SIEMENS

SIMATIC HMI

Industrial Flat Panels
IFP, IFP PRO, IFP ETH

Operating Instructions

11/2017
A5E31298376-AH

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

These operating instructions contain all the information you need for commissioning and operation of the SIMATIC Industrial Flat Panel IFP.

It is intended both for programming and testing personnel who commission the device and connect it with other units (automation systems, programming devices), as well as for service and maintenance personnel who install add-ons or carry out fault/error analyses.

Basic knowledge required

A solid background in personal computers and Microsoft operating systems is required to understand this manual. General knowledge in the field automation control engineering is recommended.

Scope of the operating instructions

These operating instructions apply to the following Industrial Flat Panels with the order numbers 6AV7863-.....-....:

- SIMATIC IFP1500, IFP1900, IFP2200
- SIMATIC IFP1900 ETH, IFP2200 ETH
- SIMATIC IFP1900 PRO, IFP2200 PRO

Scope of this documentation

The SIMATIC Industrial Flat Panel is supplied with the following documents:

- In printed form: Quick Install Guide for the device, Installation and Commissioning Instructions
- Electronically as PDF file on the "Documentation and Drivers" CD/DVD:
  - Operating instructions Industrial Flat Panel IFP1500, IFP1900, IFP2200, IFP1900 ETH, IFP2200 ETH, IFP1900 PRO, IFP2200 PRO
  - Operating manual SIMATIC Industry PC Panel Drivers and Tools PDT

    You can find the operating manual in the PDT installation directory after installing PDT.

Conventions

In these operating instructions, the SIMATIC IFP is also referred to as "Flat Panel" or "device".

The devices SIMATIC IFP1900 ETH and IFP2200 ETH are also referred to as "Ethernet Monitor" and "ETH version".

A touch device generally refers to a device with a touch screen, as opposed to a pure "display device". Touch screen is the general term for a capacitive multi-touch screen and resistive single touch screen.

The devices IFP1500, IFP1900, IFP2200, IFP1900 ETH and IFP2200 ETH are referred to as "built-in units".

The devices IFP1900 PRO and PRO IFP2200 are referred to as "PRO devices".

At some places in these operating instructions, the general term "Windows Embedded Standard" is used to refer to "Windows Embedded Standard 2009" and "Windows Embedded Standard 7". "Windows 7" is used as an abbreviation for "Windows 7 Ultimate".

Figures

This manual contains figures of the described devices. The supplied device may differ in some details from the figures. Within some of the figures, one device is used to represent all Industrial Flat Panels.

History

The following earlier release versions of these operating instructions have been published:

Edition	Comment
09/2012	First Edition
06/2014	Description of devices with capacitive multi-touch screen
11/2014	Update with IPC Wizard 2.1 and corrections
06/2015	The description of the following devices has been added: • SIMATIC IFP1900 PRO for pedestal (extendable, flange bottom) • SIMATIC IFP1900 PRO for support arm (not extendable, flange top) • SIMATIC IFP1900 ETH, IFP2200 ETH
07/2015	Corrections
07/2016	The description of the following devices has been added: • SIMATIC IFP1900 PRO for support arm (extendable, round tube) • SIMATIC IFP2200 PRO for pedestal (extendable, flange bottom) • SIMATIC IFP2200 PRO for support arm (not extendable, flange top) • SIMATIC IFP2200 PRO for support arm (extendable, round tube)
11/2016	Additions: • System components for PRO devices: Extension Unit • Mounting of PRO devices for support arm (extendable, round tube) on a 48.3 mm round tube • Information on USB interfaces of Ethernet Monitors • Information about standards, certificates and securing of cables for Ex approval
11/2017	Corrections SIMATIC IFP1900 PRO and SIMATIC IFP2200 PRO: Dimensions for die-cast aluminum housing updated.

Table of contents

IFP, IFP PRO, IFP ETH
Operating Instructions, 11/2017, A5E31298376-AH

Overview

1.1 Product description

SIMATIC Industrial Flat Panels are LCD monitors suitable for industrial use with a brilliant TFT display which can be connected to all SIMATIC IPCs as well as almost all generally available PCs.

Features of the built-in units

- Rugged front
- Brilliant TFT display with a wide reading angle;

  Resistive single touch screen in sizes 15", 19" and 22"

  Capacitive multi-touch screen available in sizes 15", 19" and 22"
- Available as pure display device (monitor) or touch device
- Can be placed up to 5 m from the IPC
- DVI-D and DisplayPort V1.1 interface
- Multi-monitoring support
- Backlighting can be dimmed via software
- 24 V DC power supply
- Degree of protection IP65 in installed state
- Enclosure type: Front face only Type 4X/Type 12 (indoor use only)
- Up to 16 million colors

Additional features of the Extended versions

- Up to 30 m away from PC possible via DVI
- Power supply (with USB) 24 V DC and 100-240 V AC
- 2 USB ports
- Also available as touch/key version with front USB interface

Additional features of the PRO devices
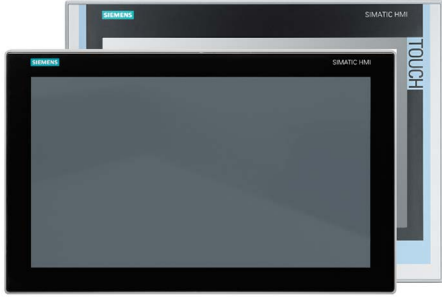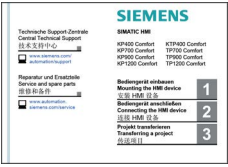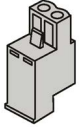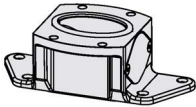
- All-round dust-proof and splash-proof with IP65 degree of protection and Enclosure Type 4X / 12 (indoor use only)
- Can be mounted directly on the machine
- 19" display, 22" display; capacitive multi-touch screen
- Device versions for mounting:
  - IFP PRO for pedestal (extendable, flange bottom)
  - IFP PRO for support arm (not extendable, flange top)
  - IFP PRO for support arm (extendable, round tube)

  Adapters and adapter sets that can be ordered separately support mounting systems from various manufacturers.
  - Basic adapter, included in the product package of PRO devices for pedestal (extendable, flange bottom) and for support arm (not extendable, flange top).
  - With PRO devices for support arm (extendable, round tube):

    - Cover for the mechanical interface below, included in the product package

    - Flange mount available as accessory
- Can be placed up to 30 m away via DVI
- 2 USB ports

Additional features of the Ethernet Monitors

- Configuration and operation in the Ethernet/LAN network
- Length of the Ethernet/LAN connection as customary with conventional LAN technology
- Automatic establishment of connection to SIMATIC IPC
- Automatic configuration using 1:1 cable connection
- Ethernet Monitor software and monitor diagnostic function

1.2 Scope of delivery

The product package includes the following components:

Name	Figure	Number
Industrial Flat Panel		1
Installation instructions (Quick Install Guide)		1
Accessory kit "Mounting clips [1] and power supply connector"		12
		1
"Connecting cables" accessory kit [1]	DVI connecting cable or DisplayPort connecting cable; 2 m in length, for commissioning	1
	USB connecting cable, 2 m in length[2]	1
	Ethernet connecting cable, 2 m in length[3]	1
	Power supply cable 230 V AC [4]	1
Base adapter [5]		1
Cover for mechanical interface [6]		1
"Documentation and Drivers" CD		1

[1]   Not with PRO devices
[2]   Not with standard display device (monitor)
[3]   Only with devices of the Ethernet Monitor type
[4]   Only with devices with AC power supply
[5]   Only with PRO devices for pedestal (extendable, flange bottom) and
      for support arm (not extendable, flange top)
[6]   Only with PRO devices for support arm (extendable, round tube)

1.3   Design of the built-in units

1.3.1   IFP1500/1900/2200 Multitouch, IFP1900/2200 ETH

This section describes the design of the multi-touch devices, using the IFP1900 Multitouch as an example.

Front view and bottom view

①   Display/touch screen
②   Recesses for mounting clips
③   Mounting seal
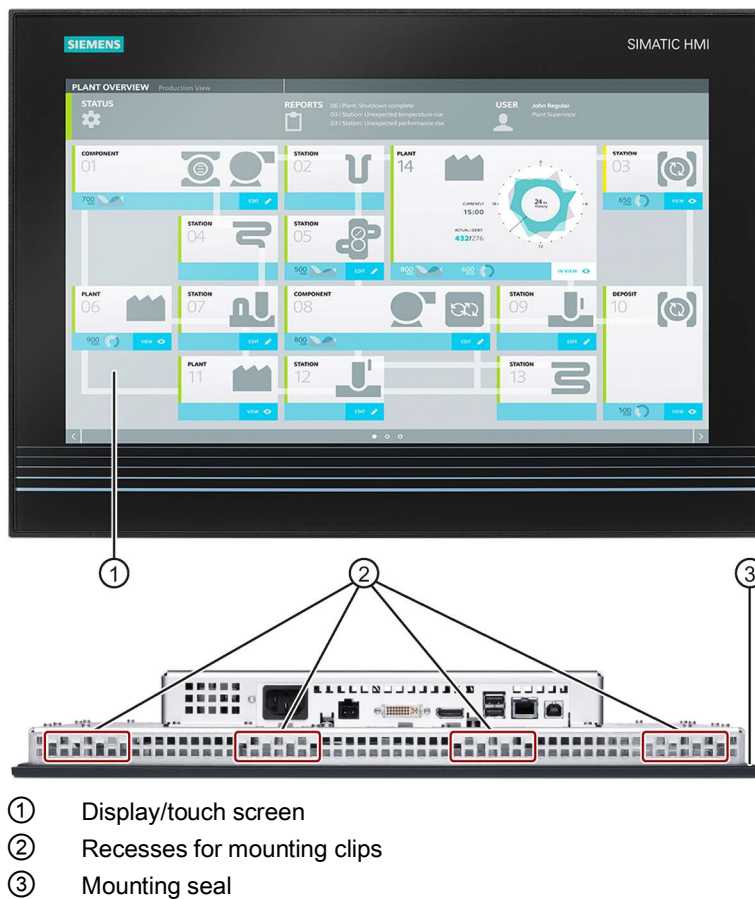
Rear view
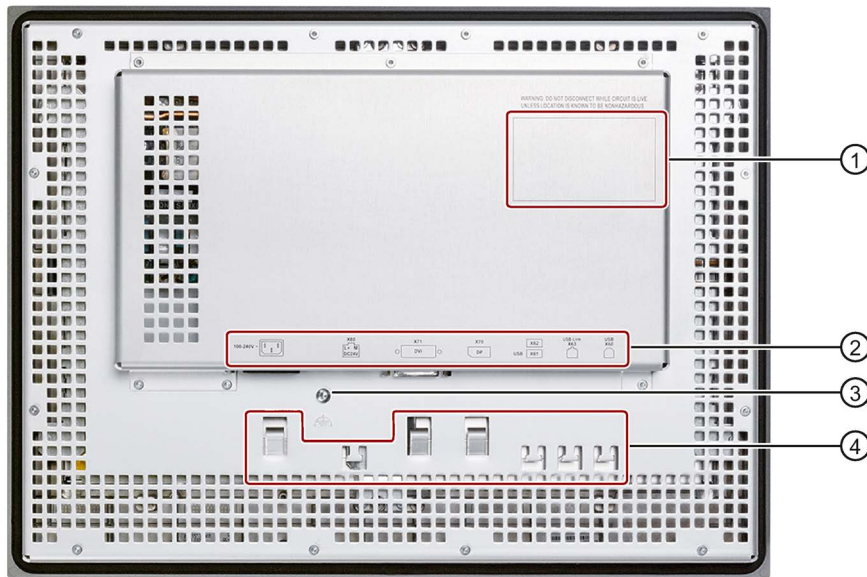
①   Rating plate

②   Interface name

③   Equipotential bonding

④   Retaining elements for strain relief of the connecting cables

1.3.2   IFP1500/1900/2200 Touch

This section describes the design of the monitor and touch devices, using the IFP1500 Touch as an example.

Front view and side view
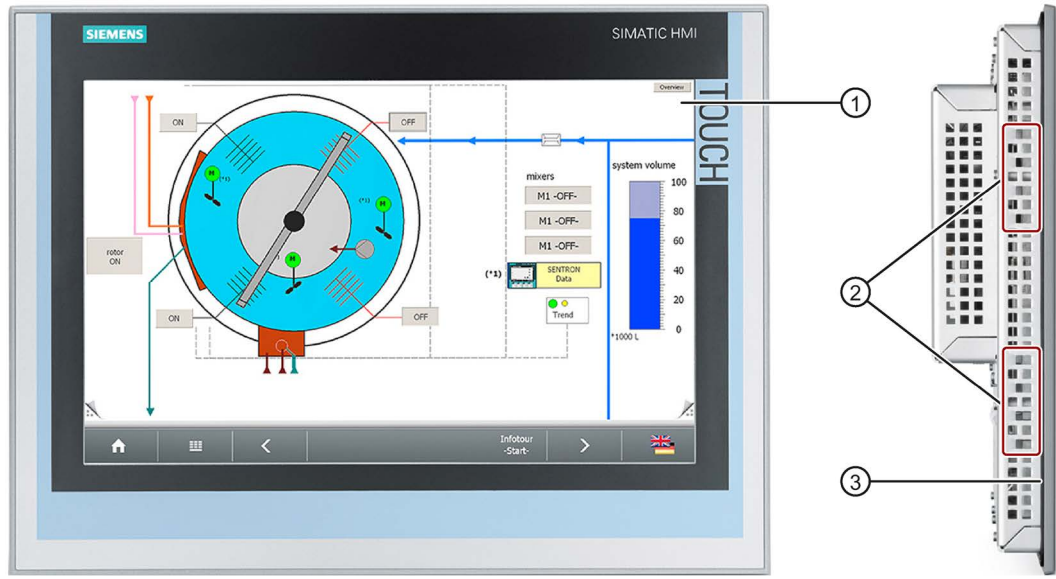
①   Display/touch screen
②   Recesses for mounting clips
③   Mounting seal

Rear view

See section "IFP1500/1900/2200 Multitouch".

1.3.3   IFP1500 Touch/Key

Front view
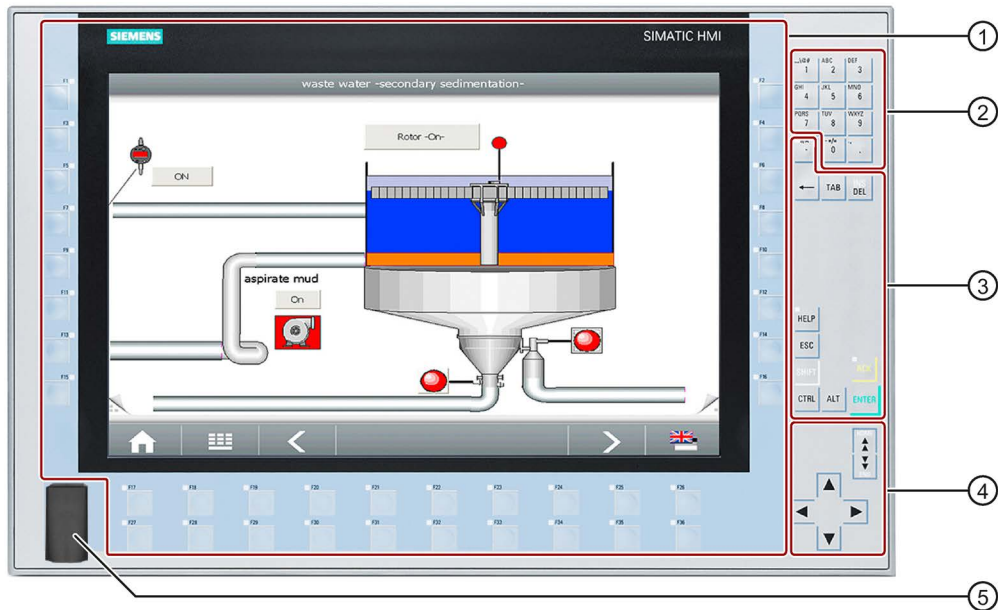
①   Display and function keys with LED
②   Alphanumeric keys
③   Control keys
④   Cursor keys
⑤   USB port

1.3.4   Interfaces

1.3.4.1   Standard versions

Monitor Standard

Touch Standard

①   X80 connector for 24 V DC power supply
②   X71 DVI-D interface
③   X70 DisplayPort interface
④   X60 USB Type B

1.3.4.2   Ethernet Monitor devices
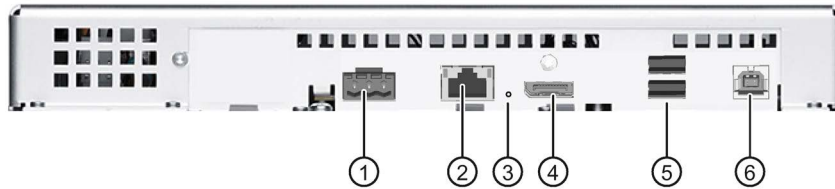
①   X80 connector for 24 V DC power supply
②   X1 Ethernet port
③   Reset button
④   X70 DisplayPort interface
⑤   X61/X62 USB Type A
⑥   X60 USB Type B

1.3.4.3   Extended versions

Touch-Variante
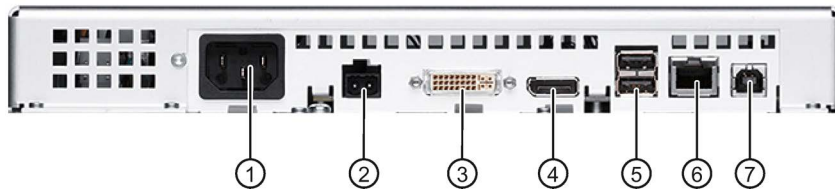
Touch/Key-Variante

① Connection for 100 to 240 V AC power supply   ⑤ X61/X62 USB Type A
② X80 connector for 24 V DC power supply   ⑥ X63 USB link interface
③ X71 DVI-D interface   ⑦ X60 USB Type B
④ X70 DisplayPort interface

1.4 Design of the PRO devices

1.4.1 PRO devices for support arm (not extendable, flange top)

The following figures show the design of the devices using the IFP1900 PRO for support arm (not extendable, flange top) as an example.

Front view and side view

① Display with touch screen
② Enclosure
③ Backplane cover

Top view
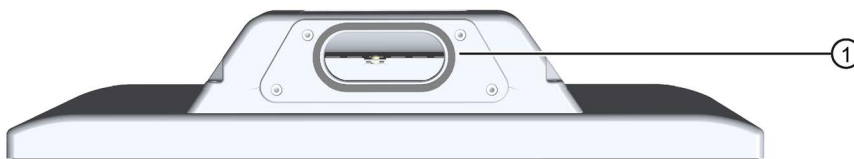
① Mechanical interface for fastening

Rear view
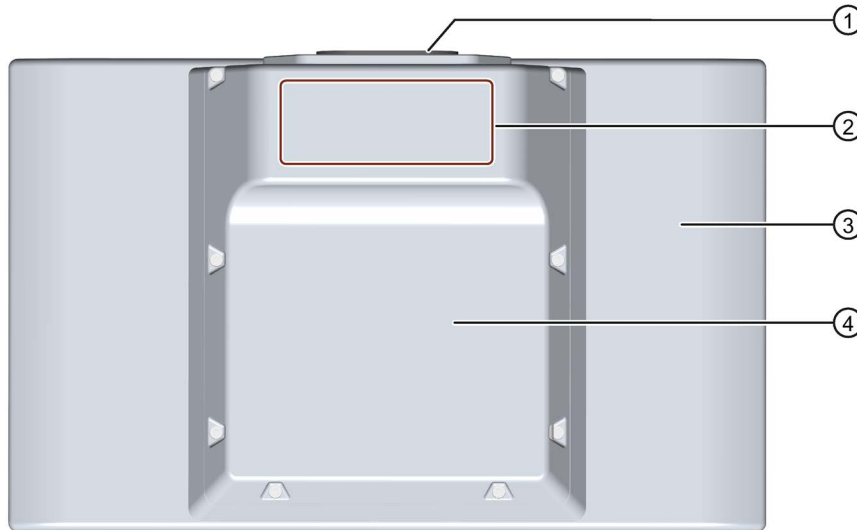
① Mechanical interface for fastening
② Rating plate
③ Enclosure
④ Backplane cover

1.4.2 PRO devices for pedestal (extendable, flange bottom)

The following figures show the design of the devices using the IFP1900 PRO for pedestal (extendable, flange bottom) as an example.

Front view and side view

① Display with touch screen
② Enclosure
③ Backplane cover

Bottom view

①   Mechanical interface for fastening

Rear view
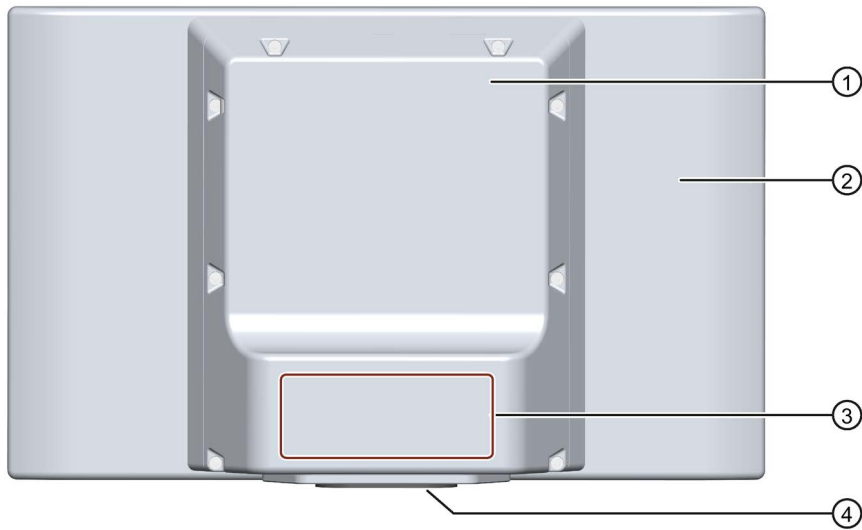
①   Backplane cover
②   Enclosure
③   Rating plate
④   Mechanical interface for fastening

1.4.3   PRO devices for support arm (extendable, round tube)

The following figures show the design of the devices using IFP1900 PRO for support arm (extendable, round tube) as an example.

