SIEMENS

SIMATIC

HMI devices
Comfort Panels INOX PCT

Compact Operating Instructions

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

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

Disclaimer of Liability

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

Preface

Scope of validity

These compact operating instructions are valid for the following INOX devices:

- SIMATIC TP700 Comfort INOX PCT, article number 6AV2144-8GC20-0AA0
- SIMATIC TP900 Comfort INOX PCT, article number 6AV2144-8JC20-0AA0
- SIMATIC TP1200 Comfort INOX PCT,, article number 6AV2144-8MC20-0AA0

The INOX devices are based on the following standard devices:

- SIMATIC TP700 Comfort, article number 6AV2124-0GC01-0AX0
- SIMATIC TP900 Comfort, article number 6AV2124-0JC01-0AX0
- SIMATIC TP1200 Comfort,, article number 6AV2124-0MC01-0AX0

These compact operating instructions describe the technical differences between the SIMATIC TP700/900/1200 Comfort INOX PCT and the corresponding standard device.

The statements in these compact operating instructions take precedence over statements in the basic operating instructions, the release notes and online help.

Comfort Panels operating instructions (http://support.automation.siemens.com/WW/view/en/49313233)

Unless otherwise described in this document, all of the specifications for the corresponding standard device that are described in the operating instructions of the associated standard device are valid for the TP700/900/1200 Comfort INOX PCT, in particular the specifications on hardware, operating system, software, configuration, maintenance, and servicing.

Note

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.

Pass on all of these documents to a future owner of the device.

Naming conventions

Term	Applies to
System	• System • Machining center • One or more machines
Device, INOX PCT device	• SIMATIC TP700 Comfort INOX PCT • SIMATIC TP900 Comfort INOX PCT • SIMATIC TP1200 Comfort INOX PCT
PCT	Projected Capacitive Touch
Touch HMI device	Device with capacitive single-touch screen
Touch screen	Single touch screen
Touch operation	Operation of the device with the single touch screen

Figures

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

Table of contents

Overview

1.1   Product overview

The INOX devices with touch screen and glass front are designed for use in the food and beverage industry and the pharmaceutical industry.

- Scratch-resistant glass surface with hardness 6 on the Mohs hardness scale

- Resistant glass and sturdy stainless steel front with minimized grooves and crevices

- Optimized frame design with minimized protrusions to the control cabinet and for automatic runoff of liquids

- Stainless steel surface polished with grain size 240

- Degree of protection, front: IP66K, IP69 (IP69 is comparable to IP69K)

- Hardened glass with impact resistance IK08

- Chemical resistance to cleaning agents and disinfectants as described in section "Chemical Resistance (Page 33)".

- Replaceable device mounting gasket

- Rear clamping frame for even application pressure of the mounting gasket

- Mounting cutout, interfaces and functionality correspond to those of the standard device.

1.2 Scope of delivery

The scope of delivery includes:

- 1 × device
- 1 × accessory pack with the following contents:
  - 1 mounting gasket
  - 1 clamping frame
  - 1 power supply connector
  - Mounting clips (see section "Mounting the device (Page 24)")
- Product information, mounting instructions
- 3 × Product information (approvals, explosion protection)

1.3 Layout of the devices

The figures in this section show the layout using the 12" device as an example.

Front view and side view

① Cutout for mounting clip
② Stainless steel front
③ Display with touch screen behind front glass
④ Positioning hooks for mounting gasket

Bottom view
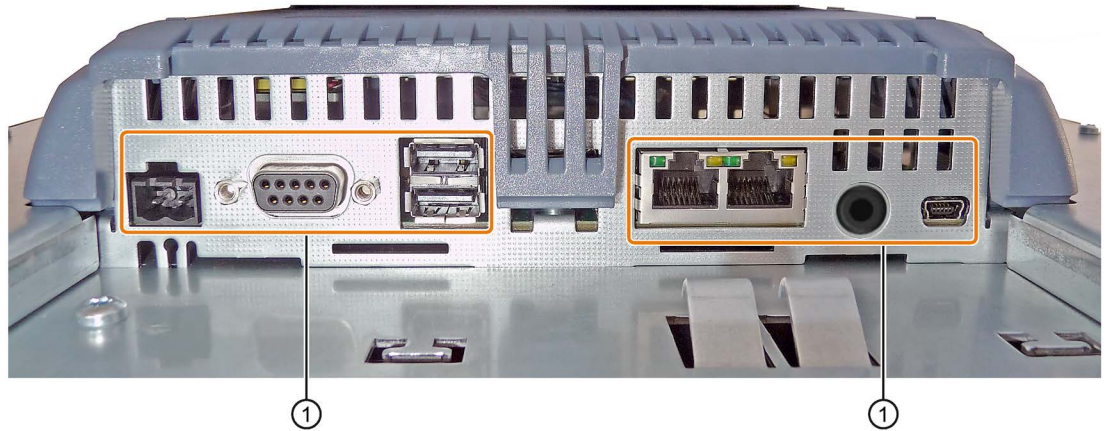
①   Ports

Rear view

See standard device, Comfort Panels operating instructions

1.4   Interfaces

Interfaces of the 7", 9" and 12" variants

The figure shows the interfaces of the following HMI devices:

- TP700 Comfort INOX PCT
- TP900 Comfort INOX PCT
- TP1200 Comfort INOX PCT
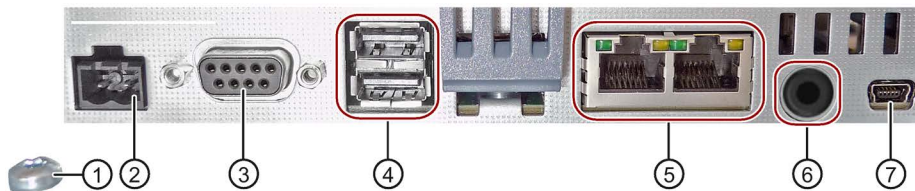
① Connection for equipotential bonding (ground)   ⑤ X1 PROFINET (LAN), 10/100 Mb
② X80 power supply connector   ⑥ X90 Audio Line OUT
③ X2 PROFIBUS (Sub-D RS422/485)   ⑦ X60 USB type Mini B
④ X61 / X62 USB type A

Additional information

Use the X1 or X60 interface to connect a configuration PC. Use the X61 / X62 interfaces to connect peripheral devices such as a printer or keyboard. Use the X90 interface to connect headphones.

You can fasten the USB and PROFINET connecting cables to the rear panel of the HMI device with cable ties.

1.5 Accessories

Accessories can be ordered on the Internet at:

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

The following service packs with clamping frame, mounting gasket and mounting clips are available for the INOX devices:

- TP700 INOX Servicepack, article number 6AV2185-4GA00-0AX0

- TP900 INOX Service Pack, article number 6AV2185-4JA10-0AX0

- TP1200 INOX Service Pack, article number 6AV2185-4MA00-0AX0

You need service packs to replace the gasket or as spare parts for the mounting material.

Other accessories

- Die-cast aluminum mounting clip, article number 6AV2185-8MA000-AA0

- Matching USB accessories can be found on the Internet in the following entry: FAQ 19188460 (https://support.industry.siemens.com/cs/ww/en/view/19188460)

Safety instructions

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2.1   Intended use

The SIMATIC HMI Comfort Panel INOX PCT touch operating panels with touch screen and glass front are designed to be used for high-performance visualization tasks (control and monitoring) and under ambient conditions that prevail in the food and beverage industry and the pharmaceutical industry.

The devices are generally designed for use in open processes (according to DIN EN 1672-2) and are primarily intended for use in splash zones. In addition, the touch HMI devices can be used for indirect contact with acidic, alcoholic or dry food. Indirect contact means alternating contact of the device and food in the process by the operating personnel.

Any use that deviates from this intended use is prohibited. Also see the information in the section "Cleaning and maintenance (Page 27)".

Particular attention has been paid during design of the HMI devices to ensure that the front panel is easy to clean and can be disinfected when needed. The devices with stainless steel front have therefore been developed according to DIN EN 1672-2 "Food Processing Machinery - Safety and Hygiene Requirements".

2.2   General safety instructions

Installation according to the instructions

> ⚠ **WARNING**
>
> **The device may only be used in machines which comply with the Machinery Directive**
>
> The "Machinery Directive" governs, among other things, the precautions to be taken when commissioning and operating machines within the European Economic Area.
>
> Failure to follow these precautions is a breach of the Machinery Directive. Such failure may also cause personal injury and damage depending on the machine operated.
>
> The machine in which the HMI device is to be operated must conform to Directive 2006/42/EC.

