

SIMATIC HMI

Industrial Flat Panels V2 IFP V2, IFP V2 PRO, IFP V2 ETH

Operating Instructions

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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.

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Disclaimer of Liability

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

Preface

These operating instructions contain all the information you need for commissioning and using the Industrial Flat Panel SIMATIC IFP V2 and the Transceiver Unit.

These operating instructions are intended both for programming and testing personnel who commission the devices and connect them to other units (automation systems, programming devices), and for service and maintenance technicians who carry out maintenance work or fault 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 SIMATIC IFP V2 devices with article numbers 6AV7863-.....-2...:

- SIMATIC IFP1200 V2, IFP1500 V2, IFP1900 V2, IFP2200 V2, IFP2400 V2
- SIMATIC IFP1200 V2 extended, IFP1500 V2 extended, IFP1900 V2 extended, IFP2200 V2 extended, IFP2400 V2 extended
- SIMATIC IFP1500 V2 ETH, IFP1900 V2 ETH, IFP2200 V2 ETH, IFP2400 V2 ETH
- SIMATIC IFP1200 V2 PRO, IFP1500 V2 PRO, IFP1900 V2 PRO, IFP2200 V2 PRO, IFP2400 V2 PRO

These operating instructions also apply for the Transceiver Unit with the article number 6AV7860-3EH00-0AA0.

Conventions

The following conventions apply in these operating instructions:

- The term "device" is used for all SIMATIC IFP V2 devices, SIMATIC IFP V2 PRO devices and the Transceiver Unit.
- The term "IFP" is also used for all SIMATIC IFP V2 devices and SIMATIC IFP V2 PRO devices.
- The devices IFP1200 V2, IFP1500 V2, IFP1900 V2, IFP2200 V2 and IFP2400 V2 are referred to as "standard versions" of the SIMATIC IFP V2 devices.
- The devices IFP1200 V2 extended, IFP1500 V2 extended, IFP1900 V2 extended, IFP2200 V2 extended and IFP2400 V2 extended are referred to as "extended versions" of the SIMATIC IFP V2 devices.
- The devices IFP1500 V2 ETH, IFP1900 V2 ETH, IFP2200 V2 ETH and IFP2400 V2 ETH are referred to as "ETH versions" or "Ethernet Monitors".

- The standard versions, extended versions and Ethernet Monitors are referred to as "built-in devices".
- The devices IFP1200 V2 PRO, IFP1500 V2 PRO, IFP1900 V2 PRO, IFP2200 V2 PRO and IFP2400 V2 PRO are referred to as "PRO devices".
- The projective-capacitive multi-touch screen of the devices is also referred to as "capacitive multi-touch screen" or "touch screen".

The following applies to the possible operating modes of an IFP:

- In "standard mode", an IFP is directly connected to the PC via a USB cable and a DVI/DisplayPort cable ≤ 5 m long.
- In "Extended mode", an extended version or a PRO device can be connected via a Cat. 6A Ethernet cable > 5 m and the Transceiver Unit connected to the PC.
- In "Commissioning" mode, an Ethernet Monitor is prepared for "Ethernet" mode. In "Ethernet" mode, the PC and Ethernet Monitor are connected with an Ethernet cable which transfers all signals for operator control and monitoring.

Figures

This manual contains figures of the described devices. The supplied device might differ in some details from the figures. Within some of the figures, one device is used to represent several devices.

Picture components are marked with black position numbers on a white background ①, ②, ③, ...

Steps in the figures are identified with white process numbers on a black background according to the sequence in which they have to be executed: ❶, ❷, ❸, ...

History

The following released versions of these operating instructions have been published to date:

Edition	Comment
08/2019	First Edition
08/2020	Description of the following devices added: • Built-in devices IFP1200 V2, IFP1200 V2 extended • Built-in devices IFP1500 V2 ETH, IFP1900 V2 ETH, IFP2200 V2 ETH, IFP2400 V2 ETH • PRO devices IFP1200 V2 PRO and IFP2400 V2 PRO
08/2021	Description of approvals CE, UL, FM, and ATEX/IECEx updated, CCC added
11/2022	Description of approvals UKCA added and UKEX added.
03/2023	Description of approvals UL Hazardous updated.

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Overview

1.1 Product description

SIMATIC IFPs are industrial grade LCD monitors with a brilliant TFT display that can be connected to SIMATIC IPCs and to almost all commercially available PCs.



Features of the built-in devices

- Rugged front in different design versions
- Brilliant TFT display with high viewing angle, Full HD resolution and up to 16 million colors
- Capacitive multi-touch screen in all sizes, switchable via software from multi-touch mode to single-touch mode
- Can be placed up to 5 m from the IPC
- DVI-D/DisplayPort V1.1/1.2 interface
- Multi-monitoring support
- Backlight can be dimmed via software
- Two USB 2.0 ports
- Power supply 24 V DC, AC power supply unit available as system component
- In installed condition, front degree of protection IP65 or Enclosure Type 4X/12 (indoor use only, front face only)

Features of the extended versions

The extended versions have a DisplayPort V1.2 interface and the following features in addition to the built-in devices:

- Possible via Transceiver Unit up to 100 m distance to the PC

Features of the Ethernet Monitors

The Ethernet Monitors have a DisplayPort V1.1 interface and the following additional features as compared to the built-in devices:

- 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 diagnostics function

Features of the PRO devices

The PRO devices are connected to a 24 V DC power supply and have the following features in addition to the extended versions:

- All-round dust-proof and splash-proof with degree of protection IP65 and Enclosure Type 4X/12 (indoor use only)
- Can be mounted directly on the machine

Note

This is not suitable for UL hazardous location.

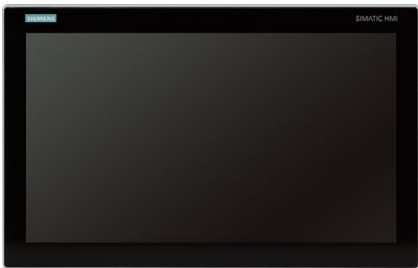
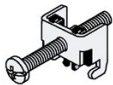
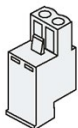
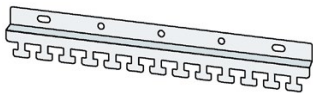
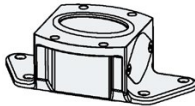
- Device versions for mounting:
 - PRO device for pedestal (extendable, flange bottom)
 - PRO device for support arm (not extendable, flange top)
 - PRO device for support arm (extendable, round tube)

Adapters and adapter sets that can be ordered separately support mounting systems from various manufacturers.

- Base 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 adapter available as accessory

1.2 Scope of delivery of the IFPs

The product package includes the following components:

Name	Figure	Number
IFP		1
Accessory kit "Mounting clips ¹ and power supply connector"		12
		1
Strain relief plate ¹		Including 3 screws T10, M3x8 1
Base adapter ²		Including 4 screws T20, M4x12 1
Cover for mechanical inter- face ³		Including 4 screws T20, M4x12 1
"Connecting cables" acces- sory kit ⁴	DisplayPort cable, length 2 m	1
	USB cable Type B connector - Type A connector, length 2 m	1
	Ethernet connecting cable ⁵ , length 2 m	1
Ferrites ⁶	Ferrite for power supply cables, white	1
	Ferrite for the Ethernet cable to the Transceiver Unit, black	1

¹ Only for built-in devices, not for PRO devices

² Only with PRO devices for pedestal (extendable, flange bottom) and for support arm (not extendable, flange top)

³ Only with PRO devices for support arm (extendable, round tube)

⁴ Only for standard versions and Ethernet Monitors

⁵ Only for Ethernet Monitors

⁶ Only for extended versions and PRO devices

1.3 Structure of the built-in devices

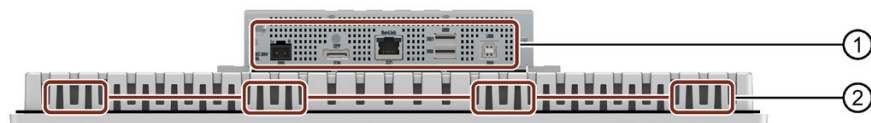
This section describes the structure of the built-in devices using the example of the IFP1900 V2 extended.

Front view and side view



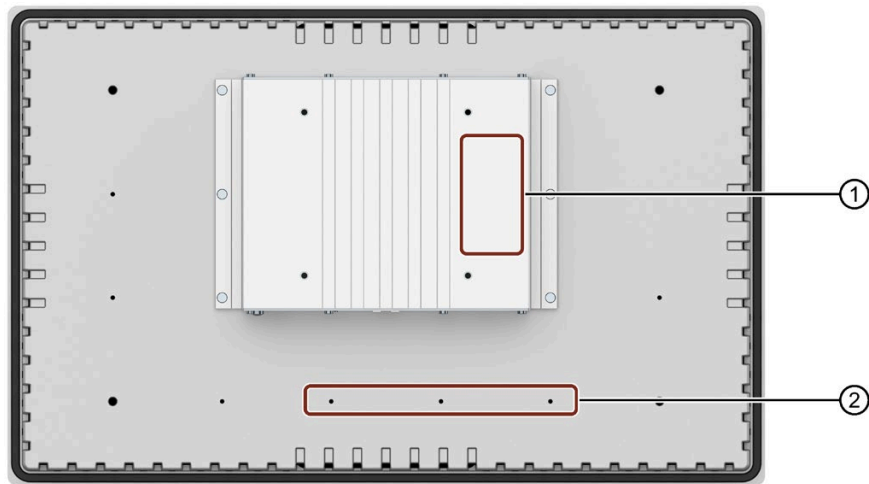
- ① Display and capacitive multi-touch screen
- ② Recesses for mounting clips
- ③ Mounting seal

Bottom view



- ① Interfaces
- ② Recesses for mounting clips

Rear view



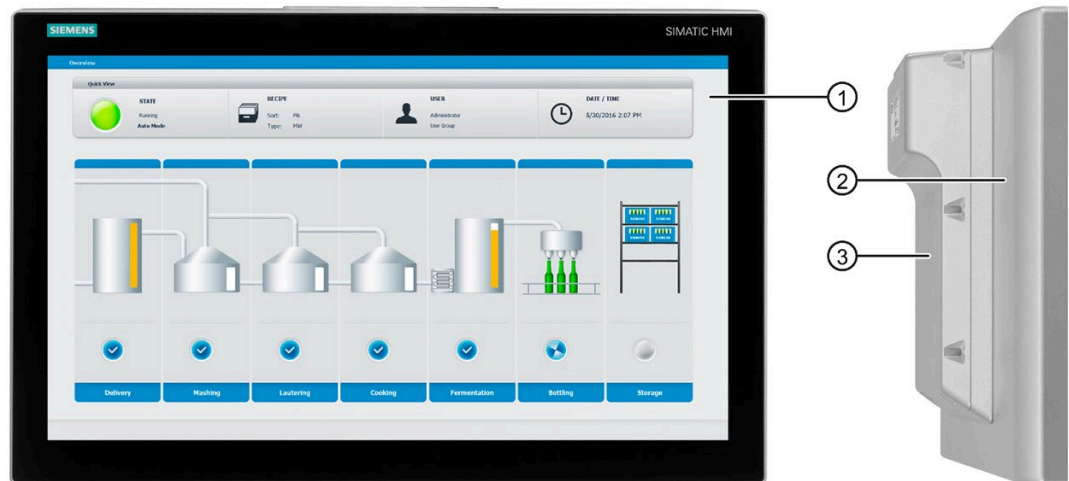
- ① Position of rating plate
- ② Threaded holes for fastening the strain relief plate

1.4 Design of the PRO devices

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

This section describes the structure of the PRO devices for support arm (not extendable, flange top) using the example of the IFP1900 PRO for support arm (not extendable, flange top).

Front view and side view



- ① Display and capacitive multi-touch screen
- ② Enclosure
- ③ Backplane cover

Top view



- ① Mechanical interface for fastening

Rear view

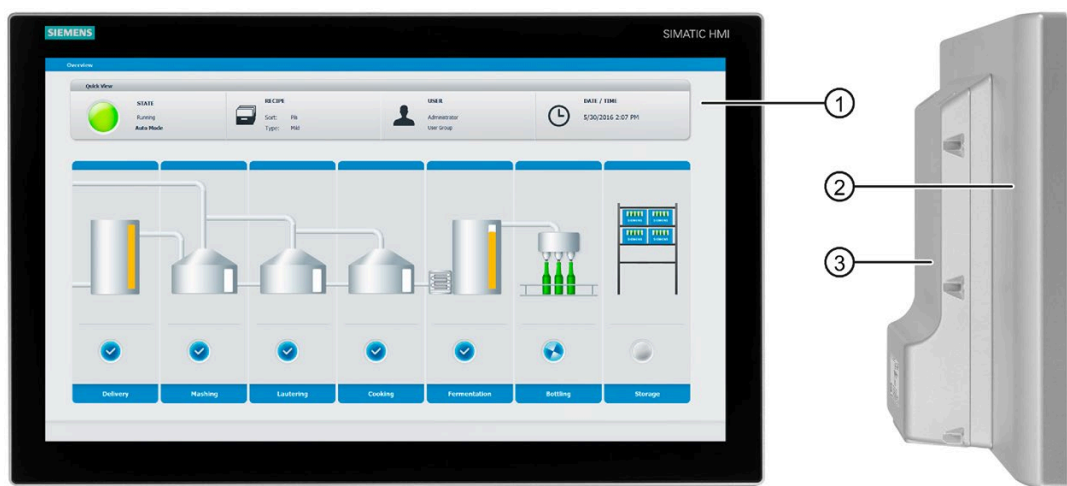


- ① Mechanical interface for fastening
- ② Rating plate
- ③ Enclosure
- ④ Backplane cover

1.4.2 PRO devices for pedestal (extendable, flange bottom)

This section describes the structure of the PRO devices for pedestal (extendable, flange bottom) using the example of the IFP1900 PRO for pedestal (extendable, flange bottom).

Front view and side view



- ① Display and capacitive multi-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)

This section describes the structure of the PRO devices for support arm (extendable, round tube) using the example of the IFP1500 PRO for support arm (extendable, round tube).

Front view and side view



- ① Display and capacitive multi-touch screen
- ② Enclosure
- ③ Mechanical interface for fastening (round tube)
- ④ Terminal compartment cover
- ⑤ Mechanical interface to the optional Extension Unit or to the supplied cover

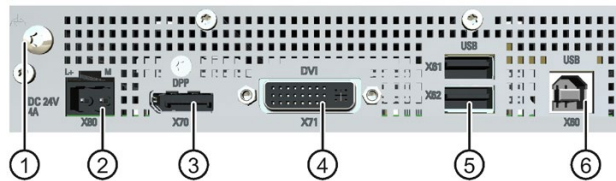
Rear view



- ① Mechanical interface for fastening (round tube)
- ② Terminal compartment cover
- ③ Rating plate
- ④ Mechanical interface to the optional Extension Unit or to the supplied cover
- ⑤ Lower cover, included in the product package

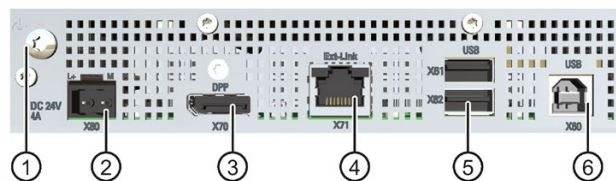
1.5 Interfaces

Standard versions



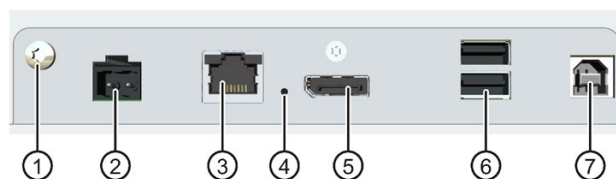
- | | |
|--|-----------------------|
| ① Connection for functional ground | ④ X71 DVI-D interface |
| ② X80 connector for 24 V DC power supply | ⑤ X61/X62 USB Type A |
| ③ X70 DisplayPort interface | ⑥ X60 USB Type B |

Extended versions and PRO devices



- | | |
|--|--|
| ① Connection for functional ground | ④ X71 Ext-Link interface to the Transceiver Unit |
| ② X80 connector for 24 V DC power supply | ⑤ X61/X62 USB Type A |
| ③ X70 DisplayPort interface | ⑥ X60 USB Type B |

Ethernet Monitors



- | | |
|--|-----------------------------|
| ① Connection for functional ground | ⑤ X70 DisplayPort interface |
| ② X80 connector for 24 V DC power supply | ⑥ X61/X62 USB Type A |
| ③ X1 Ethernet port to the PC | ⑦ X60 USB Type B |
| ④ Reset button | |

1.6 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.

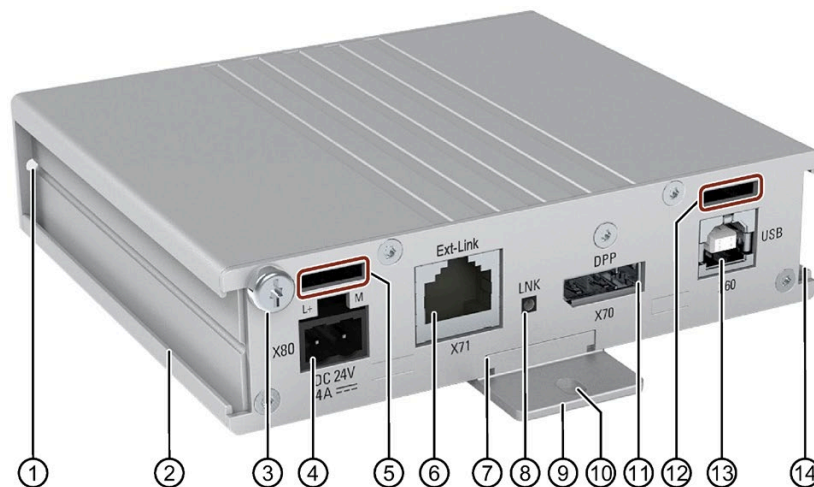
Accessories can typically be used for multiple devices from the same or different device families, for example, batteries, touch pens or protective membranes.

1.6.1 System components for IFPs

Transceiver Unit for extended versions and PRO devices

With the Transceiver Unit you can bridge a distance of up to 100 m between a PC and an extended version or a PRO device. The Transceiver Unit is mounted close to the PC.

The Transceiver Unit can be attached on a DIN rail or in various positions on a wall using the mounting material supplied.



- | | |
|--|---|
| ① Hole for the screw to fasten the mounting rail | ⑧ "LNK" LED |
| ② Guide for the "left" mounting rail | ⑨ Mounting rail |
| ③ Connection for functional ground | ⑩ Lower elongated hole of the mounting rail |
| ④ X80 connector for 24 V DC power supply | ⑪ X70 DisplayPort interface |
| ⑤ Opening for "left" strain relief element | ⑫ Opening for "right" strain relief element |
| ⑥ X71 Ext-Link interface to the IFP | ⑬ X60 USB Type B |
| ⑦ Guide for the "rear" mounting rail | ⑭ Guide for the "right" mounting rail |

Article number of the Transceiver Unit: 6AV7860-3EH00-0AA0

Scope of delivery

- A Transceiver Unit
- One mounting rail for attachment to DIN rail or wall mounting
- Strain relief elements
- One DisplayPort cable, length 0.5 m
- One USB cable Type B connector - Type A connector, length 0.5 m
- A power supply connector 24 V DC, 2-pin

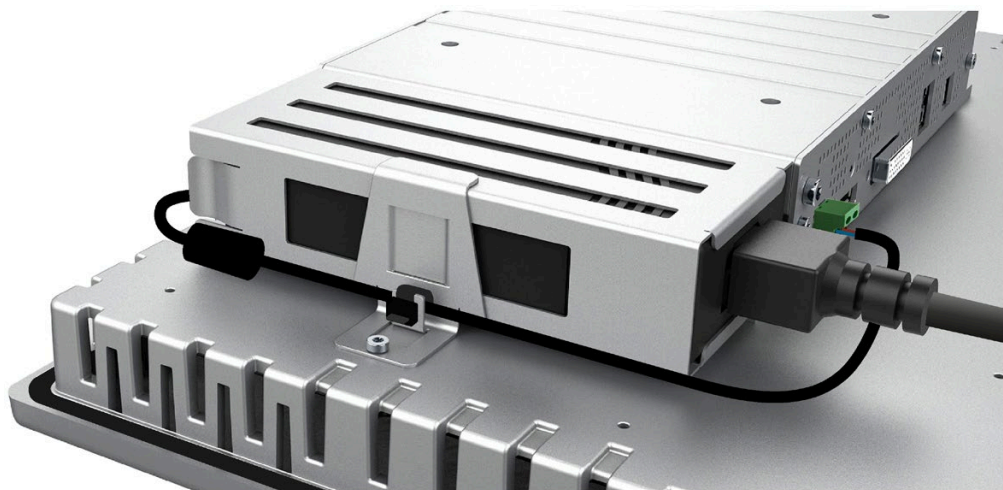
- A ferrite for the power supply cables, white
- One ferrite for the Ethernet line to the IFP, black

Functions of the "LNK" LED

- LED lit green: Active link available
- LED not illuminated: No active link available

AC power supply unit for built-in devices

Connect a built-in device to the power supply via the AC power supply unit, input voltage range 100 ... 240 V. Use the supplied mounting material to fasten the AC power supply unit on the rear of the built-in device.



Article number of the AC power supply unit: 6AV7860-3PA00-0AA0

You can find the documentation for the AC power supply unit via the article number on the Internet (<https://support.industry.siemens.com>).

! WARNING**Do not use the power supply unit in hazardous areas.**

The power supply unit is not approved for use in hazardous areas. If the power supply unit is mounted on a built-in device with Ex approval, the Ex approval of the built-in device expires.

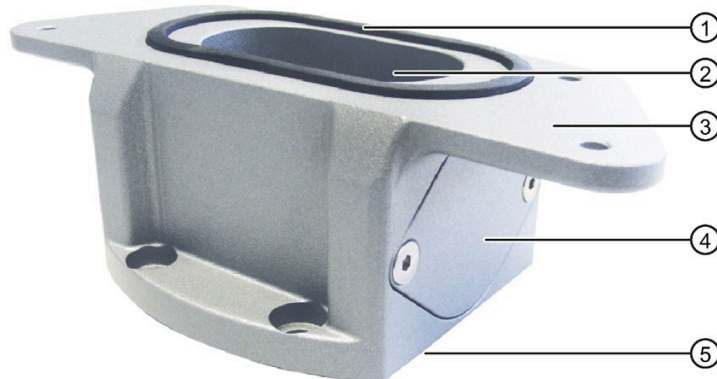
Operation of the power supply unit in a hazardous area may result in an explosion, death or serious injury.

Never operate the power supply unit in a hazardous area.

1.6.2 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

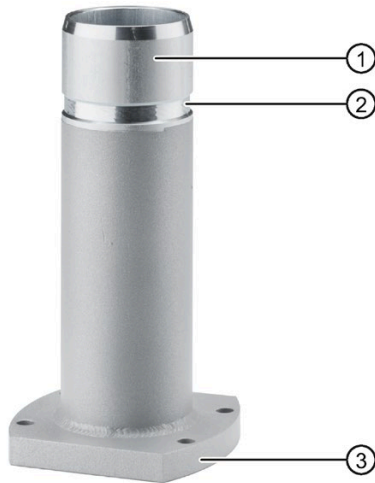
The following mechanical adapter versions are also available for mounting a PRO device for support arm (not extendable, flange top) or for pedestal (extendable, flange bottom) via the base adapter:

- Adapter set VESA75 for VESA75-compatible systems, Article number 6AV7674-0KE00-0AA0
- Adapter set VESA100 for VESA100-compatible systems, Article number 6AV7674-0KD00-0AA0

In addition, other manufacturers offer support arm or pedestal systems with mechanical interfaces or adapters for Siemens PRO devices, e.g. RITTAL, ROLEC, BERNSTEIN, HASEKE, ROSE. Observe the specifications provided by the respective manufacturer.

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

Round tube plug

If you do not need the mechanical interface of a PRO device for support arm (extendable, round tube) you can install the round tube plug into the mechanical interface. With the round tube plug, the degree of protection IP65 is maintained all around for the PRO device.

Article number: 6AV7674-1LB40-0AA0

Extensions for PRO devices:

The following example shows a PRO device for a support arm (extendable, round tube) with Extension Unit, Extension Unit box as well as the PRO Options handles and keyboard tray with keyboard tray plate.



- ① **Extension Unit**, Example: Extension Unit 22" with eight operator controls including emergency stop button
- ② **Extension Unit box**, deep empty enclosure, example: Extension Unit box 22" without operator controls
- ③ **Handles**, set to match the 22" PRO device
- ④ **Keyboard tray** for mounting the keyboard tray plate or installing a suitable keyboard
- ⑤ **Keyboard tray plate**

Note**Maximum two Extension Units permitted**

A maximum of two Extension Units are permitted under a PRO device for pedestal (extendable, flange bottom) or for support arm (extendable, round tube).