Front view and side view
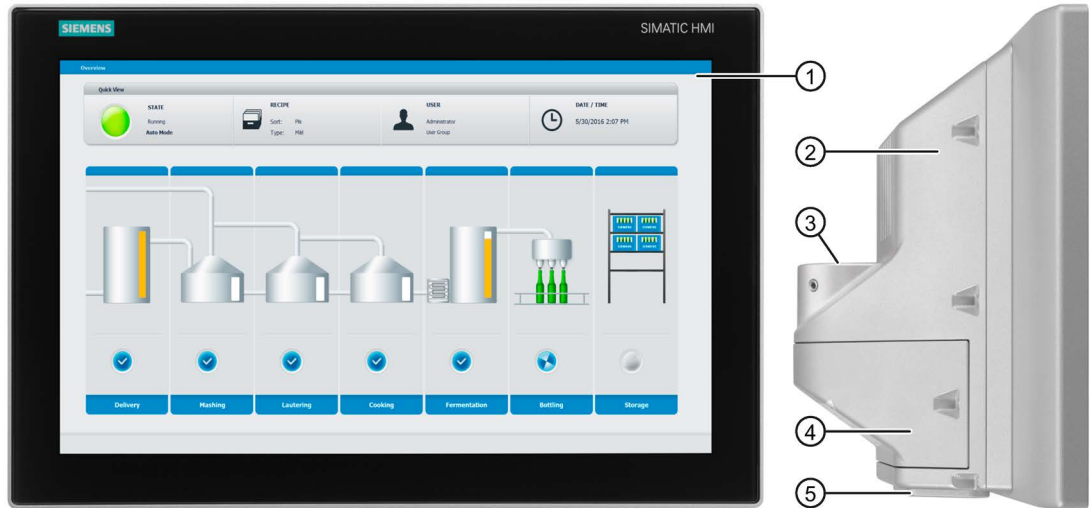
①   Display with touch screen
②   Enclosure
③   Mechanical interface for fastening (round tube)
④   Terminal compartment cover
⑤   Mechanical interface below

Rear view

①   Mechanical interface for fastening (round tube)
②   Terminal compartment cover
③   Nameplate
④   Mechanical interface below
⑤   Lower cover, included in the product package

1.4.4   Interfaces
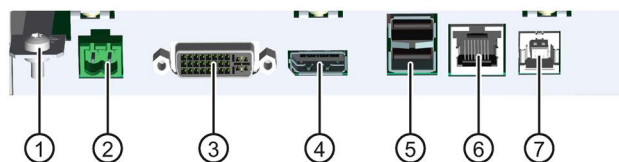
①	Protective conductor terminal	⑤	X61/X62 USB Type A
②	X80 connector for 24 V DC power supply	⑥	X63 USB link interface
③	X71 DVI-D interface	⑦	X60 USB Type B
④	X70 DisplayPort interface		

1.5 System components and accessories

System components are products that have been developed for a specific system and can not be used in general, for example, like the base adapter. System components are always directly related to a core product.

Accessories can typically be used for multiple devices from the same or different device families, for example, batteries, touch pens or protective membranes.

1.5.1 System components for PRO devices

Base adapter

You use the base adapter to mount PRO devices for support arm (not extendable, flange top) or for pedestal (extendable, flange bottom) on the support arm or on the pedestal. A base adapter is included with the product package of the corresponding PRO device. The base adapter can also be ordered separately.
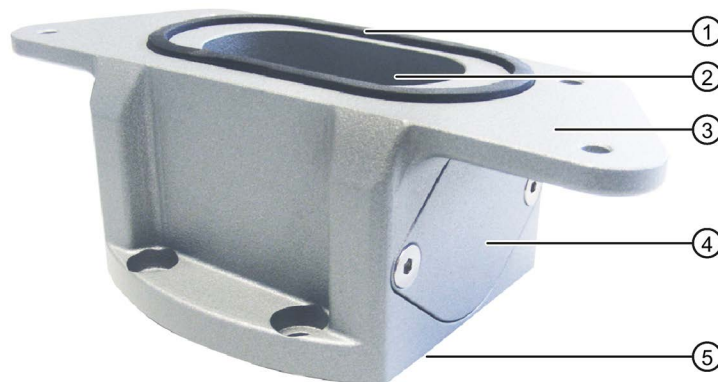
①   Seal
②   Channel cable
③   Mechanical interface to the PRO device
④   Cover
⑤   Mechanical interface to the support arm or pedestal including seal

Article number: 6AV7674-1KA00-0AA0

Adapter sets and couplings

The following mechanical adapter versions are also available for mounting a PRO device for support arm (not extendable, flange top) or for pedestal (extendable, flange bottom) via the base adapter:

- A Siemens VESA adapter set for VESA compatible systems

- Manufacturer-specific adapters or couplings

The following table shows the available Siemens adapter sets and examples of vendor-specific adapter versions:

Adapter version	Suitable for supporting arm systems	Article number
SIEMENS		
• Adapter set VESA75	VESA75-compatible systems	6AV7674-0KE00-0AA0
• Adapter set VESA100	VESA100-compatible systems	6AV7674-0KD00-0AA0
RITTAL		
Adapter for Siemens PRO Panel • Intermediate plate • Screws	• CP40 steel • CP60/120 for support arm connection 120 × 65 mm	6206.500
ROLEC		
Adapter for Siemens PRO Panel • Intermediate plate • Screws	• profiPlus-50 • taraPLUS for ∅ 65 mm hole circle	142.024.000
BERNSTEIN		
Coupling for Siemens SIMATIC PRO • No intermediate plate required • Coupling with integrated adaptation for PRO devices	• CS-3000	• 1015300187 RAL 9006 White aluminum • 1015300043 RAL 7016 Anthracite grey

All information subject to change.

Flange mount adapter

A flange mount adapter is available for mounting a PRO device for support arm (extendable, round tube).
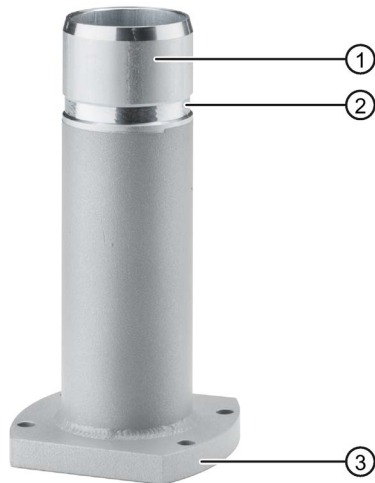
①	Flange mount adapter
②	Ring groove for fastening on PRO device with setscrews
③	Mechanical interface to support arm

Article number: 6AV7674-1KF00-0AA0

Extension components - Extension Unit

The Extension Unit is used to install additional operator controls below a SIMATIC PRO device for pedestal (extendable, flange bottom) or for support arm (extendable, round tube).

By way of example, the figure below shows the Extension Unit 22" with eight operator controls including Emergency Stop button.

The operator controls on the Extension Units can be customized. The Extension Units come without operator controls. The possible mounting spaces are prepared for installation of operator controls.

The Extension Units are available in four sizes:

● Extension Unit 12"

● Extension Unit 15"

● Extension Unit 19"

● Extension Unit 22"

In each Extension Unit size, you have the flexibility to choose between the following interface variants for connection to the system:

● Hardwired

● PROFINET

● PROFIsafe

In addition, different operator controls, such as Emergency Stop pushbutton, selector switch, illuminated pushbutton, keyswitch, indicator light and RFID reader, are available.

Note

Only operator controls with Siemens approval may be installed in the Extension Unit.

Additional information

You can find additional information on system components for full-enclosed IP65-protected devices on the Internet (https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10268745).

1.5.2 Accessories

Introduction

This section contains the number of accessories available at the time of publication of the operating instructions. You will find additional accessories on the Internet at:

All Industrial Flat Panels

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

- Expansion components and accessories (http://www.automation.siemens.com/mcms/pc-based-automation/en/industrial-pc/expansion_components_accessories)

- Ethernet cable accessories (https://support.industry.siemens.com/cs/ww/en/view/98278804)

Name	Specification	Article number
DVI line	3 m long	6AV7860-0BH30-0AA0
	5 m long	6AV7860-0BH50-0AA0
DisplayPort line	3 m long	6AV7860-0DH30-0AA0
	5 m long	6AV7860-0DH50-0AA0
USB line	3 m long	6AV7860-0CH30-0AA0
	5 m long	6AV7860-0CH50-0AA0
Protective foil for the touch screen	15"	6AV2124-6QJ00-0AX0
	19"	6AV2124-6UJ00-0AX0
	22"	6AV2124-6XJ00-0AX0
Touch pen	For resistive touch screen	6AV7672-1JB00-0AA0
	For capacitive and resistive touch screen	6AV2181-8AV20-0AX0

Built-in units

Name	Specification	Article number
Mounting clips service pack	20 pieces	6AV6671-8XK00-0AX3
Mounting brackets service pack	2 x 8 latch fasteners	6AV7672-1JC00-0AA0

Extended version

Name	Specification	Article number
Cable set (DVI/USB cable)	10 m long	6AV7860-1EX21-0AA1
	15 m long	6AV7860-1EX21-5AA1
	20 m long	6AV7860-1EX22-0AA1
	30 m long	6AV7860-1EX23-0AA1

Touch/Key Extended version

Name		Article number
Film for labeling the function keys (slide-in labels)	Print templates for the slide-in labels are available on the "Documentation and Drivers" CD/DVD.	6AV7672-0DA00-0AA0

Ethernet Monitors

Name	Specification	Article number
Recommended Ethernet RJ45 cables (selection)	TP Cord RJ45/RJ45, 15 m	6XV1870-3QN15
	TP Cord RJ45/RJ45, 20 m	6XV1870-3QN20
	TP Cord RJ45/RJ45, 30 m	6XV1870-3QN30
	TP Cord RJ45/RJ45, 50 m	6XV1870-3QN50

Additional Ethernet cables: See link "Accessories Ethernet cables" at the beginning of this section.

Safety information

2

2.1   General safety instructions

The device is designed for use in the industrial sector for operating and monitoring plant processes.

Machinery Directive

⚠ WARNING
The device may only be used in machines which comply with the Machinery Directive The Machinery Directive specifies precautions to be taken when commissioning and operating machinery 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.

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.

Additional notes for built-in units

⚠ WARNING
The rear of the device constitutes open equipment.
The rear of the device constitutes open equipment. This means that the device may only be installed in an enclosure or cabinet which provides front access for operating the device. The enclosure, the cabinet or the electrical operating rooms must provide protection against electric shock and the spread of fire. The requirements regarding the mechanical strength must also be taken into account.
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 authorized 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.
If you touch these areas or components, you may be killed by electric shock.
Always disconnect the control cabinet from the mains before opening it. Do **not** plug in or pull out the system component during operation.

ESD

An electrostatically sensitive device is equipped with electronic components. Due to their design, electronic components are sensitive to overvoltage and thus to the discharge of static electricity. Note the corresponding regulations when handling ESD.

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.

See also

Technical Support (https://support.industry.siemens.com)

2.2 Notes about usage

NOTICE
HMI device approved for indoor use only
The HMI device may be damaged if operated outdoors.
Operate the HMI device indoors only ("Indoor use 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

24 V DC devices

The device is intended for operation in an SELV circuit according to IEC/EN 61010-2-201 in a dry environment, which means for the various device types:

- Built-in units: dry environment on the rear of the device
- PRO devices: dry environment inside the housing

Additional information is available in the section "Operating conditions (Page 111)".

Industrial applications

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

- Requirements for emissions EN 61000-6-4: 2007
- 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 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

Reducing vibrations

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

We recommend mounting the device on damping materials, such as rubber-metal vibration dampers.

Risk analysis and measures

> ⚠ **WARNING**
>
> **Hazards emanating from unprotected machines or plants**
>
> The results of a risk analysis can reveal any hazards emanating from unprotected machinery. Such hazards may pose a risk of personal injury.
>
> You can prevent personal injury caused by hazards as specified in the risk analysis by taking the following measures:
>
> - Installing additional protective devices on machinery and plants. In particular, it must also be ensured that the programming, configuration and wiring of all I/Os used takes place in accordance with the safety performance (SIL, PL or Cat.) identified by the requisite risk analysis.
> - Use of the device in accordance with its intended purpose, which can be verified by means of a system function test. This test can detect programming, configuration and wiring errors.
> - Documentation of the test results, which must be entered in the relevant safety reports if required.

Environment

NOTICE
Ambient conditions and chemical resistance
Ambient conditions not suited for the device can adversely affect operation. Chemical agents, such as detergents or operating material, can change the color, shape and structure of the device surface. The device may be damaged. This may lead to malfunctions. For this reason, the following precautionary measures should be taken: • Only operate the device in closed rooms. Failure to comply with these instructions will render the warranty null and void. • Only operate the device in the ambient conditions specified in the technical specifications. • Protect the device against dust, moisture and heat. • The device may not be used in harsh operating environments, such as areas subject to acidic vapors or gases, without additional protective measures (e.g. a clean air supply). • Only use suitable detergents. Read the information about Chemical resistance of the HMI devices and industrial PCs (http://support.automation.siemens.com/WW/view/en/39718396) on the Internet.

TFT displays

NOTICE
Burn-in effect, backlighting
A permanent picture with bright screen objects can have a burn-in effect. An outline of the image is displayed for a while; the longer the image has been burnt-in, the longer the outline will be visible. In severe cases, the outline of the image will remain on the screen permanently. The image outline usually disappears on its own when the screen remains switched off for some time or when it shows changing content as with screen savers. Screen savers that use active black when the backlight is on reduce the burn-in effect. • Switch on the screensaver. The brightness of the backlight decreases incrementally during operational life. You can extend the service life of the display and the backlight with the following measures: • Reduce the backlight. • Pay attention to the length of time the backlight is activated. Additional information is available in the section "Technical specifications (Page 107)".

Defective pixels in the display

The manufacturing process of modern displays does not currently guarantee that all pixels of the display are perfect. It is therefore inevitable that the display will contain a small number of defective pixels. This does not limit the function in any way provided the defective pixels are not all in one location.

Additional information is available in section "Technical specifications (Page 107)".

2.3 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**
>
> If you plug in or pull out the connector during operation, there is a risk of sparkover. An explosion can be triggered in the hazardous area due to sparkover, and death or serious bodily injury can occur.
>
> Plugging or pulling connectors, such as a 24 V DC power supply plug, is **prohibited** in the potentially explosive atmosphere.
>
> Only plug or pull a connector when one of the following two conditions 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 85)".

Installing and connecting the device

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

3.1 Preparing for installation

3.1.1 Checking the delivery package

Procedure

1. When accepting a delivery, please check the packaging for visible transport damage.

2. If any transport damage is present at the time of delivery, lodge a complaint at the shipping company in charge. Have the shipper confirm the transport damage immediately.

3. Unpack the device at its installation location.

4. Keep the original packaging in case you have to transport the unit again.

   Note

   Damage to the device during transport and storage

   If a device is transported or stored without packaging, shocks, vibrations, pressure and moisture may impact the unprotected unit. Damaged packaging indicates that ambient conditions have already had a massive impact on the device and it may be damaged.

   This may cause the device, machine or plant to malfunction.
   - Keep the original packaging.
   - Pack the device in the original packaging for transportation and storage.

5. Check the contents of the packaging and any accessories you may have ordered for completeness and damage.

6. Please inform the delivery service immediately if the package contents are incomplete or damaged or do not correspond with your order. Fax the enclosed form "SIMATIC IPC/PG Quality Control Report".

⚠ **WARNING**

Electric shock and fire hazard due to damaged device

A damaged device can be under hazardous voltage and trigger a fire in the machine or plant. A damaged device has unpredictable properties and states.

Death or serious injury could occur.

Make sure that the damaged device is not inadvertently installed and put into operation. Label the damaged device and keep it locked away. Send off the device for immediate repair.

NOTICE
Damage from condensation
If the device is subjected to low temperatures or extreme fluctuations in temperature during transportation, as is the case in cold weather, for example, moisture can build up on or inside the device (condensation).
Moisture causes a short circuit in electrical circuits and damages the device.
In order to prevent damage to the device, proceed as follows:
• Store the device in a dry place.
• Bring the device to room temperature before starting it up.
• Do not expose the device to direct heat radiation from a heating device.
• If condensation develops, wait until the device is completely dry before switching it on.

7. Please keep the enclosed documentation in a safe place. It belongs to the device. You need the documentation when you commission the device for the first time.

8. Write down the identification data of the device.

3.1.2 Built-in unit

3.1.2.1 Permitted mounting positions

The device is suitable for installation in:

- Mounting cabinets

- Control cabinets

- Switchboards

- Consoles

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

The device is self-ventilated and approved for inclined mounting at angles up to +/-35° from the vertical.

NOTICE
Damage due to overheating
Inclined installation reduces the convection by the device and therefore the maximum permitted ambient temperature for operation.
If there is sufficient convection from forced ventilation, the device can also be operated in the inclined mounting position up to the maximum permitted ambient temperature for vertical installation. The device may otherwise be damaged and its certifications and warranty will be rendered null and void.
The ambient temperature ranges listed in this section apply to the temperature inside the cabinet.

For information on permitted ambient temperatures, refer to the section Technical specifications (Page 107).

Mounting position

Select one of the approved mounting positions for your device. The approved mounting positions are described in the following sections.

Mounting in horizontal format

All devices are suitable for horizontal mounting positions.
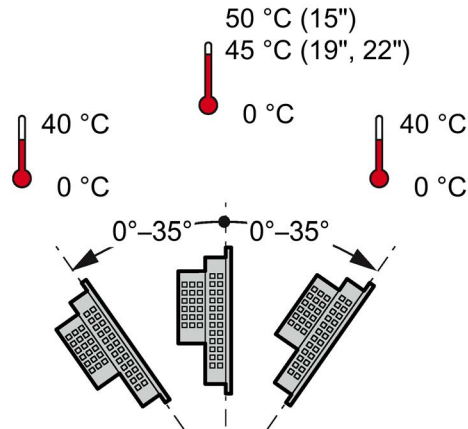
A maximum ambient temperature of +50 °C is permitted for vertical mounting of the IFP1500 (0° tilt angle) in the cabinet; a maximum of +40 °C is permitted for inclined mounting.

The ambient temperature for the IFP1900 and IFP2200 when installed vertically should not exceed +45 °C in the cabinet.

Mounting in vertical format

All monitor and touch versions also support vertical mounting.
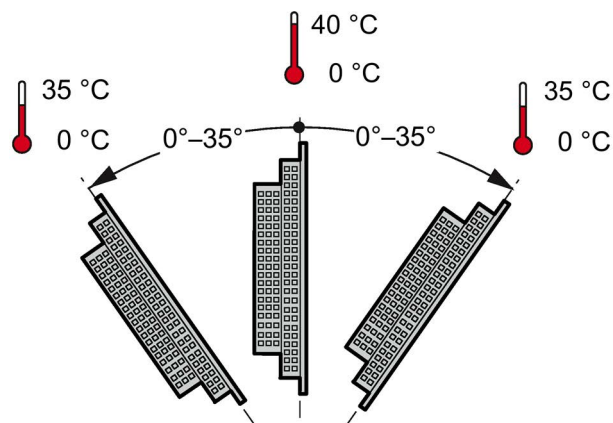
A maximum ambient temperature of +40 °C is permissible for vertical mounting (0° tilt angle); a maximum of +35 °C is permitted for inclined mounting.

3.1.2.2 Checking clearances

The following clearances are required around the device to ensure adequate self-ventilation:

- At least 15 mm to the right and left of the mounting cutout (in x direction) to allow for insertion of the mounting clips during installation

- At least 50 mm above and below the mounting cutout (in y direction) for ventilation

- At least 10 mm behind the rear panel of the device (in z direction)

The figure below shows the clearances required with horizontal and vertical installation of the device:
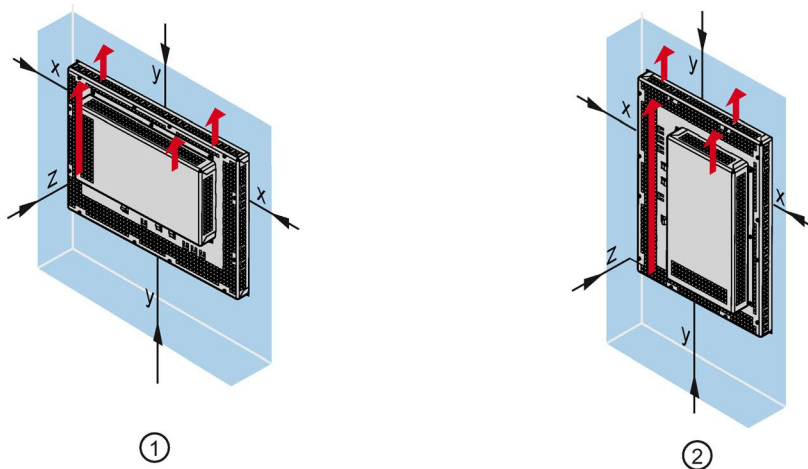
①	Clearance for horizontal installation (all devices)
②	Clearance for vertical installation (monitor and touch versions only)
x	At least 15 mm distance
y	At least 50 mm distance
z	At least 10 mm distance

Note

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

3.1.2.3 Preparing the mounting cutout

Note

Stability of the mounting cutout

The material in the area of the mounting cutout must be sturdy enough to ensure permanent safe mounting of the device.

To achieve the degrees of protection described below, it must be ensured that deformation of the material cannot occur due to the force of the mounting clips or operation of the device.

Degrees of protection

The various degrees of protection of the device can only be guaranteed if the following requirements are met:

- To achieve the degree of protection specified in the technical specifications: Material thickness at the mounting cut-out: 2 mm to 6 mm

- Permitted deviation from plane at the mounting cutout: ≤ 0.5 mm

    This condition must also be met for the installed device.

- Permissible surface roughness in the area of the seal: ≤ 120 µm (R_z 120)

Dimensions of the mounting cutout
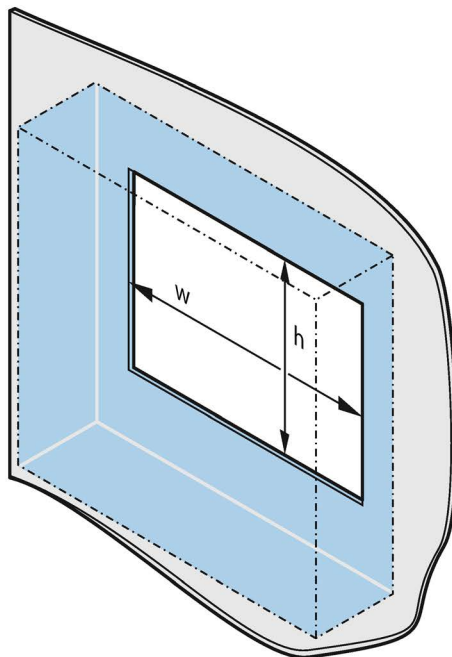
	w^{+1}_{0}	h^{+1}_{0}
IFP1500 Monitor/Touch	396	291
IFP1500 Multitouch	398	279
IFP1900 Monitor/Touch/Multitouch IFP1900 ETH	465	319
IFP2200 Monitor/Touch/Multitouch IFP2200 ETH	542	362
IFP1500 Touch/Key	450	291

Width and height should be reversed accordingly when mounting in vertical format.

3.1.2.4 Labeling the function keys

Use labeling strips for project-related labeling of the function keys of your device.

Labeling strip templates are available in a Word document on the Internet at:

Labeling strips for 15" widescreen
(http://support.automation.siemens.com/DE/view/en/59000814)

If you would like to make your own labeling strips, you can find the dimensions under "Dimensions for labeling strips (Page 106)".

Note

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

Any printable and writable film can be used as labeling strip. The permitted thickness of the labeling strip is 0.15 mm. Do not use paper labeling strips.

Procedure

Proceed as follows:

1. Edit the template on a PC and then print it.

2. Apply a fixation spray film to the labeling strips.

   The printout can be made water and smudge-proof with a fixation spray. The color printer ink will not bleed onto the keyboard film as well.