Notes on the touch screen

> ⚠️ **WARNING**
>
> **Danger of explosion in hazardous areas, personal injury or property damage due to defective touch screen**
>
> Massive force applied to the front panel is not an intended use of the device and can destroy its touch screen, e.g. break the glass front. In hazardous areas, there is then a risk of explosion, injury and food contamination with further consequential and health damages.
>
> Make sure that excessive force cannot be applied to the front panel.
>
> If the touch screen of the device is defective, follow these steps:
> * Stop production.
> * Immediately shut down the affected machine and label it accordingly.
> * Handle any potentially contaminated product in accordance with legal regulations.
> * Replace the device immediately. When replacing the device, please note the section "Installing and connecting the device (Page 19)".
> * Clean the machine before putting it back into operation.

ESD

Electrostatically sensitive components include almost all electrical, electronic, optoelectronic and electromechanical components. These components are sensitive to overvoltage for technical reasons and their function may be impaired or destroyed by electrostatic discharge. Observe the regulations governing the handling of ESD components.

Open equipment and control cabinet

> ⚠️ **WARNING**
>
> **The device constitutes open equipment on the back side**
>
> The device constitutes open equipment on the back side. This means that the device may only be integrated in an enclosure or cabinet which provides front access for operating the device. The enclosure, the cabinet or the electrical operating room must provide protection against electric shock and the spread of fire. The requirements regarding the mechanical strength must also be considered.
>
> Access to the enclosure or cabinet in which the device is installed should only be possible by means of a key or tool and for trained and qualified personnel.
>
> **Electrocution risk when control cabinet is open**
>
> When you open the control cabinet, there may be a dangerous voltage at certain areas or components.
>
> Touching these areas or components can cause electrocution.
>
> Always disconnect the cabinet from the mains before opening it.

Observe the safety and accident prevention instructions applicable to your application in addition to the safety information given in the device documentation.

Strong high-frequency radiation

NOTICE
Observe immunity to high-frequency radiation
The device has an increased immunity to high frequency radiation according to the specifications on electromagnetic compatibility in the technical specifications.
Radiation exposure in excess of the specified immunity limits can impair device functions and result in malfunctions and therefore injuries or damage.
Read the information on immunity to high frequency radiation in the technical specifications.

Industrial Security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. use of firewalls and network segmentation) are in place.

 For additional information on industrial security measures that may be implemented,please visit (http://www.siemens.com/industrialsecurity).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under (http://www.siemens.com/industrialsecurity).

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.

2.3　　　Security management for HMI devices

You can find additional information on security management of HMI devices on the Internet at the following address:

Panel Security Guidelines (https://support.industry.siemens.com/cs/de/en/view/109481300)

2.4　　　Notes about usage

Installation location

The touch operating panel is designed for use in open processes and is primarily intended for use in splash zones (according to DIN EN 1672-2).

NOTICE
The HMI device is approved for indoor use only.
The HMI device may be damaged if it is operated outdoors. Operate the HMI device indoors only.

Note

Operate the device only in a normal atmospheric environment

The technical characteristics of the device described in the operating instructions are guaranteed if you operate the device in normal ambient air conditions with usual air composition.

Note

The device is intended for operation in an SELV/PELV circuit according to IEC/EN 61010-2-201 in a dry environment, which means a dry environment on the rear of the device.

You can find additional information in the section "Operating Conditions (Page 42)".

Industrial applications

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

- Requirements for emissions EN 61000-6-4: 2007 +A1:2011

- Requirements for interference immunity EN 61000-6-2: 2005

Use in mixed-use zone

Under certain circumstances, you can use the HMI device in a mixed-use zone. A mixed-use zone is used for housing and commercial operations that do not have a significant impact on residents.

When you use the HMI device in a mixed-use zone, you must ensure that the limits of the generic standard EN 61000-6-3 regarding emission of radio frequency interference are observed. Suitable measures for achieving these limits for use in a mixed-use zone include:

- Installation of the HMI device in grounded control cabinets

- Use of filters in electrical supply lines

Individual acceptance is required.

Use in residential areas

Note

HMI device not intended for use in residential area

The HMI device is not intended for use in residential areas. Operation of an HMI device in residential areas can have a negative influence on radio or TV reception.

Use with additional measures

The HMI device should not be used at the following locations unless additional measures are taken:

- In locations with a high degree of ionizing radiation

- In locations with severe operating conditions, for example, due to:
  - Corrosive vapors, gases, oils or chemicals
  - Strong electrical or magnetic fields of high intensity

- In systems that require special monitoring, for example, in:
  - Elevators
  - Systems in especially hazardous rooms

2.5　　　Use in hazardous areas

The following warnings apply to operating a device with Ex approval in hazardous areas.

⚠️**WARNING**

Explosion Hazard

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

Risque d'Explosion

Ne pas déconnecter pendant que le circuit est sous tension, sauf si la zone est non-dangereuse. Le remplacement de composants peut compromettre leur capacité à satisfaire à la Classe I, Division 2 ou Zone 2.

⚠️**WARNING**

Do not plug or pull connectors in potentially explosive atmospheres

When you plug or pull the plug-in connector during operation, there is a risk of an arcover. An explosion can be triggered in the hazardous area due to sparkover, and death or serious bodily injury can occur.

Pulling or plugging of plug-in connectors, for example, a 24 V DC power supply connector as well as the memory card is **prohibited** in the hazardous area.

Plug or pull a plug-in connector only when one of the following two requirements is met: The area is no longer hazardous or the device and its plug-in connections are de-energized.

To switch off the device, close all open programs or the current project, and switch off the power to the device.

Also read the enclosed documentation for use in potentially explosive atmospheres and the information in the section "Certificates and approvals (Page 35)".

2.6　　　Notes on commissioning and operating

⚠️**WARNING**

Personal injury or property damage due to no earth connection

An inadequate earth connection or the lack of one may cause malfunction of the capacitive touch screen. Functions may not work properly. This can result in personal injury or property damage.

- Always connect the device to an earth conductor.
- The earth conductor from the device must be connected directly to earth with low impedance (short connection, minimum cross-section 4 mm^2).

> **⚠ WARNING**
>
> **Personal injury or property damage due to maloperation**
>
> Incorrect operation of devices with a touch screen can occur. This can result in personal injury or property damage.
>
> Take the following precautions:
>
> - Configure the plant so that safety-related functions are not operated with the touch screen.
> - Switch off the device for cleaning and maintenance.

Notes on operation

Note when operating the capacitive single-touch screen:

- Surface contact with a diameter of about 5 to 20 mm is required for an operator action to be detected.

   Touch the touch screen with the finger tip, vertically to the surface.

- An operation with gloves with a material thickness of <2 mm is detected in most cases. However, check the usefulness of the gloves you are using.

- To avoid incorrect operation, certain inputs are ignored and blocked from further entry:

   – Simultaneous operation with several fingers: The first finger is detected, other touches are ignored.

   – Input is disabled by a surface contact with a diameter of > 3 cm, for example, resting the palm of the hand on the touch screen. As soon as the touch screen is no longer touched, new input is possible again.

Functions of the capacitive single-touch screen

General functions

- You do not need to calibrate the touch screen. For this reason, the "Touch" tab in the "OP Properties" dialog is not available for the PCT devices.

- Touch screen operation analog to the operating options that are available for devices with resistive single touch screen.

Security functions in an industrial environment

The touch screen is locked for security reasons when following happens:

- There is a conductive liquid on the touch screen with ground contact via the enclosure or the operator, for example.

- Electromagnetic interference is present that exceeds the specification according to EN 61000-4-2.

Once the interference is over, the touch screen is no longer locked.

2.7 Operating the capacitive single-touch screen

The capacitive touch screen of the HMI device differs fundamentally in its behavior from a resistive touch screen, for example:

- The touch screen reacts to contact on its surface, not to pressure.

- The touch screen is operated with the fingertips.

- The finger can be surrounded by thin material, for example, protected by a sterile glove.

- The touch screen is optimized for robust operability, even with a light film of moisture.

- Operation with a touch pen is not recommended.

⚠ **WARNING**

Personal injury or property damage due to incorrect operation

Incorrect operation of devices with a touch screen can occur. This can result in personal injury or property damage.

Examples of faulty operation:
- Operation with an unsuitable pen or with the fingernail.
- Operation with a thick glove, such as a work glove.
- Touching the touch screen at a slant to the surface.

Make sure to observe the instructions on the proper operation of the capacitive touch screen.

Take the following precautions:
- Configure the plant so that safety-related functions are not operated with the touch screen.
- Never touch more than one object on the touch screen.
- Switch off the device for cleaning and maintenance.
- Clean the touch screen regularly.

NOTICE

Damage to the touch screen

Improper operation can damage the touch screen.
- Never touch the touch screen with pointed or sharp objects.
- Do not operate the touch screen with tools, for example a screwdriver.
- Do not operate the touch screen with chain gloves.
- Avoid impact with hard objects on the touch screen.

This can substantially reduce the useful life of the touch screen and even lead to total failure.

