system without resetting to factory settings.

NOTICE

Data channels

When resetting to factory settings, all data channel parameters are reset. The transfer can only be started following reconfiguration of the data channels.

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7.5.3 Updating the operating system using WinCC flexible

Requirements

- No project is open on the configuring PC in WinCC flexible.
- The HMI device is connected to this configuring PC.
- The data channel is configured on the HMI device.

Procedure

Proceed as follows:

1. On the configuring PC, select the "Communication settings" command from the "Projekt > Transfer" menu in WinCC flexible.

   The "Communication Settings" dialog opens.
2. Select the type of HMI device.
3. Select the type of connection between the HMI device and the configuring PC.
4. Set the connection parameters.
5. Close the dialog with "OK".
6. In WinCC flexible, select the command "OS Update" from the "Projekt > Transfer" menu.
7. In "Image path", select the HMI device image file "*.img".

   The HMI device image files are available under "WinCC flexible Images" in the WinCC flexible installation folder or on the WinCC flexible installation CD.

   In the output area, you are provided information on the version of the HMI device image file after it is opened.
8. Switch into "Transfer" mode on the HMI device.

   If you have activated automatic transfer mode for the HMI device, the device automatically switches to "Transfer" mode when an update is initiated.
9. In WinCC flexible, select "Update OS" on the configuring PC to run the operating system update.
10. Follow the instructions in WinCC flexible.

    During the operating system update a status view opens to indicate progress.

Result

A message is displayed when the operating system update is successfully completed.

This operation has deleted the project data from the HMI device.

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7.5.4 Updating the operating system using ProSave

Requirements

- The HMI device is connected to a PC on which ProSave is installed.
- The data channel is configured on the HMI device.

Procedure

Proceed as follows:

1. From the Windows Start menu, start ProSave on the PC.
2. Select the HMI device type in the "General" tab.
3. Select the type of connection between the HMI device and the PC.
4. Set the connection parameters.
5. Select the "OS Update" tab.
6. In "Image path", select the HMI device image file "*.img".

   The HMI device image files are available under "WinCC flexible Images" in the WinCC flexible installation folder or on the WinCC flexible installation CD.

   In the output area, you are provided information on the version of the HMI device image file after it is opened.
7. Switch into "Transfer" mode on the HMI device.

   If you have activated automatic transfer mode for the HMI device, the device automatically switches to "Transfer" mode when an update is initiated.
8. Select "Update OS" n the PC to run the operating system update.
9. Follow the instructions in ProSave.

   During the operating system update a status view opens to indicate progress.

Result

A message is displayed when the operating system update is successfully completed.

This operation has deleted the project data from the HMI device.

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7.5.5 Resetting to factory settings with WinCC flexible

Requirements

- No project is open on the configuring PC in WinCC flexible.
- The HMI device is connected to this configuration PC over the standard Ethernet cable.
- Have the MAC address of the Ethernet interface on your HMI device to hand.
  - The MAC address is displayed briefly when the HMI device is turned on.
  - The MAC address is displayed in the "PROFINET" dialog in the Control Panel.

Procedure - Setting the PC interface

1. Select "Start > Control Panel > Set PG / PC interface" on the configuration PC.
2. Select "S7ONLINE (STEP7) -> TCP / IP" from the "Application access point" area.
3. Select the interface which is connected to the HMI device from the "Interface parameterization used" area.
4. Confirm your entries.

Procedure - Restoring factory settings

Proceed as follows:

1. On the configuring PC, select the "Communication settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Communication Settings" dialog opens.
2. Select the HMI device type from the "General" tab, and select "Ethernet" from the "Connection" area.
3. Enter an IP address.

Note

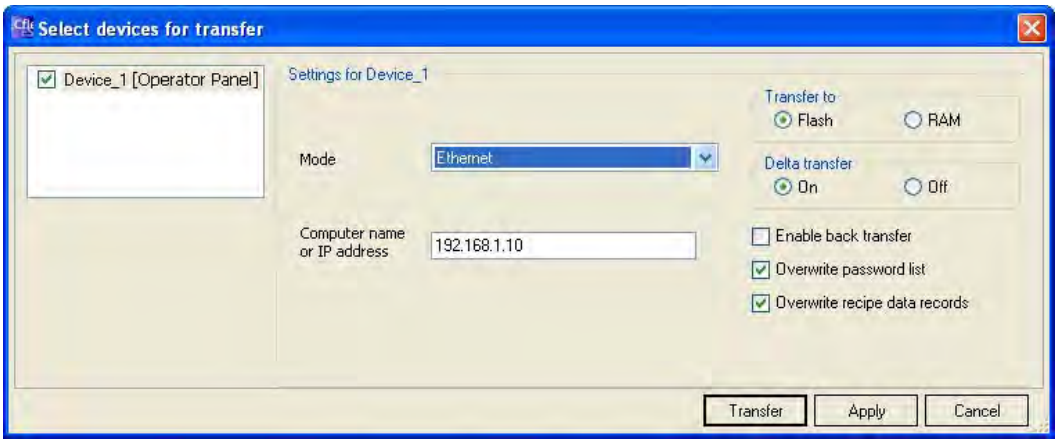
Possible address conflicts with incorrect IP address

Do not use a dynamic IP configuration for "Reset to factory settings".

Specify a unique IP address in which the configuration PC is located. For the duration of the update process, the HMI device is automatically assigned to the specified address.

If the HMI device has already been used with WinCC flexible or ProSave you can use the existing IP address for "Reset to factory settings."

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4. Confirm your entries.
5. In WinCC flexible, select the command "Update OS" in the "Project > Transfer" menu.
6. Activate the "Reset to factory settings" check box.

   A text box opens where you can enter the MAC address.
7. Enter the HMI device's MAC address in the text box.
8. In "Image path", select the HMI device image file "*.img".

   The HMI device image files are available under "WinCC flexible Images" in the WinCC flexible installation folder or on the WinCC flexible installation CD.

   In the output area, you are provided information on the version of the HMI device image file after it is opened.
9. In WinCC flexible, select "Update OS" on the configuring PC to run the operating system update.
10. In the Control Panel of the HMI device, open the "OP Properties" dialog and select the "Device" tab.
11. Click on the "Reboot" button.

    A query is opened.
12. Click on the "Prepare for Reset" button.
13. On the configuration PC, follow the instructions in WinCC flexible.

    During the operating system update a status view opens to indicate progress.

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Result

A message is displayed when the operating system update is successfully completed.

This operation has deleted the project data from the HMI device. The factory settings are reset.

Note

If you can no longer call the Control Panel on the HMI device, as the operating system is missing, switch off the HMI device. Then reset to factory settings and restart the HMI device.

If the HMI device doesn´t start up, switch it off and then on again.

Note

Calibrating the touch screen

After the reset, you may have to recalibrate the touch screen.

7.5.6 Resetting to factory settings with ProSave

Requirement

- The HMI device is connected over the Ethernet to a PC on which ProSave is installed.
- Have the MAC address of the Ethernet interface on your HMI device to hand.
  - The MAC address is displayed briefly when the HMI device is turned on.
  - The MAC address is displayed in the "PROFINET" dialog in the Control Panel.

Procedure - Setting the PC interface

1. Select "Start > Control Panel > Set PG / PC interface" on the configuration PC.
2. Select "S7ONLINE (STEP7) -> TCP / IP" from the "Application access point" area.
3. Select the interface which is connected to the HMI device from the "Interface parameterization used" area.
4. Confirm your entries.

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Procedure - Restoring factory settings

Proceed as follows:

1. From the Windows Start menu, start ProSave on the PC.
2. Select the HMI device type from the "General" tab, and select "Ethernet" from the Connection area.
3. Enter an IP address.

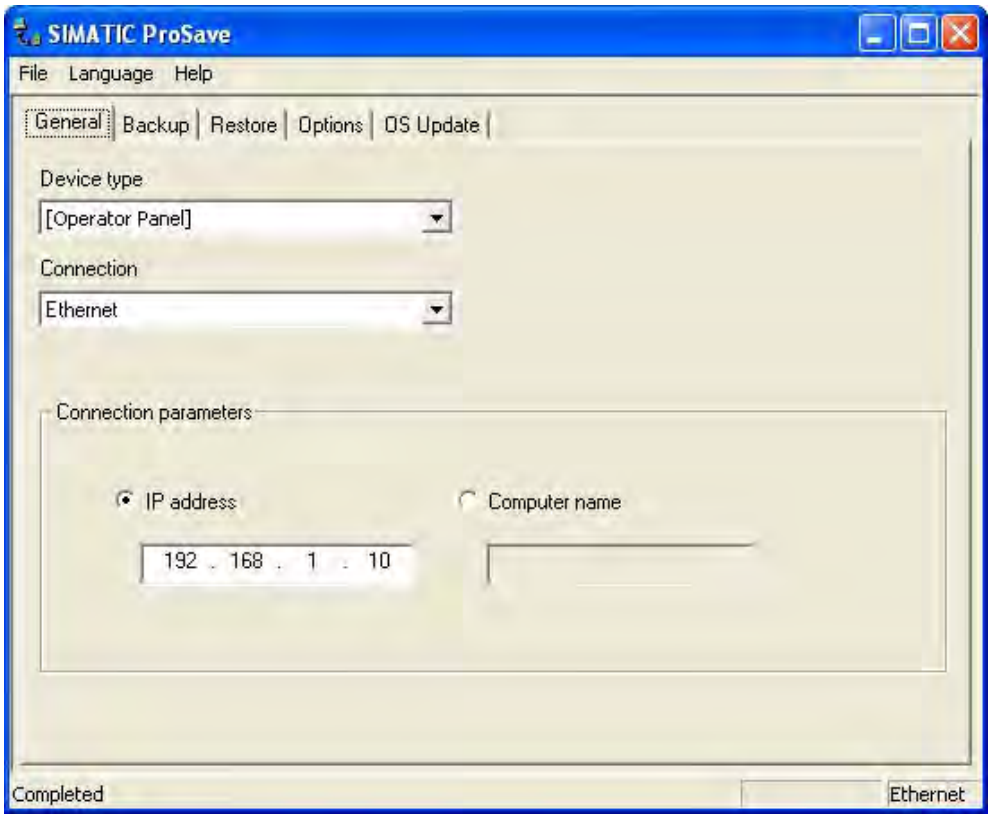
Note

Possible address conflicts with incorrect IP address

Do not use a dynamic IP configuration for "Reset to factory settings".

Specify a unique IP address of the subnet in which the configuration PC is located. For the duration of the update process, the HMI device is automatically assigned to the specified address of ProSave.

If the HMI device has already been used with WinCC flexible or ProSave you can use the existing IP address for "Reset to factory settings."



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4. Change to the "OS Update" tab.
5. Activate the "Reset to factory settings" check box.

   A text box opens where you can enter the MAC address.
6. Enter the HMI device's MAC address in the text box.
7. In "Image path", select the HMI device image file "*.img".

   The HMI device image files are available under "WinCC flexible Images" in the WinCC flexible installation folder or on the WinCC flexible installation CD.

   In the output area, you are provided information on the version of the HMI device image file after it is opened.
8. Select "Update OS" on the PC to start the "Reset to factory settings" process.
9. In the Control Panel of the HMI device, open the "OP Properties" dialog and select the "Device" tab.
10. Click on the "Reboot" button.

    A query is opened.
11. Click on the "Prepare for Reset" button.
12. Follow the instructions in ProSave.

    During the operating system update a status view opens to indicate progress.

Result

A message is displayed when the operating system update is successfully completed.

This operation has deleted the project data from the HMI device. The factory settings are reset.

Note

If you can no longer call the Control Panel on the HMI device, as the operating system is missing, switch off the HMI device. Then reset to factory settings and restart the HMI device.

If the HMI device doesn´t start up, switch it off and then on again.

Note

Calibrating the touch screen

After the reset, you may have to recalibrate the touch screen.

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7.6 Installing and Removing Options

7.6.1 Overview

Options

You can install options on for the HMI device, for example, additional programs developed especially for the HMI device.

You can also remove options from the HMI device.

Note

A license key may be need to run an option. The license key unlocks the option for use.

7.6.2 Installing and Removing Options using WinCC flexible

Requirements

- The HMI device is connected to a configuring PC.
- No project is open in WinCC flexible.
- The data channel is configured on the HMI device.

Procedure for installing an option

Proceed as follows:

1. On the configuring PC, select the "Communication settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Communication Settings" dialog opens.
2. Select the type of HMI device.
3. Select the type of connection between the HMI device and the configuring PC, then set the connection parameters.
4. Close the dialog with "OK".
5. Select the "Options" command in the menu "Project > Transfer" in WinCC flexible.
6. Select the desired option under "Available options".
7. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when the installation of an option is initiated.
8. Start the installation of the option in WinCC flexible on the configuring PC with the ">>" button.

   Follow the instructions in WinCC flexible.

   A status display appears indicating the progress of the installation.

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Result

The option has now been installed on the HMI device.

Procedure for removing an option

Proceed as follows:

1. On the configuring PC, select the "Communication settings" command in the menu "Project > Transfer" in WinCC flexible.

   The "Communication Settings" dialog opens.
2. Select the type of HMI device.
3. Select the type of connection between the HMI device and the configuring PC, then set the connection parameters.
4. Close the dialog with "OK".
5. Select the "Options" command in the menu "Project > Transfer" in WinCC flexible.
6. Select the desired option under "Installed options".
7. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when the removal of an option is initiated.
8. Start the removal of the option in WinCC flexible on the configuring PC with the "<<" button.

   Follow the instructions in WinCC flexible.

   A status display appears indicating the progress of the removal.

Result

The option has now been removed on the HMI device.

See also

Configuring the data channel (Page 172)

Setting the Operating Mode (Page 195)

Data Transmission Options (Page 197)

Overview (Page 221)

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7.6.3 Installing and removing options using ProSave

Requirements

- The HMI device is connected to a PC on which ProSave is installed.
- The data channel is configured on the HMI device.

Procedure for installing an option

Proceed as follows:

1. From the Windows Start menu, start ProSave on the PC.
2. Select the HMI device type in the "General" tab.
3. Select the type of connection between the HMI device and the PC.
4. Set the connection parameters.
5. Select the "Options" tab.
6. Select the desired option under "Available options".
7. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when the installation of an option is initiated.
8. Start the installation of the option in ProSave with the ">>" button.
9. Follow the instructions in ProSave.

   A status display appears indicating the progress of the installation.

Result

The option has now been installed on the HMI device.

Procedure for removing an option

Proceed as follows:

1. From the Windows Start menu, start ProSave on the PC.
2. Select the HMI device type in the "General" tab.
3. Select the type of connection between the HMI device and the PC.
4. Set the connection parameters.
5. Select the "Options" tab.
6. Press the "Device status" button to update the display.
7. Select the desired option under "Installed options".
8. Set "Transfer" mode on the HMI device.

   If automatic transfer mode is enabled on the HMI device, the device automatically sets "Transfer" mode when the removal of an option is initiated.
9. Start the removal of the option in ProSave with the "<<" button.

   Follow the instructions in ProSave.

   A status display appears indicating the progress of the removal.

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Result

The option has now been removed on the HMI device.

See also

Configuring the data channel (Page 172)
Setting the Operating Mode (Page 195)
Data Transmission Options (Page 197)
Overview (Page 221)

7.7 Transfering License Keys and Transfering Them Back

7.7.1 Overview

Transferring and transferring back license keys

With the purchase of an optional package, you obtain a specific user license with an associated license key. Once you have installed an option, transfer a license key to the HMI device. The license key unlocks an option for use.

You can also transfer back the license key from the HMI device to the storage location.

Note

You only transfer License Keys with the Automation License Manager or WinCC flexible.

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7.7.2 Transferring and transferring back license keys

Requirements

- When transferring or transferring back using WinCC flexible:

  No project is open on the configuring PC in WinCC flexible.
- The HMI device is connected to this configuring PC.
- The data channel is configured on the HMI device.
- The storage location and the license key awaiting transfer are ready.

Procedure for transferring a license key

Proceed as follows:

1. Switch to "Transfer" mode on the HMI device.
2. When transferring using WinCC flexible:

   Select the "License Keys" command in the menu "Project > Transfer".
   The Automation License Manager opens.

   When transferring using the Automation License Manager:

   Start the Automation License Manager via the Windows Start menu.
3. In the Automation License Manager, select the command "Connect HMI device" in the menu "Edit > Connect target system".

   The "Connect Target System" dialog opens.
4. Under "Device Type", select the appropriate HMI device type.
5. Select the type of connection from the "Connection" box.
6. Set the connection parameters.
7. Select "OK".

   The connection to the HMI device is established. The connected HMI device is displayed in the left window of the Automation License Manager.
8. In the left window, select the source drive.

   The right window displays the available license keys.
9. Drag one or more license keys from the right window and drop them on the HMI device in the left window.

   The license keys are then transferred to the HMI device.

Result

The license key is transferred from the storage location to the HMI device.

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Procedure for transferring a license key back

Proceed as follows:

1. Switch to "Transfer" mode on the HMI device.
2. When transferring back using WinCC flexible:

   Select the "License Keys" command in the menu "Project > Transfer".
   The Automation License Manager opens.

   When transferring back using the Automation License Manager:

   Start the Automation License Manager via the Windows Start menu.
3. In the Automation License Manager, select the command "Connect HMI device" in the menu "Edit > Connect target system".

   The "Connect Target System" dialog opens.
4. Under "Device Type", select the appropriate HMI device type.
5. Select the type of connection from the "Connection" box.
6. Set the connection parameters.
7. Select "OK".

   The connection to the HMI device is established. The connected HMI device is displayed in the left window of the Automation License Manager.
8. In the left window, select the HMI device.

   The right window displays the available license keys.
9. Drag one or more license keys from the right window and drop them on the destination drive in the left window.

   The license keys are transferred back to the storage location.

Result

The license key is transferred back from the HMI device to the storage location.

See also

Overview (Page 224)

Configuring the data channel (Page 172)

Setting the Operating Mode (Page 195)

Data Transmission Options (Page 197)

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Operating a Project

8

8.1 Operating a Project on the TP 177A

8.1.1 Overview

Using Operator Controls on the Touch Screen

Operator controls are touch-sensitive objects on the HMI screen such as buttons, I/O fields and alarm windows. Touch objects are basically operated in the same way as mechanical keys. You activate operator controls by touching them with your finger.

Some operations with the project may require in-depth knowledge about the specific plant on the part of the operator. It is therefore important to take special care, for example, in displaying typing. Further information on this may be available in your plant documentation.

⚠ CAUTION
Always touch only one operator control on the screen. Never touch more than one operator control at a time, otherwise you may trigger unintentional actions.

CAUTION
Do not use any pointed or sharp objects when operating the touch screen as this may damage the plastic membrane of the touch screen.

Operation Feedback

The HMI provides optical feedback when it detects that an operator control has been touched. This feedback is independent of any communication with the PLC. Therefore, this feedback does not indicate whether the relevant action is actually executed or not.

The configuration engineer may also have configured the feedback function in a different manner. Further information on this may be available in your plant documentation.

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Optical Operation Feedback

The type of optical feedback depends on the operator control object:

- Buttons

  The HMI outputs different views of the "Touched" and "Untouched" states, provided the configuration engineer has configured a 3D effect:

  – "Touched" state:

  – "Untouched" state:

  The configuration engineer defines the appearance of a selected field, for example, its line width and color for the focus.

- Invisible buttons

  The focus for invisible buttons is not identified after selection by default. No optical operation feedback is provided in this case.

  The configuration engineer may, however, configure invisible buttons so that their outline appears as lines when touched. This outline remains visible until the you select another operator control object.

- I/O fields

  After you touch an IO field, a screen keyboard appears as optical operation feedback.

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8.1.2 Setting the Project Language

Introduction

The HMI device supports multilingual projects. You need to configure a corresponding operator control object which lets you change the language setting on the HMI device during runtime.

The project always starts with the language set in the previous session.

Requirements

- The relevant project language must be available on the HMI device.
- The language switching function must be logically linked to a configured operator control object such as a button.

Selecting a Language

You can change project languages at any time. Language-specific objects are immediately output to the screen in the relevant language when you switch languages.

The following options are available for switching the language:

1. A configured operator control object switches from one project language to the next in a list.
2. A configured operator control directly sets the desired project language.

Further information on this may be available in your plant documentation.

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8.1.3 Entries and Help within a Project

8.1.3.1 Overview

Procedure

Values are entered in the project input fields. The values are transferred from the input fields to the PLC.

Proceed as follows:

1. Touch the input field required on the screen.

   The screen keyboard opens.

   Based on your configuration, you can enter the following type of values in the input field:

   – Numerical
   – Alphanumerical
   – Symbolic
   – Date/time
2. Set the value.
3. Confirm the entry.

Screen keyboard

When you touch an input object such as an IO field on the HMI touch screen, a screen keyboard appears. This screen keyboard is also displayed when it is necessary to enter a password to access protected functions. The keyboard is automatically hidden again when input is complete.

Based on the configuration of the input object, the system opens a screen keyboard for entering numerical, alphanumerical or symbolic values.

Note

The screen keyboard display is independent of the configured project language.

Numerical values

You can enter numerical values character-by-character using the numerical screen keyboard

Formats for Numerical Values

You can enter values in numerical input fields based on the following formats:

- Decimal
- Hexadecimal
- Binary

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Limit Value Test of Numerical Values

Variables can be assigned limit values. The current limit values are indicated in the numerical screen keyboard. If an Alarm window has been configured, a system message is automatically output to indicate any violation of the configured input value limits.
For example, 80 exceeds the configured limit value of 78. The entered value entered is rejected. The original value is displayed again.

Decimal places for numerical values

If a numerical input field is configured for a specific number of decimal points, decimal places in excess of the limit are ignored. Empty decimal places are filled with "0" after the number is confirmed.

Alphanumerical values

Alphanumerical values (numbers and letters) can be entered character-by-character using the alphanumerical screen keyboard.

Symbolic values

Symbolic values are entered from a list of predefined entries using the symbolic screen keyboard.

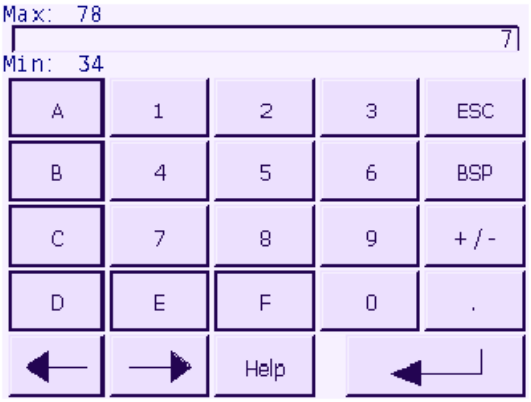
Date and time

You can enter date/time values character-by-character using the alphanumerical screen keyboard

8.1.3.2 Entering and Editing Numerical Values

Numerical screen keyboard

When you touch an IO field on the HMI touch screen, the numerical screen keyboard appears. The screen keyboard is automatically hidden again when input is complete.



The display of the screen keyboard with a vertical mounting of the HMI device slightly differentiates from the figure above.

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Procedure

Numerical and hexadecimal values can be entered character-by-character via the buttons on the numerical screen keyboard.

Proceed as follows:

1. Touch the required input field on the screen.

   The numerical screen keyboard opens and the existing value is displayed in the screen keyboard.

2. Enter the value.

   You can only operate the keys that are displayed in the 3D view. The operation of the keys depends on the nature of the values that are entered.

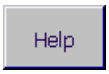
   You have the following options to enter a value:

   – The existing value is deleted when you enter the first character. Completely reenter the value.

   – Use the  and  keys to move the cursor within the current value. You can now edit or add to the characters of the current value.

     Use the  key to delete the character to the left of the cursor.

   – Change the sign of the value using the  key.

   – Select the  key to view the infotext of the IO field.

     This button is only enabled if infotext has been configured for the IO field or for the screen which contains the IO field.

3. Use the  key to confirm your entry or cancel it with . Either action closes the screen keyboard.

Note

Numerical I/O fields can be assigned limit values. The entered values are only accepted if they lie within these limits. Values outside of the configured limits are not accepted. A system alarm is then triggered on the HMI device.

When the screen keyboard appears, the high and low limit values are indicated if configured.

Result

You have changed the numerical value or entered a new one.