3. Cut out the labeling strip.

4. Cut the corners at a 45° angle so that it is easier to slide the strip into the slot.

5. When the ink has dried, slide the labeling strips into the guide leaving a 3 cm clearance at the end.

The figure below shows the positions of the guides for the labeling strips of the 15"
Touch/Key version.
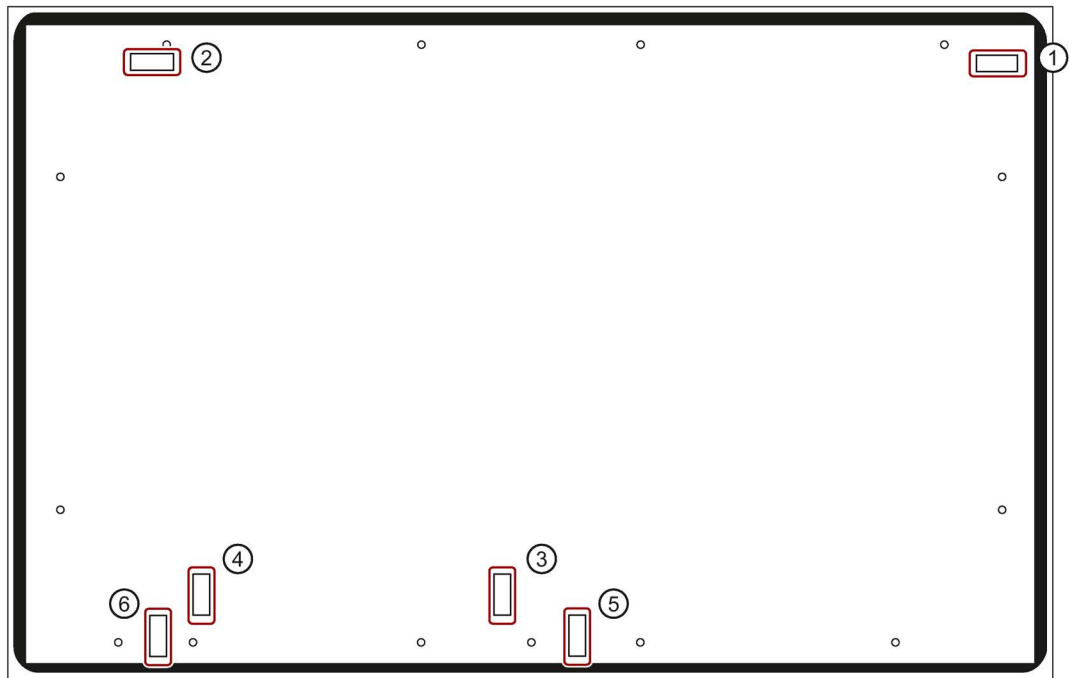
① Guide for labeling strips F1, F3 ... F15
② Guide for labeling strips F2, F4 ... F16
③ Guide for labeling strips F17 ... F22
④ Guide for labeling strips F23 ... F26
⑤ Guide for labeling strips F27 ... F31
⑥ Guide for labeling strips F32 ... F36

Result

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

When installing the device, make sure that the labeling strips do not get jammed between
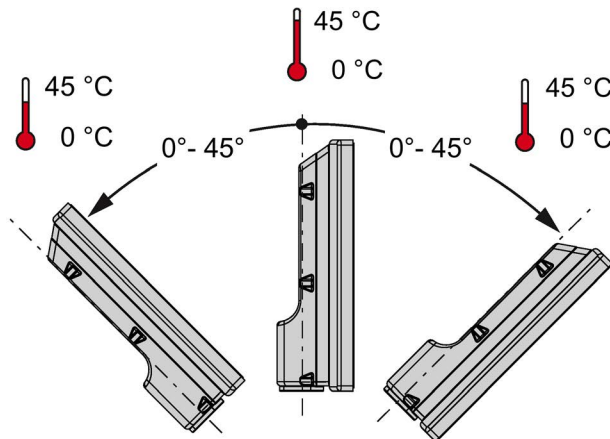the mounting cutout and the device.

3.1.3 PRO devices

3.1.3.1 Permitted mounting positions

The device is intended for mounting on a support arm or stand.

The figure below shows the permitted mounting positions and the associated ambient temperatures using a device for stand mounting as an example.

3.2 Installing the built-in unit

3.2.1 Notes on installation

Before installing the device, please ensure that the installation location complies with the following:

| ⚠ WARNING |
|---|
| **Risk of fire** |
| The device is classified as "Open Type" for use in the area of industrial control equipment in accordance with UL508 and IEC 61131-2. In the event of overheating, the device may discharge burning materials that can cause a fire. |
| Keep in mind:
• The installation of the device in an enclosure conforming to UL508/IEC 61131-2 is a mandatory requirement for approval and operation in accordance with UL508/IEC 61131-2.
• The installation of the device in an enclosure conforming to paragraphs 4.6 and 4.7.3 of the standards IEC/UL/EN/DIN-EN 60950-1 is a mandatory requirement for approval and operation in accordance with IEC/UL/EN/DIN-EN 60950-1. |

- Ensure that the protective contact socket of the building installation is easily accessible and that there is a mains disconnect switch in switchgear cabinet installations.

- Position the device so that it is not exposed to direct sunlight.

- Position the device so that it is easily accessible for the operator.

- Choose a suitable installation height.

- Ensure that the air vents of the device are not covered as a result of installation. Note the permitted mounting positions.

3.2.2 Mounting clips or mounting brackets, position for IP65

Types of mounting clips and mounting brackets

You can mount the device as follows:

- Device with 15", 19" or 22" display:

  with 12 steel mounting clips (included in the product package and available as accessories)
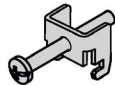
- Device with 15", 19" or 22" display:

  With 6 mounting brackets (available as accessories)
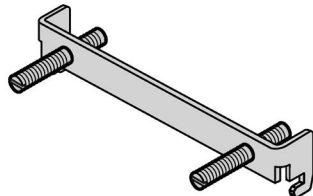
See also section "Accessories (Page 27)".

Positions of the mounting clips or mounting brackets for IP65

To achieve the IP65 degree of protection for the device, the mounting clips or brackets must be affixed at the positions shown below.

Device	Position
Touch screen device with: • 15" display • 19" display • 22" display	
Touch/key device with: • 15" display	

3.2.3   Fastening the device with mounting clips or mounting brackets

Requirement

- All packaging components and protective films have been removed from the device.
- The mounting clips included in the accessory kit are to hand.

Procedure

Note

If the mounting seal is damaged, the degree of protection is not guaranteed.

Proceed as follows:

1. Working from the front, insert the device into the mounting cut-out. Secure the device to prevent it from falling out.

2. Insert a mounting clip into the cutout provided on the device. Make sure it is in the correct position; see the section "Mounting clips or mounting brackets, position for IP65 (Page 45)".

3. Tighten the threaded pin to secure the mounting clip. The maximum torque when tightening the threaded pins of the mounting clips is 0.5 Nm.

4. Repeat steps 2 and 3 for all mounting clips.

5. Check the fit of the mounting seal.
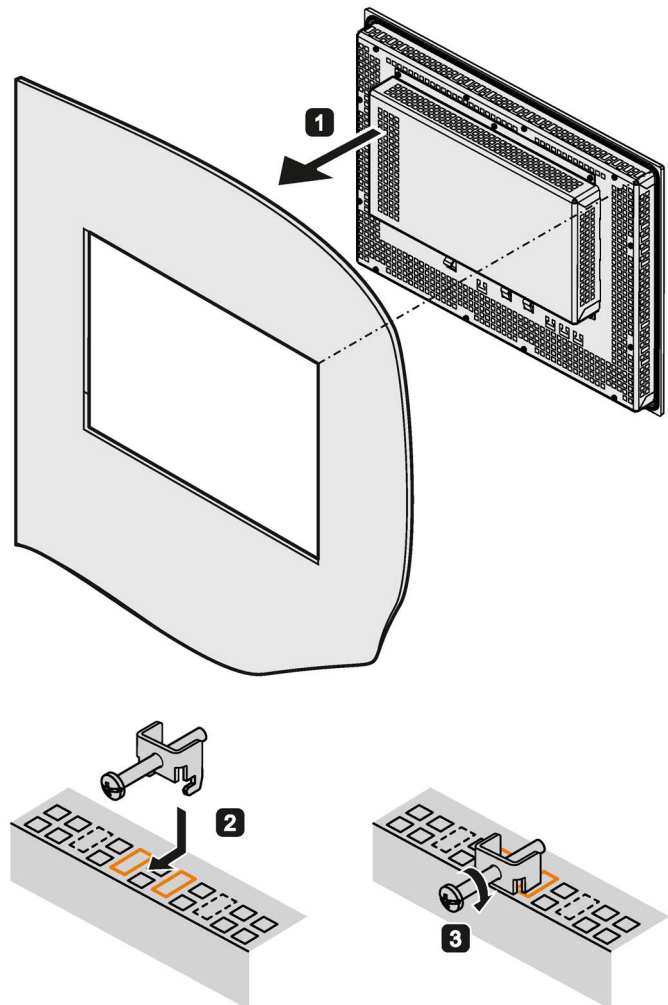
Mounting with optional mounting brackets

Mounting brackets can be used instead of mounting clips in steps 1 to 5:
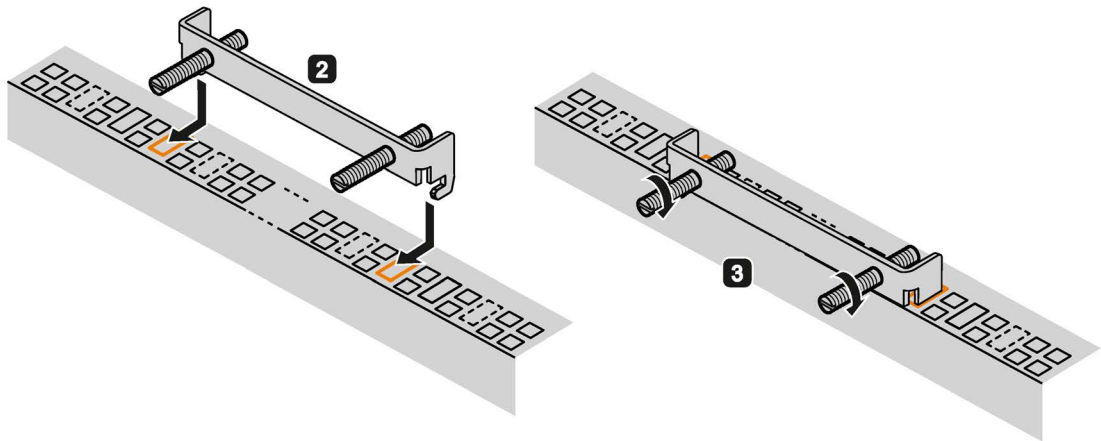
3.2.4   Position of the mounting clips for IP66-complaint installation

Positions of the mounting clips

To achieve IP66 degree of protection instead of IP65 for a device with capacitive multi-touch screen, fasten 4 additional mounting clips (available as accessories) at the positions marked by the red boxes. The 15" display meets IP66 even without additional mounting clips.

Device	Position
Touch screen device with: • 19" display • 22" display	

3.3 Mounting the PRO device

3.3.1 Notes on mounting

⚠ WARNING
The device must be mounted securely.
Inadequately dimensioned fasteners may cause the device to fall down. Serious physical injury may result.
Make sure that fasteners are adequately dimensioned during installation. Make sure to consider the weight of the device and the forces acting on the device when dimensioning. This applies in particular to dynamic load of the device. All fasteners including mounting surfaces, support arm systems, and fastening elements such as screws must be able to carry at least four times the weight of the device.
Observe any further statutory specifications applying at the location of use of the device and further applicable regulations with regard to fastening the device.
Pay attention to the torque specifications in the following sections.

NOTICE
Degree of protection for overall device
If you are using a support arm system or a pedestal system that does not have IP65 degree of protection or Enclosure Type 4X/12 (indoor use only), IP65 degree of protection or Enclosure Type 4X/12 (indoor use only) are lost for the entire device. Spray and water jets as well as penetrating substances can then damage the device.
Use a suitable support arm system or pedestal system with IP65 degree of protection or Enclosure Type 4X/12 (indoor use only) for your application.

Note

Liability disclaimer

The device is mounted to a pedestal or a support arm via the mechanical interface with screws. Siemens AG assumes no liability for the consequences of incorrect installation.

Warranty at risk

If you do not install the HMI device in accordance with the specifications in these operating instructions, the warranty for the device is voided.

- Always install the device according to these operating instructions.
- If the seal on the backplane cover is damaged, it can be repaired. For a repair scenario, following the instructions in the section "Spare parts and repairs (Page 84)".

IP65 degree of protection and Enclosure Type 4X/12 (indoor use only) at risk

If there are no seals on the mechanical interfaces or if they are damaged, IP65 degree of protection and Enclosure Type 4X/12 (indoor use only) is at risk. Check the condition and proper seating of the seals.

NOTICE
Damaging the seal when opening
If the device has not been opened for a long time, the backplane cover or terminal compartment cover may stick to the seal of the enclosure. Opening the device with excessive force or with tools will destroy the seal. Spray and water jets as well as penetrating substances can then damage the device.
Open the terminal compartment cover gently, without too much pressure.

See also

System components for PRO devices (Page 23)

3.3.2 PRO devices for support arm (not extendable, flange top) and for pedestal (extendable, flange bottom)

Note

Mounting with and without a base adapter

The SIMATIC PRO devices are designed for mounting with the base adapter. If you install the device without a base adapter, you must adjust the mechanical interface between the support arm or pedestal and the unit accordingly, including placement of an appropriate seal on the mechanical interface.

Requirement

- All packaging components and protective films have been removed.

- Siemens basic adapter with screws, included in product package of a PRO device for support arm (not extendable, flange top) or for pedestal (extendable, flange bottom).

- One of the following support arms or pedestal systems:

  - Support arm or pedestal with mechanical VESA interface and the corresponding Siemens adapter set
  - Support arm or pedestal with mechanical interface for the Siemens base adapter
    The type of mechanical interface differs depending on the type of support arm or pedestal.

 See also section "System components for PRO devices (Page 23)".

- The following cables are fed through the pedestal or the support arm to which the device is mounted:

  - Equipotential bonding cable
  - Power supply cable
  - Data cables, e.g. USB, DVI and DisplayPort connecting cable
    Recommendation: Route large connectors, such as DVI connectors, and their cables through the pedestal or support arm first.

Procedure

This section describes the mounting of the device to a support arm system using example figures. Installation on a pedestal is carried out in the same way. With PRO devices for support arm (not extendable, flange top), the basic adapter is screwed to the device from the top. With PRO devices for pedestal (extendable, flange bottom), the basic adapter is screwed to the device from the bottom. A device for a support arm system cannot be used on a pedestal, and vice versa.

1. If an adapter plate for the Siemens base adapter is included in your support arm system, attach the adapter plate to the support arm with 4 M6x12 screws. Pay attention to the torque that is specified for the support arm.
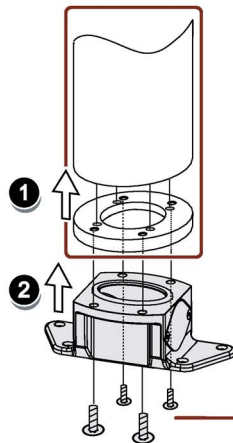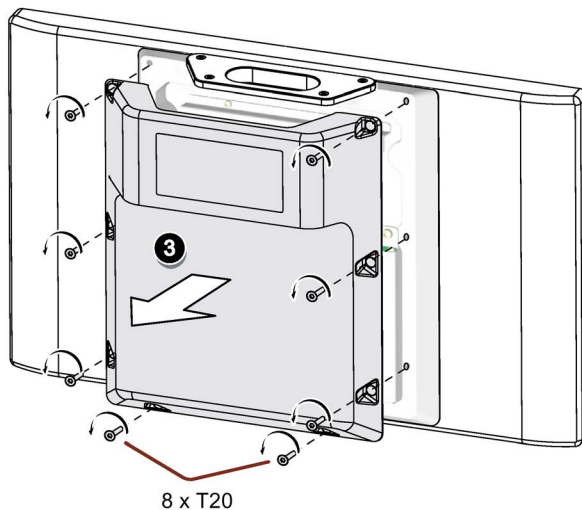
3rd party system, example   VESA system, example
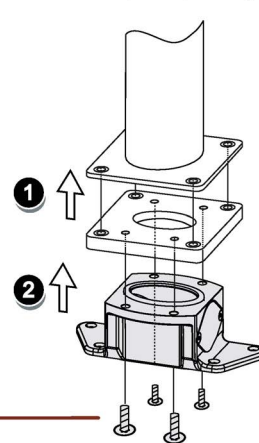
4 x M6x12

2. Attach the base adapter with 4 M6x12 screws to the mechanical interface of the support arm from below. Pay attention to the torque that is specified for the support arm.

3. Loosen the 8 screws of the backplane cover and remove the backplane cover.

8 x T20

4. Insert all connection cables through the opening of the PRO device. Make sure that the connection cables are not damaged.

4 x M4x12
2.5 Nm
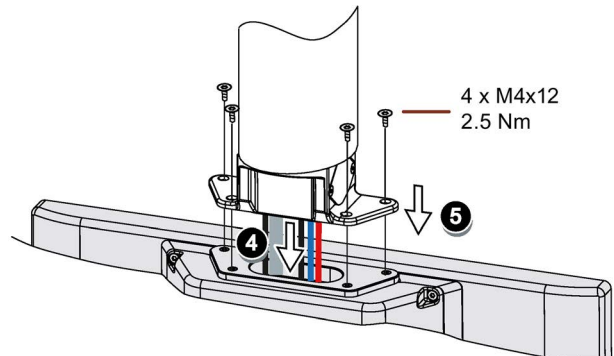
5. Attach the device with 4 M4x12 screws to the base adapter from the top, torque 2.5 Nm. Make sure that the connection cables are not crushed.

6. Connect all cables according to the description in the section below.

7. Fasten the backplane cover to the device with the 8 screws, torque 1.5 Nm. Check that the seal is sitting correctly.

3.3.3 PRO devices for support arm (extendable, round tube)

Requirement

- One of the following support arm systems:
  - Support arm with round tube end with outside diameter 48.3 mm, appropriate for the opening of the PRO device
    When selecting the round tube, ensure that its inside diameter is large enough so that all needed cables and their connectors can fit through.
  - Support arm with mechanical interface, appropriate for the flange of the flange mount, and Siemens flange mount (not included in product package)
  - Support arm with mechanical VESA interface, the corresponding Siemens adapter set and the Siemens flange mount (not included in product package)

  See also section "System components for PRO devices (Page 23)".

- The PRO device, all packaging components and protective films have been removed

- The lower cover of the PRO device from the accessory kit

- The following cables are fed through the support arm to which the device is mounted:
  - Equipotential bonding cable
  - Power supply cable
  - Data cables, e.g. USB, DVI and DisplayPort connecting cable
    Recommendation: Route large connectors, such as DVI connectors, and their cables through the support arm first.
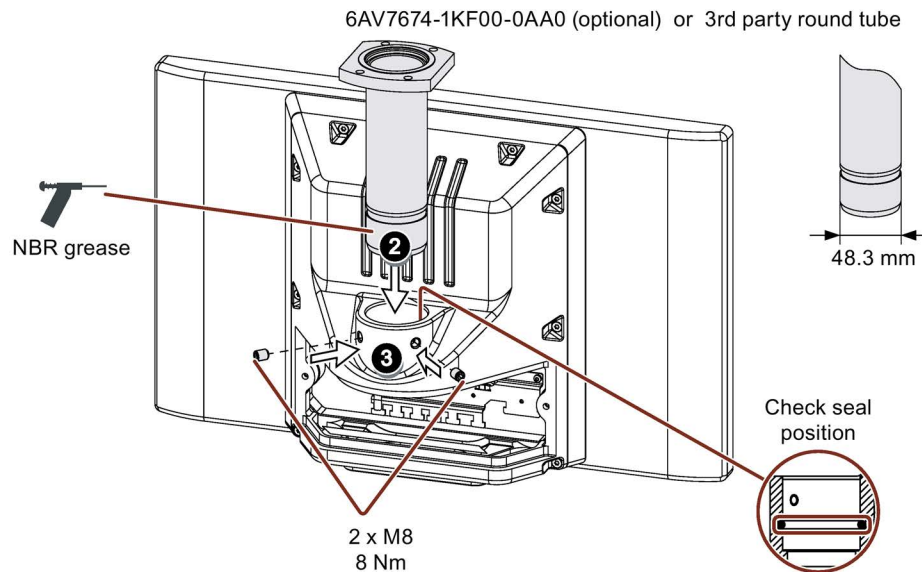
Procedure

The following figures show an example of how to attach the PRO device to a support arm system using the optionally available Siemens flange mount. The same approach is used to mount the PRO device to a 48.3 mm round tube.

1. Loosen the 2 screws of the terminal compartment cover and remove the terminal compartment cover.

2 x T20
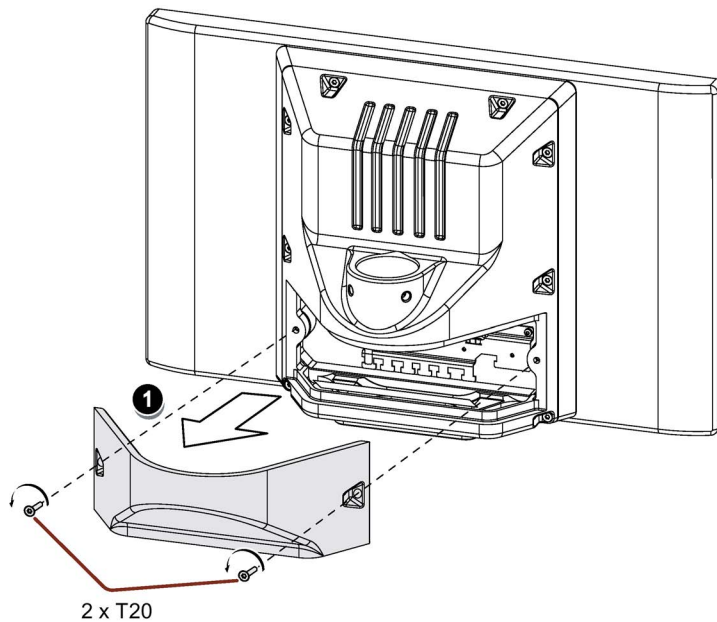
2. Check that the NBR seal is properly seated on the inside of the mechanical interface to the flange mount, see figure below. Grease the flange mount or 48.3 mm round tube with grease suitable for NBR seals, and insert the flange mount or 48.3 mm round tube into the corresponding opening of the PRO device.

6AV7674-1KF00-0AA0 (optional) or 3rd party round tube

NBR grease

48.3 mm

Check seal position

2 x M8
8 Nm

3. Attach the flange mount or the 48.3 mm round tube with the two M8 threaded pins. Observe the appropriate torque:

   – Siemens flange mount: 8 Nm

   – 48.3 mm steel round tube 8 Nm

   – 48.3 mm aluminum round tube: 5 Nm

4. When you are using an adapter plate from a Siemens VESA adapter set, attach the adapter plate to the support arm with 4 M6x12 screws.

   When you are using another adapter plate matching the Siemens flange mount, attach the adapter plate to the support arm with the supplied mounting hardware.

   When tightening the screws, pay attention to the torque that is specified for the support arm.