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).

The Extension Unit can be custom-equipped and is supplied without operator controls. The front of the Extension Unit is fitted with pre-perforated installation points for operator controls. The Extension Unit is available in the following sizes:

- Extension Unit 12", article number 6AV7674-1LA3x-0AA0
- Extension Unit 15", Article number 6AV7674-1LA4x-0AA0

- Extension Unit 19", Article number 6AV7674-1LA5x-0AA0
- Extension Unit 22", Article number 6AV7674-1LA6x-0AA0
- Extension Unit 24", Article number 6AV7674-1LA7x-0AA0
- Extension Unit 24" Portrait, Article number 6AV7674-1LA8x-0AA0

In each Extension Unit size, you have the flexibility to choose between the following interface variants (x) for connection to the plant:

- Hardwired (x=1)
- PROFINET (x=2)
- PROFIsafe (x=3)

In addition, different operator controls, such as emergency stop button, selector switch, illuminated button, keyswitch and indicator light are available.

Note

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

Extension Unit box

The Extension Unit box offers a deep empty housing to install larger customer-specific components underneath a 16:9 SIMATIC PRO device for pedestal (extendable, flange bottom) or for support arm (extendable, round tube).

The Extension Unit is supplied without operator controls; the front is not prepared for installation of operator controls. The Extension Unit box is available in the following sizes:

- Extension Unit box 12", Article number 6AV7674-1LA30-0AA0
- Extension Unit box 15", Article number 6AV7674-1LA40-0AA0
- Extension Unit box 19", Article number 6AV7674-1LA50-0AA0
- Extension Unit box 22", Article number 6AV7674-1LA60-0AA0
- Extension Unit box 24", Article number 6AV7674-1LA70-0AA0
- Extension Unit box 24" Portrait, Article number 6AV7674-1LA80-0AA0

Handles

The adjustable width handles make it easier to align or position the device as a whole without touching the display of the PRO device.

Article numbers:

- Handles for PRO devices up to 22": 6AV7674-1LB10-0AA0
- Handles for PRO devices from 24": 6AV7674-1LB15-0AA0

Use the handles for PRO devices up to 22" for the PRO Portrait.

Keyboard tray

On the keyboard tray, you can install the keyboard tray plate or a suitable keyboard. In addition, the keyboard tray has two face-side openings for USB interfaces and two rear-side openings for cable glands.

Article number: 6AV7674-1NF01-0AA0

Keyboard tray plate

The keyboard tray plate offers enough space for keyboard and mouse.

Article number: 6AV7674-1NG00-0AA0

Replacement adapter

The replacement adapter makes it easier to dismantle and mount a SIMATIC PRO device mounted above an Extension Unit.

Article number: 6AV7674-1LB50-0AA0

Additional information

Additional Extension Units and information on system components for all-round protected devices with degree of protection IP65 and Enclosure Type 4X/12 (indoor use only) are available on the Internet

(<https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10268745>).

1.6.3 Accessories

Each device comes with an accessory pack containing the necessary accessories.

Note

This section contains a selection of accessories suitable for your device. You can find additional versions of this selection and the complete accessories portfolio in the Industry Mall on the Internet

(<https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10144445>). Details such as the delivery quantity and technical specifications of accessories can be found in the Industry Mall under the respective article numbers.

Accessories for all IFPs

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 cable Type A connector - Type B connector	3 m long	6AV7860-0CH30-0AA0
	5 m long	6AV7860-0CH50-0AA0

Name	Specification	Article number
Power supply connector 2-pin	Screw-type connection	6AV6671-8XA00-0AX0
Power supply connector 2x2-pin	Spring-loaded terminals	6ES7193-4JB00-0AA0
Touch pen	For capacitive and resistive touch screen	6AV2181-8AV20-0AX0

Accessories for built-in devices

Name	Article number
Set with steel mounting clips	6AV6671-8XK00-0AX3

Accessories for extended versions and PRO devices

Name	Specification	Article number
Cat. 6A Ethernet cable	10 m long	6AV7860-0EH01-0AA0
	15 m long	6AV7860-0EH01-5AA0
	20 m long	6AV7860-0EH02-0AA0
	30 m long	6AV7860-0EH03-0AA0
Cable set, consisting of - Transceiver Unit with: - Two ferrites - USB cable, length 0.5 m Type A connector - Type B connector - DisplayPort cable, length 0.5 m - Cat. 6A Ethernet cable, length see "Specification"	10 m long	6AV7860-1EX21-0AB1
	15 m long	6AV7860-1EX21-5AB1
	20 m long	6AV7860-1EX22-0AB1
	30 m long	6AV7860-1EX23-0AB1

Use the following components to pre-assemble longer or individual cable lengths:

Name	Article number
Cat. 6A Ethernet cable, sold by the meter, for connection to Cat. 6A plug 6AV7860-1EY00-0AA0	6XV1878-2A
Cat. 6A plug RJ45, suitable for Cat.6A Ethernet cable 6XV1878-2A	6AV7860-1EY00-0AA0

Ethernet Monitors

The following table shows a selection of recommended Ethernet cables.

Name	Specification	Article number
TP Cord RJ45/RJ45	15 m long	6XV1870-3QN15
	20 m long	6XV1870-3QN20
	30 m long	6XV1870-3QN30
	50 m long	6XV1870-3QN50

Alternatively, you can use a Cat. 6A Ethernet cable from the table in the section "Accessories for extended versions and PRO devices".

You can find more Ethernet cables in the Industry Mall on the Internet
(<https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10144445>).

Safety instructions

2.1 General safety instructions

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

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

Additional notes for built-in devices



WARNING

The built-in device is an open equipment at the rear

The built-in device is an open equipment at the rear. This means that you have to integrate the built-in device into an enclosure or a cabinet, where the built-in device is operated via the front panel.

The device constitutes open equipment on the rear side. This means that you must integrate the device in an enclosure or cabinet where the device is operated via its front side. The enclosure or the cabinet must provide protection against electric shock and the spread of fire. The enclosure or the cabinet must meet the requirements for mechanical strength and the degree of protection for the relevant application.

Access to the enclosure or cabinet in which the built-in device is installed should only be possible by means of a key or tool and for trained and qualified personnel.

Electrocution risk when control cabinet is open

When you open the control cabinet, there may be a dangerous voltage at certain areas or components.

If you touch these areas or components, you may be killed by electric shock.

Disconnect the cabinet from the mains before opening it. Do **not** plug in or pull out plant components during operation.

Additional information for the Transceiver Unit

WARNING

The device constitutes open equipment

The device is open equipment. This means that the device may only be integrated in an enclosure or cabinet.

The enclosure or the cabinet must provide protection against electric shock and the spread of fire. The enclosure or the cabinet must meet the requirements for mechanical strength and the degree of protection for the relevant application.

Access to the enclosure or cabinet in which the device is installed should only be possible by means of a key or tool and for trained and qualified personnel.

Electrocution risk when control cabinet is open

When you open the control cabinet, there may be a dangerous voltage at certain areas or components.

If you touch these areas or components, you may be killed by electric shock.

Disconnect the cabinet from the mains before opening it. Do **not** plug in or pull out plant components during operation.

Safety on the plant or system

NOTICE

The plant operator is responsible for the safety

The installer of the plant or system is responsible for the safety of the plant or system in which the device is integrated.

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. Observe 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. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit (<https://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 (<https://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 (<https://support.industry.siemens.com/cs/ww/en/view/109759444>).

Notes on protecting administrator accounts

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

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

2.2 Notes on use

NOTICE
Device approved for indoor use only
The device may be damaged if operated outdoors.
Operate the 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

The device is intended for operation in a SELV/PELV circuit according to IEC/EN 61131 or IEC/EN/UL 61010-2-201 in a dry environment, which means for the various device types:

- Built-in devices: dry environment on the rear of the device
- PRO devices: dry environment inside the housing
- Transceiver Unit: dry environment all around

Additional information is available in the section "Operating Conditions (Page 94)".

Industrial applications

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

- Requirements for interference emissions EN IEC 61000-6-4:2019
- Requirements for interference immunity EN IEC 61000-6-2:2019

Use in mixed-use zone

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

When you use the 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 device in grounded control cabinets
- Use of filters in electrical supply lines

Individual acceptance is required.

Use in residential areas

Note**Device not intended for use in residential area**

The device is not suitable for use in residential areas. Operation of the device in residential areas can affect 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 plants that require special monitoring, for example, in:
 - Elevators
 - Plants in especially hazardous areas

Reducing vibrations

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

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.
- Proper use of the device and a function test to detect programming, parameter assignment 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, observe the following precautionary measures:

- 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 rear of a built-in device and a PRO device open for mounting from dust and moisture.
- 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. For IFPs, observe the information about chemical resistance on the Internet (<https://support.industry.siemens.com/cs/ww/en/view/39718396>).

TFT displays

NOTICE

Burn-in effect

A permanently displayed two-color or multi-color picture can cause a burn-in effect, i.e. the picture remains dimly visible for a certain period of time. The longer the image is burned in, the longer the image will last. In extreme cases, the image is permanently displayed.

The dim image usually disappears by itself if the screen remains switched off for a long time or displays changing content, e.g. when the screen saver is active. Screen savers that use active black when the backlight is on reduce the burn-in effect.

- Switch on the screensaver.

Backlight

The brightness of the backlight decreases incrementally during operational life. You can extend the service life of the display and backlight by taking the following measures:

- Reduce the backlight.
- Observe the backlight operating time.

Additional information is available in the section "Technical specifications of the IFPs (Page 124)".

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 of the IFPs (Page 124)".

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 cable connector during operation, you run the risk of a flashover. An explosion can be triggered in the hazardous area due to sparkover, and death or serious bodily injury can occur.

Plugging in or unplugging cable connectors, e.g. a 24 V DC power supply connector is **not** permitted in the hazardous area.

Do not plug in or unplug a connector until either of the following 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.



WARNING

Additional information for the PRO devices in UL hazardous.

The devices are open-type and are required to be installed in an enclosure suitable for the environment and can only be accessed with the use of a tool or key.

Also observe the enclosed documentation for use in potentially explosive atmospheres and the information in the section "Certificates and approvals (Page 84)".

Installing and connecting the device

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.

3.1 Preparing for installation

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 devices

3.1.2.1 Permitted mounting positions

The built-in device is intended 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 built-in device is self-ventilated and approved for inclined mounting at angles up to $\pm 35^\circ$ from the vertical.

NOTICE**Damage due to overheating**

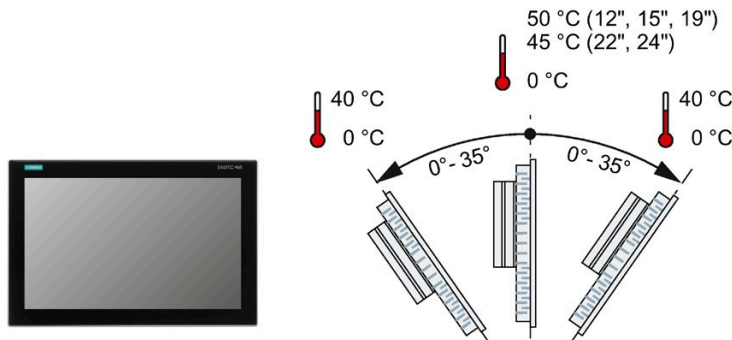
Inclined installation reduces the convection by the built-in device and therefore the maximum permitted ambient temperature for operation.

The ambient temperature ranges listed in this section apply to the rear and the front of the built-in device.

Information on the permitted ambient temperatures during operation can be found in section "Operating Conditions (Page 94)".

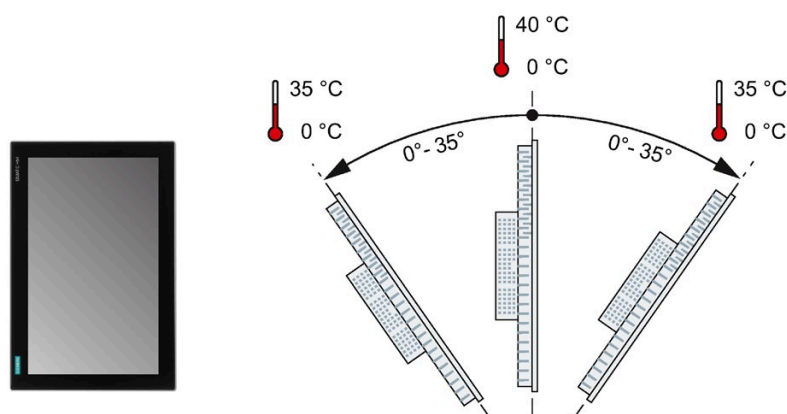
Mounting position

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

Mounting in landscape format**Mounting in portrait format****Note**

Portrait format must also be supported by the software

Only install the built-in device in portrait format if the software used supports portrait format.

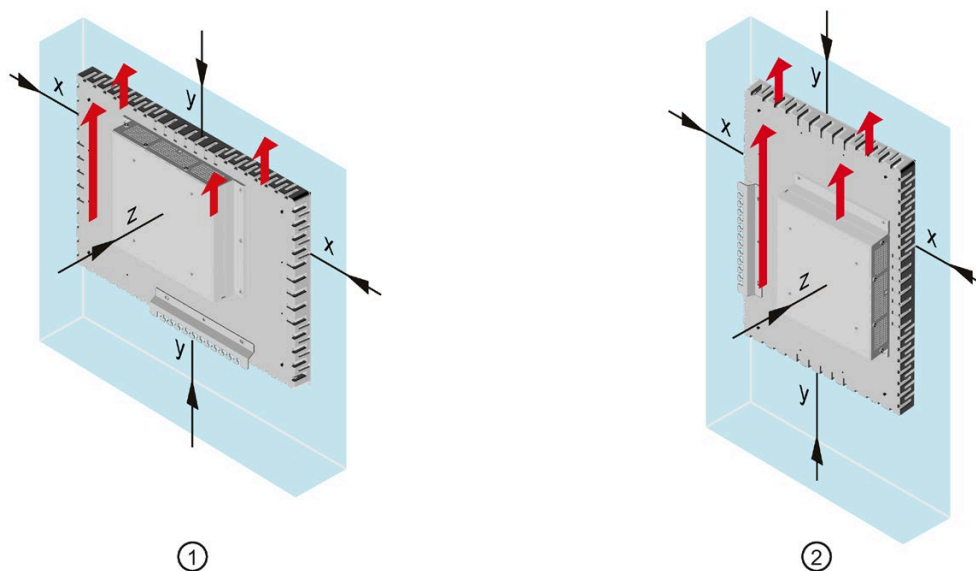


3.1.2.2 Required clearance

The following clearance is required for sufficient self-ventilation around the built-in device:

- 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 device depth in the control cabinet is 63.4 mm.

The figure below shows the required clearances when the device is installed in landscape and portrait format:



① Clearance for mounting in landscape format

② Clearance for mounting in portrait format

x At least 15 mm distance

y At least 50 mm distance

z At least 10 mm distance

Note

Ensure that the permitted 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.

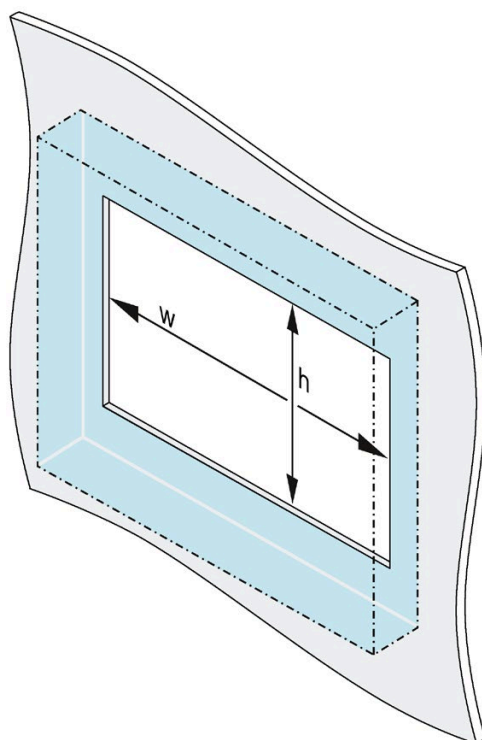
To achieve the degrees of protection described below, it must be ensured that deformation of the material cannot occur due to the force of the mounting clips or operation of the device.

Degrees of protection

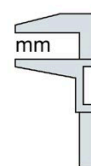
The various degrees of protection of the device can only be guaranteed if the following requirements are met:

- To achieve the degree of protection specified in the technical specifications: Material thickness at the mounting cutout: 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.
- Permitted surface roughness in the area of the seal: ≤ 120 μm ($R_z 120$)

Dimensions of the mounting cutout



	w_0^{+1}	h_0^{+1}
IFP1200 V2, IFP1200 V2 extended	310	221
IFP1500 V2, IFP1500 V2 extended/ETH	382	241
IFP1900 V2, IFP1900 V2 extended/ETH	448	278
IFP2200 V2, IFP2200 V2 extended/ETH	513	315
IFP2400 V2, IFP2400 V2 extended/ETH	569	347



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

3.1.2.4 Installing the strain relief plate

Requirement

For mounting of the strain relief plate you need:

- The built-in device
- The strain relief plate from the scope of delivery
- M3 screws from the scope of delivery
- A torque screwdriver with T10 insert

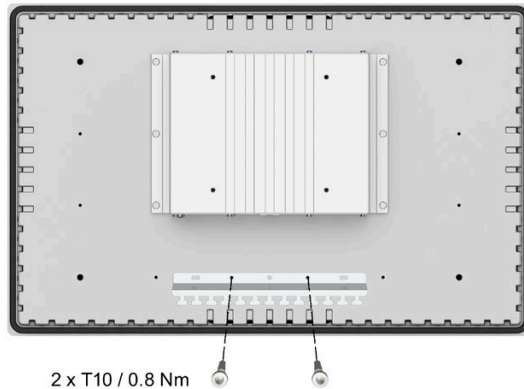
Procedure

Fasten the strain relief plate to the rear of the device using M3 screws with a T10 screwdriver. Tighten the screws using a torque of 0.8 Nm.

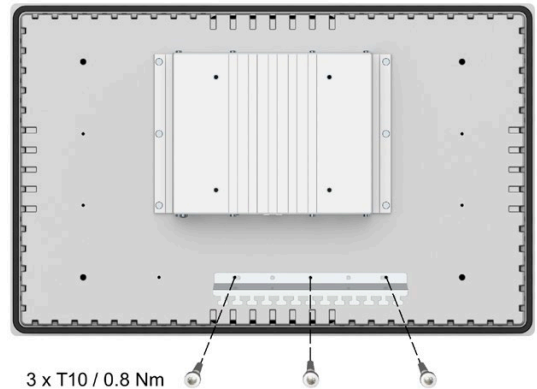
You can position the strain relief plate in the center or to the side. Depending on the position, use two or, if possible, three screws to secure the strain relief plate. To secure the screws, use only the M3 threaded holes on the rear of the device.

The following figures show central assembly and assembly to the right-hand side of the strain relief plate as examples.

Strain relief plate, positioned in the center,
2 screws



Strain relief plate, positioned to the right,
3 screws



3.1.3 PRO devices

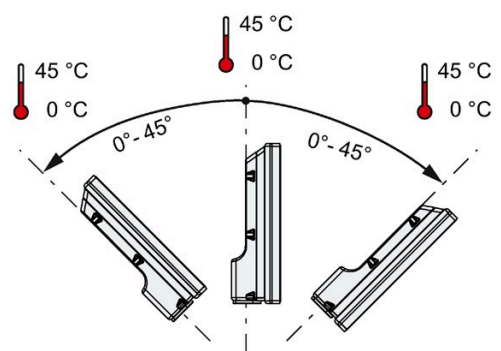
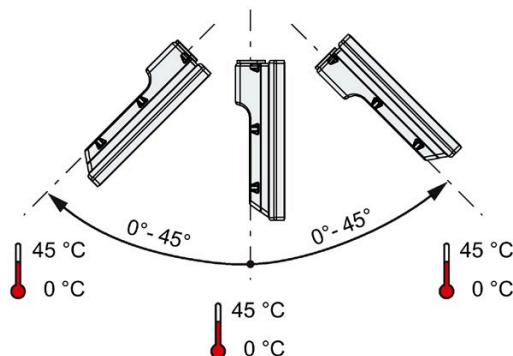
3.1.3.1 Permitted mounting positions

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

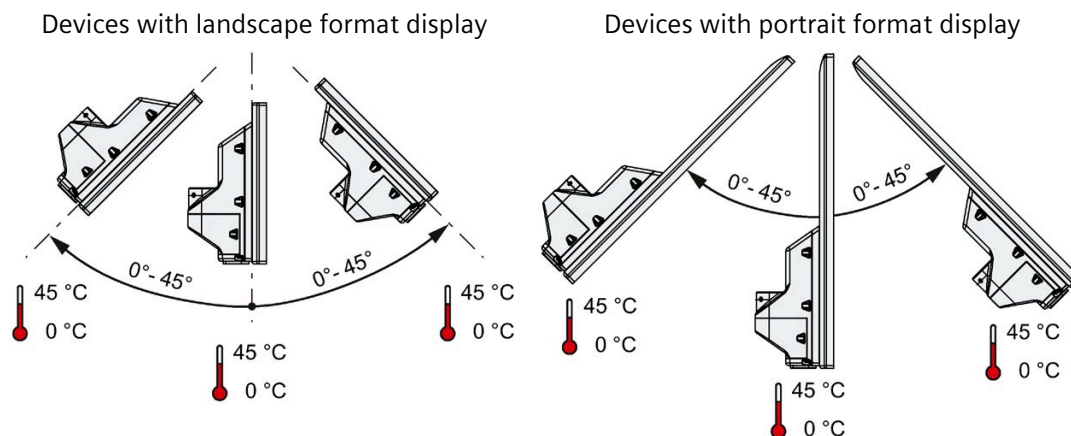
Position the device in such a manner that safety-related devices such as a mains isolation switch remain visible, accessible and operable.

The following figures show the permitted standard mounting positions of the different PRO devices.

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



PRO devices for support arm (extendable, round tube)



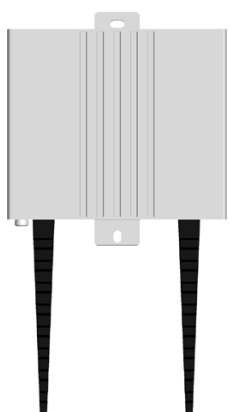
Note

Mounting positions other than the standard mounting positions illustrated are **not** permitted for the PRO devices.

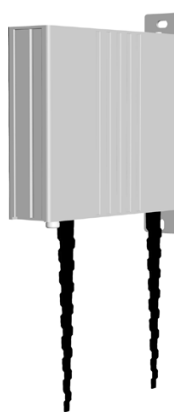
3.1.4 Transceiver Unit

3.1.4.1 Permitted mounting positions

The following mounting positions are permitted for the Transceiver Unit:



Mounting on the rear



Mounting on one side

The Transceiver Unit can be mounted on a DIN rail or on a wall using screws.

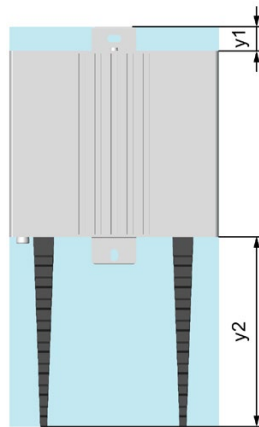
The interfaces of the Transceiver Unit should always point downwards.

3.1.4.2 Required clearance

The following clearance is required around the Transceiver Unit:

- At least 14 mm above the Transceiver Unit for the mounting rail
- At least 80 mm below the Transceiver Unit for the strain relief elements

The following figure shows an example with a mounting rail attached to the rear of the Transceiver Unit. The device depth of Transceiver Unit with mounting rail is 35.2 mm.



y1 14 mm

y2 80 mm

3.1.4.3 Fastening the mounting rail

Requirements

To attach the mounting rail to the Transceiver Unit you need:

- The supplied mounting rail
- The supplied cross-tip cylinder head screw
- A torque screwdriver with cross-tip insert

3.2 Installing the built-in device

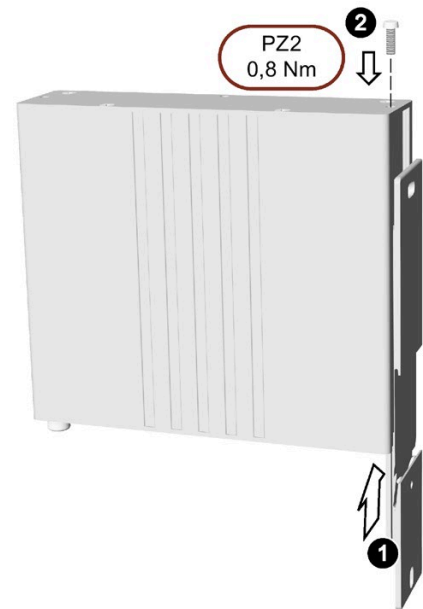
Procedure

For attachment on DIN rail or on the wall, fasten the mounting rail in one of the lateral or rear guides in the enclosure of the Transceiver Unit according to the desired mounting position.