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8.1.3.3 Entering and Editing Alphanumerical Values

Alphanumerical Screen Keyboard

When you touch an IO field on the HMI touch screen, the alphanumerical screen keyboard appears. The keyboard is automatically hidden again when input is complete.

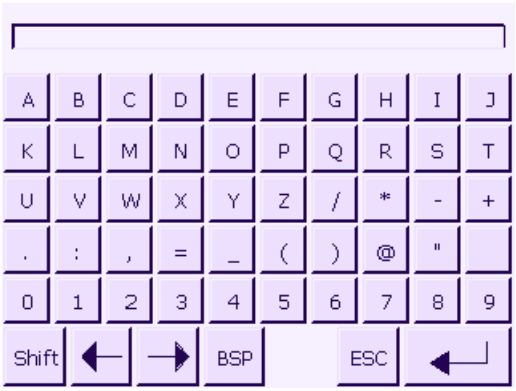


Figure 8-1 Alphanumerical screen keyboard, normal level

The layout of the screen keyboard for a vertically mounted HMI device differs slightly from that shown in the figure above.

Keyboard Levels

The alphanumerical keyboard is organized on several levels:

- Normal level
- Shift level

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Procedure

You can enter alphanumerical values character-by-character using the alphanumerical screen keyboard.

Proceed as follows:

1. Touch the relevant IO field on the screen.

   The alphanumerical screen keyboard opens and displays the current value.

2. Set the value.

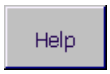
   The following options for entering values are available:

   – The current value is deleted when you enter the first character. Enter the value again.

   – Use the  and  keys to move the cursor within the current value. You can now edit the characters of the current value or add characters.

     Use the  key to delete the character to the left of the cursor.

   – You can quickly switch between screen keyboard level using he  key. When you toggle the level, the key labels on the screen keyboard change.

   – Select  to view the infotext of the IO field.

     This button is only enabled if infotext has been configured for the IO field or for the screen which contains the IO field.

3. Select  to confirm your entries or cancel them with . Both actions close the screen keyboard.

Result

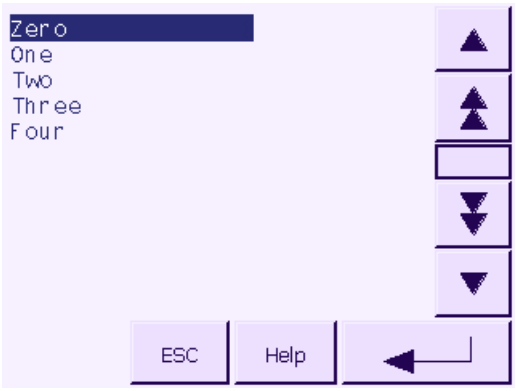
You have changed the alphanumerical value or entered a new one.

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8.1.3.4 Entering and Editing Symbolic Values

Symbolic Screen Keyboard

When you touch a symbolic IO field on the HMI touch screen, the symbolic screen keyboard appears. The screen keyboard is automatically hidden again when input is complete.



The display of the screen keyboard with a vertical mounting of the HMI device slightly differentiates from the figure above.

Procedure

Enter the symbolic values using the symbolic screen keyboard.

Proceed as follows:

1. Touch the required symbolic IO field on the screen.

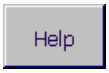
   The symbolic screen keyboard opens and the existing value is displayed in the screen keyboard.

2. Select an item from the selection list.

   You have the following options to enter a value:

   – Set the cursor directly on the entry in the selection list, by touching the entry.

   – Move the cursor to an entry in the selection list using the , ,  or  keys.

   – Select the  key to view the infotext of the symbolic IO field.

   This button is only enabled if infotext has been configured for the symbolic IO field or for the screen which contains the IO field.

3. Use the  key to confirm your entry or cancel it with . Either action closes the screen keyboard.

Result

You have changed the symbolic value or entered a new one.

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8.1.3.5 Entering and Modifying the Date and Time

Entering the Date and Time

Enter the date and time in the same way you enter alphanumerical values.

Note

When entering the date and time, please note that the format is determined by the configured project language.

See also

Entering and Editing Alphanumerical Values (Page 233)

Setting the Project Language (Page 229)

8.1.3.6 Viewing infotext

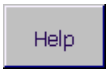
Purpose

The configuration engineer uses infotext to provide additional information and operating instructions with respect to screens and operable screen objects.

Infotext can provide information on the value to be entered in an IO field, for example.



Infotext for Input Objects

Touch the 

key on the screen keyboard. This key is only enabled if infotext or the current screen has been configured for the input object.

Note

Switching between displayed infotext

If infotext has been configured for an IO field and a screen, touching the infotext window toggles between the two.

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Infotext for the Current Screen

Infotext can also be configured for screens. The infotext for the current screen is called up or by the screen keyboard or by an operator control object assigned to this function.

Refer to your plant documentation to find any additional information on this topic.

Closing the Infotext

Close the infotext with ×.

8.1.4 Project security

8.1.4.1 Overview

Overview

The configuration engineer can protect the operation of a project by implementing a security system.

The security system of the HMI device is based on permissions, user groups and users.

If operator control objects protected by a password are operated, the HMI device requests the entry of a password. A logon screen is displayed in which you enter your user name and password. After logging in, you can operate the operator control objects for which you have the necessary permissions.

The logon dialog can be set up by the configuration engineer via an individual operator control object.

In the same way, the configuration engineer can set up an operator control object to log off. After logging off, objects assigned password protection can no longer be operated; to do so, log in again.

Additional information on this may be available in your plant documentation.

User groups and permissions

Project-specific user groups are created by the configuration engineer. The "Administrators" group is included in all projects by default. User groups are assigned permissions.
The permission required for an operation is specifically defined for each individual object and function in the project.

The operating permissions can be saved with the "Backup" function.

Users

Each user is assigned to exactly one user group.

Users can be created as follows:

- By the configuration engineer during configuration
- By the administrator on the HMI device
- By a user with user management permission on the HMI device

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Logoff times

A logoff time is configured in the system for each user. If the time between any two user actions, e.g, entering a value or changing screens, exceeds this logoff time, the user is automatically logged off. The user must then log in again to continue to operate objects assigned password protection.

Passwords

If an administrator or a user with administrator permission is logged on, all users on the HMI device are displayed in the User view.

If a user without user management permission is logged on, only the personal user entry is displayed.

The permissions of a user after logging in depends on the user group to the user is assigned. Additional information on this may be available in your plant documentation.

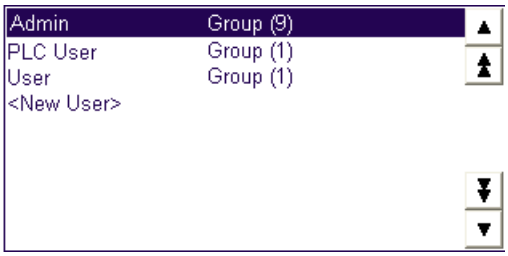
The user data is encrypted and saved on the HMI device to protect it from loss due to power failure.

Note

Depending on the transfer settings, changes to the user data are overwritten when the project is transferred again.

User view

Use the User view to display the users on the HMI device.



If an administrator or a user with administrator permission is logged on, all users on the HMI device are displayed in the User view. If a user without user management permission is logged on, only the personal user entry is displayed.

The group to which each user is assigned is displayed next to the user names.

As administrator or user with user management permission, you can also add new users. Use the "<New User>" entry.

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Backup and Restore

The users, passwords, group assignments and logoff times set up on the HMI device can be backed up and restored. This prevents you having to enter all of the data again on another HMI device.

NOTICE
During a restore, the currently valid user data is overwritten. The restored user data and passwords are valid immediately.

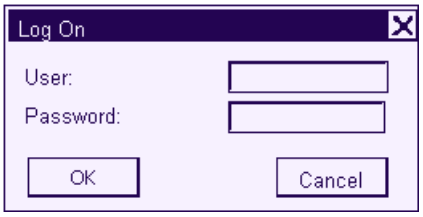
Limits for User, Password and User View

	Number of characters
Length of user name, maximum	40
Length of password, minimum	3
Length of password, maximum	24
Entries in user view, maximum	50

8.1.4.2 User logon

Requirements

Use the logon dialog to log into the security system of the HMI device. Enter user name and password in the logon dialog.



You have the following options for displaying the logon dialog:

- Touch the operator control object with password protection.
- Touch an operator control object that was configured for displaying the logon dialog.
- Double-click on the "<ENTER>" entry in the User view.
- At the beginning of the project, the logon dialog will be automatically displayed in certain circumstances.

Further information on this may be available in your plant documentation.

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Procedure

Proceed as follows:

1. Enter the user name and password.

   Touch the corresponding input field. The alphanumerical screen keyboard is displayed.
2. Touch the "OK" button.

Note

The user name is not case-sensitive.

The password is case-sensitive.

Result

After successful logon to the security system, you can execute password-protected functions on the HMI device for which you have permissions.

An error message is displayed if you enter the wrong password. In this case, no user is logged in to the project.

8.1.4.3 User logoff

Requirements

You have logged into the security system of the HMI device.

Procedure

You have the following options for logging off:

- When no operator actions occur and the logoff time has expired, the user is automatically logged off.
- Touching an operator control configured for logging off.

  Further information on this may be available in your plant documentation.

The current user is also logged off if an incorrect password is entered.

Result

The user is no longer logged into the project. In order to operate an operator control object with password protection, you must first log in again.

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8.1.4.4 Create user

Requirements

New users are created in the user view.

To display the user view, switch to the screen that contains the user view.

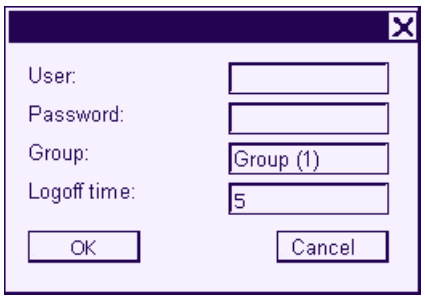
To add a new user, you must have user management permission.

Procedure

Proceed as follows:

1. Touch the "<New User>" entry in the user view.

   The following dialog appears:



2. Enter the desired user information.

   Touch the corresponding input field. The appropriate screen keyboard is displayed.

   – The password may not contain space characters or the special characters * ? . % / \ ' ".

   – For the logoff time, you can use values of 0 to 60 minutes. The value 0 stands for "no automatic logoff."

3. Touch the "OK" button.

Result

The new user is created.

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8.1.4.5 Changing user data

Requirements

Change user data in the user view.

To display the user view, switch to the screen that contains the user view.

The following options are available for the range of changes that can be made:

- The administrator or a user with user management permission can change the data for all users on the HMI device system in the user view.
  - User name
  - Group assignment
  - Password
  - Logoff time
- Users without user management permission can only change their own user data.
  - Password
  - Logoff time

Note

You can only change the logoff time and password for the "Admin" user.

You can only change the logoff time for the "PLC_User". This user entry is used for logging in via the PLC.

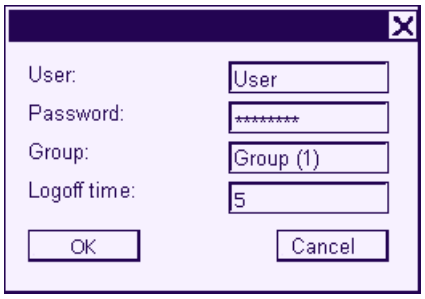
Procedure

This procedure describes changing user data by the administrator or a user with user management permission.

Proceed as follows:

1. In the user view, touch the user whose user data you want to change.

   The following dialog appears:



2. Change the desired user data.

   Touch the corresponding input field. The appropriate screen keyboard is displayed.

3. Touch the "OK" button.

Result

The user data for the user is changed.

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8.1.4.6 Deleting a user

Requirements

You delete users in the user view:

To display the user view, switch to the screen that contains the user view.

To delete a user, you must have user management permission.

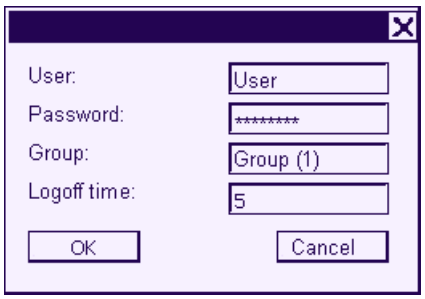
Note

The "Admin" and "PLC_User" users exist by default and cannot be deleted.

Procedure - Deleting a user

Proceed as follows:

1. Touch the user entry that you want to delete in the user view.
   The following dialog appears:



2. Touch the "User" input field.
   The alphanumerical screen keyboard is displayed.
3. Touch the 

button on the screen keyboard.
   The existing user name is deleted from the screen keyboard.
4. Touch the  button on the screen keyboard.
   The user name in the "User" input field is deleted.
5. Touch the "OK" button.

Result

The user is deleted.

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8.1.5 Closing the project

Procedure

Proceed as follows:

1. Use the corresponding operator control object to close the project.

   Wait for the Loader to open after you closed the project.
2. Switch off power to the HMI device.

8.1.6 Operating the Trend View

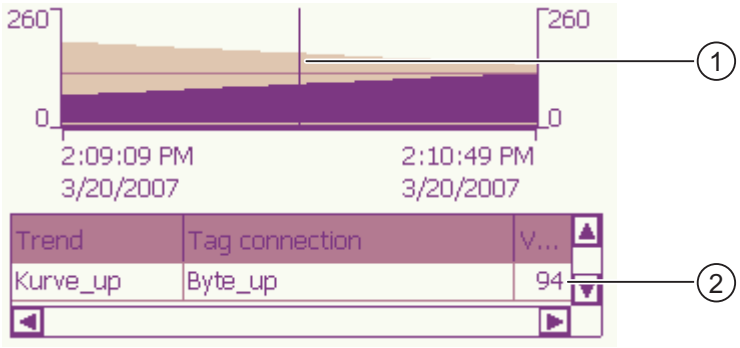
8.1.6.1 Overview

Trends

Trends continuously display the current process data.

Trend View

Trends are displayed in the Trend view. A Trend view can display up to four trends simultaneously. The figure below shows an example of a Trend view:



① Ruler
② Trend value in the value table

The appearance, axes, value range and labels of the Trend view can be set by the configuration engineer.

The configuration engineer can set limits for the trend values. A color transition can be configured when the limits are exceeded.

Additional information on this may be available in your plant documentation.

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Value Table

The trend values can be read from the value table, if this is configured.

Ruler

The exact trend values can be read from the ruler, if this is configured.

8.1.6.2 Operating the Trend View

Value Table

The trend values are displayed in the value table. When the ruler is displayed, the trend values are shown at a position of the ruler. When the ruler is hidden, the latest trend values are displayed.

Ruler

When configured, a ruler is available to provide an exact reading of the individual values.

The position of the ruler can be changed by touching and dragging it on the touch screen.

The configuration engineer can configure the following actions for operator controls outside the Trend display:

- Display or hide ruler
- Move ruler forward
- Move ruler backward

Further information on this may be available in your plant documentation.

Other Operator Actions

The configuration engineer can configure the following actions for operator controls outside the Trend display:

- Enlarge display of time intervals
- Reduce display of time intervals
- Scroll back by one display width
- Scroll forward by one display width
- Stop or resume trend recording

Further information on this may be available in your plant documentation.

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8.2 Operating a project on TP 177B and OP 177B

8.2.1 Overview

Using Operator Controls on the Touch Screen

Operator controls are touch-sensitive objects on the HMI screen such as buttons, I/O fields and alarm windows. Touch objects are basically operated in the same way as mechanical keys. You activate operator controls by touching them with your finger.

Some operations with the project may require in-depth knowledge about the specific plant on the part of the operator. It is therefore important to take special care, for example, in displaying typing. Further information on this may be available in your plant documentation.

⚠ CAUTION
Always touch only one operator control on the screen. Never touch more than one operator control at a time, otherwise you may trigger unintentional actions.

CAUTION
Do not use any pointed or sharp objects when operating the touch screen as this may damage the plastic membrane of the touch screen.

Locking operator controls

The HMI provides optical feedback when it detects that an operator control has been touched. This feedback is independent of any communication with the PLC. Therefore, this feedback does not indicate whether the relevant action is actually executed or not.

The configuration engineer may also have configured the feedback function in a different manner. Further information on this may be available in your plant documentation.

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Optical Feedback from Operator Controls

The type of optical feedback depends on the operator control object:

- Buttons

  The HMI outputs different views of the "Touched" and "Untouched" states, provided the configuration engineer has configured a 3D effect:

  – "Touched" state:

  – "Untouched" state:

  The configuration engineer defines the appearance of a selected field, for example, its line width and color for the focus.

- Invisible buttons

  The focus for invisible buttons is not identified after selection by default. No optical operation feedback is provided in this case.

  The configuration engineer may, however, configure invisible buttons so that their outline appears as lines when touched. This outline remains visible until the you select another operator control object.

- I/O fields

  After you touch an I/O field, a screen keyboard appears as optical operation feedback.

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8.2.2 Operating keys on the TP 177B 4" and OP 177B

Function keys with global function assignment

A function key with global function assignment always triggers the same action on the HMI device or in the PLC, regardless of the current screen. An example of such an action is the activation of a screen or the closing an alarm window.

Function keys with local function assignment

A function key with local function assignment is screen-specific and is therefore only effective within the active screen.

The function assigned to a function key can vary from screen to screen.

The function key of a screen can be assigned one function only, either a global or local one. The local assignment function takes priority over the global setting.

Function keys as system keys

Function keys can also be configured as system keys. For example, they can function as the numerical keypad, the cursor keypad or as a section of the alphanumerical keypad.

Multi-key operation

Unwanted actions may be triggered if the operator unintentionally actuates a key combination.

⚠ CAUTION

Unintentional actions

In "Online" mode, simultaneous operation of more than two keys may cause unintentional actions in the plant.

Do not press more than two keys simultaneously.

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8.2.3 Direct keys

Introduction

Direct keys on the HMI device are used to set bits in the I/O area of a SIMATIC S7.

Direct keys enable operations with short reaction times that are, for example, a jog mode requirement.

NOTICE
Direct keys are still active when the HMI device is in "offline" mode.

NOTICE
If you operate a function key with direct key functionality in a running project, the direct key function is always executed, independent of the current screen contents.

Note

You can only use direct keys when there is a connection via PROFIBUS DP or PROFINET IO.

Direct keys result in additional basic load on the HMI device.

Direct keys

The following objects can be configured as a direct key:

- Buttons
- On TP 177B 4" and OP 177B: Function keys

You can also define image numbers in the case of HMI devices with touch operation. In this way, you can configure the direct keys on an image-specific basis.

Further information on configuring direct keys can be found in the "WinCC flexible Communication" system manual.

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8.2.4 Setting the project language

Introduction

The HMI device supports multilingual projects. You need to configure a corresponding operator control object which lets you change the language setting on the HMI device during runtime.

The project always starts with the language set in the previous session.

Requirements

- The relevant project language must be available on the HMI device.
- The language changeover function must be logically linked to a configured operator control object such as a button.

Selecting a language

You can change project languages at any time. Language-specific objects are immediately output to the screen in the relevant language when you switch languages.

The following options are available for switching the language:

1. A configured operator control object switches from one project language to the next in a list.
2. A configured operator control directly sets the desired project language.

Further information on this may be available in your plant documentation.

8.2.5 Entries and help within a project

8.2.5.1 Overview

Screen keyboard

When you touch an operating element requiring entry on the HMI device touch screen, a screen keyboard appears. The screen keyboard is displayed in the following cases:

- An I/O field is selected for input.
- A password must be entered for accessing a password-protected function.

The screen keyboard is automatically hidden again when input is complete.

Based on the configuration of the operating element, the system displays different screen keyboards for entering numerical or alphanumerical values.

Note

The screen keyboard display is independent of the configured project language.

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General procedure

The operating elements of a screen are operated by touching the touch screen.

Proceed as follows:

1. Touch the desired operating element within the screen.
2. Depending on the operating element, perform further actions. Detailed descriptions can be found under the respective operating element.

   Examples:

   – I/O field: Enter numerical, alphanumerical or symbolic values in the I/O field.
   – Symbolic I/O field: Select an entry from the selection list.
   – Slider control: Move the slider control.

Procedure for text boxes

Values are entered in the project text boxes. Based on your configuration, the values are saved to tags and transferred, for example, to the PLC.

Proceed as follows:

1. Touch the desired text box within the screen.

   The screen keyboard opens.

   Depending on your configuration, you can enter values in the text box in the following manner:

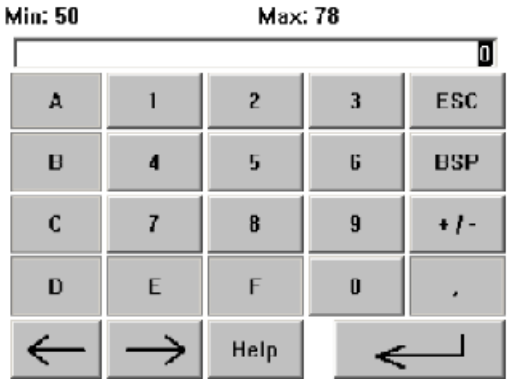
   – Numerical values, for example decimal numbers, hexadecimal numbers, binary values
   – Alphanumerical values, for example digits and letters
   – Date/time
2. Enter the value.
3. Confirm your entry with  or discard your entry with the button .

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8.2.5.2 Entering numerical values on the TP 177A, TP 177B and OP 177B

Numerical screen keyboard

When you touch an operating element for numerical input on the HMI-device touch screen, the numerical screen keyboard appears. This is the case, for example, for a text box. The screen keyboard is automatically hidden again when input is complete.



Note

Opened screen keyboard

When the screen keyboard is open, PLC job 51, "Select screen" has no function.

Formats for numerical values

You can enter values in numerical text boxes based on the following formats:

- Decimal
- Hexadecimal
- Binary

Limit value test of numerical values

Tags can be assigned limit values. The current limit values are indicated in the numerical screen keyboard. If you enter a value that lies outside of this limit, it will not be accepted, for example, 80 with a limit value of 78. In this case the HMI device will deliver a system alarm, if an alarm window is configured. The original value is displayed again.

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Decimal places for numerical values

The configuration engineer can define the number of decimal places for a numerical text box. The number of decimal places is checked when you enter a value in this type of I/O field.

- Decimal places in excess of the limit are ignored.
- Empty decimal places are filled with "0."

Procedure

Numerical and hexadecimal values can be entered character-by-character via the buttons on the numerical screen keyboard.

Proceed as follows:

1. Touch the desired operating element within the screen.

   The numerical screen keyboard opens. The existing value is displayed in the screen keyboard and is selected.

2. Enter the value.

   You can only operate keys that are required for entering values. The keys with letters cannot be used, for example, for entering a decimal value. Which keys can be operated can be seen from the appearance of the keys.

   You have the following options to enter a value:

   – The selected value is deleted when you enter the first character. Completely reenter the value.

   – Use the ← and → keys to move the cursor within the current value. You can now edit or add to the characters of the current value.

     Use the BSP key to delete the character to the left of the cursor. If the value is selected, use this key to delete the selected part of the value.

   – Change the sign of the value using the +/- key.

   – Use the Help key to display the infotext of the I/O field.

     This button is only enabled if infotext has been configured for the input object or the current screen.

3. Use the ↵ key to confirm your entry or cancel it with ESC. Either action closes the screen keyboard.

Result

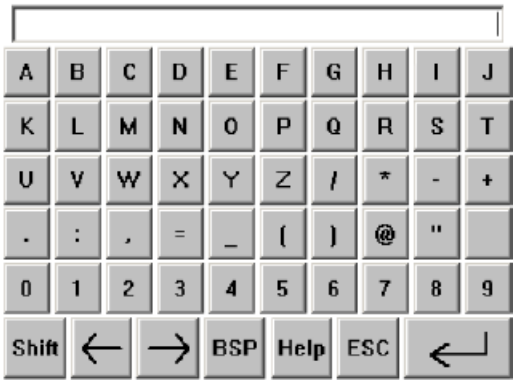
You have changed the numerical value or entered a new one.