3rd party system, example   VESA system, example
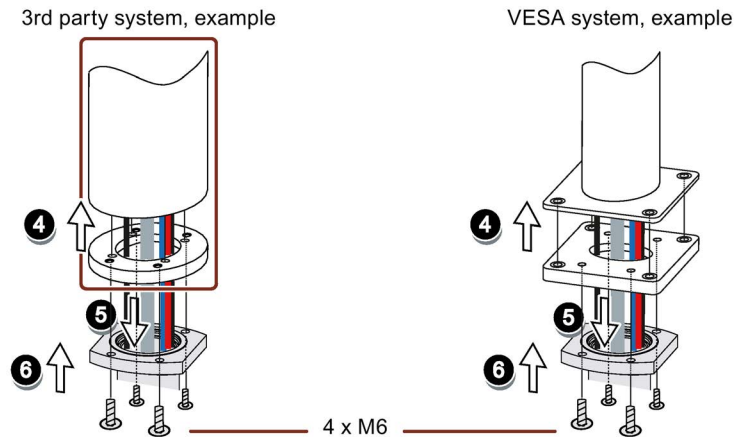
5. Insert all connecting cables through the opening of the flange mount or 48.3 mm round tube into the connection compartment of the PRO device. Make sure that the connection cables are not damaged.

6. When you are using an adapter plate from a Siemens VESA adapter set, attach the flange mount with 4 M6 screws, 16 mm to 20 mm long to the load-bearing system from below.

   When you are not using an adapter plate or a different adapter plate, attach the flange mount with 4 M6 screws to the load-bearing system from below. The screw length depends on the specifications for the load-bearing system and must be at least 16 mm to securely fasten the flange mount.

   The screws are not included in the product package of the PRO device. Pay attention to the torque that is specified for the support arm. Make sure that the connection cables are not crushed.

7. Connect all cables according to the description in the section below.

8. Fasten the terminal compartment cover to the device with the 2 supplied screws, torque 1.5 Nm. Check that the seal is sitting correctly.

9. Attach the lower cover supplied with the PRO device with 4 M4x12 screws, torque 1.5 Nm. Alternatively, you can extend the PRO device by adding an Extension Unit at the bottom. Observe the associated documentation.

See also

System components for PRO devices (Page 23)

3.4 Connecting the device

3.4.1 Notes on connection

Requirement

- The device has been installed according to the information provided in these operating instructions.

Connecting cables

Note

Use copper cables at connectors with terminal connections

Use copper (Cu) cables for all supply lines that are connected to the device with terminals, e.g. 24 V DC power supply cables to the 24 V DC power supply connectors.

Use only shielded standard cables as data connecting cables, order information is available in the section Accessories (Page 27).

Connection sequence

Connect the device in the following sequence:

1. Earth connection (Page 57)
2. Power supply (Page 58)

   Perform a power-up test to ensure the power supply is connected with the correct polarity.
3. PC

   – Connecting IFP Standard, Extended and PRO to a PC (Page 64)
   – Connecting Ethernet Monitor to a PC (Page 67)
4. I/O devices (Page 68), if needed

Note

Damage to the device

Failure to adhere to the connection sequence can damage the device.

Make sure you connect the device according to sequence listed above.

You disconnect the device in the reverse order.

Connecting the cables

NOTICE
Observe local installation regulations
Observe the local installation guidelines and the local installation conditions, such as protective wiring for power supply cables, when connecting the cables. **Short-circuit and overload protection**
Different measures for short-circuit and overload protection are required when setting up an entire plant. The type of components and the level of obligation for the protective measures depends on the regulation that applies to your plant configuration.

- When connecting the cables, make sure that you do not bend the contact pins.
- Secure each cable connector with a cable tie.
- Provide adequate strain relief for all cables.
- The pin assignment of the ports is described in the technical specifications.

3.4.2 Earthing the device

The relevant symbol on the device identifies the terminal for the earth connection.

Protective earth   Functional ground

Requirement

- T20 screwdriver
- Cable lug for M4
- Protective conductor or equipotential-bonding cable with minimum cross-section 2.5 mm^2

Procedure

The figure below shows the connection of a protective conductor in a built-in unit. Proceed the same way as you would when connecting an equipotential-bonding cable in a built-in unit or the PRO device.

1. Clamp the cable lug onto the ground cable:
   – PE conductor: yellow-green, as depicted.
   – Equipotential bonding: black

2. Using the M4 screw, firmly attach the cable lug to the earth connection on the device with a torque of 1.5 Nm.

3. Connect the protective conductor or equipotential bonding to the earth connection of the cabinet or plant in which the device is installed.
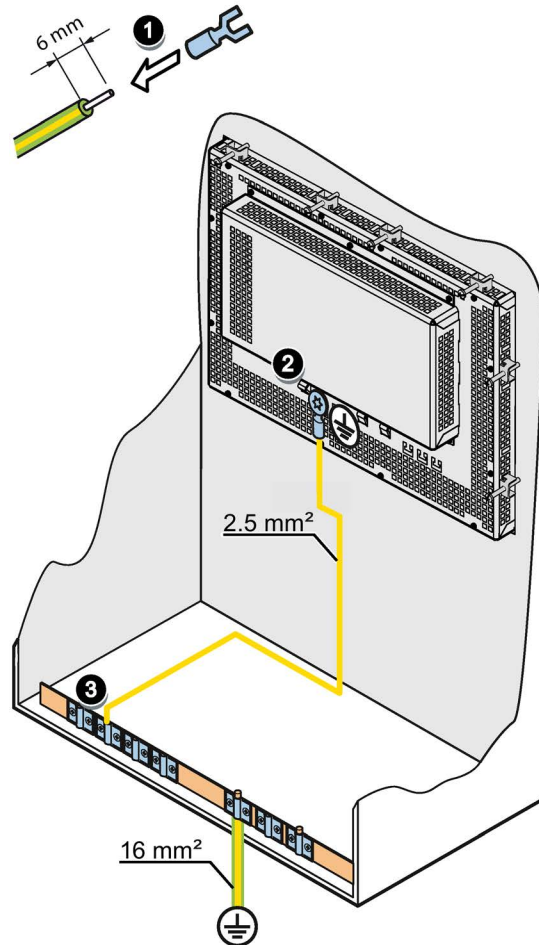
3.4.3 Connecting the power supply

Depending on the device version, you can operate the device with the following voltage:

- Standard monitor and standard touch versions, PRO device: 24 V DC 2-pin

- Ethernet Monitor versions: 24 V DC 3-pin

- Extended versions: 24 V DC 2-pin or 100 to 240 V AC

Note

To turn off the device completely, switch off the external power supply. The device does not have an on/off switch.

3.4.3.1 Connecting devices with 24 V DC 2-pin

Note before connecting the device

NOTICE
Safe electrical isolation
The device may only be connected to a 24 V DC power supply that meets the requirements of a safe extra-low voltage (SELV) according to IEC/EN/DIN EN/UL 60950-1 or the requirements of a secure extra-low voltage (SELV/PELV) according to IEC 61131-2.
The following applies to Industrial Flat Panels with article numbers "6AV7863-…..-0…": The ground/minus pole of the 24 V DC power supply is connected to the PE over the device. "…" stands for version key of the article number.
For Ethernet monitors: The supplying source must be fused for a power rating < 240 VA; recommended fuse rating ≤ 8 A.

NOTICE
Damage to device due to inadequate cable cross-section
Using power supply cables with cross-sections that are too small can damage the device in the event of a short circuit. The power supply connector is designed for cables with a maximum cross-section of 2.5 mm².

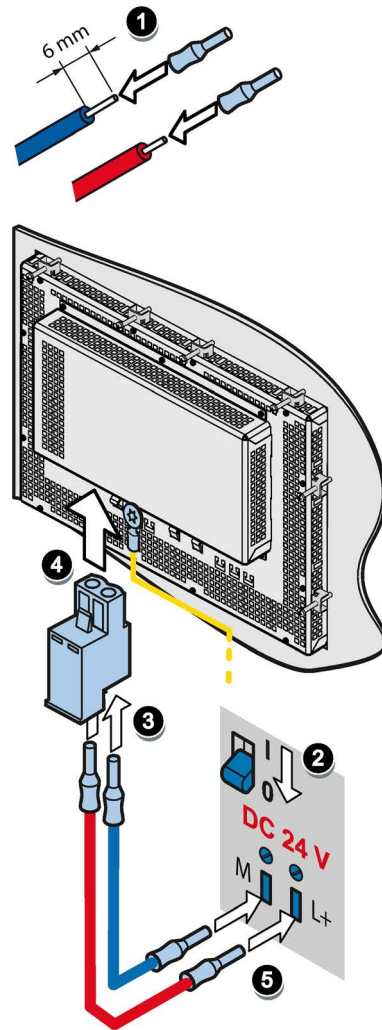| NOTICE |
| --- |
| **External protective circuit** |
| An external protective circuit is required for operation with 24 V DC, see section 7 "Lightning protection and overvoltage protection" in function manual "Designing interference-free controllers (https://support.industry.siemens.com/cs/ww/en/view/59193566)". |
| The following lightning protection element was used during the testing of the Industrial Flat Panel: Dehn BVT AVD 24" (Order No. 918 422) |

Note

The 24 V DC power supply must be adapted to the input data of the device, see section "Technical specifications (Page 107)".

Procedure

1. Ensure that the cable ends of the power supply lines are fitted with end sleeves.

2. Switch off the 24 V DC power supply.

3. Fasten the end of a connecting cable L+ and a connecting cable M with the supplied power supply connector.

4. Connect the power supply connector to the relevant terminal on the device.

5. Connect the remaining L+ and M ends with the respective terminals on the 24 V DC power supply.

3.4.3.2 Connecting devices with 3-pin 24 V DC

Note before connecting the device

NOTICE
Safe electrical isolation
The device may only be connected to a 24 V DC power supply that meets the requirements of a safe extra-low voltage (SELV) according to IEC/EN/DIN EN/UL 60950-1 or the requirements of a secure extra-low voltage (SELV/PELV) according to IEC 61131-2.
The following applies to Industrial Flat Panels with article numbers "6AV7863-…..-0…": The ground/minus pole of the 24 V DC power supply is connected to the PE over the device. "…" stands for version key of the article number.

NOTICE
Damage to device due to inadequate cable cross-section
Using power supply cables with cross-sections that are too small can damage the device in the event of a short circuit. The power supply connector is designed for cables with a maximum cross-section of 2.5 mm².

NOTICE
External protective circuit
An external protective circuit is required for operation with 24 V DC, see section 7 "Lightning protection and overvoltage protection" in function manual "Designing interference-free controllers (https://support.industry.siemens.com/cs/ww/en/view/59193566)".
The following lightning protection element was used during the testing of the Industrial Flat Panel: Dehn BVT AVD 24" (Order No. 918 422)

Note

The 24 V DC power supply must be adapted to the input data of the device, see section "Technical specifications (Page 107)".
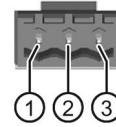
Procedure

1. Switch off the external 24 V DC power supply.
2. Connect the 24 V DC power supply connector to the device.

   Observe the correct polarity of the contacts:

   ① DC 24 V

   ② ground

   ③ protective conductor

Note

Reverse-polarity protection

The DC power supply (24V) has a mechanism to protect against reverse polarity. In the event that the 24 V DC lines are reversed (24 V DC nominal (-20% / +20%)) and connected to ground, the device will not be damaged. The device will simply fail to turn on. After the power supply has been connected correctly, the device will again be ready to operate.

3.4.3.3 Connecting an AC power supply

Note before connecting

NOTICE
Damage to the device in ungrounded supply systems
The device features a safety-certified power cable. Connect the device only to a grounding socket. Operate the device only on grounded-neutral systems and not on impedance-grounded systems such as IT networks.

NOTICE
Damage to the device due to connection to the wrong supply voltage
If the local supply voltage is incompatible with the permissible rated voltage for the device, damage to the equipment may result.
Always make sure that the local supply voltage complies with the permissible rated voltage for the device.

Regional information

Outside the United States and Canada, in regions with 230 V supply voltage:

If you do not use the safety-certified power cable, use a flexible, double-insulated power supply cable (no single cables) with the following characteristics:

- At least 18 AWG (0.75 mm^2) conductor cross-section
- Grounded safety plug 15 A, 250 V

Note

Ensure that the cable set conforms to the respective national safety regulations and is appropriately labeled.

For USA and Canada:

A CSA or UL-listed power supply cable must be used in the United States and Canada.

120 V power supply

Use a flexible cable with the following characteristics:

- UL approval
- CE marking
- Type SJT with three conductors
- At least 18 AWG (0.75 mm^2) conductor cross-section
- Maximum 4.5 m length
- Parallel grounded safety plug 15 A, min. 125 V

230 V power supply

Use a flexible cable with the following characteristics:

- UL approval
- CE marking
- Type SJT with three conductors
- At least 18 AWG (0.75 mm^2) conductor cross-section
- Maximum 4.5 m length
- Tandem grounded safety plug 15 A, min. 250 V

Procedure

- Plug the connector of the supplied power supply cable into the AC power supply connector of the device.
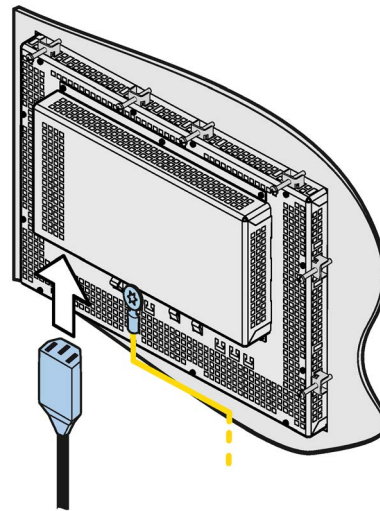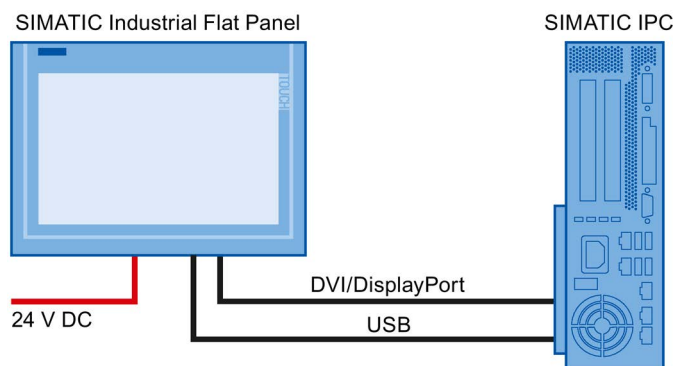

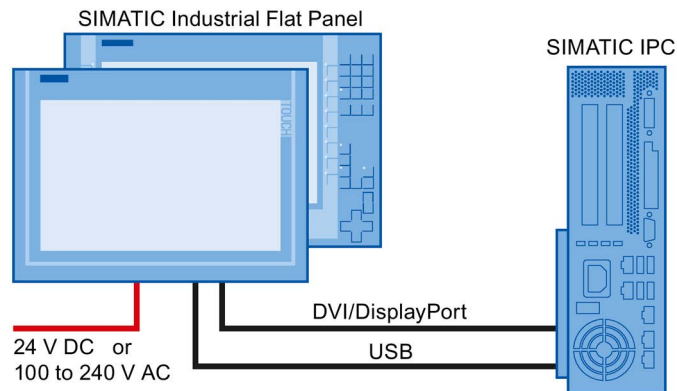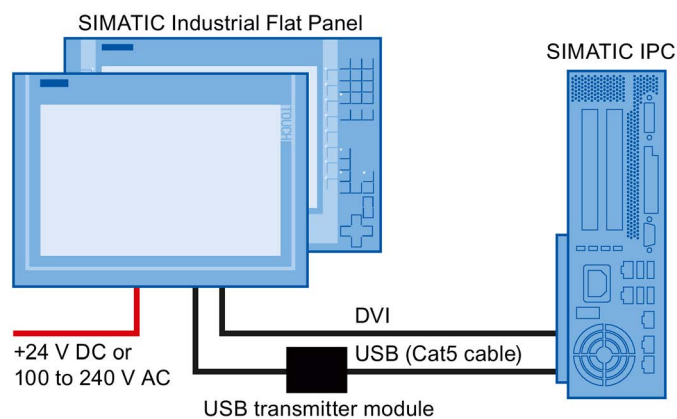## 3.4.4 Connecting IFP Standard, Extended and PRO to a PC

3.4.4.1 Overview

Connection diagram for standard monitor version
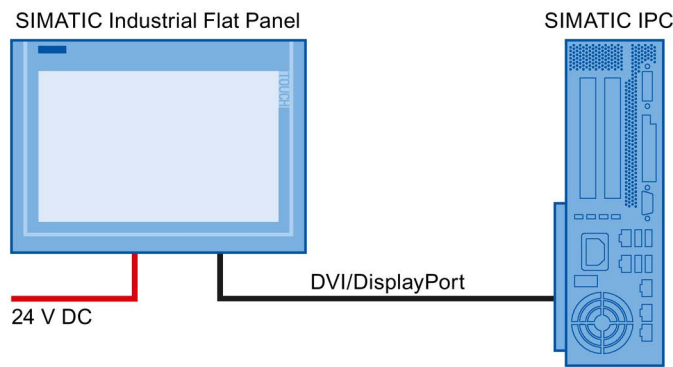
Connection diagram for standard touch version

Connection diagram for Extended versions and PRO devices (24 V DC only)

Distance up to 5 meters

SIMATIC Industrial Flat Panel

SIMATIC IPC

DVI/DisplayPort

USB

24 V DC   or
100 to 240 V AC

Distance of 5m to 30m

SIMATIC Industrial Flat Panel

SIMATIC IPC

DVI

+24 V DC or
100 to 240 V AC

USB (Cat5 cable)

USB transmitter module

See also

Internet entry for possible number of IFPs on different IPCs
(https://support.industry.siemens.com/cs/ww/en/view/109483774)

3.4.4.2 Standard version

Procedure

1. Connect the Flat Panel and the PC using a DVI or DisplayPort line.

DVI-D   DisplayPort

2. If using a Touch version, also connect the device and the PC with a USB line.

USB ≤ 5 m

3.4.4.3 Extended version, PRO device

Procedure

1. Connect the Flat Panel and the PC using a DVI or DisplayPort line by means of the respective interface.

DVI-D   DisplayPort

2. If the distance between the Flat Panel and the PC is less than 5 m, connect the Flat Panel and PC using the USB Type B interface.

USB ≤ 5 m

3. If the distance between the Flat Panel and the PC is more than 5 m, connect the Flat Panel and PC with USB transmitter module by means of the USB-Link interface.

USB-Link

USB
> 5 m

Short
USB
cable

Note

Data transfer per USB transmitter module via USB1.1. The data transmission rate corresponds to Full Speed according to USB1.1.

3.4.5 Connecting Ethernet Monitor to a PC

3.4.5.1 Overview

Connection diagram for "Commissioning" mode

IFP Ethernet Monitor   SIMATIC IPC

                                     DisplayPort
24 V DC   USB
                                          LAN
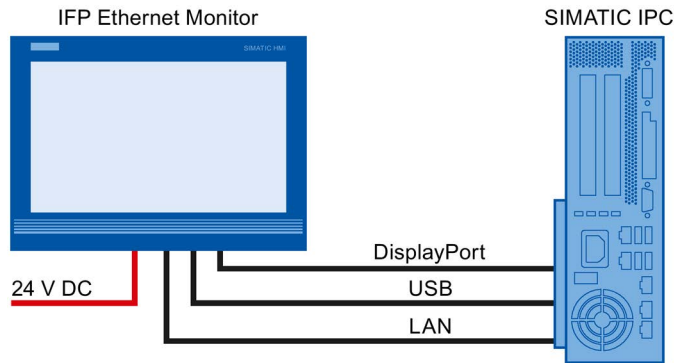
Connection diagram for "Ethernet" mode

IFP Ethernet Monitor   SIMATIC IPC

24 V DC   LAN

See also

Internet entry for possible number of IFPs on different IPCs
(https://support.industry.siemens.com/cs/ww/en/view/109483774)
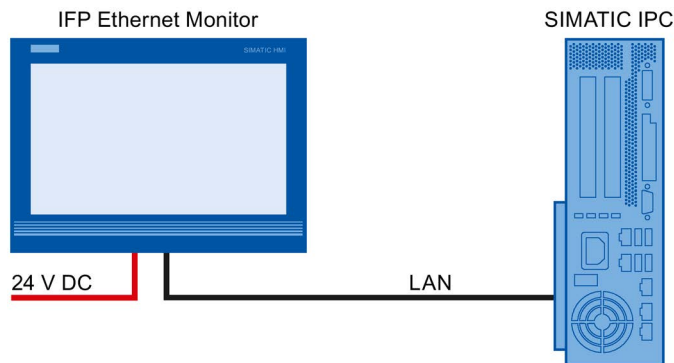
3.4.5.2 Connection versions

"Commissioning" mode

When you commission an Ethernet Monitor with the "Ethernet Monitor" software or want to change the network parameters of an Ethernet Monitor, connect the Ethernet Monitor and IPC in the "Commissioning" mode as follows:

1. Connect the Ethernet Monitor and IPC with a USB cable.

   Maximum cable length: 5 m

   USB Type B

2. Connect the Ethernet Monitor and IPC with a DisplayPort cable.
   Maximum cable length: 5 m

   DisplayPort

3. Connect the Ethernet Monitor and IPC with an Ethernet cable.

   Ethernet

"Ethernet" mode

After commissioning, connect the Ethernet to the IPC via LAN. Cable lengths or distances according to conventional LAN technology.

3.4.6 Connecting a USB device

You can connect the following industry-standard devices to the USB ports of the device:

● External mouse

● External keyboard

● USB flash drive

Note when connecting

> **Note**
>
> **Use of USB devices**
>
> • The cable length of USB peripherals cannot exceed 3 m.
>
> • Wait at least ten seconds between removal and reconnection of USB devices.
>
> • When using standard USB peripherals, bear in mind that their EMC immunity level is frequently designed for office applications only. These devices may be used for commissioning and servicing. However, only industry-standard devices are allowed for industrial operation.
>
> • Peripherals are developed and marketed by individual vendors. The respective supplier offers support for the I/O devices. Moreover, the terms of liability of the individual vendors or suppliers apply here.

Note

Functional problem with USB port

If you connect an external device with a 230 V power supply to the USB port without using a non-insulated installation, you may experience functional problems.

Use a non-insulated system design.

Excessive rated load on port

A USB device with too high a power load may possibly cause functional problems.

Observe the values for the maximum load of the USB interface. You will find the values in the section "Technical specifications" (Page 107)".

Note

USB interfaces of the Ethernet Monitors

The following applies to the USB interfaces of the Ethernet Monitors:

- Only one USB device per USB interface may be connected.
- Cascading of the USB interfaces, e.g. using a USB hub, is not supported.

Front USB of the Touch/Key version

Note

Ensuring degree of protection IP65

When you loosen the sealing cover above the USB port to connect a USB component, the degree of protection IP65 is no longer guaranteed for the device.

3.4.7 Securing the cables

Use cable ties to secure the connected cables to the selected fixing elements for strain relief.

Make sure that the cables are not crushed by the cable tie.

The figure below shows the fixing elements of the IFP1500 Touch.

The figure below shows the fasteners of the IFP1900 PRO.
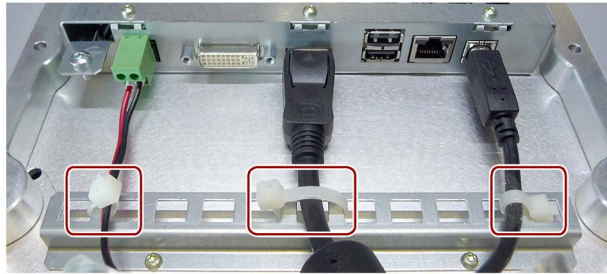
3.4.8 Securing cables for use in hazardous areas

For securing the connected cables, use the appropriate mounting elements, as described in the previous chapter.