Installing and connecting the device 3

3.1 Preparing for installation

3.1.1 Check the scope of delivery

Check the scope of delivery for visible signs of damages caused during transport and for completeness, see chapter "Scope of delivery (Page 8)".

NOTICE
Damaged parts
A damaged part can cause device malfunctions.
Do not install damaged parts.

In the case of damaged parts or incomplete delivery, contact your Siemens representative.

3.1.2 Checking the operating conditions

Note the following aspects before installing the device:

1. Familiarize yourself with the standards, approvals, EMC parameters and technical specifications for operation of the device. This information is available in the following chapters:

   – Certificates and approvals (Page 35)

   – Electromagnetic compatibility (Page 39)

2. Check the mechanical and climatic ambient conditions for operation of the device; see Technical specifications (Page 35).

3. Follow the notes on use in the operating instructions.

3.1.3 Permitted mounting positions

The HMI device is suitable for installation in:

- Control cabinets

- Switchboards

- Consoles

In the following, all of these mounting options are referred to by the general term "cabinet".

The HMI device is self-ventilated and approved for inclined mounting at angles of up to +/- 35° in stationary cabinets.

NOTICE

Damage due to overheating

An inclined installation reduces the convection by the HMI device and therefore the maximum permitted ambient temperature for operation.

If there is sufficient convection from forced ventilation, the HMI device can also be operated in the inclined mounting position up to the maximum permitted ambient temperature for vertical installation. The HMI device may otherwise be damaged and its certifications and warranty will be void.

Note

Extended inclination and ambient temperature range

You can operate the 7", 9" and 12" devices with extended inclination and extended temperature range under the following conditions:

- The USB load does not exceed 100 mA per USB port.
- The +24 V DC connection of the PROFIBUS interface is not used.

The following mounting positions and temperature ranges are permitted under the specified conditions:

- Vertical mounting in landscape format with a maximum ambient temperature of +55 °C
- Mounting in landscape format with an inclination of up to 40° from the vertical with a maximum ambient temperature of 40 °C

For information regarding the permitted ambient temperatures, refer to section "Climatic ambient conditions (Page 41)".

Mounting position

Select one of the approved mounting positions for your HMI device.

## Mounting in horizontal format

All HMI devices are suitable for horizontal mounting positions.
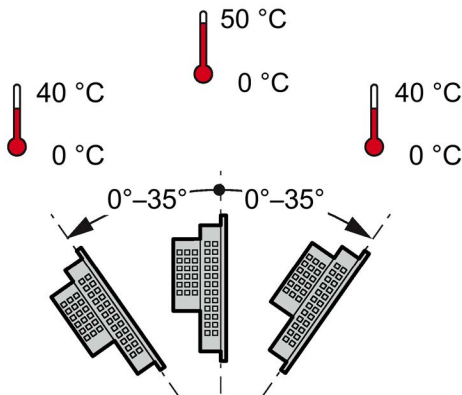
A maximum ambient temperature of +50 °C is permitted for vertical mounting (0° tilt angle); a maximum of +40 °C is permitted for inclined mounting.

Mounting in vertical format

The Touch HMI devices are also suitable for mounting in vertical format. Select the appropriate screen format during configuration.
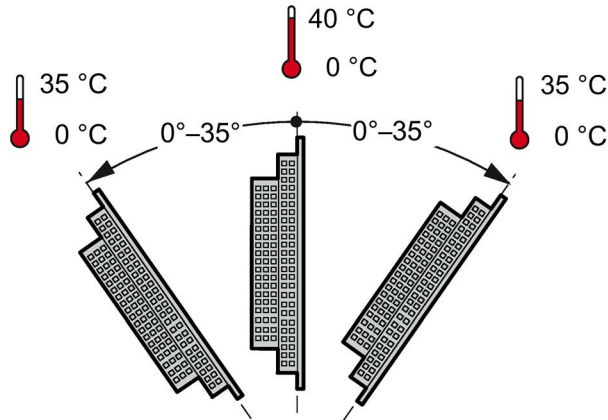
A maximum ambient temperature of +40 °C is permitted for vertical mounting (0° tilt angle); a maximum of +35 °C is permitted for inclined mounting.

3.1.4 Notes on installation

Mounting cutout

The HMI device can be installed in control cabinets (see table for material thickness). No special tools are required for mounting. The HMI device can be operated both in landscape and portrait format with a vertical inclination of up to +/-35°. Due to the surrounding beveling of the stainless steel front of 45°, liquids are able to drain off even in an inclined installation position of +/-35°.

The following conditions apply to the mounting cutout:

The front material has to consist of sheet steel or material of a strength that corresponds to at least the stability of sheet steel.

Mounting cutout	Dimensions
Material thickness	1.5 to 6 mm
Permitted deviation from plane This condition must be fulfilled for the mounted HMI device.	≤ 0.5 mm
Permitted surface roughness in the area of the mounting seal	≤ 120 µm (R_z 120)

3.1.5 Checking clearances

The following figure shows the clearances during mounting of the HMI devices in horizontal and vertical format for sufficient self-ventilation of the devices:
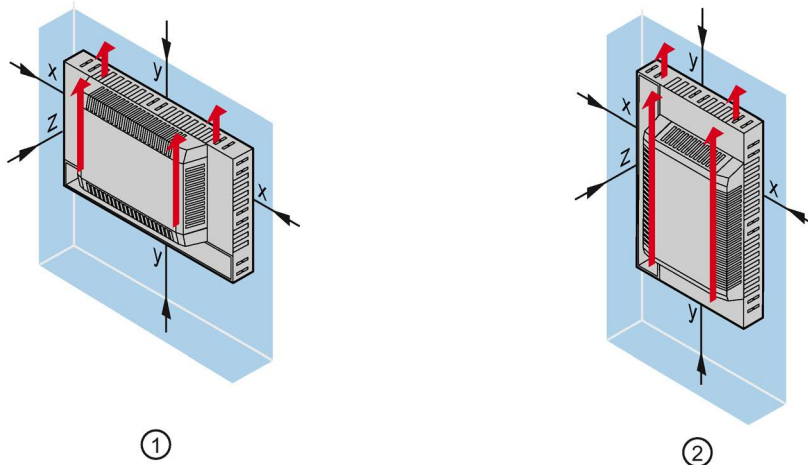
①	Clearance for installation in landscape format
②	Clearance for installation in portrait format
x	Distance from wall at least 23 cm.
y	At least 50 mm distance
z	At least 10 mm distance

Note

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

Clearances during cleaning

Cleaning of the device must not be impeded by other components in the plant, such as switches and signaling devices.

● Install the HMI device so that it is easily accessible for cleaning.

● Cleaning with the appropriate agents must not be impeded.

● Keep sufficient distance to other components.

● The distance of the front panel to other components should be at least 20 mm.

3.2 Inserting the mounting seal

The following figures in this section are examples.

To prevent the mounting seal from being inserted in the wrong direction, it has an asymmetric coding tap. On all mounting gaskets of the INOX devices, the coding tap is on the bottom left in relation to the rear of the device.

Note

Use a new mounting seal for each installation, because the promised degree of protection cannot be guaranteed otherwise.

Requirement

- Remove all packaging components and the edge protection tape prior to installation.

Procedure

1. Look for the coding tap on the mounting seal. Turn the mounting seal so that the coding tap is on the bottom left as seen in the figure below:
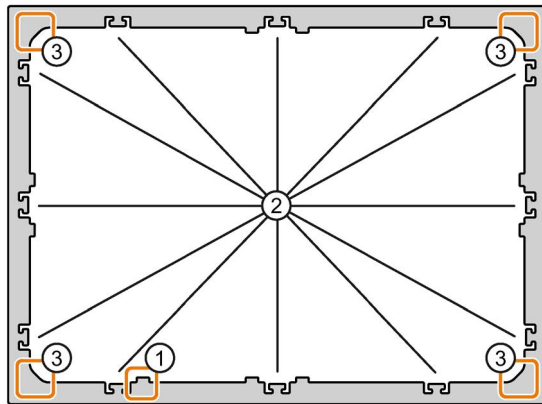
①   Coding tap
②   Positioning hooks
③   Seal corner

