SIEMENS

SIMATIC HMI

Customized automation Mobile Client900RXA

Operating Instructions

07/2015

A5E36360099-AA

Legal information

Warning notice system

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

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

NOTICE

indicates that property damage can result if proper precautions are not taken.

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 product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

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Disclaimer of Liability

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

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Preface

Purpose of the operating instructions

These operating instructions provide information based on the requirements defined by DIN EN 62079 for mechanical engineering documentation. This information relates to the place of use, transport, storage, mounting, use and maintenance.

These operating instructions are intended for the following user groups:

- Operators

  Operators operate and monitor the system during the process control phase.

- Commissioning engineers

  The commissioning engineer integrates the HMI device into the system and ensures the operating capability of the HMI device for the process control phase.

- Service technicians

  Service technicians rectify faults that occur during the process control phase.

- Maintenance technicians

  Maintenance technicians carry out regular maintenance work during the process control phase.

Knowledge required

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

Scope of application of the document

This source document was written in German, the basis for the translations, and applies to the following HMI devices:

- SIMATIC Mobile Client900RXA, article number 6AV6645-7CG00-2AA0

Note

Observe the following points:

- This document belongs to the device and will also be required for repeat commissioning. Keep all supplied and supplementary documentation for the entire service life of the device.
- Make sure that the persons who require these documents have access to them.
- Pass on all of these documents to the subsequent owner of the device.

Figures

This document contains figures of the described devices and the described software. The figures can deviate from the particularities of the delivered device and the supplied software.

Style conventions

The following text notation will facilitate reading this manual:

Representation type	Scope
"Add figure"	• Terminology that appears in the user interface, for example dialog names and buttons. • Required inputs, for example, an IP address. • Path information
"File > Edit"	Operating sequences, for example, menu commands, shortcut menu commands.
<F1>, <Alt + P>	Keyboard actions

Please observe notes labeled as follows:

Note

Notes containing important information about the product and its use or a specific section of the documentation to which you should pay particular attention.

Naming conventions

The following terms are used in this document:

Item name	Term used in the document
Mobile Client all versions	Device, HMI device, Mobile Client, Mobile Panel
Mobile Client with Arctic extension (extended temperature range)	Arctic HMI device
Mobile Client without Arctic extension	Non-arctic HMI device

Table of contents

Overview

1

1.1 Product description

The SIMATIC Mobile Client900RFN is a portable HMI device with a rugged and ergonomic design. A high-performance processor and Ethernet capability mean the device is excellently suited to a wide range of uses. The device is lightweight and robust, has an easy-to-read display and can be operated by both left-handed and right-handed users.

The device also has the following additional features:

- Ethernet, integrated with connecting cable
- 9" TFT screen with color depth of 24 bits
- USB port for service purposes
- Heating system
  The device heats up, if necessary, and keeps the internal temperature within the optimum temperature range for as long as the heat output permits.

The SIMATIC Mobile Client connection box, connection box for short, is designed to be mounted to the wall of the control cabinet. It provides the power supply and control system connections in the control cabinet. The device is connected to the connection box with a connecting cable.

The device is used as a mobile handheld terminal. The connecting cable can be easily connected and disconnected at both the connection box and the handheld terminal. The device enables you to use text- or graphic-based projects even more efficiently for simple and medium-complexity operator control and monitoring tasks on machines and systems.

Area of application

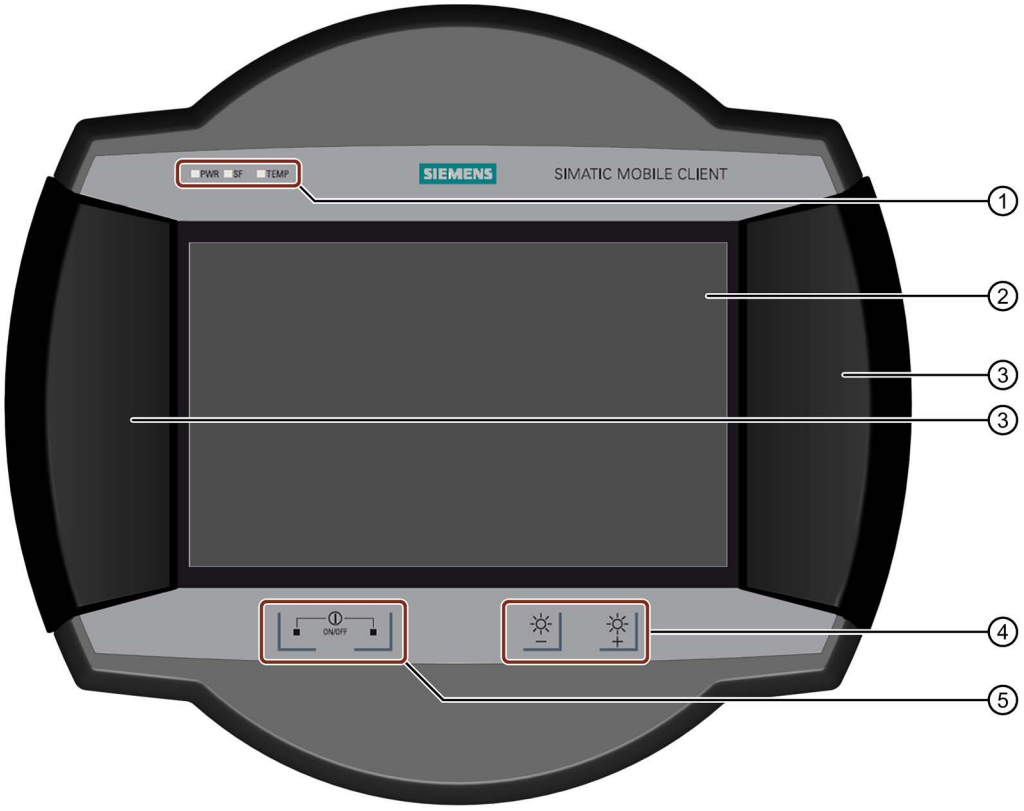
The device is intended for uses ranging from operation and monitoring, parameter assignment, and commissioning to troubleshooting for industrial systems, in particular wind turbines.

Note

Please observe the relevant requirements and safety measures for the application and place of use.

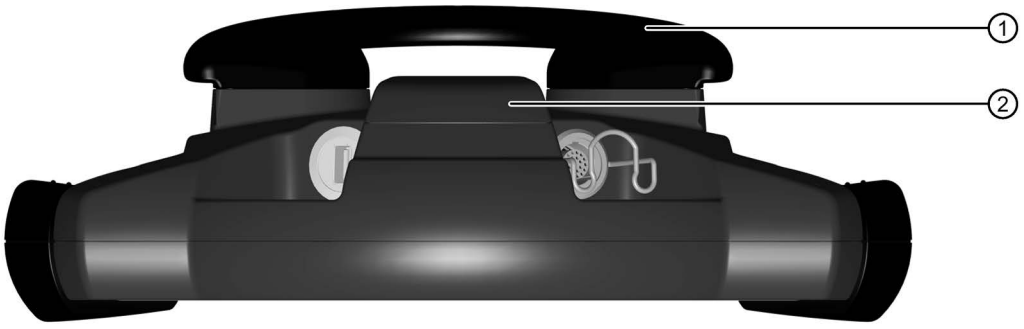
1.2 Design of the device

Front view



① LED display
② Display with touch screen
③ Handle
④ Button for brightness control
⑤ On/off button, two present

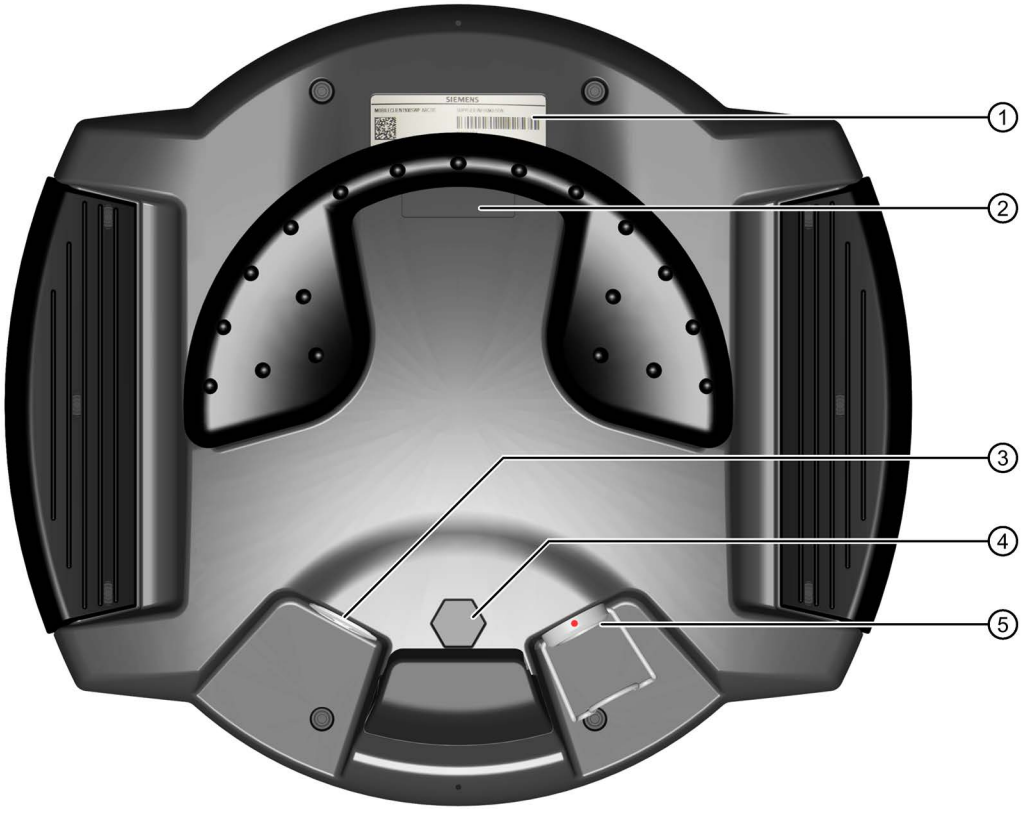
Bottom view



① Handle
② Stand

The supporting surfaces of the handle and stand are made of anti-slip material.

Rear view



① Rating plate
② Space for customized rating plate
③ USB port for service purposes
④ Pressure compensation valve
⑤ Port for connecting cable, with locking clip

Note

The device ensures a degree of protection of IP65 even without the connecting cable plugged in.

1.3 Scope of delivery

- 1 × HMI device
- 1 × packaging

  Packaging is used for shipping and protection of the device. You can reuse the packaging if you are returning the device.

1.4 Accessories

Accessories are not included with the device. You can order accessories by entering the corresponding article number at the following link:

Industry Mall (https://mall.industry.siemens.com)

1.4.1 Connecting cable

The connecting cable connects the device with the connection box:

① Circular connector, female connector for connection to the device

② Circular connector, male connector for connection to the connection box

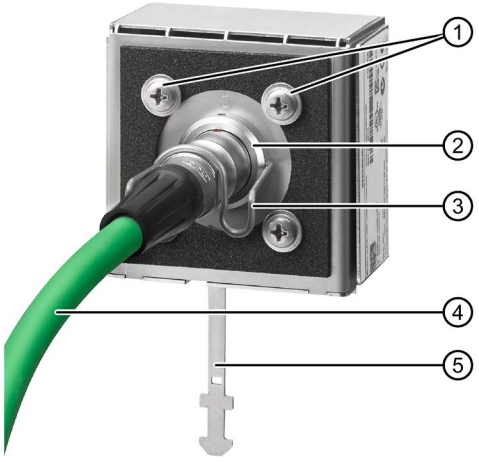
The connecting cable is available in the following lengths:

Length	Article number	Functional status
5 m	6AV6645-7CY03-1WP0	FS 02
10 m	6AV6645-7CY04-1WP0	FS 02
15 m	6AV6645-7CY05-1WP0	FS 02

The connecting cable is an industrial cable and is therefore resistant to many solvents and lubricants. The flexural strength of the connecting cable is geared to the actual usage conditions.

1.4.2 Connection box

The connection box supplies power to the device and connects it to the Ethernet network.



① Screws for fixing the connection box
② Socket for the connecting cable
③ Locking bracket for the circular connector
④ Connecting cable
⑤ Attachment for cable ties for strain relief

Article number: 6AV6645-7CX06-1WP0

A mechanical foolproofing device means that only the correct connecting cable circular connector can be plugged into the connection box.

Note

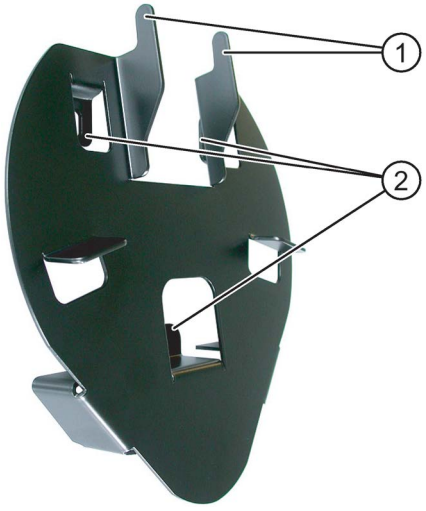
IP65 can only be guaranteed for the connection box when the connecting cable is attached.

The scope of delivery of the connection box includes:

- 1 × connection box
- 1 x accessory pack with the following contents:
  - 4 M5 × 8 screws
  - 1 mains terminal for the power supply
- 1 × Product Information

1.4.3 Wall-mounting bracket

The wall bracket ensures secure fastening of the Mobile Panel during stationary operation.



① Hook for the grip on the HMI device

② Screw flange

The wall bracket is not included with the HMI device. The wall bracket is available with order number 6AV6574-1AF04-4AA0.

1.4.4 Wall-mounting bracket with cable holder

The wall bracket is used as a secure holder for the device during stationary operation and to store the device when it is not in use.

① Hooks
You attach the handle of the Mobile Client to the hooks.

② Mounting holes

③ Holder for the connecting cable

Article number: 6AV6645-7CX04-1WP0

⚠ CAUTION

Risk of injury when device drops

The device can fall out of the wall bracket even when handled carefully.

- Never stand below the fitted wall bracket.
- The wall bracket is permitted for indoor use only.
- Do not mount the wall bracket on doors or covers.
- Do not fit the wall bracket anywhere where the device may fall out of the bracket.

Note

The wall bracket is designed for fixed used and is always to be screwed to the wall.

- The wall bracket should not be used to store tools or for other purposes.
- Ensure that the wall bracket is used correctly. If the wall bracket is not in use, it should be stored in a suitable location.
- Make sure that no one can trip over the cable and cause the device to fall.

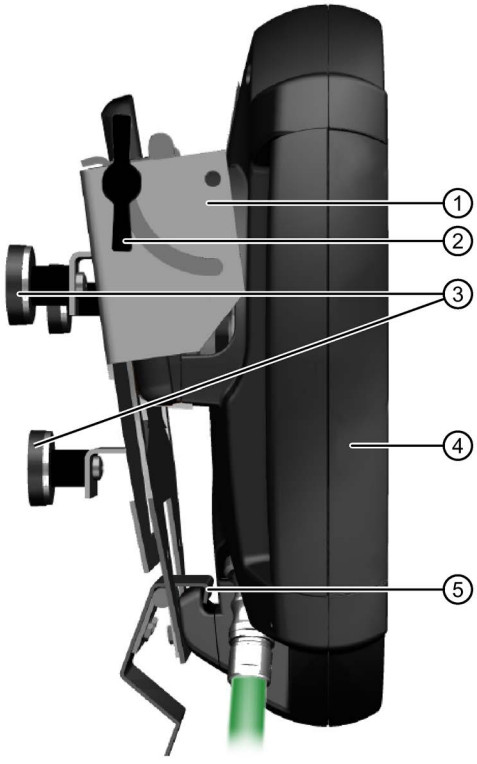
1.4.5 Magnetic wall bracket

The magnetic wall bracket provides a safe hold for the SIMATIC Mobile Client when used in stationary mode.

The magnetic wall bracket is equipped with magnets for permanent or temporary mounting on ferromagnetic surfaces. The following applies to the magnetic holding power:

- Under normal circumstances, the wall bracket can be removed from the surface without tools.
- When the wall bracket is used as intended, there is no danger of it falling unintentionally with the HMI device.

The magnetic wall bracket features a retaining mechanism for the HMI device.



① Joint to set the inclination of the device
② Wing screw to secure the inclination of the device
③ Magnets
④ Mobile Client
⑤ Locking hook

Article number: 6AV6645-7CX05-1WP0

Safety information on the magnetic wall bracket

⚠ CAUTION

Risk of injury when device drops

The magnetic wall bracket should be regarded as a suspended load and can fall. However, under normal circumstances and if handled properly, the magnetic wall bracket is designed in such a way that there is no risk of the wall bracket and device unintentionally falling and the wall bracket can be taken down without tools.

In the case of improper locking, the device could fall out of the wall bracket.

- Never stand below the fitted wall bracket.
- Do not mount the wall bracket overhead or in places where the wall bracket or the device held in it could fall.
- The wall bracket is permitted for indoor use only.
- Do not mount the wall bracket on doors or covers.
- The magnetic holding power is affected by the material, thickness and structure of the mounting surface. Ensure that the holding power at the mounting location is sufficient. If necessary, choose a different mounting location.

Risk of injury or damage from magnetic fields

Strong magnetic fields attract magnetic parts and damage or destroy electromagnetic elements and devices. This also applies to pacemakers.

- Do not bring any iron parts (tools, nails, knives) into the vicinity of the magnets.
- Keep electronic devices and magnetic data carriers away from the magnets.
- Do not process the magnets mechanically, for example, by sawing or drilling.
- Keep the magnets away from open heat and flames.

Note

- The wall bracket should not be used to store tools etc.
- Ensure that the wall bracket is used correctly. If the wall bracket is not in use, it should be stored in a suitable location.
- Make sure that no one can trip over the cable and cause the device to fall.

Adjustable inclination

The inclination can be adjusted in the range from almost parallel to almost perpendicular to the mounting surface. To adjust the inclination, loosen the wing screws located on both sides of the wall bracket. With very large inclinations, the device cannot be removed from the wall bracket. In this case, reduce the inclination in order to remove the device safely from the wall bracket.

⚠ CAUTION

Tighten the wing screws sufficiently

Loosen the wing screws only when you wish to adjust the inclination. Afterwards, tighten the two wing screws. Check that the wing screws and the device are tightly in place.

1.4.6 Protective cover

The protective cover provides mechanical protection of the display and is attached to both handles. It protects the device from being damaged when transported, for example, in a tool bag together with other tools.

NOTICE
Overheating If you use the protective cover when the HMI device is on, the device may overheat. Make sure the HMI device is off before you fit the protective cover. **Damage to the touch screen** Particles of dirt can scratch the touch screen when you attach the protective cover. Clean the touch screen before attaching the protective cover or use a protective sheet according to chapter "Protective foil (Page 18)".

① Device
② Protective cover

Article number: 6AV6645-7CX02-1WP0

1.4.7 Protective foil

The protective sheet prevents the touch screen getting scratched or dirty.

Article number: 6AV6645-7CX07-1WP0

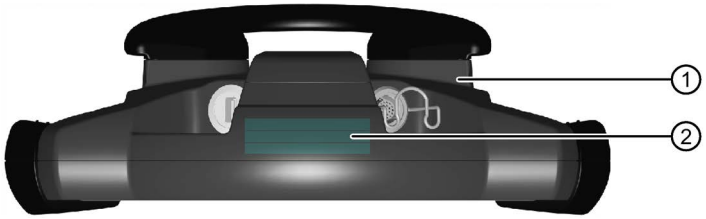
Note

Particles of dirt can scratch the touch screen when you attach the protective sheet. Clean the touch screen before attaching the protective sheet.

The set contains 10 protective sheets.

1.4.8 Rubber strips

The rubber strips prevent the device from slipping. You can also use rubber strips to angle the device, for example.

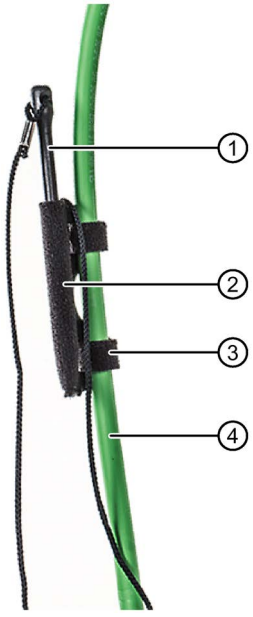


① Device
② 3 rubber strips

Article number: 6AV6645-7CX01-1WP0

1.4.9 Touch pen

The touch pen makes it easier to operate the touch screen. The touch pen is to be attached to the connecting cable.



① Touch pen
② Holder
③ Velcro strap
④ Connecting cable

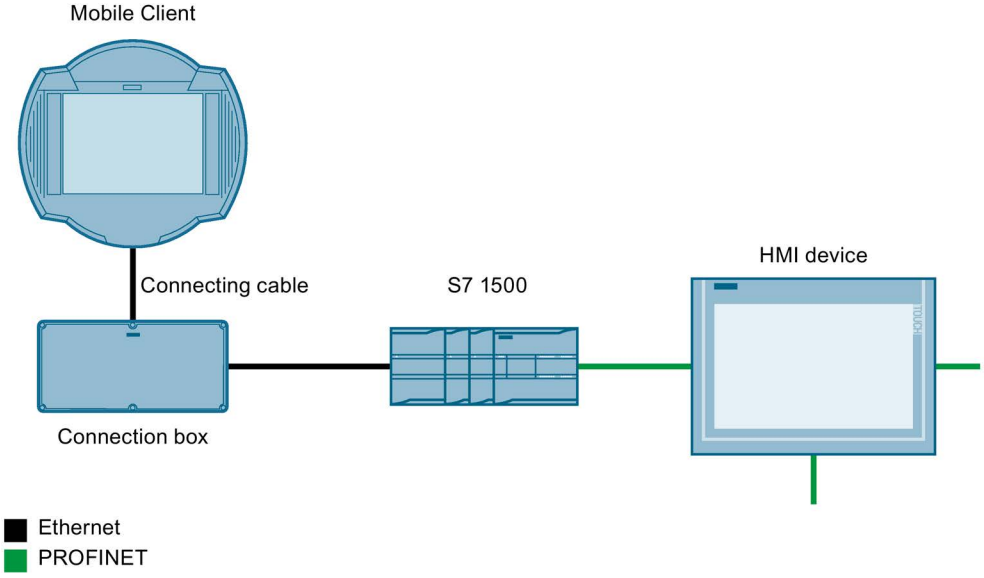
Article number: 6FC5348-0AA08-4AA0

1.4.10 Storage media

Name	Article number
USB flash drive 8 GB	6ES7648-0DC50-0AA0

1.5 The HMI device in the operating process

The HMI device is part of the operating process. Operation is based on two-way communication between the HMI device and the PLC. The following figure shows an exemplary system design.



The HMI device is used for monitoring or controlling the operating process. The controller in turn supplies the results of the operating process, which are displayed on the Mobile Client.

1.6 Scope of functions with WinCC

The tables below show the objects that can be integrated in a project.

Note

The specified values are maximum values of the individual objects. Simultaneous use of multiple objects with their maximum value can lead to problems in the active project.

Alarms

Object	Specification	Configuration
Alarms	Number of discrete alarms	4000
	Number of analog alarms	200
	Alarm length	80 characters
	Number of tags / process values in an alarm	Max. 8
	Number of alarm classes	32
	Display	Alarm window, alarm view
	Acknowledge error alarm individually	Yes
	Edit alarm	Yes
	Alarm indicator	Yes
ALARM_S	Display S7 alarms	Yes
Alarm buffer, retentive	Alarm buffer capacity	1024
	Simultaneously queued alarm events	500
	View alarm	Yes
	Delete alarm buffer	Yes
	Print alarms line by line	Yes

Tags, values and lists

Object	Specification	Configuration
Tags	Number	2048
Limit value monitoring	Input/output	Yes
Linear scaling	Input/output	Yes
Text lists	Number	500 [1]
Graphics lists	Number	500 [1]

[1] The maximum total of text and graphics lists is 500.

Screens

Object	Specification	Configuration
Screens	Number	500
	Objects per screen	400
	Tags per screen	400
	Complex objects per screen (for example, bars)	20
	Template	Yes

Recipes

Object	Specification	Configuration
Recipes	Number	300
	Data records per recipe	500
	Entries per data record	1000
	Recipe memory	256 KB
	Storage location [1]	• USB storage medium • Network drive

[1] The number of recipe data records may be restricted by the capacity of the storage medium.

Logs

Note

The HMI devices are suitable for the logging of relatively small volumes of data.

Manage the data in several adjacent logs in a segmented circular log. The use of a large circular log has a negative effect on performance.

Object	Specification	Configuration
Logs	Number of logs	50
	Number of partial logs in a segmented circular log	400
	Entries per log [1]	20000
	Filing format	CSV with ANSI character set, RDB, TXT
	Storage location	• USB storage medium • Network drive

[1] The number of entries in the log may be restricted by the capacity of the storage medium.