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8.2.5.3 Entering alphanumerical values on the TP 177A, TP 177B 6" and OP 177B

Alphanumerical screen keyboard

When you touch an operating element for numerical input on the HMI-device touch screen, the alphanumerical screen keyboard appears. This is the case, for example, for an input field or a date / time field. The screen keyboard is automatically hidden again when input is complete. The figure below shows the normal level of the alphanumerical screen keyboard.



Note

Opened screen keyboard

When the screen keyboard is open, PLC job 51, "Select screen" has no function.

Language change

Language change in the project has no influence on the alphanumerical screen keyboard. The entry of Cyrillic or Asian characters is therefore not possible.

Keyboard levels

The alphanumerical screen keyboard has various levels:

- Normal level
- Shift level

If you change the levels with key Shift, the key assignments change.

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Procedure

Alphanumerical values can be entered character-by-character via the buttons on the alphanumerical screen keyboard.

Proceed as follows:

1. Touch the desired operating element within the screen.

   The alphanumerical screen keyboard opens. The existing value is displayed in the screen keyboard and is selected.

2. Enter the value.

   You have the following options to enter a value:

   – The selected value is deleted when you enter the first character. Completely reenter the value.

   – Use the ← and → keys to move the cursor within the current value. You can now edit or add to the characters of the current value.

   Use the BSP key to delete the character to the left of the cursor. If the value is selected, use this key to delete the selected part of the value.

   – Using key Shift it is possible to switch between the keyboard levels of the screen keyboard. On switchover, the key assignments of the screen keyboard change.

   – Use the Help key to display the infotext of the I/O field.

   This button is only enabled if infotext has been configured for the input object or the current screen.

3. Use the ↵ key to confirm your entry or cancel it with ESC. Either action closes the screen keyboard.

Result

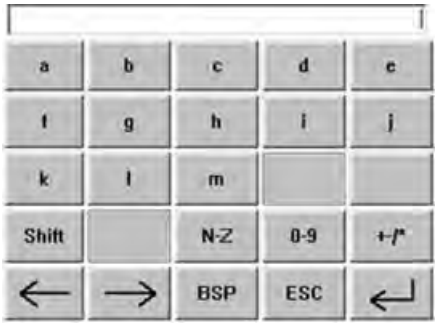
You have changed the alphanumerical value or entered a new one.

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8.2.5.4 Entering alphanumerical values on the TP 177B 4"

Screen keyboard

When you touch an operating element on the HMI-device touch screen, the screen keyboard appears. This is the case, for example, for an input field or a date / time field. The screen keyboard is automatically hidden again when input is complete.



Note

Opened screen keyboard

When the screen keyboard is open, PLC job 51, "Select screen" has no function.

Language change

Language change in the project has no influence on the alphanumerical screen keyboard. The entry of Cyrillic or Asian characters is therefore not possible.

Keyboard levels

All the keys on the screen keyboard are divided over several levels. Using the keys in the fourth row of the keyboard you can toggle between levels whilst inputting. The following table shows the levels of the screen keyboard and the associated calls:

Name	Available keys	Call
Normal level a to m	Lowercase letters from a to m	A-M
Shift level A to M	Uppercase letters from A to M	A-M + Shift
Normal level n to z	Lowercase letters from n to z	N-Z
Shift level N to Z	Uppercase letters from N to Z	N-Z + Shift
Normal level 0 to 9	Digits from 0 to 9	0-9
Normal level +-/*	Special characters	+-/*
Shift level +-/*	Special characters	+-/* + Shift

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Procedure

The required values can be entered character by character using the screen keyboard buttons.

Proceed as follows:

1. Touch the desired operating element within the screen.

   The screen keyboard opens. The existing value is displayed in the screen keyboard and is selected.

2. Enter the value.

   You have the following options to enter a value:

   – The selected value is deleted when you enter the first character. Completely reenter the value.

   – Use the ← and → keys to move the cursor within the current value. You can now edit or add to the characters of the current value.

   Use the BSP key to delete the character to the left of the cursor. If the value is selected, use this key to delete the selected part of the value.

   – Using keys A-M, N-Z, 0-9, +-/* and Shift it is possible to switch between the levels of the screen keyboard. On switchover, the key assignments change.

3. Use the ↵ key to confirm your entry or cancel it with ESC. Either action closes the screen keyboard.

Result

You have changed the value or entered a new one.

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8.2.5.5 Entering and editing symbolic values

Selection list

When you touch a symbolic IO field on the HMI touch screen, a selection list appears.



Procedure

Proceed as follows:

1. Touch the required symbolic IO field.

   The selection list of the symbolic IO field is displayed. You can scroll through the selection list with the and buttons.

2. Select an entry in the selection list.

   Touch an entry to select it. This is then taken by the controller.

Result

You have changed the symbolic value or entered a new one.

8.2.5.6 Entering the Date and Time

Entering the date and time

Enter the date and time in the same way you enter alphanumerical values.

Note

When entering the date and time, please note that the format is determined by the configured project language.

See also

Setting the project language (Page 250)

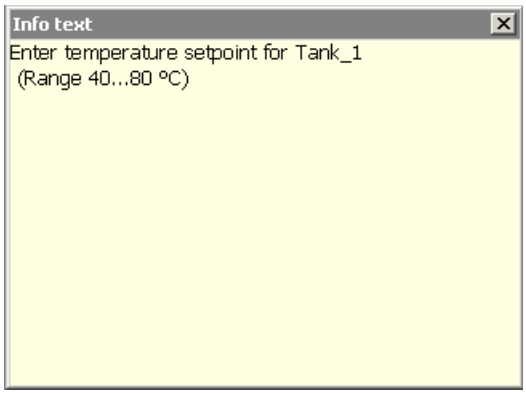
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8.2.5.7 Viewing Infotext

Purpose

The configuration engineer uses infotext to provide additional information and operating instructions with respect to screens and operable screen objects.

Infotext can provide information on the value to be entered in an IO field, for example.



Infotext for Input Objects

Touch the Help key on the screen keyboard. This key is only enabled if infotext or the current screen has been configured for the input object.

Note

Switching between displayed infotexts

If infotext has been configured for an IO field and a screen, touching the infotext window toggles between the two.

Infotext for Other Operator Controls

Infotext can also be configured for operator controls, such as buttons. The infotext of the selected operator control can be displayed by pressing a configured function key.

Refer to your plant documentation to find any additional information on this topic.

Infotext for the Current Screen

Infotext can also be configured for screens. The infotext for the current screen is called up or by the screen keyboard or by an operator control object assigned to this function.

Refer to your plant documentation to find any additional information on this topic.

Closing the Infotext

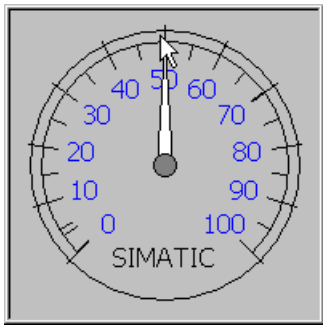
Close the infotext with ×.

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8.2.6 Operating a Gauge

Introduction

The gauge displays analog numerical values using a pointer. The operator at the HMI device can thus see at a glance, for example, that the boiler pressure is in the normal range.



Appearance

The appearance of the gauge depends on the configuration.

- A trailing pointer can display the maximum value reached so far on the scale. The trailing pointer is reset when the screen is reloaded.
- The label on the scale can show the measured variable, e.g. boiler pressure, and the physical unit, e.g. bar.

Operation

The gauge is for display only and cannot be controlled by the operator.

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8.2.7 Using Switches

Introduction

The switches described in the following have two circuit states. Each circuit state is assigned a fixed value. When you operate the switch, it changes to the opposite circuit state and thereby activates the configured value.

Switches can contain sliders, texts or graphics for a specific project.

Procedure - Switch with Slider

Proceed as follows:

Move the slider on the touch screen of the HMI device to the other position or double-click the slider area.



① Slider

Result

The slider is now in the other position. The assigned value is activated.

Procedure for a slider with text or graphic

Proceed as follows:

Touch the switch on the touch screen of the HMI device.



Result

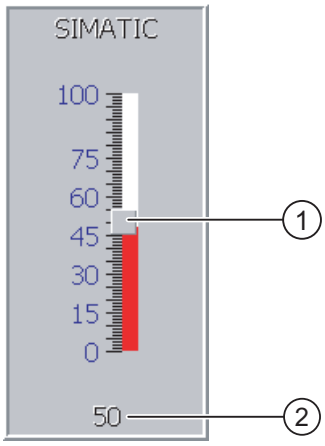
The switch changes its appearance. The associated value is switched.

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8.2.8 Using a Slider

Introduction

With the slider control you can change and monitor process values within a defined range. The slider control can also be configured without a slider. No value is entered in this case. The slider control servers only to display values.



① Slider control for entering values
② Value display with current value

Appearance

You can configure the appearance and the elements of the slider control. The slider control can contain a label and a setting range, for example. The current value can be configured to appear below the area of the slider control.

Procedure

Proceed as follows:

1. Touch the slider.
2. Move the slider to the required value.

   If a value display has been configured, you can check the exact value that has been set.
3. Release the slider.

   The set value is applied.

Result

The assigned value has been changed.

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8.2.9 Using the Status Force Display

Use

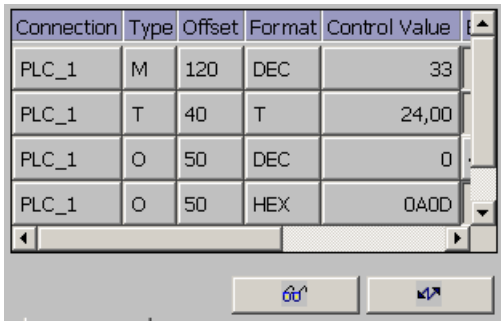
You read or write access values of the connected controller directly in the status force view. The status force view allows you to carry out operations such as monitoring or modifying the addresses of the controller program, without the need of an online connection via PC or PG.

Note

The status force view can only be used in combination with SIMATIC S5 or SIMATIC S7 controllers.

Appearance

The figure shows the general layout of the status force view. A value can be monitored and controlled on every line.



The configuration engineer specifies which columns appear in the status force view. The table shows the significance of the potential columns.

Column	Function
"Connection"	The PLC of which the address ranges are to be displayed
"Type", "DB Number", "Offset", "Bit"	The address range of the value
"Data type", "Format"	The data type of the value
"Status value"	The value read from the specified address
"Control value"	The value to be written to the specified address

Change column sequence

You change the column sequence if this has been configured. To reverse the "Format" and "Control Value" columns, for example, touch the "Format" header on the touch screen of the HMI device. Keep the touch screen pressed and drag the column heading to the "Control Value" heading.

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Operating elements

The buttons have the following functions when configured:

Button	Function
	"Read" button Updates the display in the "Status value" column. The button engages when it is pressed. You cannot operate any input fields until the button is actuated again and the refresh is stopped.
	"Write" button Applies the new value in the "Control value" column. The control value is then written to the PLC.

Procedure for reading the status value

Proceed as follows:

1. Enter the address and the desired format of a value for each line. Touch the respective columns to display the screen keyboard.
2. Once you have entered all of the desired values, touch the  button.

Result

All values are read cyclically by the controller and entered in the "Status Value" column until the  button is touched again.

Requirements for controlling

The following requirements must be met to control values:

- The "Control value" column must be available.
- The "Write" button must be available.

Procedure - Controlling a value

Proceed as follows:

1. Enter the address of a value for each line. Enter the desired value in the "Control value" column. Touch the respective columns to display the screen keyboard.
2. Once you have entered all of the desired values, touch the  button.

Result

The values from the "Control value" column are transferred once to the PLC.

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8.2.10 Operating the Sm@rtClient View

Overview

The Sm@rtClient view for PN/DP HMI devices enables you to remotely monitor and operate an ongoing project on another HMI device. When properly configured, you can also access several democratic HMI devices on a remote HMI device.

Procedure - Starting Remote Operation

Proceed as follows:

1. Switch to the screen with the Sm@rtClient view on the HMI device.

   The following options are available to establish a connection to the remote HMI device:

   – The connection is automatically established.

   – The connection must be established by touching the appropriate button.

     You may be required to enter the address of the remote HMI device and a password.

2. The current screen of the ongoing project on the remote HMI device now appears on your HMI device.
3. You can now monitor and control this screen according to your configuration.

   Scroll bars are displayed if the screen of the remote HMI device is larger than that of the current HMI device.

Monitoring mode

If the Sm@rtClient view is configured for monitoring mode, you can only monitor the remote HMI device. You cannot control its operation.

Operating the function keys on the OP 177B and TP 177B 4"

The following options are available for operating the function keys:

- When a local function is configured for the function key:

  The function key effects your local HMI device.

- When no local function is configured for the function key:

  The function key effects a remote HMI device.

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Procedure - Forcing Permissions

If several HMI devices have access to a HMI device, only one HMI device has operating permission at any one time.

Two cases must be distinguished for this calculation:

- If another HMI device is already controlling the remote HMI device, you can configure for emergency situations in which your HMI device is given forced permission to control the remote HMI device.
  - You attempt to operate the remote HMI device.
  - A dialog appears in which you are prompted to enter the appropriate password for remote control.
  - You can now operate the remote HMI device.
- If another HMI device is accessing your HMI device via the Sm@rtClient view, you can force local operating permission for your HMI device.
  - Touch the screen of your HMI device five times in sequence.
  - You now receive operating permission on the local HMI device.

Procedure - Ending Remote Operation

You can end remote monitoring and remote control with one of the following methods depending on the configuration:

- By touching a button configured for this action.
- By exiting the screen containing the Sm@rtClient view.
- If configured, a menu appears when you touch an empty location for a given period. Touch the menu item "Close".

Refer to your plant documentation to find any additional information on this topic.

Note

If another HMI device is accessing your HMI device via the Sm@rtClient view, this results in additional load on your HMI device.

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8.2.11 Operating Trends

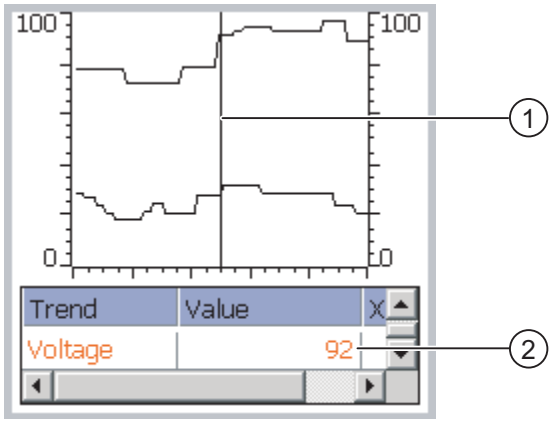
8.2.11.1 Overview

Trends

Trends continuously display the current process data.

Trend view

Trends are displayed in the Trend view. A Trend view can display several trends simultaneously.



① Ruler
② Trend value in the value table

The appearance, axes, value range and labels of the Trend view can be set by the configuration engineer.

The configuration engineer can set limits for the trend values. A color transition can be configured when the limits are exceeded.

Refer to your plant documentation to find any additional information on this topic.

Value table

The trend values can be read from the value table, if this is configured.

Ruler

The exact trend values can be read from the ruler, if this is configured.

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8.2.11.2 Operating the Trend View

Value Table

The trend values are displayed in the value table. When the ruler is displayed, the trend values are shown at a position of the ruler. When the ruler is hidden, the latest trend values are displayed.

Ruler

When configured, a ruler is available to provide an exact reading of the individual values.

The position of the ruler can be changed by touching and dragging it on the touch screen.

The configuration engineer can configure the following actions for operator controls outside the Trend display:

- Display or hide ruler
- Move ruler forward
- Move ruler backward

Further information on this may be available in your plant documentation.

Other Operator Actions

The configuration engineer can configure the following actions for operator controls outside the Trend display:

- Enlarge display of time intervals
- Reduce display of time intervals
- Scroll back by one display width
- Scroll forward by one display width
- Stop or resume trend recording

Further information on this may be available in your plant documentation.

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8.2.12 Project Security

8.2.12.1 Overview

Overview

The configuration engineer can protect the operation of a project by implementing a security system.

The security system of the HMI device is based on permissions, user groups and users.

If operator control objects protected by a password are operated, the HMI device requests the entry of a password. A logon screen is displayed in which you enter your user name and password. After logging in, you can operate the operator control objects for which you have the necessary permissions.

The logon dialog can be set up by the configuration engineer via an individual operator control object.

In the same way, the configuration engineer can set up an operator control object to log off. After logging off, objects assigned password protection can no longer be operated; to do so, log in again.

Further information on this may be available in your plant documentation.

User Groups and Permissions

Project-specific user groups are created by the configuration engineer. The "Administrators" group is included in all projects by default. User groups are assigned permissions.
The permission required for an operation is specifically defined for each individual object and function in the project.

Users

Each user is assigned to exactly one user group.

Users can be created as follows:

- By the configuration engineer during configuration
- By the administrator on the HMI device
- By a user with user management permission on the HMI device

Logoff Times

A logoff time is configured in the system for each user. If the time between any two user actions, e.g, entering a value or changing screens, exceeds this logoff time, the user is automatically logged off. The user must then log in again to continue to operate objects assigned password protection.

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Passwords

If an administrator or a user with administrator permission is logged on, all users on the HMI device are displayed in the User view.

If a user without user management permission is logged on, only the personal user entry is displayed.

The permissions of a user after logging in depends on the user group to the user is assigned. Further information on this may be available in your plant documentation.

The user data is encrypted and saved on the HMI device to protect it from loss due to power failure.

Note

Depending on the transfer settings, changes to the user data are overwritten when the project is transferred again.

User View

Use the User view to display the users on the HMI device.

All users on the HMI device system are displayed in the User view to the administrator or to a user with administrator permissions. When user management permission is lacking, only the personal user entry is displayed.

The configuration engineer can implement simple or advanced User view in the project. The two user views offer the same functions and differ only in the display of information.

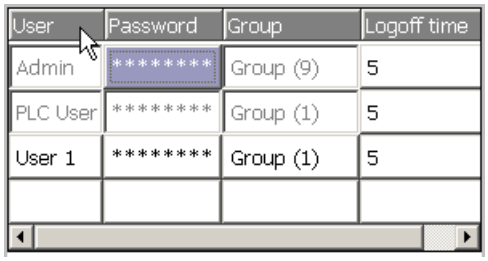
Simple User View

The simple user view only displays the user name and user group.



Enhanced User View

The enhanced user view displays information about the users.



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Backup and Restore

The users, passwords, group assignments and logoff times set up on the HMI device can be backed up and restored. This prevents you having to enter all of the data again on another HMI device.

NOTICE
During a restore, the currently valid user data is overwritten. The restored user data and passwords are valid immediately.

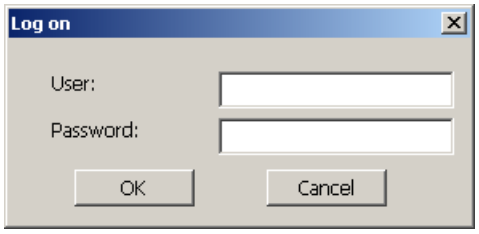
Limits for User, Password and User View

	Number of characters
Length of user name, maximum	40
Length of password, minimum	3
Length of password, maximum	24
Entries in user view, maximum	50

8.2.12.2 User Logon

Requirements

Use the logon dialog to log into the security system of the HMI device. Enter user name and password in the logon dialog.



You have the following options for displaying the logon dialog:

- Touching an operating element with password protection.
- Touching an operating element that was configured for displaying the logon dialog.
- Double-click the "<ENTER>" entry in the simple User view.
- At the beginning of the project, the logon dialog will be automatically displayed in certain circumstances.

Refer to your plant documentation to find any additional information on this topic.

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Procedure

Proceed as follows:

1. Enter the user name and password.

   Touch the corresponding input field. The alphanumerical screen keyboard is displayed.
2. Touch the "OK" button.

Note

The user name is not case-sensitive.

The password is case-sensitive.

Result

After a successful logon to the security system, you can execute password-protected functions on the HMI device for which you have authorizations.

If you enter an incorrect password, an error message is displayed when an Alarm window has been configured.

8.2.12.3 User Logoff

Requirements

You have logged into the security system of the HMI device.

Procedure

You have the following options for logging off:

- The user is logged off automatically if no operations are carried out and if the logoff time has been exceeded
- By touching the operating object that was configured for logging off

  Further information on this may be available in your plant documentation.

If an incorrect password is entered, the logged-on user is also logged off.

Result

The user is no longer logged into the project. In order to operate an operator control object with password protection, you must first log in again.

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8.2.12.4 Creating a User

Requirements

New users are created in the user view.

To display the user view, switch to the screen that contains the user view.

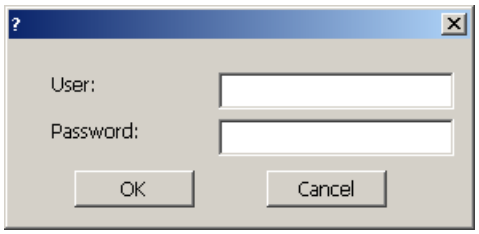
To create a new user, you must have user management permission.

Procedure - Creating a User in the Simple User View

Proceed as follows:

1. Touch the "<New User>" entry in the user view.

   The following dialog appears:



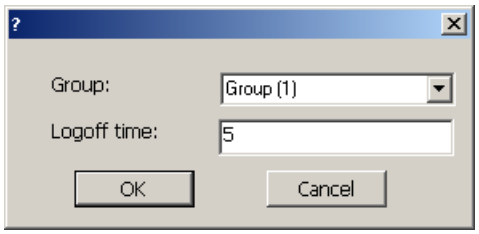
2. Enter the desired user information.

   Touch the corresponding input field. The alphanumerical screen keyboard is displayed.

   The password may not contain space characters or the special characters * ? . % / \ ' ".

3. Touch the "OK" button.

   The following dialog appears:



4. Enter the desired user information.

   Touch the corresponding input field. The appropriate screen keyboard is displayed.

   For the logoff time, you can use values of 0 to 60 minutes. The value 0 stands for "no automatic logoff."

5. Touch the "OK" button.

Result

The new user is created.

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Procedure - Creating a User in the Advanced User View

Proceed as follows:

Enter the required user information on the empty lines of the User view.

Touch the corresponding input field. The appropriate screen keyboard is displayed.

- The password may not contain space characters or the special characters * ? . % / \ ' ".
- For the logoff time, you can use values of 0 to 60 minutes. The value 0 stands for "no automatic logoff."

Result

The new user is created.

8.2.12.5 Changing User Data

Requirements

Change user data in the user view.

To display the user view, switch to the screen that contains the user view.

The following options are available for the range of changes that can be made:

- The administrator or a user with user management permission can change the data for all users on the HMI device system in the user view.
  - User name
  - Group assignment
  - Password
  - Logoff time
- Users without user management permission can only change their own user data.
  - Password
  - Logoff time, if configured

Note

You can only change the logoff time and password for the "Admin" user.

You can only change the logoff time for the "PLC_User". This user entry is used for logging in via the PLC.

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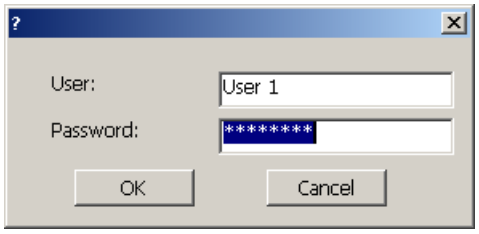
Procedure - Changing User Data in the Simple User View

This procedure describes changing user data by the administrator or a user with user management permission.

Proceed as follows:

1. In the user view, touch the user whose user data you want to change.

   The following dialog appears:

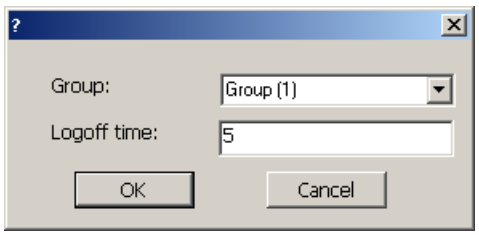


2. Change the desired user data.

   Touch the corresponding input field. The appropriate screen keyboard is displayed.

3. Touch the "OK" button.

   The following dialog appears:



4. Change the desired user data.

   Touch the corresponding input field. The appropriate screen keyboard is displayed.

5. Touch the "OK" button.

Result

The user data for the user is changed.