2. Carefully place the device on the front of the device (interfaces point to you).

3. Insert the mounting seal into the stainless steel front as shown. Also note points ④ - ⑥.

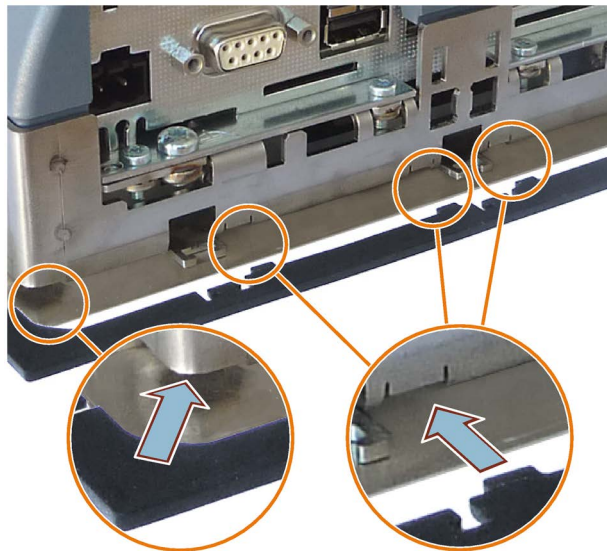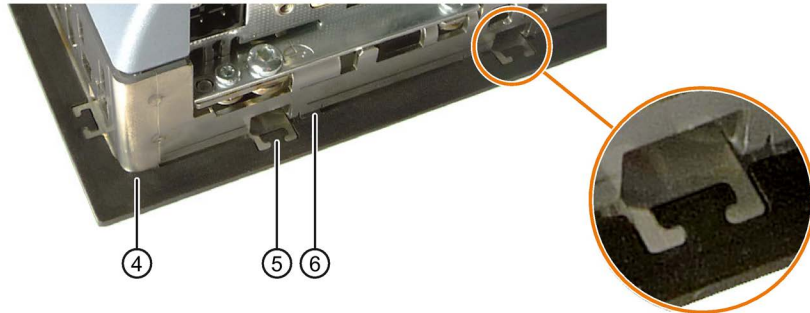| ④	Seal corner is underneath the housing frame.
⑤	The positioning hook of the seal fully engages into the cut-out, flat without protrusion.
⑥	The coding key lies flat in the intended cut-out.

4. Check the correct fit of the mounting seal:

   – The coding tap is placed at the specified location.

   – All positioning hooks rest flush in their cutouts. The mounting seal is installed correctly when it lies flat on the entire stainless steel front. This must not lead to distortions and protrusions.

   If necessary, correct the seat: To do this, press the mounting seal into the recess.

   – The edge of the mounting seal is flush with the edge of the stainless steel front all around.

3.3 Mounting the device

The following process describes installation for all devices based on the example of the TP700 Comfort INOX.

Requirement

- 1 clamping frame

- 1 Allen key 2.5 mm

- Mounting clips: depending on the display size generally:

  – 7" devices: 10 mounting clips

  – 9" devices: 13 mounting clips

  – 12" devices: 12 mounting clips

  – 15" devices: 20 mounting clips

  – 19" devices: 18 mounting clips

Observe the additional product information, if any, supplied with the product.

Installation

> **⚠ CAUTION**
>
> **Risk of injury when device falls**
>
> An unsecured device may fall. This can result in damage to persons, machines and the device. Secure the device against dropping during the entire installation.

1. Insert the device with its mounting seal, clamping frame and all enclosed mounting clips into the mounting cut-out from the front, as shown in the figure.

   The tip of the setscrew must be inserted into the center hole as shown in the zoomed section of the figure.
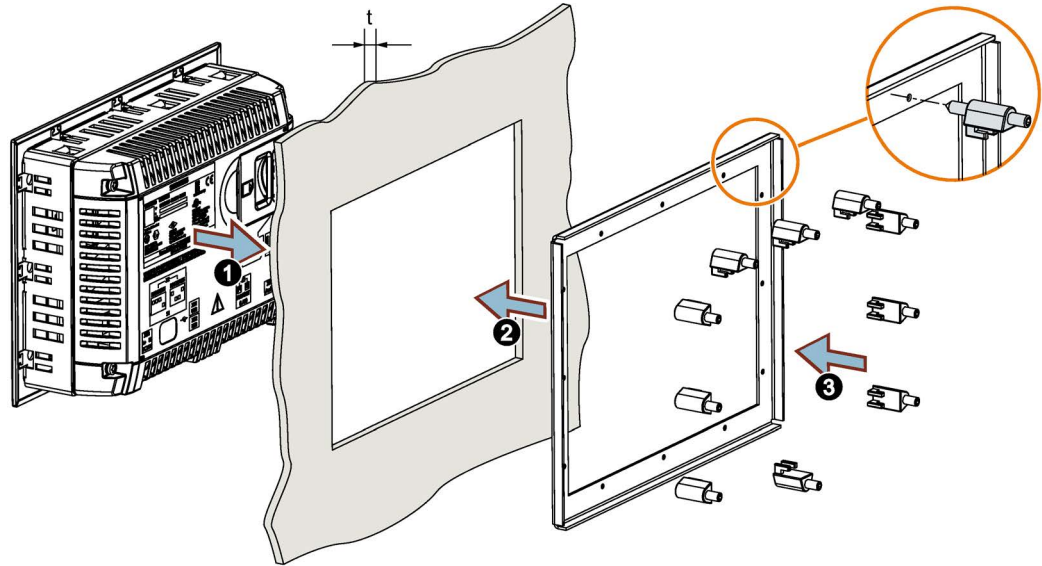
| Material thickness **t** at the mounting cutout: | TP700/900/1200 Comfort INOX: 1.5 mm to 6 mm |
| | TP1500/1900 Comfort INOX and ITC1900 INOX: 1.5 mm to 5 mm |

2. Turn the setscrew of each mounting clip until a slight clamping force is perceptible. After a few rotations a slight resistance will become perceptible. When the increase in force is perceptible, tighten the setscrew of the next mounting clip. Perform this step for all setscrews.

3. Check that the mounting seal is properly seated.

   – The edge of the mounting seal must be flush and evenly flush with the stainless steel front on all sides.

   – The edge may protrude 0.1 to 0.5 mm.

4. Tighten the setscrew of the mounting clip until the fixed stop is reached and the torque increases perceptibly. The tightening torque is then:

   – Approx. 1.0 Nm with 7", 9" and 12" devices

   – Approx. 0.5 Nm with 15" and 19" devices

5. Check that the stainless steel front is in contact with the mounting location on all sides and that the mounting seal is pressed against the surrounding area.

6. Check that the fixed stop has been reached on all mounting clips and that the mounting gasket is installed correctly. Correct the tightening torque, if necessary, so that the clamping force is evenly distributed.

Removal

For removal, follow the steps for installation in reverse order. Dispose of the used mounting gasket.

3.4   Wiring rules

Introduction

Use suitable cables when connecting the device. The table below provides the wiring rules.

Power supply

Wiring rules for ...		Power supply
Permitted cable cross-sections of solid cables (Cu)		-
		-
Permitted cable cross-sections of flexible cables (Cu)	Without wire end sleeve	1.5 mm²
		AWG*: 16
	With end sleeve	1.5 mm²
		AWG*: 16
Number of wires per connection		1
Stripped length of the wires		7 to 8 mm
End sleeves according to DIN 46228	Without plastic sleeve	Design A, 7 mm long
	With plastic sleeve	Design A, 7 mm long
Sheath diameter		8.5 mm
Tool		3 mm to 3.5 mm screwdriver, conic design
Connection system		Screw terminal
Tightening torque		From 0.5 Nm to 0.6 Nm

* American Wire Gauge

Ambient and cable temperature

Note

Permissible cable temperatures

At the max. ambient temperature of the device, you must select sufficiently large wire cross-sections so that the permissible cable temperatures are not exceeded.

Example:

- At an ambient temperature of 50° C, a current of, for example, 0.85 A per wire and a cross-section of 1.5 mm² Cu, a connecting cable must be rated for a temperature range of at least 70° C.

Maintenance and repairs

<div align="right">

4

</div>

4.1 Cleaning and maintenance

Scope of maintenance

The HMI device is designed for maintenance-free operation.

Proper handling and regular cleaning will extend the service life of the front operating panel. The front operating panel consists of:

- Stainless steel frame
- Glass front
- Mounting gasket
- Casting compound (edge cast)

Regularly check the mounting seal and the edge grouting for damage. Replace a damaged seal or a device with damaged edge grouting before you commission the plant.

The components on the front panel have different resistances to chemical and mechanical influences (see section "Chemical resistance").

General information on cleaning

⚠ WARNING
Danger of explosion when cleaning in hazardous areas
When cleaning the front panel in hazardous areas with a dry cloth, static electricity may be discharged. An explosion can result in damage to persons and machines. • Do not clean the front panel with a dry cloth. • Use a well moistened cloth or a suitable anti-static cleaning device.

Note

Damage to the front operating panel possible

Impermissible and unsuitable cleaning agents may cause damage to the HMI device.

Not permitted:

- Do not clean the HMI device using aggressive solvents, cleaning agents or disinfectants, greasing or abrasive detergents, concentrated acids or caustic solutions.

  You can find additional information in the section "Chemical Resistance (Page 33)".

- Do not clean the stainless steel front with chlorine and chlorides, e.g. active chlorine.