Safety

Object	Specification	Configuration
User view	Number of user groups	50
	Number of users	50
	Number of authorizations/user permissions	32

Infotexts

Object	Specification	Configuration
Infotexts	Length (no. of characters)	320 (depending on font)
	For alarms	Yes
	For screens	Yes
	For screen objects (e.g. I/O field, switch, button, invisible button)	Yes

Additional functions

Object	Specification	Configuration
Screen settings	Touch screen calibration [1]	Yes
	Brightness setting	Yes
Language change	Number of languages per project	32
VBScript	User-specific extension of the functionality	Yes
	Number of scripts	100
Graphic objects	Vector and pixel graphics	Yes
Trends	Number	300
Task planner	Number of tasks	48
Text objects	Number	40000
Direct keys	PROFIBUS DP direct keys	No
	PROFINET IO direct keys	No

[1] For HMI devices with touch screen only

1.7 Software add-ons

The following software add-ons are available for the HMI devices:

Add-on	Description
WinCC /Sm@rtServer [1]	The WinCC /Sm@rtServer add-on enables you to access a remote HMI device from the HMI device or PC via Ethernet. It also enables you to set up communication between different HMI systems.
WinCC /Audit [1]	The WinCC /Audit add-on extends the HMI device to include functions for recording operations in an audit trail and electronic signature.
Uninterruptable Powersupply (UPS) with USB support [2]	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 HMI devices support SITOP DC UPS modules connected via the USB port.
Microsoft Excel Viewer [3]	Microsoft Excel Viewer enables you to display Excel documents.
Microsoft PDF Viewer [3]	Microsoft PDF Viewer enables you to display PDF documents.
Microsoft Word Viewer [3]	Microsoft Word Viewer enables you to display Word documents.
Printer driver	The printer driver option enables PostScript, HTML and PDF output for all HMI device print options.

[1] Transferred with the project; a license key is required for use
[2] Must be transferred as an option; no license key is required for use
[3] Pre-installed; no license key is required for use

See also

Printers approved for SIMATIC Panels and Multi Panels
(http://support.automation.siemens.com/WW/view/en/11376409)

Printing with SIMATIC Comfort HMI devices
(http://support.automation.siemens.com/WW/view/en/58205602)

1.8 Communication with controllers

Number of connections

The table below shows the number of connection boxes that can be connected.

Number of connections	Number of connection boxes
With bus connection	8
With "SIMATIC HMI HTTP protocol"	8

PLC that can be connected

The table below shows the number of PLCs that can be connected to the connection boxes. Controllers that are not compatible with PROFINET services are marked with a footnote.

PLC	HMI devices
SIMATIC S7-1500	Yes
SIMATIC S7-400	Yes
SIMATIC S7-300	Yes
SIMATIC HTTP protocol	Yes

Safety guidelines

2

2.1 General safety instructions

Safety regulations

⚠ WARNING

Hazards

Strictly observe all instructions in these operating instructions at all times. Otherwise, hazardous situations can arise or the safety mechanisms in the HMI device can be rendered ineffective.

Observe the safety and accident prevention instructions applicable to your application in addition to the safety instructions given in this manual.

⚠ WARNING

Voltage dips and memory changes

The configuration engineer for a machine or system PLC must take precautions so that an interrupted program can be restarted normally after voltage dips or power failures. Dangerous operating conditions must not occur, even temporarily.

If faults in the system can cause bodily injury or significant property damage, additional measures must be taken outside of the system. These measures must also ensure safe operating conditions in the system in the event of a fault.

The system's configuration engineer must take precautions to ensure that memory changes that could lead to a dangerous situation can only be undertaken by authorized persons.

⚠ WARNING

Safety-related features after impact

After a hard impact to the HMI device, check the safety-relevant features for functional capability, for example in the event that the HMI device is dropped.

If the system is operated with the HMI device:

Ensure that current operation is only possible by means of the HMI device and not from any other point on the system.

Safety when working in and on electrical systems

Only authorized persons are allowed to work in or on electrical equipment. The following safety regulations for prevention of electrical shock are valid:

1. Isolation of the system from power
2. Securing the system against restart
3. Verification of isolation from power at all poles
4. Grounding and shorting the system
5. Covering or fencing off adjacent live parts

Note

The safety regulations must be applied in the aforementioned order before any work is carried out on electrical systems. The safety regulations must be applied in reverse order on completion of all tasks on the electrical system.

Identify the electrical system in accordance with valid safety regulations when working on this system.

Observe the valid safety regulations of the respective country.

Proper use

⚠ WARNING

Commissioning

Commissioning of the HMI device is forbidden until it has been absolutely ensured that the machine in which the HMI device is to be installed complies with Directive 98/37/EC or Directive 2006/42/EC as ofDecember 29, 2009.

High frequency radiation

Note

High-frequency radiation from cellular phones, for example, can lead to undesirable operating situations.

Industrial Security

Siemens offers products and solutions with Industrial Security functions that support the safe operation of equipment, solutions, machines, devices and/or networks. They are important components in a comprehensive Industrial Security concept. As a result the products and solutions from Siemens are constantly evolving. Siemens recommends obtaining regular information regarding product updates.

For safe operation of Siemens products and solutions appropriate protective measures (e.g., cell protection concept) must be taken and each component must be integrated in a comprehensive Industrial Security concept, which corresponds with the current state of technology. The products of other manufacturers need to be taken into consideration if they are also used. You can find addition information on Industrial Security under (http://www.siemens.com/industrialsecurity).

Sign up for our product-specific newsletter to receive the latest information on product updates. For more information, see under (http://www.siemens.de/automation/csi_en_WW).

Disclaimer for third-party software updates

This product includes third-party software. Siemens AG only provides a warranty for updates/patches of the third-party software, if these have been distributed as part of a Siemens software update service contract or officially released by Siemens AG. Otherwise, updates/patches are undertaken at your own risk. You can find more information about our Software Update Service offer on the Internet at Software Update Service (http://www.automation.siemens.com/mcms/automation-software/en/software-update-service).

Notes on protecting administrator accounts

A user with administrator privileges has extensive access and manipulation options in the system.

Therefore, ensure there are adequate safeguards for protecting the administrator accounts to prevent unauthorized changes. To do this, use secure passwords and a standard user account for normal operation. Other measures, such as the use of security policies, should be applied as needed.

2.2 Notes about usage

Intended use of the Mobile Client

The SIMATIC Mobile Client is intended for uses ranging from operator control and monitoring, parameter assignment, and commissioning to troubleshooting for industrial systems, in particular wind turbines.

The system consists of the following components:

- Device
- Connecting cable
- Connection box

Ambient conditions for intended use:

- Industrial environment according to EN 61131-2:2007
- Indoor use protected from weather
- Ambient temperature range 0 ... 45 °C

The connection box is designed as bushing for installation in a control cabinet wall. The device connecting cable can be easily unplugged and plugged back for moving the device from one operating location to another.

NOTICE
Wall bracket
Objects placed on the wall-mounting bracket may fall off and cause injury.
Do not use the wall-mounting bracket to hold other objects, for example tools.

Note

The device is not compatible with other system components, in particular not with those of the SIMATIC Mobile Panel product family. You may only use the original system components defined here.

Industrial applications

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

- Emission requirements, EN 61000-6-4:2007
- Immunity requirements, DIN EN 61000-6-2:2005

Use in residential areas

Note

The HMI device is not suitable for operation in residential areas. Operation of an HMI device in residential areas can have a negative impact on radio and TV reception.

If you are to use the HMI device in a residential area, you must ensure Limit Class B conforming to EN 55011 for radio frequency interference.

One suitable measure for achieving the required RF interference level for limit class B is:

- To use filters in electrical supply lines

Individual acceptance is also required.

Mechanical and climatic conditions of use

Check the mechanical and climatic environmental conditions according to the following chapters:

- Ambient conditions for transport and storage (Page 146)
- Ambient conditions during operation (Page 147)

NOTICE

Climatic factors at the place of use

Fluctuations in temperature cause condensation inside the device. The device is exposed to heat and to the cold even when not in operation.

- Do not expose the device to extreme temperature fluctuations.

The device has a pressure compensation valve to provide additional protection in the event of temperature fluctuations. The pressure compensation valve contains a membrane which helps to reduce the level of moisture in the device.

Please note the following:

- The valve must always be freely ventilated and must be protected from dirt.
- The device is always supplied with power so that the waste heat from the electronics system keeps the interior temperature slightly higher than the exterior temperature. This reduces the likelihood of malfunctions caused by condensation and creates a sufficient vapor pressure for ventilation.
- The following is valid for the arctic HMI device with reference to the heating system: The heating system will not function without the power supply. The heating system stabilizes the temperature inside the device and can significantly reduce the likelihood of malfunctions caused by condensation.

⚠ WARNING

The product must not be used for the following applications

- Applications in potentially explosive atmospheres / fire risk areas
- Use in mining

Explosion-proof products must be used for such applications.

Instructions

- Make sure that no-one can trip on the cable and injure themselves or cause the device to fall out.
- Make sure that there are no objects crushing and potentially damaging the cable.
- Avoid laying the cable over sharp edges as this can chafe the cable sheath.
- Never place the device on unsteady surfaces. It could fall down and be damaged.
- Never expose the device to direct sunlight or heat sources.
- Make sure that the device is sufficiently ventilated. Do not cover it. Never operate the device with the protective cover on.
- Avoid subjecting the device to mechanical shocks, excessive amounts of dust, moisture, and strong magnetic fields.

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 difficult operating conditions - for example due to:
  - Corrosive vapors, gases, oils or chemicals
  - Electrical or magnetic fields of high intensity
- In systems that require special monitoring, for example:
  - Elevators
  - Systems in especially hazardous rooms

2.3 Power supply

Safety specifications

⚠ WARNING

Electric shock hazard

The HMI device corresponds to protection class III according to EN 61131-2 or EN 50178. The 24 VDC supply must be isolated from touch-hazardous voltages, for example by means of a safety isolation transformer or similar equipment.

- Observe the power supply limit values specified in the Technical Specifications.
- Fuse all equipment in the control cabinet in accordance with local safety regulations.

Installing and connecting the device 3

3.1 Preparing for installation

3.1.1 Checking delivery

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

Note

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

The documentation belongs to the HMI device and is required for subsequent commissioning. Retain all enclosed documentation for the entire service life of the HMI device. You must pass on the enclosed documentation to any subsequent owner or user of the HMI device. Make sure that every supplement to the documentation that you receive is stored together with the original documentation.

3.1.2 Device identification data

The device can be clearly identified with the help of this identification data in case of repairs or theft. You can find the identification data on the rating plate.

Enter the identification data in the table below:

Identification date	Source	Value
Serial number	Rating plate	S KBY-..-.....
Order number of the device	Rating plate	1P 6AV...-.....-....
Ethernet address 1	Rating plate	MAC.:

3.1.3 Mounting positions and type of fixation

The connection box is designed to be fitted in a control cabinet. It provides the connection to the power supply and to the control system in the control cabinet. The connection box is self-ventilated and is approved for all mounting positions.

The wall-mounting bracket and the magnetic wall bracket are designed for vertical mounting.

3.1.4 Preparing mounting of the connection box

The degree of protection is only guaranteed when the following is observed at the mounting location:

- Thickness of material at the mounting location with degree of protection IP65: 1.5 to 5 mm
- Permitted deviation from plane at the mounting location: ≤ 0.5 mm

  This condition must be fulfilled even for the mounted connection box.
- Permitted finish roughness at mounting location: ≤ 120 µm (R_z 120)

Observe the specifications for the mounting location in chapter "Connection box (Page 141)".

3.1.5 Preparing to mount the wall-mounting bracket

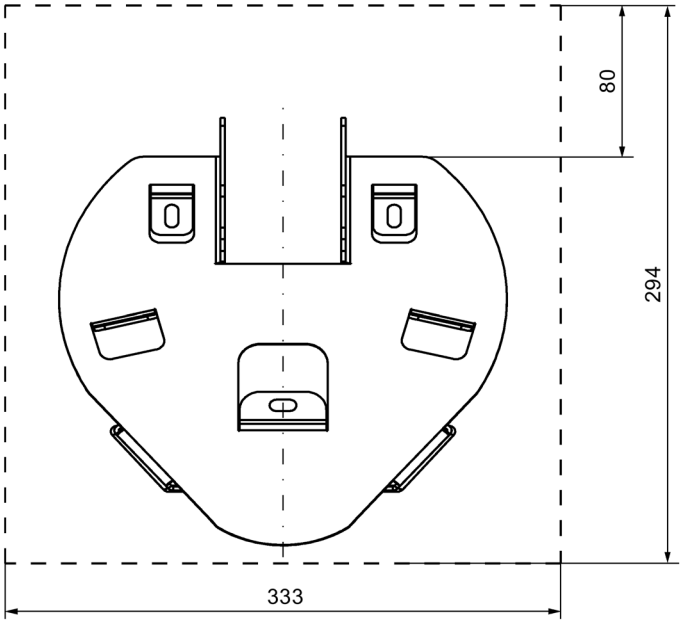
Choose the mounting location for the wall bracket

Observe the following points when selecting the mounting location:

- Position the wall bracket so that the display of the hooked-in HMI device is not exposed to direct sunlight.
- Position the wall bracket so that the HMI device can be ergonomically inserted by the user. Choose a suitable mounting height.

Maintaining clearances

The following clearances are required around the wall bracket:



3.2 Connection box and wall bracket

3.2.1 Mounting the connection box

Requirement

- You need four M5 × 8 screws. The screws are included in the scope of delivery of the connection box.

Procedure

Note

The connection box is defined as an open component pursuant to EN61131-2:2007 and must be fitted in a suitable enclosure with degree of protection IP54 or higher.

Please see "Technical specifications Connection Box (Page 145)".

1. Select a position for the connection box in the control cabinet that is easy and safe to reach.
2. Fit the connection box so that the red mark on the plug connection for the connecting cable points up.
3. Mark the mounting holes with a marking tool.

   You will find a drilling pattern and fitting instructions in the Technical Specifications in the chapter "Connection box (Page 141)".
4. Drill 4 through holes ∅ 5.5 mm for the screws as well as one through hole ∅ 35 mm for the connecting cable.
5. Insert the connection box into the control cabinet and hold it from the inside.
6. Fasten the connection box from the outside with the M5 screws.

   The maximum torque for the screws is 1.5 Nm.

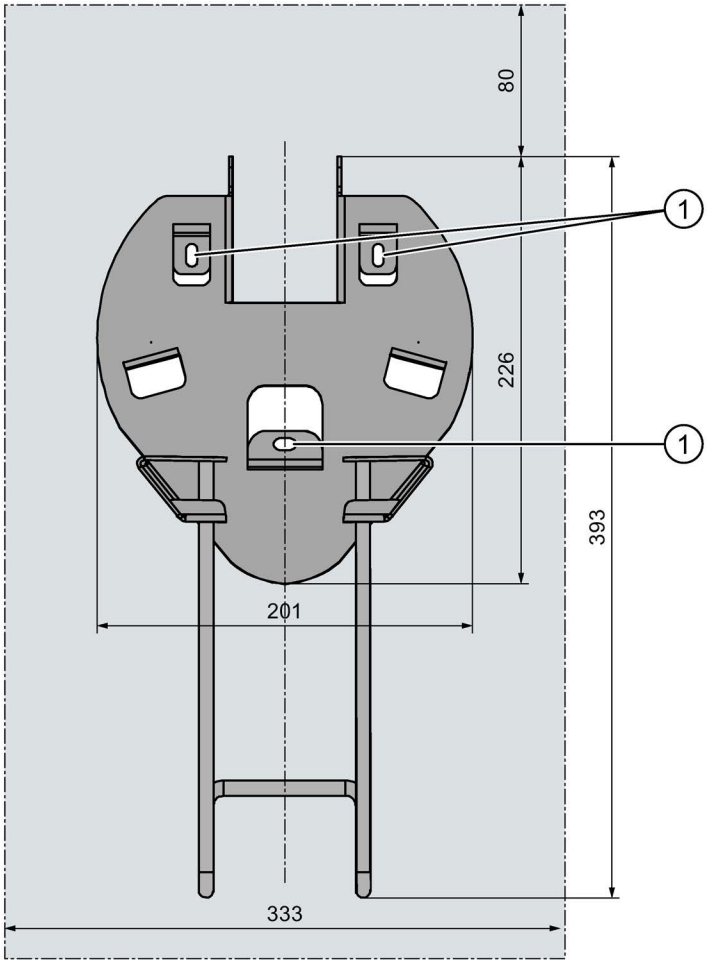
3.2.2 Mounting the wall-mounting bracket

Requirement

- In order to ensure that the HMI device can be hooked in securely, select a vertical surface or one inclined slightly to the rear as the mounting surface.
- A position at eye level is recommended.

  This enables convenient operation of the device in the wall bracket.

- Position the wall bracket so that the HMI device is not exposed to direct sunlight when attached.
- You need 3 M5 × 16 screws.
- Required clearance:



① Mounting holes

NOTICE
Risk of injury from the wall bracket People may bang in to the wall bracket. This can result in injury and in damage to the device. Select a position for the wall bracket where no individuals are placed at risk.

Procedure

1. Place the wall bracket on the mounting surface.
2. Mark the mounting holes with a marking tool.
3. Drill 3 through holes or 3 threaded holes M5.
4. Attach the wall bracket.

3.2.3 Mounting and using the magnetic wall-mounting bracket

3.2.3.1 Mounting the magnetic wall bracket

⚠ CAUTION

Danger of tripping over connecting cable

If somebody trips over the connecting cable, there is a risk of injury and the device and wall bracket could fall.

- Pay attention to the position of the connection box and the maximum length of the connecting cable.
- Lay the connecting cable carefully.
- Avoid excess cable length.

Risk of injury from the magnetic wall bracket

The magnetic holding power is affected by the material, thickness and structure of the mounting surface. The magnetic wall bracket can fall. This can result in personal injuries or material damage.

- Select a position for the wall bracket where no persons are placed at risk.
- Overhead mounting is not permitted.
- Mounting at locations at which the wall bracket or devices held in it could fall is not permitted.
- Check for any dirt before mounting the magnets.
- Ensure that the mounting surface is clean and suitable.
- Curved surfaces are permitted up to a curve radius of ≥ 1.5 m.
- Ensure that the whole surface of all magnets is in contact with the mounting surface.
- Make sure that the wall bracket is securely mounted by lightly pulling on it and moving it.
- Do not pull strongly on the wall bracket.

Requirement

- Select a position for the magnetic wall bracket that can be accessed easily and safely.
- A position at eye level is recommended. This enables convenient operation of the device in the wall bracket.

Procedure

Mounting

1. Mount the magnetic wall bracket according to the safety note.

   The magnetic wall bracket is held in place by the three magnets.

Remove

1. Start by removing one magnet from the mounting surface and then the remaining magnets.

   Do not try to remove all three magnets at once.

3.2.3.2 Using the magnetic wall bracket

Procedure

Inserting a device in the magnetic wall bracket

1. Insert the top edge of the device handle into the top of the magnetic wall bracket.
2. Move the lock hook as shown and hook the device into the magnetic wall bracket.

   The device will slide into the lock position.
3. Release the lock hook.
4. Check to make sure that the device is completely engaged in the magnetic wall bracket.

NOTICE
Device can drop In the case of improper locking, the device could fall out of the wall bracket and get damaged. Make sure that the lock hook is latched on the device.

Taking the device out of the magnetic wall bracket

1. Pull the lock hook toward the device and lift the device slightly at the bottom.

   The device is unlocked.
2. Release the lock hook.
3. Remove the device from the magnetic wall bracket.

3.3 Connecting the device

3.3.1 Connecting the connection box

3.3.1.1 Connection sequence

Requirement

- You have fitted the connection box in accordance with the specifications in these operating instructions.

Connection sequence

NOTICE
Connection sequence
You risk damage to the connection box if you ignore the proper connection sequence.
Always follow the specified sequence for connection.

Connect the connection box in the following sequence:

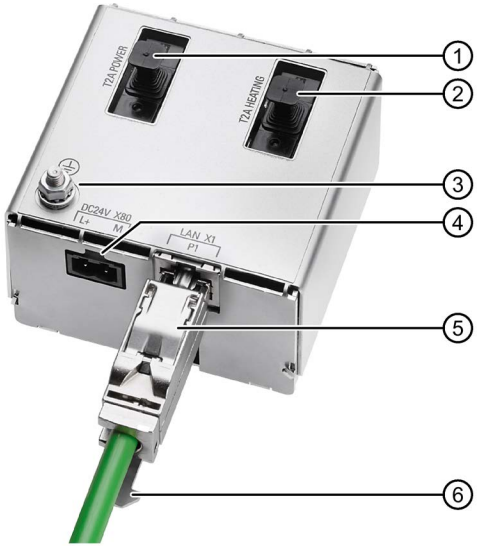
1. Protective earth
2. Power supply
3. Ethernet

Note

Make sure that all the connectors and lines have sufficient contact and strain relief.

3.3.1.2 Connecting cables and replacing fuses

The following interfaces and fuses are available on the connection box:



① Fuse for the power supply
② Fuse for the heater of the artic HMI device
③ Interface for the protective grounding
④ Interface for the power supply
⑤ Interface for the Ethernet cable
⑥ Strain relief bracket

Information on the fuses can be found in the chapter
"Technical specifications Connection Box (Page 145)".

Note

Both the power supply and the device heating have a slow-blow 2A fuse which is easy to replace if required. The connection box does not have reverse polarity protection. Reverse polarity protection on the connection box is offered by the two fuses in the Mobile Client.

Requirement

- The connection box is installed.
- The control cabinet which houses the connection box is disconnected.

Procedure

1. Connect the protective grounding.

   The minimum cross-section for the conductor to be connected is 4 mm^2.
2. Connect the cable for the protective grounding with the equipotential bonding rail in the control cabinet.
3. Connect the connecting terminal for the power supply.

   The connecting terminal is included in the accessory kit.
4. Insert the connector of the Ethernet cable and lock it.
5. Secure the Ethernet cable with a cable tie at the strain relief bracket.
6. Close the control cabinet.
7. Connect the connecting cable as described in the chapter "Connection box (Page 13)".

3.3.1.3 Connecting the power supply

The power supply for the device is connected using a 24V DC mains terminal on the connection box. The mains terminal for the connection box is included in its accessory kit.

Information on power supply can be found in the chapter "Technical specifications Connection Box (Page 145)".

⚠ WARNING

Personal injury and damage to property

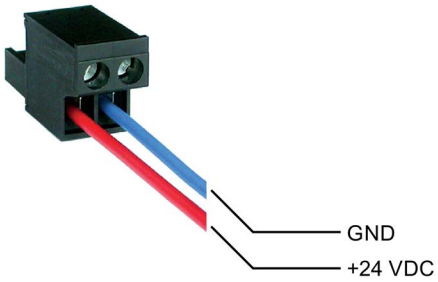
You must configure the 24V DC device supply correctly. Otherwise there is a risk that the components of your automation system will be damaged and that people will be injured.

Only ever use voltage generated as protective extra-low voltage (PELV) for the 24V DC device supply.

Procedure

NOTICE
Damaging the connection box Do not tighten the screws of the mains terminal if it is not plugged into the connection box. The pressure from the screwdriver may otherwise damage the plug socket in the connection box. Only connect the wires when the mains terminal is withdrawn.

1. Connect the mains terminal to the cables of the power supply as shown in the figure below.



   Ensure that the lines are connected properly to the correct terminals. See the labeling on the back of the connection box to assist you.

2. Insert the mains terminal into the associated interface.

   This is shown in the chapter "Connecting cables and replacing fuses (Page 38)".

NOTICE
Safe electrical separation The supply voltage must be within the specified voltage range. Otherwise there is a risk that the HMI device will malfunction. Use only 24V DC power supply units with safe electrical isolation in accordance with IEC 60364-4-41 or HD 384.04.41 (VDE 0100, Part 410), for example, in accordance with the PELV standard. Applies to non-isolated system design: Connect the GND 24 V connection from the 24 V power supply output to equipotential bonding for uniform reference potential.

3.3.2 Connecting the mobile client

The connecting cable can be connected to the connection box using a female connector at the device and a male connector at the connection box. A red dot helps you align the connector for connection.

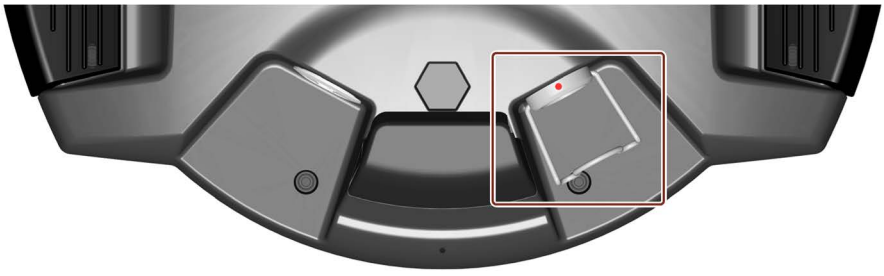
Requirement

- The connection box is connected and supplied with power.

Procedure

Plug in connector

1. Align the red dot on the connecting cable connector with the red dot on the connection box socket.
2. Insert the connector into the socket and push until it clicks into place.
3. Swing down the locking clip until it slots into place on the connector.
4. Align the red dot on the connecting cable connector with the red dot on the mobile client socket.



5. Insert the connector into the socket and push until it clicks into place.
6. Swing down the locking clip until it slots into place on the connector.

⚠ CAUTION

Incorrectly plugged in connectors cause malfunctions

If the connecting cable connector is not positioned correctly at the connection box as well as the device, this will disrupt power supply, data transfer and shielding. This can result in machine and system malfunctions.

- Make sure that the mark on the connector (red dot) matches that on the socket.
- Make sure that the connector is fully inserted.
- Make sure that the connector is secured with the locking clip and that the locking clip is securely positioned against the connector.

Perform self-test

As soon as power is connected with the connecting cable, the HMI device runs a self-test program once and automatically. All LEDs on the HMI device are switched on briefly during program execution. This allows the user to check whether the LEDs are functioning correctly. At the end of the self-test, the LEDs indicate the operating state of the device.