When devices with Ex approval are used in hazardous areas, note that the connectors must be secured in a captive manner at the interfaces.

⚠ **WARNING**

Explosion hazard from sparks when connectors come loose

If a plug connector comes loose from the associated device interface during operation in a hazardous area, a spark over at the interface may cause an explosion. Death or serious physical injury as well as property damage may result.

For use in hazardous areas, it must be ensured that the plug connectors of the cables are fully connected to the respective interface and cannot come loose from the interfaces in any case.

Secure all connected cables directly at the transition between connector and cable to the nearest mounting element using a cable tie. Tighten up all cable ties in such a way that they fully wrap around the respective cable but do not damage the cable.

The following figure shows an example of how to secure a connector in a captive manner.

Commissioning the device

<div style="text-align: right; font-size: 3em;">4</div>

If you operate the device exclusively as monitor and do not change the brightness, you do not need to commission the device. To use advanced functions of the device, perform the following commissioning.

Requirement

- The Industrial Flat Panel is mounted according to the Quick Install Guide.
- The Industrial Flat Panel is connected according to the Quick Install Guide and connected to a PC for commissioning.

  ### Note

  The supplied connecting cables are only intended for commissioning and not for continuous operation.

  Use suitable connecting cables for interrupted duty, see section "Accessories (Page 27)".

- DVD "Documentation and Drivers" or USB stick with a copy of the DVD

Procedure

1. Switch on the PC.
2. Switch on the power supply of the Industrial Flat Panel.
3. Insert the "Documentation and Drivers" DVD into the CD/DVD drive of the PC. Alternative: Insert the USB stick with the copy of the DVD into a USB port on the PC.
4. Follow the instructions for installation.

Operating the device

<div style="text-align: right; font-size: 2em;">5</div>

5.1 Operator input options

Depending on your device and the connected I/O devices, the following operator input options are available:

- Integrated keyboard on touch device (not for all IPC)
- Touch screen for touch device

⚠️ **CAUTION**

Unintentional actions with touch screen operation

If you touch the touch screen while system-internal processes are running, unintended reactions of the device may be triggered.

Do not touch the screen in the following situations:
- During the boot process
- When plugging or unplugging USB components
- While Scandisk is running
- During a BIOS update

NOTICE

Damage to the touch screen

Hitting the touch screen with hard objects may damage it and can result in a total failure of the touch screen.

Only touch the touch screen with your fingers or a suitable touch stylus.

- Screen keyboard for touch device
- External keyboard, connected via USB
- External mouse, connected via USB

5.2 Operating a device with resistive single touch screen

When you touch an object on the single touch screen, the corresponding function is performed.

⚠ **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.

Take the following precautions:

- Configure the plant so that safety-related functions are not operated with the touch screen.
- Always touch only a single point on the touch screen.
- Calibrate the touch screen, at the latest when the touch screen becomes inaccurate or does not respond despite repeated touches.
- Switch off the device for cleaning and maintenance.
- Make sure that the touch screen is kept free of dirt.

NOTICE

Damage to the touch screen

Touching the touch screen with pointed or sharp objects can damage it and lead to a significant reduction in service life or even total failure of the touch screen.

Do not touch the touch screen with pointed or hard objects. Only touch the touch screen with your fingers, a touch stylus or an approved touch glove.

Note

Appearance of blisters under extreme ambient conditions

Under extreme environmental conditions such as high atmospheric humidity and temperature, bubbles can form on the touch surface in rare cases. This only affects the appearance and does not represent any functional restriction.

5.3 Operating a device with capacitive multi-touch screen

You operate the multi-touch screen with one or multiple fingers. You can also operate it using gestures with up to five fingers at a time.

⚠ 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 2.5 mm^2).

You can find additional information on connecting the earth conductor in the section "Earthing the device (Page 57)".

⚠ 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.

> ⚠ **WARNING**
>
> **Danger of malfunction due to improper execution of gestures on the touch screen**
>
> If gestures are executed incorrectly on the touch screen with multi-touch function, these gestures may not be recognized or could be recognized incorrectly. The entries made are then not implemented by the device or are implemented incorrectly or in an unintended manner.
>
> Incorrect execution of multi-touch functions can lead to errors in the operation of the plant and thus to physical injury.
>
> Note the following when operating the touch screen with multi-touch function:
> * The touch screen reacts to contact on its surface, not to pressure.
> * When using a touch pen: Operate the touch screen only with a touch pen for capacitive touch.
> * Avoid unintended multiple touches, for example, with your knuckles.
>
> Before you start to operate the device, make sure you are familiar with the multi-touch functions of the Windows operating system, as well as with the application to be used and its functions. Ensure that the gestures which the user executes on the multi-touch display are recognized by the application. It is possible that certain gestures need to be trained beforehand.

Notes on operation

> **Note**
>
> **Do not touch the touch screen during startup**
>
> The device automatically calibrates the capacitive multi-touch screen during startup. The touch screen is locked during calibration.
>
> Do **not** touch the touch screen during startup. Make sure that you do **not** rest on the touch screen with the palm of your hand during startup.
>
> Make sure that there are **no** conductive liquids on the touch screen during startup.

Note when operating the multi-touch screen:

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

* 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 more than 5 fingers.
  – 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, input is possible again.

Functions of the multi-touch screen

General functions

- Detection of up to 5 finger touches at a time.

- Detection of gestures that are supported by the operating system or the software installed on the device.

Note

Multi-touch operation can provide advanced features or pose limitations depending on the operating system and the software installed on the device. Read the corresponding documentation.

- You do not need to calibrate the touch screen. Some operating systems do offer touch calibration. However, this calibration does not result in an improvement of the accuracy.

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.

5.4   Operating a Touch/Key device

Note

Maloperation

If you activate several keys simultaneously, a malfunction on the device cannot be excluded. Only press the function keys one after the other.

Malfunctions of the user software

Always use security features of the KeyTools for security reasons. If you disable them, nevertheless, serious malfunctions of the user software may occur when the additional function keys F1 to F36 are used or if custom key code tables are used.

Risk of damage

Activating a key using a hard or pointed object, for example a screwdriver, reduces the life of the key or can damage it.

External keyboard

Note

The keyboard layout has been set to "English/USA international". If you use a keyboard with a layout other than the "English/USA international" layout, the key codes of the internal and external keyboards might no longer correspond.

This section describes the keyboard assignment of the device in the delivery state.

The assignment of the keys, including the function keys and control of the LEDs, is specified by means of the SIMATIC IPC KeyTools which is installed with the SIMATIC IPC Wizard.

You will find the SIMATIC IPC Wizard operating manual:

- On the "Documentation and Drivers" CD/DVD included in the delivery
- In the IPC Wizard installation folder on the PC after successful installation of the IPC Wizard

Alphanumeric keys

Key	Assignment lower case LED "a/A" inactive	Assignment upper case LED "a/A" active	Assignment SHIFT level LED "a/A" active or inactive
1	<space>\@#%?!'":;<>()[]{}€$&%^°~|_1		<space>\@#%?!'":;<>()[]{}€$&%^°~|_!
2	abc2	ABC2	ABC@
3	def3	DEF3	DEF#
4	ghi4	GHI4	GHI$
5	jkl5	JKL5	JKL%
6	mno6	MNO6	MNO^
7	pqrs7	PRQRS7	PQRS&
8	tuv8	TUV8	TUV*
9	wxyz9	WXYZ9	WXYZ(
0	+-*/=0		+_*?+)
.,	.,	.,	><

The characters available for input depend on the text box involved. The figure below shows the entry of an alphanumeric value using the system keys:
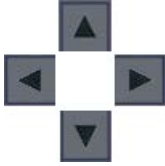
Control keys

The following table describes the control keys and their associated functions. With keyboard shortcuts, hold the first key down. Then press the second button.

Key or keyboard shortcut		Function
a/A		Switch between upper and lower case:
		• LED on: Upper case
		• LED off: Lower case
←		Deletes the character left of cursor.
TAB		Tabulator
INS DEL		Deletes the character to the right of the cursor or the highlighted text.
SHIFT	INS DEL	Toggles "overwrite" mode on or off.
		If "overwrite" mode is switched on, the characters are overwritten to the right of the cursor.
HELP		Open the TIA help, for example, from WinCC
		The user software can specifically react to the stored key code. You can control the LED by means of the LEDControl program of the IPC Wizard.
ESC		Cancel
SHIFT		Press: Switches to an additional white key assignment.
		Hold down: Switches between upper and lower case.
ACK		Acknowledge
		The user software can specifically react to the stored key code. You can control the LED by means of the LEDControl program of the IPC Wizard.
CTRL		General control function for use in keyboard shortcuts.
ALT		General control function for use in keyboard shortcuts.
ENTER		Confirm input

Cursor keys

Key or keyboard shortcut		Function
▲ ◄ ► ▼		Moves the cursor, selection or a controller in the specified direction.
HOME		Moves the cursor or selection one page up.
END		Moves the cursor or selection one page down.
SHIFT	HOME	Moves the cursor to the start of the first screen.
SHIFT	END	Moves the cursor to the end of the last screen.

5.5 Advanced device functions

If you have installed the software from the supplied "Documentation and Drivers" DVD, the following functions are available, depending on the type of your Industrial Flat Panel, for example:

General for all Industrial Flat Panels

- Advanced brightness control - "SetBrightness"
- "IPCScreenSaver", specially designed for touch devices

For devices with resistive single touch screen

"UPDD" (Universal Pointing Device Driver) with the following functions:

- Advanced touch functions
- Advanced touch calibration

For devices with capacitive multi-touch screen

- Convenient functions for clone operation including interlock mechanism
- Functions for switching from multi-touch to single touch mode and vice versa

For Ethernet monitors

"IFP ETH" software with convenient functions for configuring multiple Ethernet monitors

The complete description of the functions for your device can be found on the accompanying "Documentation and Drivers" DVD and in the installation directory of the software that you have installed from the "Documentation and Drivers" DVD.

Maintaining and servicing your device

<div align="right" style="font-size:3em">6</div>

6.1 General information on maintenance and servicing

Observe the following when servicing and repairing protective features such as ground circuits, overvoltage protection components or batteries:

- Observe the maintenance and replacement intervals specified by the respective manufacturer for all system components.

- Replace system components, including cables, fuses and batteries only with equivalent components approved by the respective manufacturer.

6.2 Cleaning the device

Scope of maintenance

> **Note**
>
> When dust has collected on the device, the dust deposits must be removed at appropriate time intervals.

Cleaning agents

Use dish soap or foaming screen cleaner only as cleaning agents.

NOTICE
Damage to the HMI device caused by impermissible cleaning agents
Impermissible and unsuitable cleaning agents may cause damage to the HMI device.
Use dish soap or foaming screen cleaner only as cleaning agents. Do not use the following cleaning agents: • Aggressive solvents or scouring powder • Steam jets • Compressed air

Procedure

1. Switch off the device. This prevents the accidental triggering of functions when the screen is touched.

2. Dampen the cleaning cloth.

3. Spray the cleaning agent on the cloth and not directly on the device.

4. Clean the device with the cleaning cloth.

6.3 Ethernet Monitors - Diagnostics and reset

6.3.1 Diagnostics screen

The diagnostics screen shows information on the system state of the Ethernet Monitor when no picture is displayed. The diagnostics screen is not displayed permanently; it alternates with a black screen.

Examples:

● The Ethernet Monitor is not connected to the PC:

● The Ethernet Monitor is connected to the PC with a LAN cable, but a data connection cannot be established:
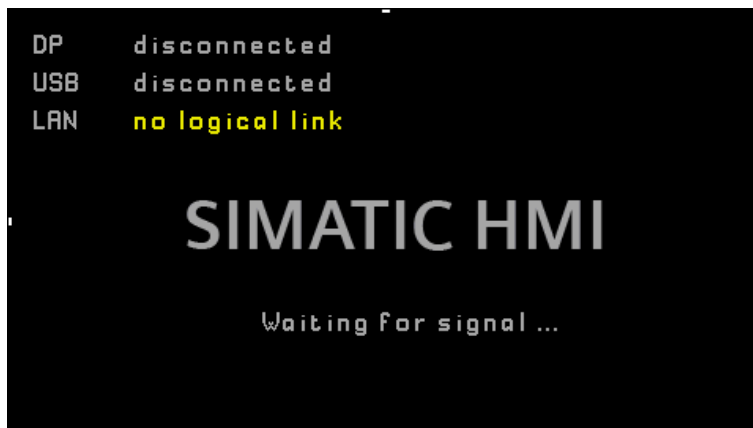
6.3.2 Restoring the factory settings for an Ethernet Monitor

When the Ethernet Monitor was operated in the LAN network, it has an individual IP address. When you connect the Ethernet Monitor to another location in the network, it is no longer found because the Ethernet Monitor software is looking for the default IP address. When the factory settings are restored, the IP address of the Ethernet Monitor is reset to the default value "192.168.1.2".

You use the Reset button to restore the factory settings for the Ethernet Monitor.

Procedure

1. Switch off the device's power supply.

2. Press the reset button with a suitable tool and keep the reset button pressed.
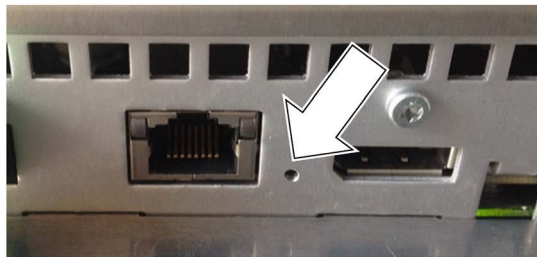
3. Switch on the device's power supply and keep the reset button pressed for an additional 10 seconds.

   During this the two LAN LEDs are deactivated briefly.

6.4   Spare parts and repairs

> ⚠ **WARNING**
>
> **Risk of bodily injury or equipment damage due to unauthorized opening or repairing**
>
> Bodily injury or considerable equipment damage may result from the unauthorized opening or repairing of the device. Do not carry out any repairs on your own. Repairs may only be carried out by authorized qualified personnel at the manufacturer's site.

In case of repair, the device must be shipped to the Return Center in Erlangen. Only repair by the Return Center in Erlangen is permitted.

Depending on the work necessary to repair the device, the Center may decide to give you a credit. In this case, it is your responsibility to order a new device.

The address is:

Siemens AG
Digital Factory Retouren-Center
c/o Geis Service GmbH, Tor 1-4
Kraftwerkstraße 25a
91056 Erlangen
Germany

See also

Spare parts and repairs (http://support.automation.siemens.com/WW/view/en/16611927)

6.5   Recycling and disposal

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

Technical information 7

7.1 Certificates and approvals

> **Note**
>
> **Approvals on the rating plate**
>
> The following overview provides information on possible approvals.
> Only the approvals on the rating plate (Page 107) of the specific device apply.

CE marking

The devices meet the general and safety-related requirements of the following EU directives and conform to the harmonized European standards (EN) for these devices published in the official gazettes of the European Community and in the EU Declarations of Conformity:

- 2014/35/EU "Electrical equipment for use within certain voltage limits" (Low-Voltage Directive)

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

When the device has Ex approval (see nameplate below), the following also applies:

- 2014/34/EU "Equipment and protective systems intended for use in potentially explosive atmospheres" (Directive for Explosion Protection)

EU Declarations of Conformity

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

Siemens AG
Digital Factory
Factory Automation
DF FA AS SYS
P.O. Box 1963
D-92209 Amberg, Germany

You can download information on the EC Declaration of Conformity, here under the keyword "Declaration of Conformity":

- IFP certificates (https://support.industry.siemens.com/cs/ww/en/ps/16788/cert)

- IFP PRO certificates (https://support.industry.siemens.com/cs/ww/en/ps/21662/cert)

Software license agreements

If the device is supplied with preinstalled software, you must observe the corresponding license agreements.

UL approval

See the following notes:

- 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 (Hazardous Location)
- CSA-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

FM Approval

Factory Mutual Research (FM) conforming to

- Approval standards FM 3611, FM 3600, FM 3810, ANSI/ISA 61010-1
- CSA C22.2 No. 213
- CSA C22.2 No. 61010.1

Approved for use in

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

Ex approval

The following approvals apply to the device in accordance with

- IEC 60079-0:2011 and EN 60079-0:2012 +A11:2013

- IEC 60079-15:2010 and EN 60079-15:2010

- IEC 60079-31: 2013 and EN 60079-31:2014

valid:

| ⟨Ex⟩ | II 3 G | Ex nA IIC T4 Gc |
| | II 3 D | Ex tc IIIC T 70 °C Dc |

Observe all information on the Internet (https://support.industry.siemens.com/cs/ww/en/view/291285) regarding use of the device in hazardous areas.

When using the device in hazardous areas, ensure that all connectors connected to the device are secured in a captive manner, see section "Securing cables for use in hazardous areas (Page 70)".

You can find more information about explosion protection, EC conformity declarations and other certificates on the Internet at the following addresses:

- IFP certificates (https://support.industry.siemens.com/cs/ww/en/ps/16788/cert)

- IFP PRO certificates (https://support.industry.siemens.com/cs/ww/en/ps/21662/cert)

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

Manufacturer site	HMI device class	Test number
Siemens AG Division Digital Factory Werner-von-Siemens-Straße 50 92209 Amberg Germany	Comfort Panel, ITC, IFP	DEKRA11ATEX0005X IECEx DEK 13.0085X
Siemens AG Östliche Rheinbrückenstr. 50 76187 Karlsruhe Germany	IFP1900/2200 ETH	DEKRA15ATEX0119X IECEx DEK15.0080X

FCC and Canada

USA	
Federal Communications Commission Radio Frequency Interference Statement	This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Shielded Cables	Shielded cables must be used with this equipment to maintain compliance with FCC regulations.
Modifications	Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.
Conditions of Operations	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CANADA	
Canadian Notice	This Class A digital apparatus complies with Canadian ICES-003 (A).
Avis Canadien	Cet appareil numérique de la classe A est conforme à la norme NMB-003 (A) du Canada.

RCM AUSTRALIA/NEW ZEALAND

This product meets the requirements of EN 61000-6-4 Generic standards – Emission standard for industrial environments.

KOREA

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 84)".

Marine approvals

Acceptance procedures for shipping and offshore applications:

- ABS American Bureau of Shipping (USA)
- BV Bureau Vertias (France)
- DNV-GL Det Norske Veritas (Norway)-Germanischer Lloyd
- LR Lloyds Register
- CCS (China Classification Society)
- NK Nippon Kaiji Kyokai (Japan)
- KR (Korean Register of Shipping)

IEC 61131 programmable logic controllers

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

7.2   Directives and declarations

7.2.1   ESD guideline

What does ESD mean?

An electronic module is equipped with highly integrated components. Due to their design, electronic components are highly sensitive to overvoltage and thus to the discharge of static electricity. Such electronic components or modules are labeled as electrostatic sensitive devices.

The following abbreviations are commonly used for electrostatic sensitive devices:

- ESD – Electrostatic sensitive device
- ESD – Electrostatic Sensitive Device as a common international designation

Electrostatic sensitive devices can be labeled with an appropriate symbol.

NOTICE
Damage to ESD from touch
Electrostatic sensitive devices, ESD, can be destroyed by voltages which are far below the human perception limit. If you touch a component or electrical connections of a module without discharging any electrostatic energy, these voltages may arise.
The damage to a module by an overvoltage can often not be immediately detected and only becomes evident after an extended period of operation. The consequences are incalculable and range from unforeseeable malfunctions to a total failure of the machine or system.
Avoid touching components directly. Make sure that persons, the workstation and the packaging are properly grounded.

Charge

Every person without a conductive connection to the electrical potential of his/her surroundings can be electrostatically charged.

The material with which this person comes into contact is of particular significance. The figure shows the maximum electrostatic voltages with which a person is charged, depending on humidity and material. These values conform to the specifications of IEC 61000-4-2.
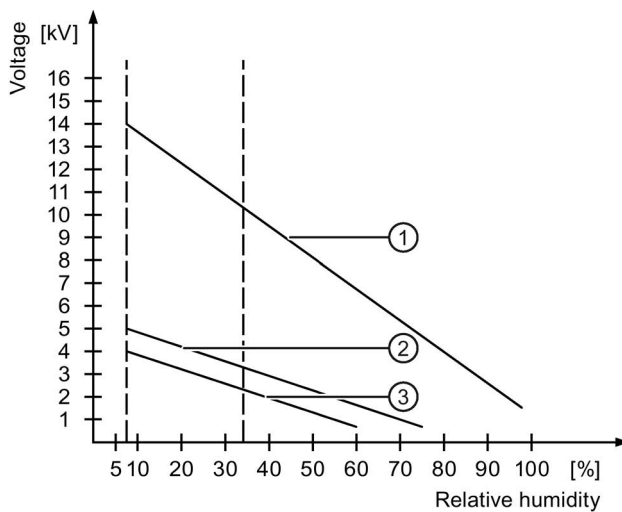
① Synthetic materials
② Wool
③ Antistatic materials such as wood or concrete

NOTICE
Grounding measures
There is no equipotential bonding without grounding. An electrostatic charge is not discharged and may damage the ESD. Protect yourself against discharge of static electricity. When working with electrostatic sensitive devices, make sure that the person and the workplace are properly grounded.

Protective measures against discharge of static electricity

- Disconnect the power supply before you install or remove modules which are sensitive to ESD.

- Pay attention to good grounding:

  - When handling electrostatical sensitive devices, make sure that persons, the workstation and devices, tools and packaging used are properly grounded. This way you avoid static discharge.

- Avoid direct contact:

  - As a general rule, do not touch electrostatic sensitive devices, except in the case of unavoidable maintenance work.

  - Hold the modules at their edge so that you do not touch the connector pins or conductor paths. This way, the discharge energy does not reach and damage the sensitive components.

  - Discharge your body electrostatically before you take a measurement at a module. Do so by touching grounded metallic parts. Always use grounded measuring instruments.