The adjacent example shows the lateral mounting of the mounting rail. The mounting rail is attached to the rear of the Transceiver Unit in the same way.

Proceed as follows:

1. Push the mounting rail into the guide from below until it stops.
2. Fasten the mounting rail using the supplied cross-tip cylinder head screw, torque 0.8 Nm



3.2 Installing the built-in device

3.2.1 Notes on installation

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

NOTICE

Use according to IEC/UL 61010-2-201 requires an appropriate enclosure

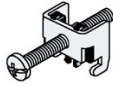
The rear of the built-in device is classified as "Open Equipment" according to IEC/UL 61010-2-201 for use in industrial control equipment.

For approval and operation according to IEC/UL 61010-2-201, the device must be installed in an enclosure or integrated in a cabinet. The enclosure or the cabinet must provide protection against electric shock and the spread of fire. The enclosure or the cabinet must meet the requirements for mechanical strength and the degree of protection for the relevant application.

- 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. Observe the permitted mounting positions.

3.2.2 Positions of the mounting clips

You fasten the built-in devices with 12 mounting clips from the accessory pack, which are also available as accessories.

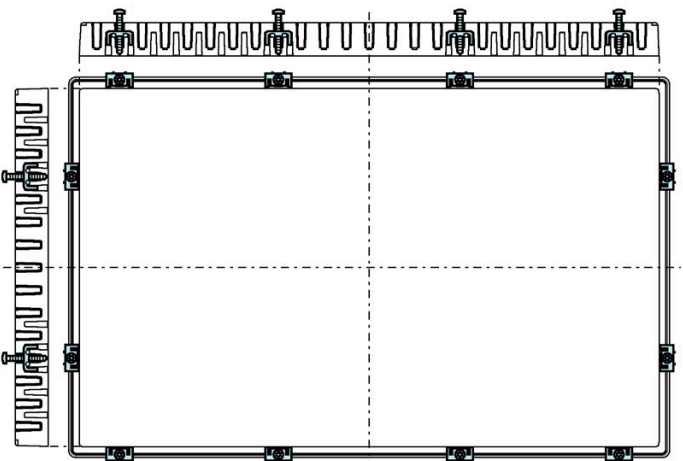


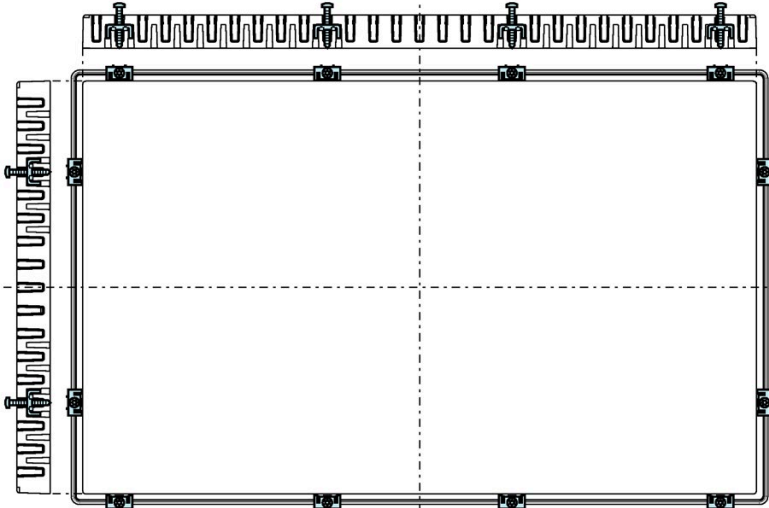
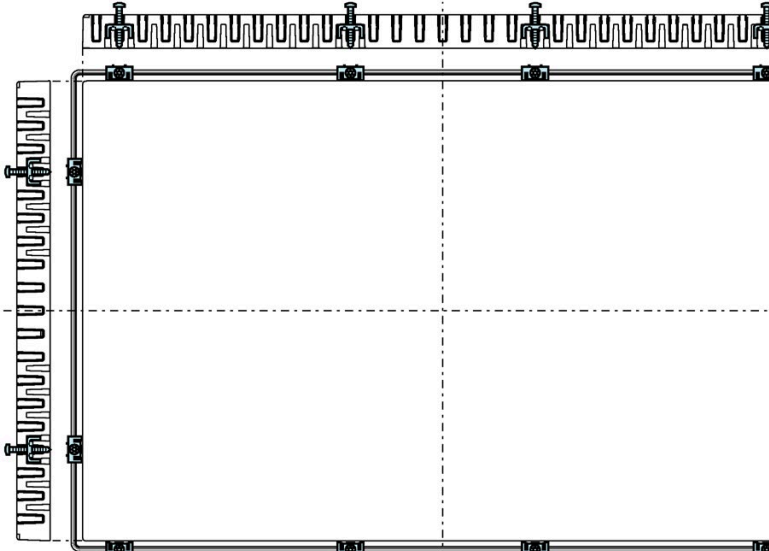
See also section "Accessories (Page 24)".

To achieve degree of protection IP65 for the built-in device, the mounting clips must be installed at the positions shown below.

Device	Positions of the mounting clips
12" built-in devices	
15" built-in devices	

3.2 Installing the built-in device

Device	Positions of the mounting clips
19" built-in devices	

Device	Positions of the mounting clips
22" built-in devices	
24" built-in devices	

3.2.3 Fastening the built-in device using mounting clips

Requirement

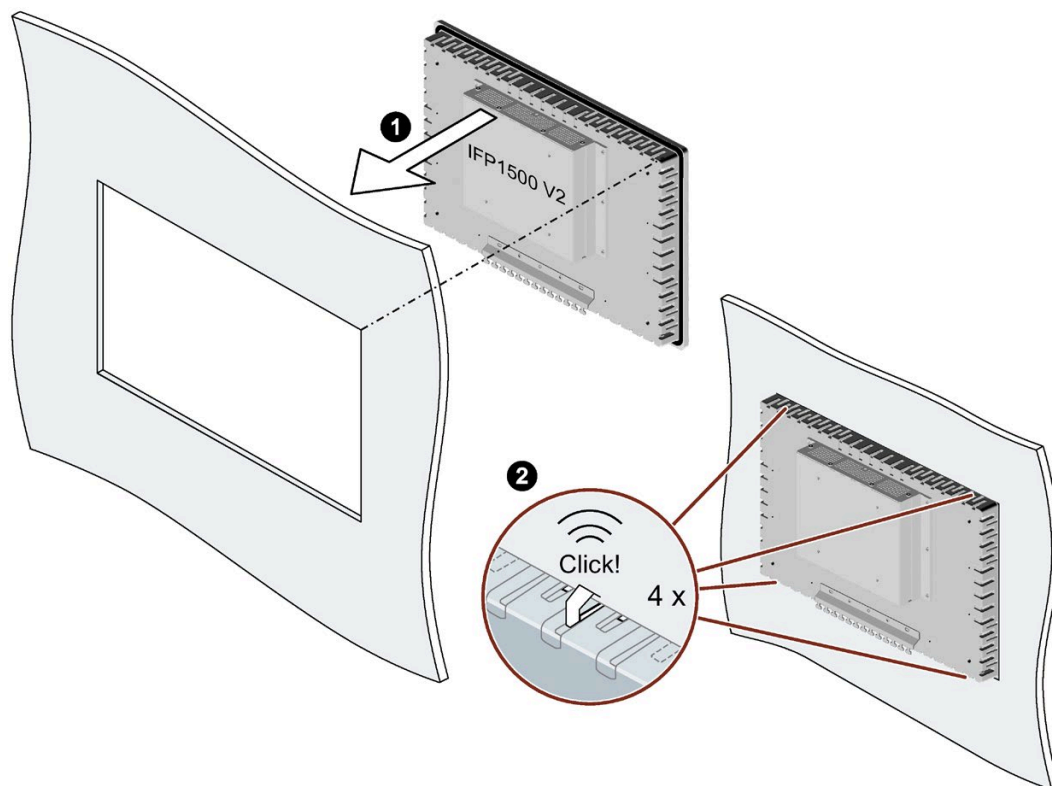
- All packaging components and protective films have been removed from the device.
- The mounting clips included in the accessory kit are at hand.
- Torque screwdriver with slit insert size 2

Procedure

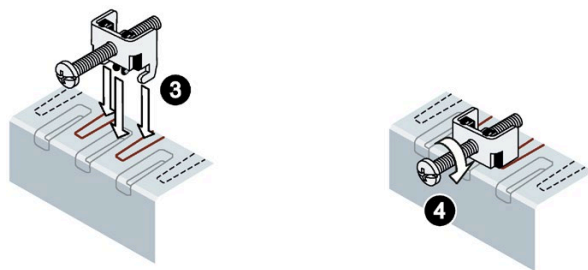
Note

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

1. Insert the device into the mounting cutout from the front.



2. Make sure that all four spring locks on the top and bottom of the device fully engage. If necessary, gently press the device into the recess if it is not fully engaged.
3. Insert a mounting clip into the cutout provided on the device. Ensure it is in the correct position; see the section "Positions of the mounting clips (Page 43)".



4. To secure the mounting clip, tighten the grub screw with the screwdriver, torque 0.5 Nm.
5. Repeat steps 3 and 4 until all mounting clips are fastened.
6. Check the fit of the mounting seal.

3.3 Mounting the PRO device

3.3.1 Notes on mounting

WARNING

The device must be mounted securely.

Insufficiently dimensioned mounting material may cause the device to fall down. Serious physical injury may result.

Ensure that mounting material used is 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 mounting material 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.

Observe 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 81)".

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.

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 base 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 arm 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.

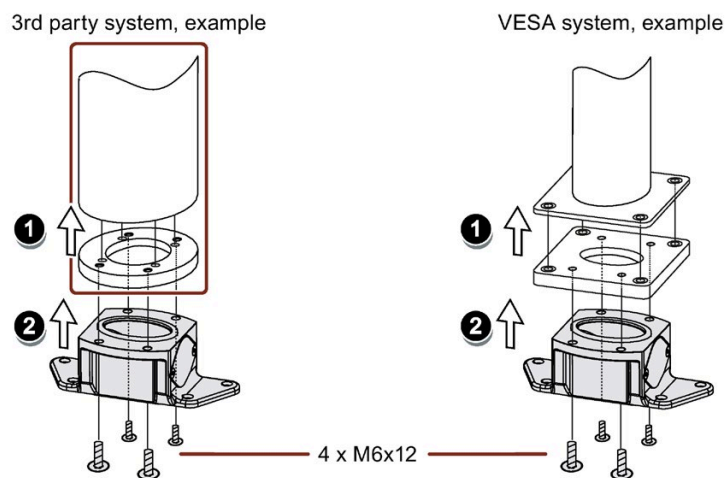
See also section "System components for PRO devices (Page 20)".

- Torque screwdriver with T20 insert
- The following cables are fed through the pedestal or the support arm to which the device is mounted:
 - Equipotential bonding cable
 - Power supply cables
 - Data cables, e.g. USB, DisplayPort or Ethernet cable

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 base adapter is screwed to the device from the top. With PRO devices for pedestal (extendable, flange bottom), the base 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.

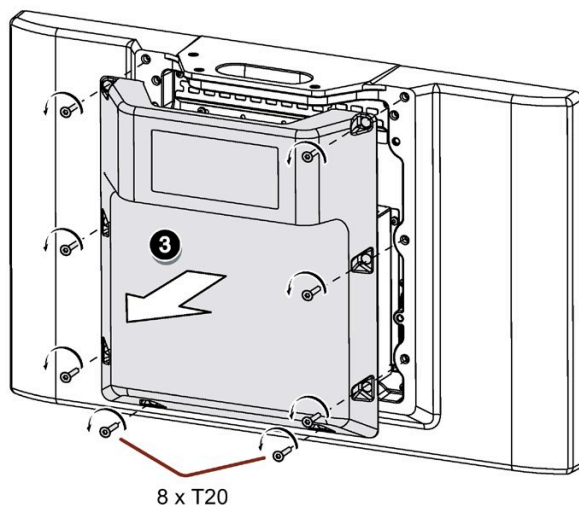
1. If an adapter plate for the Siemens base adapter is included in your support arm system, attach the adapter plate to the support arm with 4 M6x12 screws. Observe the torque that is specified for the support arm.



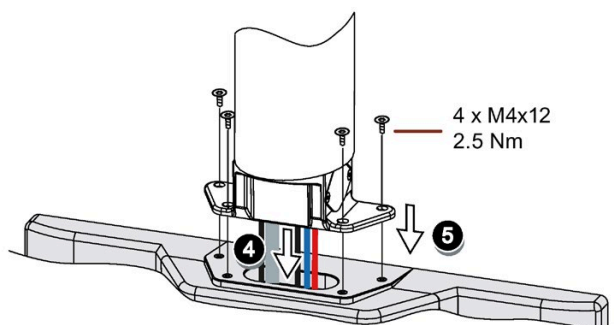
2. Attach the base adapter with 4 M6x12 screws to the mechanical interface of the support arm from below. Observe the torque that is specified for the support arm.

3.3 Mounting the PRO device

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



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



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, follow the instructions in section "Connecting the device (Page 56)".
7. Fasten the backplane cover to the device with the 8 screws, torque 1.5 Nm. Ensure that the seal is sitting correctly.

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

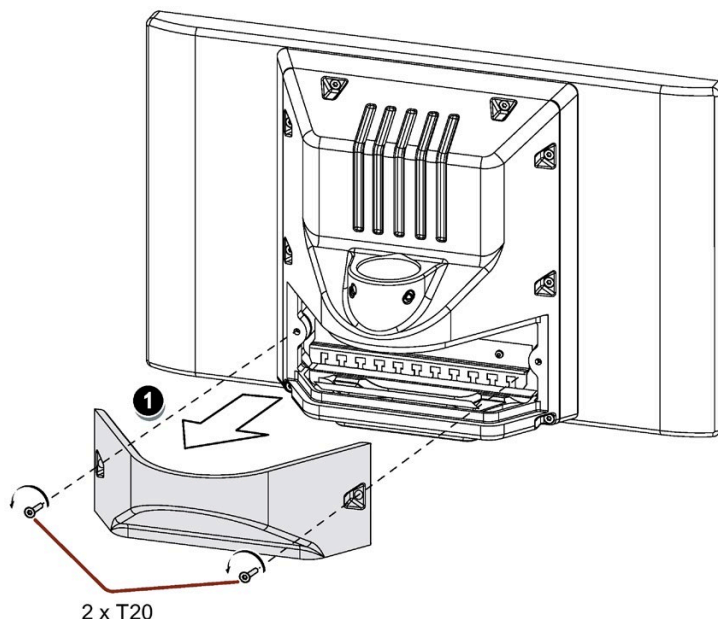
Requirement

- 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 adapter, and Siemens flange mount adapter (not included in product package)
 - Support arm with mechanical VESA interface, the corresponding Siemens adapter set and the Siemens flange mount adapter (not included in product package)
- See also section "System components for PRO devices (Page 20)".
- The PRO device, all packaging components and protective films have been removed
- The lower cover of the PRO device from the accessory kit
- Torque screwdriver with T20 insert
- The following cables are fed through the support arm to which the device is mounted:
 - Equipotential bonding cable
 - Power supply cables
 - Data cables, e.g. USB, DisplayPort or Ethernet cable

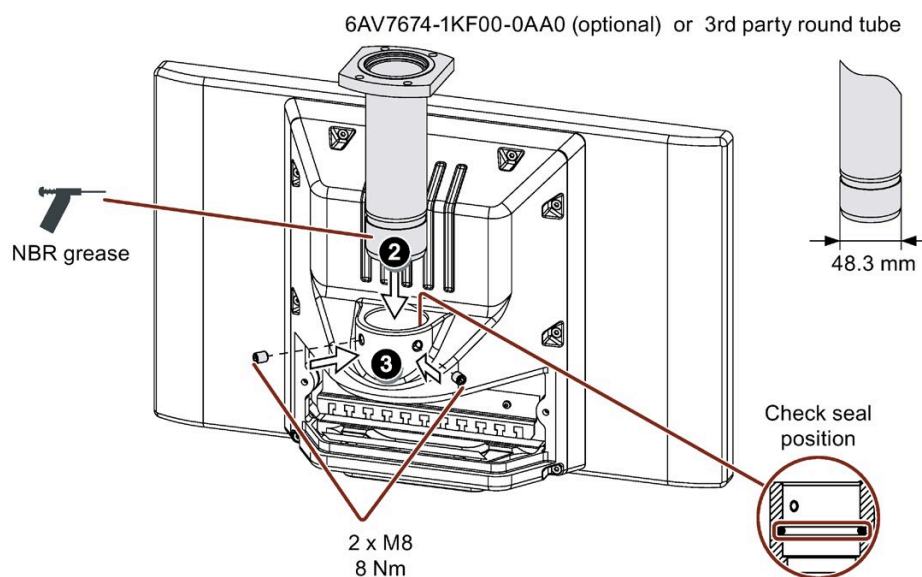
Procedure

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

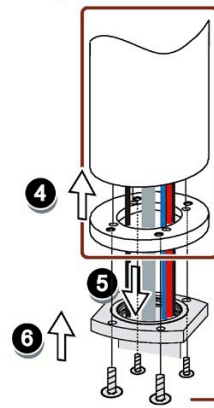


3. Attach the flange mount adapter or the 48.3 mm round tube with the two M8 threaded pins. Observe the appropriate torque:
 - Siemens flange mount adapter: 8 Nm
 - 48.3 mm steel round tube 8 Nm
 - 48.3 mm aluminum round tube: 5 Nm
4. When you are using an adapter plate from a Siemens VESA adapter set, attach the adapter plate to the support arm with 4 M6x12 screws.

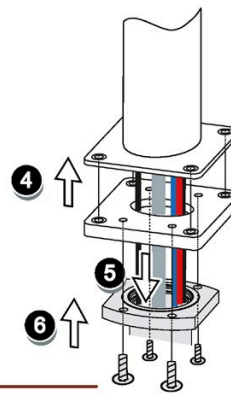
When you are using another adapter plate matching the Siemens flange mount adapter, attach the adapter plate to the support arm with the supplied mounting material.

When tightening the screws, observe 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 adapter 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 adapter 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 adapter 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 adapter.

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

7. Connect all cables, follow the instructions in section "Connecting the device (Page 56)".
8. Fasten the terminal compartment cover to the device with the 2 supplied screws, torque 1.5 Nm. Ensure 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.

3.4 Mounting the Transceiver Unit

Alternatively, you can mount the unit on a pedestal. Follow the instructions for pedestal mounting (Page 48) and use the round tube plug, see section "System components for PRO devices (Page 20)".

3.4 Mounting the Transceiver Unit

Note

Important notes for installation

- The device is approved for operation in closed rooms only.
 - For installation in a cabinet, observe the manual "Installing control systems interference-proof (<https://support.industry.siemens.com/cs/ww/en/view/59193566>)" as well as the relevant DIN/VDE provisions and the applicable country-specific regulations.
-

Requirement

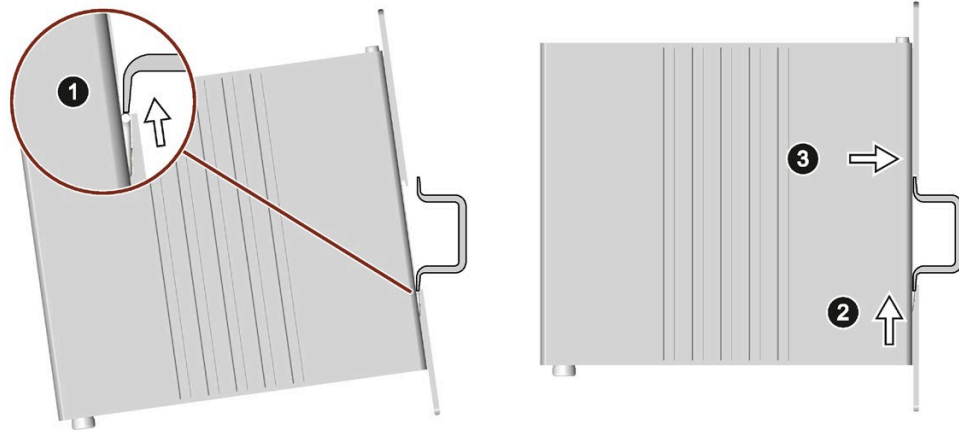
- The mounting rail is fastened to the side or rear of the Transceiver Unit according to the desired mounting position.

Mounting onto standard rail

The following procedure describes an example of mounting a Transceiver Unit with a mounting rail attached at the side on a standard mounting rail. The mounting of a Transceiver Unit with a mounting rail attached at the rear is carried out in the same way.

Proceed as follows:

1. Place the device with the mounting rail clip from below onto the standard mounting rail. Make sure that the unit does not tilt.



2. Push the device upward.
3. Push the device towards the standard mounting rail until the standard mounting rail clip engages completely at the top.

Wall mounting

Fasten the Transceiver Unit to a wall with two M4 screws via the two elongated holes of the mounting rail.

NOTICE

Sufficient carrying capacity of the wall is required.

If the wall does not have a sufficient load-bearing capacity, the device may fall and be damaged.

Ensure that the wall can bear four times the total weight of the device, including mounting material.

NOTICE

Mounting material

If you use anchors and screws other than those specified below for wall mounting, safe mounting is not guaranteed. The device can fall and may be damaged.

Use only the anchors and screws specified in the following table.

3.5 Connecting the device

Wall material	Hole diameter	Mounting material
Concrete	Select based on the specifications for the mounting material used	- Anchor, Ø 6 mm, 40 mm long - Screw, Ø 4 mm, 40 mm long
Plasterboard, at least 13 mm thick		Toggle plug, Ø 12 mm, 50 mm long
Metal, at least 2 mm thick		- Screw M4 × 15 - M4 nut

3.5 Connecting the device

3.5.1 Notes on connection

Requirement

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

Connecting cables

Note

Separate SELV/PELV circuits from other electric circuits or isolate the wires.

The wiring of SELV/PELV circuits must either be separated from the wiring of other non-SELV/PELV electric circuits, or the insulation of all conductors must be rated for the higher voltage. Alternatively, a grounded shield or additional insulation must be installed around the wiring for SELV/PELV circuits or the other electric circuits, based on IEC 60364-4-41.



CAUTION

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.

Utiliser des câbles en cuivre sur les connexions à bornes

Utilisez des câbles en cuivre (Cu) pour tous les câbles d'alimentation qui sont raccordés à l'appareil par des bornes, par exemple les câbles d'alimentation 24 V CC sur le connecteur d'alimentation 24 V CC.

Use only shielded standard cables as data cables, order information is available in the section "Accessories (Page 24)".

Connection sequence

Connect the device in the following sequence:

1. Equipotential bonding (Page 58)

2. Power supply (Page 61)

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

3. PC (Page 63)

4. I/O devices (Page 69), 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 regulations and the local installation conditions, such as protective wiring for power supply lines, 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 installation.

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

3.5.2 Equipotential bonding

Differences in electrical potential

Differences in electrical potential can develop between spatially separate plant components. Such electrical potential differences can lead to high equalizing currents across the data cables and therefore to the destruction of their interfaces. Equalizing currents can develop if the cable shielding is terminated at both ends and grounded to different plant parts.

Differences in potential may develop when a system is connected to different mains supplies.

General requirements for equipotential bonding

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

- The effectiveness of equipotential bonding increases as the impedance of the equipotential bonding conductor decreases or as its cross-section increases.
- If two plant components are interconnected by means of shielded data cables and their shielding is bonded at both ends to the grounding/protective conductor, the impedance of the additionally installed equipotential bonding cable must not exceed 10 % of the shielding impedance.
- The cross-section of an equipotential bonding conductor must be capable of handling the maximum equalizing current. Equipotential bonding cables are required between two control cabinets with a minimum conductor cross-section of 16 mm².
- Use equipotential bonding conductors made of copper or galvanized steel. Establish a large surface contact between the equipotential bonding conductors and the grounding/protective conductor and protect them from corrosion.
- Clamp the shield of the data cable from the device flush at the equipotential bonding rail using suitable cable clamps. The equipotential bonding rail should be as close as possible to the device.
- Route the equipotential bonding conductor and data cables in parallel and with minimum clearance in between.