If the self-test reports an error, the "SF" LED lights up in red.

1. Repeat the switch-on operation.
2. If the LED does not go out, check the voltage in the power supply line to the connection box.
3. If the LED still does not go out, send the device for repair.

Remove connector

You can remove the connecting cable at the connection box and/or at the device:

1. Lift up the connecting cable locking clip at the device.
2. To disconnect the connecting cable from the device, pull firmly on the connecting cable connector.
3. Lift up the connecting cable locking clip at the connection box.
4. To remove the connecting cable from the connection box, pull hard on the connecting cable connector.

If you do not intend to use the device with another connection box, place the device securely in its wall-mounting bracket.

3.3.3 Connecting the USB mouse or USB keyboard for service purposes

Using additional USB peripherals

Note

The following applies for additional USB peripherals:

- The use of a USB hub at the USB port is not permitted.
- The use of a USB mouse is only released for servicing and is not approved for operation.
- The use of a USB keyboard is only released for servicing and is not approved for operation.

3.4 Switching on and testing the HMI device

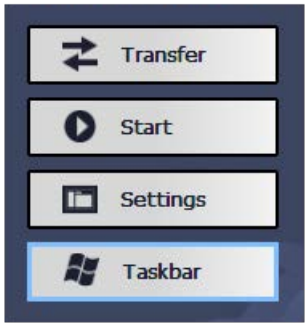
Procedure

Proceed as follows:

1. Switch the device on.

   An animated graphic is displayed during startup.

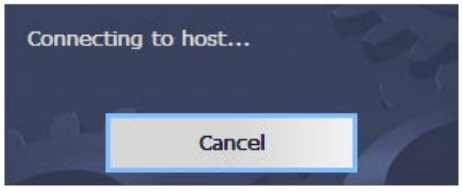
   If the HMI device fails to start, you have probably crossed the wires on the power supply terminal. Check the connected wires and change their connection. The Loader opens after the operating system has started.



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

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

   During this process the following dialog appears:



2. Press "Cancel" to stop the transfer.

Result

The Loader appears again.

Note

When restarting the system, a project may already be loaded on the HMI device. The project will then start after a configurable delay or when you press the "Start" button.

Use the relevant operating object to close the project.

Refer to your system 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 appears.
- The Loader is displayed.
- A project is started.

Shutting down the HMI device

Close the project on the HMI device before shutting it down.

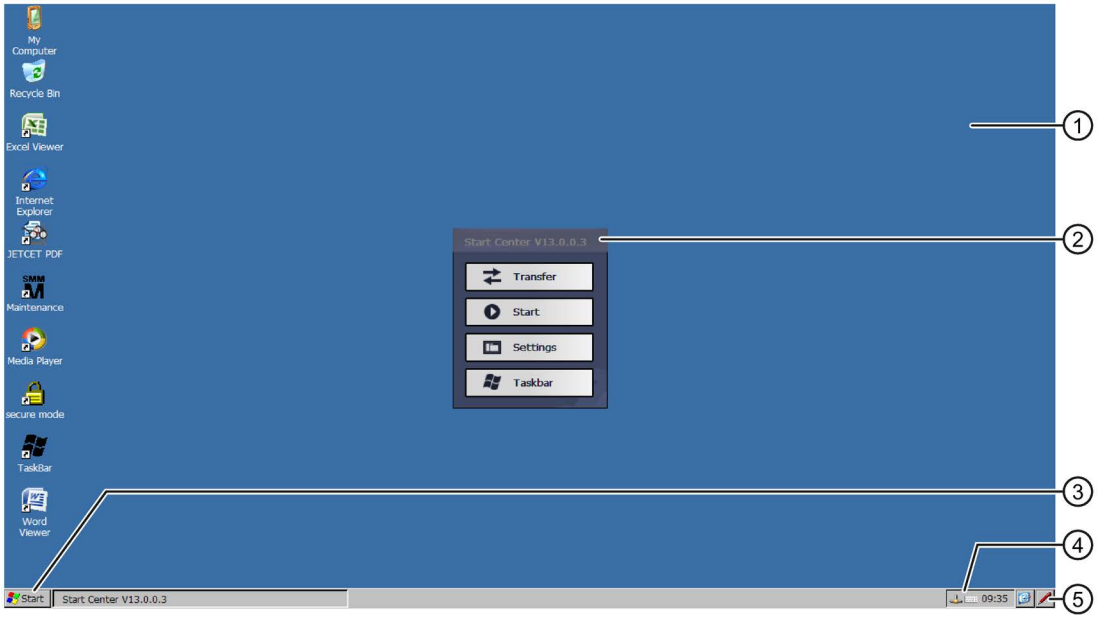
See also

Switching the device on and off (Page 129)

Parameter assignment of a Mobile Client 4

4.1 Desktop and Start Center

Once the HMI device has been started, the display shows the Windows CE desktop.



① Desktop
② Start Center
③ Start menu
④ Siemens HMI Input Panel
⑤ Icon for screen keyboard

The Start Center

The Start Center buttons have the following function:

- Transfer – Switches the HMI device to "Transfer" mode.

  Transfer mode is only activated if at least one data channel has been configured in accordance with section "Configuring transfer (Page 67)".

- Start – Starts the project on the HMI device.

  If you do not perform an operation, a project already loaded on the HMI device will start automatically in line with the settings in the Control Panel . If no project is loaded, the Start Center will activate the transfer.

- Settings – Starts the Control Panel.

  See "Functions in the Control Panel (Page 50)".

- Taskbar – Opens the taskbar and the Windows CE start menu.

The Start Center is displayed again if a project on the HMI device is closed or if it is accessed from the project.

4.2 Operating the desktop, Start Center and Control Panel

You can operate the Windows CE user interface and the Start Center with the touch screen.

The operator controls shown in the dialogs are touch-sensitive. Touch objects are operated in the same way as mechanical keys. You activate an operator control by pressing it with your finger. To double-click, touch an operator control twice in succession.

4.3 Installed programs

Installed programs

The following programs are installed on the HMI device:

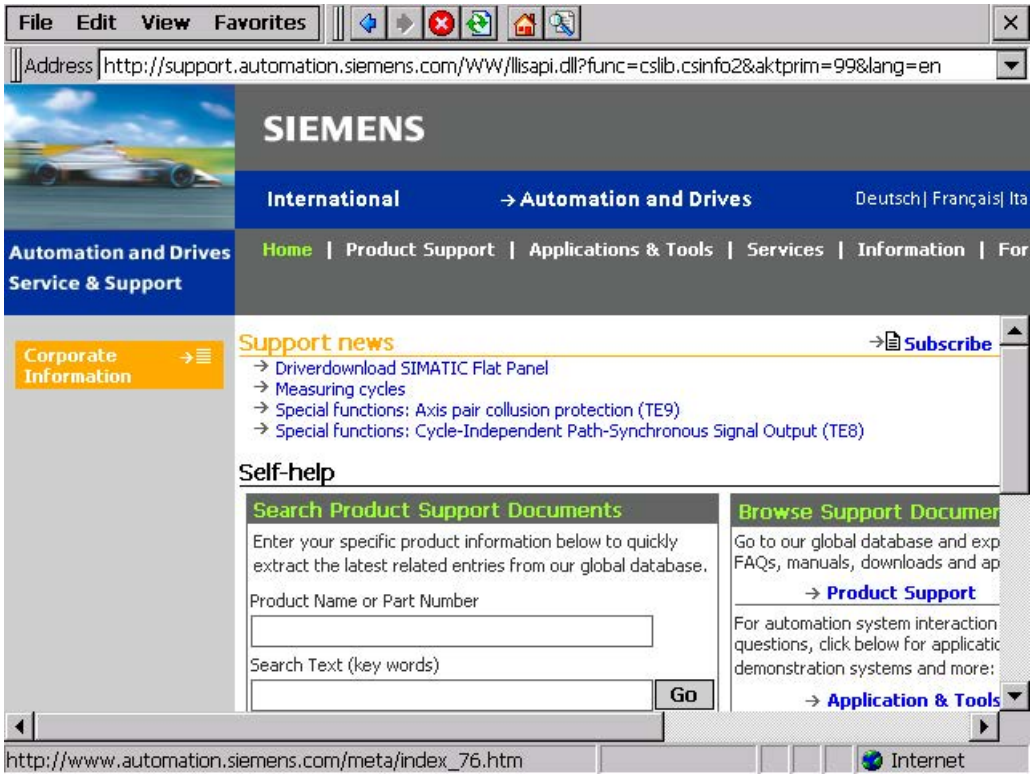
Installed programs	Icon	File formats
Excel Viewer		xls, xlsx
Internet Explorer		HTML
PDF Viewer		PDF
Maintenance application		-
Media Player		• Audio formats such as WMA, MP2, MP3, WAV, M4A, AAC • Video formats such as AVI, WMV, MPG, MPEG, MOV, MP4 • Windows media formats such as ASF, WMA, WMV, WM • Windows media metafiles such as ASX, WAX, WVX, WMX, WPL • Other video formats such as M1V, M2TS • Other audio formats such as MID, MIDI, RMI, AIF, AIFC, AIFF
Word Viewer		doc, docx, rtf

The programs can be found on the desktop or in the Start menu under "Programs". Each of these programs can also be opened from the HMI project if this has been configured.

All viewers share a zoom function. You can find additional information on the programs on the Microsoft website.

Internet Explorer

Internet Explore for Windows CE is installed on the HMI device.



Internet Explorer for Windows CE and the Internet Explorer in MS operating systems that is usually installed on a PC differ in terms of functionality. Internet Explorer for Windows CE has separate proxy settings that are independent of the settings described in "Setting the proxy server (Page 76)".

4.4 Security mode

4.4.1 Overview

You can protect the desktop icons, the taskbar and the "Settings" and "Taskbar" buttons in the Start Center from unauthorized access. Security mode prevents unauthorized access.

Security mode can be activated if you have assigned a password as described in the section "Changing password protection (Page 64)". If the password is not entered, only the "Transfer" and "Start" buttons can be operated.

NOTICE
Keeping the password If the password is no longer available, you have no access to the Control Panel and the Windows CE taskbar. Backup password to protect it against loss.

4.4.2 Activating and deactivating temporary security mode

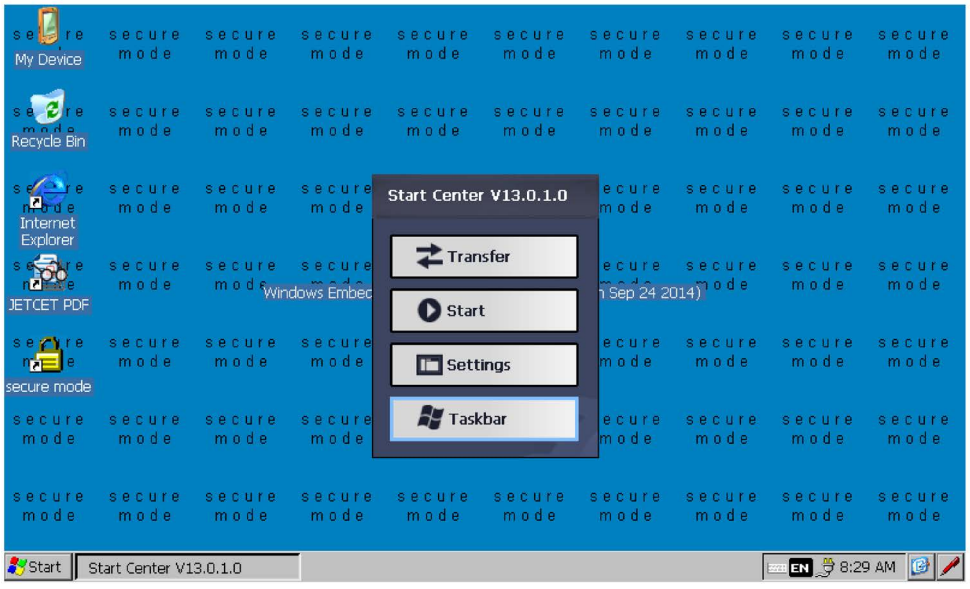
Procedure

Activating temporary security mode

1. Select the following icon on the desktop:

   Security mode is temporarily activated. The text "secure mode" is displayed multiple times on the desktop, similar to the figure below:

   Operation of the desktop icons and taskbar is now locked. The Start Center buttons remain operable.

Deactivating temporary security mode

1. Press the "Taskbar" button in the Start Center.

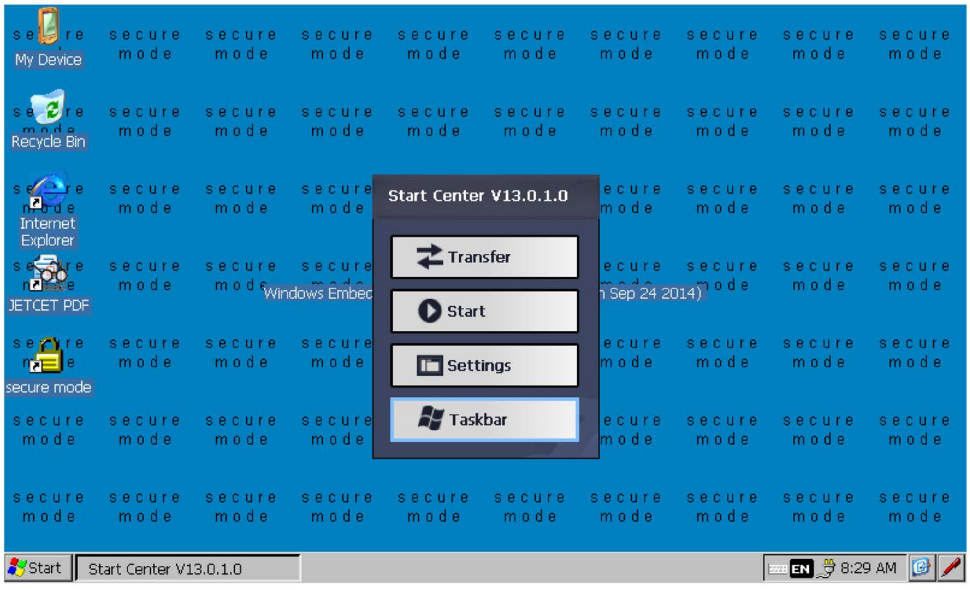
   Security mode is now deactivated and the desktop is displayed as shown in the figure in "Desktop and Start Center (Page 45)".

4.4.3 Using the HMI device in password-protected security mode

If security mode has been activated, only the "Transfer" and "Start" buttons can be operated without a password. To deactivate security mode, delete the password as described in "Changing password protection (Page 64)".

Requirement

- A password has been assigned as described in "Changing password protection (Page 64)".
- The security mode is displayed, similar to the figure below:



Procedure

1. Operate a password-protected desktop icon, the taskbar or the "Settings" or "Taskbar" button in the Start Center.

   The following dialog appears:

2. Enter the required password.
3. Confirm your entry with "OK".

   The dialog will close and the selected operator control open.

4.5 Control Panel

4.5.1 Overview

The Control Panel can be opened as follows:

- With the "Settings" button in the Start Center.
- In the Windows CE start menu with "Settings > Control Panel".

The figure below shows the open Control Panel.

4.5.2 Functions in the Control Panel

The table below includes the Control Panel icons with links to the relevant sections.

Icon	Functional description
	Importing, displaying and deleting certificates (Page 78)
	Setting the date and time (Page 63)
	Changing the screen settings (Page 54)
	Configuring the screen keyboard (Page 56)
	Changing general Internet settings (Page 75) Setting the proxy server (Page 76) Changing the privacy settings (Page 77)
	Setting the character repeat rate of the screen keyboard (Page 57)
	Setting the double-click (Page 58)
	Specifying the IP address and name server (Page 84)
	Specifying the logon data (Page 85)
	Backing up registry information and temporary data (Page 71) Displaying information about the Mobile Panel (Page 74) Restarting the Mobile Panel (Page 60) Calibrating the touch screen (Page 59)

Icon	Functional description
	Changing password protection (Page 64)
	Changing the printer properties (Page 72)
	Enabling NTP (Page 80)
	PROFINET enabled: not supported
	Regional and language settings (Page 62)
	Setting the screen saver (Page 66)
	Saving to external storage medium – backup (Page 88)
	Restoring from external storage medium – Restore (Page 93)
	Update operating system (Page 95)
	Disable automatic saving: not supported
	Changing the network configuration (Page 97)
	Displaying general system properties (Page 73)
	Displaying memory distribution (Page 69)
	Entering the Mobile Panel computer name (Page 83)
	Configuring transfer (Page 67)
	Setting the project storage location and start delay (Page 70)
	Configuring e-mail (Page 86)
	Configuring Telnet for remote control (Page 88)

4.5.3 Operating the Control Panel

You can operate the Control Panel using the touch screen. The following steps give a general description of how to operate a function.

Requirement

- The current project has been closed.
- The Start Center is displayed.

Procedure

1. Press "Settings".

   The Control Panel opens.
2. Double-click an icon.

   The corresponding dialog is displayed.
3. Open a tab.

   The content of the dialog changes.

4. Operate the required operator control or text box.

   The screen keyboard opens as described in the section "Display types for the screen keyboard (Page 52)" when you select a text box.

5. Press OK to confirm your entries.

   To cancel the entry, press ✕. The dialog closes.

6. Press ✕.

   The Control Panel closes.

The Start Center is displayed.

4.5.4 Display types for the screen keyboard

The screen keyboard is used for entering alphanumeric, numeric and special characters. As soon as you touch a text box, a numeric or alphanumeric screen keyboard is displayed, depending on the type of the text box.

You can also open the screen keyboard by selecting the icon in the status bar. The icon is shown in the figure in section "Overview (Page 50)".

How to set the screen keyboard is described in the section "Configuring the screen keyboard (Page 56)".

Representation types for the screen keyboard

You can toggle the screen keyboard display as follows.

- Alphanumerical screen keyboard

  The alphanumerical screen keyboard has the following levels.

  – Normal level

Note

The ' character on the keyboard is only displayed when followed by a space. If the ' character is followed by a letter, then the result will be an accent, such as "á".

  – Shift level

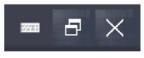
    The shift level has uppercase letters and other special characters.

The alphanumeric keyboard is always displayed after a restart.

- Numerical screen keyboard

  "Num" activates the numerical screen keyboard. Pressing "Num" again activates the alphanumeric screen keyboard.

- Reduced screen keyboard
  You activate the reduced screen keyboard with the _ key.



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
	Switchover to special characters
	Switching from full display to reduced display
	Switching from reduced display to full display
	Closing of reduced display of the screen keyboard
	Brief touch: Hide screen keyboard Long touch and move at the same time: Move the screen keyboard
	Not assigned

Entering data

Key	Function
	Delete character left of cursor
	Delete character right of cursor
	Confirm input
	Cancel input

4.5.5 Configuring operation

4.5.5.1 Changing the screen settings

Adapting the screen settings

The screen settings on the HMI device must match the settings in the project. To achieve a high color depth on the HMI device, use objects with the same color depth on your configuration PC. Objects with higher color depth need more computing power on the HMI device. If you are monitoring and controlling time-critical processes, use a lower color depth during configuration.

Note

Changed screen orientation takes effect only after reboot

With touch HMI devices, a change to the screen orientation only takes effect after you reboot the HMI device. The configuration file is also deleted. Adapt the configuration to the new screen orientation and transfer the project again to the HMI device.

Therefore, do not change the screen orientation in ongoing system operation.

Requirement

The Control Panel is open.

Procedure

Proceed as follows:

1. Open the "Display Properties" dialog with the Display icon.

2. To change the color depth, open the "Settings" tab.

   – Select the desired color depth under "Color Quality".
   – Confirm with "Apply".

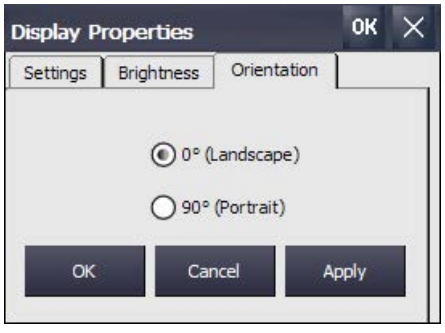
     A change of the color depth only takes effect after rebooting the HMI device.

3. To change the brightness, open the "Brightness" tab.

   – Change the brightness to a value between the minimum and 100%.
   – Confirm with "Apply".

     The brightness is adapted.

4. Changing the screen orientation in the tab "Orientation" is not approved for this HMI device. Do not change the setting "Landscape".



5. Close the dialog with "OK".

Result

The screen settings have been changed.

Brightness keys on the device

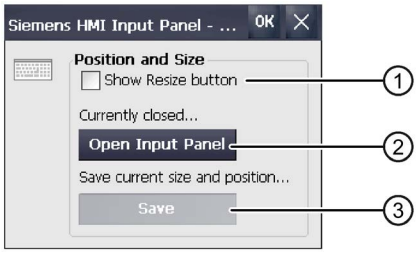
You can use the "+" and "-" keys on the device to adjust the brightness to one of 16 levels. If you set the value for the brightness higher than the default value and do not use the "+" and "-" buttons for 30 minutes, the default value is restored.

4.5.5.2 Configuring the screen keyboard

You can use this function to change the layout and the position of the screen keyboard.

Requirement

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



① Check box for displaying the button in the screen keyboard
② This button opens the screen keyboard
③ This button saves the screen keyboard settings

Procedure

1. If you want to change the size of the screen keyboard, select the "Show Resize Button" check box.

   is displayed in the screen keyboard you want to open. If the check box is not selected, the size of the screen keyboard cannot be adjusted.
2. To open the screen keyboard, press "Open Input Panel".
3. To change the position of the screen keyboard, touch a free space between the keys.

   Release the screen keyboard when the required position has been reached.
4. To enlarge or reduce the screen keyboard, press "".
5. Drag to adjust the size of the screen keyboard.
6. Release the screen keyboard when the required size has been reached.
7. To save the settings, press "Save".
8. Confirm your entries.

   The dialog closes.

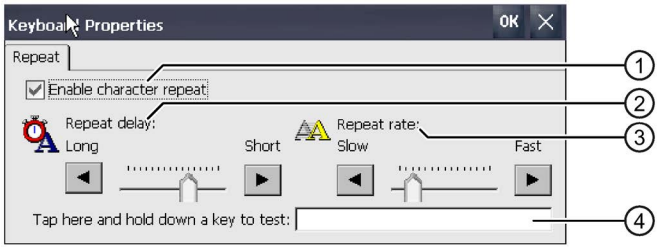
The screen keyboard settings have been modified.

4.5.5.3 Setting the character repeat rate of the screen keyboard

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

Requirement

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



① Check box for selecting 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 box

Procedure

1. If you want to enable character repetition, select 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 shortens the delay time. Moving it to the left extends the delay time.
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 accelerate the repeat rate. Moving to the left will slow down the repeat rate.
4. Check the settings for the touch control by touching the test field.

   The screen keyboard is displayed.
5. Move the screen keyboard as needed.
6. Press the key for a character and keep it pressed.

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

   The dialog closes.

The character repetition and delay are set.

4.5.5.4 Setting the double-click

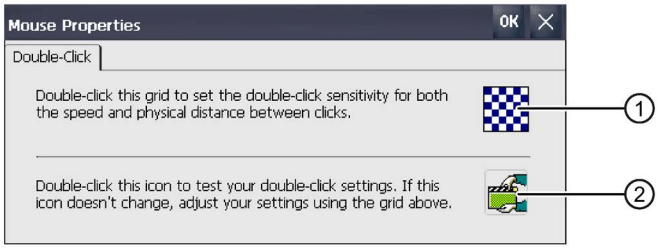
You start applications in the Control Panel and in Windows CE with a double-click.
A double-click corresponds to two brief touches.

In the "Mouse Properties" dialog, make the following settings for operation with the touch screen:

- Interval between two touch contacts on the touch screen
- Interval between the two clicks of a double-click

Requirement

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



① Pattern
② Icon

Procedure

1. Double-click on the grid.

   After the double-click the grid is shown in inverse colors. White boxes become gray. The timeframe for the double-click is saved.

2. Check the double-click.

   Press 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 ideal, correct them.
4. Confirm your entries.

   The dialog closes.

The double-click adjustment is completed.

4.5.5.5 Calibrating the touch screen

Parallax may occur on the touch screen depending on the mounting position and perspective. To prevent any resulting operating errors, you may need to calibrate the touch screen.

Requirement

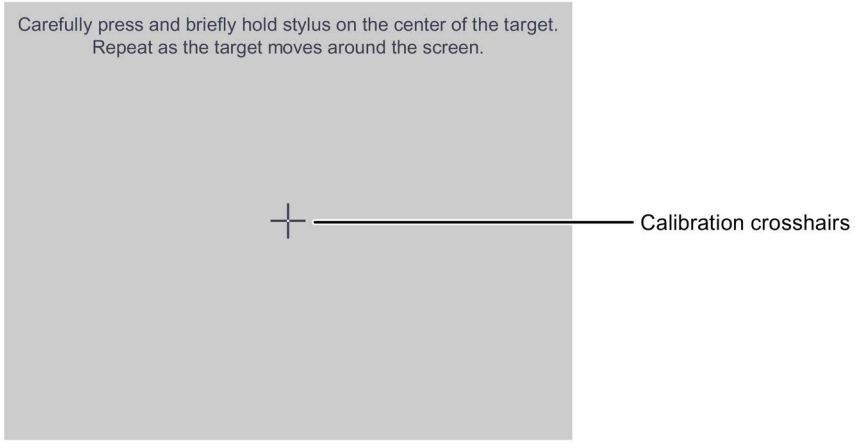
- You have opened the "Touch" tab of the "OP Properties" dialog with the "OP" icon.