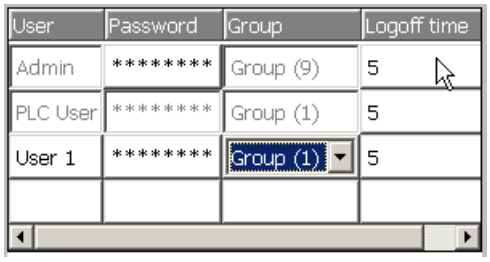
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Procedure - Changing User Data in the Advanced User View

This procedure describes changing user data by the administrator or a user with user management permission.

Proceed as follows:

1. In the user view, touch the user whose user data you want to change.



   The appropriate screen keyboard is displayed.

2. Change the desired user data.

Result

The user data for the user is changed.

8.2.12.6 Deleting a User

Requirements

You delete users in the user view:

To display the user view, switch to the screen that contains the user view.

To delete a user, you must have user management permission.

Note

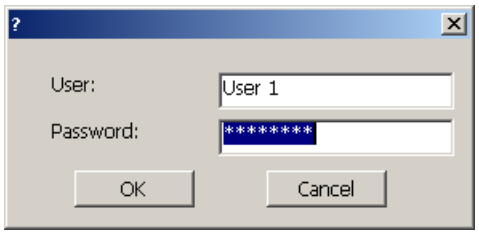
The "Admin" and "PLC_User" users exist by default and cannot be deleted.

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Procedure - Deleting a User in the Simple User View

1. Touch the user that you want to delete in the User view.

   The following dialog appears:



2. Touch the "User" input field.

   The alphanumerical screen keyboard is displayed.

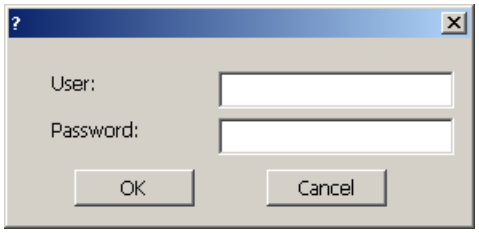
3. Touch the BSP button on the screen keyboard.

   The existing user name is deleted from the screen keyboard.

4. Touch the ↵ button on the screen keyboard.

   The user name in the "User" input field is deleted.

   The following dialog appears:



5. Touch the "OK" button.

Result

The user is deleted. The User view appears again.

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Procedure - Deleting a User in the Advanced User View

Proceed as follows:

1. Touch the user you want to delete in the "User" input field of the User view.
   The alphanumerical screen keyboard is displayed.
2. Touch the BSP button on the screen keyboard.
   The existing user name is deleted from the screen keyboard.
3. Touch the ↵ button on the screen keyboard.
   The user name in the "User" input field is deleted.

Result

The user is deleted.

8.2.13 Closing the Project

Procedure

Proceed as follows:

1. Use the corresponding operator control object to close the project.
   Wait for the Loader to open after you closed the project.
2. Switch off power to the HMI device.

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9 Operating Alarms

9.1 Operating Alarms TP 177A

9.1.1 Overview

Alarms

Alarms indicate events and states on the HMI device which have occurred in the system, in the process or on the HMI device itself. A status is reported when it is received.

An alarm could trigger one of the following alarm events:

- Incoming
- Outgoing
- Acknowledge

The configuration engineer defines which alarms must be acknowledged by the user.

An alarm may contain the following information:

- Date
- Time
- Alarm text
- Error location
- State
- Alarm class
- Alarm number
- Acknowledgement group

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Alarm Classes

Alarms are assigned to various alarm classes:

- Error

  Alarms in this class must always be acknowledged. Alarms normally indicate critical errors within the plant such as "Motor temperature too high".

- Warning

  Warning alarms usually indicate states of a plant such as "Motor switched on".

- System

  System alarms indicate states or events which occur on the HMI device.

- User-specific alarm classes

  The properties of this alarm class must be defined in the configuration.

Further information on this may be available in your plant documentation.

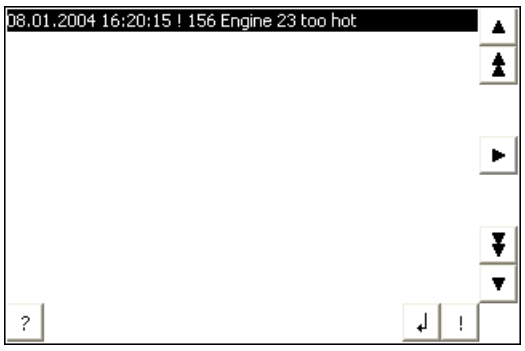
Alarm Buffer

Alarm events are saved to an internal, volatile buffer. The size of this alarm buffer depends on the HMI device type.

9.1.2 Displaying Alarms

Alarm view and alarm window

Alarms are indicated in the Alarm view or in the Alarm window on the HMI device.



The layout and operation of the Alarm window correspond to that of the Alarm view.

The Alarm window is independent of the process screen. Depending on the configuration, the Alarm window appears automatically as soon as a new, unacknowledged alarm has been received. The Alarm window can be configured so that it only closes after all the alarms have been acknowledged.

Refer to your plant documentation to find any additional information on this topic.

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Operating elements

Functions of the Alarm view buttons:

Button	Function
	Displays infotext for an alarm
	Edit alarm
	Acknowledging an alarm
	Shows the full text of the selected alarm in a separate window, the alarm text window. In the alarm text window, you can view alarm texts that require more space than is available in the alarm view. Close the alarm text window with .
	Select the next or previous alarm in the list.
	Scroll one page up or down.

Alarm class layout

The various alarm classes are identified to distinguish them in the Alarm view:

Icon	Alarm class
!	Error
(empty)	Operation
(depends on the configuration)	User-defined alarm classes
$	System

The configuration engineer can edit the alarm class symbols. Refer to your plant documentation to find any additional information on this topic.

Displaying infotext

The configuration engineer can also provide infotext for alarms.

Proceed as follows to view the infotext for an alarm:

1. Select the required alarm in the Alarm view
2. Touch .

   If configured, the infotext assigned to this alarm is displayed.
3. Close the infotext window with 

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Alarm indicator

The alarm indicator is a graphic symbol that shows current errors or errors that need to be acknowledged, depending on the configuration.



The alarm indicator flashes as long as alarms are queued for acknowledgment. The number indicates the number of queued alarms. The configuration engineer can assign functions to be executed when the alarm indicator is operated.

Usually, the alarm indicator is only used for error alarms. Refer to your plant documentation to find any additional information on this topic.

9.1.3 Acknowledging Alarms

Requirements

- The alarm which is to be acknowledged is displayed in the Alarm window or in the Alarm view.
- Either the Alarm window or the Alarm view is enabled.
- The alarm must be acknowledged.

Procedure

Proceed as follows:

1. Select the alarm by touching it in the Alarm view or Alarm window.
2. Touch ! .

Result

The alarm or all alarms of the corresponding acknowledgement group are acknowledged.

Further information about acknowledgment groups may be available in your plant documentation.

See also

Displaying Alarms (Page 280)

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9.1.4 Editing Alarms

Introduction

The configuration engineer can assign additional functions to each alarm. These functions are executed when the alarm is processed.

Requirements

- The alarm to be edited is indicated in the Alarm window or in the Alarm view.
- Either the Alarm window or the Alarm view is enabled.

Procedure

Proceed as follows:

1. Select the alarm by touching it in the Alarm view or Alarm window.
2. Touch .

Result

The system executes the additional functions of the alarm. Further information on this may be available in your plant documentation.

Note

When you edit an unacknowledged alarm, it is acknowledged automatically.

See also

Displaying Alarms (Page 280)

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9.2 Operating Alarms on TP 177B and OP 177B

9.2.1 Overview

Alarms

Alarms indicate events and states on the HMI device which have occurred in the system, in the process or on the HMI device itself. A status is reported when it is received.

An alarm could trigger one of the following alarm events:

- Incoming
- Outgoing
- Acknowledge

The configuration engineer defines which alarms must be acknowledged by the user.

An alarm may contain the following information:

- Date
- Time
- Alarm text
- Error location
- State
- Alarm class
- Alarm number
- Acknowledgement group
- Diagnostics capability

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Alarm Classes

Alarms are assigned to various alarm classes:

- Error

  Alarms in this class must always be acknowledged. Alarms normally indicate critical errors within the plant such as "Motor temperature too high".

- Warning

  Warning alarms usually indicate states of a plant such as "Motor switched on".

- System

  System alarms indicate states or events which occur on the HMI device.

- SIMATIC diagnostic alarms

  SIMATIC diagnostic alarms show states and events of the SIMATIC S7 or SIMOTION controllers.

- User-specific alarm classes

  The properties of this alarm class must be defined in the configuration.

Further information on this may be available in your plant documentation.

Alarm Buffer

Alarm events are saved to an internal buffer. The size of this alarm buffer depends on the HMI device type.

9.2.2 Displaying Alarms

Alarm view

Alarms are indicated in the Alarm view or in the Alarm window on the HMI device.

The Alarm view can be implemented with the following components:

- Alarm numbers and alarm texts are displayed as single lines.
- As simple Alarm view
- As advanced Alarm view

In the simple or advanced Alarm views the configuration engineer specifies the alarm information to be displayed.

Alarm window

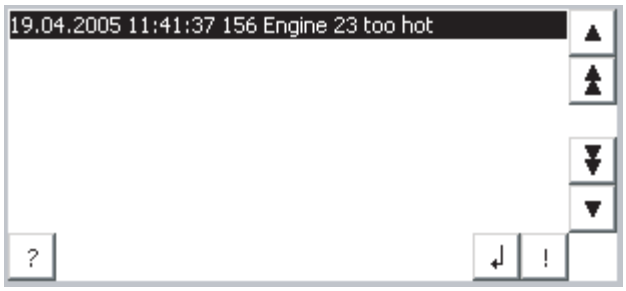
The layout and operation of the Alarm window correspond to that of the Alarm view.

The Alarm window is independent of the process screen. Depending on the configuration, the Alarm window appears automatically as soon as a new, unacknowledged alarm has been received. The Alarm window can be configured so that it only closes after all the alarms have been acknowledged.

Refer to your plant documentation to find any additional information on this topic.

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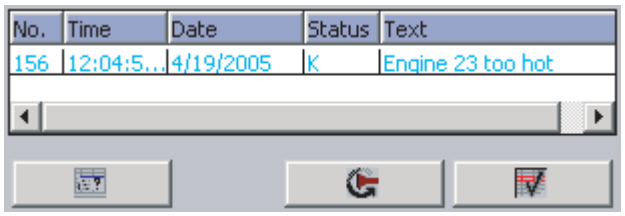
Simple Alarm view



The buttons have the following functions:

Button	Function
?	Displays infotext for an alarm
↲	Edit alarm
!	Acknowledging an alarm
▼ ▲	Select the next or previous alarm in the list.
⏬ ⏫	Scroll one page up or down.

Advanced Alarm view



The buttons have the following functions:

Button	Function
	Displays infotext for an alarm
	Edit alarm
	Acknowledging an alarm

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Changing the column sequence and sorting in the advanced Alarm view

You can change the column sequence and sorting to suit the project.

- Change column sequence

  To reverse the "Time" and "Date" columns, for example, touch the "Date" header on the HMI device touch screen. Continue to press the touch screen and drag the column heading to the "Time" heading.

- Changing sorting

  To change the sorting of the alarms, touch the respective column heading on the touch screen of the HMI device.

Alarm class layout

The various alarm classes are identified to distinguish them in the Alarm view:

Icon	Alarm class
!	Error
(empty)	Operation
(depends on the configuration)	User-defined alarm classes
S7	SIMATIC or SIMOTION diagnostic alarms
$	System

The configuration engineer can edit the alarm class symbols. Refer to your plant documentation to find any additional information on this topic.

Displaying infotext

The configuration engineer can also provide infotext for alarms.

Proceed as follows to view the infotext for an alarm:

1. Select the required alarm in the Alarm view.
2. Touch the ? button in the simple Alarm view or  in the advanced Alarm view.

   If configured, the infotext assigned to this alarm is displayed.
3. Close the infotext window with ×

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Alarm indicator

The alarm indicator is a graphic symbol that shows current errors or errors that need to be acknowledged, depending on the configuration.



The alarm indicator flashes as long as alarms are queued for acknowledgment. The number indicates the number of queued alarms. The configuration engineer can assign functions to be executed when the alarm indicator is operated.

Usually, the alarm indicator is only used for error alarms. Please refer to your system documentation to check whether additional information on this subject is available there.

9.2.3 Acknowledging Alarms

Requirements

- The alarm which is to be acknowledged is displayed in the Alarm window or in the Alarm view.
- Either the Alarm window or the Alarm view is enabled.
- The alarm must be acknowledged.

Procedure

Proceed as follows:

1. Select the alarm by touching it in the Alarm view or Alarm window.
2. Touch the ! button in the simple Alarm view or  in the advanced Alarm view.

   A soft key can also be configured to acknowledge alarms.

Result

The alarm or all alarms of the corresponding acknowledgement group are acknowledged.

Further information about acknowledgment may be available in your plant documentation.

See also

Displaying Alarms (Page 285)

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9.2.4 Editing Alarms

Introduction

The configuration engineer can assign additional functions to each alarm. These functions are executed when the alarm is processed.

Requirements

- The alarm to be edited is indicated in the Alarm window or in the Alarm view.
- Either the Alarm window or the Alarm view is enabled.

Procedure

Proceed as follows:

1. Select the alarm by touching it in the Alarm view or Alarm window.
2. Touch the ↲ button in the simple Alarm view or  in the advanced Alarm view.

Result

The system executes the additional functions of the alarm. Further information on this may be available in your plant documentation.

Note

When you edit an unacknowledged alarm, it is acknowledged automatically.

See also

Displaying Alarms (Page 285)

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Operating Recipes

10

10.1 Overview

Introduction

Recipes are used when different variants of a product are manufactured with the same process. In this case, the product variants differ in terms of their type and quantity of the components, but not in terms of the manufacturing process sequence. The configuration engineer can store the combination of each individual product variant in a recipe.

Field of application

Recipes can be used everywhere the same product components are used in variable combinations to create different product variants.

Examples:

- Beverage industry
- Food processing industry
- Pharmaceutical industry
- Paint industry
- Building materials industry
- Steel industry

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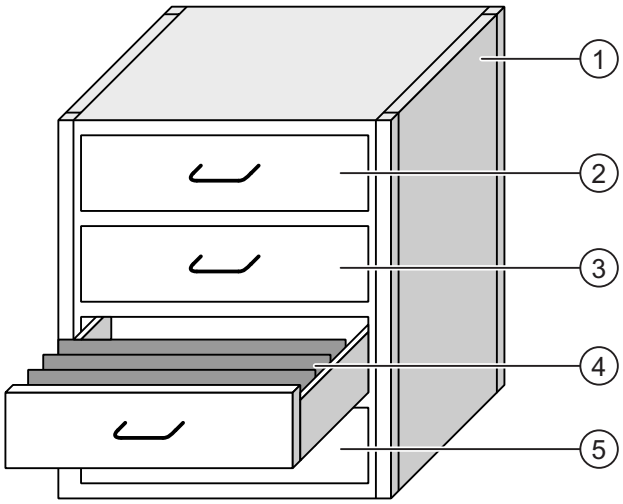
10.2 Structure of a recipe

Recipes

The recipe collection for the production of a product family can be compared to a file cabinet. A recipe which is used to manufacture a product corresponds to a drawer in a file cabinet.

Example:

In a plant for producing fruit juice, recipes are required for different flavors. There is a recipe, for example, for the flavors orange, grape, apple and cherry.



①	File cabinet	Recipe collection	Recipes for a fruit juice plant
②	Drawer	Recipe	Orange flavored drinks
③	Drawer	Recipe	Grape flavored drinks
④	Drawer	Recipe	Apple flavored drinks
⑤	Drawer	Recipe	Cherry flavored drinks

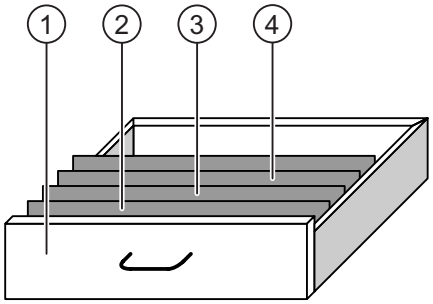
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Recipe data records

The drawers of the file cabinet are filled with suspension folders. The suspension folders in the drawers represent records required for manufacturing various product variants.

Example:

Product variants of the flavor apple might be a soft drink, a juice or nectar, for example.



①	Drawer	Recipe	Product variants of apple flavored drinks
②	Suspension folder	Recipe data record	Apple drink
③	Suspension folder	Recipe data record	Apple nectar
④	Suspension folder	Recipe data record	Apple juice

Elements

In the figure showing the file cabinet, each suspension folder contains the same number of sheets. Each sheet in the suspension folder corresponds to an element of the recipe data record. All the records of a recipe contain the same elements. The records differ, however, in the value of the individual elements.

Example:

All drinks contain the same components: water, concentrate, sugar and flavoring.
The records for soft drink, fruit juice or nectar differ, however, in the quantity of sugar used in production.

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10.3 Recipes in the Project

Overview

If recipes are used in a project, the following components interact:

- HMI device recipe memory

  Recipes are saved in the form of data records in the HMI device recipe memory.

  The recipe data can also be saved in recipe tags.

- Recipe view / recipe screen

  On the HMI device, recipes are displayed and edited in the recipe view or in a recipe screen.

  – The recipe data records from the internal memory of the HMI device are displayed and edited in the recipe view.

  – The values of the recipe tags are displayed and edited in the recipe screen.

  Note

  The same recipe tags can be configured in a variety of recipes. If you modify the value of a recipe tag, the synchronization changes the value of the recipe tag in all recipes.

- Recipe tags on the TP 177A

  The recipe tags contain recipe data. Recipe tags configured in IO fields are always automatically synchronized with the recipe view. You can exchange the values of the recipe tags with the PLC.

- Recipe tags on the TP 177B and OP 177B

  The recipe tags contain recipe data. When you edit recipes in a recipe screen, the recipe values are stored in recipe tags.

  The recipe tags are not automatically synchronous with the recipe view. You can synchronize the recipe tags with the recipe data records so that the same values are saved in both. Depending on the configuration, the values of the recipe tags are exchanged with the PLC.

- External storage medium on the TP 177B and OP 177B

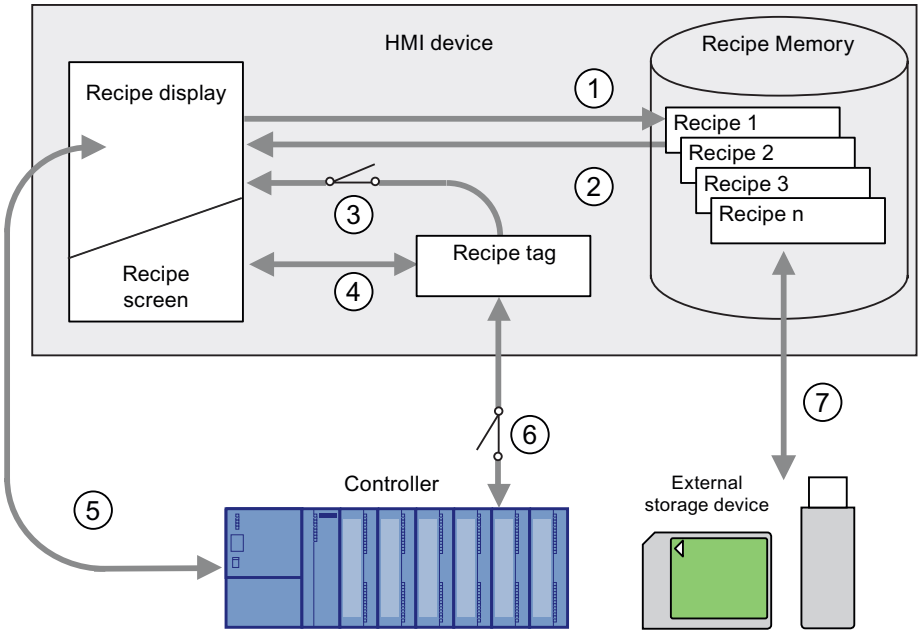
  You can store recipe data records on the memory card of the TP 177B and OP 177B. On the TP 177B 4" you can also save the recipe data records on a USB stick.

  Recipe data records are exported from the HMI device recipe memory and are saved to a CSV file on the external storage medium. The records can be reimported from the storage medium to the recipe memory.

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Data flow

The following figure shows the data flow in a project with recipes:



① Editing, saving or deleting a recipe data record

② Display recipe data record

③ Synchronize or do not synchronize recipe tags

The recipe tags are always synchronized on the TP 177A.

④ Display and edit recipe tags in the recipe screen

⑤ Write records from the recipe view to the PLC or read records from the PLC and display them in the recipe view.

⑥ TP 177B and OP 177B: Recipe tags are to the PLC online or offline

⑦ TP 177B and OP 177B: Export or import recipe data records to an external storage medium.

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10.4 Displaying a Recipe

Displaying Recipes

You can display and edit recipes on the HMI device with a recipe view or recipe screen.

Recipe view

A recipe view is a screen object used to manage recipe data records. The recipe view shows recipe data records in tabular form.

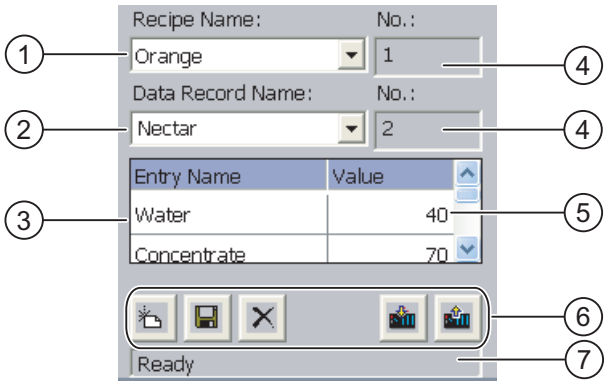
Depending on the configuration, the recipe view is displayed as follows:

- As enhanced recipe view
- As simple recipe view

The configuration engineer also defines which operator controls are displayed in the recipe view. Only the simple recipe view can be configured on the TP 177A.

Enhanced recipe view on the TP 177B and OP 177B

The figure below shows an example of the enhanced recipe view:



① Selection list for the recipe
② Selection list for the recipe data record
③ Element name
The element name designates a specific element in the recipe data record.
④ Display field
This show the number of the selected recipe or the selected recipe data record.
⑤ Value of the element
⑥ Buttons for editing a recipe data record
⑦ Status bar for display of the status messages

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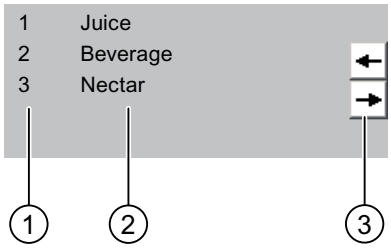
Simple recipe view

The simple recipe view consists of three areas:

- Recipe list
- Record list
- Element list

In the simple recipe view, each area is shown separately on the HMI device. Depending on the configuration, the simple recipe view starts with the recipe list or data record list.

The figure below shows an example of the record list:



① Number of the recipe data record
② Recipe data records
③ Buttons for changing the displayed list and calling the menu

Display of Values

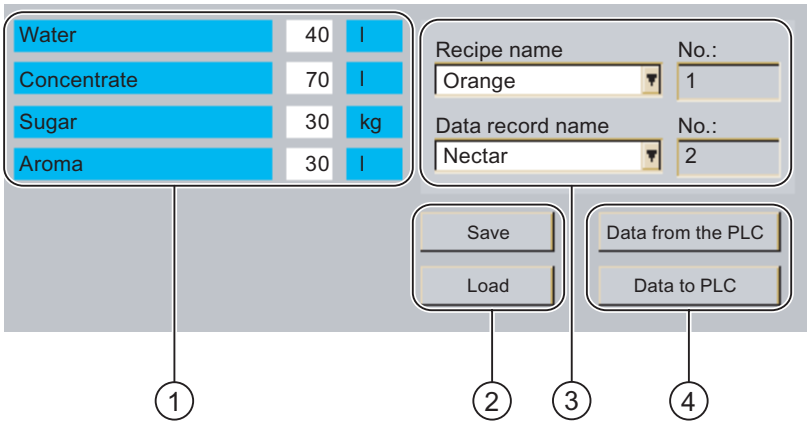
NOTICE
Changing the recipe data record in the background Applies to the processing of a recipe data record: If values of the corresponding recipe data record are changed by a PLC job, the recipe view is not updated automatically. To update the recipe view, reactivate the respective recipe data record.