Note

Equipotential bonding cable

Cable shields are not suitable for equipotential bonding. Always use the prescribed equipotential bonding conductors for this. An equipotential-bonding cable between control cabinets must have a minimum conductor cross-section of 16 mm². The cable between the ground bar and device must have a minimum conductor cross-section of 4 mm².

Wiring diagram

The following figure shows the connection of the functional ground for the equipotential bonding using IFP1500 V2 as an example and similarly applies to all Flat Panels and the Transceiver Unit.

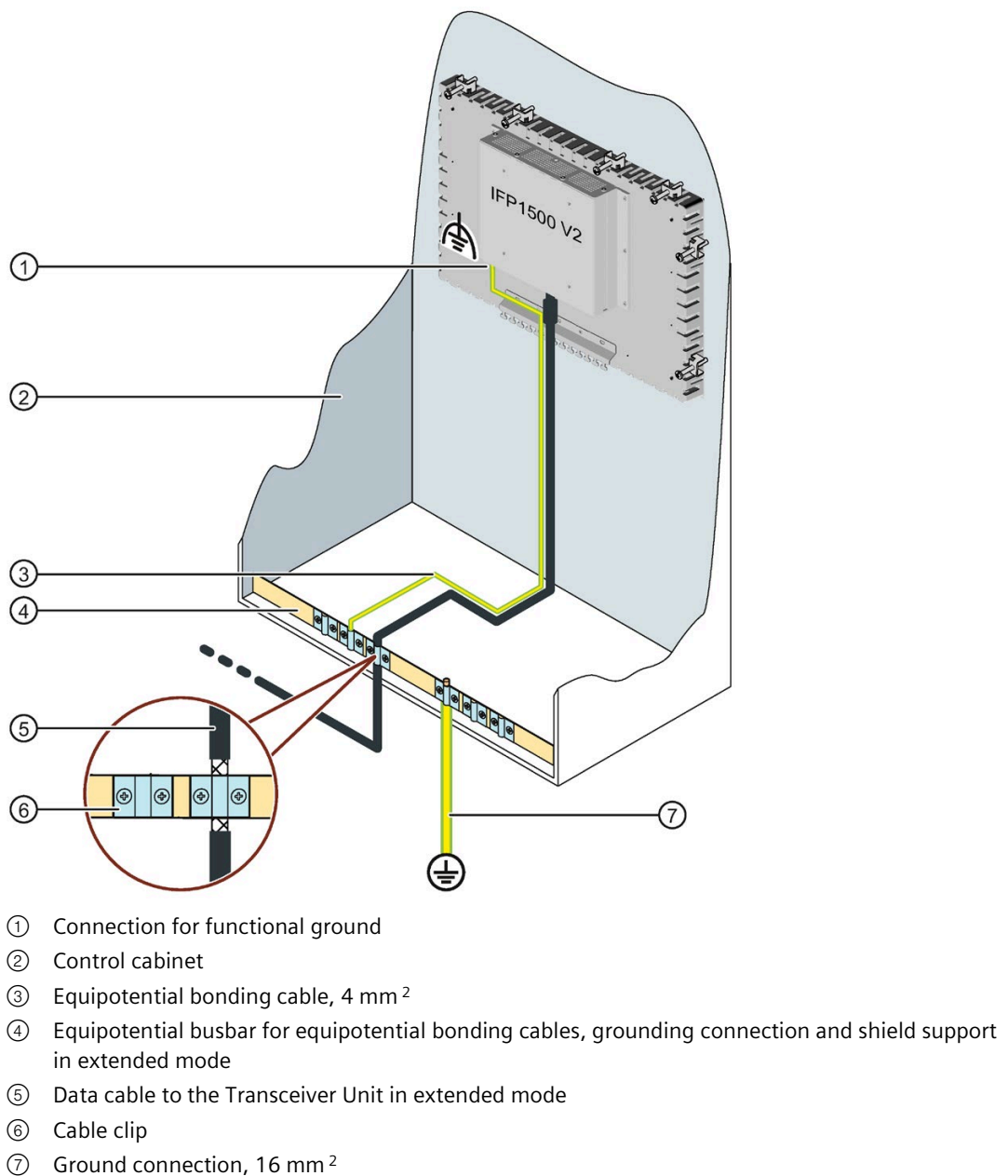
Note

Cable routing for PRO devices

As the PRO device is not installed in a control cabinet but on a pedestal or support arm, the connecting cables must be routed through the support arm or the pedestal. The cable cross-sections specified for the built-in devices also apply to the PRO devices.

Observe the corresponding connection diagrams in the Quick Install Guide supplied with your PRO device.

3.5 Connecting the device



3.5.3 Connecting the power supply

Observe before connecting the device

NOTICE**Safe electrical isolation**

For 24 V DC power supply, use only power supply units with safe electrical isolation (SELV/PELV) in accordance with IEC/UL 61010-2-201 or IEC 62368-1.

The supply voltage must be within the specified voltage range.

Applies to non-isolated plant installation: Connect the terminal for GND 24 V from the 24 V power supply output to equipotential bonding for uniform reference potential. You should always select a central point of termination.

Note

The 24 V DC power supply unit must be adapted to the input data of the device, see section "Technical specifications of the IFPs (Page 124)" and "Technical specifications of the Transceiver Unit (Page 126)".

The supplied power supply connector is designed for cables with a maximum cross-section of 2.5 mm².

Additional information on the supplied power supply connectors and additional permitted power supply connectors can be found in the section "Accessories (Page 24)".

The power supply line must be provided with a fuse whose dimensions match the cable cross-section used.

Procedure

The following figure shows the connection of the power supply using the example of the IFP1500 V2 built-in device and applies in the same way to all other IFPs and the Transceiver Unit.

Note**Cable routing for PRO devices**

As the PRO device is not installed in a control cabinet but on a pedestal or support arm, the connecting cables must be routed through the support arm or the pedestal. The cable cross-sections specified for the built-in devices also apply to the PRO devices.

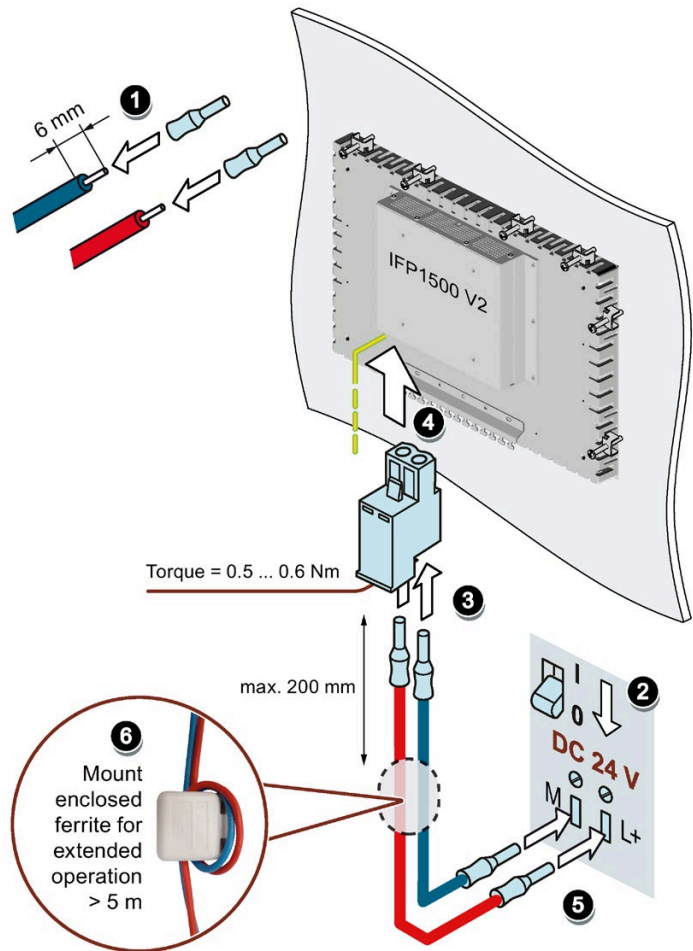
Observe the corresponding connection diagrams in the Quick Install Guide supplied with your PRO device.

3.5 Connecting the device

Connecting the power supply

1. Fit ferrules to the ends of the power supply cables.
2. Switch off the 24 V DC power supply.
3. Fasten the ends of the power supply lines L+ and M with the supplied power supply connector, torque 0.5 to 0.6 Nm.
4. Connect the power supply connector to the X80 interface of the device.
5. Connect the remaining L+ and M ends with the respective terminals on the 24 V DC power supply.
6. If you are using an extended version or a PRO device in extended mode, attach the supplied ferrite to the power supply cables as shown. Each power supply line must be routed twice through the ferrite.

The distance between the ferrite and the power supply connector must not exceed 200 mm.



See also

Designing interference-free controllers

(<https://support.industry.siemens.com/cs/ww/en/view/59193566>)

3.5.4 Connecting IFP Standard, Extended and PRO to a PC

3.5.4.1 Important notes for connecting

The IFP is connected to a PC either directly or via the Transceiver Unit. The following applies:

- The video signal of the PC is transmitted to the IFP via the DisplayPort or DVI cable.
- The touch signals of the IFP are transmitted via a USB cable Type B connector - Type A connector.
- Due to the separate lines, video and touch signal transmission are independent of each other.



WARNING

Personal injury or material damage may occur due to operator error when the video signal is interrupted

If the video signal of the PC is interrupted during operation, e.g. by disconnecting the corresponding connector, the transmission of the touch signals via USB cable remains active. This can result in personal injury or material damage due to operator error.

Take the following precautions:

- Only carry out an operator action if a plant screen is shown on the IFP display.
- If you disconnect the DisplayPort/DVI connection of the IFP, then also disconnect the USB connection of the USB cable Type B connector - Type A connector.

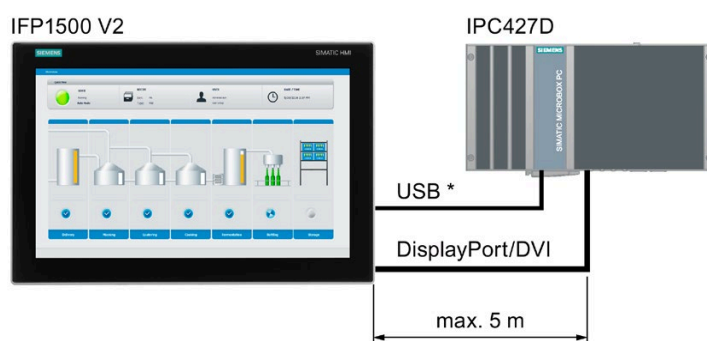
3.5.4.2 Connecting the standard version to a PC

Connect a standard version directly to a PC via the following cables:

- DVI or DisplayPort cable, maximum length 5 m
- USB cable Type B connector - Type A connector, maximum length 5 m

Wiring diagram

The following figure shows an example of the direct connection of an IFP1500 V2 to an IPC427D and is generally valid for all standard versions in connection with a corresponding PC.



* USB cable Type B connector - Type A connector

Note

Possible number of standard versions or PRO devices on a PC

A free USB interface and a free DisplayPort/DVI interface on the PC is required for each connection of a standard version to a PC. This means that the possible number of IFPs on a PC is defined by the number of available USB and DisplayPort/DVI interfaces of the PC.

Possible number of PCs on a standard version

As soon as the DisplayPort interface of the standard version is connected to a PC, no video signals can be transmitted via the DVI interface of the standard version and vice versa. This means that exactly one PC can be connected to a standard version.

3.5.4.3 Connecting the extended version or PRO device to a PC

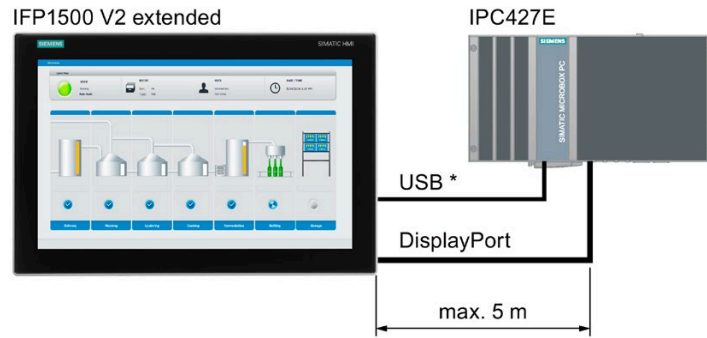
Standard operation up to distance of 5 meters

You can connect an extended version or a PRO device for distances of less than 5 m to the PC directly using the following cables:

- DisplayPort cable, maximum length 5 m
- USB cable, maximum length 5 m

Wiring diagram

The following figure shows an example of the direct connection of an IFP1500 V2 extended to an IPC427E and is generally valid for all extended versions and PRO devices in connection with a SIMATIC IPC.



* USB cable Type B connector - Type A connector

Note

Possible number of extended versions or PRO devices on a PC

A free USB interface and a free DisplayPort interface of the PC are required for each direct connection of an extended version or PRO device to a PC. This means that the possible number of IFPs on a PC is defined by the number of available USB and DisplayPort interfaces of the PC.

Possible number of PCs on an extended version or a PRO device

As soon as the DisplayPort interface of the extended version or the PRO device is connected to a PC, no video signals can be transmitted via the Ext-Link interface of the IFP. This means that exactly one PC can be connected to one extended version or one PRO device.

Extended mode from 5 m to 100 m distance

Connect an extended version or a PRO device for longer distances up to 100 m to the PC via the Transceiver Unit and the following cables:

Connection of extended version or PRO device to the Transceiver Unit

- A Cat. 6A Ethernet cable up to a maximum of 100 m in length
A direct connection via this cable is required, the connection **cannot** be extended via a hub, switch or similar device.

Connection Transceiver Unit to the PC

- DisplayPort cable, length < 3 m
- USB cable, length < 3 m

Ferrites

In extended mode, 2 ferrites are connected to the ends of the Cat. 6A Ethernet cable required. Mount the two supplied ferrites according to the following figure on the Cat. 6A Ethernet cable.



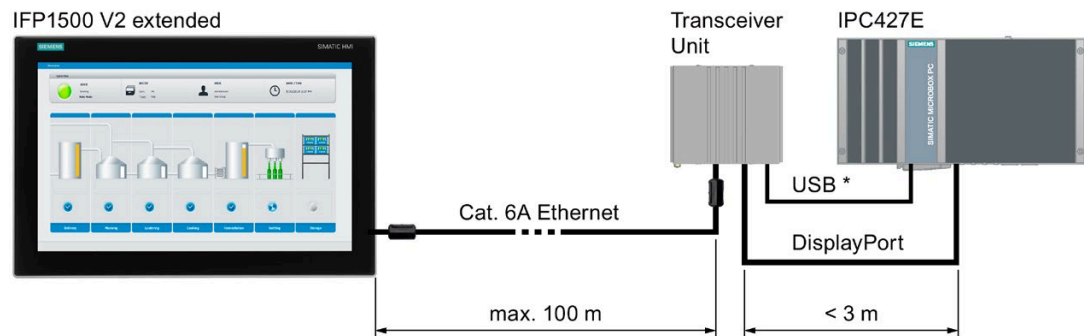
Mount the ferrites as close as possible to the connectors and in a position that allows the Cat. 6A Ethernet cable to be secured at the strain relief plate, see section "Securing cables at the IFP (Page 70)".

Observe the following in extended mode:

- The cable shield of the Cat. 6A Ethernet cable must be connected to the equipotential bonding rail, see section "Equipotential bonding (Page 58)".
- A ferrite is also required for the power supply lines, see section "Connecting the power supply (Page 61)".
- If the Transceiver Unit is mounted on a standard mounting rail, then hold the Transceiver Unit firmly at the top while connecting the plugs.

Wiring diagram

The following figure shows an example of the connection of an IFP1500 V2 extended via the Transceiver Unit to an IPC427E and is generally valid for all extended versions and PRO devices in connection with a corresponding PC.



* USB cable Type B connector - Type A connector

Note

Possible number of extended versions or PRO devices on a PC

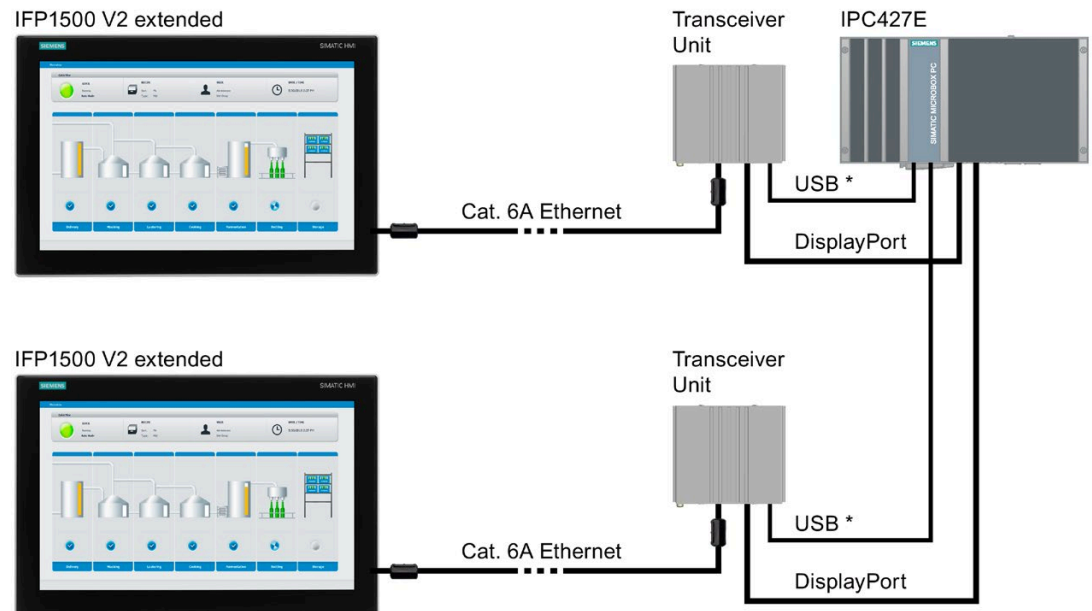
A free USB interface and a free DisplayPort interface of the PC are required for each connection of an extended version or a PRO device to a PC via the Transceiver Unit. This means that the possible number of IFPs on a PC is defined by the number of available USB and DisplayPort interfaces of the PC. A Transceiver Unit is required for each extended version or each PRO device.

Possible number of PCs on an extended version or a PRO device

As soon as the Ext-Link interface of an extended version or a PRO device is connected to a PC via the Transceiver Unit, no video signals can be transmitted via the DisplayPort interface of the IFP. This means that exactly one PC can be connected to one extended version or one PRO device.

Example: Connecting two IFP V2 extended via two Transceiver Units with a PC

The following figure shows an example of the connection of two IFP1500 V2 extended each via a Transceiver Unit to an IPC427E and is generally valid for all extended versions and PRO devices in connection with a corresponding PC.



* USB cable Type B connector - Type A connector

See also

System components for IFPs (Page 18)

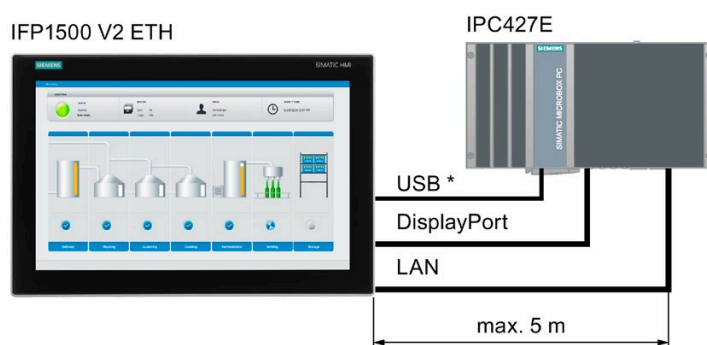
Accessories (Page 24)

3.5.5 Connecting the Ethernet Monitor to a PC

3.5.5.1 Overview

Connection diagram for "Commissioning" mode

The following figure shows an example of the direct connection of an IFP1500 V2 ETH to an IPC427E and is generally valid for all Ethernet Monitors in connection with a corresponding PC.



* USB cable Type B connector - Type A connector

Connection diagram for "Ethernet" mode

The following figure shows an example of the direct connection of an IFP1500 V2 ETH to an IPC427E and is generally valid for all Ethernet Monitors in connection with a corresponding PC.



See also

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

3.5.5.2 Connection variants

"Commissioning" mode

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

1. Connect the Ethernet Monitor and PC with a USB cable.
Maximum cable length: 5 m



USB Type B

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



DisplayPort

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



Ethernet

"Ethernet" mode

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



3.5.6 Connecting a USB device to the IFP

You can connect the following industrial grade devices to the USB ports of the IFP, for example:

- Mouse
- Keyboard
- USB storage media

Observe when connecting

Note

Use of USB devices

- Wait at least ten seconds between removal and reconnection of USB devices.
 - When using standard USB devices, note that their EMC immunity level is frequently designed only for office environments. These USB devices are adequate for commissioning and servicing purposes. Only industrial grade USB devices are permitted for use in the industrial field.
 - USB devices are developed and marketed by their manufacturer. The manufacturer provides support for these USB devices. The terms of liability of the individual vendors or suppliers apply.
-

Note

Functional problem with USB port

Malfunctions may occur if you use a potential-free plant installation and connect an external USB device with its own power supply to the USB interface. In this case, use external USB devices without their own power supply or a non-isolated plant installation.

Excessive rated load on port

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

Observe the values for the maximum load of the USB interface. You can find the values in the section "Technical specifications of the IFPs (Page 124)".

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.
-

3.5.7 Securing the cables

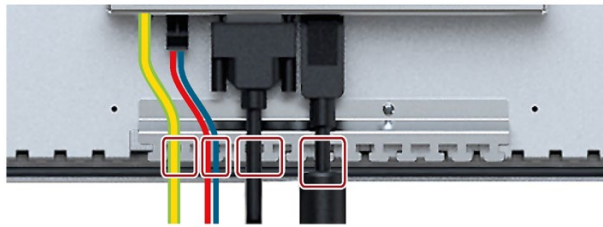
3.5.7.1 Securing cables at the IFP

Use cable ties to secure the connected cables to the strain relief plate:

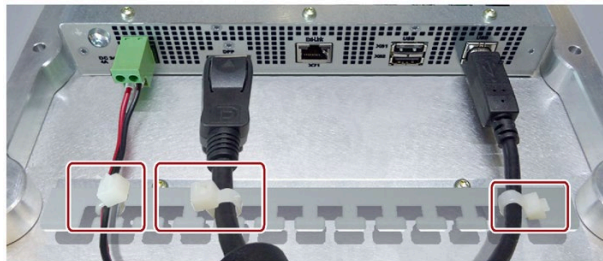
Make sure that the cables are not crushed by the cable tie.

Possible fastening points are marked in the following figures.

The following figure shows an example of securing the cables to the strain relief plate of a built-in device.



The following figure shows an example of securing the cables to the strain relief plate of a PRO device.



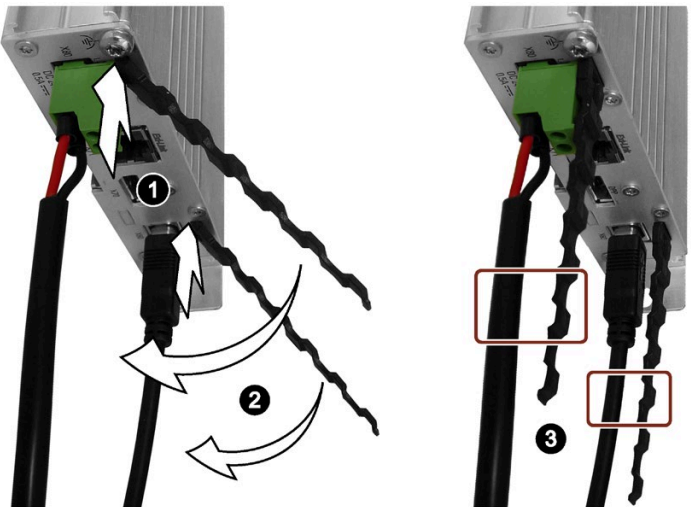
3.5.7.2 Securing cables at the Transceiver Unit

The USB cable and the power supply cables connected to the Transceiver Unit must be secured using the supplied strain relief elements.

To install the strain relief elements and secure the cables, proceed as follows:

1. Hang the strain relief elements from the scope of delivery at an angle of approx. 60° to the vertical from below into the corresponding opening in the enclosure of the Transceiver Unit.
2. Swivel the strain relief element into the vertical position.
3. Secure the power supply cables and the USB cable with cable ties on the respective strain relief element.

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



3.5.7.3 Securing cables for use in hazardous areas

Secure the IFP cables to the strain relief plate and the Transceiver Unit cables to the strain relief elements as described in the previous section.