- Do not clean the any of the front panel with laser beam, ultrasound or dry ice.

- Do not clean protein-containing product residues with temperatures above 60°C. Otherwise, the protein will curdle and stick to the surface.

- Do not clean the surface with pointed, sharp or scratching tools such as knives, brushes or coarse cloths.

Permitted:

- Use commercially available glass or plastic cleaners for cleaning the glass front.

We recommend cleaning the touch operator panel regularly, depending on the requirements of the user regarding cleanliness.

- After a maximum of 8 hours of continuous use. The operator panel should definitely be cleaned when there is a visible contamination.

- In case of a longer interruption of operation, clean the device at the end of the interruption before the recommissioning.

- We recommend that the device also be cleaned at the beginning of a longer interruption so that substances do not stick.

The front panel is protected against the ingress of liquids according to the degree of protection. You can find additional information in the section "Information on insulation tests, protection class and degree of protection (Page 43)".

Cleaning the machine

Just as you foam your machine, disinfect it, wash away product residues with a steam jet and a pressure cleaner, you can also clean the front panel of the built-in device. Observe the general cleaning instructions. The following approvals especially apply:

- IP69 degree of protection according to EN 60529 at the front
- IP66K degree of protection to ISO 20653 on the front

Note

Cleaning methods

In addition to the specifications in this section, the following applies for cleaning the device:

Not permitted:

- Thermal disinfection, e.g. with hot steam, will damage the operating panel, especially the touch sensor.
- Cleaning with steam cleaners.

Permitted:

- Wiping along the edges (stainless steel frame).
- Spraying with detergents or disinfectants and rinsing afterwards.
- Rinsing off, especially when removing adhering residues of cleaning agents or disinfectants.
- Cleaning with strong jet water under increased pressure in accordance with DIN EN 60529:2014-09.
- Cleaning with pressure washer in accordance with DIN EN 60529:2014-09 (see following section).

Basic procedure

1. Coarse cleaning with water.
2. Apply detergents or disinfectants according to the manufacturer's instructions.
3. Allow the detergents or disinfectants to act as specified by the manufacturer.
4. Rinse with drinking water.

Cleaning interval for cross contamination

If there is a chance that operation may result in cross contamination (e.g. hand contact with product), you should proceed as follows:

- Remove visible buildup immediately.
- Avoid direct contact of the food with the grouting compound.
- Prevent food adhering to or contacting the grouting compound from returning to the production process.

4.2 Working with pressure washers

The HMI device can be used on machines that are cleaned with pressure washers.

NOTICE
Damage caused by steam cleaners
Hot steam can damage the HMI device. Do not clean the HMI device with steam cleaners.
Risk of contamination by pressure washer
When pressure washers are used, areas that have already been cleaned can be contaminated again:
• Due to particles of dirt or aerosols swirling up
• Due to draining wastewater
This is why high-pressure cleaners are generally not recommended for machine and plant cleaning in the hygiene sector.

Cleaning guidelines

If possible, do not clean the HMI device directly and repeatedly with a pressure washer.

- Use only clean water.
- Cover sensitive areas beforehand.

When cleaning with a pressure washer, you need to ensure that you can manually regulate the pressure. The pressure washer must be set in such a way that it prevents any damage to the HMI device.

- Avoid pressures > 100 bar
- Avoid temperatures > 80°C
- Use only nozzles suitable for the device and the objects to be cleaned, for example, the machine, container or floor and that are suitable for this purpose.

  A fan nozzle is suitable for the machine, for example, a spot jet nozzle is unsuitable. Refer to the manufacturer's documentation.

- If necessary, use a flat jet nozzle and keep a distance of at least 30 cm.

NOTICE
Observe the ambient conditions
During cleaning work, observe the permissible ambient conditions, especially the temperature in operation.

We recommend the following cleaning temperatures:

- Slight soiling: 30-50 °C
- Protein-containing soiling: max. 60 °C

The HMI device may be damaged if the pressure is too high or concentrated at a singe point. Avoid damage caused by excessive pressure when handling the pressure washer.

● Always keep the high-pressure jet in motion and work the surfaces quickly.

● Always aim the high-pressure jet first at the object to be cleaned from a greater distance.

● Do not aim the pressure washer directly at the device or the cleaning jet at a single point.

● Maintain a minimum distance of 30 cm from the device.

4.3 Working with stainless steel surfaces

Cleaning guidelines

Further information on stainless steel surfaces:

● The surface should be properly ventilated.

● Keep the surface clean. Remove cleaners and food residue immediately. Always avoid the return of food stuff splashes to the production process.

● If mechanical cleaning is necessary, do not use cleaning equipment made of metal.

    – Clean with brushes made of plastic or natural bristles or with microfiber pads.

    – Use plenty of water to clean the surface.

● Make sure surface is not damaged: Do not damage the device during operation, or by cleaning or repairing it using hard tools, in particular tools made of corrodible materials.

● Ensure that the surface does not come into contact with parts that can rust.

This includes water pipes, filings, residue from wire brushes or steel wool. These, as well as rust films have a corrosive effect on parts made of stainless steel.

    – Remove any stains or rust immediately.

    – Remove new rust spots with a mild abrasive detergent in order to prevent any further corrosion.

    – Rinse thoroughly with clean water after each cleaning.

● Ensure that the cleaning agent is completely removed without any residue.

4.4 Clean screen for Touch HMI devices

The touch screen of the HMI device can be cleaned when it is switched on and a project is running. An operating element must be available in the project that can be used to call the "clean" screen. Once the clean screen is activated, touch screen operation is locked for a configured period of time. Depending on the software setting, the lockout time can be between 10 and 300 (default setting 30) seconds. The time remaining for the lockout is indicated by a progress bar.

Note

Unintentional responses - Incorrect touch input

When cleaning the touch screen, touching icons on the screen may cause unintentional reactions in the HMI device.

- Always open the clean screen or switch off the HMI device before you clean the touch screen while the system is running.

Touch inputs cannot be reliably detected on a wet display.

- When cleaning, wipe the display area thoroughly with a dry cloth.

Cannot be operated when the clean screen is active

When the clean screen is active, operations on the HMI device are not possible.

Wait for the period of the clean screen to lapse. Then you can operate the system again with the HMI device.

4.5 Chemical Resistance

Impermissible and unsuitable cleaning agents may cause damage to the HMI device (see General cleaning instructions).

Stainless steel front

Information on the resistance of stainless steel:

- The stainless steel surface is not fully resistant against the chemicals listed below:
  - Hydrochloric acid
  - Sulphuric acid
  - Sodium hydroxide
  - Chlorine
  - Chlorides

  Do not clean the stainless steel surface with these chemicals or with similar acids or caustic solutions.

- Acid steam develops, for example, when tiles are cleaned with hydrochloric acid, and is also harmful to the stainless steel. If the stainless steel parts are unintentionally contaminated with hydrochloric acid, rinse these off immediately with plenty of water.

- Clean the stainless steel surface with a cleansing agent without active chlorine.

Glass front

The glass front is not chemically reactive. Prevent glass corrosion by maintaining a slightly acid milieu.

Front panel

The edge grouting has sufficient chemical resistance when used as intended (see section "Safety instructions").

The front panel and mounting gasket have been tested for resistance to various chemicals.

You can find the list of substances against which the front panel has been tested on the Internet (https://support.industry.siemens.com/cs/ww/en/view/39718396) under Customer Support – FAQ.

NOTICE
Risk of damage to the device
When cleaning the device, only use the application concentration specified by the manufacturer of the cleaning agent or the concentration specified in the list.
Cleaning with a combination of substances may have varying effects.

If you clean the equipment with substances that are not tested or unsuitable for the device or with suitable substances in concentrations higher than those specified, we recommend the following:

● Cover the device during cleaning of the system.

● Clean the device separately using a suitable procedure.

4.6 Calibrate touch screen

The capacitive touch screen does **not** require manual calibration. No recalibration even after a longer period of time as is the case with a resistive touch screen.

4.7 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.

Technical specifications

<div style="text-align: right; font-size: 3em;">5</div>

5.1 Software license agreements

Microsoft licenses

License fees for the pre-installed Microsoft operating system on the HMI devices are paid directly by Siemens to the Microsoft company.

No COA label ("Certificate of Authenticity") and no other proof of license is required for the HMI device.

Open Source Software

If available, observe the software license agreements for Open Source software on the enclosed data carrier "Open Source Software License Conditions".

5.2 Certificates and approvals

Approvals

Note

The following overview shows possible approvals.

The HMI device itself is approved as shown on the rear panel labels.