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Recipe screen

A recipe screen allows the correlation between the plant and the recipe data to be displayed in graphic form. The configuration engineer combines IO fields and screen objects to form a custom input screen. The configuration engineer can distribute the IO fields of a recipe over several recipe screens, thus allowing recipe elements to be arranged by subject. The recipe screen can be operated using buttons configured accordingly.

The figure below shows an example of the recipe screen:



① Element names and corresponding values
The element name designates a specific element in the recipe data record.

② Buttons for editing a recipe data record

③ Modified recipe view

④ Buttons for transferring recipe data

The values displayed or entered in the recipe screen are saved in recipe tags. The recipe values are exchanged with the PLC immediately or later via these tags.

A configured recipe view can itself be a component of a recipe screen. You must synchronize the tags in order to synchronize data between the tags of the recipe screen and the recipe data records displayed in the recipe view. The recipe tags are always automatically synchronized on the TP 177A.

Refer to your plant documentation to find any additional information on this topic.

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10.5 Recipe Values in the HMI Device and the PLC

Introduction

You can change the values of a recipe on the HMI device and therefore influence the manufacturing process or a machine.

Depending on the configuration, the recipe values are displayed, edited and saved in different ways.

- If you are editing recipes with a recipe view in your project, the values are saved in recipe data records.
- If you are editing recipes in a recipe screen in your project, the values are saved in recipe tags.

Differences may occur between the display values in the recipe view and the values saved in the associated tags in an ongoing project when you edit recipes with a recipe view and in a recipe screen. To prevent this, you need to synchronized the values of the recipe data records on the TP 177B and OP 177B with the values of the recipe tags.

The recipe tags are always automatically synchronized on the TP 177A.

Synchronizing Recipe Tags on the TP 177B and OP 177B

Note

Recipe tags can only be synchronized with the enhanced recipe view on the TP 177B and OP 177B.

Synchronization of the recipe tags depends on the configuration of the enhanced recipe view:

- Automatic synchronization:

  The values of the recipe view are synchronized with the associated recipe tags. In this case, changes to values in the recipe view have an immediate effect on the values of the associated recipe tags. The values are only synchronized, when an operator control that is outside the recipe view is operated.

- Synchronization by the user:

  The values of the recipe view and the associated recipe tags are not synchronized automatically. The configuration engineer has assigned the same function to the  button or a different operator control in the recipe view. The recipe tags and the recipe view are only synchronized when you operate the buttons or the appropriate operator control.

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Recipe Tags Online / Offline

The configuration engineer can configure a recipe so that changes to the values of the recipe tags do not have an immediate effect on the current process.

Synchronization of the recipe values between the HMI device and the PLC depends on whether the configuration engineer has selected the settings "Tags online" or the setting "Tags offline" for a recipe.

The recipe tags are always offline on the TP 177A.

- "Tags online":

  This setting has the following effect:

  – When you change recipe values in the recipe screen, these changes are applied immediately by the PLC and immediately influence the process.

  – If recipe values are changed in the PLC, the changed values are displayed immediately in the recipe screen.

- "Tags offline":

  With this setting, changed recipe values are not synchronized immediately between the HMI device and the PLC.

  In this case, the configuration engineer must configure operator controls for transferring the values to the PLC or reading them from the PLC in a recipe screen. The recipe values are only synchronized between HMI device and PLC when you operate the appropriate operator control.

10.6 Operating the Enhanced Recipe View

10.6.1 Overview

Operation

The recipe view can be operated as follows:

- Enter values for the recipe elements
- Create recipe data records
- Save recipe data records or save them under a new name
- Delete recipe data records
- TP 177B and OP 177B: Synchronize values of the recipe view with the associated recipe tags
- Transfer recipe data records from the PLC and to the PLC

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Operator Controls of the Recipe View

The table below shows the operator controls of the recipe view:

Buttons	Function
	Creates a new recipe data record. If a start value is configured, it is shown in the input field.
	Saves the displayed values of the recipe data record. The storage location is predefined by the project.
	The recipe data record is saved under a different name irrespective of the recipe view. A dialog box opens in which the name is entered.
	The displayed recipe data record is deleted.
	TP 177B and OP 177B: The values of the recipe view are synchronized with the associated recipe tags. The values changed during editing are written to the associated recipe tags. Subsequently all the values of the tags are read out and updated in the table.
	The recipe values from the PLC are displayed in the recipe view.
	The values of the set recipe data record displayed in the recipe view are transferred to the PLC.

Operating the Recipe Screen

You operate the recipes in a recipe screen with the operator controls provided by the configuration engineer.

Further information on this may be available in your plant documentation.

Entering the value.

If you want to change the value of a tag, call up the screen keyboard.

The functions listed in the table and the entry of values may also be assigned to a softkey on the OP 177B. Refer to the plant documentation for more information in this regard.

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10.6.2 Creating a recipe data record

Introduction

You create a new recipe data record by modifying an existing record. You then save the modified data record under a new name.

Requirements

A screen with a recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe for which you want to create a new recipe data record.
2. Touch .

   A new recipe data record with the next available number is created.

   If you change the new data record number to an existing data record number, the existing data record is overwritten.
3. Enter values for the elements of the data record.

   The elements of the recipe data record can be assigned default values depending on the configuration.
4. Touch .
5. Enter a name for the data record.

   The data record is saved under the new name.

   If the recipe data record already exists, a dialog is opened. In this dialog, specify whether the existing data record is to be overwritten.

Result

The new recipe data record is saved to the selected recipe.

See also

Overview (Page 300)

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10.6.3 Editing a recipe data record

Introduction

Edit the values of the recipe data records and save them in a recipe view.

Synchronization with the PLC

If you want to display the current recipe values from the PLC in the recipe view, you first have to read the current values from the PLC with .

The values changed in the recipe view only become effective when the amended data record is transferred to the PLC by means of the  button.

Requirements

A screen with a recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the recipe data record you want to change.
3. Change the data record as required.
4. Save your changes by means of the  button.

   If you want to save the recipe data record under a different name, touch the  key.
5. The recipe data record is saved.

Result

The edited recipe data record has now been saved in the selected recipe.

See also

Overview (Page 300)

Recipes in the Project (Page 294)

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10.6.4 Deleting a recipe data record

Introduction

You can delete all the data records of a recipe which are not required.

Requirements

A screen with a recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the recipe data record you want to delete.
3. Touch .

Result

The recipe data record is deleted.

See also

Overview (Page 300)

Recipes in the Project (Page 294)

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10.6.5 Synchronizing Tags on the TP 177B and OP 177B

Introduction

The values of the recipe elements can be saved to recipe tags, depending on the configuration.

Differences may occur between the display values in the recipe view and the actual values of tags in an ongoing project. Synchronize the tags to equalize such differences.

Synchronization always includes all the variables which belong to a recipe data record.

NOTICE
Changed tag name Tags and the value of the recipe data record cannot be assigned to each other if the tag name of the tag to be synchronized has been changed. The tags in question are not synchronized.

Note

Recipe tags can only be synchronized in the enhanced recipe view.

Requirement

A screen with a recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the recipe data record you want to synchronize.
3. Touch .

Result

The elements of the recipe data record are synchronized with the recipe tags.

If the values of the recipe view and the tag do not match, the more current value is accepted.

See also

Overview (Page 300)

Recipes in the Project (Page 294)

Recipe Values in the HMI Device and the PLC (Page 299)

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10.6.6 Reading a recipe data record from the PLC

Introduction

In the current project, the values which are also stored in the recipes in the HMI device can be changed directly in the plant. This is the case, for example, if a valve was opened further directly at the plant than is stored in the recipe. The values of the recipe data records saved in the HMI device possibly no longer match the values in the PLC.

To synchronize the recipe values, read the values from the PLC and display them in the recipe view.

Requirements

A screen with a recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the recipe data record to which you want to apply the values from the PLC.
3. Touch .

   The values are read from the PLC.
4. If you want to store the displayed values in the HMI device, touch the  button.

Result

The values were read from the PLC, displayed on the HMI device and saved to the selected recipe data record.

See also

Overview (Page 300)

Recipes in the Project (Page 294)

Recipe Values in the HMI Device and the PLC (Page 299)

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10.6.7 Transferring a recipe data record to the PLC

Introduction

In order for an edited recipe data record to take effect in the process, you must transfer the values to the PLC.

The display values in the recipe view are always transferred to the PLC.

Requirements

A screen with a recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the recipe data record whose values you want to transfer to the PLC.
3. Touch .

Result

The display values in the recipe view were transferred to the PLC and take effect in the process.

See also

Overview (Page 300)

Recipes in the Project (Page 294)

Recipe Values in the HMI Device and the PLC (Page 299)

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10.7 Operating the Simple Recipe View

10.7.1 Overview

Introduction

The simple recipe view consists of three areas:

- Recipe list
- Record list
- Element list

You can use the shortcut menu to operate each of these display areas.

Operation

The simple recipe view can be operated as follows:

- Create recipe data records
- Save recipe data records or save them under a new name
- Rename recipe data records
- Delete recipe data records
- Transfer recipe data records from the PLC and to the PLC

Operator controls of the simple recipe view

Toggle between the display areas and the shortcut menus to operate the simple recipe views.

The table below shows the operation of the display area:

Operation	Function
Touching an entry	The next lower display area opens, i.e. the data record list or the element list.
	The next higher display area opens, i.e. the recipe list or the data record list.
	The shortcut menu of the display area opens.
	The previous entry is selected in the display area.
	The next entry is selected in the display area.
	A display page is scrolled up in the display area.
	A display page is scrolled down in the display area.

The table below shows the operation of the shortcut menu.

Operation	Function
	The menu is closed. The display area opens.
Touch the menu command	The menu command is executed.

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Shortcut menus of the simple recipe view

A shortcut menu can be called for each display area. The commands available in the shortcut menu depend on the currently selected display area. A number is assigned to each command. The command is executed when you enter the number of the command.

- Recipe list

Menu command	Function
New	A new recipe data record is created for the selected recipe. If a start value is configured, it is shown in the input field.
Display infotext	The infotext configured for the simple recipe view is displayed.
Open	The record list of the selected recipe opens.

- Record list

Menu command	Function
New	Creates a new recipe data record. If a start value is configured, it is shown in the input field.
Delete	The selected recipe data record is deleted.
Save as	The selected recipe data record is saved under another name. A dialog box opens in which the name is entered.
Rename	The selected recipe data record is renamed. A dialog box opens in which the name is entered.
Opening	The element list of the selected recipe data record opens.
Back	The recipe list opens.
With the TP 177A HMI device, the following menu commands can also be configured for the record list:	
To PLC	The displayed values of the selected record are transferred from the HMI device to the PLC.
From PLC	The recipe values from the PLC are displayed on the HMI device in the recipe view.
Display infotext	The infotext configured for the simple recipe view is displayed.

- Element list

Menu command	Function
Save	The selected record is saved.
To PLC	The displayed values of the selected record are transferred from the HMI device to the PLC.
From PLC	The recipe values from the PLC are displayed on the HMI device in the recipe view.
Save as	The data record is saved under the new name. A dialog box opens in which the name is entered.
With the TP 177A HMI device, the following menu commands can also be configured for the element list:	
Display infotext	The infotext configured for the simple recipe view is displayed.
Rename	The selected record is renamed. A dialog box opens in which the name is entered.
Back	The data record list opens.

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Operating Menus

Touch the desired menu command. The command is executed.

Operating the Recipe Screen

You operate the recipes in a recipe screen with the operator controls provided by the configuration engineer.

Additional information on this may be available in your plant documentation.

10.7.2 Creating a Recipe Data Record

Introduction

Create a new recipe data record in the recipe list or in the record list. Then enter the values for the new record in the element list and save the record.

Requirement

A screen with a simple recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe list contains several recipes: Select the recipe for which you want to create a new recipe data record.
2. Open the recipe list menu.
3. Select the menu command "New".

   A new record is created.

   The element list of the new record opens.
4. Enter values for the elements of the data record.

   The tags of the record can be assigned default values depending on the configuration.
5. Open the menu of the element list and select the command "Save".
6. Enter a name for the new record.
7. Confirm your entries.

   If you change the new data record number to an existing data record number, the existing data record is overwritten.

Result

The new recipe data record is saved to the selected recipe.

See also

Overview (Page 308)

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10.7.3 Editing a Recipe Data Record

Introduction

Edit the values of the recipe data records in a simple recipe view.

Synchronization with the PLC

If you want to display the current recipe values from the PLC in the simple recipe view, you first have to read the current values from the PLC with the menu command "From PLC" in the element list.

The values changed in the recipe view only take effect in the PLC when you transfer the edited data record to the PLC with the menu command "To PLC".

Requirement

A screen with a simple recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe list contains several recipes: Select the recipe which contains the desired recipe data record.
2. Open the data record list.
3. Select the recipe data record you want to change.
4. Open the element list.
5. Change the values of the records as required.
6. Save your changes with the menu command "Save".

   The recipe data record is saved.

Result

The edited recipe data record has now been saved in the selected recipe.

See also

Overview (Page 308)

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10.7.4 Deleting a Recipe Data Record

Introduction

You can delete all the data records which are not required.

Requirement

A screen with a simple recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe list contains several recipes: Select the recipe which contains the desired recipe data record.
2. Open the data record list.
3. Select the data record you want to delete.
4. Open the menu.
5. Select the menu command "Delete".

Result

The data record is deleted.

See also

Overview (Page 308)

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10.7.5 Reading a Recipe Data Record from the PLC

Introduction

The values of recipe elements are exchanged with the PLC via tags.

In the current project, the values which are also stored in the recipes in the HMI device can be changed directly in the plant. This is the case, for example, if a valve was opened further directly at the plant than is stored in the recipe. The values of the tags on the HMI device possibly no longer match the values in the PLC.

To synchronize the recipe values, read the values from the PLC and display them in the recipe view.

TP 177A

With the TP 177A HMI device, the "From PLC" menu command can also be configured for the data record list: In this case, you can also select the "From PLC" menu command in the data record list.

Requirement

A screen with a simple recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe list contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the element list of the recipe data record to which you want to apply the values from the PLC.
3. Open the menu.
4. Select the menu command "From PLC".

   The values are read from the PLC.
5. If you want to save the displayed values in the HMI device, select the menu command "Save".

Result

The values were read from the PLC, displayed on the HMI device and saved to the selected recipe data record.

See also

Overview (Page 308)

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10.7.6 Transferring a Recipe Data Record to the PLC

Introduction

In order for an edited recipe data record to take effect in the process, you must transfer the values to the PLC.

The displayed values in the recipe view are always transferred to the PLC.

TP 177A

With the TP 177A HMI device, the "To PLC" menu command can also be configured for the data record list: In this case, you can also select the "To PLC" menu command in the data record list.

Requirement

A screen with a simple recipe view is displayed.

Procedure

Proceed as follows:

1. If the recipe list contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the element list of the recipe data record whose values you want to transfer to the PLC.
3. Open the menu.
4. Select the menu command "To PLC".

Result

The values of the recipe data record were transferred to the PLC and take effect in the process.

See also

Overview (Page 308)

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10.8 Exporting Recipe Data Records on the TP 177B and OP 177B

Introduction

You can export one or more recipe data records to a CSV file, depending on the configuration. After export, the values in the recipe data record can be further processed in a spreadsheet program such as MS Excel. The degree to which you can influence the export depends on the configuration:

Requirements

- A screen with a recipe view is displayed
- An operating element with the function "Export record" has been configured.
- The following tags are configured equally in the recipe view and for the "Export record" operating element.
  - Recipe number
  - Data record number

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the desired recipe data record.
2. Select the recipe data record you want to export.
3. Operate the operating element which was configured for export, for example the "Export data record" button.

   The data record is exported as a CSV file to an external data medium.

Further information on this may be available in your plant documentation

Result

The recipe data record is exported.

See also

Recipes in the Project (Page 294)

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10.9 Importing Recipe Data Records on the TP 177B and OP 177B

Introduction

You can import values from a CSV file to a recipe data record, depending on the configuration.

Requirements

- An operating element with the function "Import data record" has been configured, for example a button
- A screen with a recipe view is displayed

Procedure

Proceed as follows:

1. If the recipe view contains several recipes: Select the recipe which contains the recipe data record to be imported.
2. Operate the operating element with the function "Import data record".

   The record is imported from an external data medium as a CSV file and then displayed in the recipe view after import.

Result

The imported recipe data record is saved on the HMI device.

Deviating structure

If the structure of the CSV file differs from the structure of the recipe, deviations are handled as follows:

- Any additional values in the CSV file will be rejected
- The system applies the configured default value to the recipe data record if the CSV file contains an insufficient number of values
- If the CSV file contains values of the wrong data type, the configured default value is set in the recipe data record

  Example:

  The imported CSV file contains values that were entered as floating point numbers

  However, the corresponding tag expects an integer value. In this case, the system discards the imported value and uses the configured default

See also

Recipes in the Project (Page 294)

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11 Maintenance and care

11.1 Maintenance and Service

11.1.1 Maintenance and care

Introduction

The HMI device is designed for maintenance-free operation. The touch screen and keyboard membrane should nevertheless be cleaned regularly.

Requirements

Use a cleaning cloth dampened with a cleaning agent to clean the equipment. Only use water with a little liquid soap or a screen cleaning foam.

NOTICE
Unintentional response When cleaning the touch screen, an unintentional response in the controller can be triggered by touching keys. Switch the HMI device off before cleaning to prevent unintentional responses. **Damage caused by unauthorized cleaning products** The HMI device may be damaged if compressed air, steam jet-air ejectors, aggressive solvents or scouring powders are used for cleaning purposes. Do not clean the HMI device with compressed air or steam jet blowers. Do not use aggressive solvents or scouring powder.

Procedure

Proceed as follows:

1. Switch off the HMI device.
2. Spray the cleaning solution onto a cleaning cloth.

   Do not spray directly onto the HMI device.
3. Clean the HMI device.

   When cleaning the display wipe from the screen edge inwards.

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11.1.2 Clean screen on the TP 177A and TP 177B 6"

Introduction

The HMI screen can be cleaned when it is switched on and a project is running. An operating element must be available in the project to open the clean screen. After activating the clean screen, the touch screen and function keys are locked for the configured interval. The time the touch screen is locked can be set between 5 and 30 seconds. The time remaining for the lockout is indicated by a progress bar.

NOTICE
Unintentional actions Clean the HMI device screen during operation with activated clean screen or switch off the HMI device. Once the period for the clean screen has passed, operations are again possible. **The HMI device cannot be operated with an active clean screen** When the clean screen is active, operations on the HMI device are not possible. Wait for the period for the clean screen to lapse. Then you can operate the plant again with the HMI device.

11.1.3 Protective Membrane

Protective foil

A protective foil is available for the HMI touch screens. The protective foil is not part of the scope of delivery of the HMI device. Required order information is available on the Internet at "http://mall.automation.siemens.com".

The self-adhesive protective foil prevents the screen from being scratched and soiled. The mat surface of the protective foil reduces reflections under unfavorable lighting.

The protective film can be removed without leaving any adhesive residue on the screen.

CAUTION
Installing and removing the protective foil Always shut down the HMI device before installing the protective foil. You might otherwise trigger unintended functions. This also applies when removing the protective foil. Never use sharp or pointed tools, such as a knife, to remove the protective foil. This may damage the touch screen.

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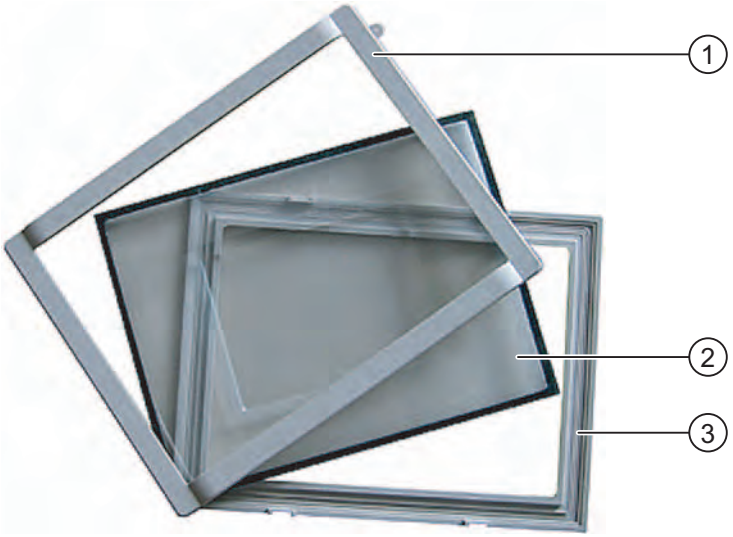
11.1.4 Protective covers on the TP 177A and TP 177B 6"

Protective cover

The cover protects the front of the TP 177A and TP 177B 6". The cover protects the display and the frame of the HMI device from dirt, scratches and chemicals. This allows the HMI devices to also be used in environments with a higher level of harmful substances.

When the cover is used, the protective class NEMA4 is achieved.

The following figure shows the components of protective cover:



① Frame
② Protective cover
③ Base frame

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The figure below shows the HMI device with installed protective cover:



① Eyelet for securing a touch screen pen
② Touch screen of the HMI device
③ Protective cover

Note

Custom designs of the front using the protective cover

The front of the HMI device can be adapted for custom designs. You can find template "Labeling protective_cover_TP070_TP170.doc" for the labeling strips on the WinCC flexible Installation CD 2 under "\Documents\<Language>\Slides." The templates are formatted for various languages. <Language> stands for the respective language you are using.

Requirement

The HMI device has been removed.

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Procedure for installation

Proceed as follows:

1. Position the HMI device with the front facing down.

   Set the HMI device down in such a way that the touch screen cannot be damaged during the work to follow.

2. Remove the mounting seal on the HMI device

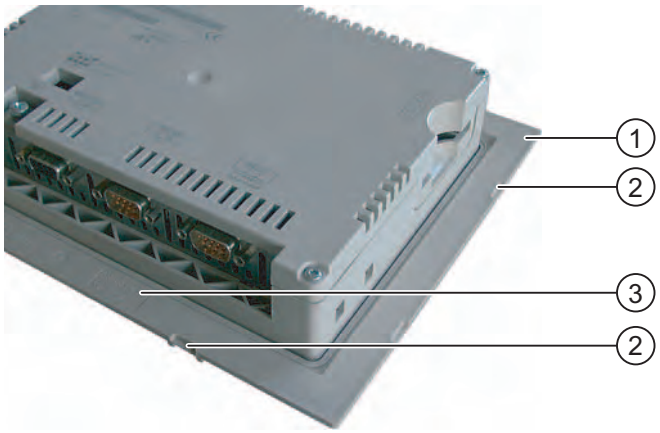
   Do not damage the mounting seal.



① Mounting seal

3. Position the base frame on the HMI device

   Position the base frame in such a way that the legend field is visible.

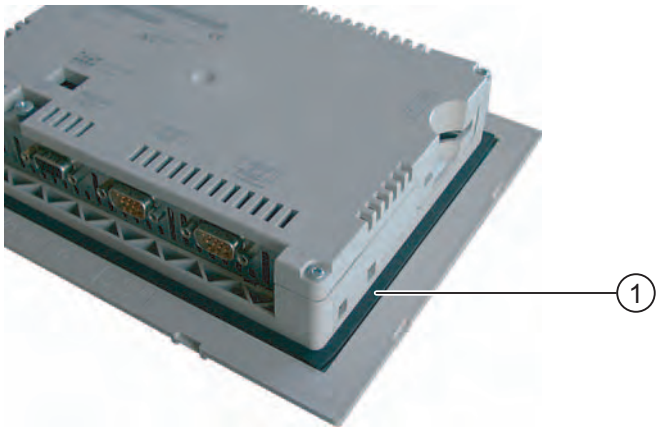


① Base frame
② Attachment point for the frame
③ Legend field on the base frame

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4. Insert the mounting seal.