7.3 Dimension drawings

7.3.1 Dimension drawing of the IFP1500 Multitouch
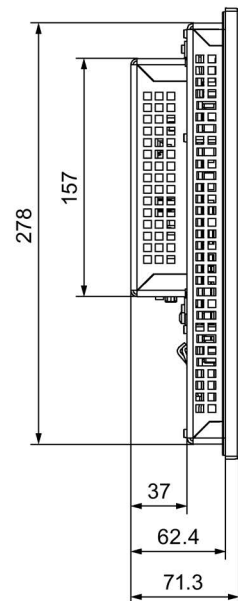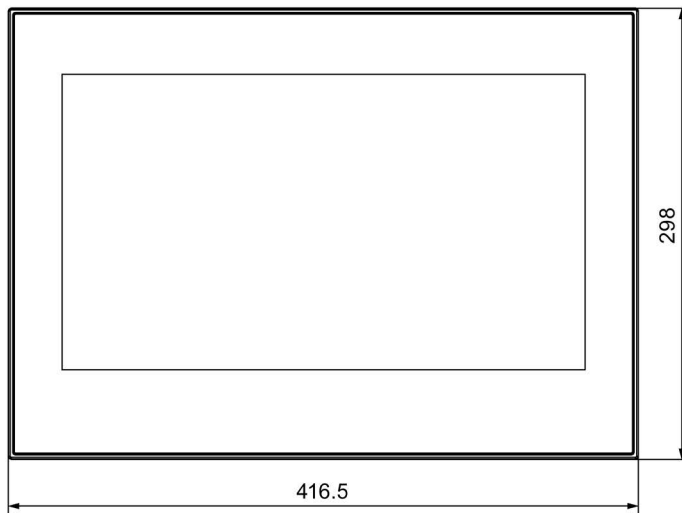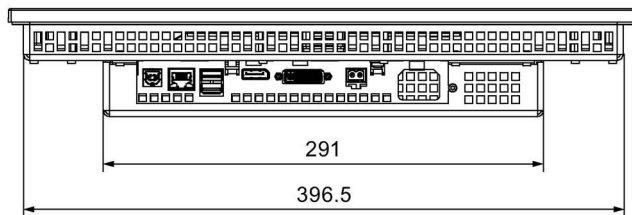
All dimensions in mm

7.3.2 Dimension drawing of the IFP1500 Monitor and Touch
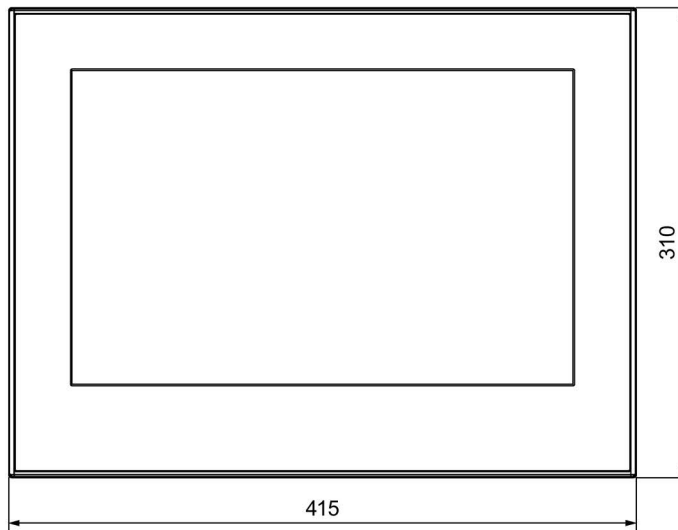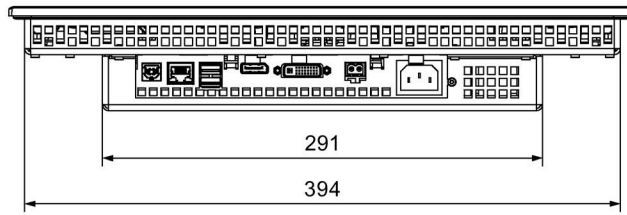
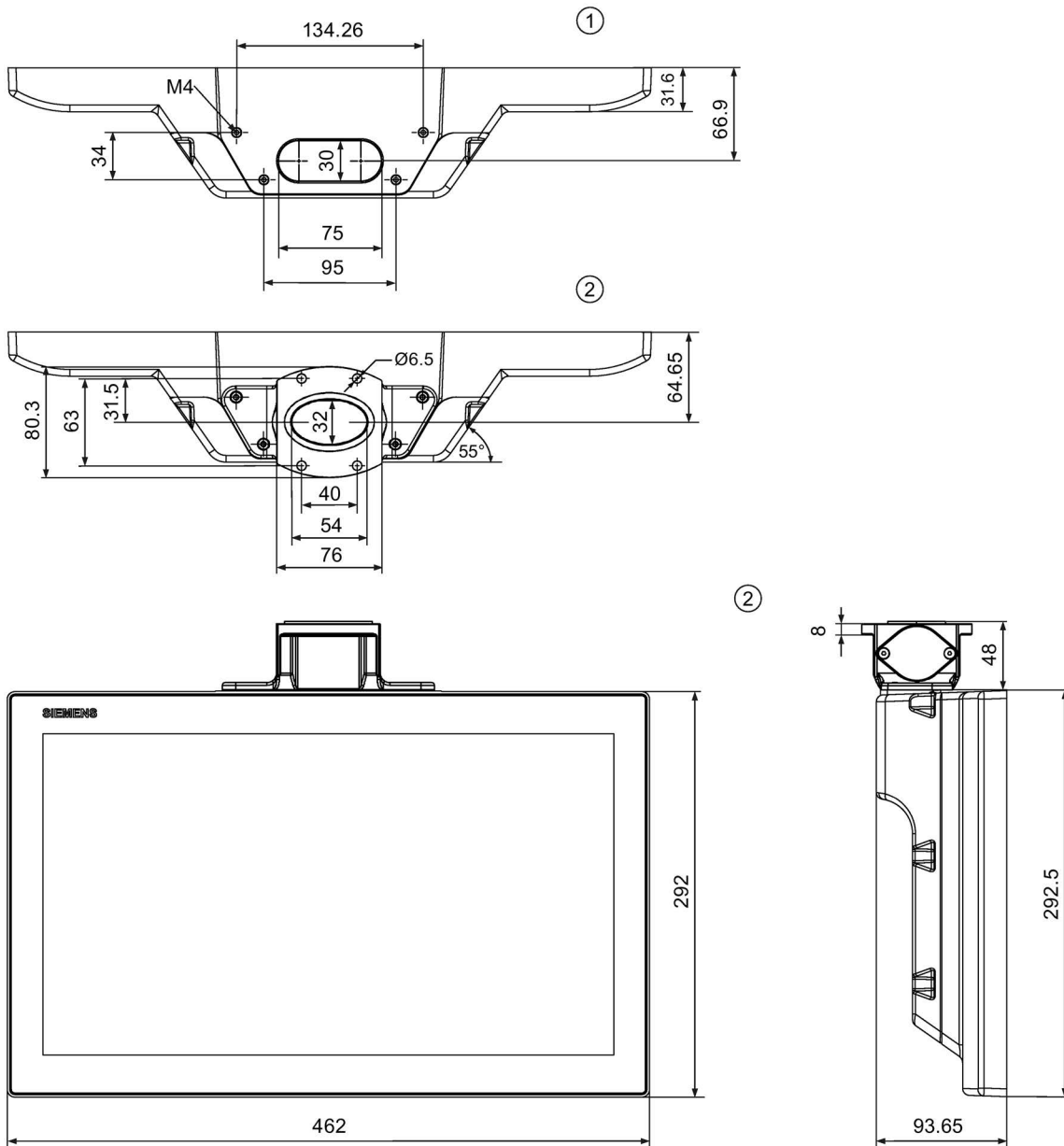All dimensions in mm
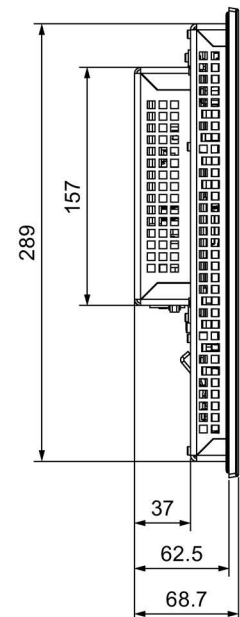
7.3.3 Dimension drawing of the IFP1900 Multitouch and IFP1900 ETH

291

463

337

483

317

157

37

62.4

71.3

All dimensions in mm
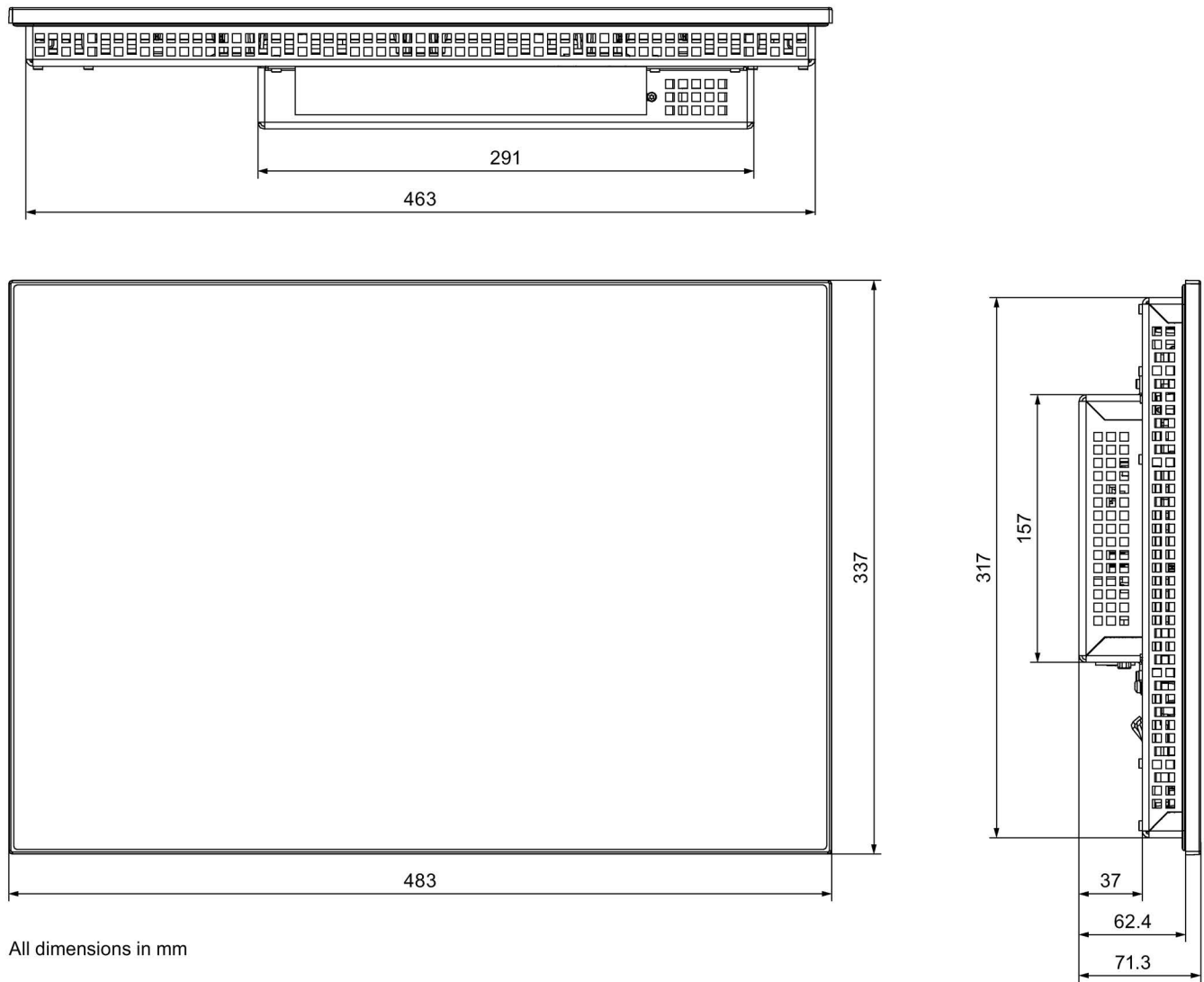
7.3.4 Dimension drawing of the IFP1900 Monitor and Touch
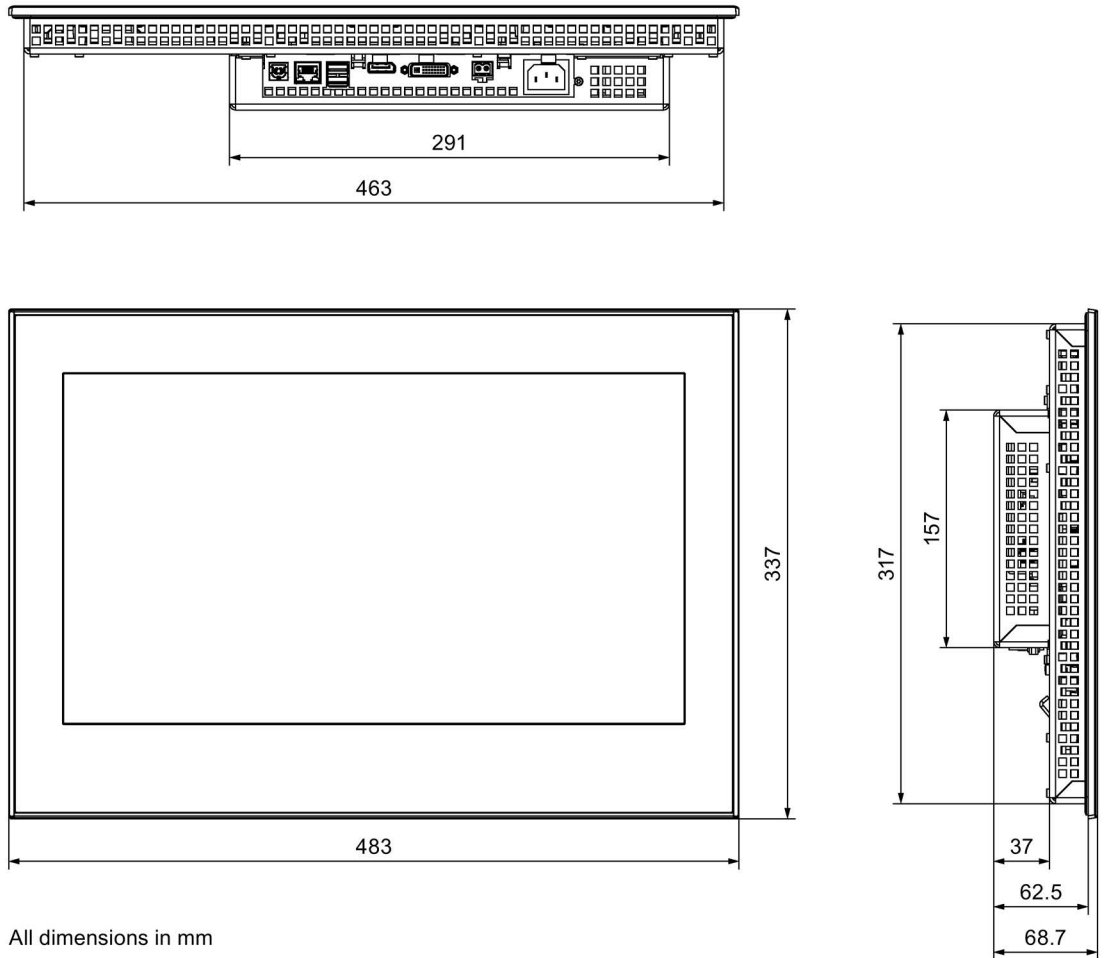
All dimensions in mm

7.3.5 Dimension drawing of the IFP2200 Multitouch and IFP2200 ETH
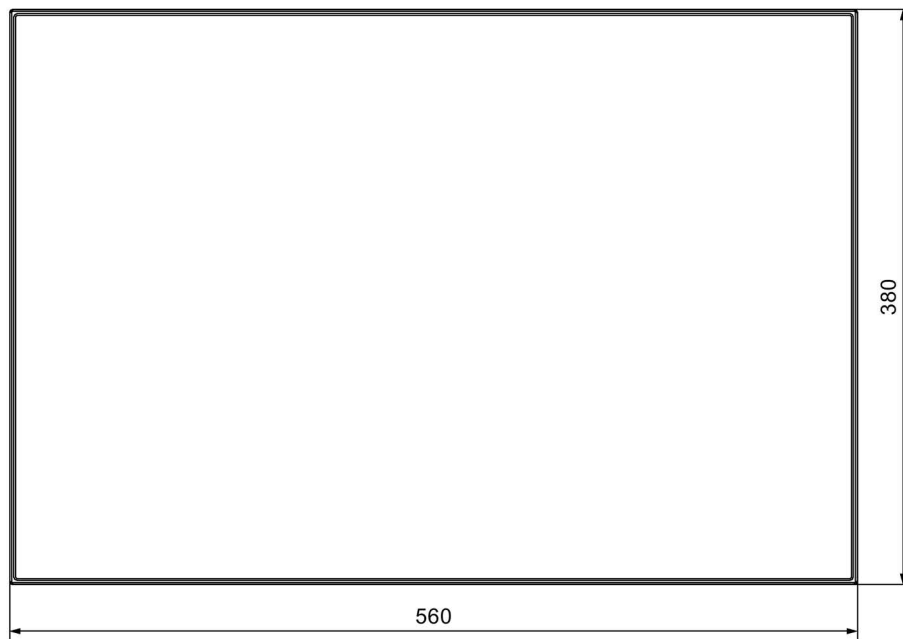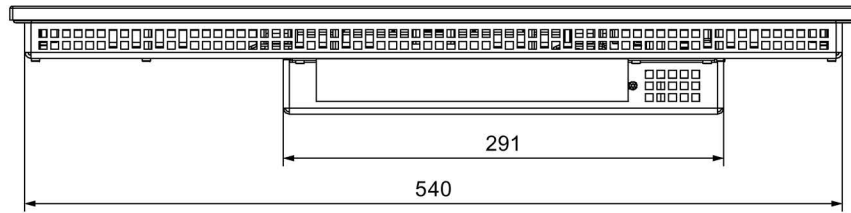
All dimensions in mm
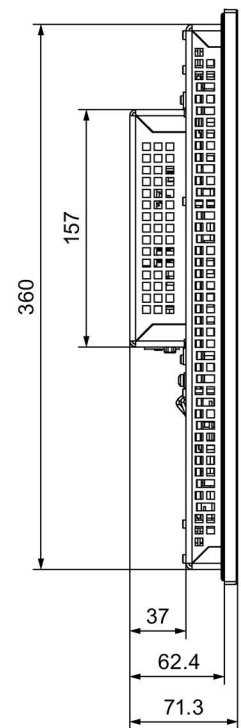
7.3.6 Dimension drawing of the IFP2200 Monitor and Touch
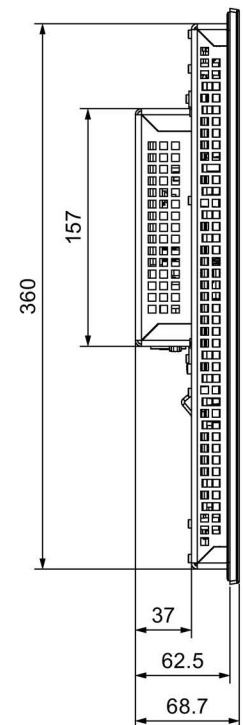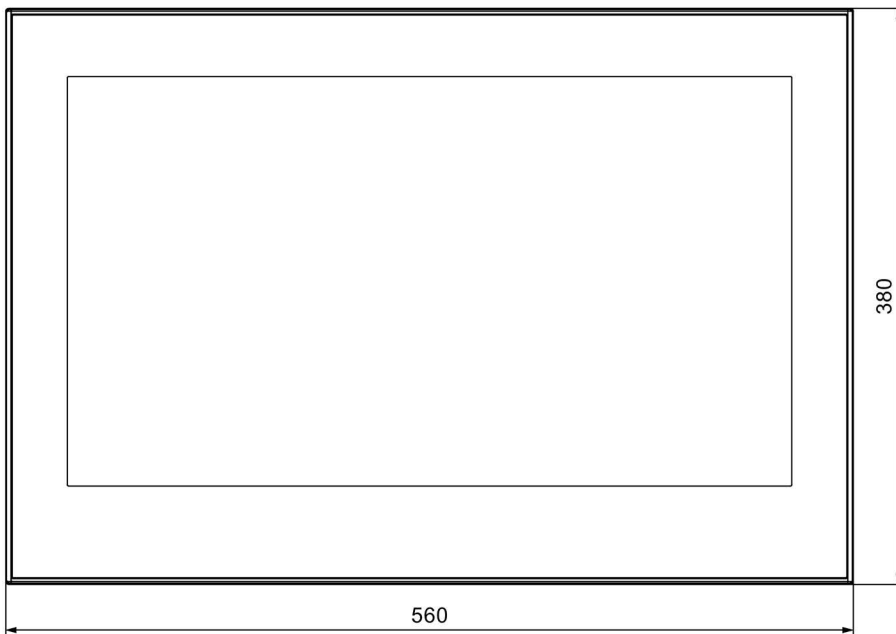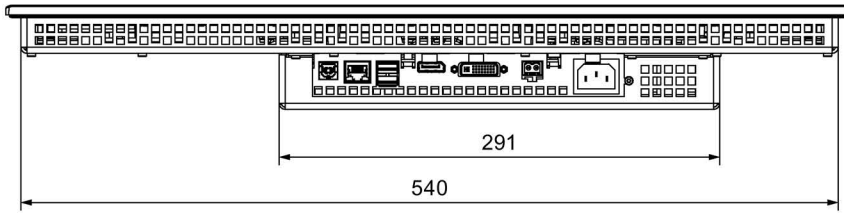
All dimensions in mm

7.3.7 Dimension dimensional drawing of the IFP1900 PRO

IFP1900 PRO for pedestal (extendable, flange bottom)
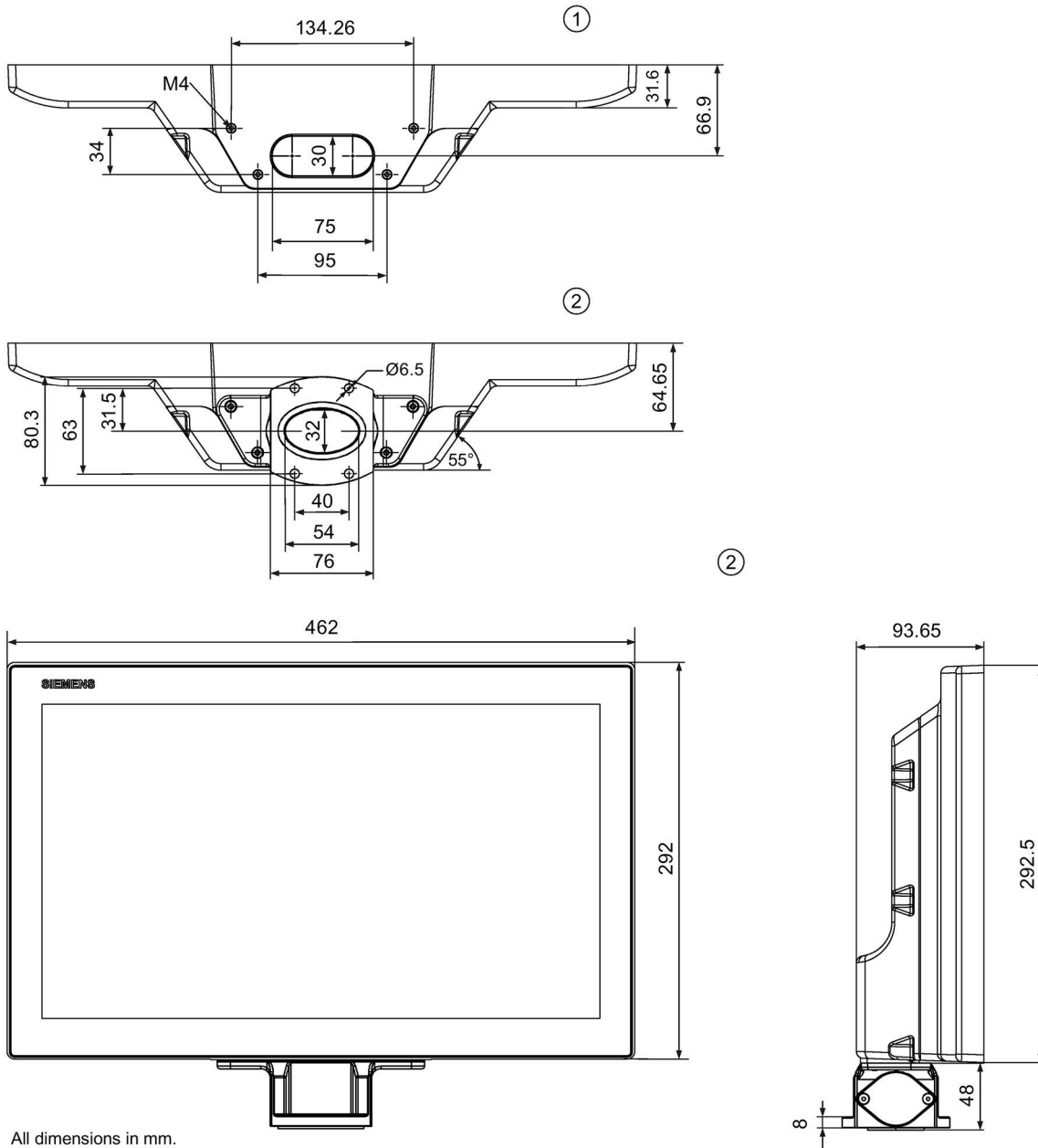
All dimensions in mm.