- 1 Touch pen

Procedure

1. Select "Recalibrate".

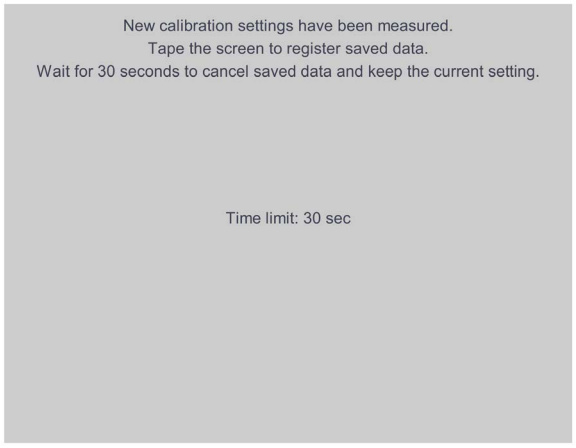
   The following dialog appears:



2. Briefly touch the center of the calibration crosshairs.

   The calibration crosshairs are then displayed at four more positions. Briefly touch the middle of the calibration crosshairs for each position.

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



3. Touch the touch screen.

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

4. Close the "OP Properties" dialog.

The touch screen of the HMI device is calibrated.

4.5.5.6 Restarting the Mobile Panel

You need to start the HMI device again in the following situations:

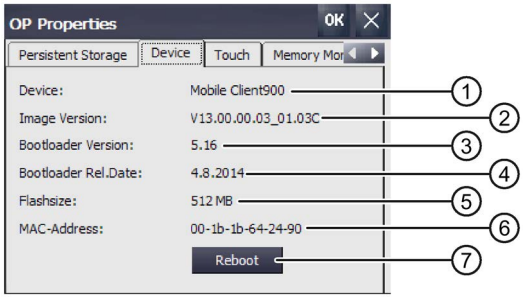
- You have changed the time zone and activated daylight saving time – see "Setting the date and time (Page 63)".
- You have re-activated the screen saver – see "Setting the screen saver (Page 66)".

NOTICE
Data loss All volatile data are lost when the HMI device is started again. Check the following: • The project on the HMI device has been closed. • No data is being written to the flash memory.

Requirement

- If you want to restore the factory setting:

  The HMI device is connected accordingly.
- You have opened the "Device" tab in the "OP Properties" dialog with the "OP" icon.



Procedure

1. To restart the HMI device, press "Reboot".

   The following message is displayed:

   ① Button for restart

   ② Button for restoring factory settings and for restart
2. To restart the HMI device, press "Reboot".

   The HMI device starts immediately.
3. To reset the HMI device to the factory settings, press "Prepare for Reset".

   Note

   Press "Prepare for Reset" to delete the operating system and project data immediately.
4. Restore the operating system accordingly.

   Only then can the HMI device be restarted. The HMI device configuration corresponds to the factory settings.

   Note

   The project-specific configuration may then no longer be effective.
5. If you do not want to restart the HMI device, press "No".

   The message closes. There will be no restart.

4.6 General settings

Note

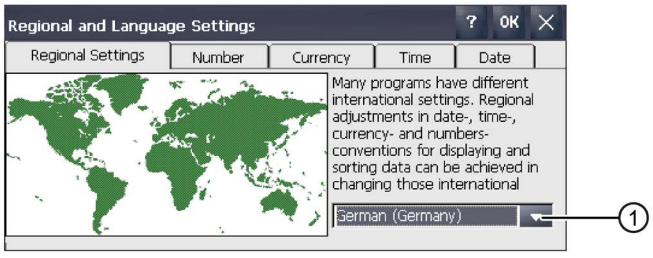
The illustrations in this section are representative, that is, they may differ from your device.

4.6.1 Regional and language settings

The date, time and decimal points are displayed differently in different countries. You can adapt the display format to meet the requirements of various regions. The country-specific settings apply to the current project. If the project language is changed, the country-specific settings are also changed.

Requirement

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



① "Region" selection box

Procedure

1. Select the required region in the selection box.
2. Navigate to the "Number", "Currency", "Time" and "Date" tabs one after the other.
3. Set the required regional settings in the selection field of these tabs.
4. Confirm your entries.

   The dialog closes.

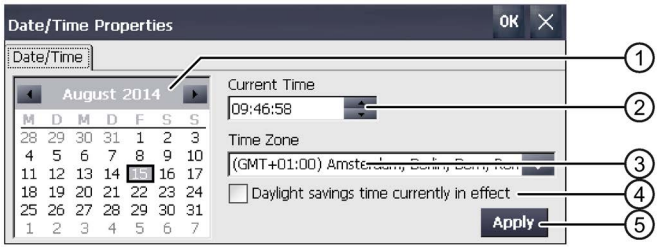
The country-specific specifications for the HMI device are now set. "Setting the date and time (Page 63)" describes how to activate daylight saving time.

4.6.2 Setting the date and time

You can use this function to set the date and time. The HMI device has an internal buffered clock.

Requirement

You have opened the "Date/Time Properties" dialog with the "Date/Time" icon.



① Date selection box
② Text box for the time
③ Time zone selection box
④ Check box used to activate daylight saving time
⑤ Button for applying changes

Procedure

1. Select the applicable time zone for the HMI device from the "Time Zone" selection box.
2. Select "Apply".

   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 box.
4. Set the current time of day in the "Current Time" text box.
5. Select "Apply".

   The entry is made.

   Note

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

   Pressing "Apply" sets the time forward by one hour.
7. If you want to switch from summer to winter time, clear the "Daylight savings time currently in effect" check box.

   Pressing "Apply" sets the time back by one hour.
8. Confirm your entries.

   The dialog closes.

The settings for the data and time of day have now been changed. The HMI device must be restarted after changes in the following cases:

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

See "Restarting the Mobile Panel (Page 60)".

Synchronizing the date and time with the PLC

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

NOTICE
Synchronizing the date and time If the data and time is not synchronized and time-based reactions are triggered by the HMI device, malfunctions in the PLC may occur. Synchronize the date and time if time-based reactions are triggered in the PLC.

4.6.3 Changing password protection

You can protect access to the Control Panel with a password. If you configure password protection, "SecureMode" is automatically enabled for the HMI device. "SecureMode" additionally protects the taskbar and the Windows CE desktop against unauthorized access.

Requirement

The Control Panel is open.

Note

Password not available

If the password is no longer available, the following operator controls are no longer enabled:

- Control Panel
- Taskbar
- Windows CE desktop

All data on the HMI device is deleted when you update the operating system!

Therefore use the password to protect against loss.

Note

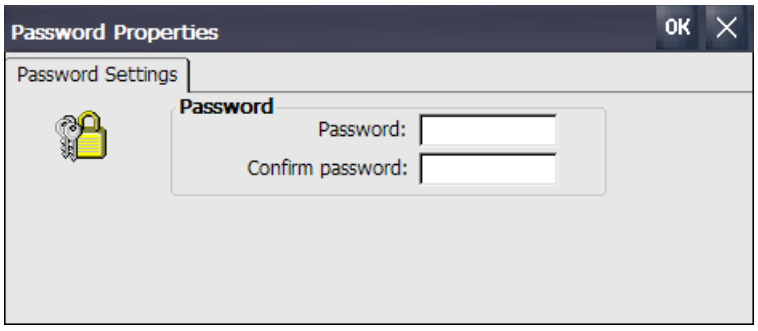
The following characters cannot be used in passwords:

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

Procedure

Proceed as follows:

1. Open the "Password Properties" dialog with the Password icon.



2. Enter the password under "Password".
3. Repeat the password under "Confirm password".
4. Confirm your entry with "OK".

Result

The "secure mode" label is displayed on the Windows CE desktop:

If you attempt to operate the Control Panel, taskbar or Windows CE desktop, you are prompted for a password. "SecureMode" is then switched off.

Switching "SecureMode" on again

To switch SecureMode back on, double-click the SecureMode icon on the Windows CE desktop.

Removing password protection and "SecureMode"

To remove password protection and "SecureMode", delete the settings under "Password" and "Confirm password".

4.6.4 Setting the screen saver

You can set the following time intervals in the Control Panel:

- Automatic activation of the screen saver
- Automatic reduction in the display backlighting

The HMI device exhibits the following behavior based on the settings:

- The screen saver is automatically activated if the HMI device is not operated within the specified period of time.
- Touching the touch screen switches off the screen saver.
  The reduction of the backlighting is also canceled. The function assigned to the button is not triggered in this case.

NOTICE

Reducing backlighting

The brightness of the backlighting decreases with increasing time in service.
To avoid shortening the service life of the backlighting unnecessarily, you can activate reduction of the backlighting.

Activating the screen saver

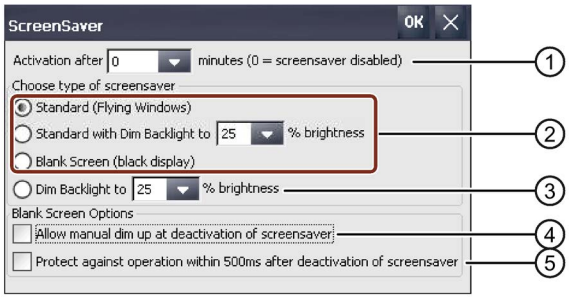
Display content that is not changed for a long period can remain dimly visible in the background for a long time. This effect is reversible.
Therefore, activate the screen saver. When the screen saver is active, the backlighting is also reduced.

Note

The screen saver has operation protection. Do not use this as a substitute for the security mode as described in "Changing password protection (Page 64)".

Requirement

You have opened the "Screen saver" dialog with the "ScreenSaver" icon.



① Period of time in minutes before the screen saver is activated
② Type of screen saver
③ Reduces brightness during dimming
④ Deactivates screen saver by increasing display brightness
⑤ Screen saver operation protection

Procedure

1. Enter the number of minutes after which the screen saver is to be activated.
   The minimum setting is 1 minute and the maximum setting is 360 minutes. Entering "0" disables the screen saver.
2. Select the type of screen saver:
   - Use the "Standard" option to enable the Windows CE default screen saver.
   - Using the option "Standard with Dim Backlight" you activate the Windows CE standard screen saver and reduce the backlight to a value between 25% and 90%.
     If you enter a value outside the range of 25 to 90%, a message will appear and the value is reset to 25%.
   - Use the "Blank Screen" option to enable an empty screen as the screen saver.
3. Using the option "Dim Backlight to" you reduce the backlight to a value between 25% and 90%, without activating a screen saver.
   If you enter a value outside the range of 25 to 90%, a message will appear and the value is reset to 25%.
4. If you want to allow deactivation of the screen saver by increasing the display brightness, select the check box "Allow manual dim …".
   Increasing the display brightness immediately deactivates the screen saver.
5. If you want to delay touch operation, select the check box "Protect against operation"
   An operating element cannot be operated until at least 500 milliseconds after activation of the screen saver.
6. Confirm your inputs.
   The dialog closes.

The screen saver for the HMI device has now been set. You will need to restart the HMI device after the screen saver has been activated. The screen saver is then enabled.

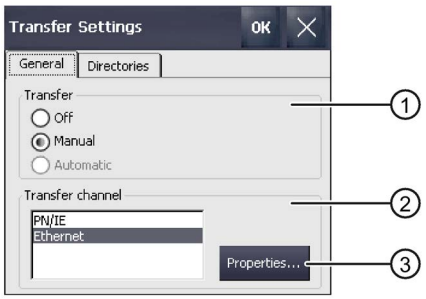
4.6.5 Configuring transfer

A project can only be transferred from the configuration PC to the HMI device when at least one data channel is configured and enabled on the HMI device. Follow the procedure below to configure transfer mode.

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

Requirement

You have opened the "General" tab in the "Transfer Settings" dialog with the "Transfer" icon.



① Transfer group

② Transfer channel group

③ Button for the "Network and Dial-Up Connections" dialog; see "Specifying the IP address and name server (Page 84)"

Note

If you change the transfer settings during "Transfer", the new settings only go into effect the next time the transfer function is started.

This may occur if the Control Panel is opened to change the transfer properties in an active project.

Procedure

1. In the "Transfer" group, select whether you want to enable or disable transfer.

   Select one of the following options:

   – Off – Transfer is not possible

   – Manual – Manual transfer

     Press "Transfer" in the Start Center to initiate transfer. The project in progress must be exited before transfer can be initiated.

   – Automatic – Automatic transfer

     The HMI device exits the current project and starts the transferred project.

     Note

     Automatic transfer is not possible for a fail-safe HMI device.

2. Select the required data channel in the "Transfer channel" group.

   – Ethernet

3. Select "Properties" to access HMI device addressing.

   You can find the necessary information in "Specifying the IP address and name server (Page 84)".

4. Confirm your entries.

   The dialog closes.

The data channel for transfer is configured.

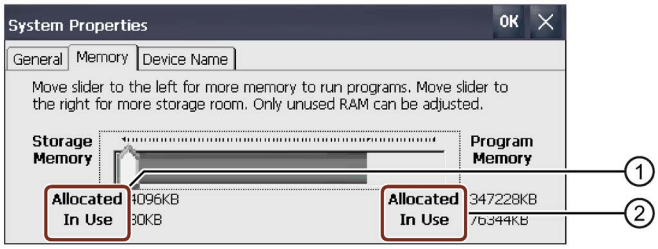
4.6.6 Setting the memory

4.6.6.1 Displaying memory distribution

This function displays the size of the flash memory and its archived data and program data allocation.

Requirement

You have opened the "Memory" tab in the "System Properties" dialog with the "System" icon.



① Cache memory, available and used
② RAM, available and used

NOTICE
Malfunction
If you change the allocation of the memory, malfunctions may occur.
Do not change the memory allocation in the "Memory" tab.

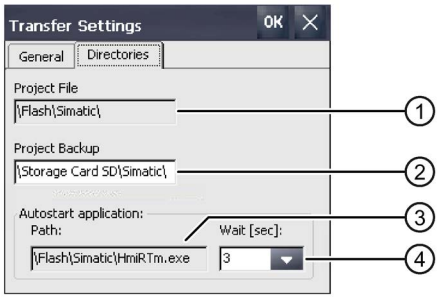
Additional information is available in the information system of the TIA Portal.

4.6.6.2 Setting the project storage location and start delay

There are various storage locations available for storing the compressed source file of your project, for example, the external memory card or a network drive. This section describes how to set the location and configure the delay time for the project start.

Requirement

You have opened the "Directories" tab in the "Transfer Settings" dialog with the "Transfer" icon.



① Storage location for project file, cannot be set
② Directory where the compressed source file of your project is saved
③ Storage location and initialization file for process operation, cannot be set
④ Delay time for project start

Procedure

1. Select a memory location from the "Project Backup" text box.

   The storage location can be a storage medium or the local network. During the next backup process, the project's source file is stored in the specified location.

2. Select the desired delay time for project start from the "Wait [sec]" selection box.

   The delay time sets how long the Start Center is displayed before the project starts. Permissible values are 1, 3, 5 and 10 seconds.

   – 0 seconds

     The project starts immediately. The Start Center is **not** displayed.

   – Forever

     The project is not started. The Start Center is displayed permanently.

   Note

   For the Start Center to be accessed after the project starts, an operating element must be configured in the project with the "Close project" function.

3. Confirm your entries.

   The dialog closes.

The storage location and delay time for the HMI device are now set.

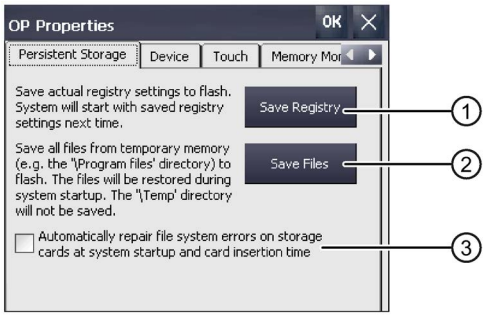
4.6.7 Backing up registry information and temporary data

You can install and uninstall your own software on and from the HMI device. You need to back up the registry settings to flash memory after installation or removal.

You can also save the data in the memory buffer to flash memory.

Requirement

You have opened the "Persistent Storage" tab in the "OP Properties" dialog with the "OP" icon.



① Button for saving registry information

② Button for saving temporary files

③ Automatically repairs file system errors on plug-in storage media during HMI device startup and when a storage medium is inserted.

Procedure

1. To save the registry entries, click "Save registry".

   The current registry entries are backed up to the flash memory. The HMI device loads the saved registry information the next time it boots.

2. To save the files, click "Save files".

   All files in the memory buffer are saved. The storage medium is the flash memory. You can access the files saved under "Start > Documents". These files are written back when the HMI device is started. The "\Temp" directory is not saved.

3. If you want the file system errors on the memory card to be repaired automatically, select the "Automatically repair file ..." check box.

   If the check box is cleared, the file system will only be repaired after prompting.

4. Confirm your entries.

   The dialog closes.

At the next startup, the HMI device will use the registry entries and temporary files set.

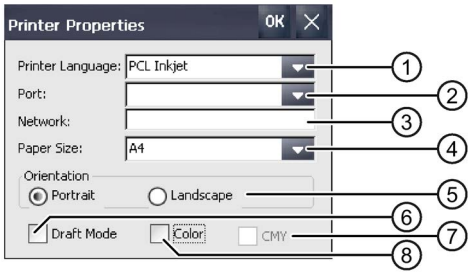
4.6.8 Changing the printer properties

The HMI device can print on 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 at "Printers approved for SIMATIC Panels and Multi Panels (http://support.automation.siemens.com/WW/view/en/11376409)".

Requirement

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 Drop-down list for printing paper format
⑤ "Orientation" group with radio buttons for print orientation
⑥ Print quality check box
⑦ Check box for color quality, valid only for Brother HL 2700 printer
⑧ Color printing check box

Procedure

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 a Brother HL 2700 printer, select the "CMY" check box.

   This allows you to improve the color quality for the printed pages.

9. Confirm your entries.

   The dialog closes.

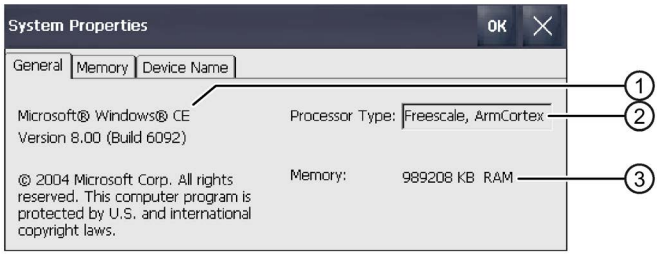
The printer is now set as specified.

4.6.9 Displaying general system properties

Use this function to display the general system information relating to the operating system, processor and memory. You will need this information if you contact Service and support (Page 151).

Requirement

You have opened the "General" tab in the "System Properties" dialog with the "System" icon.



① Information on the version and copyright of Microsoft Windows CE

② Processor information

③ Information on the size of the RAM

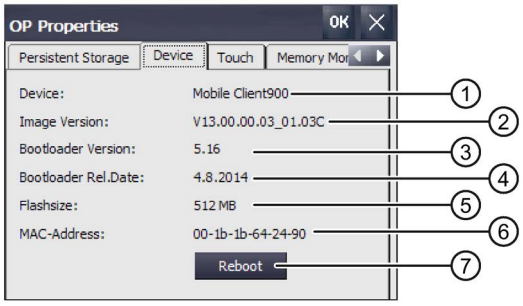
The displayed data relates to the specific device. The processor and memory information may deviate from that for this HMI device.

4.6.10 Displaying information about the Mobile Panel

You can use this function to display device-specific information. You will need this information if you contact Technical Support (http://www.siemens.de/automation/csi_en_WW).

Requirement

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



① HMI device name
② Version of the HMI device image
③ Version of the bootloader
④ Bootloader release date
⑤ Size of the internal flash memory in which the HMI device image and project are stored
⑥ MAC address 1 of the HMI device
⑦ See "Restarting the Mobile Panel (Page 60)."

Note

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

4.7 Changing Internet settings

4.7.1 Changing general Internet settings

Requirement

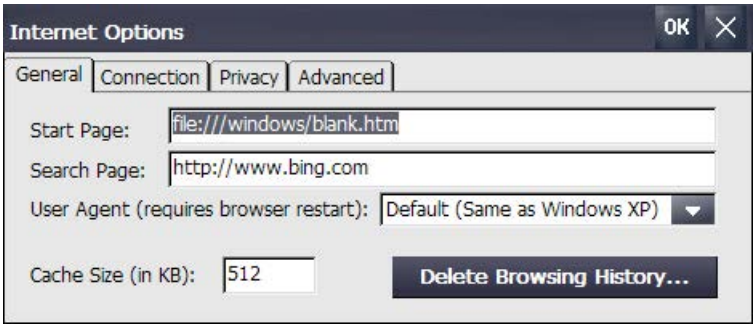
The Control Panel is open.

Procedure

Proceed as follows:

1. Open the "Internet Options" dialog with the Internet Options icon.

2. Open the "General" tab.



3. Enter the homepage for the Internet browser under "Start Page".
4. Enter the address of the search engine under "Search Page".

Note

Do not change the settings in the "User Agent" field.

5. Enter the required cache memory size under "Cache Size".
6. If you want to clear the cache:
   - Open the "Delete Browsing History" dialog with the "Delete Browsing History..." button.
   - Use "Delete" or "Delete all" to delete all temporary data and the history.
   - If cookies should be deleted each time you exit your browser, select "Delete cookies on browser exit".
7. Confirm your entries with "OK".

Result

The general parameters for the Internet browser have been set.

4.7.2 Setting the proxy server

Requirement

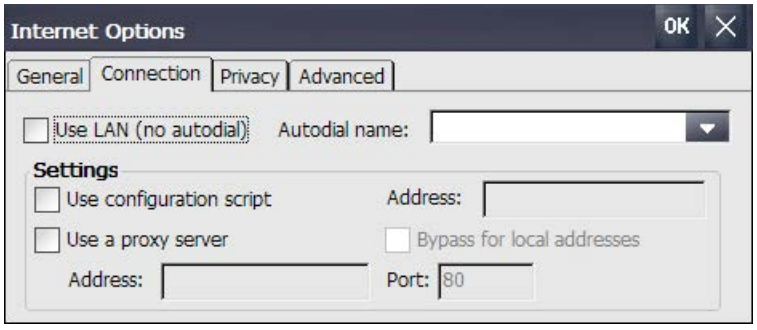
The Control Panel is open.

Procedure

Proceed as follows:

1. Open the "Internet Options" dialog with the Internet Options icon.

2. Open the "Connection" tab.



3. Select the "Use LAN (no autodial)" check box.
4. Configure the proxy server:
   - Select the "Use a proxy server" option under "Settings".
   - Specify the address of the proxy server and the port.
   - If you want to bypass the proxy server for local addresses, select "Bypass proxy server for local addresses".
5. If you want to define exceptions for specific addresses:
   - Open the "Advanced Proxy Settings" dialog with the "Advanced..." button.
   - Enter the desired addresses.

     Separate multiple addresses with a semicolon.
6. Confirm your entries with "OK".

Result

The proxy server is configured.

4.7.3 Changing the privacy settings

Cookies and encryption

Cookies are pieces of information sent by a web server to a browser. In the event of subsequent access to the web server, the cookies are sent back. This enables information to be stored between the accesses.

In order to ensure a high level of privacy, data are sent via the Internet in encrypted form. Common encryption protocols include SSL and TLS. You can activate or deactivate the usage of encryption protocols.

The required settings can be obtained from your network administrator.

Requirement

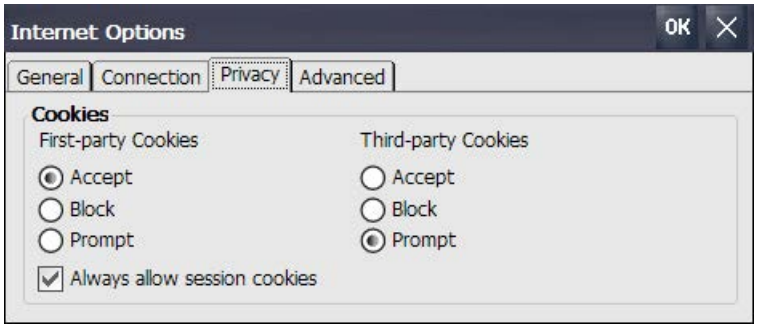
The Control Panel is open.

Procedure

Proceed as follows:

1. Open the "Internet Options" dialog with the "Internet Options" icon.

2. Open the "Privacy" tab.



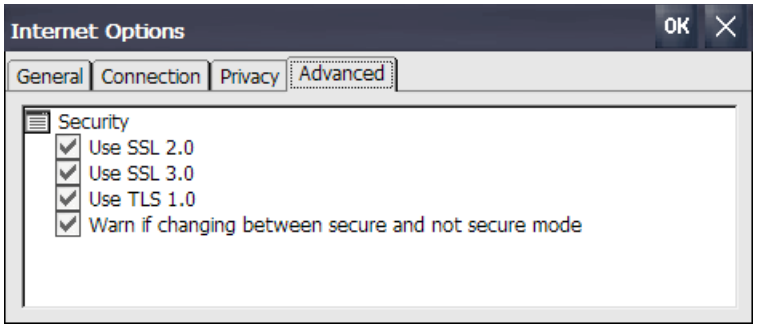
3. Select the behavior for handling cookies.
   - "Accept"

     Cookies are stored without request.
   - "Block"

     Cookies will not be stored.
   - "Prompt"

     Cookies will be stored on request.
4. If you want to allow cookies which are restricted to a single session, select "Always allow session cookies".