   Make sure the mounting seal is not twisted when inserting.



① Mounting seal

5. Turn the HMI device and position it on its back.
6. Position the protective cover

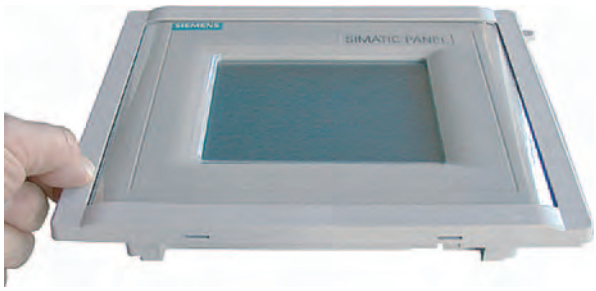
   Check to ensure that the protective cover and seal adhere to each other without any gaps. Make sure you use a protective cover that is in perfect condition.



① Protective cover

7. Place the protective cover on the base frame and press down firmly.

   You will find eight attachment points on the base frame. Press the base frame and frame together at these points, until you hear them engage.



8. Insert the HMI device in the mounting cut-out.
9. Secure the HMI device as previously described in the operating instructions.

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Procedure for dismantling

To remove the frame from the base frame, insert a screwdriver of a suitable size into a slot on the base frame. Then you can lever the frame from the base frame.

11.2 Service and spare parts

Repairs

In case of repair, the HMI device must be shipped to the Return Center in Fürth. The HMI device may only be repaired there.

The address is:

Siemens AG
Industry Sector
Returns Center
Siemensstr. 2
90766 Fürth
Germany

Service pack

A service pack can be ordered for servicing purposes. It contains the following spare parts:

- Mounting seal
- Mounting clamps
- Terminal block, 2-pin

The service pack can be ordered from your Siemens representative.

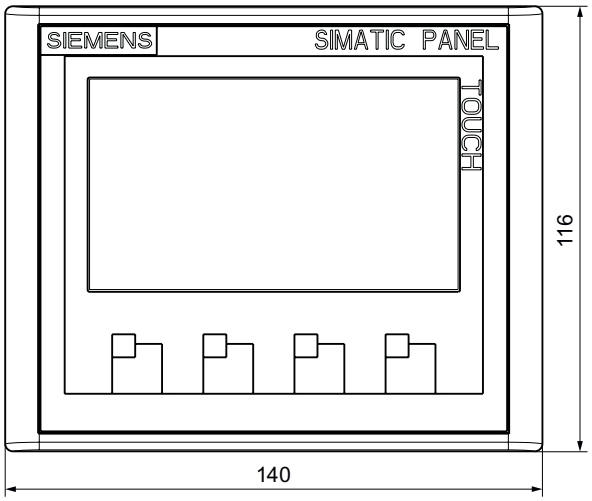
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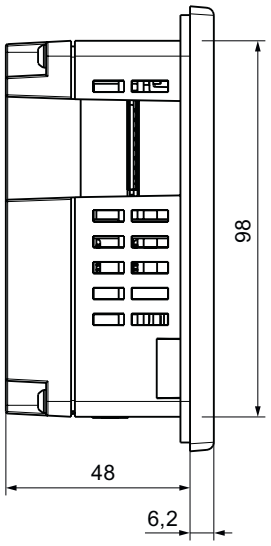
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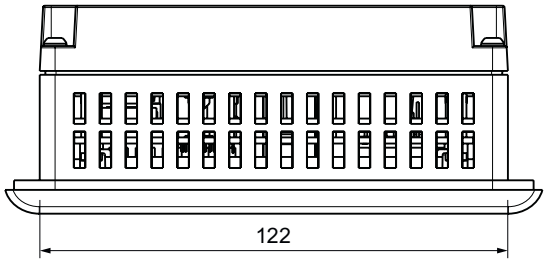
Specifications

12

12.1 Dimension drawings of the TP 177B 4"

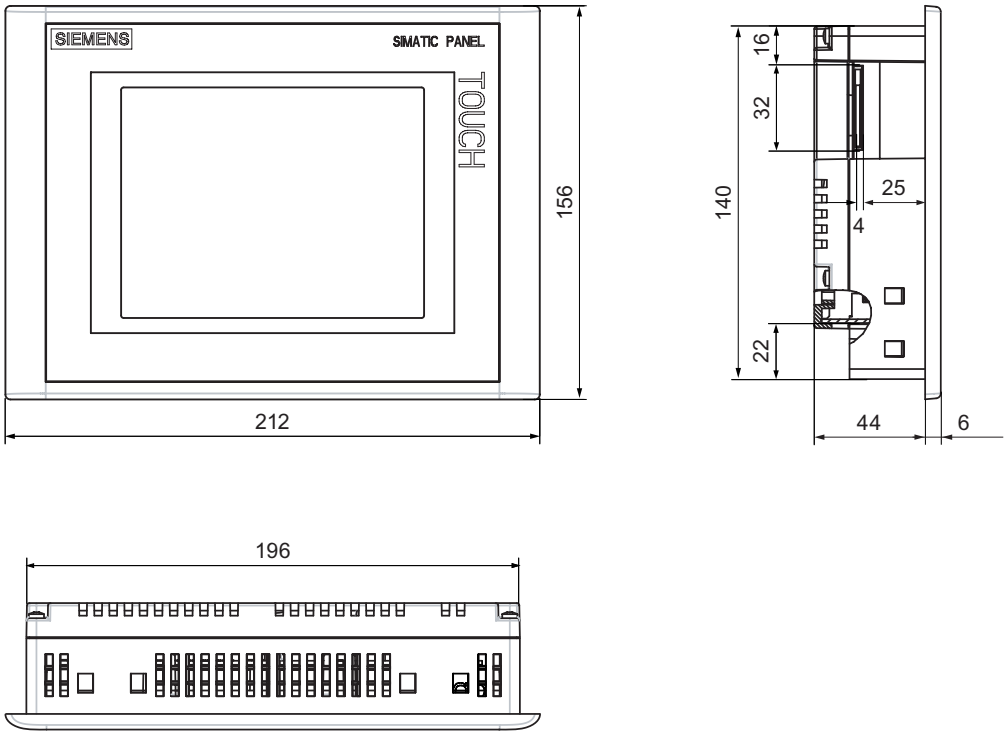






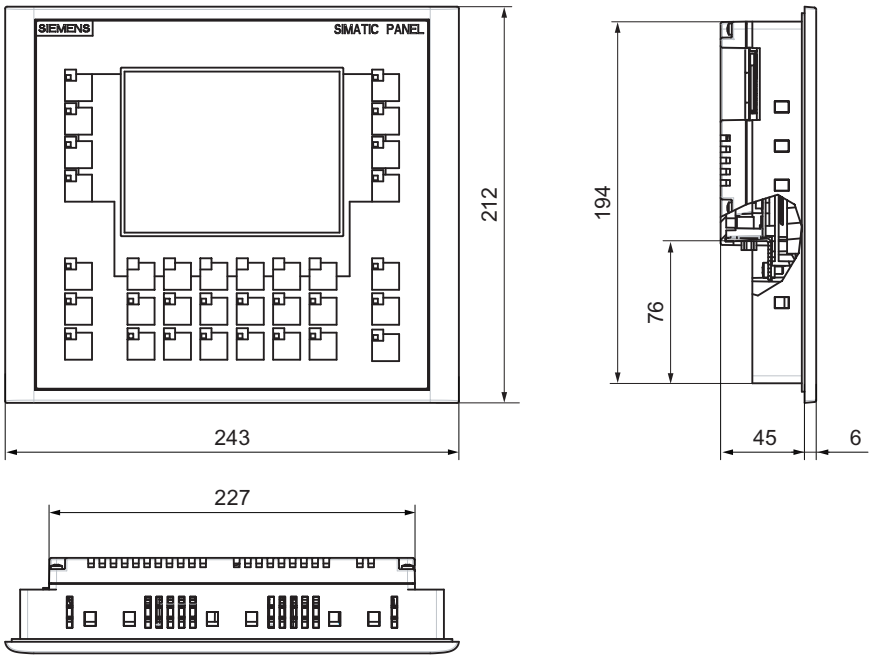
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12.2 Dimension drawings of the TP 177A and TP 177B 6"



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12.3 Dimension Drawings of the OP 177B



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12.4 Specifications of the TP 177A

HMI Device

Weight without packing	Approx. 750 g

Display

Type	LCD-STN, blue mode
Display area, active	115.18 mm x 86.38 mm (5.7")
Resolution	320 x 240 pixels, 240 x 320 pixels with vertical mounting
Colors, displayable	4 shades of blue
Contrast control	yes
Back-lighting Half Brightness Life, typical	CCFL 50 000 h

Input unit

Type	Resistive analog touch screen

Memory

Program memory	512 KB

Supply voltage

Rated voltage Range, permissible	+24 VDC 20.4 V to 28.8 V (–15 %, +20 %)
Transients, maximum permissible	35 V (500 msec)
Time between two transients, minimum	50 s
Current input • Typical • Constant current, maximum • Power on current surge I^2t	 • Approx. 300 mA • Approx. 450 mA • Approx. 0.5 A^2s
Fuse, internal	Electronic

See also

Standards and Approvals (Page 30)
Electromagnetic Compatibility (Page 36)
Transport and Storage Conditions (Page 38)
Mounting Information (Page 39)
Specifications for Insulation Tests, Protection Class and Degree of Protection (Page 45)

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12.5 Technical specifications of the TP 177B 4"

HMI device

Weight without packing	Approximately 500 g

Display

Type	LCD-TFT
Display area, active	95 mm x 53 mm (4.3", wide screen)
Resolution	480 x 272 pixels
Colors, displayable	256
Brightness control	yes
Backlighting Half Brightness Life Time, typical	LED 30 000 h
Pixel error class according to DIN EN ISO 13406-2	II

Input unit

Type	Resistive analog touch screen

Memory

Application memory	2 MB

Interfaces

1 x RS 422/RS 485	Max. 12 Mbit/s, applies to DP operations
1 x USB 1.1	USB host, maximum load 500 mA
1 x Ethernet	RJ45 10/100 Mbits

Supply voltage

Rated voltage Range, permissible	+24 VDC 19.2 V to 28.8 V (-20 %, +20 %)
Transients, maximum permissible	35 V (500 ms)
Time between two transients, minimum	50 s
Current consumption • Typical • Constant current, maximum • Power on current surge I^2t	 • approximately 200 mA • approximately 550 mA • approximately 0.1 A^2s
Fuse, internal	Electronic

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12.6 Technical specifications of the TP 177B 6"

HMI device

Weight without packing	Approx. 800 g

Display

Type	LCD STN
Display area, active	115.18 mm x 86.38 mm (5.7")
Resolution	320 x 240 pixels
Colors, displayable	256 colors for TP 177B 6" PN/DP 4 colors (blue mode) for TP 177B 6" DP
Contrast control	Yes
Back-lighting Half Brightness Life, typical	CCFL 50 000 h

Input unit

Type	Resistive analog touch screen

Memory

Application memory	2 MB

Supply voltage

Rated voltage Range, permissible	+24 VDC 20.4 V to 28.8 V (-15%, +20%)
Transients, maximum permissible	35 V (500 ms)
Time between two transients, minimum	50 s
Current consumption • Typical • Constant current, maximum • Power on current surge I^2t	 • Approx. 300 mA • Approx. 500 mA • Approx. 0.5 A^2s
Fuse, internal	Electronic

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12.7 Specifications of the OP 177B

HMI Device

Weight without packing	Approx. 1000 g

Display

Type	LCD STN
Display area, active	115.18 mm x 86.38 mm (5.7")
Resolution	320 x 240 pixels
Colors, displayable	256 colors for OP 177B PN/DP 4 colors (blue mode) for OP 177B DP
Contrast control	yes
Back-lighting Half Brightness Life, typical	CCFL 50 000 h

Input unit

Type	Resistive analog touch screen Membrane keyboard

Memory

Program memory	2 MB

Supply voltage

Rated voltage Range, permissible	+24 VDC 20.4 V to 28.8 V (–15 %, +20 %)
Transients, maximum permissible	35 V (500 msec)
Time between two transients, minimum	50 s
Current input • Typical • Constant current, maximum • Power on current surge I^2t	 • Approx. 300 mA • Approx. 500 mA • Approx. 0.5 A^2s
Fuse, internal	Electronic

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12.8 Description of the Interfaces

12.8.1 Power Supply

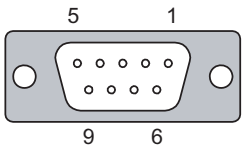
Plug connector, 2-pin



PIN	Assignment
1	+24 VDC
2	GND 24 V

12.8.2 X10/IF 1B (RS 422/RS 485)

Sub-d socket, 9-pin, with screw lock



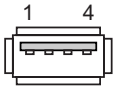
PIN	Assignment for the RS 422	Assignment for the RS 485
1	n. c.	n. c.
2	GND 24 V	GND 24 V
3	TxD+	Data channel B (+)
4	RD+	RTS [1)]
5	GND 5 V, floating	GND 5 V, floating
6	+5 VDC, floating	+5 VDC, floating
7	+24 VDC, out (max. 100 mA)	+24 VDC, out (max. 100 mA)
8	TxD–	Data channel A (–)
9	RxD–	RTS [1)]

1) On pin 4 or pin 9, can be set with DIP switch on the rear of the device

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12.8.3 X20 (USB)

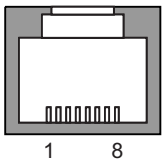
USB standard connector



PIN	Assignment	
1	+5 VDC, out,	on TP 177A, TP 177B 6", OP 177B: 100 mA on the TP 177B 4": 500 mA
2	USB-DN	
3	USB-DP	
4	GND	

12.8.4 X1 (PROFINET)

RJ45 plug connector



PIN	Assignment
1	TX+
2	TX-
3	RX+
4	n.c.
5	n.c.
6	RX-
7	n.c.
8	n.c.

Each PROFINET port features one green and one yellow LED. These LEDs show the status of the PROFINET communication.

The following table shows the meaning of the LEDs:

Green "LINK" LED	Yellow "RX/TX" LED	Meaning
off	off	There is no PROFINET connection.
on	off	PROFINET communication possible.
on	on	Data is being sent over the PROFINET connection.

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Appendix

A

A.1 ESD Guidelines

What does ESD mean?

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

Abbreviations

The following abbreviations are commonly used for electrostatic sensitive devices:

- ESD – **E**lectrostatic **S**ensitive **D**evices
- ESD – **E**lectrostatic **S**ensitive **D**evice as common international designation

Labeling

ESD modules are labeled with the following symbol:



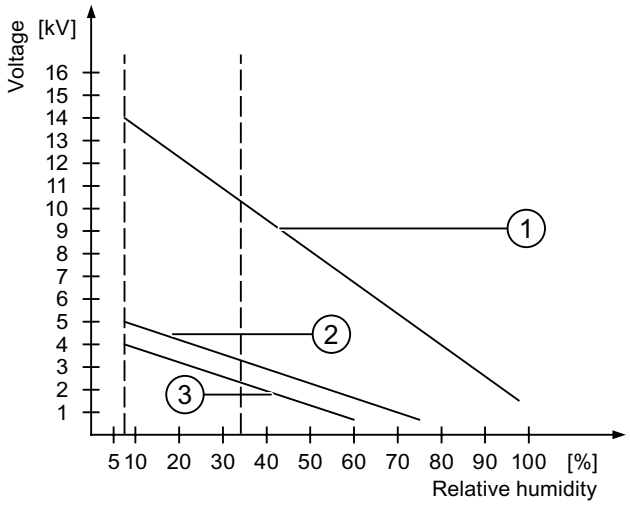
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Electrostatic charge

CAUTION
Electrostatic charge ESDs may be destroyed by voltages well below the perception threshold of persons. Voltages of this kind develop when a component or an assembly is touched by a person who is not grounded against static electricity. Usually, it is unlikely that damage to an ESD as a result of overvoltage is detected immediately but may become apparent only after a longer period of operation. Prevent electrostatic charge of your body before you touch the ESD!

Anyone who is not connected to the electrical potential of their surroundings is subjected to electrostatic charge.

The figure indicates the maximum electrostatic charge anyone is subjected to when contacting the materials shown. These values correspond with specifications to IEC 801-2.



① Synthetic materials
② Wool
③ Antistatic materials such as wood or concrete

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Protective Measures against Discharge of Static Electricity

CAUTION
Grounding Measures When working with electrostatic sensitive devices, make sure that the person, the workplace and the packaging are properly grounded. This helps to avoid electrostatic charge.

As a rule, only touch the ESD if this is unavoidable. Example: for maintenance. When you touch modules, make sure that you do not touch the pins on the modules or the PCB tracks. This prevents any discharge of static electricity to sensitive component and thus avoids damage.

Discharge electrostatic electricity from your body if you are performing measurements on an ESD. To do so, touch a grounded metallic object.

Always use grounded measuring instruments.

A.2 System Alarms

Introduction

System alarms on the HMI device provide information about internal states of the HMI device and PLC.

The overview below shows the causes of system alarms and how to eliminate the cause of error.

Depending on scope of functions, only parts of the system alarms described in this section apply to the various HMI devices.

Note

System alarms are only indicated if an alarm window was configured. System alarms are output in the language currently set on your HMI device.

System Alarm Parameters

System alarms may contain encrypted parameters which are relevant to troubleshooting because they provide a reference to the source code of the Runtime software.
These parameters are output after the text "Error code:"

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Meaning of the System Alarms

Number	Effect/cause	Remedy
10000	The print job could not be started or was canceled due to an unknown error. Faulty printer setup. Or: No permission is available for accessing the network printer. Power supply failure during data transfer.	Check the printer settings, cable connections and the power supply. Set up the printer once again. Obtain a network printer authorization. If the error persists, contact the Hotline!
10001	No printer is installed or a default printer has not been set up.	Install a printer and/or select it as the default printer.
10002	Overflow of the graphics buffer for printing. Up to two images are buffered.	Allow sufficient intervals between successive print jobs.
10003	Images can now be buffered again.	—
10004	Overflow of the buffer for printing lines in text mode (e.g.alarms). Up to 1000 lines are buffered.	Allow sufficient intervals between successive print jobs.
10005	Text lines can now be buffered again.	—
10006	The Windows printing system reports an error. Refer to the output text and the error ID to determine the possible causes. Nothing is printed or the print is faulty.	Repeat the action if necessary.
20010	An error has occurred in the specified script line. Execution of the script was therefore aborted. Note the system alarm that may have occurred prior to this.	Select the specified script line in the configuration. Ensure that the tags used are of the allowed types. Check system functions for the correct number and types of parameters.
20011	An error has occurred in a script that was called by the specified script. Execution of the script was therefore aborted in the called script. Take the system alarm that may have occurred prior to this into account.	In the configuration, select the script that has been called directly or indirectly by the specified script. Ensure that the tags used are of the allowed types. Check the system functions for the correct number and type of parameters.
20012	The configuration data is inconsistent. The script could therefore not be generated.	Recompile the configuration.
20013	The scripting component of WinCC flexible Runtime is not correctly installed. Therefore, no scripts can be executed.	Reinstall WinCC flexible Runtime.
20014	The system function returns a value that is not written in any return tag.	Select the specified script in the configuration. Check if the script name has been assigned a value.
20015	Too many successive scripts have been triggered in short intervals. When more than 20 scripts are queued for processing, any subsequent scripts are rejected. In this case, the script indicated in the alarm is not executed.	Find what is triggering the scripts. Extend the times, e.g. the polling time of the tags which trigger the scripts.
30010	The tag could not accept the function result, e.g. when it has exceeded the value range.	Check the tag type of the system function parameter.
30011	A system function could not be executed because the function was assigned an invalid value or type in the parameter.	Check the parameter value and tag type of the invalid parameter. If a tag is used as a parameter, check its value.
40010	The system function could not be executed since the parameters could not be converted to a common tag type.	Check the parameter types in the configuration.

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Number	Effect/cause	Remedy
40011	The system function could not be executed since the parameters could not be converted to a common tag type.	Check the parameter types in the configuration.
50000	The HMI device is receiving data faster than it is capable of processing. Therefore, no further data is accepted until all current data have been processed. Data exchange then resumes.	—
50001	Data exchange has been resumed.	—
60000	This alarm is generated by the "DisplaySystemAlarms" function. The text to be displayed is transferred to the function as a parameter.	—
60010	The file could not be copied in the direction defined because one of the two files is currently open or the source/target path is not available. It is possible that the Windows user has no access rights to one of the two files.	Restart the system function or check the paths of the source/target files. Using Windows NT/2000/XP: The user executing WinCC flexible Runtime must be granted access rights for the files.
60011	An attempt was made to copy a file to itself. It is possible that the Windows user has no access rights to one of the two files.	Check the path of the source/target file. Using Windows NT/2000/XP with NTFS: The user executing WinCC flexible Runtime must be granted access rights for the files.
70010	The application could not be started because it could not be found in the path specified or there is insufficient memory space.	Check if the application exists in the specified path or close other applications.
70011	The system time could not be modified. The error alarm only appears in connection with area pointer "Date/time PC". Possible causes: • An invalid time was transferred in the job mailbox. • The Windows user has no right to modify the system time. If the first parameter in the system alarm is displayed with the value 13, the second parameter indicates the byte containing the incorrect value.	Check the time which is to be set. Using Windows NT/2000/XP: The user executing WinCC flexible Runtime must be granted the right to change the system time of the operating system.
70012	An error occurred when executing the function "StopRuntime" with the option "Runtime and operating system". Windows and WinCC flexible Runtime are not closed. One possible cause is that other programs cannot be closed.	Close all programs currently running. Then close Windows.
70013	The system time could not be modified because an invalid value was entered. Incorrect separators may have been used.	Check the time which is to be set.
70014	The system time could not be modified. Possible causes: • An invalid time was transferred. • The Windows user has no right to modify the system time. • Windows rejects the setting request.	Check the time which is to be set. Using Windows NT/2000/XP: The user executing WinCC flexible Runtime must be granted the right to change the system time of the operating system.

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Number	Effect/cause	Remedy
70015	The system time could not be read because Windows rejects the reading function.	—
70016	An attempt was made to select a screen by means of a system function or job. This is not possible because the screen number specified does not exist. Or: A screen could not be generated due to insufficient system memory.	Check the screen number in the function or job with the screen numbers configured. Assign the number to a screen if necessary.
70017	Date/Time is not read from the area pointer because the address set in the controller is either not available or has not been set up.	Change the address or set up the address in the controller.
70018	Acknowledgment that the password list has been successfully imported.	—
70019	Acknowledgment that the password list has been successfully exported.	—
70020	Acknowledgment for activation of alarm reporting.	—
70021	Acknowledgment for deactivation of alarm reporting.	—
70022	Acknowledgment to starting the Import Password List action.	—
70023	Acknowledgment to starting the Export Password List action.	—
70024	The value range of the tag has been exceeded in the system function. The calculation of the system function is not performed.	Check the desired calculation and correct it if necessary.
70025	The value range of the tag has been exceeded in the system function. The calculation of the system function is not performed.	Check the desired calculation and correct it if necessary.
70026	No other screens are stored in the internal screen memory. No other screens can be selected.	—
70027	The backup of the RAM file system has been started.	—
70028	The files from the RAM have been copied in the Flash memory. The files from the RAM have been copied in the Flash memory. Following a restart, these saved files are copied back to the RAM file system.	—
70029	Backup of the RAM file system has failed. No backup copy of the RAM file system has been made.	Check the settings in the "Control Panel > OP" dialog and save the RAM file system using the "Save Files" button in the "Persistent Storage" tab.
70030	The parameters configured for the system function are faulty. The connection to the new controller was not established.	Compare the parameters configured for the system function with the parameters configured for the controllers and correct them as necessary.
70031	The controller configured in the system function is not an S7 controller. The connection to the new controller was not established.	Compare the S7 controller name parameter configured for the system function with the parameters configured for the controller and correct them as necessary.