3.6 Removing the device

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

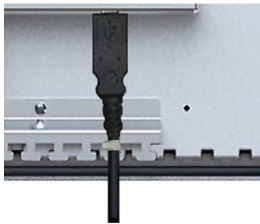
Explosion hazard from sparks when connectors come loose

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 fastening point of the strain relief plate or strain relief 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.



3.6 Removing the device

This section describes how to remove the devices properly, when necessary.

3.6.1 Removing the built-in device

The built-in device is generally removed in the reverse order for mounting and connecting.

Procedure

Proceed as follows:

1. Switch off the power supply of the built-in device.
2. When you use the built-in device in a hazardous area, make sure that one of the two following requirements is met: The area is no longer hazardous or the built-in device and its plug-in connections are de-energized.
3. Remove all cable ties used for strain relief on the strain relief plate of the built-in device.
4. Remove all plug-in connectors and the equipotential-bonding cable from the built-in device.

5. Loosen the mounting clips screws and remove all mounting clips.
6. Remove the built-in device from the mounting cutout.

See also

Installing the built-in device (Page 42)

Connecting the device (Page 56)

3.6.2 Removing a PRO device

The PRO device is generally removed in the reverse order for mounting and connecting.

Procedure

Proceed as follows:

1. Switch off the power supply of the PRO device.
2. When you use the PRO device in a hazardous area, make sure that one of the two following requirements is met: The area is no longer hazardous or the PRO device and its plug-in connections are de-energized.
3. Depending on your device version, open the PRO device as follows:
 - PRO device for support arm (not extendable, flange top) and for pedestal (extendable, flange bottom): Loosen the 8 screws of the backplane cover and remove the backplane cover.
 - PRO device for support arm (extendable, round tube): Loosen the 2 screws of the terminal compartment cover and remove the terminal compartment cover.
4. Remove all cable ties used for strain relief on the strain relief plate of the PRO device.
5. Remove all plug-in connectors and the equipotential-bonding cable from the PRO device.
6. Remove the PRO device from the support arm or pedestal. Make sure that the connection cables are not damaged.
7. Depending on your device version, close the PRO device as follows:
 - PRO device for support arm (not extendable, flange top) and for pedestal (extendable, flange bottom): Fasten the backplane cover to the PRO device with the 8 screws, torque 1.5 Nm.
 - PRO device for support arm (extendable, round tube): Fasten the terminal compartment cover to the PRO device with the 2 screws, torque 1.5 Nm.

See also

Mounting the PRO device (Page 47)

Connecting the device (Page 56)

3.6.3 Removing Transceiver Unit

The Transceiver Unit is generally removed in the reverse order for mounting and connecting.

Procedure

1. Switch off power supply to the Transceiver Unit.
2. When you use the Transceiver Unit in a hazardous area, make sure that one of the two following requirements is met: The area is no longer hazardous or the Transceiver Unit and its connectors are current-free.
3. Remove all cable ties from the strain relief elements of the Transceiver Unit.
4. Remove all plugs from the Transceiver Unit.
5. Remove the Transceiver Unit as follows, depending on the type of mounting:
 - Mounting onto standard rail: Press the Transceiver Unit upwards and remove the Transceiver Unit from the standard mounting rail.
 - Wall mounting: Remove the fixing screws and remove the Transceiver Unit from the wall.

See also

Mounting the Transceiver Unit (Page 54)

Connecting the device (Page 56)

Commissioning the IFP

When you operate the IFP exclusively as monitor and do not change the brightness, you do not need to commission the device. To use extended functions, perform the following commissioning.

Requirement

- The IFP is mounted according to the documentation.
- The IFP is connected according to the documentation and connected to a PC for commissioning.

Procedure

1. Switch on the PC.
2. Power on the IFP.
3. Download the software PDT (Panel Driver Tool) on the internet (<https://support.industry.siemens.com/cs/ww/en/view/109792891>).
4. Launch the "**start.exe**".
5. Follow the instructions for installation.

Operating the IFP

5.1 Operator input options

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

- Touch screen

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
- External keyboard, connected via USB
- External mouse, connected via USB

5.2 Operating the capacitive multi-touch screen

You operate the capacitive 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 ground connection

An inadequate ground 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 IFP to a ground conductor.
- The ground conductor from the IFP must be connected directly to ground with low impedance (short connection, minimum conductor cross-section 4 mm²).

You can find additional information on connecting the earth conductor in the section "Equipotential bonding (Page 58)".

WARNING

Personal injury or property damage due to maloperation

Incorrect operation of touch devices cannot be ruled out. 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.
- Only carry out an operator action if a plant screen is shown on the IFP display.
- If you disconnect the DisplayPort/DVI connection of the IFP, then also disconnect the USB connection of the USB cable Type B connector - Type A connector.
- Switch off the IFP for cleaning and maintenance.



WARNING

Danger of malfunctions due to incorrect 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 touch 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.

Observe when operating the capacitive multi-touch screen:

- 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 IFP, 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 screen are recognized by the application. It is possible that certain gestures need to be trained beforehand.

Notes on operation

Note

Do not touch the capacitive multi-touch screen during startup

The IFP 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.

Observe when operating the capacitive 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 capacitive 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 PC.

Note

Multi-touch operation can provide extended functions or pose limitations depending on the operating system and the software installed on the PC. Observe the corresponding documentation.

- You do not need to calibrate the capacitive multi-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 capacitive multi-touch screen is locked for security reasons when the following disturbances occur:

- There is a conductive liquid on the touch screen with ground contact via the enclosure or the operator, for example.
- An electromagnetic disturbance that exceeds the specification in the technical data of the device exerts an influence, see section "Electromagnetic compatibility (Page 91)".

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

5.3 Extended functions

If you have installed the software PDT (Panel Driver Tool) in the internet (<https://support.industry.siemens.com/cs/ww/en/view/109792891>), the following functions are available, for example:

- Advanced brightness control - "SetBrightness"
- "IPCScreenSaver", specially designed for touch devices
- Convenient functions for clone operation including interlock mechanism
- Functions for switching from multi-touch to single-touch mode and vice versa
- For Ethernet Monitors: Convenient functions for parameter assignment of multiple Ethernet Monitors

Device maintenance and repair

6.1 General information on maintenance and servicing

Observe the following when servicing and repairing protective equipment e.g. such as ground circuits or overvoltage protection components:

- Observe the maintenance and replacement intervals.
- Replace plant components, including external cables, fuses and batteries only with equivalent components approved by the respective manufacturer.

6.2 Cleaning the device

Note

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

Cleaning the IFP

Cleaning agents

Use dish soap or foaming screen cleaner only as cleaning agents. Built-in devices may only be cleaned at the front with cleaning agents.

NOTICE
Damage to the device due to impermissible cleaning agents Impermissible and unsuitable cleaning agents can cause damage the 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

Observe the information on chemical resistance in section "Notes on use (Page 28)".

Procedure

1. Switch off the device.
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.

Cleaning the Transceiver Unit

Clean the enclosure surface with a damp cloth and make sure that no water enters the device.

6.3 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>)

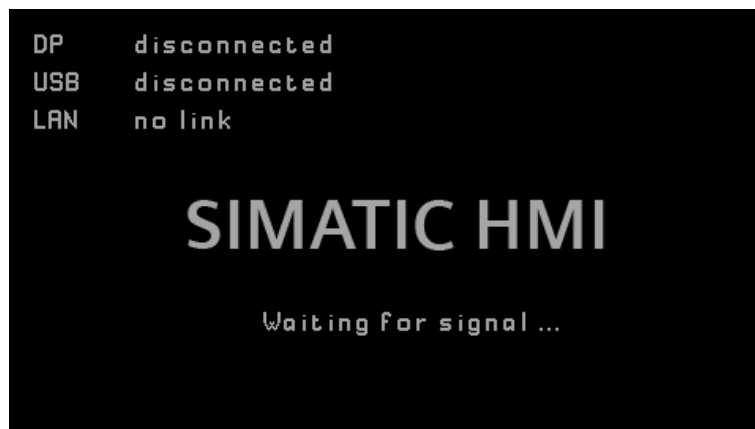
6.4 Ethernet Monitors - Diagnostics and reset

6.4.1 Diagnostics screen

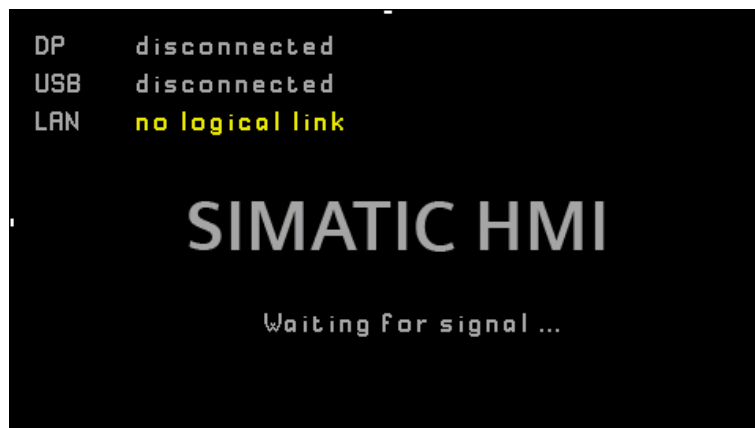
The diagnostics screen shows information on the system state of the Ethernet Monitor when the Ethernet Monitor does not receive a signal from the PC. The diagnostics screen is not displayed permanently; it alternates with a black screen.

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:



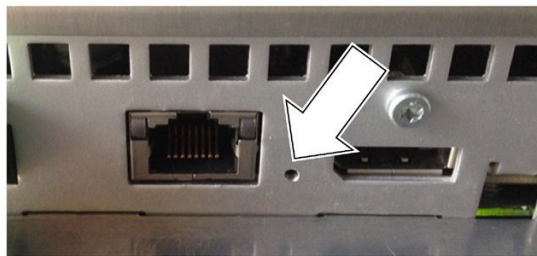
6.4.2 Restoring the factory settings for an Ethernet Monitor

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.

6.5 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 electronic scrap for environmentally sound recycling and disposal of your old devices, and dispose of the device according to the relevant regulations in your country.

Technical information

7.1 Certificates and approvals

Note

Approvals on the rating plate

The following overview shows possible approvals.

Only the approvals specified on the rating plate apply to the device.

See also

Rating plate (Page 123)

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 confirmed in the EU Declarations of Conformity:

- 2014/35/EU "Electrical equipment designed 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)
- ErP Directive (EU) 2019/2021 "Commission Regulation laying down ecodesign requirements for electronic displays pursuant to Directive 2009/125/EC of the European Parliament and of the Council, amending Commission Regulation (EC) No 1275/2008 and repealing Commission Regulation (EC) No 642/2009"

When the device has Ex approval, the following also applies:

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

EU Declarations of Conformity

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

Siemens AG
Digital Industries
Factory Automation
DI FA TI COS

P.O. Box 1963
D-92209 Amberg

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>)

UK Conformity Assessed marking



The HMI device complies with the designated British standards (BS) published in the official consolidated list of the British Government. The HMI device meets the requirements and protection targets of the following regulations and related amendments:

- Electrical Equipment (Safety) Regulations 2016 (Low Voltage)
- Electromagnetic Compatibility Regulations 2016 (EMC)
- Regulations on the restriction of the use of certain hazardous substances in electrical and electronic equipment 2012 (RoHS)

When the device has Ex approval, the following also applies:

- Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 (Explosion Protection)

UK Declarations of Conformity for the respective authorities are available from:

Siemens AG
Digital Industries
Factory Automation
DI FA TI COS TT
P.O. Box 1963
D-92209 Amberg

The UK Declaration of Conformity is also available for download from the Siemens Industry Online Support website under the keyword "Declaration of Conformity".

UL approval

Observe the following notes:

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

Underwriters Laboratories Inc., to

- UL 61010-2-201
E-file numbers: E472609
- CAN/CSA C22.2 No. 61010-2-201

or



Underwriters Laboratories Inc., to

- UL 61010-2-201

E-file numbers:

- Standard versions and extended versions : E222109
- Ethernet monitors and PRO devices: E472610

- CAN/CSA C22.2 No. 61010-2-201
- UL 121201 (Hazardous Location)
- CAN/CSA C22.2 No. 213 (Hazardous Location)

Standard versions, extended versions devices approved for use in

- Class I, II, III, Division 2, Group A, B, C, D, F, G; T4
- Class I, Zone 2, Group IIC T4
- Class II, Zone 22, Group IIIA, IIIB, IIIC T135

Ethernet monitors and PRO devices approved for use in

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

FM Approval



Factory Mutual Research (FM) conforming to

- Approval Standard Class number 3611, 3600, 3810, ANSI/ISA 61010-1, ANSI/UL 121201
- CAN/CSA C22.2 No. 213
- CAN/CSA C22.2 No. 61010-1

Approved for use in

- Class I, II, III, Division 2, Group A, B, C, D, E, F, G; T4
- Class I, Zone 2, Group IIC T4
- Class II, Zone 22, Group IIIA, IIIB, IIIC T135

Installation Instructions for cFMus:

WARNING – Do not remove or replace while circuit is live when a flammable or combustible atmosphere is present.

WARNING – Substitution of components may impair suitability of the equipment.

CAUTION – To prevent injury, read the manual before use.

Additional Instructions for cFMus, built-in devices:

WARNING – The equipment is intended to be installed within an enclosure/control cabinet. The inner service temperature of the enclosure/control cabinet corresponds to the ambient temperature of the module. Use cables with a maximum permitted operating temperature of at least 20 °C higher than the maximum ambient temperature.

ATEX/UKEX/IECEx approval

Notes on use in hazardous areas

Observe the following FAQ regarding the use of an HMI device in hazardous areas: ATEX-FAQ (<https://support.industry.siemens.com/cs/ww/en/view/291285>)

When using the device in hazardous areas, ensure that all plugs connected to the device are secured in a captive manner, see section "Securing cables for use in hazardous areas (Page 71)".

You can find certificates on explosion protection, EC/EU declarations of conformity, product approvals and other certifications 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>)

ATEX approval

For an HMI device with "Ex" marking, the following approvals apply according to the following standards.

- Standards:
 - EN 60079-0:2018
 - EN 60079-7:2015 +A1:2018
 - EN 60079-31:2014
- Approvals:

	II 3 G	Ex ec IIC T4 Gc and
	II 3 D	Ex tc IIIC T 70 °C Dc or
	II 3 G	Ex ec IIC T4 Gc (6AV7860-3EH00-0AA0)

- ATEX certificate number:
DEKRA 19ATEX0125X

UKEX approval

For an HMI device with "Ex" marking, the following approvals apply according to the following standards.

- Standards:
 - EN 60079-0:2018
 - EN 60079-7:2015 +A1:2018
 - EN 60079-31:2014
- Approvals:

	II 3 G	Ex ec IIC T4 Gc and
	II 3 D	Ex tc IIIC T 70 °C Dc or
	II 3 G	Ex ec IIC T4 Gc (6AV7860-3EH00-0AA0)

7.1 Certificates and approvals

- UKEX certificate number:
DEKRA 21UKEX0316X

IECEx approval

For an HMI device with "IECEx" marking, the following approvals apply according to the following standards.

- Standards:
 - IEC 60079-0:2017
 - IEC 60079-7:2015
 - IEC 60079-31:2013
- Approvals:

	II 3 G	Ex ec IIC T4 Gc and
	II 3 D	Ex tc IIIC T 70 °C Dc or
	II 3 G	Ex ec IIC T4 Gc (6AV7860-3EH00-0AA0)

- IECEx certificate number:
DEK 19.0079X

CCCEX approval



The following approvals according to the following standards are valid for a device with the "CCC" marking.

- Standards:
 - GB 3836.1 (Explosive atmospheres - Part 1: Equipment - General requirements)
 - GB 3836.8 (Explosive atmospheres - Part 8: Device protection through type of protection "n")
 - GB 12476.1 (Electrical apparatus for use in the presence of combustible dust -Part 1: General requirements)
 - GB 12476.5 (Electrical apparatus for use in the presence of combustible dust - Part 5: Protection by enclosures "tD")
- Approvals:
 - Ex nA nC IIC T4 Gc
 - Ex nA IIC T4 Gc
 - Ex tD A22 IP65 T70°C

Special conditions for safe operation of the PRO devices

- The front of the HMI devices and the SIMATIC PRO device including the top of the adapter provide a degree of protection of at least IP65.

The front of the HMI device and the bottom of the adapter must be installed with a certified enclosure that ensures a degree of protection of at least IP54 in accordance with GB 3836.8 for Group II, IP54 in accordance with GB 12476.1 & GB 12476.5 for Zone 22

non-conductive dust environment and IP6X in accordance with GB 12476.1 & GB 12476.5 for Zone 22 conductive dust environment.

During use, make allowances for the ambient conditions.

- The equipment shall be installed in such a way that the risk of mechanical danger is low.
- To avoid an electrostatic charge, wipe the enclosure surface with a damp cloth only.
- When used in an area requiring the use of equipment with EPL Gc, the following additional conditions apply:
 - The equipment shall only be used in an area of not more than pollution degree 2, as defined in GB/T 16935.1.
 - Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.

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.

Responsible party for Supplier's Declaration of Conformity in the USA

Siemens Industry, Inc.
Digital Factory - Factory Automation
5300 Triangle Parkway, Suite 100
Norcross, GA 30092
USA

Mail to: (amps.automation@siemens.com)

IEC/UL 61010-2-201

The devices meet the requirements and criteria of the IEC/UL 61010 standard, Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 2-201: Special requirements for control equipment.

IEC 61131

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

RCM AUSTRALIA/NEW ZEALAND



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

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

KOREA



This product meets the requirements of Korean certification.

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

이 기기는 업무용(A 급) 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 Eurasian 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 83)".

Marine approvals

The following acceptance tests for marine and offshore applications are planned for the standard versions, extended versions and PRO devices:

- ABS (American Bureau of Shipping)
- BV (Bureau Veritas)

- DNV (Det Norske Veritas)
- LR (Lloyds Register)
- CCS (China Classification Society)
- NK (Nippon Kaiji Kyokai)
- KR (Korean Register of Shipping)

After acceptance has been granted, you can find the corresponding 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>)

7.2 Electromagnetic compatibility

The device fulfills, among other things, the requirements of the EMC directive applicable to the European domestic market.

Installing the device according to EMC directive

EMC-compliant mounting of the device and the use of interference-proof cables provide the basis for interference-free operation.

Observed the following manuals in addition to these operating instructions:

- Designing interference-free controllers
(<https://support.industry.siemens.com/cs/ww/en/view/59193566>)
- Industrial Ethernet / PROFINET - Passive network components
(<https://support.industry.siemens.com/cs/ww/en/view/84922825>)

Pulse-shaped disturbance

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

Pulse-shaped interference	Tested with	Performance level equivalence
Electrostatic discharge in accordance with IEC 61000-4-2	Air discharge: 8 kV	3
	Contact discharge: 6 kV (built-in device on the front, PRO devices and Transceiver Unit all-round)	
	Contact discharge: 4 kV (built-in devices, at rear)	2
Bursts (high-speed transient interference) in accordance with IEC 61000-4-4	2 kV power supply line 1 kV signal line, < 30 m	3
	2 kV signal line, > 30 m	4

Pulse-shaped interference	Tested with	Performance level equivalence
High-energy single pulse (surge) according to IEC 61000-4-5	Asymmetrical coupling:	2
	• 1 kV supply line, DC voltage	
	• 1 kV signal line/data cable, > 30 m	
	Symmetrical coupling:	2
	• 0.5 kV power cable, DC voltage	
	• 1 kV signal line, > 30 m,	3

Sinusoidal interference

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

Sinusoidal interference	Test values
HF radiation (electromagnetic fields) according to IEC 61000-4-3	80% amplitude modulation at 1 kHz - to 10 V/m from 80 MHz ... 1 GHz - to 3 V/m from 1.4 ... 6 GHz
HF current feed on cables and cable shields according to IEC 61000-4-6	Test voltage 10 V, with 80 % amplitude modulation of 1 kHz in the 150 kHz ... 80 MHz range
Magnetic field strength according to IEC 61000-4-8	50/60 Hz; 30 A/m rms

Emission of radio interference

The following table shows the interference emission from electromagnetic fields according to EN 61000-6-4, measured at the following distance.

Radiated emission (emitted interference)

Frequency range	Measuring distance	Interference emission
30 ... 230 MHz	10 m	< 40 dB (μV/m) quasi-peak
230 ... 1000 MHz	10 m	< 47 dB (μV/m) quasi-peak
1 ... 3 GHz	3 m	< 76 dB peak and < 56 dB average
3 ... 6 GHz	3 m	< 80 dB peak and < 60 dB average

Emission of radio interference voltages

Frequency range	Interference emission
0.150 ... 0.5 MHz	< 79 dB quasi-peak and < 66 dB average
0.5 ... 30 MHz	< 73 dB quasi-peak and < 60 dB average

See also

EMC information in section "Notes on use (Page 28)".

7.3 Mechanical environmental conditions

7.3.1 Storage conditions

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

The device was tested according to IEC 60721-3-2:2018 Class 2M4 with the following amendments and limitations:

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

7.3.2 Operating Conditions

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

The devices were tested based on IEC 60721-3-3:2002 Class 3M3 with the following amendments and limitations:

Built-in devices and Transceiver Unit:

Type of condition	Permitted range
Vibration according to IEC 60068-2-6	5 ... 8.4 Hz, deflection 3.5 mm 8.4 ... 200 Hz, acceleration 1 g
Shock according to IEC 60068-2-27	150 m/s ² , 11 ms, 3 shocks

Applies to built-in devices: Shock pulses within the specified range can be transferred to the display but do not impact the functionality of the device.

PRO devices

Type of condition	Permitted range
Vibration according to IEC 60068-2-6	10 ... 58 Hz, deflection 0.0375 mm 58 ... 200 Hz, acceleration 0.5 g
Shock according to IEC 60068-2-27	150 m/s ² , 11 ms, 3 impacts

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

7.4 Climatic ambient conditions

7.4.1 Long-term storage

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

The device meets the requirements of IEC 60721-3-1:2018 Class 1K21.

7.4.2 Transport and short-term storage

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

The device was tested according to IEC 60721-3-2:2018 Class 2K11 with the following amendments and limitations:

Type of condition	Permitted range
Temperature	−20 ... 60 °C
Atmospheric pressure	1140 ... 660 hPa, corresponds to an elevation of -1000 to 3500 m
Relative humidity	10 ... 90 %
Pollutant concentration	According to ANSI/ISA-71.04-2013 severity level G3

Note

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

Do not expose it to direct heat radiation from a heating device.

7.4.3 Operating Conditions

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

The device is designed for weatherproof and stationary operation according to IEC 60721-3-3.

The device was tested according to IEC 60721-3-3:2019 Class 3K3 with the following amendments and limitations:

Type of condition	Mounting position	Permitted range
Temperature built-in devices , Mounting in landscape format	Vertical	0 ... 50 °C (12", 15" and 19" device)
		0 ... 45 °C (22" and 24" device)
	Inclined, maximum inclination 35°	0 ... 40 °C

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

Type of condition	Mounting position	Permitted range
Temperature built-in devices , Mounting in portrait format	Vertical	0 ... 40 °C
	Inclined, maximum inclination 35°	0 ... 35 °C
Temperature PRO devices ¹	Vertical	0 ... 45 °C
	Inclined, maximum inclination 45°	0 ... 45 °C
Temperature Transceiver Unit	vertical, interfaces facing downward	0 ... 50 °C
Air pressure, operating elevation	1140 ... 795 hPa, corresponds to an elevation of -1000 ... 2000 m	
Relative humidity	10 ... 90 %, no condensation ²	
Pollutant concentration	According to ANSI/ISA-71.04-2013 severity level G3	

¹ Only mounting in the standard mounting position is permitted for PRO devices

² Built-in devices: No condensation on the rear of the device,
PRO devices: No condensation inside the enclosure,
Transceiver Unit No condensation all-round

Observe the information in section "Notes on use (Page 28)" and for IFPs the information on the mounting positions:

- Permitted mounting positions for built-in devices (Page 34)
- Permitted mounting positions for PRO devices (Page 39)

Note

All other system components connected to the device, such as the power supply, must also be suited to the respective operating conditions.

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

Insulation test

The insulation strength is demonstrated in the type test with the following test voltages in accordance with IEC 61010-2-201:

Circuit	Insulation tested with (type test)
Rated voltage U _e 24 V	707 V DC to other circuits / to ground
Ethernet socket ¹	1500 V AC

¹ Check applies to interface X1 Ethernet, **not** to X71 Ext-Link

Degree of pollution and overvoltage category

The device meets the following requirements according to IEC/UL 61010-2-201:

Degree of pollution	2
Overvoltage category	II

Protection class

Protection class III according to IEC 61010-2-201.

For built-in devices with optional AC power supply unit, the protection class of the AC power supply unit applies.