CE approval

The devices meet the general and safety-related requirements of the following EU Directives and conform with the harmonized European standards (EN) published in the official gazettes of the European Union and confirmed in the EU declarations of conformity:

● 2014/30/EU "Electromagnetic Compatibility" (EMC Directive)

● 2014/34/EU "Equipment and protective systems for use in hazardous areas" (Explosion protection directive)

● 2011/65/EU "Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment" (RoHS Directive)

EU Declaration of Conformity

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

Siemens AG
Digital Factory
Automation Products and Customized Solutions
Breslauer Straße 5
D-90766 Fürth, Germany

The Declaration of Conformity and other certificates are also available at the following Internet address: SIMATIC certificates (https://support.industry.siemens.com/cs/ww/en/ps/cert). Enter the article number in the "Product" field.

Special approvals

DGUV approval
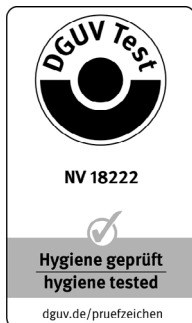
This device has been tested according to the testing standard GS-NV 6:2017/09 Testing standards for hygiene; associated test report: NV 18222.

Valid certificates issued by the testing and certification bodies in DGUV Test can be found in the DGUV Test Certificate database.

UL approval

Observe the following information:

- The device shall be supplied from an isolating source, rated 24 VDC.
- Only for use in LAN, not for connection to telecommunication circuits.

Underwriters Laboratories Inc., to

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

or

Underwriters Laboratories Inc., to

- UL 508 (Industrial Control Equipment)
- CSA C22.2 No. 142 (Process Control Equipment)
- ANSI/ISA 12.12.01
- CSA C22.2 No. 213 (Hazardous Location)

Approved for use in

- Class I, Division 2, Group A, B, C, D T4 or
- Class I, Zone 2, Group IIC T4 or
- non-hazardous locations

Ex approval

The following approvals apply to the HMI device in accordance with

- EN 60079-0:2012 +A11 2013
- EN 60079-15:2010
- EN 60079-31:2014

valid:

	II 3 G	Ex nA IIC T4 Gc
	II 3 D	Ex tc IIIC T 70 °C Dc IP65
		T: Temperature values, see EC design examination certificate

You can find additional information on use of the HMI device in hazardous areas under: ATEX-FAQ (https://support.industry.siemens.com/cs/ww/en/view/291285)

The EC type examination certificate is available on the Internet at: Technical support (https://support.industry.siemens.com/cs/ww/en/)

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

Manufacturer sites	HMI device class	Test number
Siemens AG Breslauer Straße 5 90766 Fürth Germany	Comfort Panel	DEKRA15ATEX0074X

IECEx approval

The following approvals apply to the HMI device in accordance with

- EN 60079-0 (Explosive atmospheres - Part 0: Equipment - General requirements)
- IEC 60079-15 (Explosive atmospheres - Part 15: Equipment protection by type of protection "n")
- IEC 60079-31 (Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t")

valid:

	Ex nA IIC T4 Gc
IECEx	Ex tc IIIC T70°C Dc

The IECEx certificate is available on the Internet at: Technical support (https://support.industry.siemens.com/cs/ww/en/)

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

Manufacturer sites	HMI device class	Test number
Siemens AG Breslauer Straße 5 90766 Fürth Germany	Comfort Panel	IECEx DEK 15.0049X

IEC 61131

The devices meet the requirements and criteria of IEC 61131-2, Programmable Logic Controllers, Part 2: Operating resource requirements and tests.

RCM Declaration of Conformity for Australia/New Zealand

This product meets the requirements of the standards:

- AS/NZS 61000.6.4
- IEC 61000-6-4

KOREA

This product meets the requirements of 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.

Note that this device conforms to Limit Class A for emission of radio interference. This device can be used in all areas except the residential area.

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)

WEEE label (European Union)

Disposal instructions, observe the local regulations and the section "Recycling and disposal (Page 34)".

5.3 Electromagnetic compatibility

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

EMC-compatible installation of the HMI device

The EMC-compliant installation of the HMI device and the application of interference-proof cable is the basis for interference-free operation.

Observed the following manuals in addition to these operating instructions:

● Designing interference-free controllers (https://support.industry.siemens.com/cs/ww/en/view/59193566)

● Industrial Ethernet / PROFINET - Passive network components (https://support.industry.siemens.com/cs/ww/en/view/84922825)

● PROFIBUS networks (https://support.industry.siemens.com/cs/ww/en/view/1971286)

Pulse-shaped disturbance

The following table shows the electromagnetic compatibility of modules with regard to pulse-shaped interference. The precondition for electromagnetic compatibility is that the HMI device meets the specifications and guidelines for electrical installation.

Pulse-shaped interference	Tested with	Degree of severity
Electrostatic discharge in accordance with IEC 61000-4-2	Air discharge: 8 KV Contact discharge: 6 kV	3
Burst pulses (high-speed transient interference) in accordance with IEC 61000-4-4	2 KV signal cable with 24 V DC 2 KV signal/data cable > 30 m 1 KV signal cable < 30 m	3

High-energy single pulse (surge) in accordance with IEC 61000-4-5 [1]	Asymmetrical coupling:
	• 2 kV power cable
	  DC voltage with protective elements
	• 2 kV signal cable/data cable > 30 m,
	  with protective elements as required
	Symmetrical coupling:
	• 1 kV power cable
	  DC voltage with protective elements
	• 1 kV signal cable > 30 m,
	  with protective elements as required
		3

[1] External protective circuit required, see Function Manual "Designing Interference-free Controllers", section 7 "Lightning and overvoltage protection"

You can find the Function Manual "Designing interference-free controllers" for download on the Internet (https://support.industry.siemens.com/cs/ww/en/view/59193566).

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
HF radiation (electromagnetic fields) according to IEC 61000-4-3	80% amplitude modulation at 1 kHz • to 10 V/m from 80 MHz to 1 GHz • to 10 V/m from 1.4 GHz to 2 GHz • to 1 V/m from 2 GHz to 2.7 GHz
HF current feed on cables and cable shields according to IEC 61000-4-6	Test voltage 10 V with 80% amplitude modulation at 1 KHz in the 10 KHz to 80 MHz range
Magnetic field intensity	50/60 Hz; 100 A/m RMS

Emission of radio interference

The following table shows the emitted interference from electromagnetic fields according to EN 61000-6-4, measured at a distance of 10 m.

Frequency range	Interference emission
From 30 to 230 MHz	< 40 dB (µV/m) quasi-peak
from 230 bis 1 GHz	< 47 dB (µV/m) quasi-peak

See also

EMC information in section "Notes about usage (Page 14)".

5.4 Mechanical ambient conditions

5.4.1 Storage conditions

The following information is for a device that is transported and stored in its original packaging.

The device was tested according to IEC 60721-3-2 Class 2M4 with the following additions and restrictions:

Type of condition	Permitted range
Free fall	≤ 0.3 m
Vibration according to IEC 60068-2-6	5 .. 8.4 Hz, deflection 3.5 mm 8.4 ... 500 Hz, acceleration 1 g
Shock according to IEC 60068-2-27	250 m/s^2, 6 ms, 1000 shocks

5.4.2 Operating conditions

The following information applies to a device installed according to the specifications in these operating instructions.

The device was tested based on IEC 60721-3-3 Class 3M3 with the following amendments and limitations:

Type of condition	Permitted range
Vibration according to IEC 60068-2-6	5 ... 8.4 Hz, deflection 3.5 mm 8.4 ... 150 Hz, acceleration 1 g
Shock according to IEC 60068-2-27	150 m/s^2, 11 ms, 3 shocks

Shock pulses within the specified range can be transferred to the display but do not impact the functionality of the device.

5.5 Climatic ambient conditions

5.5.1 Long-term storage

The following information applies to a device that is stored in its original packaging for longer than two weeks.

The device meets the requirements according to IEC 60721-3-1 Class 1K21.

5.5.2 Transport and short-term storage

The following information applies to a device that is transported in the original packaging and weather-proof packaging, and stored from some time.

The device was tested according to IEC 60721-3-2 Class 2K11 with the following additions and restrictions:

Type of condition	Permitted range
Temperature	–20 ... 60 °C
Atmospheric pressure	1140 ... 660 hPa, corresponds to an elevation of -1000 to 3500 m
Relative humidity	10 ... 90 %
Pollutant concentration	SO_2: < 0.5 ppm; relative humidity < 60% no condensation H_2S: < 0.1 ppm; relative humidity < 60 %, no condensation

Note

If dewing has developed, wait until the HMI device has dried completely before switching it on.

Do not expose the HMI device to direct radiation from a heater.

5.5.3 Operating Conditions

The following information applies to a device installed according to the specifications in these operating instructions.

The HMI device is designed for weatherproof and stationary operation according to IEC 60721.