5. Open the "Advanced" tab.



6. Activate the required encryption protocol.
7. Confirm your entries with "OK".

Result

The privacy settings have been set.

4.7.4 Importing, displaying and deleting certificates

You can use this function to import, display and delete certificates. The certificates are proof of an IT qualification and the categories are as follows:

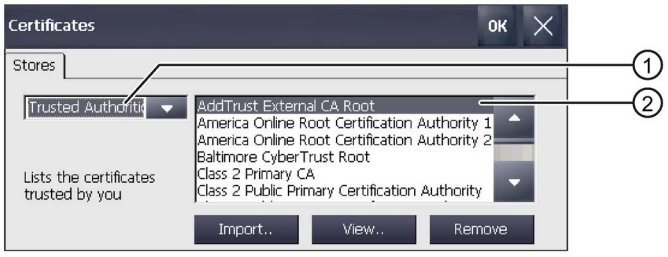
- Certificates that you can trust
- Own certificates
- Certificates from other known providers

A digital certificate consists of structured data, which confirms ownership and other properties of a public key.

Read "Safety guidelines (Page 25)".

Requirement

- You have opened the "Certificates" dialog box with the "Certificates" icon.



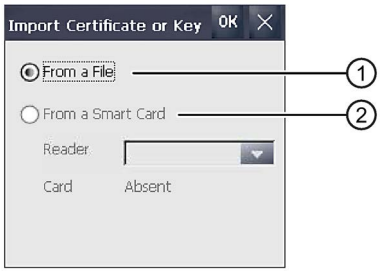
① List of trusted certificates
② Certificate name

- Your system administrator has provided the necessary information for the setting.
- A USB flash drive with certificates to be imported

Procedure

1. Insert the USB flash drive into the USB port.
2. Select the type of certificate from the selection box:
   - "Trusted Authorities" for reliable certificates
   - "My Certificates" for your own certificates
   - "Other Certificates" for other certificates
3. To import a certificate, press "Import".

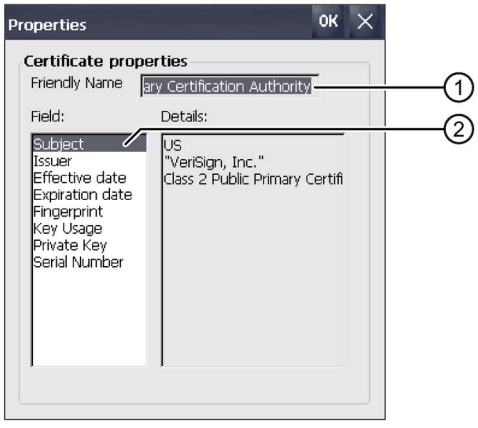
   The following dialog appears:



   ① Import from a file
   ② Import from a storage medium
4. Select "From a File".

   The chip card reader as source is not approved for the Mobile Panel.
5. Close the dialog.
6. To display the properties of the selected certificate, select "View".

   The following dialog appears:



   ① Name of the selected certificate
   ② Identity information and other properties of the selected certificate
7. If you want to delete a certificate, first select it.

8. Confirm by pressing the "Remove" button in the "Certificates" dialog.

Note

The entry is deleted immediately and without further inquiry. If you want to again use a deleted certificate, you need to import it again from a storage medium.

9. Confirm your entries.

   The dialog closes.

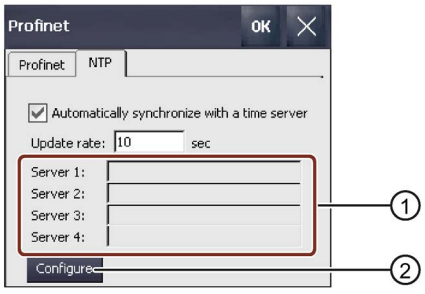
The number of saved certificates has changed.

4.8 Enabling NTP

To access the time of the HMI device from a time server, you can specify up to four different time servers. The time is synchronized over the "Network Time Protocol". The synchronization cycle applies to all configured time servers.

Requirement

- You have opened the "NTP" tab in the "PROFINET" dialog with the "PROFINET" icon.



① Text box for time servers 1 to 4
② Button for configuring the time servers

- The HMI device and time servers are located in the same network.

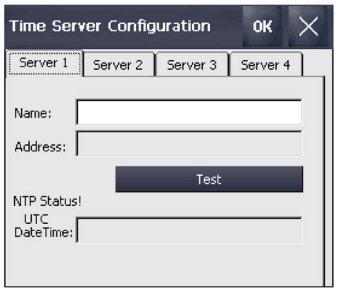
Procedure

1. If you want to use the time of a time server, activate "Automatically synchronize with …".
2. Under "Update rate", enter the time interval in seconds after which the HMI device is to synchronize the time.

   The permitted value range is from 1 to 60 000 000 seconds. The default value is 10 seconds.

3. Select "Configure".

   The following dialog appears:



   If you do not enter a time, the message "Second field wrong data type." will appear. Enter a time.

4. Enter the DNS name of the time server under "Name".

   You can also enter the IP address of the time server.

5. Use "Test" to test the availability of the time server.

   The communication connection to the time server is established and the time is displayed on the "DateTime:" display. The IP address of the time server is also displayed in the "Address" display.

6. Up to three additional time servers can be set up, if needed.

7. Confirm your entries with "OK".

The communication connection to the time server is now set up and immediately active.

4.9 Configuring network operation

4.9.1 Overview

You can use this function to configure the HMI device for data communication in a PROFINET network via the Ethernet port.

Note

The HMI device can only be used in PROFINET networks.

The HMI device has client functionality in the local network. This means that users can access files of a node with TCP/IP server functionality from the HMI device via the local network. However, you cannot access data on the HMI device from a PC via the local network, for example.

Information on communication with SIMATIC S7 over PROFINET is available at:

SIMATIC PROFINET system description
(http://support.automation.siemens.com/WW/view/en/19292127)

The connection to a local network offers the following options, for example:

- Exporting or importing of recipe data records on or from a server
- Storing alarm and data logs
- Transferring a project
- Printing via the local network
- Backing up data

Addressing computers

Computers are usually addressed using computer names within a PROFINET network. 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 operating system. Contact your network administrator for more information.

Determine the following parameters:

- Is DHCP used in the local network for dynamic assignment of addresses?
  If not, get a TCP/IP address for the HMI device.
- Which TCP/IP address does the default gateway have?
- 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?

Configuration includes:

- Specifying the computer name of the HMI device
- Specifying the IP address and name server
- Specifying the logon data
- Configuring e-mail

Configuration is described from "SIMATIC PROFINET system description (http://support.automation.siemens.com/WW/view/en/19292127)" on.

See also

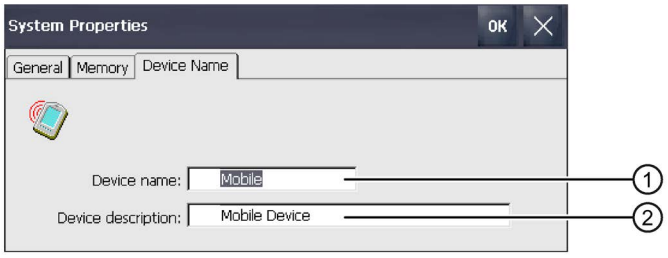
Entering the Mobile Panel computer name (Page 83)

4.9.2 Entering the Mobile Panel computer name

You can use this function to assign a computer name to the HMI device. The computer name is used to identify the HMI device in the local network.

Requirement

You have opened the "Device Name" tab in the "System Properties" dialog with the "System" icon.



① Computer name of the HMI device
② Brief description of the HMI device, optional

NOTICE
Computer name must be unique Communication errors may occur in the local network if you assign a computer name more than once. Enter a unique computer name in the ""Device name"" text box.

Procedure

1. Enter the computer name for the HMI device in the "Device name" text box.

   Enter the name without spaces.
2. If necessary, enter a description for the HMI device in the "Device description" text box.
3. Confirm your entries.

   The dialog closes.

The computer name for the HMI device is now set.

4.9.3 Specifying the IP address and name server

You can use this function to address the HMI device in the local network.

Requirement

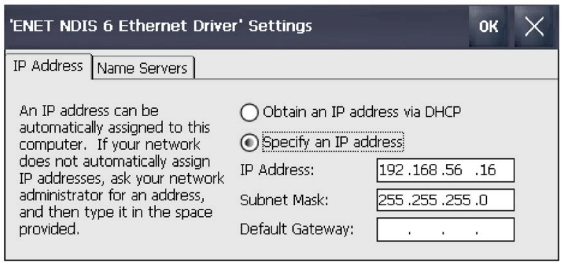
- You have opened the following window with the "Network and Dial-up Connections" icon:

- Your system administrator has provided the necessary information for the setting.

Procedure

1. Touch the "PN_X1" icon.

   The following dialog appears:



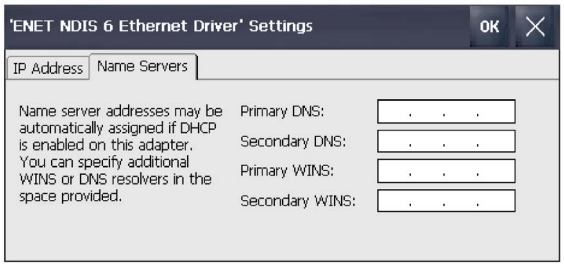
2. If you need automatic address assignment, select the "Obtain an IP address …" option button.
3. If you need manual address assignment, select the "Specify an IP address" radio button.

NOTICE
IP address must be unique An address conflict will occur and there may be malfunctions if more than one device is assigned the same IP address in the local network. Assign a unique IP address to each HMI device in the local network.

4. If you have selected manual address assignment, enter the corresponding addresses in the "IP Address," "Subnet Mask" text boxes and if necessary in "Default Gateway".

5. If a name server is used in the local network, open the "Name Servers" tab.

   The following dialog appears:



6. Enter the respective addresses in the text boxes.
7. Confirm your entries.

   The dialog closes.
8. Close the "Network&Dial-Up Connections" window.

   The Control Panel is displayed.

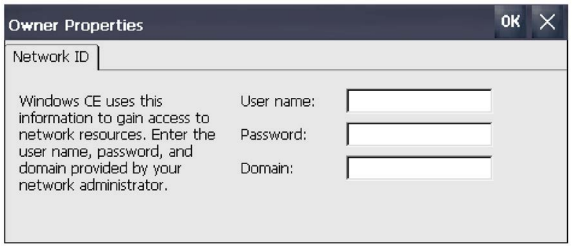
The HMI device is addressed in the local network.

4.9.4 Specifying the logon data

Use this function to enter the information for logging onto local networks.

Requirement

- You have opened the "Network ID" dialog box using the "Network ID" icon.



- Your system administrator has provided the necessary information for the setting.

Procedure

1. Enter your user name in the "User name" text box.
2. Enter your password in the "Password" text box.
3. Enter the name of your assigned domain in the "Domain" text box.
4. Confirm your entries.

   The dialog closes.

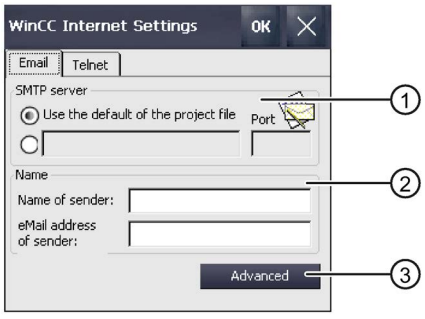
The logon data has now been set.

4.9.5 Configuring e-mail

You use this function to set the SMTP server, sender name and e-mail account for e-mail service.

Requirement

- You have opened the "Email" tab in the "WinCC Internet Settings" dialog with the "WinCC Internet Settings" icon.



① Setting the SMTP server
② Name of the sender and e-mail account
③ "Advanced" button for advanced settings

- Your system administrator has provided the necessary information for the setting.

Note

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

Procedure

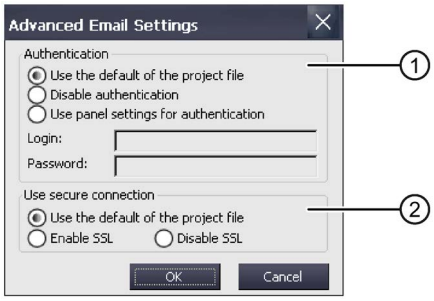
1. Specify the SMTP server.
   - Select the "Use the default of …" option if you want to use the SMTP server configured in the project.
   - Clear the "Use the default of …" option if you do **not** want to use the SMTP server configured in the project. Enter the required SMTP server and the corresponding port.
2. Enter the name for the sender in the "Name of sender" text box.

   The computer name is a sensible sender name – see "Entering the Mobile Panel computer name (Page 83)".
3. Enter the e-mail account for your e-mail in the "eMail address of sender" text box.

   The "eMail address of sender" text box can remain empty if your e-mail provider lets you send e-mails without checking the account.

4. Select the "Advanced" button to enter further settings for sending e-mails over an SMTP server.

   The following dialog appears:



   ① Options for authentication on the SMTP server

   ② Encryption options

5. Specify an option for authentication on the SMTP server.
   - Select the "Use the default of …" option if you want to use authentication data specified in the project.
   - If you use an SMTP server that does not require authentication, select the "Disable authentification" option.
   - Select the "Use panel settings for authentification" option if you want to use the authentication data specified in the settings of the HMI device instead of those in the project.

     Enter the user name and password.

6. Enter a secure connection.
   - Select the "Use the default of the project file" option if you want to use the secure connection of the project.
   - Select the "Enable SSL" option if you want to enable SSL.
   - Select the "Disable SSL" option if you want to disable SSL.

7. Confirm your entries.

   The dialog closes.

8. Close the "WinCC Internet Settings" dialog.

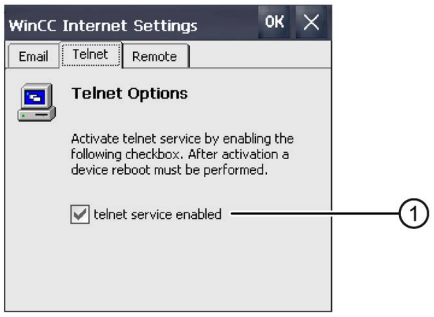
The e-mail settings have been changed.

4.9.6 Configuring Telnet for remote control

When the Telnet service is activated, you can remotely control the HMI device via Telnet. See also Glossary (Page 155).

Requirement

You have opened the "Telnet" tab in the "WinCC Internet Settings" dialog with the "WinCC Internet Settings" icon.



① Check box for activating the Telnet service

Procedure

1. If you want to use the Telnet service, select the check box.
2. Confirm your entries.

   The dialog closes.
3. Restart the HMI device.

The Telnet service can now be used.

4.10 Functions for service and commissioning

4.10.1 Saving to external storage medium – backup

You can use this function to back up the operating system, applications and data from the flash memory of the HMI device to an external storage medium.

Use a SIMATIC HMI Memory card as the storage medium or an industrial USB flash drive.

Requirement

- You have opened the "Backup" tab in the "Service & Commissioning" dialog with the "Service & Commissioning" icon.

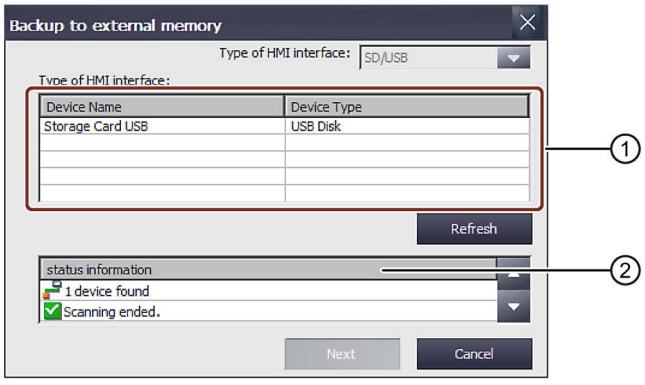
① Data that can be saved

- There is a storage medium with sufficient free capacity in the HMI device.
- Data that must not be overwritten have been saved.

Procedure

1. Select "Next".

   The following dialog appears:



① List of available storage media

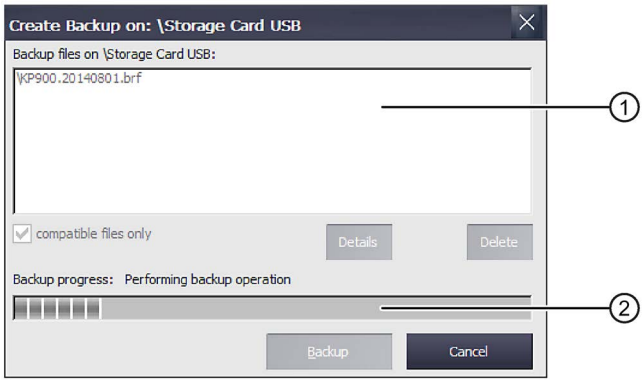
② Status information for the storage medium selected

   The "0 devices found" message appears if there is no storage medium in the HMI device or if it is defective. Insert a storage media or replace the storage medium.

2. Press "Refresh".
   The "Type of HMI interface" list is updated and the "status information" box contains information about the selected storage medium. Note the memory capacity displayed.
3. Select a storage medium from the "Type of HMI interface" list.

4. Select "Next".

   The following dialog appears:

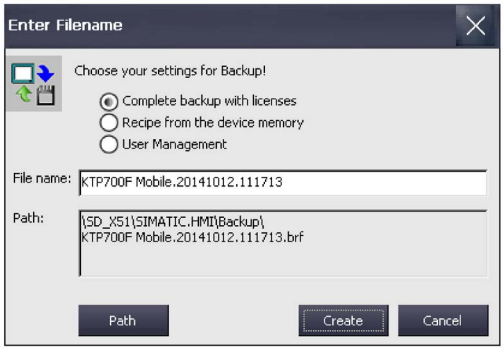


   ① List of available backup files
   ② Progress bar during data backup

5. If you only want to backup compatible files, select the "compatible files only" check box.
   - Check box cleared:
     The list displays all backup files. This gives the user an overview of the files stored on the storage medium.
   - Check box selected:
     The list only displays the backups that are compatible with the device currently in use.

6. Select "Backup".

   The following dialog appears:



7. Use the option buttons to select the data you want to back up.
8. If required, change the file name in the "File name" field.
9. Press "Create".
   The "Create Backup" dialog appears. A progress bar shows the status of the data backup. When the backup process is completed, the Backup operation successfully completed. message is displayed.
10. Acknowledge this message. The dialog closes.
11. Close the "Service & Commissioning" dialog.

The HMI device data is now saved on the storage medium.

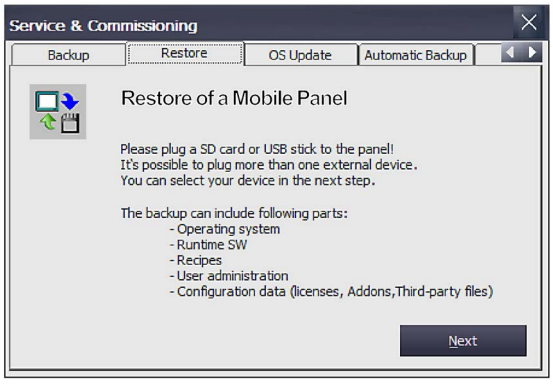
4.10.2 Restoring from external storage medium – Restore

Use this function to restore data from a storage medium to the HMI device.

A restore operation deletes the old data from flash memory of the HMI device on confirmation. The data backed up on the storage medium is then transferred.

Requirement

- You have opened the "Restore" tab in the "Service & Commissioning" dialog with the "Service & Commissioning" icon.



NOTICE
Data loss All data on the HMI device is deleted during a restore operation. License keys are only deleted after a security prompt. Back up data before restore operations, if required.

- The storage medium with the backup data is in the HMI device.

Procedure

1. Select "Next".

   The Restore from external memory dialog appears. The dialog corresponds to the one in "Saving to external storage medium – backup (Page 88)."

   The "0 devices found" message appears if there is no storage medium in the HMI device or if it is defective. Insert a storage media or replace the storage medium.

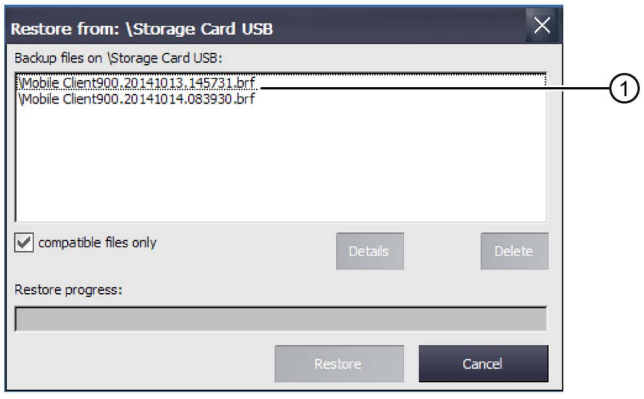
2. Select "Refresh".

   The "Type of HMI interface" group is updated. The HMI device checks the storage medium. Information about this storage medium is displayed in the "status information" field.

3. Select the storage medium with the required backup in the "Type of HMI interface" group.

4. Select "Next".

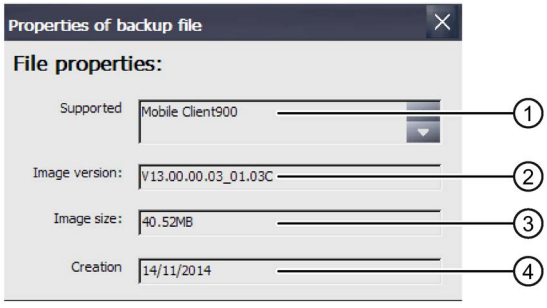
   The following dialog is displayed.



   ① Backup file

5. Select the required file in the "Backup files on" group.
6. For information about the file selected, press "Details".

   The following dialog appears:



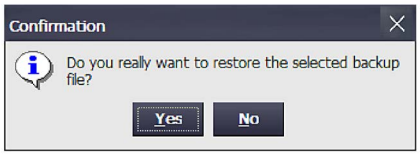
   ① Supported HMI devices
   ② Image of the HMI device
   ③ Size of the selected file
   ④ Creation date of the backup file

7. To delete the file selected, press "Delete".

   The Delete confirmation dialog appears. The file is deleted when you select "OK".

8. To restore the data from the selected file, select "Restore".

   The following dialog appears:



9. Selecting "Yes" restores the data.
   The "Transfer" dialog appears. A progress bar shows the status of the restore process. When the restore operation is complete, the "Restore operation successfully completed." message is displayed. The HMI device then restarts and remains in transfer mode.
10. Remove the storage medium, if necessary.

The data from the storage medium is now restored on the HMI device.

Note

After restoring, a recalibration of the touch screen may be required, see also section "Calibrating the touch screen (Page 59)".

4.10.3 Restoring from external storage medium – Restore

Use this function to restore data from a storage medium to the HMI device.

A restore operation deletes the old data from flash memory of the HMI device on confirmation. The data backed up on the storage medium is then transferred.

Requirement

- You have opened the "Restore" tab in the "Service & Commissioning" dialog with the "Service & Commissioning" icon.

NOTICE
Data loss All data on the HMI device is deleted during a restore operation. License keys are only deleted after a security prompt. Back up data before restore operations, if required.

- The storage medium with the backup data is in the HMI device.

Procedure

1. Select "Next".

   The Restore from external memory dialog appears. The dialog corresponds to the one in "Saving to external storage medium – backup (Page 88)".

   The "0 devices found" message appears if there is no storage medium in the HMI device or it is defective. Insert (another) storage medium.

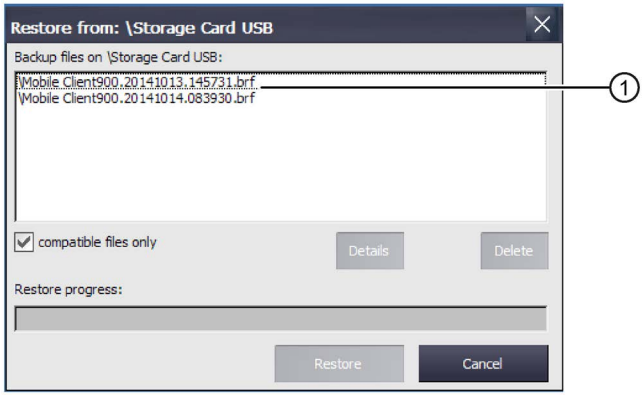
2. Select "Refresh".

   The "Type of HMI interface" group is updated. The HMI device checks the storage medium. Information about this storage medium is displayed in the "status information" field.

3. Select the storage medium with the required backup in the "Type of HMI interface" group.

4. Select "Next".

   The following dialog is displayed.

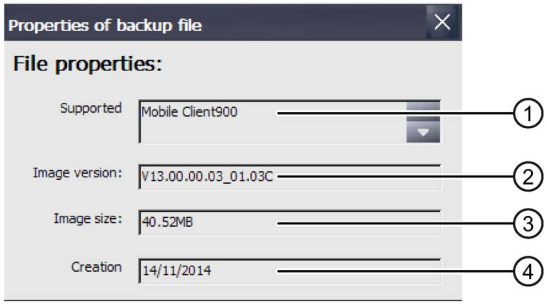


① Backup file

5. Select the required file in the "Backup files on" group.

6. For information about the file selected, press "Details".

   The following dialog appears:



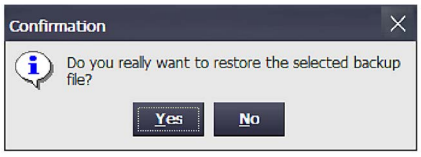
① Supported HMI devices
② Image of the HMI device
③ Size of the selected file
④ Creation date of the backup file

7. To delete the file selected, press "Delete".

   The Delete confirmation dialog appears. The file is deleted when you select "OK".