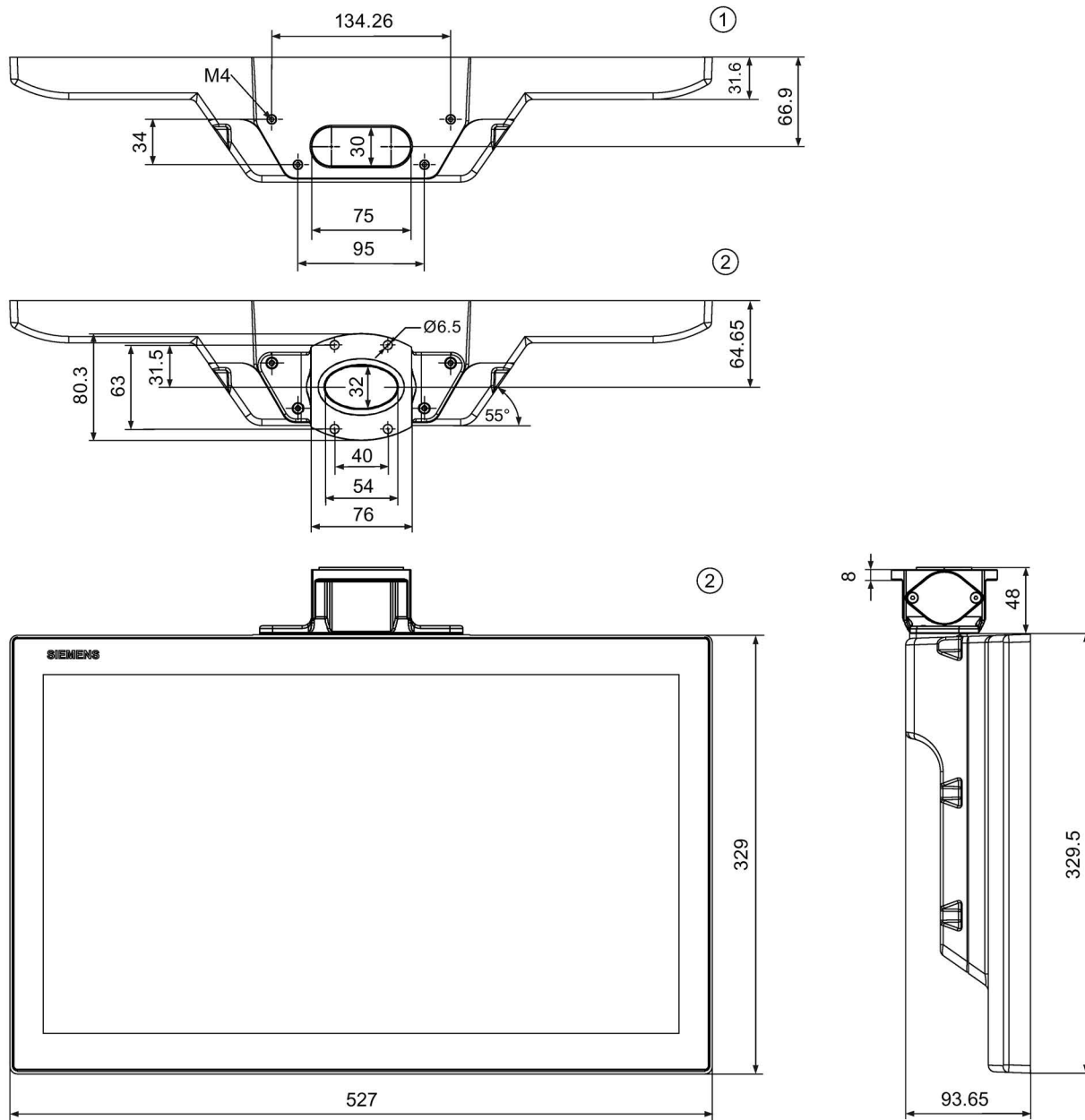①   Without base adapter
②   With base adapter

IFP1900 PRO for support arm (not extendable, flange top)

All dimensions in mm.

① Without base adapter
② With base adapter

IFP1900 PRO for support arm (extendable, round tube)

① Without flange mount
② With flange mount

All dimensions in mm.

7.3.8 Dimension drawing of the IFP2200 PRO

IFP2200 PRO for pedestal (extendable, flange bottom)

All dimensions in mm.

① Without base adapter
② With base adapter

IFP2200 PRO for support arm (not extendable, flange top)

All dimensions in mm.
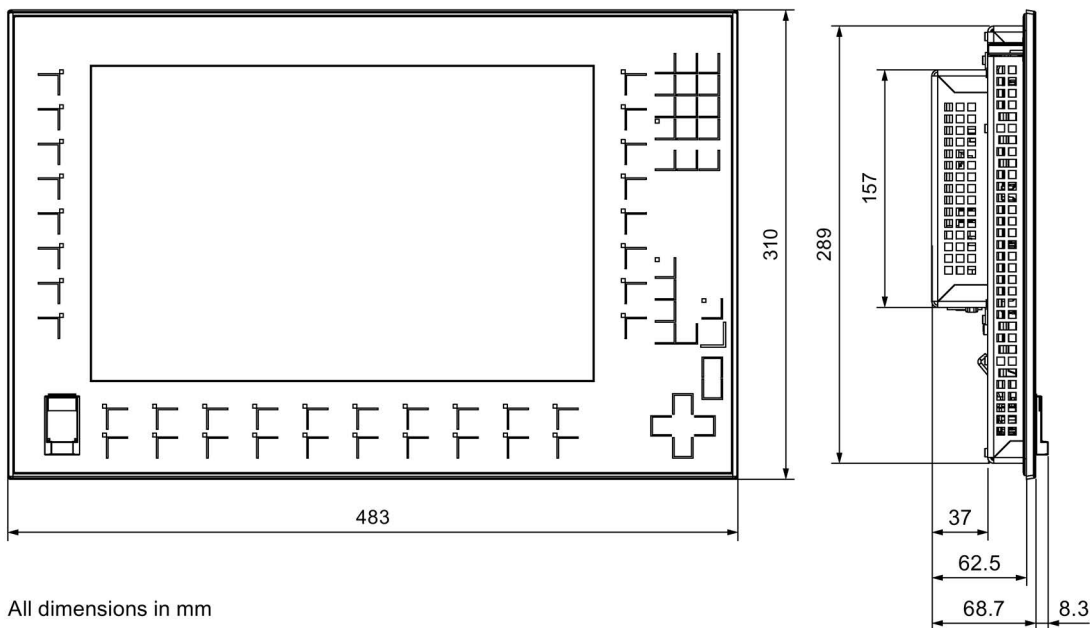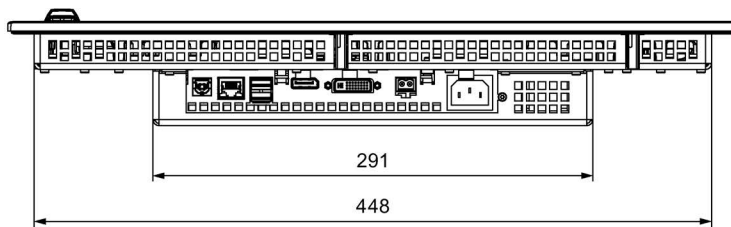
①   Without base adapter

②   With base adapter

IFP2200 PRO for support arm (extendable, round tube)
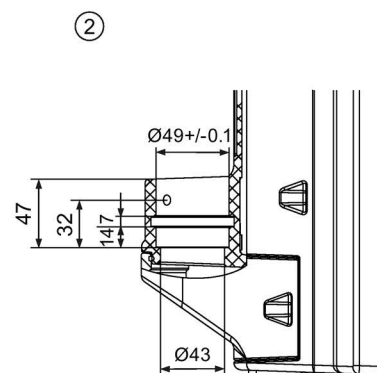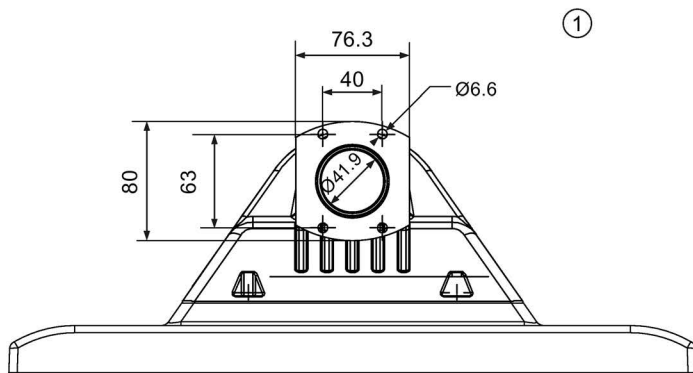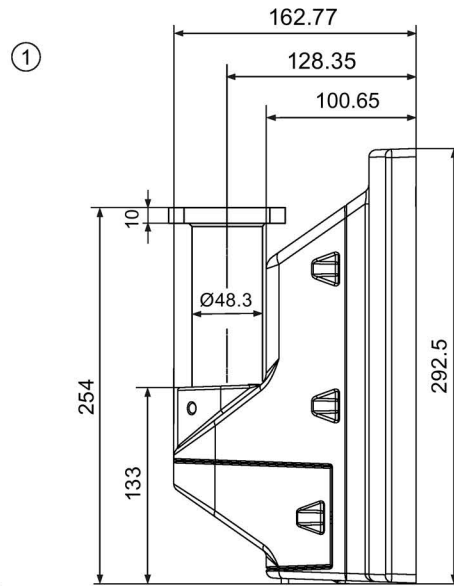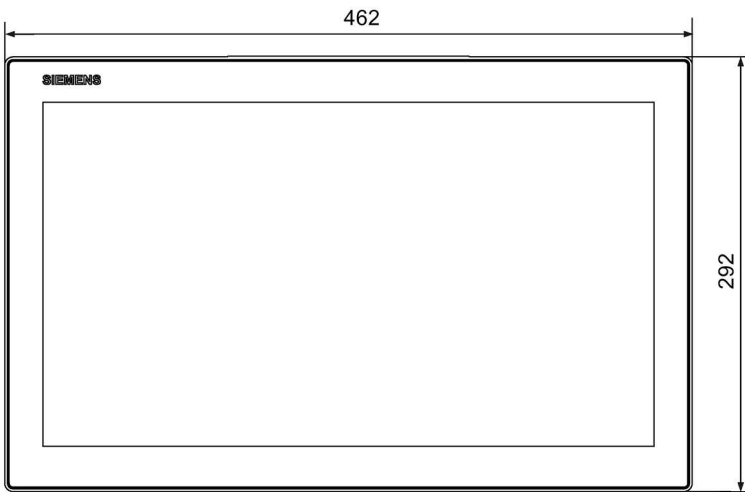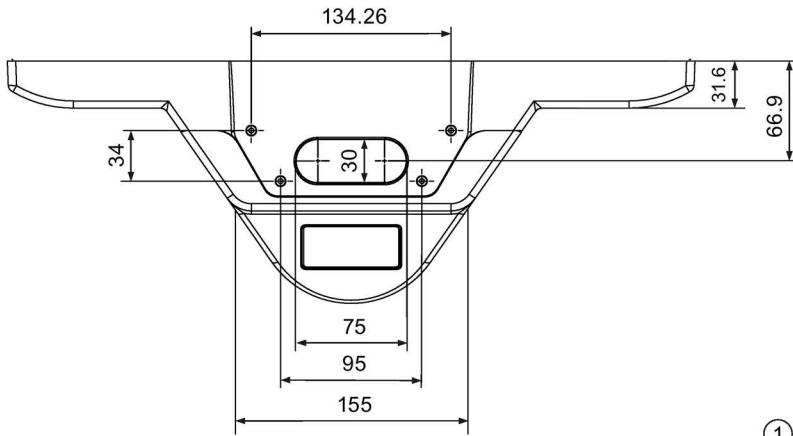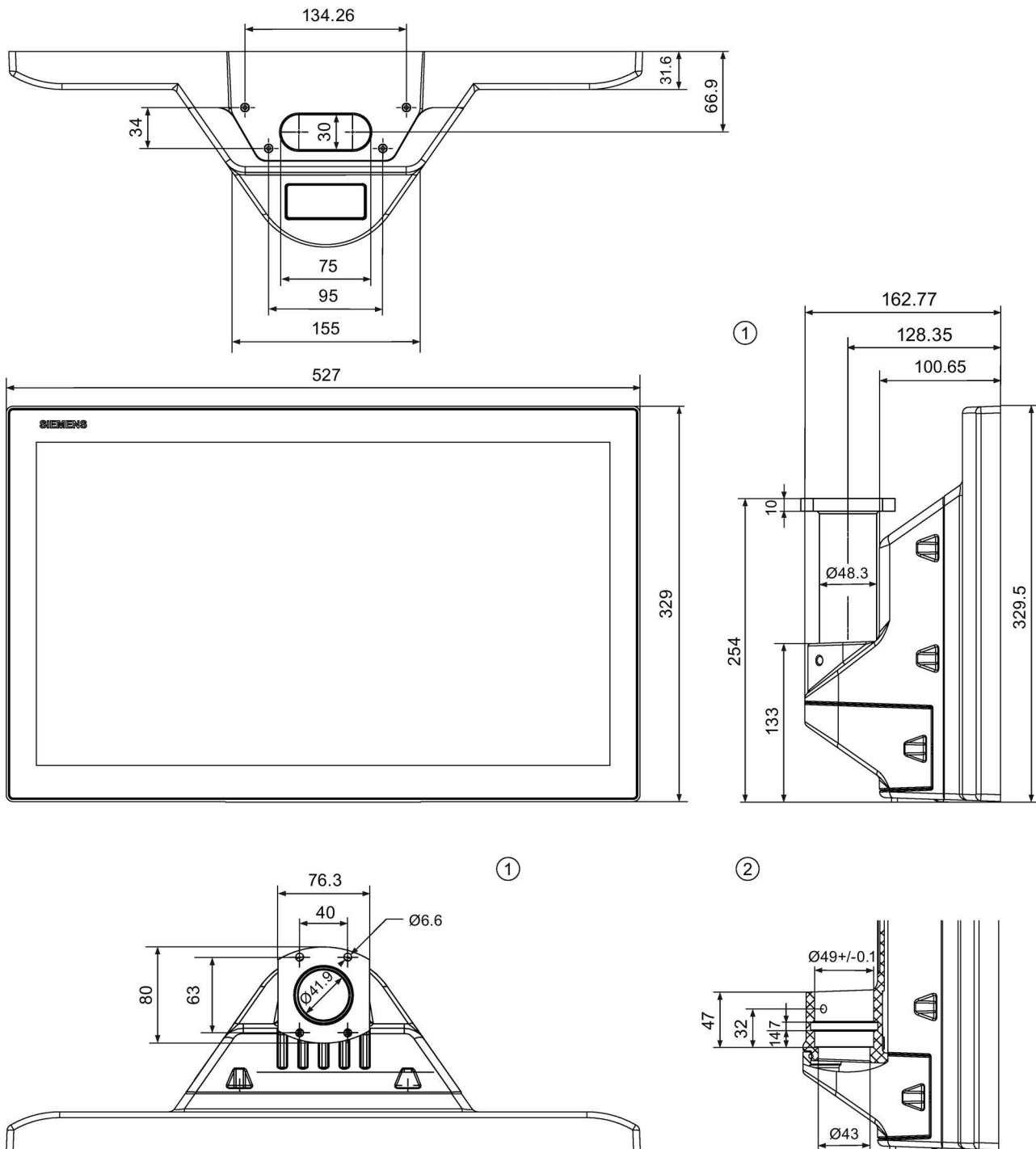
All dimensions in mm.

①   Without flange mount
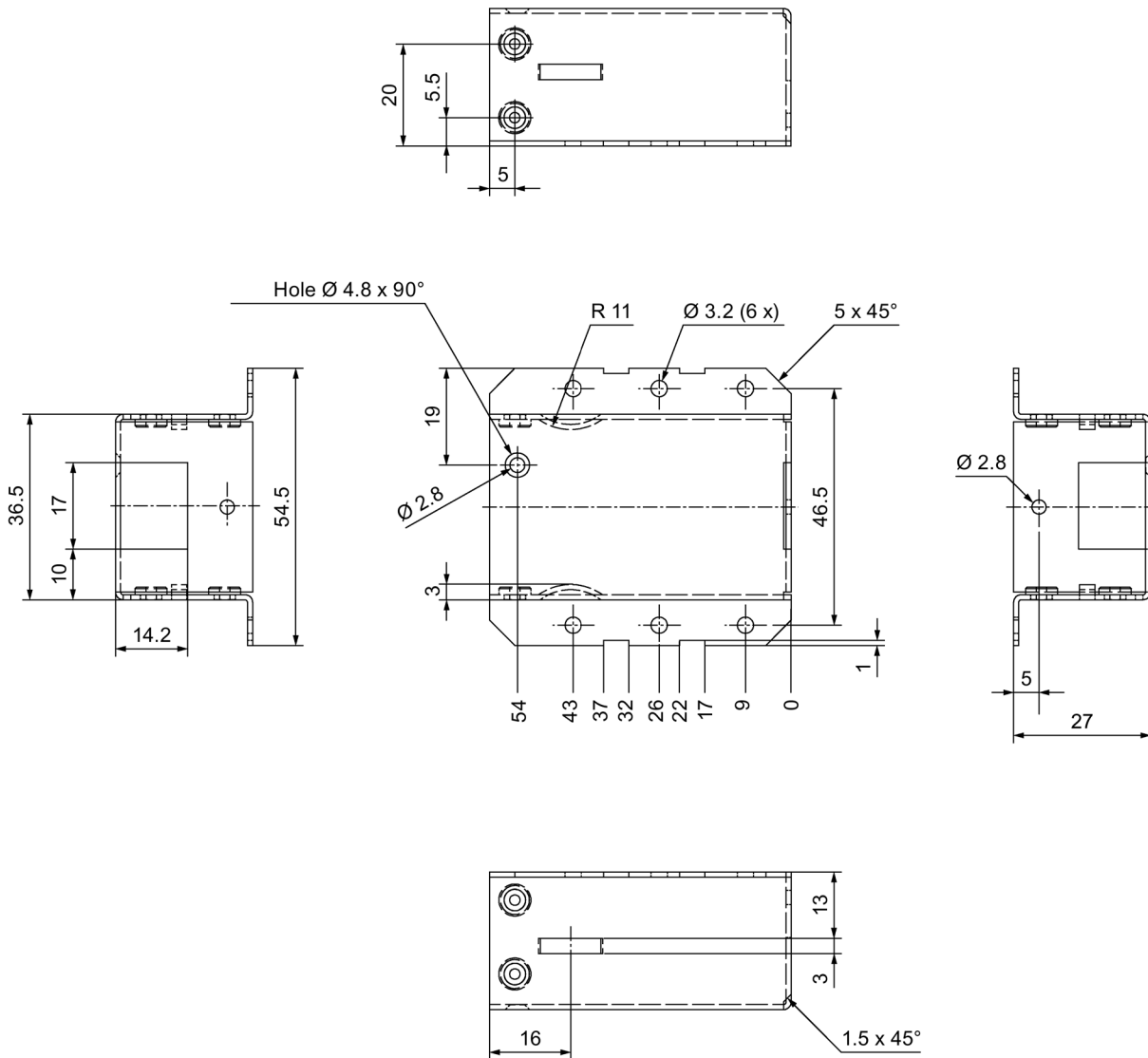
②   With flange mount

7.3.9 Dimension drawing of the IFP1500 Touch/Key

All dimensions in mm

7.3.10 Dimension drawing Host Unit USB

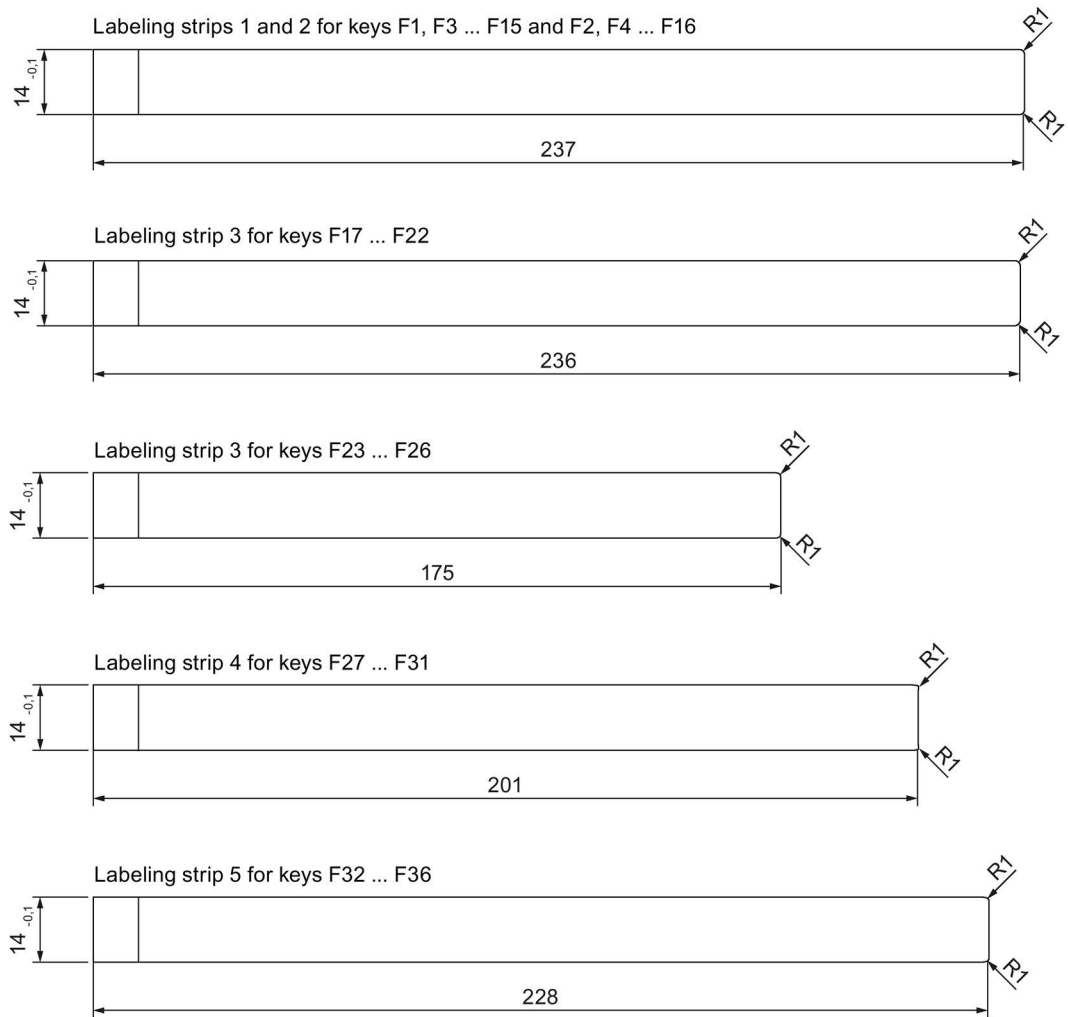The Host Unit USB is available as an accessory (DVI/USB cable sets >5 m).