The device meets the requirements according to IEC 60721-3-3 Class 3K3 with the following amendments and limitations:

Type of condition	Mounting position	Permitted range
Temperature, Mounting in horizontal for-mat	Vertical	0 °C to 50 °C
	Inclined, maximum inclination 35°	0 °C to 40 °C
Temperature, Mounting in vertical format	Vertical	0 °C to 40 °C
	Inclined, maximum inclination 35°	0 °C to 35 °C
High-pressure cleaner	temporarily 80 °C: clean 3 min. maximum with 80 °C hot water, then let it cool down	
Atmospheric pressure [1], operation elevation	1140 hPa to 795 hPa, corresponds to an elevation of -1000 m to 2000 m	
Relative humidity	From 10% to 90%, no condensation on the rear panel of the device	
Pollutant concentration	SO2: < 0.5 ppm; relative humidity < 60%, no condensation at the rear of the device	
	H_2S: < 0.1 ppm; relative humidity < 60%, no condensation at the rear of the device	

[1]   No pressure difference inside and outside of the enclosure/control cabinet permitted

Read the Notes on use (Page 14).

Also observe the specifications for the extended inclination and ambient temperature range; see section "Permitted mounting positions (Page 19)".

Note

The system components connected to the HMI device, the power supply for example, must also be suited to the respective operating conditions.

5.6 Information on insulation tests, protection class and degree of protection

Insulation test

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

Circuit	Insulation tested with (type test)
Rated voltage U_e 24 V	707 V DC to other circuits / to ground
Ethernet connector	1500 V AC

Degree of pollution and overvoltage category

The device meets the following requirements according to IEC 61131-2:2007:

Degree of pollution	2 (front)
	1 (rear)
Overvoltage category	II

Protection class

Protection class III according to IEC 61131-2

Protection against foreign objects and water

The device meets the requirements according to EN 60529.

Device side	Degree of protection
Front	When mounted: • IP69 according to EN 60529 • IP66K according to ISO 20653 • NEMA Type 4x (indoor use only)
Degree of protection, front glass	• IK09 (middle) according to IEC62262 • IK08 (edge) according to IEC62262
Rear panel	IP20 according to EN 60529 Protection against contact with standard test fingers. There is no protection against the ingress of water, dust and noxious gas.

Note that the IP degree of protection and the enclosure type are only guaranteed if the following is observed:

- The mounting gasket fits completely to the mounting cut-out, see section "Inserting the mounting seal (Page 23)".

- The conditions for the mounting cut-out. Read the corresponding information in section "Notes on installation (Page 21)".

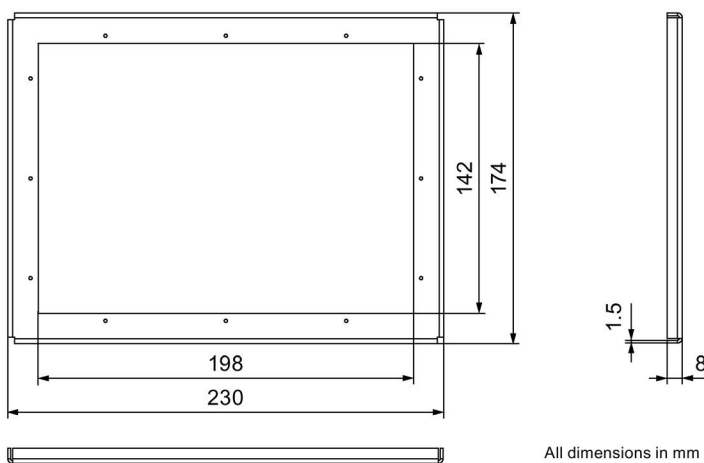- The device has been installed according to the information provided in this document.

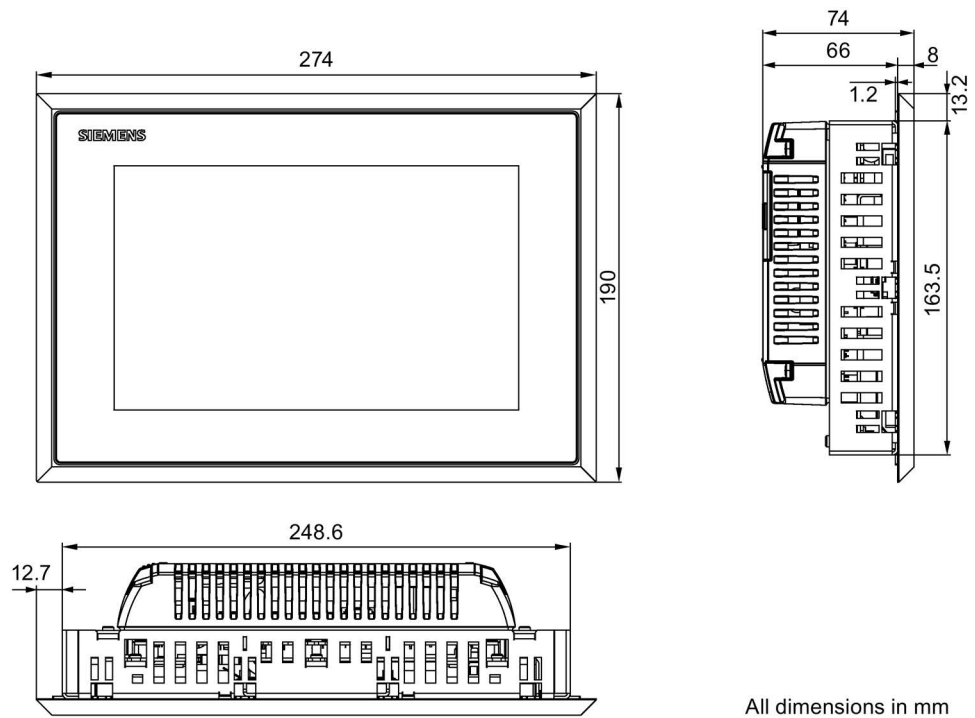## 5.7 Dimension drawings

5.7.1 7" device dimension drawing
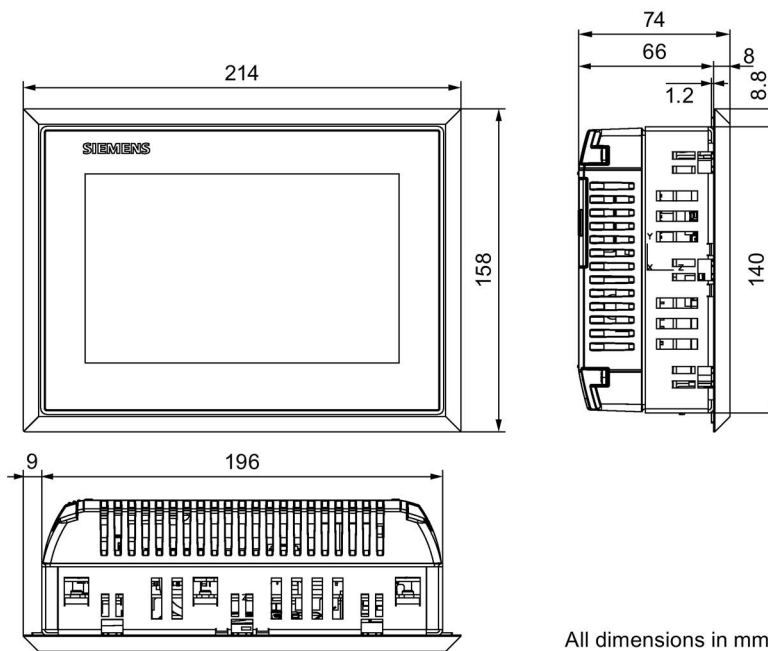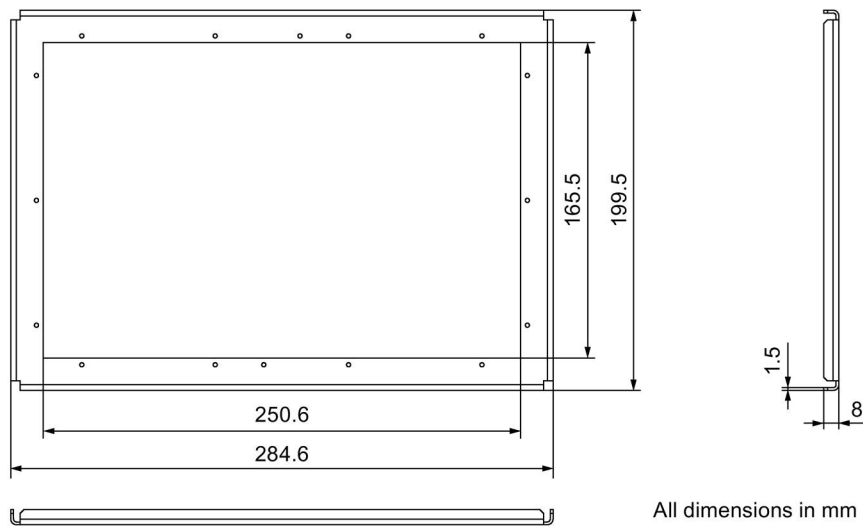