8. To restore the data from the selected file, select "Restore".

   The following dialog appears:



9. The data is restored when you select "Yes".

   The Transfer dialog appears. A progress bar shows the status of the restore process. When the restore operation is completed, the Restore operation successfully completed. message is displayed. The HMI device then restarts and remains in transfer mode.

10. If you do not want to allow data to be restored on the HMI device, select "No".

    The "Service & Commissioning" dialog with the "Restore" tab appears.

11. Remove the storage medium, if necessary.

The data from the storage medium is now on the HMI device.

Note

After the restore process, check whether the touch screen needs to be calibrated as described in "Calibrating the touch screen (Page 59)".

4.10.4 Update operating system

Requirement

- You have opened the "OS Update" tab in the "Service & Commissioning" dialog with the "Service & Commissioning" icon.

NOTICE
Data loss All data on the HMI device including the project and HMI device password is deleted during a restore operation. License keys are only deleted after a security prompt. Back up data before restore operations, if required.

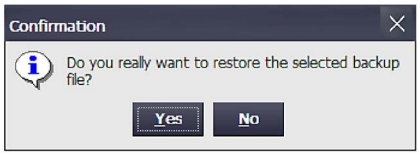
- A SIMATIC HMI Memory card or an industrial grade USB flash drive with an HMI device image file including the operating system is plugged into the HMI device.
  You can find the HMI device image files, for example, in the installation directory of WinCC under "\Siemens\Automation\Portal V13\Data\Hmi\Transfer\<HMI device image version>\Images".

Procedure

The procedure is the same as steps 1 to 5 described in the section "Restoring from external storage medium – Restore (Page 93)". Proceed as follows:

1. To restore the data from the selected file, select "Restore".

   The following dialog appears:



2. Selecting "Yes" starts the restoration of the operating system.
   The "Transfer" dialog appears. A progress bar shows the status of the restore process. When the restore operation is completed, the Restore operation successfully completed. message is displayed. The HMI device then restarts and remains in transfer mode.

The operating system is updated on the HMI device.

Note

After restoring, a recalibration of the touch screen may be required, see also section "Calibrating the touch screen (Page 59)".

4.10.5 Setting a communication connection to the PLC

4.10.5.1 Overview

This section describes how to change the IP addresses of controllers in the subnet of the HMI device and configure the corresponding communication connections via the HMI device. This gives you the ability to create a project, transfer it to multiple HMI devices and then adapt the respective controller connections without changing the project.

The following procedure is for adapting a controller connection using the HMI device:

- Assign IP address and device name, see section "Specifying the IP address and name server (Page 84)".
- Assign communication connection, see section "Setting a communication connection to the PLC (Page 97)".

The following functions are also available:

- A scan function to list the HMI devices and PLC in the subnet.
- Filter function for the scan results
- Check assignment of IP addresses and device names for HMI devices and PLCs.
- Project IP addresses and device names for HMI devices and PLCs can be restored.

4.10.5.2 Changing the network configuration

You can change the network settings for the LAN connection under "Network&Dial-Up Connections". You can also configure the properties of the Ethernet ports of the HMI device.

The transmission mode and the speed of the Ethernet ports are set automatically by default. You can also set limits for the two Ethernet ports:

- "End of detection of accessible nodes"

  DCP frames for detecting available nodes are not forwarded. Nodes located beyond this Ethernet port are no longer available.
- "End of topology discovery"

  LLDP frames for topology detection are not forwarded.

Requirement

The Control Panel is open.

Procedure

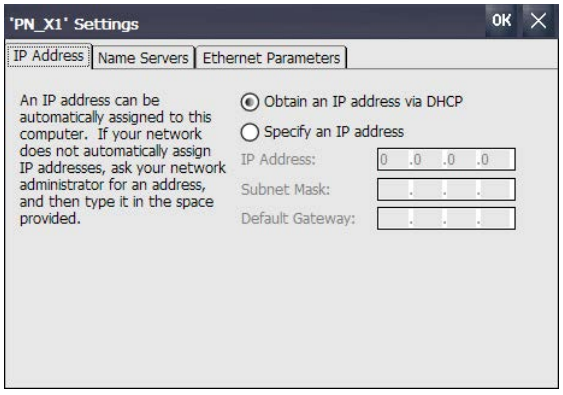
Proceed as follows:

1. Open the network adapter display with the "Network&Dial-Up Connections" icon. The figure below shows an example of the network adapter.

2. Open the "PN_X1" entry.

   The "'PN_X1' Settings" dialog box opens.

3. Open the "IP Address" tab.

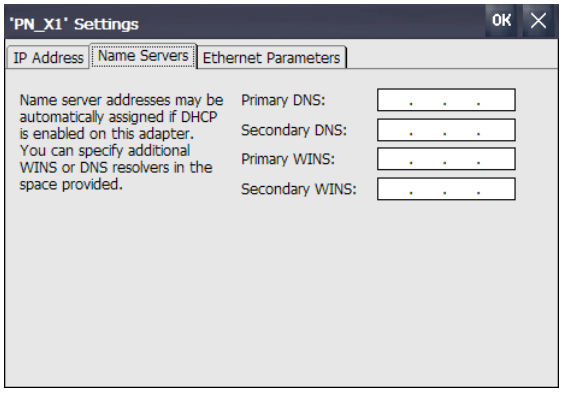


4. Select the type of address assignment:
   - To determine the address automatically, select "Obtain an IP address via DHCP".
   - To determine the address manually, select "Specify an IP address".
5. If you have selected manual address assignment, enter the corresponding addresses under "IP Address", "Subnet Mask" and under "Default Gateway", if necessary.

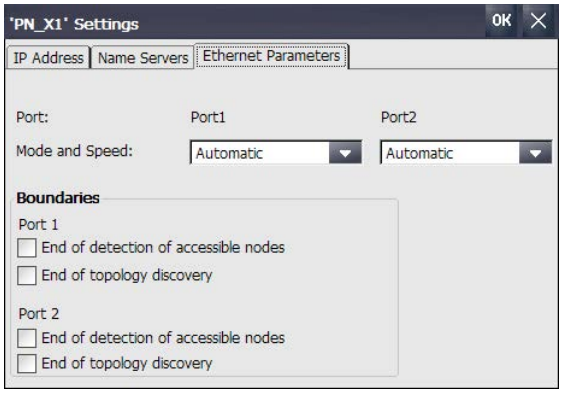
Note

You can also configure the network address in the "Devices & Networks" editor in WinCC. You can find more information on this topic in the WinCC online help.

6. If a name server is used in the network, change to the "Name Servers" tab.



7. Enter the corresponding addresses.
8. If you want to set additional Ethernet parameters, open the "Ethernet Parameters" tab.



NOTICE
Only one Ethernet port The Mobile Client supports only one port, even if Port1 and Port2 are shown here.

9. If needed, select the transmission mode and speed for the Ethernet port of the HMI device.
10. If needed, activate the limits for the Ethernet "Port".
11. Confirm your entries with "OK".

Result

The LAN connection parameters for the HMI device have been changed.

Configuring the Mobile Client and Connection box 5

5.1 Required configuration software

You require the following software to configure the devices Mobile Client900RXA and the Connection box: WinCC V13 SP1 with Hardware Support Package "HSP_V13SP1_0116_002_ComfortP_Mobile_Client900.isp13 (https://support.industry.siemens.com/cs/de/en/view/72341852)".

This section contains special notes for the Mobile Client. You can find additional information in the WinCC online help.

5.2 Configuring the device

You configure the Mobile Client900RXA as Mobile Client 900RFN.

After this you transfer the project to the HMI device.

Note

If illuminated push-buttons are configured in the Mobile Client900RFN project, e.g. if you are using a preexisting project, the configured illuminated pushbuttons have no effect on the device Mobile Client900RXA.

5.3 Configuring the Connection Box

Note

No Box ID at the Connection Box

No Box ID is set at the Connection Box of the HMI device.

If you use a project in which the Box ID e.g. is used to evaluate connection point detection, the associated configuration does not take effect, the connection point detection does not function.

Commissioning a project

6

6.1 Overview

Configuration phase

A project – the process image of the working process – is produced during configuration to visualize automated working processes. The process displays for the project contain displays for values and alarms which provide information about process statuses. The process control phase follows the configuration phase.

Process control phase

The project must be transferred to the HMI device if it is to be used in process control. Another prerequisite for process control is that the HMI device is connected online to a controller. Current working processes - operating and observing - can then be subject to process control.

Transferring the project to the HMI device

You can transfer a project to an HMI device as follows:

- Transfer from the configuration PC

Commissioning and recommissioning

Initial commissioning and recommissioning differ in the following respects:

- When the HMI device is commissioned for the first time, 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.

6.2 Operating modes

Operating modes

The HMI device may be in the following operating modes:

- Offline
- Online
- Transfer

Changing the operating mode

The configuration engineer must have configured an appropriate operating element to allow a change of the operating mode on the HMI device during ongoing operation.

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

"Offline" operating mode

In this mode, there is no communication between the HMI device and the controller. Even though the HMI device can be operated, it cannot exchange data with the controller.

"Online" operating mode

In this mode, the HMI device and the controller communicate with each other. You can operate the system on the HMI device according to your system configuration.

"Transfer" mode

In this mode, you can transfer a project from the configuration PC 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 operating element. The HMI device toggles to "Transfer" mode when automatic mode is set and a transfer is initiated on the configuration PC.

6.3 Using existing projects

To use existing projects on your HMI device, proceed as follows:

- To use an existing WinCC flexible project in WinCC, you need to migrate the project to WinCC.
- If you are using an existing WinCC project that was created for a different HMI device, switch to that HMI device in WinCC.

You can find additional information on migration in the online help of WinCC (TIA Portal).

6.4 Data transmission options

Overview

The following table shows the options for data transmission between an HMI device and the configuration PC.

Type	Data channel	HMI device
Backup	Ethernet	Yes
Restoring	Ethernet	Yes
Updating the operating system	Ethernet with Reset to factory setting	Yes
	Ethernet	Yes
Transferring a project	Ethernet	Yes
License key transferring or transferring back	Ethernet	Yes

6.5 Transfer

6.5.1 Setting the transfer mode

Introduction

You can start the "Transfer" mode manually or automatically on the HMI device.

If the automatic transfer is enabled, the HMI device automatically switches to "Transfer" mode when the following event occurs during runtime: You start project transfer on the connected configuration PC.

Note

With automatic transfer, the HMI device only switches to "Transfer" mode when the project is running on the HMI device.

Automatic transfer is particularly suited for the test phase of a new project because the transfer is completed without interfering with the HMI device.

Note

If automatic transfer is activated on the HMI device and a transfer is initiated on the configuration 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 reactions in the system.

You can issue a password in the Control Panel to restrict access to the transfer settings and thus avoid unauthorized modifications.

Requirement

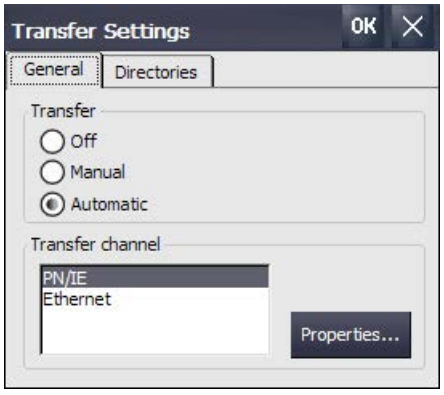
- The Control Panel is open.
- The Runtime software is terminated.

Procedure

Proceed as follows:

1. Open the "Transfer Settings" dialog with the Transfer Settings icon.

2. Switch to the "General" tab.



3. Under "Transfer channel", select the data channel and set its parameters with "Properties...".
4. To start "Transfer" mode automatically:
   - Select "Automatic".
   - Close the dialog with "OK".
5. To start "Transfer" mode manually:
   - Select "Manual".
   - Close the dialog with "OK".
6. Close the Control Panel.
7. Enable transfer mode in the loader with "Transfer".

Result

"Transfer" mode is set. The project is transferred from the configuration PC via the data channel selected on the HMI device. If required, configure the corresponding data channel on the configuration PC.

Transferred data is written directly to the internal memory of the HMI device.

Alternative procedure

You can also set "Transfer" mode on the HMI device using an operating object in the project. To do this, configure the "SetDeviceMode" system function on an operating object event, for example, on a button.

You can find more information on this topic in the WinCC online help.

6.5.2 Starting the transfer

Introduction

To make a project executable on an HMI device, transfer the project from the configuration PC to the HMI device. With a transfer, you particularly specify whether to overwrite existing data on the HMI device such as "User management" or "Recipe data".

Requirement

- The project is opened in WinCC on the configuration PC.
- Project tree is displayed.
- configuration PC is connected to the HMI device.
- Transfer mode is set on the HMI device.

Procedure

Proceed as follows:

1. Select the "Download to device > Software" command in the shortcut menu of the HMI device.
2. When the "Extended download to device" dialog opens, configure the "Transfer settings". Make sure that the "Transfer settings" match the "Transfer settings on the HMI device":
   - Select the protocol used, for example, Ethernet or USB.

     If you are using Ethernet, for example, you can also configure the network address in the "Devices & Networks" editor in WinCC. You can find more information on this topic in the WinCC online help.
   - Configure the corresponding interface parameters on the configuration PC.
   - Make the specific interface or protocol settings on the HMI device as required.
   - Click "Download".

   You can open the "Extended download to device" dialog at any time using the menu command "Online > Extended download to device…".

   The "Load preview" dialog opens. The project is compiled at the same time. The result appears in the "Load preview" dialog.
3. Check the displayed default settings and change them, if necessary.
4. Click "Download".

Result

The project is transferred to the selected HMI device. If errors or warnings occur during the transfer, alarms are displayed in the Inspector window under "Info> Download".

When the transfer is completed successfully, the project is executable on the HMI device.

6.5.3 Testing a project

Introduction

There are two options to test a project:

- Test the project on the configuration PC

  You can test a project on a configuration PC, using a simulator. You can find more detailed information on this in the WinCC online help.

- Offline testing of the project on the HMI device

  Offline testing means that communication between the HMI device and the controller 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 the controller 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.

Requirement 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 controller. Controller tags, therefore, are not updated.

Test the operating elements and visualization of the project as far as possible without connection to the controller.

Requirement for online testing

- The project has been transferred to the HMI device.
- The HMI device is in "Online" mode.

Procedure

In "Online" mode, you can test individual project functions on the HMI device without them being affected by the controller. Controller tags are updated in this case.

You have the option to test all communication-related functions, such as alarms, etc.

Test the operating elements and views of the project.

6.6 Backup and restore

6.6.1 Overview

Backup and restore

A data backup saves the contents of the internal memory. Alarm logs and process value logs are always stored on the external storage medium. Alarm logs and process value logs are not backed up. Manually back up the contents of the memory card if required. If the HMI device is integrated in a network, you can also back up the data on a network drive.

The following data is backed up:

- Project and HMI device image
- User administration
- Recipe data
- License keys

Use WinCC for backup and restore.

General information

Note

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. The HMI device automatically switches to "bootstrapping" mode.

Compatibility conflict

If an alarm is output on the HMI device warning of a compatibility conflict during the restore operation, the operating system must be updated.

6.6.2 Backing up and restoring data of the HMI device

Note

Use the restore function only for project data on HMI devices that were configured with the same configuration software.

Requirement

- The HMI device is connected to the configuration PC.
- The HMI device is selected in the project tree.
- If a server is used for data backup: The configuration PC has access to the server.

Backing up data of the HMI device

To back up the data of the HMI device, follow these steps:

1. Select the "Backup" command in the "Online > HMI device maintenance" menu.

   The "SIMATIC ProSave" dialog opens.
2. Under "Data type", select which data of the HMI device should be saved.
3. Under "Save as", enter the name of the backup file.
4. Click "Start Backup".

This starts the data backup. The backup process can take time, depending on the connection selected.

Restoring data of the HMI device

To restore the data of the HMI device, follow these steps:

1. Select the "Restore" command in the "Online > HMI device maintenance" menu.
2. Under "Opening...", enter the name of the backup file.

   Information about the selected backup file is displayed under "Content".
3. Click "Start Restore".

This starts the restoration. This process can take time, depending on the connection selected.

Backup / Restore via the "Backup/Restore" dialog in the Control Panel of the HMI device

The "Backup / Restore" function is approved for USB storage devices.

6.7 Updating the operating system

6.7.1 Updating the operating system

Introduction

If the operating system version of an HMI device is not compatible with the configuration, you need to update the operating system of the HMI device. Depending on the protocol used, the operating system on the HMI device is updated automatically upon prompting when the project is loaded. Thereafter, the loading continues. Otherwise, the loading of the project is canceled. In this case, you have to start the update of the operating system manually.

Updating the operating system

To update the operating system of an HMI device, connect the HMI device to the configuration PC. If possible, use the interface with the highest bandwidth, such as Ethernet, to make this connection.

"Reset to factory settings"

If the operating system on the HMI device is no longer functional, update your operating system and restore the factory settings on the HMI device. If the HMI device detects the fault itself, the HMI device automatically restarts in "bootstrapping" mode and issues a corresponding message.

6.7.2 Updating the operating system of the HMI device

If possible, use the interface with the highest bandwidth, such as Ethernet, to make the connection.

NOTICE
Updating the operating system deletes all data on the HMI device If you update the operating system, data on the target system is deleted. Therefore, first back up the following data: • User administration • Recipes A reset to the factory settings also deletes the license keys. Back up the license keys as well before restoring the factory settings.

Note

Calibrating the touch screen

After the update, you may have to recalibrate the touch screen.

Requirement

- The HMI device is connected to the configuration PC.
- The PG/PC interface is set.
- The HMI device is selected in the project tree.
- The HMI device is switched on.

Updating the operating system

The configuration settings from "Devices & Networks" are used to establish a connection between the HMI device and the configuration PC.

To update the operating system, follow these steps:

1. Select the "Update operating system" command in the "Online > HMI device maintenance" menu.

   The "SIMATIC ProSave [OS-Update]" dialog box opens. The path to the image of the operating system is already set.

2. If needed, select another path for the operating system image that you wish to transfer to the HMI device.
3. Click "Update OS".

This starts the update. The update operation can take time, depending on the connection selected.

The HMI device is reset to the factory settings.

To restore the factory settings on the HMI device, follow these steps:

1. Set the HMI device to "bootstrapping" mode.
   - Open the "OP Properties" dialog on the HMI device in the Control Panel.
   - Switch to the "Device" tab and select "Reboot".

     The "Attention" dialog box opens.
   - Select "Prepare for Reset".

     The HMI device restarts and switches to "bootstrapping" mode. If you do not reset the HMI device to the factory settings, the HMI device restarts after 10 minutes.
2. Select the "Update operating system" command in the "Online > HMI device maintenance" menu on the configuration PC in WinCC.

   The "SIMATIC ProSave [OS-Update]" dialog box opens. The path to the image of the operating system is already set.
3. If needed, select another path for the operating system image that you wish to transfer to the HMI device.
4. Enable "Reset to factory settings".
5. Enter the MAC address of the HMI device.
6. Click "Update OS".

   The operation can take some time.

Result

The operating system of the HMI device is now operational and updated to the latest version.

6.8 Managing add-ons and license keys

6.8.1 Transferring license keys

Introduction

You need a license key for WinCC Runtime add-ons to use them on an HMI device. The required licenses are usually supplied as license keys on a data medium, for example, a USB stick. You can also obtain the license keys from a license server.

NOTICE
Backing up license keys To prevent the deletion of the license keys, you need to back them up in the following situation: • Prior to restoring a complete database from the backup copy

Use the "Automation License Manager" to transfer the license keys to or from an HMI device. On a PC with a WinCC installation, you can also start the "Automation License Manager" from WinCC:

Starting the Automation License Manager

1. Select the "Authorize/License" command in the "Online > HMI device maintenance" menu.

Operating the project 7

7.1 Overview

Operator input options

The following input devices are available:

- Touch screen

Operation is as described in "Control Panel (Page 50)".

NOTICE
Unintentional actions Never carry out multiple operations on the HMI device at the same time. You may trigger unintentional actions that could cause material damage. Never press more than one operating object on the display at once.

Operation of a project with the touch screen is described below.

Observing the system documentation

Some operations with the project may require in-depth knowledge about the specific system on the part of the operator. Exercise the necessary care if the system is in setup mode, for example. Please refer to your system documentation for additional information.

Operation feedback from operating objects

The HMI device provides operation feedback as soon as it detects that an operating object has been selected. This operation feedback is independent of any communication with the controller. Therefore, this operation feedback does not indicate whether the relevant action is actually executed or not.

Optical feedback from operating objects

The operating object receives the focus and is selected. The configuration engineer can also configure the selection of an operating object so that it deviates from the standard. Refer to your system documentation to find any additional information on this topic.

The type of optical feedback depends on the operating object:

- Buttons

  The HMI device generates different views for the "Pressed" and "Unpressed" states, provided the configuration engineer has configured a 3D effect:

  – "Pressed" state:

  – "Unpressed" state:

  The configuration engineer determines the appearance of a selected field, for example, line width and color for the focus.

- Invisible button

  By default, an invisible button is displayed as not pressed when it is selected. No optical operation feedback is provided in this case.

  The configuration engineer may, however, configure invisible buttons so that their outline appears as a line when touched. The line remains visible until another operating object is activated.

- I/O field

  When you select an I/O field, the content of the I/O field is displayed against a colored background. With touch operation, a screen keyboard opens for entering values.

7.2 Setting the project language

The HMI device supports multilingual projects. You must have configured a corresponding operating element 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.

You can change project languages at any time. Language-specific objects are immediately output to the screen in the new language when you switch languages.

Requirement

- The required language for the project is available on the HMI device.
- The language switching function was logically linked to an operating element during configuration.

Procedure

- Press the relevant operating element.

  The following options are available for switching the language:

  – The configured HMI device switches to language selection.

  – The configured operating element activates the required language directly.

  Please refer to your plant documentation for additional information.

7.3 Entering and modifying the value, date and time

Values

The following types of value can be entered:

- Numerical value

  You can enter a numerical value using the screen keyboard.

  Note

  - When the screen keyboard is open, job mailbox 51, "Select screen" has no function.
  - The screen keyboard display is independent of the configured project language.

- Alphanumerical value

  Input is as for numerical values.

- Hexadecimal value

  When a text box for hexadecimal values has been configured, the letters "A" to "F" are also available in addition to the digits. The keys "G" to "Z" on the screen keyboard are not used.

- Date and time

  Date and time are entered as are numerical values.

  Note

  When entering the date and time, note that their format is determined by the configured project language.

Value check

- Limit test of numerical values

  A tag can be configured with limits. If you enter a value outside these limits it will not be accepted, for example, "80" is rejected if the configured limit is "78". If an alarm window is configured, a system alarm is output on the HMI device and the original value is displayed again.

- Decimal places for numerical values

  The number of decimal places can be specified for a numerical text box. The number of decimal places is checked when you enter a value in this type of text box.

  – Decimal places in excess of the limit are ignored.

  – Empty decimal places are filled with "0".

Requirement

- A text box has been selected.
- The screen keyboard is displayed.

Procedure

1. Enter the relevant value.
2. To discard the input, press <ESC>.

   If you have discarded the entry, the text box remains empty or the original value is displayed.
3. To confirm the entry, press <ENTER>.

The value has been entered or changed.

7.4 Operating the Sm@rtClient view

The Sm@rtClient view enables you to monitor and remotely operate the current project of a remote HMI device. With the correct configuration, several equal priority HMI devices can access a remote HMI device.

Note

If another HMI device accesses your HMI device via the Sm@rtClient view, this leads to an additional load on your HMI device.

The Sm@rtClient view can be operated as follows:

- Starting remote control
- Forcing permission
- Ending remote operation

In the Sm@rtClient view, the remote HMI is displayed with the complete layout. Depending on the configuration, you can monitor and also operate this screen. You can also operate the function keys like buttons on an HMI device with a touch screen.

On a Sm@rtClient view which is configured for monitoring mode, you can monitor the affected HMI device. You cannot access to control.

Note

It is not possible to operate the direct keys of the remote HMI device from the local HMI device.

Access to an a fail-safe Mobile Panel is only possible in monitoring mode.

The available operator controls depend on the HMI devices used:

- Same type of HMI devices

  You can operate the project of the remote HMI device with the operator controls of your HMI device

- Button operation from a local touchscreen

  All the keys of the remote HMI device are displayed as buttons on the touch screen. You can touch them to operate them.

- Access to a fail-safe Mobile Panel

  No access to the operator controls, only monitoring possible.

Procedure - starting remote control

Proceed as follows:

1. On the HMI device change to the screen with the Sm@rtClient view.

   The following options are available for establishing the connection to the remote HMI device:

   – The connection is established automatically.

   – The connection must be established by touching the appropriate button.

     Depending on the configuration, you may be required to enter the address of the remote HMI device and a password.

   Note

   Unencrypted password transmission with http

   If a password is stored in the configuration, this password can be transmitted without encrypting.

   In order to transmit the password in an encrypted manner, operate Sm@rtService and Sm@rtAccess through a secured protocol, for example, vpn or https.

2. The current screen of the project running on the remote device is displayed on the screen of your HMI device.
3. You can now monitor and control this screens 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.

Forcing permission

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, if configured accordingly, you can force operating permission for the remote HMI device

  – You are trying to operate the remote HMI device

    A dialog box opens.

  – Enter the required password for forcing remote operation.

    You are now authorized to 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 consecutively

    You are given permission to operate your local HMI device

Procedure - ending remote control

The steps depend on the project. Refer to your plant documentation for additional information.