Protection against foreign objects and water built-in devices

The device meets the requirements of IEC 60529 and UL50.

Device side	Degree of protection
Front	When mounted: - IP65 according to IEC 60529 - Enclosure Type 4X/12 (indoor use only, front face only) according to UL50
Rear panel	IP20 Protection against contact with standard test probes. There is no protection against the ingress of water, dust and noxious gas.

The degrees of protection on the front can only be guaranteed if the mounting seal lies flush against the mounting cutout. Observe the corresponding information in section "Preparing the mounting cutout (Page 37)".

Protection from foreign objects and water PRO devices

The device meets the requirements of IEC 60529 and UL50.

Device side	Degree of protection
All-round	- IP65 according to IEC 60529 - Enclosure Type 4X/12 (indoor use only) according to UL50

The degrees of protection can only be ensured if the seals are completely in contact with all mechanical interfaces and the connection compartment and the associated covers are closed.

Protection against foreign objects and water Transceiver Unit

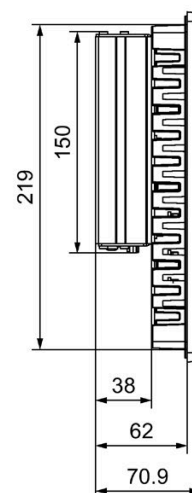
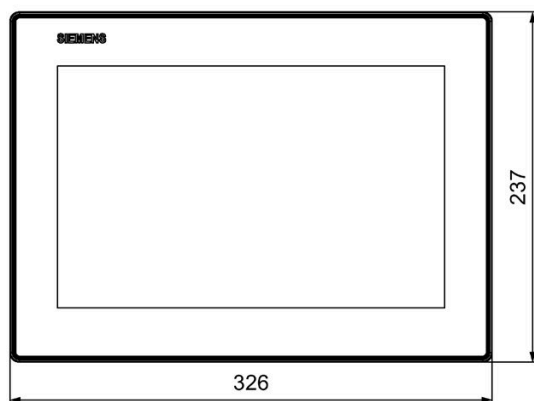
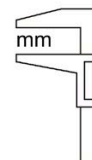
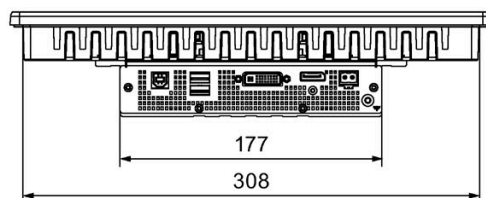
The device meets the requirements according to IEC 60529.

Device side	Degree of protection
All-round	IP20 Protection against contact with standard test probes. There is no protection against the ingress of water, dust and noxious gas.

7.6 Dimension drawings

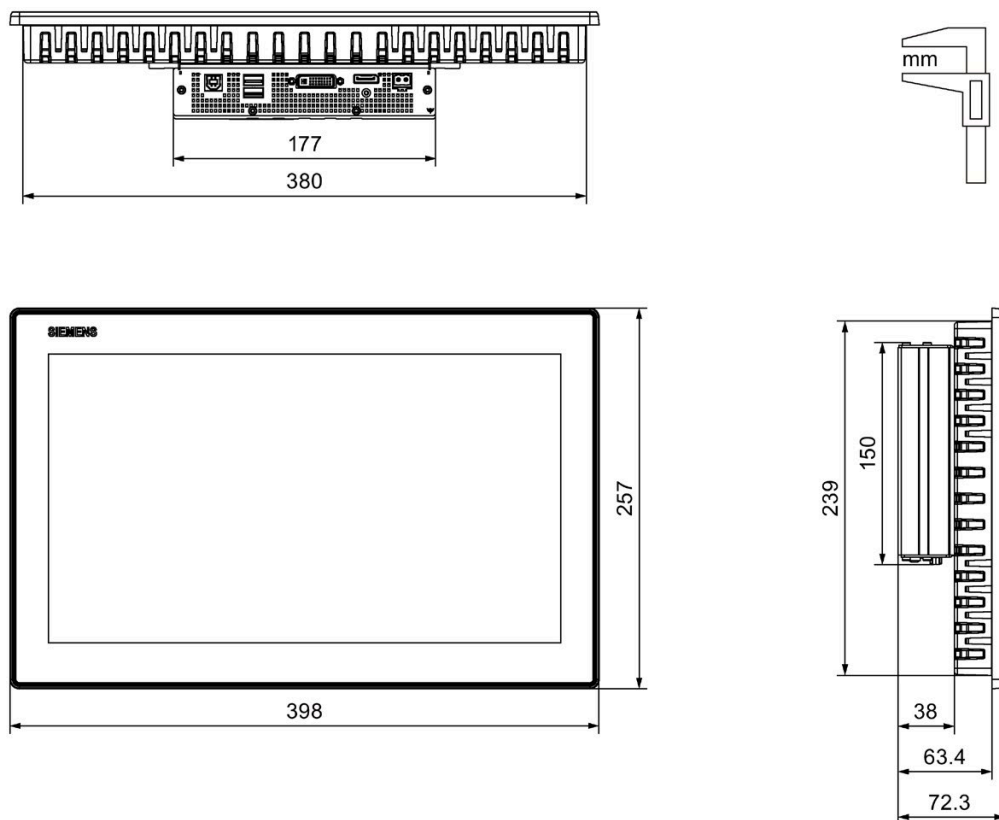
7.6.1 Dimension drawing of the IFP1200 V2 and IFP1200 V2 extended

The following figures show the dimensions of the SIMATIC IFP1200 V2. The specified dimensions also apply to the SIMATIC IFP1200 V2 extended.



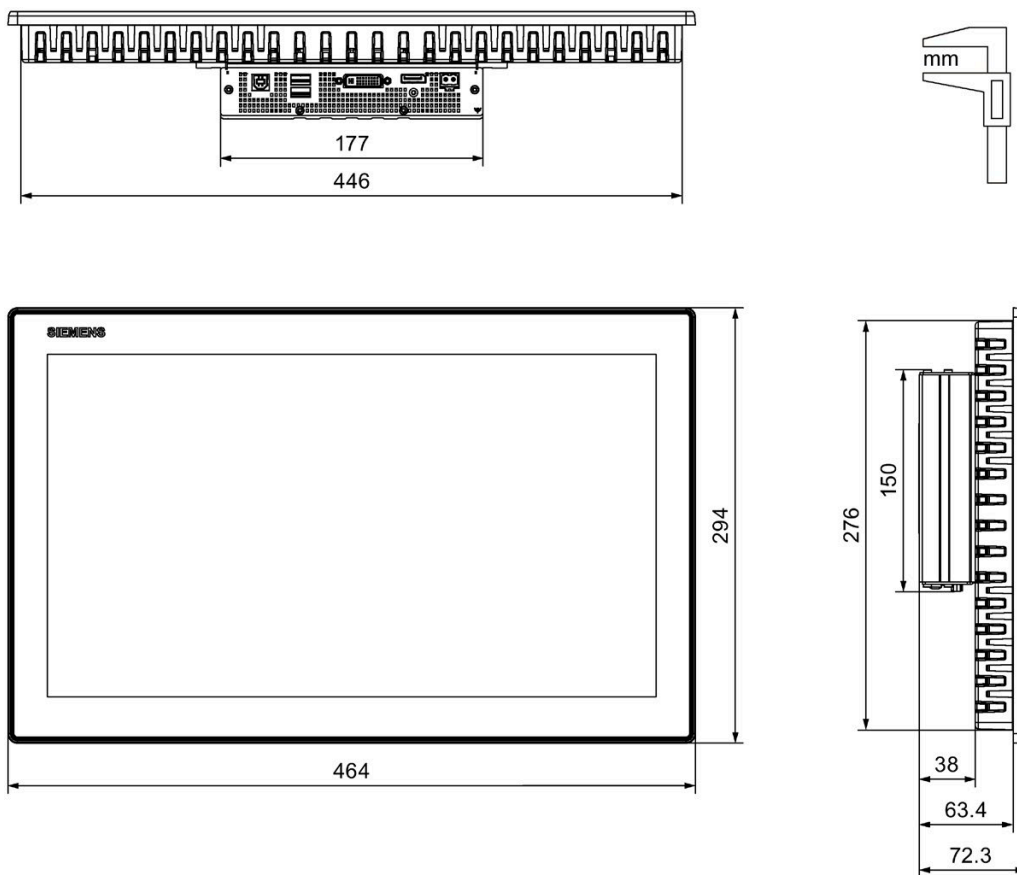
7.6.2 Dimension drawing of the IFP1500 V2 and IFP1500 V2 extended

The following figures show the dimensions of the SIMATIC IFP1500 V2. The specified dimensions also apply to the SIMATIC IFP1500 V2 extended.



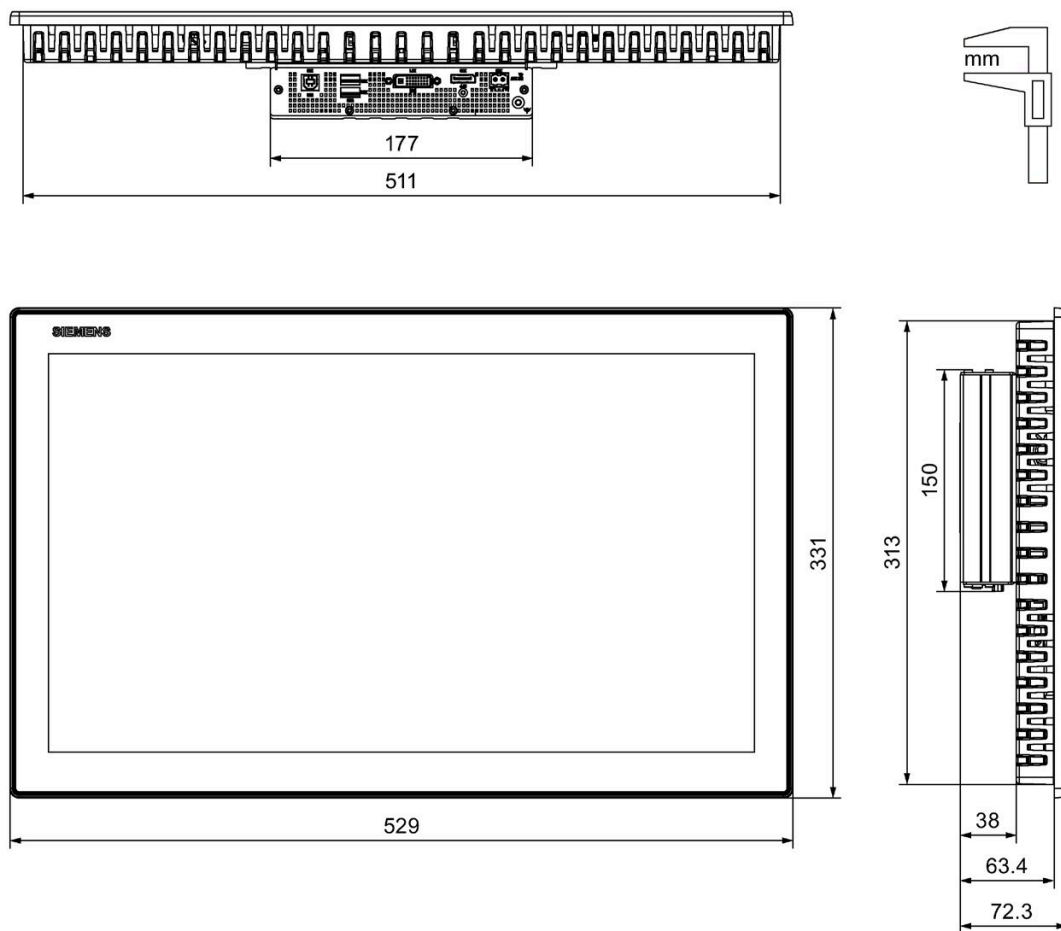
7.6.3 Dimension drawing of the IFP1900 V2 and IFP1900 V2 extended

The following figures show the dimensions of the SIMATIC IFP1900 V2. The specified dimensions also apply to the SIMATIC IFP1900 V2 extended.



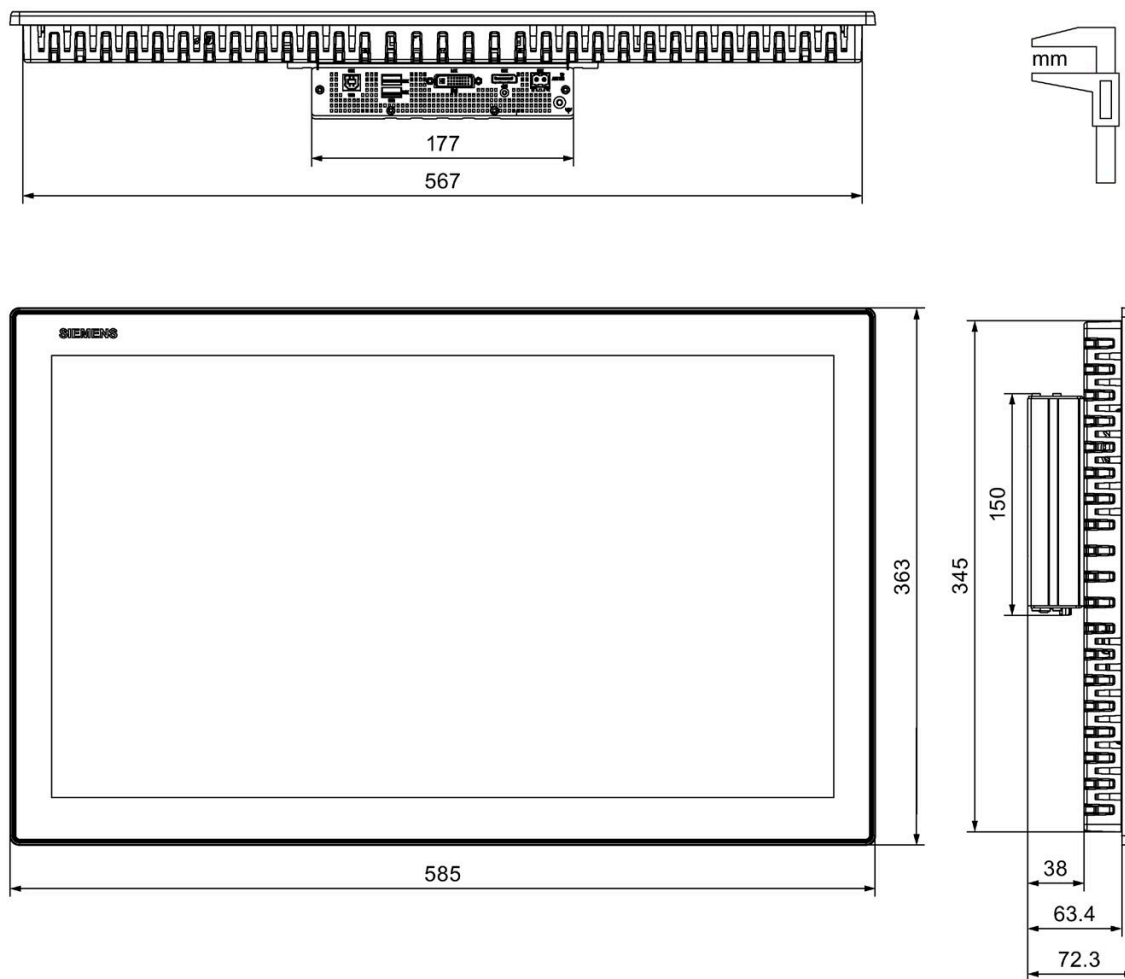
7.6.4 Dimension drawing of the IFP2200 V2 and IFP2200 V2 extended

The following figures show the dimensions of the SIMATIC IFP2200 V2. The specified dimensions also apply to the SIMATIC IFP2200 V2 extended.



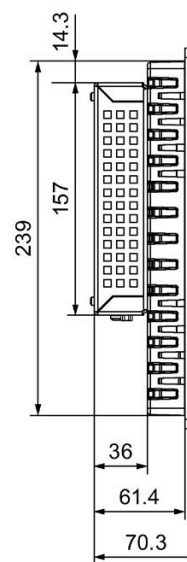
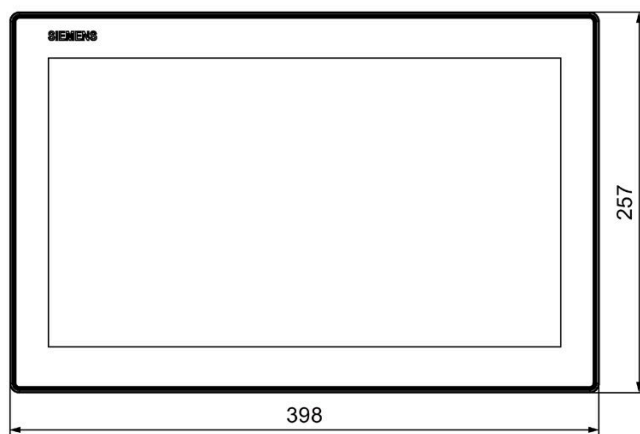
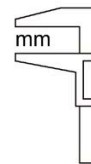
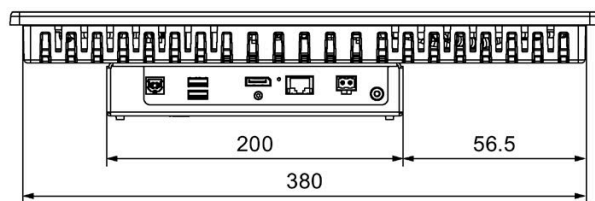
7.6.5 Dimension drawing of the IFP2400 V2 and IFP2400 V2 extended

The following figures show the dimensions of the SIMATIC IFP2400 V2. The specified dimensions also apply to the SIMATIC IFP2400 V2 extended.



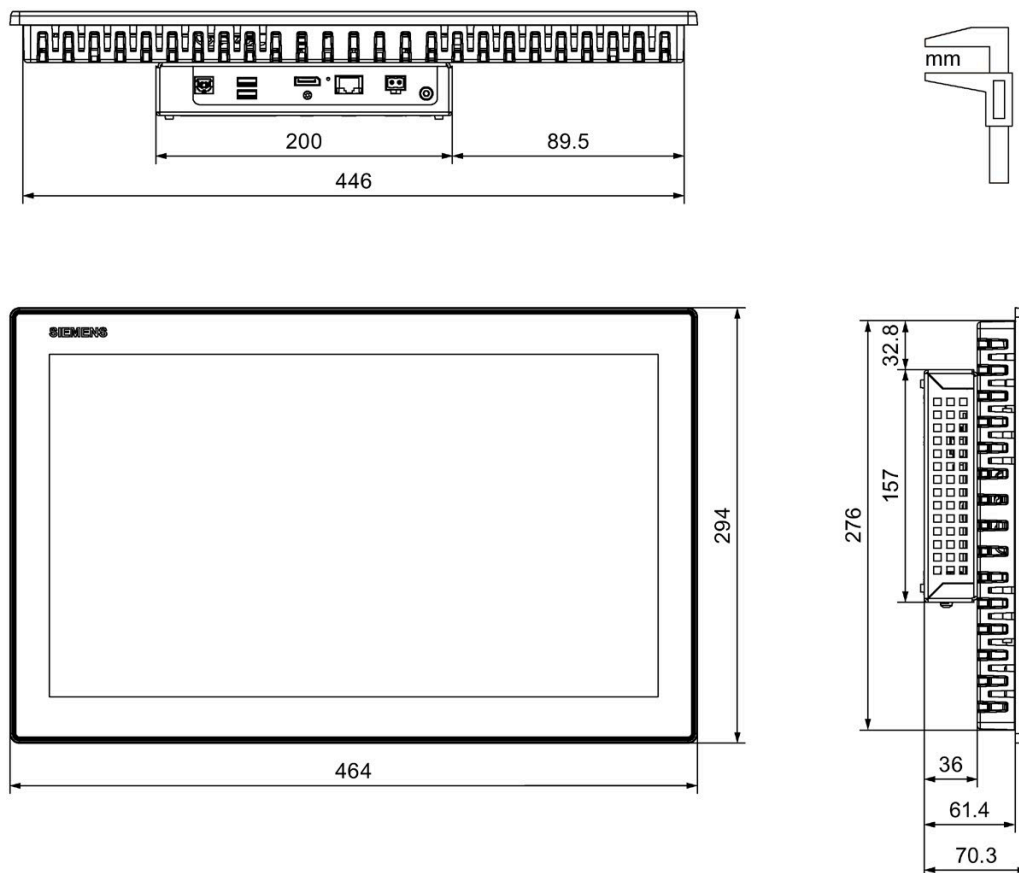
7.6.6 Dimension drawing of the IFP1500 V2 ETH

The following figures show the dimensions of the SIMATIC IFP1500 V2 ETH.



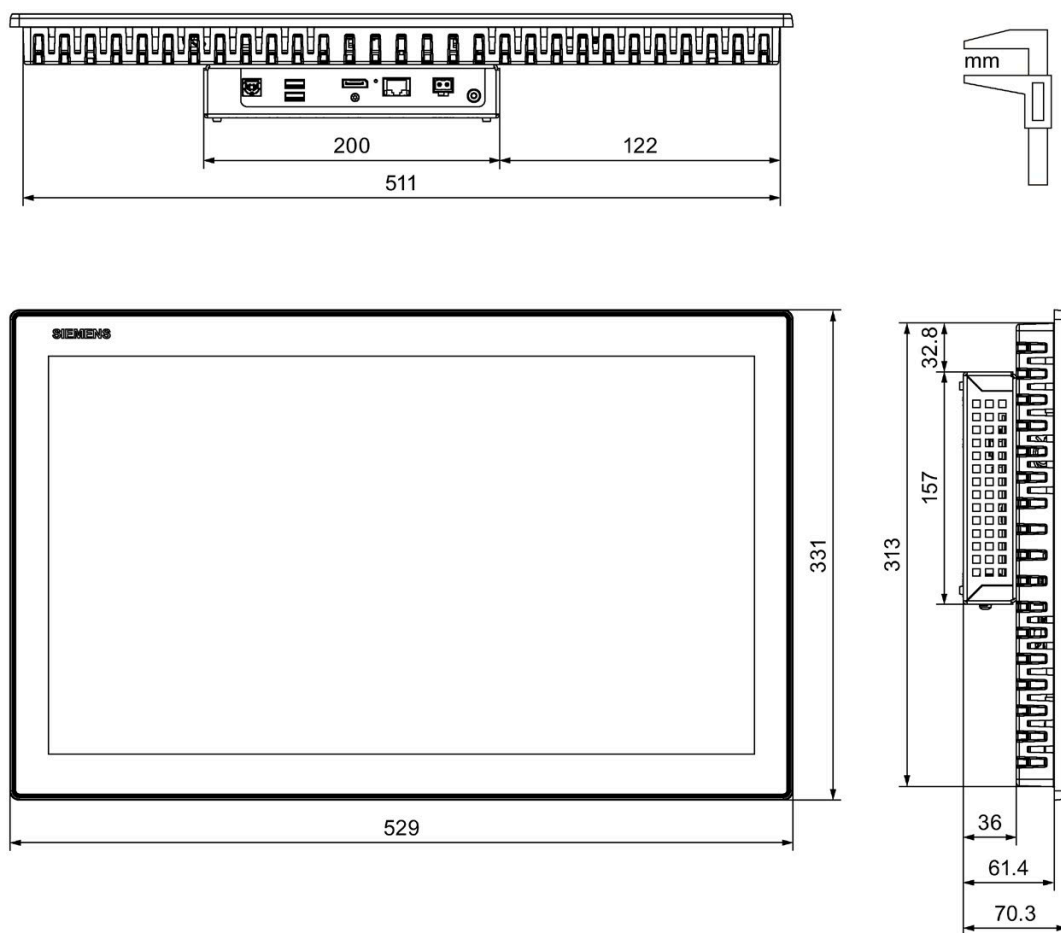
7.6.7 Dimension drawing of the IFP1900 V2 ETH

The following figures show the dimensions of the SIMATIC IFP1900 V2 ETH.