All dimensions in mm

Clamping frame

All dimensions in mm

5.7.2   9" device dimension drawing

All dimensions in mm

Clamping frame

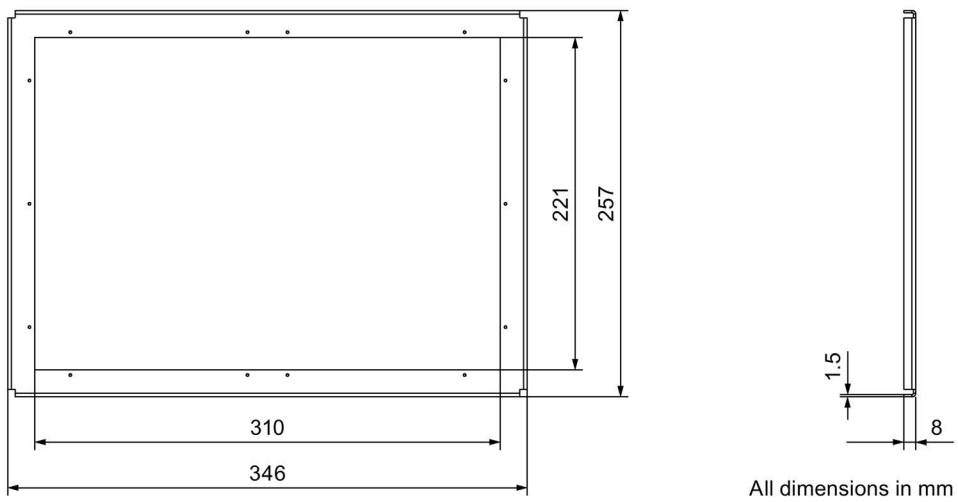All dimensions in mm

5.7.3 Dimension drawing 12" device
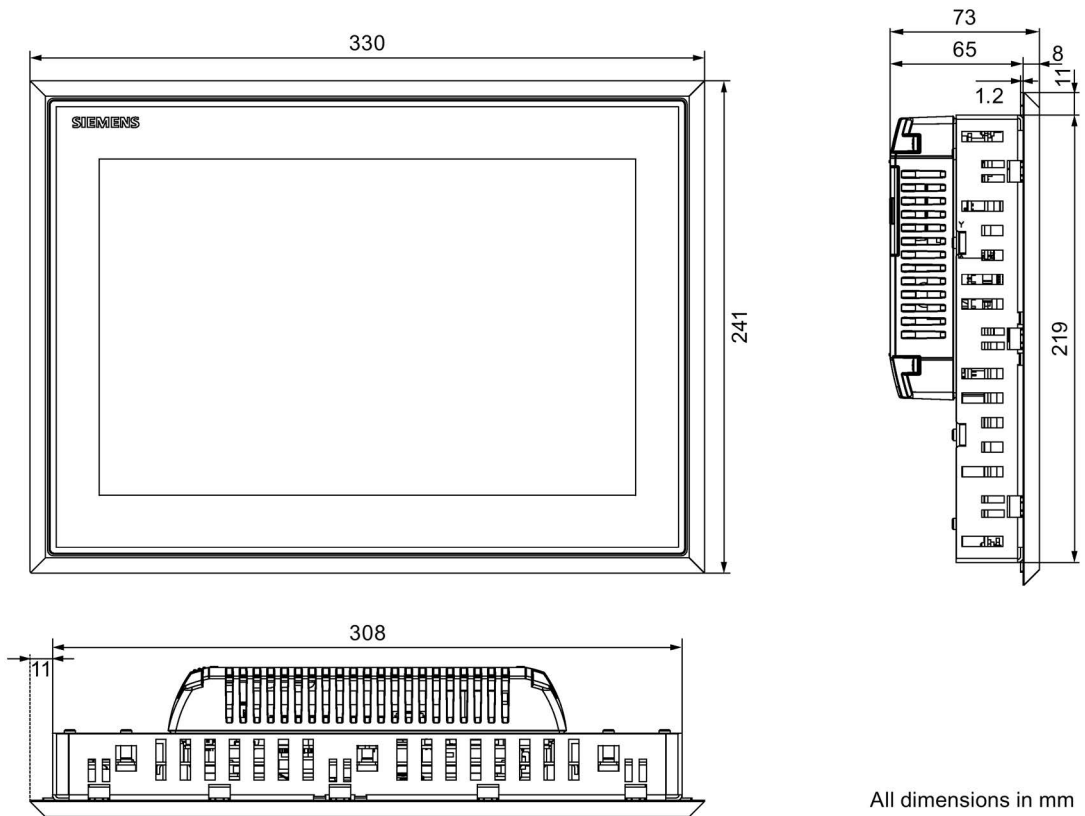
All dimensions in mm

Clamping frame

All dimensions in mm

5.8 Technical specifications

Weight

Weight	TP700 Comfort INOX PCT	TP900 Comfort INOX PCT	TP1200 Comfort INOX PCT
including clamping frame, gasket and mounting clips, without packaging	2.5 kg	2.9 kg	4.2 kg

Display

Comfort HMI devices	TP700 Comfort INOX PCT	TP900 Comfort INOX PCT	TP1200 Comfort INOX PCT
Type	LCD TFT with extended viewing angle		
Touch screen (capacitive)	Yes		
Active display area	7.0" 152 mm x 91 mm	9.0" 195 mm x 117 mm	12.1" 261 mm x 163 mm
Resolution	800 x 480 pixels		1280 x 800 pixels
Possible colors	Up to 16 million		
Brightness control	Yes, value range 0 to 100 [1], 0 = backlighting off		
Backlighting Half Brightness Life Time (MTBF [2])	LED 80000 h		
Pixel error class in accordance with ISO 9241-307	I		

[1]   Via WinCC: Complete value range, via Control Panel: Low limit up to 100

[2]   MTBF: Operating hours after which the maximum brightness is reduced by half compared to the original value. MTBF is increased by using the integrated dimming function, for example, time-controlled via screen saver or centrally via PROFIenergy.

Material

Component	Material
Front frame	Stainless steel, material number 1.4301, V2A
Front glass	Float glass, thermally pre-stressed, toughened safety glass (ESG) • Shock-resistant according to EN62262 IK08 (5J, ball drop test) • anti-glare (Gloss 85) through disk etching • not surface-coated • safe (occupational safety): Fracture pattern defined at break: disintegration into small glass particles (no sharp-edged fragments)
Mounting gasket	EPDM, 70 Shore A, black
Edge grouting	Polymer-based grouting compound

Power supply

Comfort HMI devices	TP700 Comfort INOX PCT	TP900 Comfort INOX PCT	TP1200 Comfort INOX PCT
Rated voltage	24 V DC		
Permitted voltage range	+19.2 V to +28.8 V		
Rated current	0.5 A	0.75 A	0.85 A
Rated current, load-dependent	0.5 A to 0.85 A	0.75 A to 1.05 A	0.85 A to 1.20 A
Inrush current I^{2}t	0.5 A^{2}s		
Power consumption [1]	12 W	18 W	20 W
Maximum permitted transient	35 V (500 ms)		
Minimum time between two transients	50 s		
Internal protection	Yes		

[1]   The power loss generally corresponds to the specified value for power consumption.

See also

Notes on installation (Page 21)

Technical Support

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A

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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 (https://support.industry.siemens.com/cs/ww/en/)

- Support request form (http://www.siemens.com/automation/support-request)

- After Sales Information System SIMATIC IPC/PG (http://www.siemens.com/asis)

- SIMATIC Documentation Collection (http://www.siemens.com/simatic-tech-doku-portal)

- Your local representative
  (http://www.automation.siemens.com/mcms/aspa-db/en/Pages/default.aspx)

- Training center (http://sitrain.automation.siemens.com/sitrainworld/?AppLang=en)

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

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

- MLFB of the device

- BIOS version for industrial PC or image version for HMI device

- Other installed hardware

- Other installed software

Tools & downloads

Please check regularly if updates and hotfixes are available for download to your device. The download area is available on the Internet at the following link:

After Sales Information System SIMATIC IPC/PG (http://www.siemens.com/asis)

List of abbreviations

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B

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B.1 Abbreviations

DC	Direct Current
ESD	Components and modules endangered by electrostatic discharge
EMC	Electromagnetic Compatibility
EN	European standard
FDA	Food and Drug Administration
GND	Ground
HF	High Frequency
IEC	International Electronic Commission
IP	Ingress protection
LED	Light Emitting Diode
TFT	Thin Film Transistor
UL	Underwriter's Laboratory
USB	Universal Serial Bus

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