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Number	Effect/cause	Remedy
70032	The object configured with this number in the tab order is not available in the selected screen. The screen changes but the focus is set to the first object.	Check the number of the tab order and correct it if necessary.
70033	An e-mail cannot be sent because a TCP/IP connection to the SMTP server no longer exists. This system alarm is generated only at the first attempt. All subsequent unsuccessful attempts to send an e-mail will no longer generate a system alarm. The event is regenerated when an e-mail has been successfully sent in the meantime. The central e-mail component in WinCC flexible Runtime attempts, in regular intervals (1 minute), to establish the connection to the SMTP server and to send the remaining e-mails.	Check the network connection to the SMTP server and re-establish it if necessary.
70034	Following a disruption, the TCP/IP connection to the SMTP server could be re-established. The queued e-mails are then sent.	—
70036	No SMTP server for sending e-mails is configured. An attempt to connect to an SMTP server has failed and it is not possible to send e-mails. WinCC flexible Runtime generates the system alarm after the first attempt to send an e-mail.	Configure an SMTP server: In WinCC flexible Engineering System using "Device settings > Device settings" In the Windows CE operating system using "Control Panel > Internet Settings > E-mail > SMTP Server"
70037	An e-mail cannot be sent for unknown reasons. The contents of the e-mail are lost.	Check the e-mail parameters (recipient etc.).
70038	The SMTP server has rejected sending or forwarding an e-mail because the domain of the recipient is unknown to the server or because the SMTP server requires authentication. The contents of the e-mail are lost.	Check the domain of the recipient address or deactivate the authentication on the SMTP server if possible. SMTP authentication is currently not used in WinCC flexible Runtime.
70039	The syntax of the e-mail address is incorrect or contains illegal characters. The contents of the e-mail are discarded.	Check the e-mail address of the recipient.
70040	The syntax of the e-mail address is incorrect or contains illegal characters.	—
70041	The import of the user management was aborted due to an error. Nothing was imported.	Check your user management or transfer it again to the panel.
80001	The log specified is filled to the size defined (in percent) and must be stored elsewhere.	Store the file or table by executing a ‘move’ or ‘copy’ function.
80002	A line is missing in the specified log.	—
80003	The copying process for logging was not successful. In this case, it is advisable to check any subsequent system alarms, too.	—
80006	Since logging is not possible, this causes a permanent loss of the functionality.	In the case of databases, check if the corresponding data source exists and start up the system again.
80009	A copying action has been completed successfully.	—

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Number	Effect/cause	Remedy
80010	Since the storage location was incorrectly entered in WinCC flexible, this causes a permanent loss of the functionality.	Configure the storage location for the respective log again and restart the system when the full functionality is required.
80012	Log entries are stored in a buffer. If the values are read to the buffer faster than they can be physically written (using a hard disk, for example), overloading may occur and recording is then stopped.	Archive fewer values. Or: Increase the logging cycle.
80013	The overload status no longer applies. Archiving resumes the recording of all values.	—
80014	The same action was triggered twice in quick succession. Since the process is already in operation, the action is only carried out once.	—
80015	This system alarm is used to report DOS or database errors to the user.	—
80016	The logs are separated by the system function "CloseAllLogs" and the incoming entries exceed the defined buffer size. All entries in the buffer are deleted.	Reconnect the logs.
80017	The number of incoming events cause a buffer overflow. his can be caused, for example, by several copying actions being activated at the same time. All copy jobs are deleted.	Stop the copy action.
80019	The connection between WinCC flexible and all logs were closed, for example, after executing the system function "CloseAllLogs". Entries are written to the buffer and are then written to the logs when a connection is re-established. There is no connection to the storage location and the storage medium may be replaced, for example.	—
80020	The maximum number of simultaneously copy operations has been exceeded. Copying is not executed.	Wait until the current copying actions have been completed, then restart the last copy action.
80021	An attempt was made to delete a log which is still busy with a copy action. Deletion has not been executed.	Wait until the current copying actions have been completed, then restart the last action
80022	An attempt was made to start a sequence log, which is not a sequence log, from a log using the system function "StartSequenceLog". No sequence log file is created.	In the project, check • if the "StartSequenceLog" system function was properly configured • if the tag parameters are properly provided with data on the HMI device
80023	An attempt was made to copy a log to itself. The log is not copied.	In the project, check • if the "CopyLog" system function was properly configured • if the tag parameters are properly provided with data on the HMI device
80024	The "CopyLog" system function does not allow copying when the target log already contains data ("Mode" parameter). The log is not copied.	Edit the "CopyLog" system function in the project if necessary. Before you initiate the system function, delete the destination log file.

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Number	Effect/cause	Remedy
80025	You have canceled the copy operation. Data written up to this point are retained. The destination log file (if configured) is not deleted. The cancellation is reported by an error entry RT_ERR at the end of the destination log.	—
80026	This alarm is output after all logs are initialized. Values are written to the logs from then on. Prior to this, no entries are written to the logs, irrespective whether WinCC flexible Runtime is active or not.	—
80027	The internal Flash memory has been specified as the storage location for a log. This is not permissible. No values are written to this log and the log file is not created.	Configure "Storage Card" or a network path as the storage location.
80028	The alarm returns a status report indicating that the logs are currently being initialized. No values are logged until the alarm 80026 is output.	—
80029	The number of logs specified in the alarm could not be initialized. The logs are initialized. The faulty log files are not available for logging jobs.	Evaluate the additional system alarms, related to this alarm which is also generated. Check the configuration, the ODBC (Open Database Connectivity) and the specified drive.
80030	The structure of the existing log file does not match the expected structure. Logging is stopped for this log.	Delete the existing log data manually, in advance.
80031	The log in CSV format is corrupted. The log cannot be used.	Delete the faulty file.
80032	Logs can be assigned events. These are triggered as soon as the log is full. If WinCC flexible Runtime is started and the log is already full, the event is not triggered. The log specified no longer logs data because it is full.	Close WinCC flexible Runtime, delete the log, then restart WinCC flexible Runtime. Or: Configure a button which contains the same actions as the event and press it.
80033	"System Defined" is set in the data log file as the data source name. This causes an error. No data is written to the database logs, whereas the logging to the CSV logs works.	Install MSDE again.
80034	An error has occurred in the initialization of the logs. An attempt has been made to create the tables as a backup. This action was successful. A backup has been made of the tables of the corrupted log file and the cleared log was restarted.	No action is necessary. However, it is recommended to save the backup files or delete them in order to make the space available again.
80035	An error has occurred in the initialization of the logs. An attempt has been made to create backups of the tables and this has failed. No logging or backup has been performed.	It is recommended to save the backups or to delete them in order to release memory.
80044	The export of a log was interrupted because Runtime was closed or due to a power failure. It was detected that the export needed to be resume when Runtime restarted.	The export resumes automatically.

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Number	Effect/cause	Remedy
80045	The export of a log was interrupted due to an error in the connection to the server or at the server itself.	The export is repeated automatically. Check: • the connection to the server • if the server is running • if there is enough free space on the server.
80046	The destination file could not be written while exporting the log.	Check if there is enough space on the server and it you have permission to create the log file.
80047	The log could not be read while exporting it.	Check if the storage medium is correctly inserted.
80048	—	—
80049	The log could not be renamed while preparing to export it. The job can not be completed."	Check if the storage medium is correctly inserted and if there is sufficient space on the medium.
80050	The log which shall be exported is not closed. The job can not be completed.	Make sure the "CloseAll Logs" system function is called before using the "ExportLog" system function. Change the configuration as required.
90024	No operator actions can be logged due to lack of space on the storage medium for log. The operator action will therefore not be executed.	Make more space available by inserting an empty storage medium or swapping out the log files on the server using "ExportLog".
90025	Because of error state of the archive no user actions can be logged. Therefore the user action will not be executed.	Check if the storage medium is correctly inserted.
90026	No operator actions can be logged because the log is closed. The operator action will therefore not be executed.	Before further operator actions are carried out, the log must be opened again using the system function "OpenAllLogs". Change the configuration as required.
90029	Runtime was closed during ongoing operation (perhaps due to a power failure) or an a storage medium in use is incompatible with Audit Trail. An Audit Trail is not suitable if it belongs to another project or has already be archived.	Ensure that you are using the correct storage medium.
90030	Runtime was closed during ongoing operation (perhaps due to a power failure).	—
90031	Runtime was closed during ongoing operation (perhaps due to a power failure).	—
90032	Running out of space on the storage medium for log.	Make more space available by inserting an empty storage medium or swapping out the log files on the server using "ExportLog".
90033	No more space on the storage medium for log. As of now, no more operator actions requiring logging will be executed.	Make more space available by inserting an empty storage medium or swapping out the log files on the server using "ExportLog".
90040	Audit Trail is switched off because of a forced user action.	Activate the "Audit Trail" again using the system function "StartLog".
90041	A user action which has to be logged has been executed without a logged on user.	A user action requiring logging should only be possible with permission. Change the configuration by setting a required permission for the input object.
90044	A user action which has to be confirmed was blocked, because there is another user action pending.	Repeat the user action if necessary.
110000	The operating mode was changed. "Offline" mode is now set.	—
110001	The operating mode was changed. "Online" mode is now set.	—

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Number	Effect/cause	Remedy
110002	The operating mode was not changed.	Check the connection to the controllers. Check if the address area for the area pointer 88 "Coordination" in the controller is available.
110003	The operating mode of the specified controller was changed by the system function "SetConnectionMode". The operating mode is now "offline".	—
110004	The operating mode of the specified controller has been changed by the system function "SetConnectionMode". The operating mode is now "online".	—
110005	An attempt was made to use the system function SetConnectionMode to switch the specified controller to "online" mode, although the entire system is in "offline" mode. This changeover is not allowed. The controller remains in "offline" mode.	Switch the complete system to "online" mode, then execute the system function again.
110006	The content of the "project version" area pointer does not match the user version configured in WinCC flexible. WinCC flexible Runtime is therefore closed.	Check: • the project version entered on the controller • the project version entered in WinCC flexible
120000	The trend is not displayed because you configured an incorrect axis to the trend or an incorrect trend.	Change the configuration.
120001	The trend is not displayed because you configured an incorrect axis to the trend or an incorrect trend.	Change the configuration.
120002	The trend is not displayed because the tag assigned attempts to access an invalid controller address.	Check if the data area for the tag exists in the controller, the configured address is correct and the value range for the tag is correct.
130000	The action was not executed.	Close all other programs. Delete files no longer required from the hard disk.
130001	The action was not executed.	Delete files no longer required from the hard disk.
130002	The action was not executed.	Close all other programs. Delete files no longer required from the hard disk.
130003	No data medium found. The operation is canceled.	Check, for example, if • the correct data medium is being accessed • the data medium is inserted
130004	The data medium is write-protected. The operation is canceled.	Check if access has been made to the correct data carrier. Remove the write protection.
130005	The file is read only. The operation is canceled.	Check if access has been made to the correct file. Edit the file attributes if necessary.
130006	Access to file failed. The operation is canceled.	Check, for example, if • the correct file is being accessed • the file exists • another action is preventing simultaneous access to the file
130007	The network connection is interrupted. Data records cannot be saved or read over the network connection.	Check the network connection and eliminate the cause of error.
130008	The storage card is not available. Data records cannot be saved to / read from the storage card.	Insert the storage card.

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Number	Effect/cause	Remedy
130009	The specified folder does not exist on the storage card. Any files saved to this directory are not backed up when you switch off the HMI device.	Insert the storage card.
130010	The maximum nesting depth can be exhausted when, for example, a value change in a script results in the call of another script and the second script in turn has a value change that results in the call of yet a further script etc. The configured functionality is not supported.	Check the configuration.
140000	An online connection to the controller is established.	—
140001	The online connection to the controller was shut down.	—
140003	No tag updating or writing is executed.	Check the connection and if the controller is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system.
140004	No tag update or write operations are executed because the access point or the module configuration is faulty.	Verify the connection and check if the controller is switched on. Check the access point or the module configuration (MPI, PPI, PROFIBUS) in the Control Panel with "Set PG/PC interface". Restart the system.
140005	No tag updating or writing is executed because the HMI device address is incorrect (possibly too high).	Use a different HMI device address. Verify the connection and check ifthe controller is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system.
140006	No tag updating or writing is executed because the baud rate is incorrect.	Select a different baud rate in WinCC flexible (according to module, profile, communication peer, etc.).
140007	Tag are not updated or written because the bus profile is incorrect (see %1). The following parameter could not be written to the registry:: 1: Tslot 2: Tqui 3: Tset 4: MinTsdr 5: MaxTsdr 6: Trdy 7: Tid1 8: Tid2 9: Gap Factor 10: Retry Limit	Check the user-defined bus profile. Check the connection and if the controller is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system.

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Number	Effect/cause	Remedy
140008	No tag updating or writing is executed because baud rate is incorrect. The following parameters could not be written to the registry: 0: General error 1: Wrong version 2: Profile cannot be written to the registry. 3: The subnet type cannot be written to the registry. 4: The Target Rotation Time cannot be written to the registry. 5: Faulty Highest Address (HSA).	Check the connection and if the controller is switched on. Check the parameter definitions in the Control Panel using "Set PG/PC interface". Restart the system.
140009	Tags are not updated or written because the module for S7 communication was not found.	Reinstall the module in the Control Panel using "Set PG/PC interface".
140010	No S7 communication partner found because the controller is shut down. DP/T: The option "PG/PC is the only master" is not set in the Control Panel under "Set PG/PC interface."	Switch the controller on. DP/T: If only one master is connected to the network, disable "PG/PC is the only master" in "Set PG/PC interface". If several masters are connected to the network, enable these. Do not change any settings, for this will cause bus errors.
140011	No tag updating or writing is executed because communication is down.	Check the connection and that the communication partner is switched on.
140012	There is an initialization problem (e.g. when WinCC flexible Runtime was closed in Task Manager). Or: Another application (e.g.STEP7) with different bus parameters is active and the driver cannot be started with the new bus parameters (transmission rate, for example).	Restart the HMI device. Or: Run WinCC flexible Runtime, then start your other applications.
140013	The MPI cable is disconnected and, thus, there is no power supply.	Check the connections.
140014	The configured bus address is in already in use by another application.	Edit the HMI device address in the controller configuration.
140015	Wrong transmission rate Or: Faulty bus parameters (e.g.HSA) Or: OP address > HSA or: Wrong interrupt vector (interrupt does not arrive at the driver)	Correct the relevant parameters.
140016	The hardware does not support the configured interrupt.	Change the interrupt number.
140017	The set interrupt is in use by another driver.	Change the interrupt number.
140018	The consistency check was disabled by SIMOTION Scout. Only a corresponding note appears.	Enable the consistency check with SIMOTION Scout and once again download the project to the PLC.
140019	SIMOTION Scout is downloading a new project to the controller. Connection to the controller is canceled.	Wait until the end of the reconfiguration.

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Number	Effect/cause	Remedy
140020	The version in the controller and that of the project (FWX file) do not match. Connection to the controller is canceled	The following remedies are available: Download the current version to the PLC using SIMOTION Scout. Regenerate the project using WinCC flexible ES, close WinCC flexible Runtime and restart with a new configuration.
150000	No more data is read or written. Possible causes: • The cable is defective. • The PLC does not respond, is defective, etc. • The wrong port is used for the connection. • System overload.	Ensure that the cable is plugged in, the controller is operational, the correct interface is being used. Restart the system if the system alarm persists.
150001	Connection is up because the cause of the interruption has been eliminated.	—
160000	No more data is read or written. Possible causes: • The cable is defective. • The PLC does not respond, is defective, etc. • The wrong port is used for the connection. • System overload.	Ensure that the cable is plugged in, the controller is operational, the correct interface is being used. Restart the system if the system alarm persists.
160001	Connection is up because the cause of the interruption has been eliminated.	—
160010	No connection to the server because the server identification (CLS-ID) cannot be determined. Values cannot be read or written.	Check access rights.
160011	No connection to the server because the server identification (CLS-ID) cannot be determined. Values cannot be read or written.	Check, for example, if • the server name is correct • the computer name is correct • the server is registered
160012	No connection to the server because the server identification (CLS-ID) cannot be determined. Values cannot be read or written.	Check, for example, if • the server name is correct • the computer name is correct • the server is registered Note for advanced users: Interpret the value from HRESULT.
160013	The specified server was started as InProc server. This has not been released and may possibly lead to incorrect behavior because the server is running in the same process area as the WinCC flexible Runtime software.	Configure the server as OutProc Server or Local Server.
160014	Only one OPC server project can be started on a PC/MP. An alarm is output when an attempt is made to start a second project. The second project has no OPC server functionality and cannot be located as an OPC server by external sources.	Do not start a second project with OPC server functionality on the computer.
170000	S7 diagnostics events are not indicated because it is not possible to log in to the S7 diagnostics functions at this device. The service is not supported.	—

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Number	Effect/cause	Remedy
170001	The S7 diagnostics buffer cannot be viewed because communication with the controller is shut down.	Set the controller to online mode.
170002	The S7 diagnostics buffer cannot be viewed because reading of the diagnostics buffer (SSL) was canceled with error.	—
170003	An S7 diagnostics event cannot be visualized. The system returns internal error %2.	—
170004	An S7 diagnostics event cannot be visualized. The system returns an internal error of error class %2, error number %3.	—
170007	It is not possible to read the S7 diagnostics buffer (SSL) because this operation was canceled with an internal error of class %2 and error code %3.	—
180000	A component/OCX received configuration data with a version ID which is not supported.	Install a newer component.
180001	System overload because too many actions running in parallel. Not all the actions can be executed, some are rejected.	Several remedies are available: • Increase the configured cycle times or basic clock. • Generate the alarms at a slower rate (polling). • Initiate scripts and functions at greater intervals. If the alarm appears more frequently: Restart the HMI device.
180002	The on-screen keyboard could not be activated. Possible causes: "TouchInputPC.exe" was not registered due to a faulty Setup.	Reinstall WinCC flexible Runtime.
190000	It is possible that the tag is not updated.	—
190001	The tag is updated after the cause of the last error state has been eliminated (return to normal operation).	—
190002	The tag is not updated because communication with the controller is down.	Select the system function "SetOnline" to go online.
190004	The tag is not updated because the configured tag address does not exist.	Check the configuration.
190005	The tag is not updated because the configured controller type does not exist for this tag.	Check the configuration.
190006	The tag is not updated because it is not possible to map the controller type in the data type of the tag.	Check the configuration.
190007	The tag value is not modified because the connection to the controller is interrupted or the tag is offline.	Set online mode or reconnect to the controller.
190008	The threshold values configured for the tag have been violated, for example, by • a value entered • a system function • a script	Observe the configured or current threshold values of the tag.

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Number	Effect/cause	Remedy
190009	An attempt has been made to assign the tag a value which is outside the permitted range of values for this data type. For example, a value of 260 was entered for a byte tag or a value of -3 for an unsigned word tag.	Observe the range of values for the data type of the tags.
190010	Too many values are written to the tag (for example, in a loop triggered by a script). Values are lost because only up to 100 actions are saved to the buffer.	Increase the time interval between multiple write actions.
190011	Possible cause 1: The value entered could not be written to the configured controller tag because the high or low limit was exceeded. The system discards the entry and restores the original value. Possible cause 2: The connection to the controller was interrupted.	Make sure that the value entered lies within the range of values of the control tags. Check the connection to the PLC.
190012	It is not possible to convert a value from a source format to a target format, for example: An attempt is being made to assign a value to a counter that is outside the valid, PLC-specific value range. A tag of the type Integer should be assigned a value of the type String.	Check the range of values or the data type of the tags.
190100	The area pointer is not updated because the address configured for this pointer does not exist. Type 1 Warning alarms 2 Error alarms 3 Controller acknowledgment 4 HMI device acknowledgment 5 LED mapping 6 Trend request 7 Trend transfer 1 8 Trend transfer 2 No.: consecutive number shown in WinCC flexible ES.	Check the configuration.
190101	The area pointer is not updated because it is not possible to map the PLC type to the area pointer type. Parameter type and no.: See alarm 190100	—
190102	The area pointer is updated after the cause of the last error state has been eliminated (return to normal operation). Parameter type and no.: See alarm 190100.	—
200000	Coordination is not executed because the address configured in the controller does not exist/is not set.	Change the address or set up the address in the controller.
200001	Coordination is canceled because the write access to the address configured in the PLC is not possible.	Change the address or set the address in the controller at an area which allows write access.

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Number	Effect/cause	Remedy
200002	Coordination is not carried out at the moment because the address format of the area pointer does not match the internal storage format.	Internal error
200003	Coordination can be executed again because the last error state is eliminated (return to normal operation).	—
200004	The coordination may not be executed.	—
200005	No more data is read or written. Possible causes: • The cable is defective. • The PLC does not respond, is defective, etc. • System overload.	Ensure that the cable is plugged in and the controller is operational. Restart the system if the system alarm persists.
200100	Coordination is not executed because the address configured in the controller does not exist/is not set.	Change the address or set up the address in the controller.
200101	Coordination is canceled because the write access to the address configured in the PLC is not possible.	Change the address or set the address in the controller at an area which allows write access.
200102	Coordination is not carried out at the moment because the address format of the area pointer does not match the internal storage format.	Internal error
200103	Coordination can be executed again because the last error state is eliminated (return to normal operation).	—
200104	The coordination may not be executed.	—
200105	No more data is read or written. Possible causes: • The cable is defective. • The PLC does not respond, is defective, etc. • System overload.	Ensure that the cable is plugged in and the controller is operational. Restart the system if the system alarm persists.
210000	Jobs are not processed because the address configured in the controller does not exist/has not been set up.	Change the address or set up the address in the controller.
210001	Jobs are not processed because read/write access to the address configured in the controller is not possible.	Change the address or set up the address in the controller in an area which allows read/write access.
210002	Jobs are not executed because the address format of the area pointer does not match the internal storage format.	Internal error
210003	The job buffer is processed again because the last error status has been eliminated (return to normal operation).	—
210004	It is possible that the job buffer will not be processed.	—
210005	A control request with an illegal number was initiated.	Check the controller program.
210006	An error occurred while attempting to execute the control request. As a result, the control request is not executed. Observe the next/previous system alarms.	Check the parameters of the control request. Recompile the configuration.

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Number	Effect/cause	Remedy
220001	The tag is not downloaded because the associated communication driver / HMI device does not support the download of Boolean/discrete data types.	Change the configuration.
220002	The tag is not downloaded because the associated communication driver / HMI device does not support write access to the data type BYTE.	Change the configuration.
220003	The communication driver cannot be loaded. The driver may not be installed.	Install the driver by reinstalling WinCC flexible Runtime.
220004	Communication is down and no update data is transferred because the cable is not connected or defective etc.	Check the connection.
220005	Communication is up.	—
220006	The connection between the specified PLC and the specified port is active.	—
220007	The connection to the specified controller is interrupted at the specified port.	Check if • the cable is plugged in • the controller is OK • the correct port is used • your configuration is OK (interface parameters, protocol settings, PLC address). Restart the system if the system alarm persists.
220008	The communication driver cannot access or open the specified port. The port may be in use by another application or the port used is not available on the destination device. There is no communication with the controller.	Close all the applications which access this port and restart the computer. Use another port of the system.
230000	The value entered could not be accepted. The system discards the entry and restores the previous value. Either • the value range has been exceeded • illegal characters have been entered • the maximum permitted number of users has been exceeded	Enter a practical value or delete any unneeded users.
230002	The currently logged in user is not granted write access rights. The system therefore discards the input and restored the previous value.	Log on as a user with appropriate rights.
230003	Changeover to the specified screen failed because the screen is not available/configured. The current screen remains selected.	Configure the screen and check the screen selection function.
230005	The value range of the tag has been exceeded in the IO field. The original value of the tag is retained.	Observe the range of values for the tag when entering a value.
230100	During navigation in the web browser, the system returned a message which may be of interest to the user. The web browser continues to run but may not (fully) show the new page.	Navigate to another page.