In general - proceed as follows:

1. Touch a button configured for this action
2. Exit the screen containing the Sm@rtClient view
3. Touch an operator control operating position for a longer period of time.

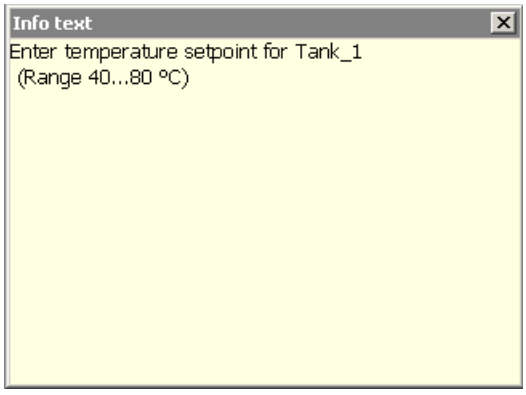
   This opens a menu.
4. Select the "Close" menu command.

See also

System manual WinCC V13.0 SP1 > Visualizing processes >Options > WinCC Sm@rtServer (https://support.industry.siemens.com/cs/de/en/view/109091876)

7.5 Displaying infotext

Infotext provides additional information and operating instructions. Infotext can be configured for a screen or operating object. The infotext of an I/O field may contain, for example, information on the value to be entered.



An infotext that is available for an operating object is displayed with the <Help> key on the screen keyboard. Depending on the configuration, infotext may also be accessed with an operating object. Please refer to your system documentation for additional information.

Requirement

- Operating element with configured infotext is selected.

Procedure

1. Press the <HELP> key.

   The infotext for the screen or operating object is displayed.

   Note

   The configuration engineer can configure infotext for an I/O field and the associated screen. You can switch between two infotexts by touching the infotext window.

2. Close the window with the infotext.

7.6 Closing the project

Procedure

Proceed as follows:

1. Use the corresponding operating element object to close the project.

   Wait for the Loader to open after you have closed the project.

2. Switch off the HMI device; see section "Switching the device on and off (Page 129)".

Operating the mobile client

8

8.1 Holding and setting down the mobile client

Holding the device

The figures below show examples of how you can hold the device resting on your forearm.

You can rest the device on your forearm, for example, to undertake movements while servicing the monitored system. The free hand can be used to operate the operator controls of the device.

Setting down the device

Always set down the device as follows:

- In the wall-mounting bracket according to section "Wall-mounting bracket (Page 14)"
- In the magnetic wall-mounting bracket according to section "Magnetic wall bracket (Page 16)"

If none of the two wall-mounting brackets is within reach, you can also set down the device as shown below after attaching the three rubber strips according to section "Rubber strips (Page 19)". The rubber strips keep the device from slipping.

8.2 Special operating modes

The general specifications for the device are detailed in "Ambient conditions during operation (Page 147)".

In certain circumstances, the Arctic HMI device can be subjected to a higher than the maximum specified ambient temperature without this affecting the nominal specifications of the components. These cases are referred to as special operating modes.

The use of these special operating modes is a deviation from the specified intended use of the device.

⚠ CAUTION

Damage to the device

Outside the specified ambient temperature range, the correct function of the device is no longer guaranteed, not even if the "Temp" LED signals a regular temperature. The device can be damaged. This can result in machine and system malfunctions and injury.

Outside the specified ambient temperature range, the service life of the device may be less than that of devices which are always operated at a moderate temperature and humidity.

Operating the device outside the permitted temperature range voids the warranty.

To ensure a long service life and retain warranty cover:

- If the "TEMP" LED comes on red for a high ambient temperature, the device must be switched off immediately and moved to cooler surroundings. Otherwise, the warranty will become void.
- If the "TEMP" LED comes on red or yellow for a low ambient temperature, the device must be moved to warmer surroundings immediately. Otherwise, the warranty will become void.
- A red or yellow/green flashing "TEMP" LED indicates a very low or high temperature in the device. In this case, the device should be moved to warmer / cooler surroundings as quickly as possible.

Danger of burns

The surface of the device can get hot when the ambient temperature is high. This can cause injuries and burns. Long skin contact with non-metallic surfaces can cause injury even at temperatures of 43 °C.

- Monitor the "TEMP" LED. If it is (flashing) red, this may mean the surface temperature of the device is unusually high.
- Place the device in the wall-mounting bracket and only use it briefly.
- Wear suitable gloves to touch the device.

NOTICE

Wall-mounting bracket essential

At temperatures outside the specified ambient temperature range, the physical properties of the enclosure material change.

Place the device in the wall-mounting bracket.

Operating states

The operating states of the mobile client differ in terms of switch-on response and operation due to the technical features of the devices.

- Due to the heat generated by its components, the non-artic HMI device can can be operated briefly until the "TEMP" LED flashes. This corresponds to an exterior temperature of approx. –10 °C.
- The integrated heating system in the Arctic HMI device allows it to be switched on and operated even at temperatures below 0 °C if the temperature inside the HMI device allows it.
- The self-heating of its components and its internal heating mean the Arctic HMI device can be operated or kept ready to operate until the "TEMP" LED flashes. The lowest permitted ambient temperature in operation is equal to the minimum storage temperature of –25 °C.

8.3 Using the override function

You can use the "Override" function when the device is operated at an ambient temperature outside the permitted range. The operator has to make this decision. The use of the override function is logged by the device.

Requirement

- The connecting cable is connected.
- The two on/off buttons have been pressed and held down for at least 0.5 seconds.

- The "TEMP" LED is on.
- The "PWR" LED is flashing.

Procedure

NOTICE
Malfunction during override function The correct function of the device cannot be guaranteed when the override function is activated. The device can be damaged. This can result in machine and system malfunctions or injuries. The device warranty becomes void. Use the override function in exceptional cases only and very briefly.

- Press the two on/off buttons simultaneously again and hold for at least 7 seconds.

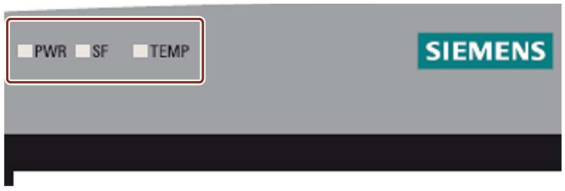
  This activates the override function and blocks the associated safety mechanism of the device. The device starts at an ambient temperature that is either higher or lower than the permitted temperature range.

  – The "TEMP" LED lights up red or yellow.

  – The "PWR" LED comes on.

8.4 LED display

There are three LEDs on the front of the device which indicate the device status.



Meaning of the LED displays

- The "PWR" LED indicates the operating state of the device:
  - LED flashes slowly at 1 Hz: Device has power supply and is off or in the process of being switched off.
  - LED flashes rapidly at 3 Hz: Power-on delay is active.
  - LED on: Device is switched on.
- The "SF" LED lights up red if an error occurs.
- "TEMP" LED, see table below:

Temperature in the device is	"TEMP" LED for non-arctic HMI device	"TEMP" LED for arctic HMI device	Comments
Too low	Lit red [1]	Lit yellow	Power off the device immediately. The device cannot be powered back on again immediately.
Very low	Flashing red, 3 Hz	Flashing yellow/green, 3 Hz	You are urgently advised to move the device to warmer surroundings. If the device is switched on in this condition, the device temperature will usually rise significantly over time as a result of the waste heat generated and become non-critical. Increasing the display brightness can improve the situation as this generates more heat.
Low	Flashing red, 0.5 Hz	Flashing yellow/green, 0.5 Hz	The device temperature is low. You are advised to move the device to warmer surroundings. If the device is switched on in this condition, the device temperature will usually rise significantly over time as a result of the waste heat generated and become non-critical. Increasing the display brightness can improve the situation as this generates more heat.
Optimum	Off	Green during heating Otherwise Off	For handheld operation, you can generally assume that no part of the device surface is at a dangerous temperature and that the device can therefore be held for at least 10 minutes without the risk of injury/damage from heat.

Temperature in the device is	"TEMP" LED for non-arctic HMI device	"TEMP" LED for arctic HMI device	Comments
High	Flashing red, 0.5 Hz	Flashing red, 0.5 Hz	You are advised to move the device to cooler surroundings. If the device is switched on in this condition, there is a risk that device temperature will rise significantly over time as a result of the waste heat generated and become critical. For handheld operation, you can generally assume that all parts of the device surface are below 43 °C and that the device can therefore be held for at least 5 minutes without the risk of injury/damage from heat. Reducing the display brightness can improve the situation as this generates less heat.
Very high	Flashing red, 3 Hz	Flashing red, 3 Hz	You are urgently advised to move the device to cooler surroundings. If the device is switched on in this condition, there is an imminent risk of the device temperature rising rapidly and significantly as a result of the waste heat generated, and becoming critical. For handheld operation, you can generally assume that all parts of the device surface are below 60 °C and that the device can therefore be held for at least 1 minute without the risk of injury/damage from heat. Reducing the display brightness can improve the situation as this generates less heat.
Too high	Lit red [1]	Lit red	Power off the device immediately. The device cannot immediately be switched on. If the device is off, check whether the ambient conditions are suitable for storage of the device. There is an immediate and serious risk of injury from hot surfaces.

[1] On the non-arctic HMI device, the "TEMP" LED comes on both when the temperature is too low and when it is too high.

8.5 Switching the device on and off

Requirement

- The connecting cable is connected.
- The "PWR" LED is flashing green at a frequency of 1 Hz.

  If the LED is not flashing, the voltage of the connected power supply is too low. The device cannot be switched on.

Procedure

Switching on the unit

1. Press the two on/off buttons simultaneously and hold them down for at least 0.5 seconds.

   The LED display responds as follows:

   – The "PWR" LED lights up green.

   – The "TEMP" LED indicates the correct temperature for operation.

NOTICE
Device switches off automatically after 48 hours The device switches off automatically once it has been idle for 48 hours. This can result in machine and system malfunctions. Please consider this response when operating the device.

   The device starts in full screen mode.

Shutdown the device

1. Close the project on the HMI device before shutting it down.
2. Press the two on/off buttons simultaneously and hold them down for at least 0.5 seconds.

   The "PWR" LED is flashing. The device switches off.
3. Switch off the power supply.
4. Pull out the connecting cable from the connection box.

Note

Recovery time

Wait for approximately one second after you have removed the connecting cable from the connection box before you plug the connecting cable back into the connection box.

Wait approximately one second after switching off the power supply before you switch it back on again.

After power failures lasting less than one second the connecting cable has to be disconnected.

See also

Switching on and testing the HMI device (Page 43)

8.6 Possible errors when powering on

The following two errors are typical:

- There is an internal error

  If an internal error occurs during device start-up, the "SF" LED lights up red.

  Switch the device off and on again.

- The device does not start

  If the device does not start, the operating temperature is outside the permitted range according to the chapter "Ambient conditions during operation (Page 147)". This is displayed as follows:

  – The "TEMP" LED lights up yellow.

  – The "PWR" LED flashes at 3 Hz.

    The device is in the "Power-on delay" state. The device switches on automatically as soon as the operating temperature is in the permitted range. Wait until the permitted operating temperature has been reached. This is displayed as follows:

    - The "PWR" LED lights up green.

    - The "TEMP" LED flashes at 3 Hz.

Additional causes of errors are available in the section "Problem solving (Page 152)".

Device maintenance and repair 9

9.1 Cleaning the device

Scope of maintenance

The device is designed for low-maintenance operation. You should, however, clean the touch screen at regular intervals.

⚠ CAUTION
Inadvertent operation Always switch off the device before cleaning it. This will ensure that you do not trigger functions unintentionally when you touch the keys.

Note

Observe the following points:

- The device housing is resistant to water, cleaner and alcohol.
- Use a cleaning cloth dampened with a cleaning agent to clean the equipment. Always use dish washing liquid or a screen cleaning agent.
- Do not clean the device with compressed air or steam jets. Never use solvents or scouring powder.

Requirement

- The device is voltage-free.

Procedure

1. Spray the cleaning solution onto a cleaning cloth.

   Do not spray directly onto the device.

2. Clean the device.

   When cleaning the display wipe from the screen edge inwards.

9.2 Spare parts and repairs

Repairs

In case of repair, the HMI device must be shipped to the Return Center in Fürth. Repairs may only be carried out at the Return Center in Fürth.

Depending on the work necessary to repair the device, the Center may decide to give you a credit. A credit is only granted when the sender ordered a new HMI device.

The address is:

Siemens AG
Digital Factory
Returns Center
Siemensstr. 2
D-90766, Fürth, Germany

Spare parts

Spare parts and accessories for the HMI device can be found in section Accessories (Page 12).

9.3 Recycling and disposal

The HMI devices described in these operating instructions can be recycled due to their low levels of pollutants. Contact a certified disposal service company for environmentally sound recycling and disposal of your old devices.

9.4 Maintenance application

A maintenance application is installed on the device for servicing purposes. The "Maintenance" dialog displays device data and the operating times in the various different temperature ranges:

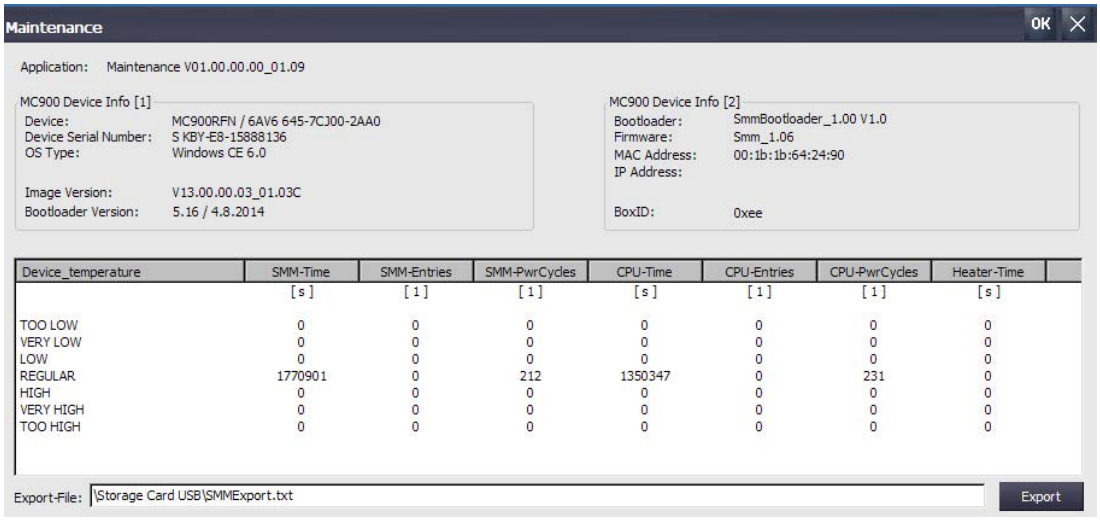
- Version of the maintenance application
- Device name and order no. (MLFB)
- Serial no. of the device
- Operating system
- Device image and BIOS version
- Firmware version of the power supply board (SMM)
- Boot loader version
- MAC address and IP address
- BoxID

The device is also fitted with an internal operating data recording system which is active in all standard operating states (see below). The following data is permanently stored for evaluating use for servicing purposes:

- Device operating time
- Number of commissioning operations
- Number of switch-on operations

Requirement

You have opened the "Maintenance" dialog using the corresponding icon.



Device_temperature	SMM-Time [s]	SMM-Entries [1]	SMM-PwrCycles [1]	CPU-Time [s]	CPU-Entries [1]	CPU-PwrCycles [1]	Heater-Time [s]
TOO LOW	0	0	0	0	0	0	0
VERY LOW	0	0	0	0	0	0	0
LOW	0	0	0	0	0	0	0
REGULAR	1770901	0	212	1350347	0	231	0
HIGH	0	0	0	0	0	0	0
VERY HIGH	0	0	0	0	0	0	0
TOO HIGH	0	0	0	0	0	0	0

Operating data recording

The first column in the table contains a set temperature range. The columns contain the individual counters for operating states and transitions. In principle, **SMM** stands for "device has voltage supply" and **CPU** for "device is on and running".

Time indicates the total duration of the operating state in the temperature range in seconds. The time for which the device had a voltage supply (SMM-Time) or was switched on (CPU-Time). Example: CPU-Time (REGULAR) = 716643. The device ran for a total of 716643 seconds = 8.3 days in the optimum temperature range (REGULAR).

Note

As each device that is switched on also has a voltage supply, the "device switched on and running" (CPU) operating state times are always recorded simultaneously on the CPU- and SMM- counters.

PwrCycles shows how often the device switched to this operating state. How often was voltage applied to the device in the temperature range (device connected, SMM-PwrCycles) and device switched on (CPU-PwrCycles).

Entries shows how often the device switched to this temperature range for each operating state. Example: How often did the device switch to the optimum temperature range REGULAR while there was a voltage at the device (SMM-Entries) or the device (CPU-Entries) was running.

Note

PwrCycles and Entries adjust the data under Time in a temperature range. Example: Where the total operating time Time = 1000 seconds and PwrCycles = 10, the device was only in the operating state for an average of 100 seconds. Where the total operating time Time = 1000 seconds and Entries = 10 in the "LOW temperature range, the device was only in the "LOW" temperature range for an average of 100 seconds.

Heater-Time shows how long the heater was running in the respective temperature range.

Requirement

- A SIMATIC IPC USB flash drive, order number 6ES7648-0DC50-0AA0, is connected.
- The SIMATIC IPC USB flash drive has sufficient free memory space.

USB backup of data displayed

The following procedure should only be followed for servicing:

1. Insert the SIMATIC IPC USB flash drive into the USB port in the device.
2. Click the "Export" button.
3. Enter the memory path.
4. Close the dialog with the "Ok" button.

All device data and operating times will be saved.

Technical specifications

10

10.1 Certificates and approvals

Note

The only valid approvals for the HMI device and the connection box itself are those shown on the label on the rear panel.

CE approval

The device and the connection box satisfy the requirements and protection objectives of the following EC directives. The HMI device and the connection box comply with the harmonized European standards, promulgated in the Official Journals of the European Community for programmable logic controllers:

- 2004/108/EC Electromagnetic Compatibility Directive (EMC Directive)

EC Declaration of Conformity

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

Siemens AG
Digital Factory, Factory Automation
DF FA SE R&D
Breslauer Str. 5
DE-90766 Fürth, Germany

UL approval

The device satisfies the requirements according to Underwriters Laboratories Inc.

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

Marking for Australia

The device and the connection box satisfy the requirements of standard AS/NZS 2064 (Class A).

IEC 61131

The Mobile Client meets the requirements and criteria according to IEC 61131-2:2007, Programmable Logic Controllers, Part 2: Equipment requirements and tests.

Identification for Eurasion Customs Union

- EAC (Eurasian Conformity)
- Customs union of Russia, Belarus and Kazakhstan
- Declaration of conformity according to
  Technical Regulations of the Customs Union (TR CU)

KOREA

The device and the connection box satisfy the requirements according to the Korean certification.

This product satisfies the requirement of the Korean Certification (KC Mark).

이 기기는 업무용(A급) 전자파 적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

10.2 Directives and declarations

10.2.1 Electromagnetic compatibility

The HMI device satisfies, among other things, the requirements of the EMC guidelines of the European domestic market.

EMC-compliant installation

The EMC-compliant installation of the connection box and the application of interference-proof cables is the basis for interference-free operation. The following descriptions also apply to installation of the connection box:

- Description "Directives for interference-free installation of PLCs"
  (http://support.automation.siemens.com/WW/view/de/1064706)
- SIMATIC PROFINET system description
  (http://support.automation.siemens.com/WW/view/en/19292127)

Pulse-shaped interference

The following table shows the electromagnetic compatibility of modules with regard to pulse-shaped interference. This requires the HMI device to meet the specifications and directives for electrical installation.

Pulse-shaped interference	Test voltage	Degree of severity
Electrostatic discharge in accordance with IEC 61000-4-2	Air discharge: 8 kV Contact discharge: 6 kV	3
Bursts (high-speed transient interference) in accordance with IEC 61000-4-4	2 kV power supply cable 2 kV signal cable, > 30 m 1 kV signal cable, < 30 m	3
High-power surge pulses in accordance with IEC 61000-4-5, external protective circuit required (refer to controller S7-300, Installation, section "Lightning and surge voltage protection")		
Asymmetrical coupling	2 kV power cable DC voltage with protective elements 2 kV signal/data cable, > 30 m, with protective elements as required	3
Symmetrical coupling	1 kV power cable DC voltage with protective elements 1 kV signal cable, > 30 m, with protective elements as required	3

Sinusoidal interference

The following table shows the EMC behavior of the modules with respect to sinusoidal interference. This requires the HMI device to meet the specifications and directives for electrical installation.

Sinusoidal interference	Test values	Degree of severity
HF radiation (in electromagnetic fields) IEC 61000-4-3	• 80% amplitude modulation at 1 kHz – On 10 V/m in the range of 80 MHz to 1 GHz – On 3 V/m in the range of 1.4 GHz to 2 GHz – On 1 V/m in the range of 2 GHz to 2.7 GHz • 10 V/m with 50% pulse modulation – At 900 MHz – At 1.89 GHz	3
RF interference current on cables and cable shielding IEC 61000-4-6	Test voltage 10 V at 80% amplitude modulation of 1 kHz in the range from 10 kHz to 80 MHz	3

Emission of radio interference

The following table shows the emitted interference from electromagnetic fields in accordance with EN 55011, Limit Class A, Group 1, measured at a distance of 10 m.

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

Additional measures

Before you connect an HMI device to the public network, ensure that it is compliant with Limit Value Class B in accordance with EN 55022.

10.2.2 ESD guideline

Definition of ESD

All electronic modules are equipped with large-scale integrated ICs or components. Due to their design, these electronic elements are highly sensitive to overvoltage, and thus to any electrostatic discharge. These electronic components are therefore specially identified as ESDs.

Abbreviations

The following abbreviation is commonly used for electrostatic sensitive devices:

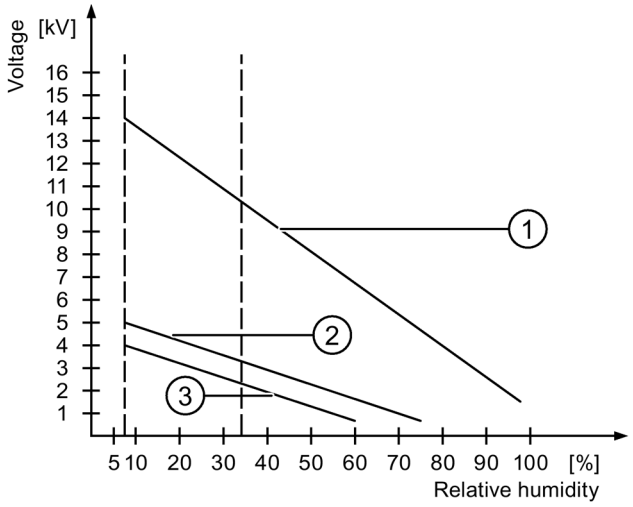
- EGB – Elektrostatisch Gefährdete Bauteile/Baugruppen (Germany)
- ESD – Electrostatic Sensitive Device (internationally recognized term)

Electrostatic charging

NOTICE
Electrostatic charging ESDs may be destroyed by voltages far below the level perceived by human beings. 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 charging of your body before you touch the ESD!

Anyone who is not connected to the electrical potential of their surroundings is subjected to electrostatic charging.

The following figure indicates the maximum electrostatic charge anyone is subjected to when coming into contact with 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

Protective measures against electrostatic discharge

NOTICE
Observe 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 charging.

As a rule, only touch the ESD if this is unavoidable, for example for maintenance. When you touch modules, make sure that you do not touch the pins on the modules or the PCB tracks. In this way, the discharged energy cannot reach and damage the sensitive devices.

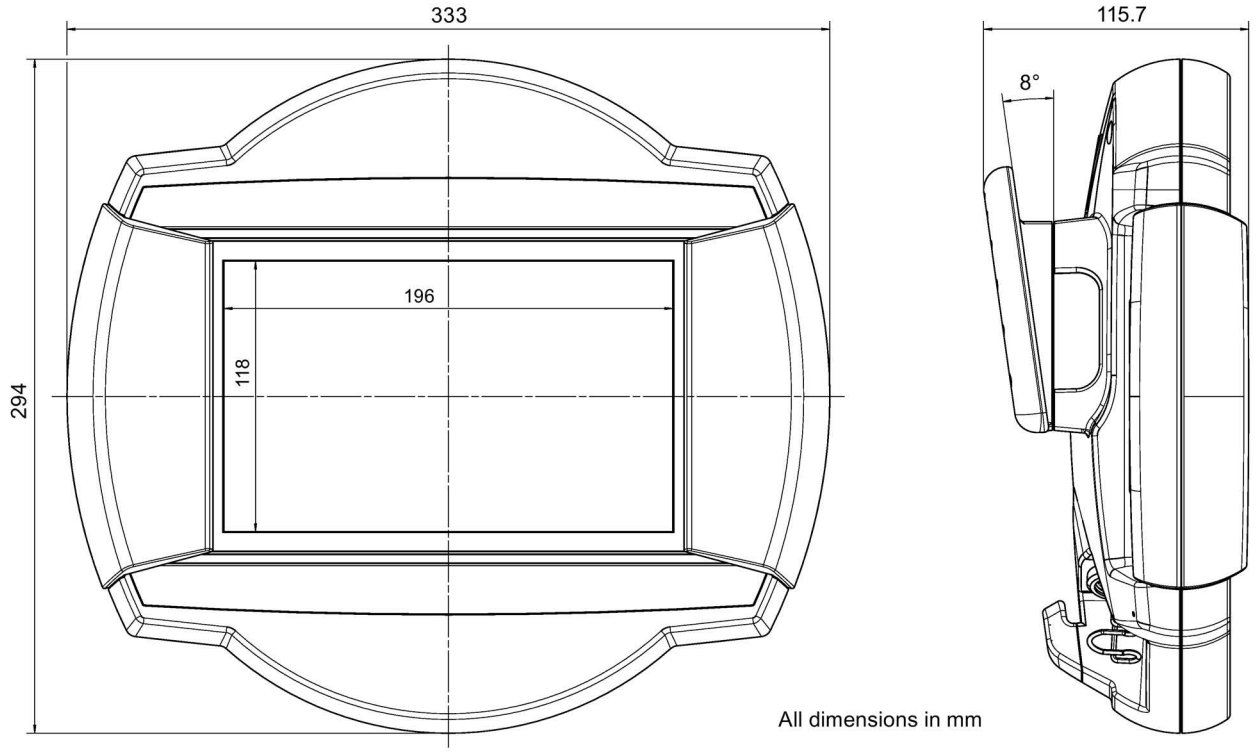
Discharge electrostatic electricity from your body if you are performing measurements on an ESD. Do so by touching grounded metallic parts.