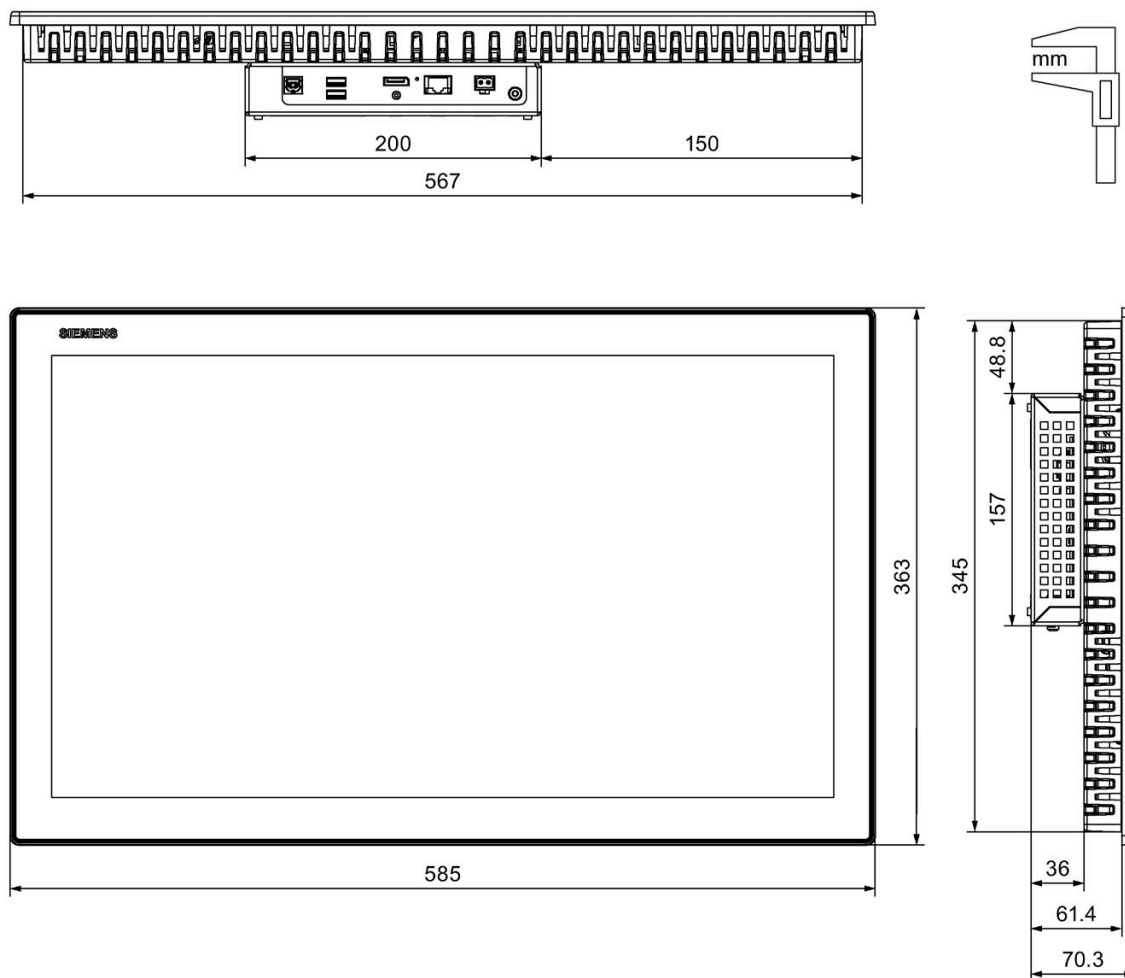
7.6.8 Dimension drawing of the IFP2200 V2 ETH

The following figures show the dimensions of the SIMATIC IFP2200 V2 ETH.



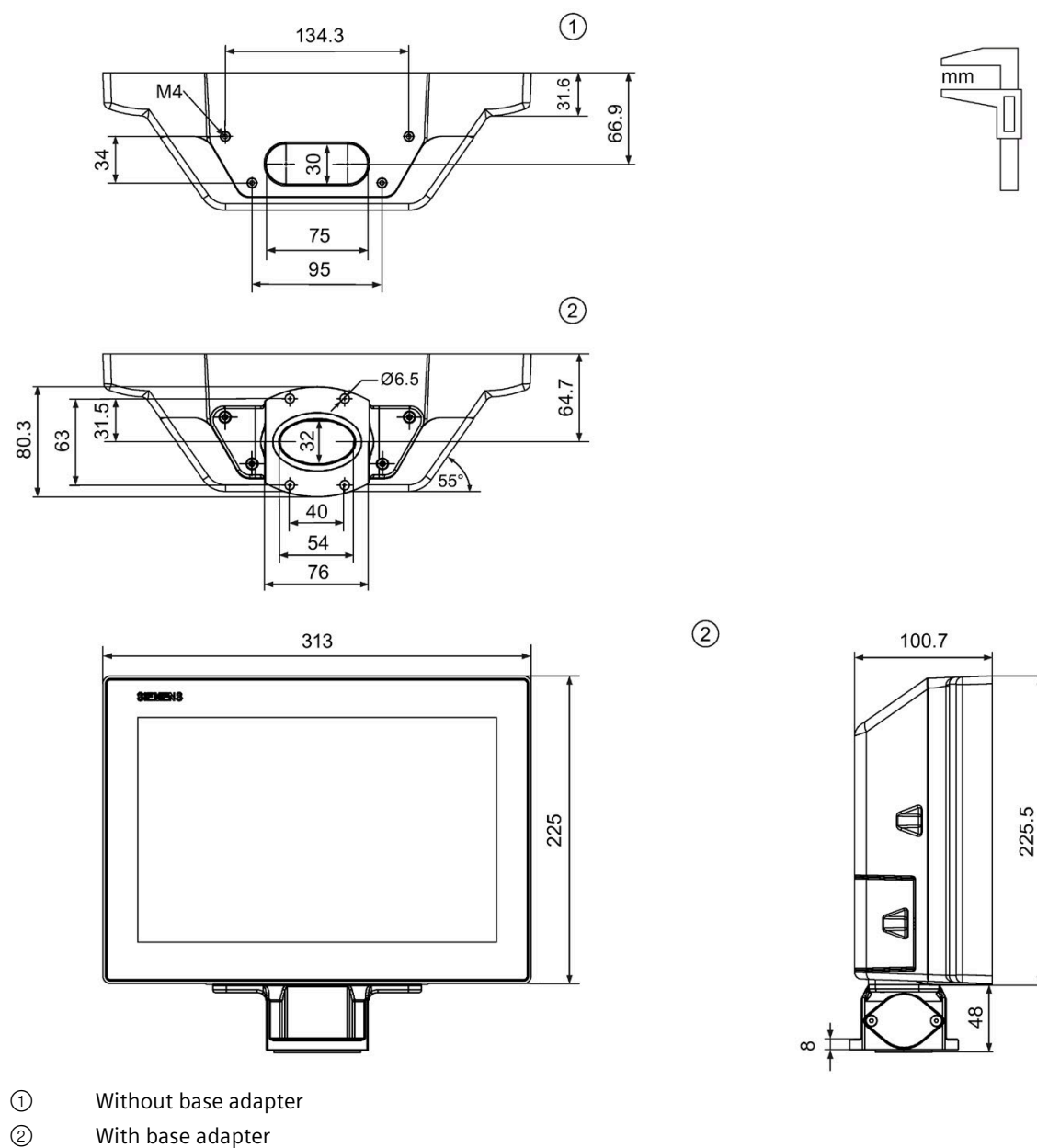
7.6.9 Dimension drawing of the IFP2400 V2 ETH

The following figures show the dimensions of the SIMATIC IFP2400 V2 ETH.

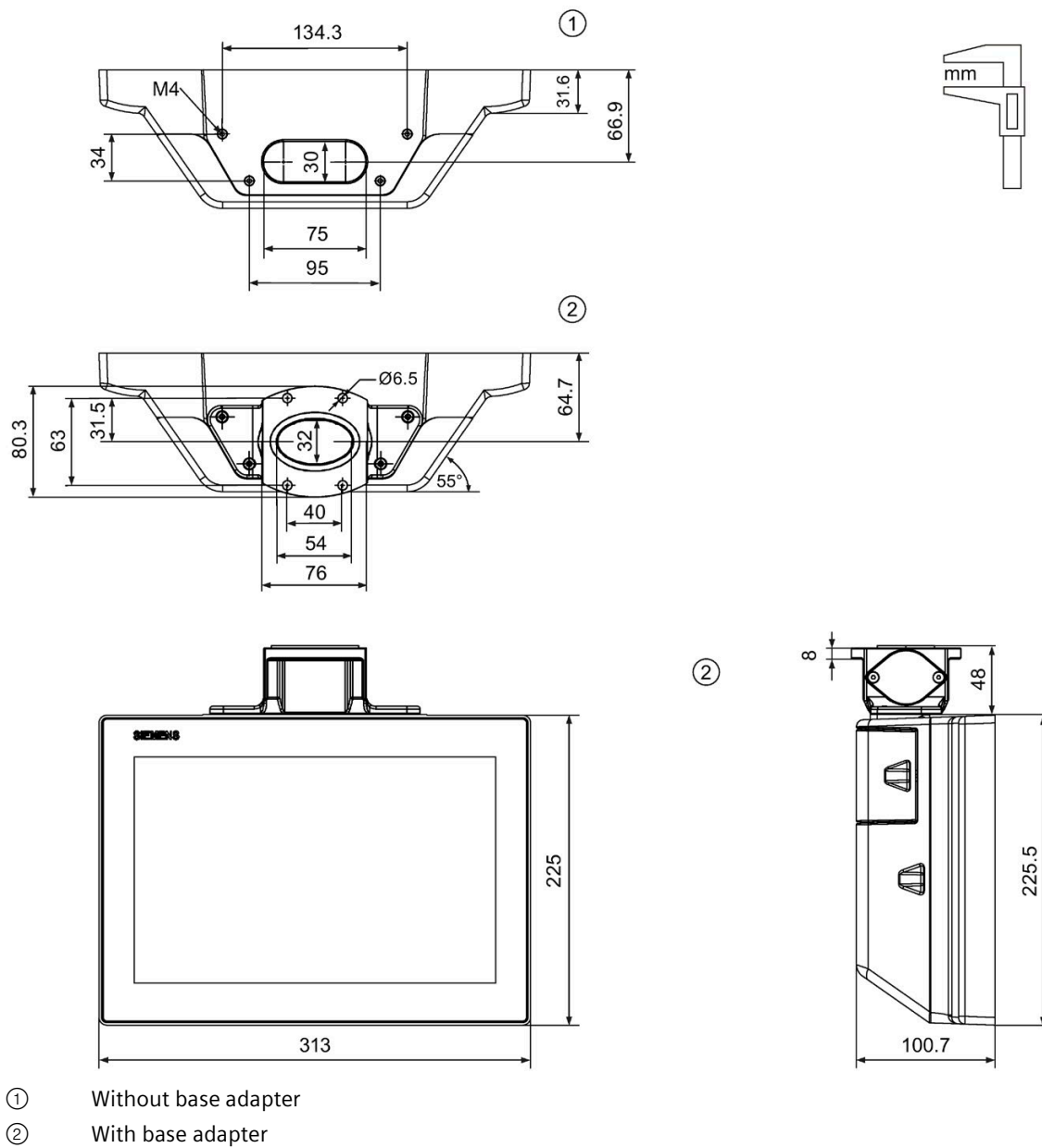


7.6.10 Dimension drawing of the IFP1200 V2 PRO

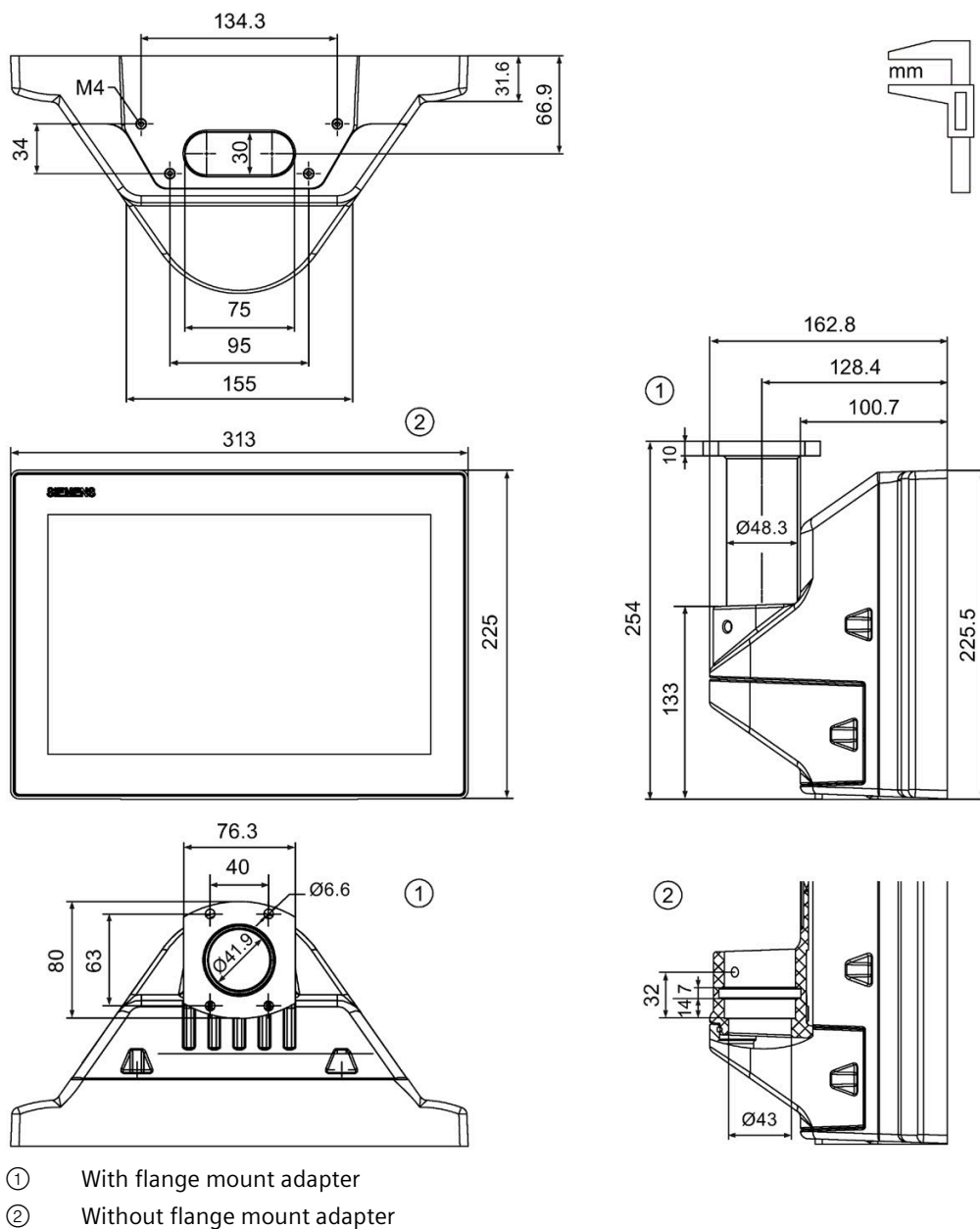
IFP1200 V2 PRO for pedestal (extendable, flange bottom)



IFP1200 V2 PRO for support arm (not extendable, flange top)

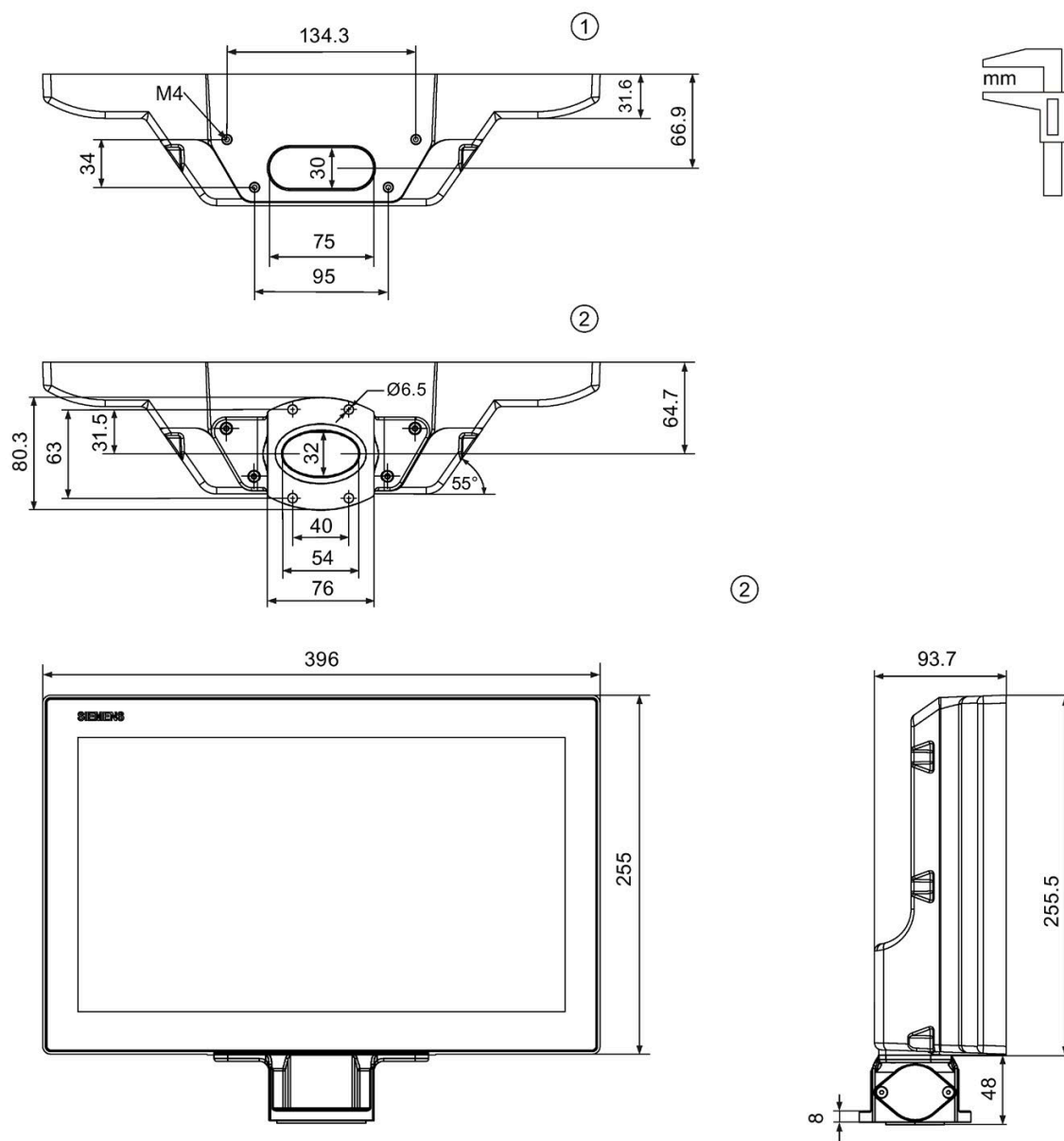


IFP1200 V2 PRO for support arm (extendable, round tube)



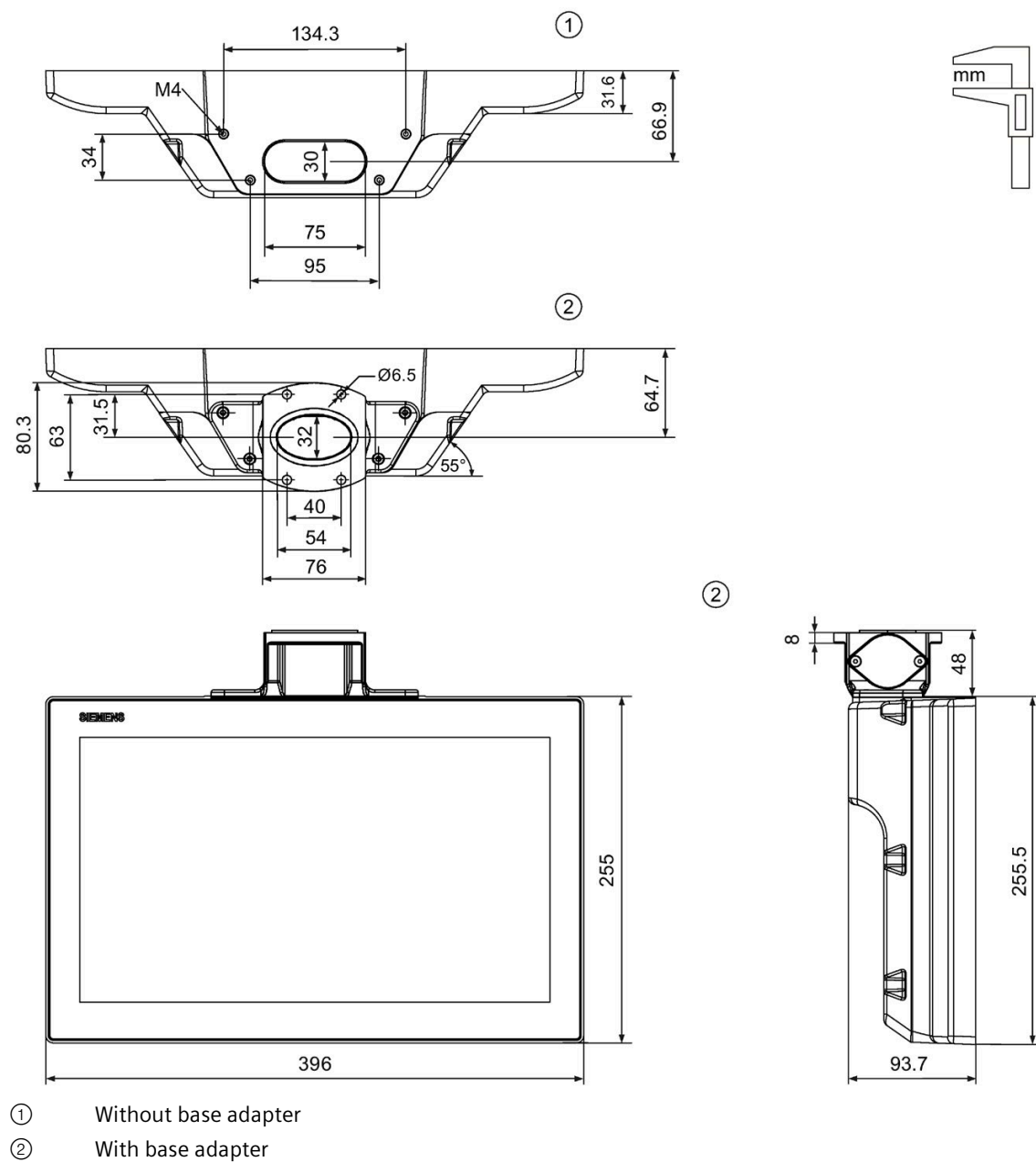
7.6.11 Dimension drawing of the IFP1500 V2 PRO

IFP1500 V2 PRO for pedestal (extendable, flange bottom)

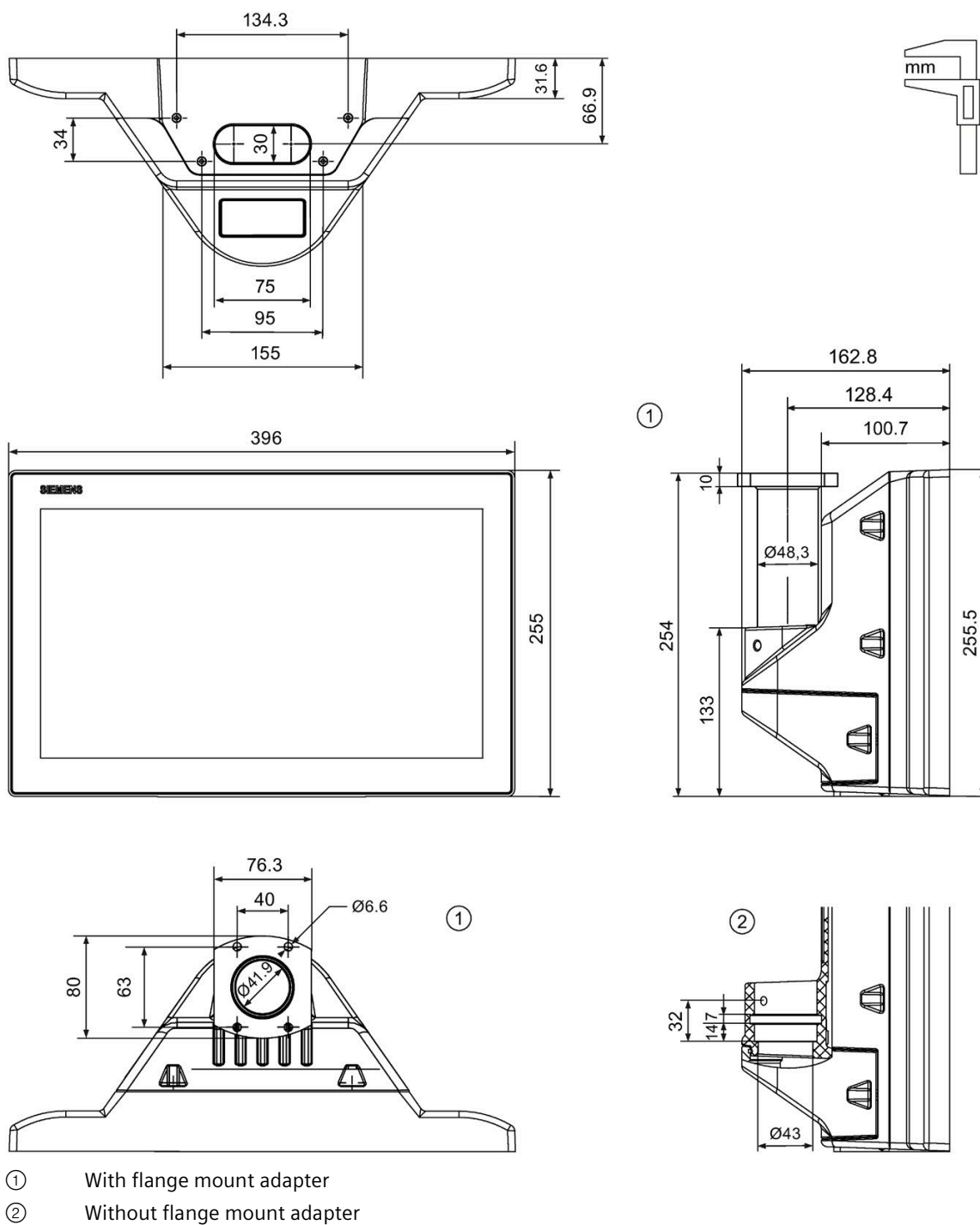


- ① Without base adapter
- ② With base adapter

IFP1500 V2 PRO for support arm (not extendable, flange top)