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Number	Effect/cause	Remedy
230200	The connection to the HTTP channel was interrupted due to an error. This error is explained in detail by another system alarm. Data is no longer exchanged.	Check the network connection. Check the server configuration.
230201	The connection to HTTP channel was established. Data is exchanged.	—
230202	WININET.DLL has detected an error. This error usually occurs when an attempt to connect to the server fails or the server refuses to connect because the client lacks the proper authorization. An unknown server certificate may also be the cause if the connection is encrypted by means of SSL. The alarm text provides details. This text is always in the language of the Windows installation because it is returned by the Windows OS. Process values are no longer exchanged.	Depending on the cause: When an attempt to connect fails or a timeout error occurs: • Check the network connection and the network. • Check the server address. • Check if the web server is actually running on the destination computer. Faulty authorization: • The configured user name and/or password do not match those on the server. Establish consistency. When the server certificate is rejected: Certificate signed by an unknown CA ( ): • Either ignore this item in your project, or • Install a certificate that has been signed with a root certificate known to the client computer. The date of the certificate is invalid: • Either ignore this item in your project, or • Install a certificate with a valid date on the server. Invalid CN (Common Name or Computer Name): • Either ignore this item in your project, or • Install a certificate with a name that corresponds to that of the server address.
230203	Although a connection can be made to the server, the HTTP server refuses to connect because • WinCC flexible Runtime is not running on the server, or • the HTTP channel is not supported (503 Service unavailable). Other errors can only occur if the web server does not support the HTTP channel. The language of the alarm text depends on the web server. Data is not exchanged.	Error 503 Service unavailable: Check if WinCC flexible Runtime is running on the server the HTTP channel is supported.
230301	An internal error has occurred. An English text explains the error in more detail. This may be caused by insufficient memory. OCX does not work.	—
230302	The name of the remote server cannot be resolved. The attempt to connect failed.	Check the configured server address. Check if the DNS service is available on the network.
230303	The remote server is not running on the addressed computer. Wrong server address. The attempt to connect failed	Check the configured server address. Check if the remote server is running on the target computer.

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Number	Effect/cause	Remedy
230304	The remote server on the addressed computer is incompatible to VNCOCX. The attempt to connect failed.	Use a compatible remote server.
230305	The authentication has failed because the password is incorrect. The attempt to connect failed.	Configure the correct password.
230306	Error in the connection to the remote server. This may occur as a result of network problems. The attempt to connect failed.	Check if • the bus cable is plugged in • there are network problems
230307	The connection to the remote server was shut down because • the remote server was shut down, or • the user instructed the server to close all connections. The connection is closed.	—
230308	This alarm provides information on the connection status. An attempt is made to connect.	—
240000	WinCC flexible Runtime is operating in demo mode. You have no authorization or your authorization is corrupted.	Install the authorization.
240001	WinCC flexible Runtime is operating in demo mode. Too many tags are configured for the installed version.	Load an adequate authorization / powerpack.
240002	WinCC flexible Runtime is operating with a time-limited emergency authorization.	Restore the full authorization.
240003	Authorization failed. Without authorization, WinCC will run in demo mode.	Restart WinCC flexible Runtime or reinstall it.
240004	Error while reading the emergency authorization. WinCC flexible Runtime is operating in demo mode.	Restart WinCC flexible Runtime, install the authorization or repair the authorization (see Commissioning Instructions Software Protection).
240005	The Automation License Manager has detected an internal system fault. Possible causes: • A corrupt file • A defective installation • No free space for the Automation License Manager etc.	Reboot the HMI device or PC. If this does not solve the problem, remove the Automation License Manager and install it again.
250000	The tag in the specified line in "Status force" is not updated because the address configured for this tag is not available.	Check the set address and then verify that the address is set up in the controller.
250001	The tag in the specified line in "Status force" is not updated because the controller type configured for this tag does not exist.	Check the set address.
250002	The tag in the specified line in "Status force" is not updated because it is not possible to map the controller type in the tag type.	Check the set address.
250003	An attempt to connect to the PLC failed. The tags are not updated.	Check the connection to the PLC. Check that the controller is switched on and is online.

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Number	Effect/cause	Remedy
260000	An unknown user or an unknown password has been entered in the system. The current user is logged off from the system.	Log on to the system as a user with a valid password.
260001	The logged in user does not have sufficient authorization to execute the protected functions on the system.	Log on to the system as a user with sufficient authorization.
260002	This alarm is triggered by the system function "TrackUserChange".	—
260003	The user has logged off from the system.	—
260004	The user name entered into the user view already exists in the user management.	Select another user name because user names have to be unique in the user management.
260005	The entry is discarded.	Use a shorter user name.
260006	The entry is discarded.	Use a shorter or longer password.
260007	The logon timeout value entered is outside the valid range of 0 to 60 minutes. The new value is discarded and the original value is retained.	Enter a logon timeout value between 0 and 60 minutes.
260008	An attempt was made to read a PTProRun.pwl file created with ProTool V 6.0 in WinCC flexible. Reading the file was canceled due to incompatibility of the format.	—
260009	You have attempted to delete the user "Admin" or "PLC User". These users are fixed components of the user management and cannot be deleted.	If you need to delete a user, because perhaps you have exceeded the maximum number permitted, delete another user.
260012	The passwords entered in the "Change Password" dialog and the confirmation field are not identical. The password has not been changed. User will be logged off.	You have to log on to the system again. Then enter the identical password twice to be able to change the password.
260013	The password entered in the "Change Password" dialog is invalid because it is already in use. The password has not been changed. User will be logged off.	You have to log on to the system again. Then enter a new password that has not been used before.
260014	User has unsuccessfully attempted to log on 3 times in succession. The user has been locked out and assigned to group no. 0.	You can log on to the system with your correct password. Only an administrator can change the assignment to a group.
270000	A tag is not indicated in the alarm because it attempts to access an invalid address in the controller.	Check if the data area for the tag exists in the controller, the configured address is correct and the value range for the tag is correct.
270001	There is a device-specific limit as to how many alarms may be queued for output (see the operating instructions). This limit has been exceeded. The view no longer contains all the alarms. However, all alarms are written to the alarm buffer.	—
270002	The view shows alarms of a log for which there is no data in the current project. Wildcards are output for the alarms.	Delete older log data if necessary.

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Number	Effect/cause	Remedy
270003	The service cannot be set up because too many devices want to use this service. A maximum of four devices may execute this action.	Reduce the number of HMI devices which want to use the service.
270004	Access to persistent buffer is not possible. Alarms cannot be restored or saved.	If the problems persist at the next startup, contact Customer Support (delete Flash).
270005	Persistent buffer damaged: Alarms cannot be restored.	If the problems persist at the next startup, contact Customer Support (delete Flash).
270006	Project modified: Alarms cannot be restored from the persistent buffer.	The project was generated and transferred new to the HMI device; The error should no longer occur when the device starts again.
270007	A configuration problem is preventing the restore (a DLL is missing, a directory is unknown, etc.).	Update the operating system and then transfer your project again to the HMI device.
280000	Connection is up because the cause of the interruption has been eliminated.	—
280001	No more data is read or written. Possible causes: • The cable is defective. • The PLC does not respond, is defective, etc. • The wrong port is used for the connection. • System overload.	Check if • the cable is plugged in • the controller is OK • the correct port is used Restart the system if the system alarm persists.
280002	The connection used requires a function block in the controller. The function block has responded. Communication is now enabled.	—
280003	The connection used requires a function block in the controller. The function block has not responded.	Check if • the cable is plugged in • the controller is OK • the correct port is used Restart the system if the system alarm persists. Remedy depends on the error code: 1: The function block must set the COM bit in the response container. 2: The function block must not set the ERROR bit in the response container. 3: The function block must respond within the specified time (timeout). 4: Go online to the PLC.
280004	The connection to the controller is interrupted. There is no data exchange at present.	Check the connection parameters in WinCC flexible. Ensure that the cable is plugged in, the controller is operational, the correct interface is being used. Restart the system if the system alarm persists.
290000	The recipe tag could not be read or written. It is assigned the start value. The alarm can be entered in the alarm buffer for up to four more failed tags if necessary. After that, alarm 290003 is output.	Check in the configuration that the address has been set up in the controller.

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Number	Effect/cause	Remedy
290001	An attempt has been made to assign a value to a recipe tag which is outside the value range permitted for this type. The alarm can be entered in the alarm buffer for up to four more failed tags if necessary. After that, alarm 290004 is output.	Observe the value range for the tag type.
290002	It is not possible to convert a value from a source format to a target format. The alarm can be entered in the alarm buffer for up to four more failed recipe tags if necessary. After that, alarm 290005 is output.	Check the value range or type of the tag.
290003	This alarm is output when alarm number 290000 is triggered more than five times. In this case, no further separate alarms are generated.	Check in the configuration that the tag addresses have been set up in the controller.
290004	This alarm is output when alarm number 290001 is triggered more than five times. In this case, no further separate alarms are generated.	Observe the value range for the tag type.
290005	This alarm is output when alarm number 290002 is triggered more than five times. In this case, no further separate alarms are generated.	Check the value range or type of the tag.
290006	The threshold values configured for the tag have been violated by values entered.	Observe the configured or current threshold values of the tag.
290007	There is a difference between the source and target structure of the recipe currently being processed. The target structure contains an additional data recipe tag which is not available in the source structure. The data recipe tag specified is assigned its start value.	Insert the specified data recipe tag in the source structure.
290008	There is a difference between the source and target structure of the recipe currently being processed. The source structure contains an additional data recipe tag which is not available in the target structure and therefore cannot be assigned. The value is rejected.	Remove the specified data recipe tag in the specified recipe from the project.
290010	The storage location configured for the recipe is not permitted. Possible causes: Illegal characters, write protection, data carrier out of space or does not exist.	Check the configured storage location.
290011	The data record with the specified number does not exist.	Check the source for the number (constant or tag value).
290012	The recipe with the specified number does not exist.	Check the source for the number (constant or tag value).
290013	An attempt was made to save a data record under a data record number which already exists. The action is not executed.	The following remedies are available: • Check the source for the number (constant or tag value). • First, delete the data record. • Change the "Overwrite" function parameter.

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Number	Effect/cause	Remedy
290014	The file specified to be imported could not be found.	Check: • The file name • Ensure that the file is in the specified directory.
290020	Message reporting that the download of data records from the HMI device to the PLC has started.	—
290021	Message reporting that the download of data records from the HMI device to the PLC was completed.	—
290022	Message reporting that the download of data records from the HMI device to the PLC was canceled due to an error.	Check in the configuration whether: • The tag addresses are configured in the controller • The recipe number exists • The data record number exist • The "Overwrite" function parameter is set
290023	Message reporting that the download of data records from the PLC to the HMI device has started.	—
290024	Message reporting that the download of data records from the PLC to the HMI device was completed.	—
290025	Message reporting that the download of data records from the PLC to the HMI device was canceled due to an error.	Check in the configuration whether: • The tag addresses are configured in the controller • The recipe number exists • The data record number exist • The "Overwrite" function parameter is set
290026	An attempt has been made to read/write a data record although the data record is not free at present. This error may occur in the case of recipes for which downloading with synchronization has been configured.	Set the data record status to zero.
290027	Unable to connect to the controller at present. As a result, the data record can neither be read nor written. Possible causes: No physical connection to the controller (no cable plugged in, cable is defect) or the controller is switched off.	Check the connection to the PLC.
290030	This alarm is output after you selected screen which contains a recipe view in which a data record is already selected.	Reload the data record from the storage location or retain the current values.
290031	While saving, it was detected that a data record with the specified number already exists.	Overwrite the data record or cancel the action.
290032	While exporting data records it was detected that a file with the specified name already exists.	Overwrite the file or cancel the process.
290033	Confirmation request before deleting data records.	—

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Number	Effect/cause	Remedy
290040	A data record error with error code %1 that cannot be described in more detail occurred. The action is canceled. It is possible that the data record was not installed correctly on the controller.	Check the storage location, the data record, the "Data record" area pointer and if necessary, the connection to the controller. Restart the action after a short time. If the error persists, contact Customer Support. Forward the relevant error code to Customer Support.
290041	A data record or file cannot be saved because the storage location is full.	Delete files no longer required.
290042	An attempt was made to execute several recipe actions simultaneously. The last action was not executed.	Trigger the action again after waiting a short period.
290043	Confirmation request before storing data records.	—
290044	The data store for the recipe has been destroyed and is deleted.	—
290050	Message reporting that the export of data records has started.	—
290051	Message reporting that the export of data records was completed.	—
290052	Message reporting that the export of data records was canceled due to an error.	Ensure that the structure of the data records at the storage location and the current recipe structure on the HMI device are identical.
290053	Message reporting that the import of data records has started.	—
290054	Message reporting that the import of data records was completed.	—
290055	Message reporting that the import of data records was canceled due to an error.	Ensure that the structure of the data records at the storage location and the current recipe structure on the HMI device are identical.
290056	Error when reading/writing the value in the specified line/column. The action was canceled.	Check the specified line/column.
290057	The tags of the recipe specified were toggled from "offline" to "online" mode. Each change of a tag in this recipe is now immediately downloaded to the controller.	—
290058	The tags of the specified recipe were toggled from "offline" to "online" mode. Modifications to tags in this recipe are no longer immediately transferred to the controller but must be transferred there explicitly by downloading a data record.	—
290059	Message reporting that the specified data record was saved.	—
290060	Message reporting that the specified data record memory was cleared.	—
290061	Message reporting that clearing of data record memory was canceled due to an error.	—
290062	The data record number is above the maximum of 65536. This data record cannot be created.	Select another number.

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Number	Effect/cause	Remedy
290063	This occurs with the system function "ExportDataRecords" when the parameter "Overwrite" is set to No. An attempt has been made to save a recipe under a file name which already exists. The export is canceled.	Check the "ExportDataRecords" system function.
290064	Message reporting that the deletion of data records has started.	—
290065	Message reporting that the deletion of data records has successfully completed.	—
290066	Confirmation request before deleting data records.	—
290068	Security request to confirm if all data records in the recipe should be deleted.	—
290069	Security request to confirm if all data records in the recipe should be deleted.	—
290070	The data record specified is not in the import file.	Check the source of the data record number or data record name (constant or tag value).
290071	During the editing of data record values, a value was entered which exceeded the low limit of the recipe tag. The entry is discarded.	Enter a value within the limits of the recipe tag.
290072	When editing data record values, a value was entered which exceeds the high limit of the recipe tag. The entry is discarded.	Enter a value within the limits of the recipe tag.
290073	An action (e.g. saving a data record) failed due to an unknown error. The error corresponds to the status alarm IDS_OUT_CMD_EXE_ERR in the large recipe view.	—
290074	While saving, it was detected that a data record with the specified number already exists but under another name.	Overwrite the data record, change the data record number or cancel the action.
290075	A data record with this name already exists. The data record is not saved.	Please select a different data record name.
300000	Faulty configuration of process monitoring (e.g. using PDiag or S7-Graph): More alarms are queued than specified in the specifications of the CPU. No further ALARM_S alarms can be managed by the PLC and reported to the HMI devices.	Change the controller configuration.
300001	ALARM_S is not registered on this controller.	Select a controller that supports the ALARM_S service.
310000	An attempt is being made to print too many reports in parallel. Only one log file can be output to the printer at a given time; the print job is therefore rejected.	Wait until the previous active log was printed. Repeat the print job if necessary.
310001	An error occurred on triggering the printer. The report is either not printed or printed with errors.	Evaluate the additional system alarms related to this alarm. Repeat the print job if necessary.

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Number	Effect/cause	Remedy
320000	The movements have already been indicated by another device. The movements can no longer be controlled.	Deselect the movements on the other display units and select the motion control screen on the required display unit.
320001	The network is too complex. The faulty addresses cannot be indicated.	View the network in STL.
320002	No diagnostics alarm selected. The unit belonging to the alarm could not be selected.	Select a diagnostics alarm from the ZP_ALARM alarm screen.
320003	No alarms exists for the selected unit. The detail view cannot visualize any networks.	Select the defective unit from the overview screen.
320004	The required signal states could not be read by the PLC. The faulty addresses cannot be found.	Check the consistency between the configuration on the display unit and the PLC program.
320005	The project contains ProAgent elements which are not installed. ProAgent diagnostic functions cannot be performed.	In order to run the project, install the optional ProAgent package.
320006	You have attempted to execute a function which is not supported in the current constellation.	Check the type of the selected unit.
320007	No error-triggering addresses were found on the networks. ProAgent cannot indicate any faulty addresses.	Switch the detail screen to STL layout mode and check the status of the addresses and exclusion addresses.
320008	The diagnostic data stored in the configuration are not synchronized with those in the PLC. ProAgent can only indicate the diagnostic units.	Download the project to the HMI device again.
320009	The diagnostic data stored in the configuration are not synchronized with those in the PLC. The diagnostic screens can be operated as usual. ProAgent may be unable to show all diagnostic texts.	Download the project to the HMI device again.
320010	The diagnostic data stored in the configuration are not synchronized with those in STEP7. The ProAgent diagnostics data is not up-to-date.	Download the project to the HMI device again.
320011	A unit with the corresponding DB number and FB number does not exist. The function cannot be executed.	Check the parameters of the "SelectUnit" function and the units selected in the project.
320012	The "Step sequence mode" dialog is no longer supported.	Use the ZP_STEP step sequence screen from the corresponding standard project for your project. Instead of calling the Overview_Step_Sequence_Mode function, call the "FixedScreenSelection" function using ZP_STEP as the screen name.
320014	The selected controller cannot be evaluated for ProAgent. The Alarm view assigned to the "EvaluateAlarmDisplayFault" system function could not be found.	Check the parameters of the "EvaluateAlarmDisplayFault" system function.
330022	Too many dialogs are open on the HMI device.	Close all dialogs you do not require on the HMI device.

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Abbreviations

B

CPU	Central Processing Unit
CSV	Comma Separated Values
CTS	Clear To Send
DC	Direct Current
DCD	Data Carrier Detect
DIL	Dual-in-Line (electronic chip housing design)
DP	Distributed I/O
DSN	Data Source Name
DSR	Data Set Ready
DTR	Data Terminal Ready
EMC	Electromagnetic Compatibility
EN	European standard
ES	Engineering System
ESD	Electrostatic Discharge, the components and modules endangered by such
ESD	Electrostatic Sensitive Device
GND	Ground
HF	High Frequency
HMI	Human Machine Interface
IEC	International Electronic Commission
IF	Interface
IO	Input and Output
LED	Light Emitting Diode
MOS	Metal Oxide Semiconductor
MPI	Multipoint Interface (SIMATIC S7)
MS	Microsoft
MTBF	Mean Time Between Failures
n. c.	Not connected
OP	Operator Panel
PC	Personal Computer
PG	Programming device
PLC	Programmable Logic Controller
PPI	Point-to-Point Interface (SIMATIC S7)
RAM	Random Access Memory
RJ45	Registered Jack Type 45
RTS	Request To Send

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RxD	Receive Data
SELV	Safety Extra Low Voltage
SP	Service Pack
STN	Super Twisted Nematic
Sub-D	Subminiature D (plug)
TAB	Tabulator
TCP/IP	Transmission Control Protocol/Internet Protocol
TFT	Thin Film Transistor
TxD	Transmit Data
UL	Underwriter's Laboratory

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Glossary

"Transfer" mode

an operating mode of the HMI device in which an executable project is transferred from the configuration computer to an HMI device.

Acknowledge

Acknowledging an alarm confirms that you have noted it.

AG

Controller of the SIMATIC S5 series such as the AG S5-115U, for example

Alarm logging

Output of user-specific alarms to a printer, in parallel to their output to the HMI device screen.

Alarm, acknowledging

Acknowledging an alarm confirms that you have noted it.

Alarm, activated

Moment at which an alarm is triggered by the controller or HMI device.

Alarm, deactivated

Moment at which the initiation of an alarm is reset by the controller.

Alarm, user-specific

A user-specific alarm can be assigned to one of the following alarm classes:

- Error
- Operation
- User-specific alarm classes

A user-specific alarm designates a certain operating status of the plant connected to the HMI device via the controller.

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Array

Area reserved in configured screens for the input and output of values.

AS

Controller of the SIMATIC S7 series such as a SIMATIC S7-300

AS 511

Protocol of the programming device interface of a SIMATIC S5 controller

Boot loader

Used to start the operating system. Automatically started when the HMI device is switched on. A start screen appears during startup. After the operating system has been loaded, the Loader opens.

Configuration PC

General term for programming devices (PGs) and PCs on which plant projects are created using an engineering software.

Control request

Triggers a function via the controller.

Controller

General term for devices and systems with which the HMI device communicates, e.g. SIMATIC S7.

Display duration

Defines whether and how long a system alarm is displayed on the HMI device.

EMC

Electromagnetic compatibility is the ability of electrical equipment to function properly in its electromagnetic environment without influencing this environment.

Engineering software

Software for the creation of projects for process visualization – see also project, process visualization and runtime software

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Event

Functions are triggered by defined incoming events. Events can be configured. Events which can be assigned to a button include "Press" and "Release", for example.

Fault time

Refers to the time interval between an activated and deactivated alarm.

Figure

Form of the visualization of all logically related process data for a plant. The visualization of the process data can be supported by graphic objects.

Flash memory

Non-volatile memory with EEPROM chips, used as mobile storage medium or as memory module installed permanently on the motherboard.

Function key

Key on the HMI device which supports user-specific functions. A function is assigned to the key in the configuration. The assignment of the keys may be specific to an active screen or not.

Half brightness lifetime

Time period until the brightness degrades to 50% of its original value. The specified value is dependent on the operating temperature.

Hardcopy

Output of the screen content to a printer.

HMI device image

a file which can be transferred from the configuration computer to the HMI device.
The HMI device image contains the operating system and elements of the runtime software required to run a project.

Infotext

Configured information on objects within a project. An alarm infotext, for example, may contain information on the cause of the fault and troubleshooting routines.

IO field

Enables the input or output of values on the HMI device which are transferred to the controller.

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Notation

System consisting of characters, symbols and rules. In particular used to define the write format of a programming language in data processing.

Object

Component of a project. Example: screen or alarm. Objects are used to view or enter texts and values on the HMI device.

Operator control object

Component of a project which is used to enter values and trigger functions. A button, for example, is an operator control object.

Plant

General term referring to machines, processing centers, systems, plants and processes which are operated and monitored on an HMI device.

Process visualization

Visualization of processes from the areas of production, logistics and services in text-based and graphics format. Configured plant screens allow operator intervention in active plant processes by means of the input and output data.

Project

Result of a configuration using an engineering software. The project normally contains several screens with embedded system-specific objects, basic settings and alarms. The project file of a project configured in WinCC flexible is saved under the file name extension *.hmi.

You need to distinguish between the project on the configuration computer and that on an HMI device. A project may be available in more languages on the configuration PC than can be managed on the HMI device. The project on the configuration PC can also be set up for different HMI devices. Only the project set up for a particular HMI device can be transferred to that HMI device.

Project file

File which is generated based on a source file for a specific HMI device when the configuration is completed. The project file is transferred to the corresponding HMI device and is used to operate and monitor plants. Refer to Source file.

Recipe

Combination of tags forming a fixed data structure. The data structure configured can be assigned data on the HMI device and is then referred to as a data record. The use of recipes ensures that when a data record is downloaded, all the assigned data is transferred synchronously to the controller.

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Runtime software

is a process visualization software which can be used to test a project on a configuration computer. Also refer to "Project" and "Engineering software."

Screen object

Configured object for operating and monitoring the system, e.g. a rectangle, an IO field or a recipe view.

Source file

File from which various project files can be created, depending on the configuration. The source file is not transferred and remains on the configuration computer.

The file name extension of a source file is *.hmi. Refer to Source file, compressed and Project file.

Source file, compressed

Compressed form of the source file. Can be transferred in addition to the project file to the corresponding HMI device. "Enable Backtransfer" must be set in the project on the configuration computer. The file extension of a compressed source file is *.pdz. The standard memory location for a compressed source file is the external MMC. Refer to Source file.

To restore a source file, it is necessary to use the same WinCC flexible version which was used to configure the project.

STEP 7

Programming software SIMATIC S7, SIMATIC C7 and SIMATIC WinAC controllers.

STEP 7 Micro/WIN

Programming software for controllers of the SIMATIC S7-200 series.

Symbolic IO field

Box for the input/output of a parameter. Contains a list of default entries from which one can be selected.

System alarms

Assigned to the "System" alarm class. A system alarm refers to internal states on the HMI device and the controller.

Tab order

In the configuration, this sets the sequence in which objects are focused on pressing the <TAB> key.

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Tag

Defined memory location to which values can be written to and read from. This can be done from the controller or the HMI device. Based on whether the tag is interconnected with the controller or not, we distinguish between "external" tags (process tags) and "internal" tags.

Transfer

The transfer of an executable project to the HMI device.

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