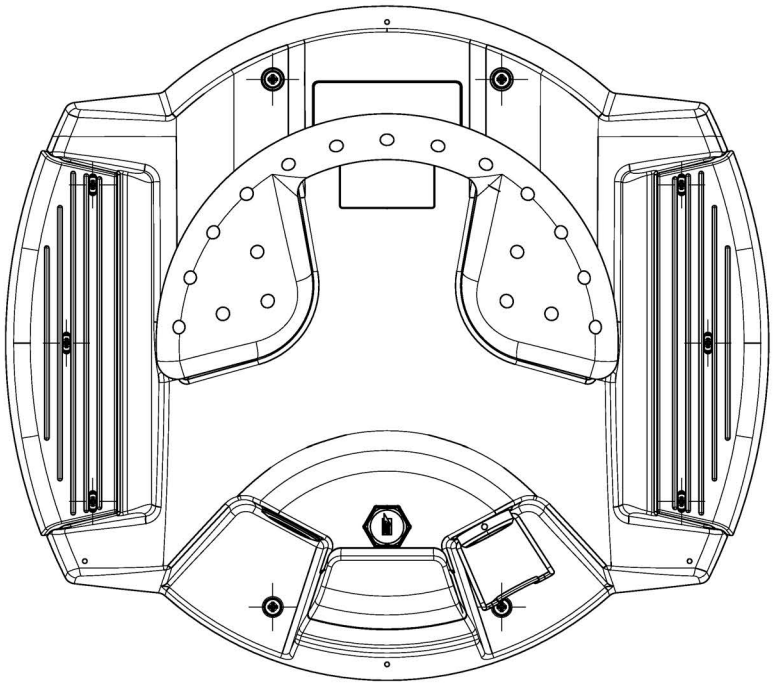
Always use grounded measuring instruments.

10.3 Dimension drawings

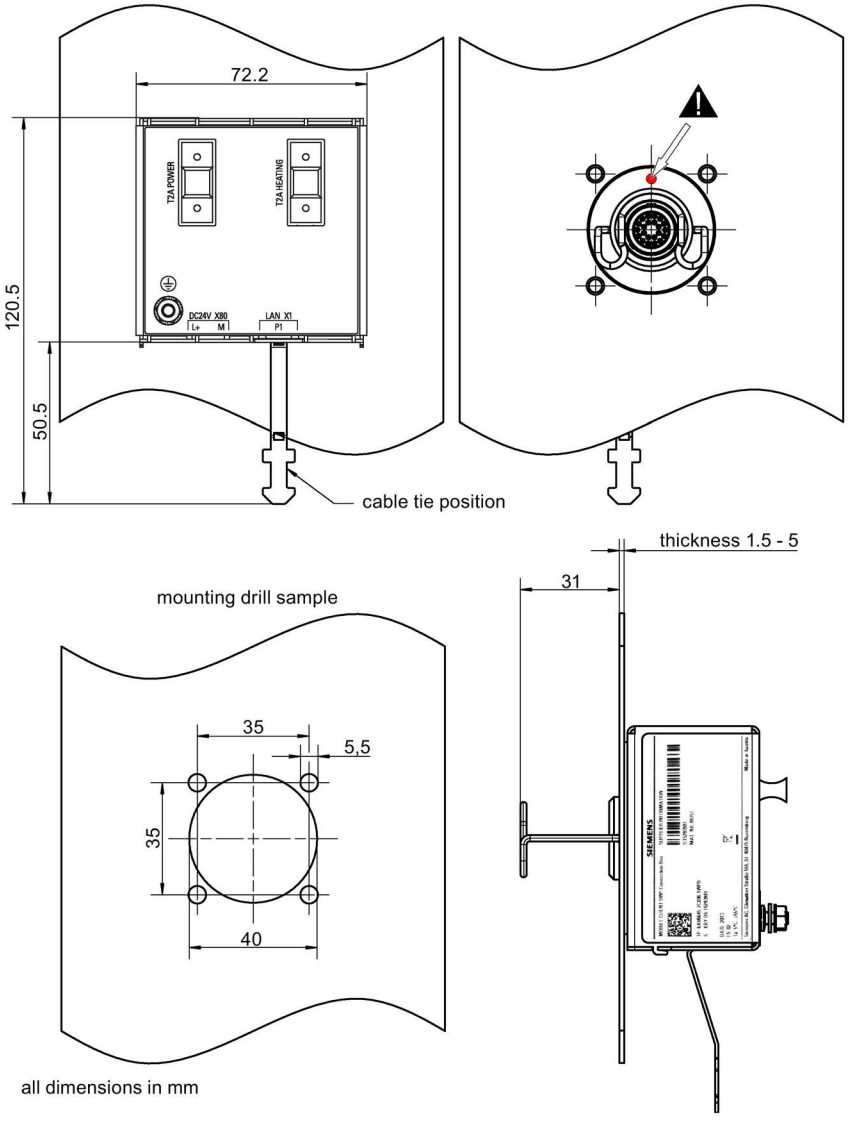
10.3.1 Mobile client

Front, side and rear view

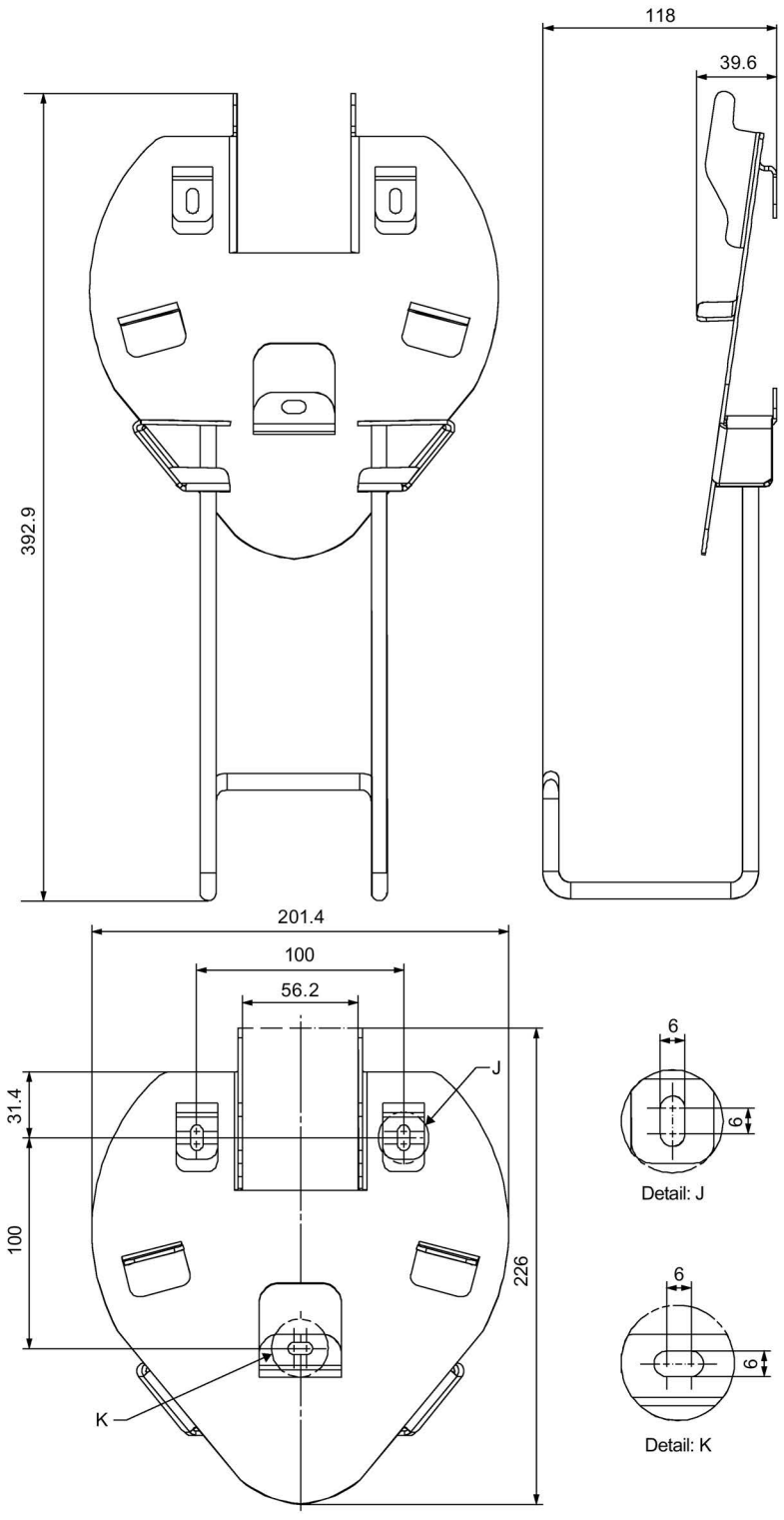




10.3.2 Connection box

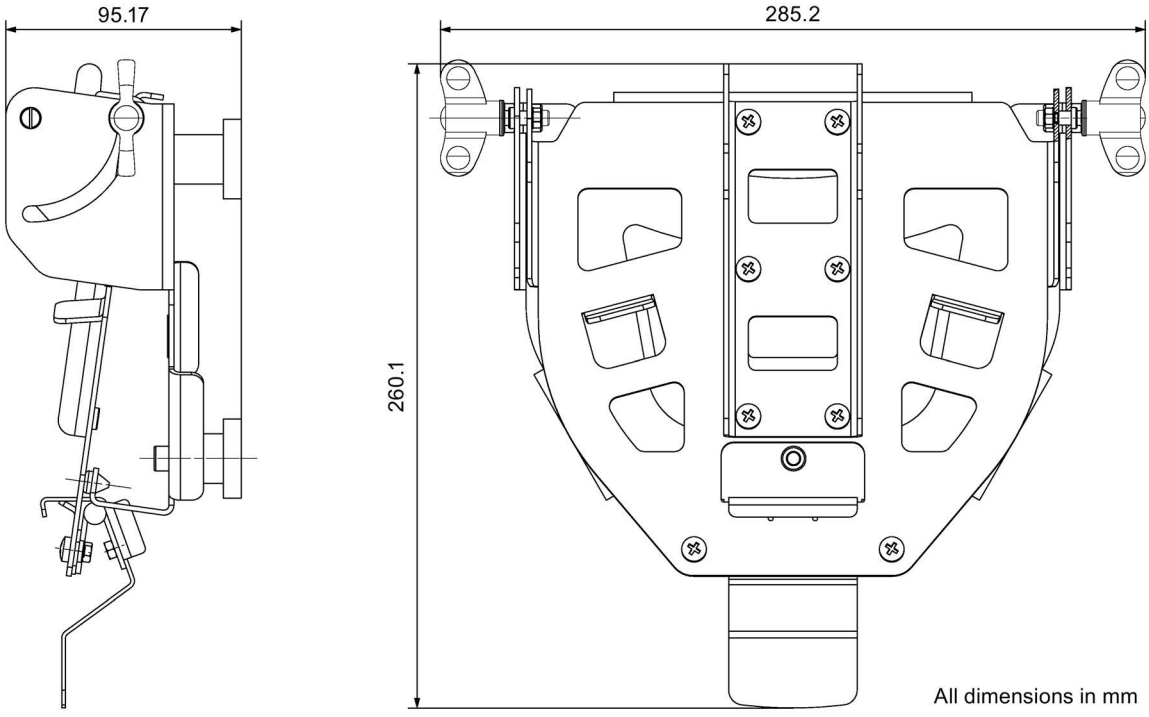


10.3.3 Wall-mounting bracket

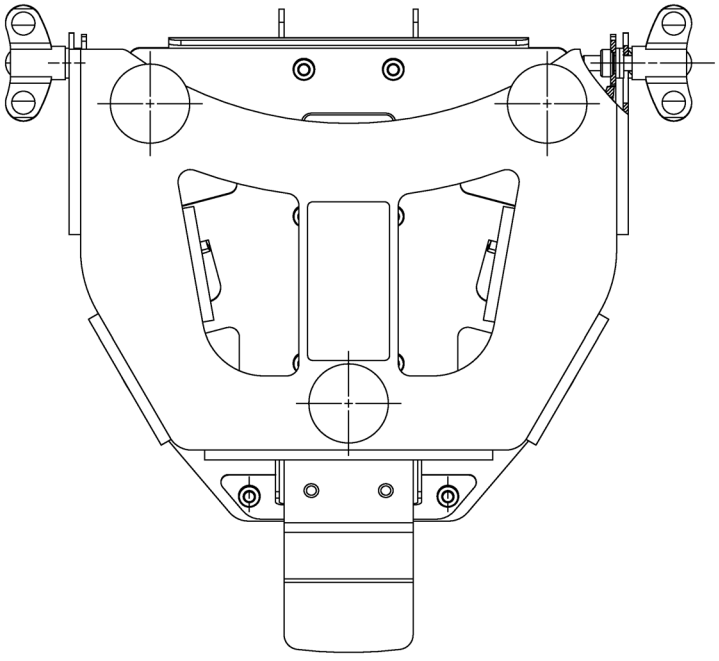


All dimensions in mm

10.3.4 Magnetic wall bracket



The figure below shows the rear view with the position of the magnet:



10.4 Specifications

10.4.1 Technical specifications Mobile Client

Weight without packaging	Approx. 2300 g
Length × height × width	294 × 333 × 116 mm
Degree of protection	IP65
Protection class	Protection class I in accordance with IEC 60536, protective conductor required
Fall height	≤ 1 m

Ports

Circular connectors	Power supply and Ethernet
USB	Only for approved USB storage medium and for service purposes only

Insulation strength

Insulation strength is demonstrated in the type test with the following test voltages in accordance with IEC 61131-2:

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

Display

Type	Color TFT-LC Display
Size	9 inch
Resolution	WXGA resolution (1280 × 768)
Color depth	24 bits
Brightness control	Yes
Backlighting Half brightness life time, typical	LED 50000 h
Input unit: Type	Touch screen, resistive analog
Keyboard	Membrane keypad with tactile feedback, 4 keys

Memory

Processor	X86 processor system
Application memory	512 MB
System memory	512 MB

Software

Operating system	Linux
SMM firmware, no license required	• FreeRTOS V5.0.3, http://www.freertos.org/ • TI Driver Library, Stellaris Peripheral Driver Library, version 6852, http://www.ti.com/tool/sw-lm3s

10.4.2 Technical specifications Connection Box

Weight without packaging	Approx. 280 g
Housing (width × height × depth)	70 mm × 74 mm × 50 mm

Electrical system

The specifications apply for the connection box with connected device.

Nominal voltage Range, permissible	+24 V DC DC +19.2 ... +28.8 V (–20 ... +20%)
Transients, maximum permissible	35 V, 500 ms
Time between two transients, minimum	50 s
Power consumption, typically	Approx. 700 mA
Constant current, maximum	Approx. 1400 mA
Inrush current I^2t	Approx. 0.6 A^2s
Power consumption, with non-artic HMI device	16 W, 700 mA at 24 V DC
Power consumption, with Artic HMI device	34 W, 1400 mA at 24 V DC
Inrush current	≤ 1.5 A, duration 1 ms during commissioning ≤ 3.2 A, duration 1 ms during switch-on operation
Overvoltage category	II
Fuse	2 × 2 A glass tube fuse, 5 × 20 mm, UL 248
Current load PLC-accompanying signals	Not available
Recovery time	≥ 1 s
Interruption time of power supply, maximum	10 ms in accordance with EN 61131-2
Degree of protection	IP20 IP65 with correct exterior mounting to control cabinet wall and with connecting cable fitted
Protection class	III to EN 61131-2

10.4.3 Technical specifications of the wall-mounting brackets

Wall-mounting bracket, weight without packaging	Approx. 900 g
Magnet wall bracket, weight without packaging	Approx. 850 g

10.4.4 Ambient conditions for transport and storage

Mechanical and climatic transport and storage conditions

The transportation and storage conditions of this HMI device exceed requirements in accordance with IEC 61131-2. The following specifications apply to the transportation and storage of an HMI device in its original packaging.

The climatic conditions comply with the following standards:

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

The mechanical conditions are compliant with IEC 60721-3-2, Class 2M2.

The following table shows the transport and storage conditions for the Mobile Client.

Type of condition	Permissible range
Free fall	≤ 1 m
Temperature	–25 to +70 °C
Atmospheric pressure	1080 to 660 hPa, corresponds to an elevation of -1000 to 3500 m
Relative humidity	5 to 95%, without condensation
Sinusoidal vibration in accordance with IEC 60068-2-6	5 to 8.4 Hz: 3.5 mm 8.4 to 150 Hz: 9.8 m/s^2
Shock in accordance with IEC 60068-2-27	15 g, 11 ms, 1000 shocks

The following table shows the transportation and storage conditions for the terminal device.

Type of condition	Permissible range
Free fall	≤ 1 m
Temperature	–40 to +70 °C
Atmospheric pressure	1080 to 660 hPa, corresponds to an elevation of -1000 to 3500 m
Relative humidity	5 to 95%, without condensation
Sinusoidal vibration in accordance with IEC 60068-2-6	5 to 8.4 Hz: 3.5 mm 8.4 to 150 Hz: 9.8 m/s^2
Shock as defined by IEC 60068-2-27	15 g, 11 ms, 1000 shocks

Note

In the following cases, ensure that no humidity can settle on or in the HMI device:

- Transportation of the HMI device in low temperatures
- Under extreme temperature variations

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.

The following points must be adhered to in order to ensure a fault-free and safe operation of the HMI device:

- Proper transportation and storage
- Proper installation and mounting
- Careful operation and maintenance

The warranty for the HMI device will be deemed void if these stipulations are not heeded.

10.4.5 Ambient conditions during operation

Mechanical environmental conditions

The following tables contain the validated and maximum permissible mechanical environmental conditions- in the form of sinusoidal vibrations - for the Mobile Client and Connection box.

Mobile Client

Duration	Effect	Tested for
10 ≤ f ≤ 57 Hz	Amplitude 0.15 mm	Vibration resistance, IEC 60068-2-6
9 ≤ f ≤ 150 Hz	Constant acceleration 2 g	
11 ms	Acceleration 25 g	Shock resistance, IEC 60068-2-27

Connection box

Duration	Effect	Tested for
5 ≤ f ≤ 9 Hz	Amplitude 7 mm	Vibration resistance, IEC 60068-2-6
9 ≤ f ≤ 150 Hz	Constant acceleration 2 g	
11 ms	Acceleration 15 g	Shock resistance, IEC 60068-2-27

Reducing vibrations and shocks

If the device is subject to stronger shocks or vibrations than specified in the environmental conditions, you must take appropriate measures to reduce amplitudes or acceleration. In such situations, use vibration damping or vibration absorber systems.

Climatic environmental conditions

The following tables show the permissible climatic environmental conditions for use of the mobile client and connection box.

Mobile Client

Note

Observe the following points:

- The Arctic HMI device can be exposed to an ambient temperature of about –10 °C during operation due to its internal heating.
- Please observe the environmental conditions in chapters "Special operating modes (Page 124)" and "Using the override function (Page 125)". The special operating modes limit the following specifications.

Ambient conditions	Permissible range	Comments
Temperature during operation, non-arctic HMI device	0 °C to 45 °C	
Temperature during operation, Arctic HMI device	0 °C to 45 °C	See also section "Special operating modes (Page 124)"
Temperature during storage/transportation	–40 to 70 °C	
Relative humidity, operation, and transport/storage	10% to 90%	Without condensation, corresponds to a relative humidity, exposure level 2 conforming to IEC 61131, part 2
Atmospheric pressure	1,080 hPa to 795 hPa	Corresponds to an altitude of –1,000 to 2,000 m
Pollutant concentration	SO_2 < 0.5 ppm Relative humidity < 60% no condensation	Test: 10 cm^3/m^3; 10 days
	H_2S < 0.1 ppm Relative humidity < 60% no condensation	Test: 1 cm^3/m^3; 10 days

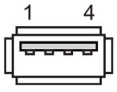
The device has a vapor-permeable valve which gives a certain amount of protection from condensation inside the device.

Connection box

Ambient conditions	Permissible range	Comments
Temperature in operation	0 to 55 °C	For control cabinet mounting see section "Special operating modes (Page 124)
Temperature during storage/transportation	-45 °C to 70 °C	
Relative humidity, operation, and transport/storage	35% to 85%	Without condensation, corresponds to a relative humidity, exposure level 2 conforming to IEC 61131, part 2
Atmospheric pressure	1,080 hPa to 795 hPa	Corresponds to an altitude of –1,000 to 2,000 m
Pollutant concentration	SO_2 < 0.5 ppm Relative humidity < 60% no condensation	Test: 10 cm^3/m^3; 10 days
	H_2S < 0.1 ppm Relative humidity < 60% no condensation	Test: 1 cm^3/m^3; 10 days

10.5 Contact assignment of the USB port

USB socket



Contact	Assignment
1	+5 VDC, out (max. 500 mA)
2	USB-DN
3	USB-DP
4	GND

Technical support

A

A.1 Service and support

You can find additional information and support for the products described on the Internet at the following addresses:

- Technical support (http://www.siemens.com/automation/service&support)
- Support request form (http://www.siemens.com/automation/support-request)
- After-sales information system for SIMATIC PC / PG (http://www.siemens.com/asis)
- SIMATIC Documentation Collection (http://www.siemens.com/simatic-tech-doku-portal)
- Your local representative (http://www.siemens.com/automation/partner)
- Training center (http://www.sitrain.com)
- Industry Mall (https://mall.industry.siemens.com)

When contacting your local representative or Technical Support, please have the following information at hand:

- Article number of the device
- BIOS version, SMM firmware version, image version

  These specifications are described in the chapter "Maintenance application (Page 132)".
- Installed additional hardware

A.2 Problem solving

This section provides you with tips on how to locate and/or troubleshoot problems which occur.

Problem	Possible cause	Possible remedy
No LEDs are on or flashing	Supply voltage too low	Check the voltage at the power supply input of the connection box.
	Connecting cable not plugged in	Check whether the connecting cable has been fully plugged in to the HMI device and the connection box.
	Humidity too high (condensation)	Let the device dry for about 4 hours.
Only the "SF" LED is on	"Internal error" or voltage outside permissible range	Check the power supply or remove the device from the power supply. Switch on the power supply again. If the error still exists, send the device to the Return Center in Fürth.
The "PWR" LED flashes at 3 Hz and the "TEMP" LED is on	The device is outside the permissible operating temperature range	Move the device to warmer / cooler surroundings until the temperature is back in the permissible range.

Abbreviations

B

DC	Direct Current
ESD	Components and modules endangered by electrostatic discharge
EMC	Electromagnetic compatibility
EN	European standards
ESD	Components and modules endangered by electrostatic discharge
GND	Ground
HF	High Frequency
HMI	Human Machine Interface
IEC	International Electronic Commission
IP	Internet Protocol
IPC	Industrial PC
LED	Light Emitting Diode
PC	Personal Computer
PELV	Protective Extra Low Voltage
RFN	**R**untime TIA Portal, **F**ull Features, **N**on arctic (hardware with buttons, no heating**)**
RXA	**R**untime TIA Portal, no additional operator controls (**X**), **A**rctic (with heater)
SELV	Safety Extra Low Voltage
SMM	System Management Module
TFT	Thin Film Transistor
UL	Underwriter’s Laboratory
USB	Universal Serial Bus
WXN	**W**eb Client Linux, no safety operator controls (**X**), **N**ormal temperature range

Glossary

Automation system

Controller of the SIMATIC S7 series such as a SIMATIC S7-300

Bootloader

Used to start the operating system. Automatically started when the HMI device is switched on. After the operating system has been loaded, the Loader opens.

EMC

Electromagnetic compatibility is the ability of electrical equipment to function properly in its electromagnetic environment without affecting this environment.

HMI device

An HMI device is a device used for the operation and monitoring of machines and plants. The statuses of the machine or plant are indicated by means of graphic elements or by indicator lamps on the HMI device. The operator controls of the HMI device allow the operator to interact with the processes of the machine or plant.

Plant

General term referring to machines, processing centers, systems, plants and processes which are operated and monitored on an HMI device.

PLC

A PLC is a general term for devices and systems with which the HMI device communicates, e.g. SIMATIC S7.

Project

Result of a configuration using configuration software. The project normally contains several screens with embedded system-specific objects, basic settings and alarms.

Web server

A variety of IPCs have a Web server that provides the machine or plant picture as an HTML page. When a Mobile Client connects to the Web server, the HTML page is displayed on the Mobile Client.

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