7.3.11 Dimensions for labeling strips

This section contains the dimensions of the labeling strips for 15" widescreen devices.

Labeling strip templates are available in a Word document on the Internet at:

 Labeling strips for 15" widescreen
(http://support.automation.siemens.com/DE/view/en/59000814)

Labeling strips 1 and 2 for keys F1, F3 ... F15 and F2, F4 ... F16

$14_{-0,1}$

R1

R1

237

Labeling strip 3 for keys F17 ... F22

$14_{-0,1}$

R1

R1

236

Labeling strip 3 for keys F23 ... F26

$14_{-0,1}$

R1

R1

175

Labeling strip 4 for keys F27 ... F31

$14_{-0,1}$

R1

R1

201

Labeling strip 5 for keys F32 ... F36

$14_{-0,1}$

R1

R1

228

7.4 Rating plate

The rating plate includes information that clearly identifies your device. You need this information when you contact Customer Support.

The figure below shows an example of a rating plate.
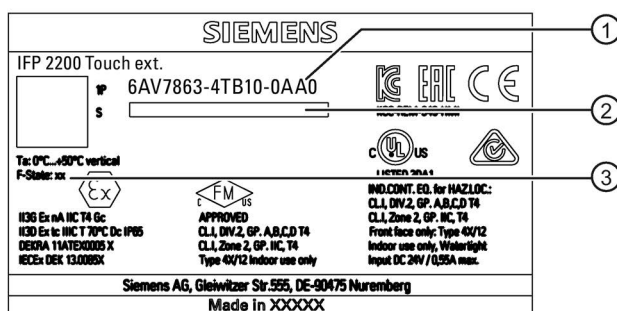
① Order number
② Serial number
③ Production version

7.5 Technical specifications

7.5.1 General technical specifications

Weight of the built-in units

	IFP1500 [1]	IFP1500 [2]	IFP1900	IFP1900 Multitouch/ETH	IFP2200	IFP2200 Multitouch/ETH	IFP1500 Touch/Key
Weight without packaging, approx.	3.9 kg	4.2 kg	5.5 kg	5.8 kg	6.5 kg	6.7 kg	4.3 kg

Weight of the PRO devices for support arm (not extendable, flange top) and for pedestal (extendable, flange bottom)

	IFP1900 PRO	IFP2200 PRO
Weight without packaging, approx.	7.3 kg	8.1 kg

Weight of the PRO devices for support arm (extendable, round tube)

	IFP1900 PRO	IFP2200 PRO
Weight without packaging, approx.	8.2 kg	9.0 kg

Display

	IFP1500 [1]	IFP1500 [2]	IFP1900 [3]	IFP2200 [4]
Type	LCD widescreen TFT			
Active display area	15.4" 331.2 × 207 mm	15.6" 344.2 × 193.5 mm	18.5" 409.8 × 230.4 mm	21.5" 475.2 × 267.3 mm
Resolution	1280 x 800 pixels	1366 x 768 pixels	1366 x 768 pixels	1920 x 1080 pixels
Possible colors	Up to 16 million			
Brightness control	By means of SetBrightness tool, value range 10% to 100%			
Backlighting Half Brightness Life Time (MTBF [5])	LED 80000 h	LED 70000 h	LED 50000 h	LED 30000 h
Pixel error class in accordance with ISO 9241-307	II			

[1] All Industrial Flat Panels with 15" diagonal display and resistive touch screen

[2] All Industrial Flat Panels with 15" diagonal display and capacitive touch screen

[3] All Industrial Flat Panels with 19" diagonal display

[4] All Industrial Flat Panels with 22" diagonal display

[5] MTBF: Operating hours after which the maximum screen 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.

Input device

	Monitor standard versions	Touch standard versions	Touch Extended	ETH versions/ PRO devices	IFP1500 Touch/Key
Keyboard	No	On-screen keyboard	• On-screen keyboard • Externally via USB		• On-screen keyboard • Externally via USB • Device keys
Analog resistive single touch screen	No	Yes		No	Yes
Capacitive multi-touch screen	No	Yes			No
Function keys	No				36
Labeling strips	No				Yes

Interfaces

	Monitor standard versions	Touch standard versions	Touch Extended/ PRO devices	ETH versions	IFP1500 Touch/Key
DVI-D	Yes			No	Yes
DisplayPort	Yes				
USB Type A, rear [1]	No		2		1
USB Type A, front [1]	No				1
USB Type B, host	No	1			
USB-Link/Ethernet, RJ45	No	1			

[1]   USB type A, maximum load 500 mA, equivalent to USB standard 2.0

DC power supply

	IFP1500 [1]	IFP1900 [2]	IFP1900 ETH	IFP2200 [3]	IFP2200 ETH
Rated voltage	24 V DC				
Permitted voltage range	+19.2 V to +28.8 V				
Rated current	2.0 A		2.0 A	2.5 A	2.0 A
Inrush current I^2t	0.5 A^2s				
Power consumption [4]	40 W				
Maximum permitted transients	35 V (500 ms)				
Minimum time between two transients	50 s				
Internal protection	Electronic				

[1]   All Industrial Flat Panels with 15" diagonal display
[2]   All Industrial Flat Panels with 19" diagonal display except IFP1900 ETH
[3]   All Industrial Flat Panels with 22" diagonal display except IFP2200 ETH
[4]   The power loss generally corresponds to the specified value for power consumption.

AC power supply

	Extended versions
Rated voltage	230 V AC
Permitted voltage range	100 to 240 V, 50 to 60 Hz
Rated current	200 mA
Inrush current I^2t	0.5 A^2s
Power consumption [1]	40 W
Minimum time between two transients	50 s
Internal protection	Electronic

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

7.5.2 Ambient conditions

7.5.2.1 Transport and storage conditions

Proper transport and storage, installation and assembly as well as careful operation and maintenance are prerequisites for trouble-free and safe operation of the device.

Non-compliance with these regulations shall render the device warranty void.

Mechanical transport and storage conditions

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

The device meets the requirements according to IEC 60721-3-2 Class 2M2 with the following amendments and limitations:

Type of condition	Permitted range
Free fall	≤ 1 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

Climatic transport and storage conditions

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 meets the requirements according to IEC 60721-3-2 Class 2K4 with the following amendments and limitations:

Type of condition	Permitted range
Temperature	−20 ... 60 °C
Atmospheric pressure, altitude	1140 ... 660 hPa, corresponds to an elevation of -1000 to 3500 m
Relative humidity	10 ... 90 %
Pollutant concentration	SO2: < 0.5 ppm; relative humidity < 60 %, no condensation H$_2$S: < 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.

7.5.2.2 Operating conditions

Mechanical and climatic conditions of use

The device is designed for use in locations protected from the effects of the weather. The conditions of use meet the requirements for DIN IEC 60721-3-3:

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

Mechanical ambient conditions

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

Frequency range f in Hz	Constant	Occasional
5 ... 8.4 Hz	Amplitude 0.0375 mm	Amplitude 3.5 mm
8.4 ... 200 Hz	Constant acceleration 0.5 g	Constant acceleration 1 g

Testing mechanical ambient conditions

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

Tested for	Test standard	Comments
Vibrations	Vibration test in accordance with IEC 60068, part 2-6 (sinusoidal)	Type of vibration: Frequency cycles at a rate of change of 1 octave/minute. 5 ... 8.4 Hz, constant amplitude 3.5 mm 8.4 to 200 Hz, constant acceleration 1 g
		Vibration duration: 10 frequency cycles per axis in each of the three mutually vertical axes
Shock	Shock test in accordance with IEC 60068, Part 2-27	Type of shock: Half-sine
		Severity of shock: Peak value 15 g, duration 11 ms
		Direction of shock: 3 shocks in ± direction of axis in each of the three axes vertical to each other

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

Climatic ambient conditions

The following table shows the climatic ambient conditions for operation of the device.

Ambient conditions	Permitted range	Comments
Temperature built-in units:		
• Vertical mounting	0 ... 50 °C (landscape format) [1] 0 ... 40 °C (portrait format)	
• Mounting at an angle	0 ... 40 °C (landscape format) 0 ... 35 °C (portrait format)	Slope angle max. 35°
Temperature PRO devices:		
• Vertical mounting	0 ... 45 °C (landscape format)	
• Inclined mounting	0 ... 45 °C (landscape format)	Tilt angle max. 45°
Relative humidity	10 ... 90%, no condensation [2]	
Atmospheric pressure, operation elevation	1140 to 795 hPa	Corresponds to an elevation of -1000 to 2000 m
Pollutant concentration	SO_2: < 0.5 vpm; Relative humidity < 60%, no condensation [2]	Test: 10 cm^3/m^3; 10 days
	H_2S: < 0.1 vpm; Relative humidity < 60%, no condensation [2]	Test: 1 cm^3/m^3; 10 days

[1] IFP1900 and IFP2200: 0 ... 45 °C

[2] Built-in units: No condensation on the rear of the device,
PRO devices: No condensation inside the housing

Note the information in section "Notes about usage (Page 31)" and the information on the mounting positions:

- Permitted mounting positions of the built-in units (Page 38)

- Permitted mounting positions of the PRO devices (Page 44)

7.5.2.3 Electromagnetic compatibility

Pulse-shaped interference

The following table shows the electromagnetic compatibility of modules with regard to pulse-shaped interference. This requires the 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	3
	Contact discharge: 6 kV (built-in unit on the front, PRO devices all-round)	
	Contact discharge: 4 kV (built-in unit on the rear)	2
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
Powerful single pulse (surge) according to IEC 61000-4-5, external protective circuit is required (see function manual "SIMATIC S7-1500, ET 200MP, ET 200SP, ET 200AL Designing interference-free controllers", section 7 "Lightning protection and overvoltage protection") on the Internet (https://support.industry.siemens.com/cs/ww/en/view/59193566).		
Asymmetrical coupling	2 kV power supply cable DC voltage with protective elements [1]	3
	2 kV signal/data cable, > 30 m, with protective elements as required [1]	
Symmetrical coupling	1 kV power supply cable DC voltage with protective elements [1]	3
	1 kV signal cable, > 30 m, with protective elements as required [1]	

[1] The following lightning protection element was used during the testing of the Industrial Flat Panel: Dehn BVT AVD 24" (Order No. 918 422)

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 (electromagnetic fields) according to IEC 61000-4-3	80% amplitude modulation at 1 kHz with 10 V/m in the range of 80 MHz to 1 GHz with 3 V/m in the range 1.4 GHz to 2 GHz with 1 V/m in the range 2 GHz to 2.7 GHz	3
HF power applied to lines and line shields according IEC 61000-4-6	Test voltage 10 V, with 80% amplitude modulation of 1 kHz in the 150 kHz to 80 MHz range	3

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.

Radiated emission (emitted interference)

1 GHz to 3 GHz	< 66 dB peak and < 46 dB average
3 GHz to 6 GHz	< 70 dB peak and < 50 dB average
30 MHz to 230 MHz	< 40 dB (µV/m) quasi-peak
230 MHz to 1000 MHz	< 47 dB (µV/m) quasi-peak

Emission of radio interference voltages

0.150 MHz to 0.5 MHz	< 79 dB quasi-peak and < 66 dB average
0.5 MHz to 30 MHz	< 73 dB quasi-peak and < 60 dB average

See also

Notes about usage (Page 31)

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

Test voltages

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 or 500 V AC to other circuits / to ground
Ethernet connector	1500 V AC

Protection class

Protection Class I in accordance with IEC 61131-2, i.e. with protective conductor.

Protection against foreign objects and water built-in units

Degree of protection	Explanation
Front	When mounted: • IP65 according to IEC 60529 • Front face only Type 4X/Type 12 (indoor use only)
Rear panel	IP20 Touch protection test with standard test probes. There is no protection against ingress by water.

The degree of protection of the front panel can only be guaranteed if the mounting seal is properly installed at the mounting cut-out and the cover flap of the USB interface is closed on the Touch/Key device. Read the corresponding information in section "Preparing the mounting cutout (Page 41)".

Protection against foreign objects and water PRO device

Degree of protection	Explanation
All-round	When mounted:
	• IP65 according to IEC 60529
	• Enclosure Type 4X / 12 (indoor use only) according to UL50

The degree of protection can only be guaranteed if the seals are completely flush at the mechanical interfaces and the associated covers are closed.

Degree of pollution / overvoltage category according to IEC 61131
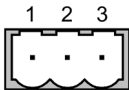
- Degree of pollution 2
- Overvoltage category II

7.6   Interface description

7.6.1   24 V DC Power Supply

Power supply 24 V DC 2-pin

Pin no.	Meaning
1	+24 V DC
2	GND [1]

[1]   GND is internally connected to signal ground on DVI, for example, device ground and housing:

Power supply 24 V DC 3-pin

Pin no.	Meaning
1	+24 V DC
2	Ground
3	Protective conductor

7.6.2 DVI-D interface

DVI-D interface		
Pin no.	**Abbreviation**	**Signal**
1	TX2N	TDMS data 2-
2	TX2P	TDMS data 2+
3	GND	TMDS data shield 2, ground
4	NC	Not assigned
5	NC	Not assigned
6	DDC CLK	DDC clock
7	DDC CLK	DDC data
8	NC	Not assigned
9	TX1N	TDMS data 1-
10	TX1P	TDMS data 1+
11	GND	TMDS data shield 1, ground
12	NC	Not assigned
13	NC	Not assigned
14	+5 V	+5 V power
15	GND	Ground
16	MONDET	Hotplug detect
17	TX0N	TDMS data 0-
18	TX0P	TDMS data 0+
19	GND	TMDS data shield 0, ground
20	NC	Not assigned
21	NC	Not assigned
22	GND	TMDS clock shield, ground
23	TXCP	TDMS clock +
24	TXCN	TDMS clock -
C1	NC	Not assigned
C2		
C3		
C4		
C5		

7.6.3 DisplayPort

DisplayPort interface			
Pin no.	Abbreviation	Meaning	Input/output
1	ML_Lane3-	DP data 3-	Input
2	GND	Ground	-
3	ML_Lane3+	DP data 3+	Input
4	ML_Lane2-	DP data 2-	Input
5	GND	Ground	-
6	ML_Lane2+	DP data 2+	Input
7	ML_Lane1-	DP data 1-	Input
8	GND	Ground	-
9	ML_Lane1+	DP data 1+	Input
10	ML_Lane0-	DP data 0-	Input
11	GND	Ground	-
12	ML_Lane0+	DP data 0+	Input
13	CONFIG1 CAD	Cable Adapter Detect	Input
14	CONFIG2	Ground (PullDown)	-
15	AUX_CH+	Auxiliary channel+	Bidirectional
16	GND	Ground	-
17	AUX_CH-	Auxiliary channel-	Bidirectional
18	HPD	Hot Plug Detect	Input
19	GND	Ground	-
20	DP_PWR	+3.3 V (fused)	Input
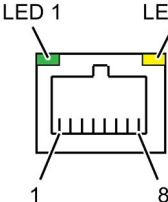
7.6.4 USB interface, Type B

USB port, Type B		
Pin no.	Abbreviation	Signal
1	VCC	+ 5 V (fused)
2	- Data	Data channel
3	+ Data	Data channel
4	GND	Ground

7.6.5 USB hub, Type A

USB port		
Pin No.	**Abbreviation**	**Signal**
1	VCC	+ 5 V (fused)
2	- Data	Data channel
3	+ Data	Data channel
4	GND	Ground

7.6.6 Ethernet

Ethernet RJ45 interface			
Pin no.	**Short description**	**Meaning**	**Input / output**
1	BI_DA+	Bi-directional data A+	Input/output
2	BI_DA-	Bi-directional data A-	Input/output
3	BI_DB+	Bi-directional data B+	Input/output
4	BI_DC+	Bi-directional data C+	Input/output
5	BI_DC-	Bi-directional data C-	Input/output
6	BI_DB-	Bi-directional data B-	Input/output
7	BI_DD+	Bi-directional data D+	Input/output
8	BI_DD-	Bi-directional data D-	Input/output
S		Shield	–
	LED 1	Off: 10 Mbps Green light: 100 Mbps Orange light: 1000 Mbps	–
	LED 2	Lit: Active connection, e.g., to a hub Flashing: Activity	–

The Ethernet interface supports MDXI (auto crossover) for all transmission rates.

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 (https://support.industry.siemens.com)
- 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 of the device
- Other installed hardware
- Other installed software

Current documentation

Always use the current documentation available for your product. You can find the latest edition of this manual and other important documents by entering the article number of your device on the Internet (https://support.industry.siemens.com). If necessary, filter the comments for the entry type "Manual".

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)

See also

Rating plate (Page 107)

A.2 Troubleshooting

Ethernet Monitors

Error pattern	Possible cause	Possible remedy
The Windows Start screen is not visible and only the extended desktop is displayed. The device cannot be operated.	Occurs when uninstalling the Ethernet Monitor software in combination with an Ethernet Monitor.	Uninstalling cannot be performed with an Ethernet Monitor. Use a different monitor for uninstalling.
IPC Wizard does not find a suitable device and aborts the installation.	Occurs during commissioning of a SIMATIC IPC with pre-installed IPC Wizard.	Acknowledge note text. Reboot. After rebooting, start setup of the Ethernet Monitor software.
Commissioning of the Ethernet Monitor software has failed.	Device has already been used in a different constellation	Factory setting must be restored on the devices. Re-install original PC operating system, use the Restore DVD for an IPC.
	Installation was started using a WLAN network connection.	WLAN is not supported, disable the WLAN adapter of the PC prior to installation.
A connection to the Ethernet Monitor was not established.	Make sure that the factory settings have been restored for the Ethernet Monitor.	Switch off the power supply of the Ethernet Monitor. Press the Reset button and keep it pressed for another 10 seconds while switching on the power supply. Both LAN LEDs will go out briefly. You can check a reset of the Ethernet Monitor with a PC on which the Ethernet Monitor software was not installed. 1. Set the network address of the PC to 192.168.1.1. 2. Connect IPC and Ethernet Monitor via the network. 3. Open the command line interpreter on the PC: "Start > command prompt > 'CMD'" 4. Enter "ping 192.168.1.2" in the command-line interpreter. When a feedback message from "192.168.1.2" is displayed, the factory settings have been restored for the Ethernet Monitor.
The start screen of the Ethernet Monitor remains in "Connected" state, text is green.		1. Switch off of the power supply of the Ethernet Monitor and of the PC. 2. Wait for 10 seconds. 3. Switch on the power supply of both devices again.

Markings and symbols

B

B.1 Safety-relevant symbols

The following table describes symbols that can be added to your SIMATIC device, to its packaging or to an enclosed document in addition to the symbols described in the manuals.

Symbol	Meaning	Reference
	General danger sign Caution / Attention You must following the operating instructions. The operating instructions contain information on the type of the potential hazard and enable you to identify risks and implement countermeasures.	ISO 7000 No. 0434B, DIN ISO 7000 No. 0434B
ONLY EX MODULES	Attention, only relevant for modules with Ex approval	
	Follow the instructions	ISO 7010 M002
	May be installed by qualified electricians only	IEC 60417 No. 6182
F<2N DISPLAY F<4N HOUSING	Mechanical load for HMI devices	
CABLE SPEC.	Connection cables must be designed for the ambient temperature	
EMC	EMC-compliant installation	
U = 0V	No mounting or pulling & plugging under voltage	
230V MODULES	Dangerous electrical voltage for 230V modules	ANSI Z535.2
III 24V MODULES	Protection class III, supply only with protective low voltage (SELV/PELV)	IEC 60417-1-5180 "Class III equipment"

Symbol	Meaning	Reference
INDOOR USE ONLY **INDUSTRIAL USE ONLY**	Only for industrial applications and indoor areas (control cabinet)	
	Install in control cabinet only	
ZONE 2 **INSIDE CABINET IP54** **EN60079-15**	Devices approved for Ex Zone 2 in a control cabinet with min. IP54	
ZONE 22 **INSIDE CABINET IP6x** **EN60079-31**	Devices approved for Ex Zone 22 in a control cabinet with min. IP6x	

List of abbreviations

C

ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange
B	Width
BLI	Backlight Inverter
BIOS	Basic Input Output System
CD-ROM	Compact Disc – Read Only Memory
CPU	Central Processing Unit
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name Service
DP	Distributed I/O
DSN	Data Source Name
DVD-ROM	Digital Versatile Disc – Read Only Memory
ESD	Electrostatic Sensitive Devices
EMC	ElectroMagnetic Compatibility
H	Height
HF	High Frequency
HMI	Human Machine Interface
IF	Interface: Interface
LCD	Liquid Crystal Display: Liquid crystal display
LED	Light Emitting Diode: Light emitting diode
LPS	Limited Power Source
Mbps	Megabits per second
NBR	Nitrile butadiene rubber
OSD	OnScreenDisplay
OSK	OnScreenKeyboard
PC	Personal Computer
PG	Programming device
PPI	Point to Point Interface SIMATIC S7
PS/2	Personal System 2
RoHS	Restriction of the use of certain hazardous substances in electrical and electronic equipment
PLC	Programmable logic controller
T	Device depth
TCP/IP	Transmission Control Protocol/Internet Protocol
USB	Universal Serial Bus
VGA	Video Graphics Array

Glossary

Application

An application is a program which is put directly on the operating system MS-DOS or windows. An application on the PC/PG, for example, is STEP 7.

Controller

Installed hardware and software which control the functions of specific internal or external devices, e.g. the keyboard controller.

Documentation and Drivers CD/DVD

The "Documentation and Drivers" CD/DVD is included. The CD/DVD contains specific drivers and applications for the supported operating system.

Drivers

Program parts of the operating system. They adapt user program data to the specific formats required by peripheral devices, such as hard disk, monitors, and printers.

Drop-down menu

Menu bar on the upper edge of the screen. The menu items are pre-set or can be set as drop down menus or pull down menus. Drop down menus roll down as soon as the cursor is moved over the menu title. Pull down menus roll down after clicking on the title.

Hub

A term from network technology. A device which joins communication lines at a central location and provides a common connection to all devices on the network.

Interface

The connection of individual hardware elements, e.g. programmable controller, PCs, programming device, printer, or screen, by means of physical plug connectors.

Connection between different programs in order to exchange data.

Module

Modules are plug-in units for PLCs, programming devices or PCs. Modules exist, for example, as central modules, power-ons, or as mass storage.

Plug and play

Through plug and play, the computer configures itself automatically to be able to communicate with peripheral devices, e.g. screens, modems and printers. User connects a peripheral device: plug. Afterwards, the peripheral device can be used immediately. play, without having to configure the operating system manually. The plug and play PC requires both a BIOS that supports plug and play and a corresponding expansion card.

Index

T

U

W