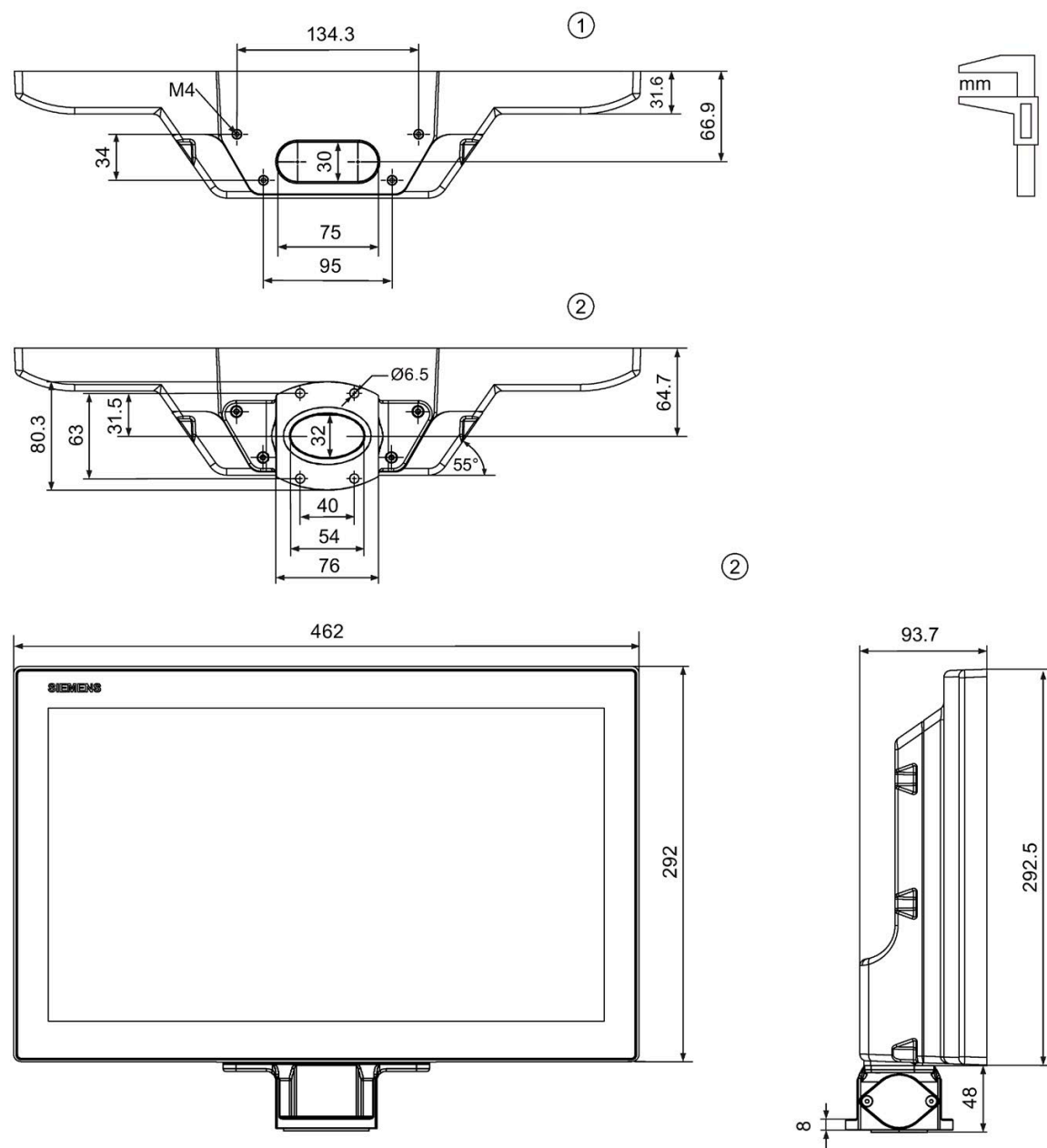


IFP1500 V2 PRO for support arm (extendable, round tube)



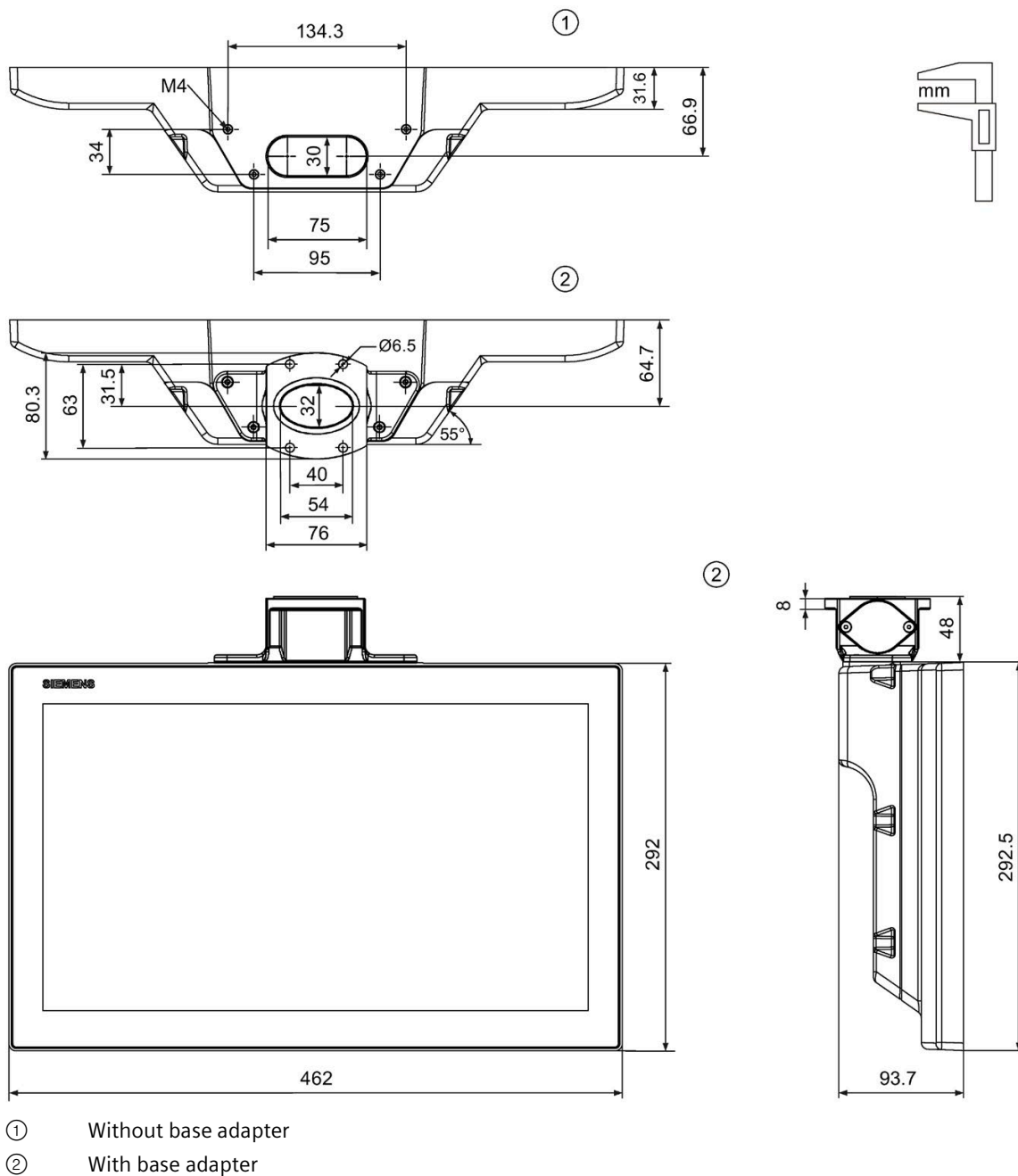
7.6.12 Dimension drawing of the IFP1900 V2 PRO

IFP1900 V2 PRO for pedestal (extendable, flange bottom)

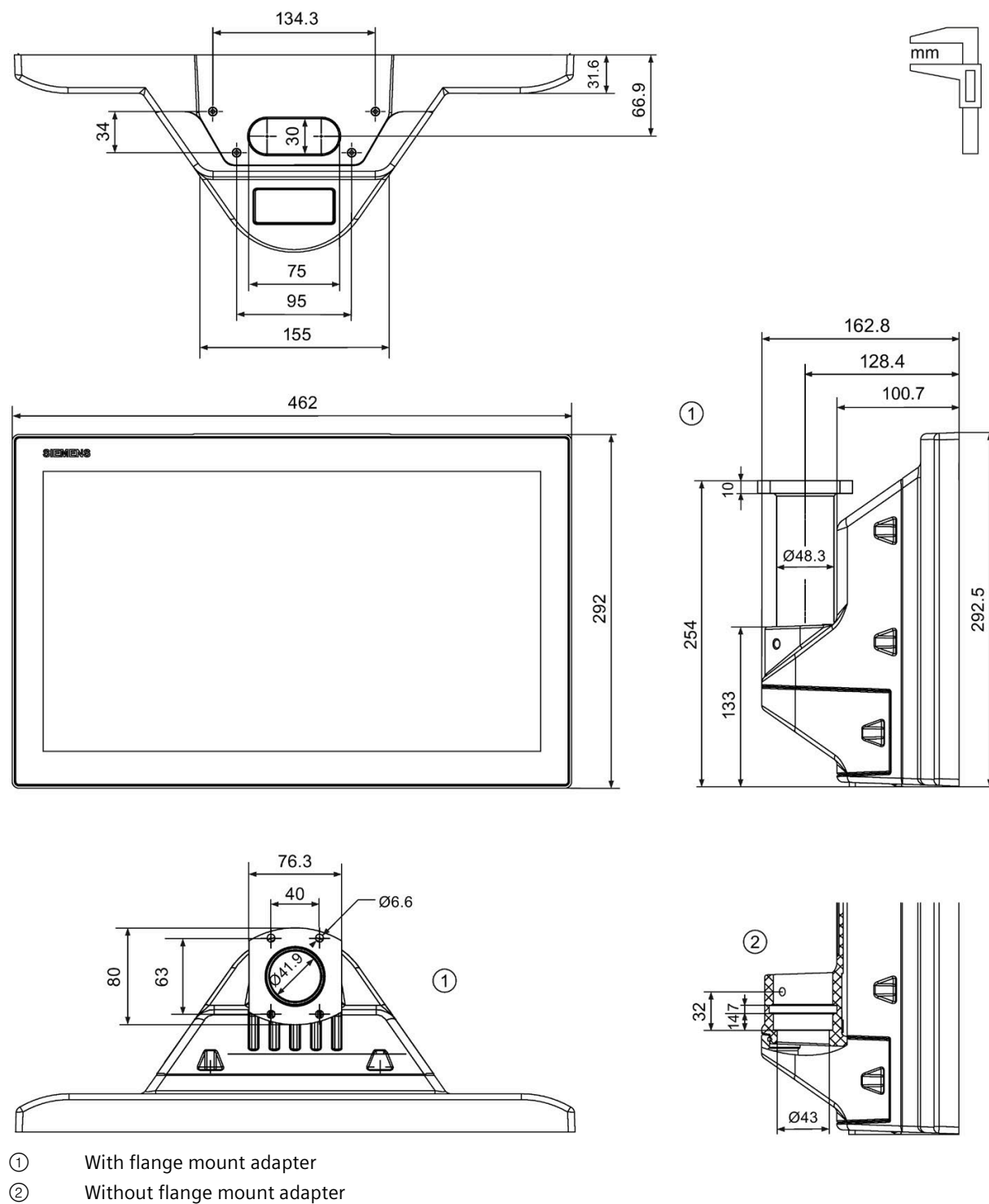


- ① Without base adapter
- ② With base adapter

IFP1900 V2 PRO for support arm (not extendable, flange top)

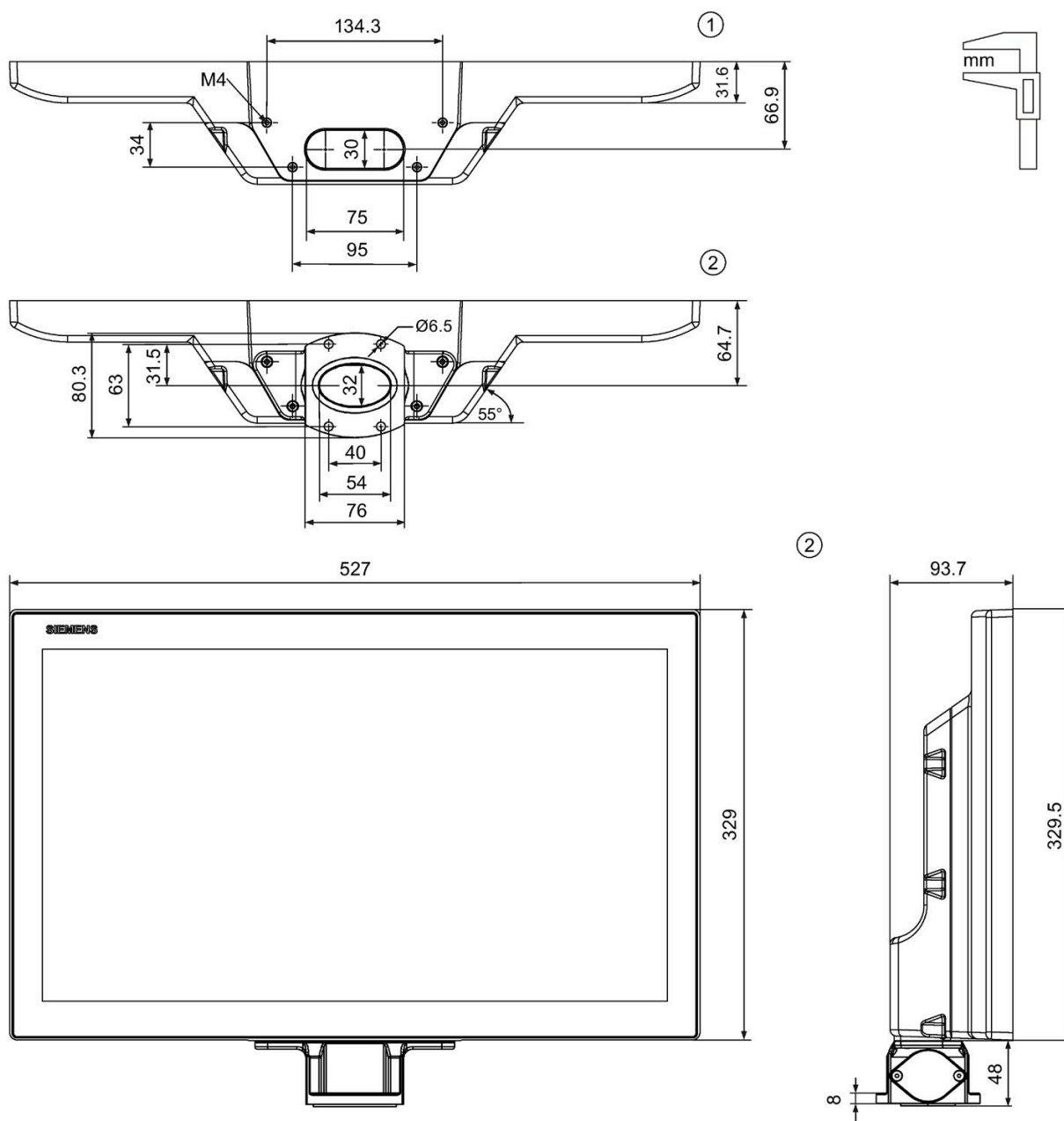


IFP1900 V2 PRO for support arm (extendable, round tube)



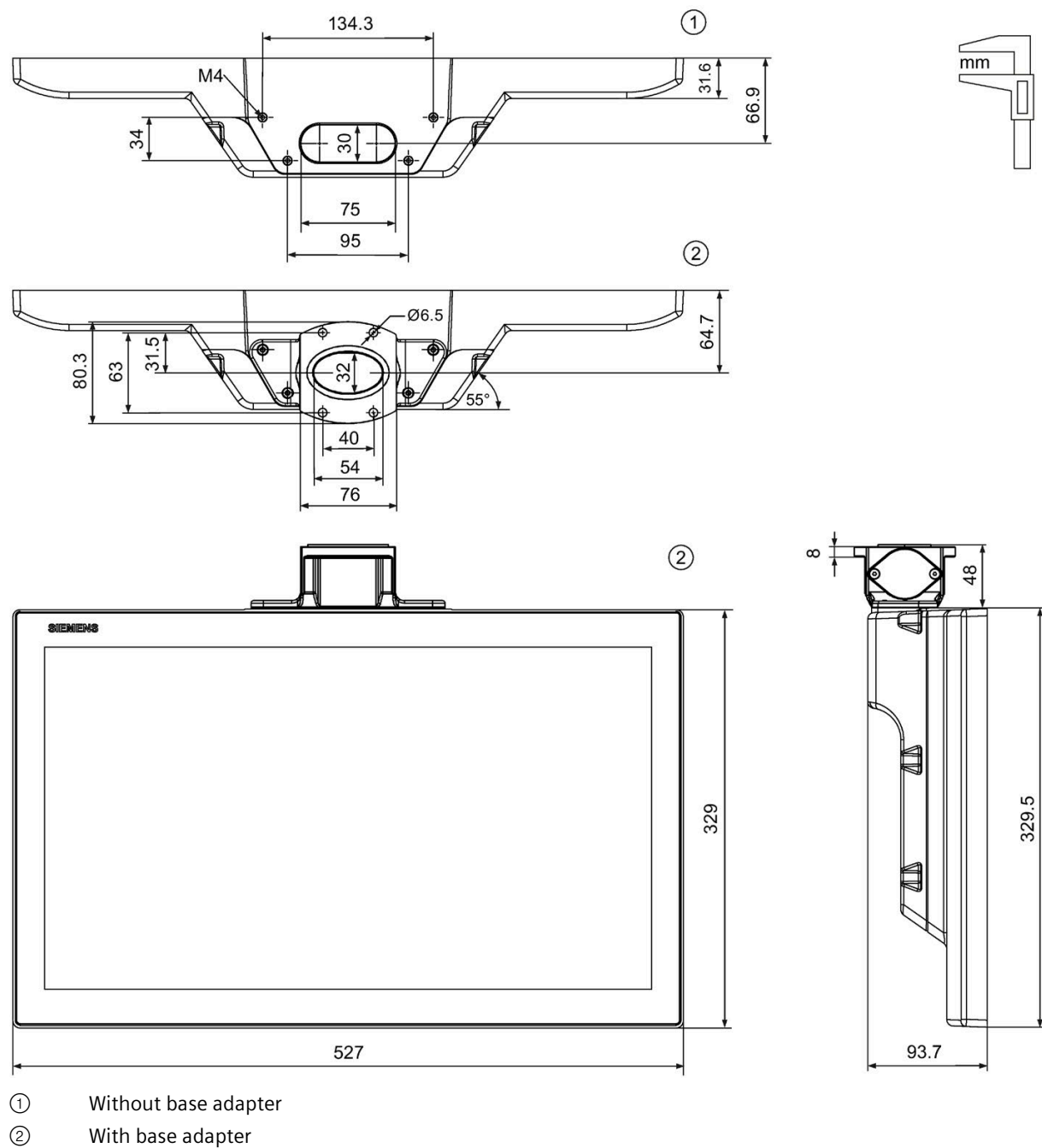
7.6.13 Dimension drawing of the IFP2200 V2 PRO

IFP2200 V2 PRO for pedestal (extendable, flange bottom)

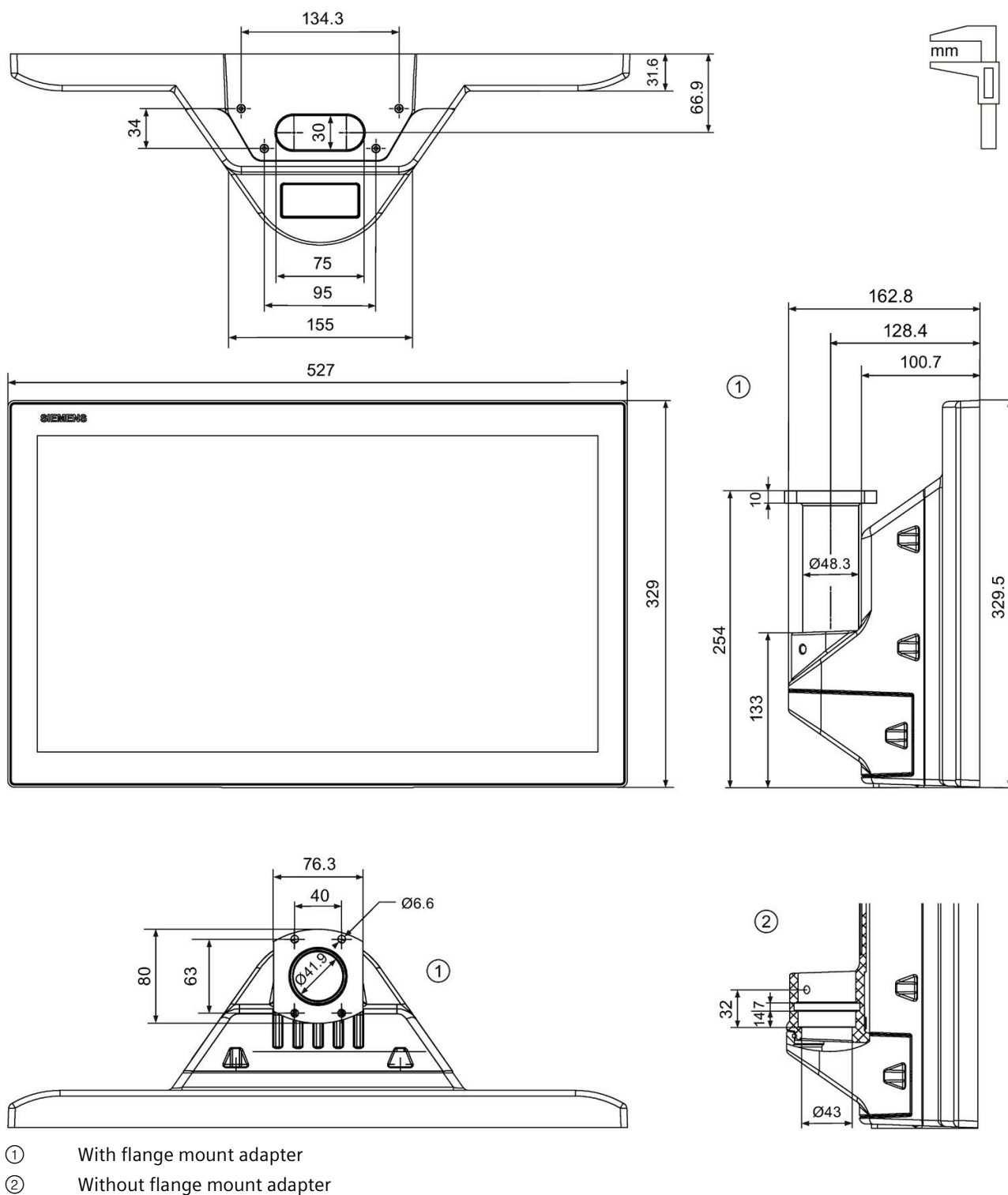


- ① Without base adapter
- ② With base adapter

IFP2200 V2 PRO for support arm (not extendable, flange top)

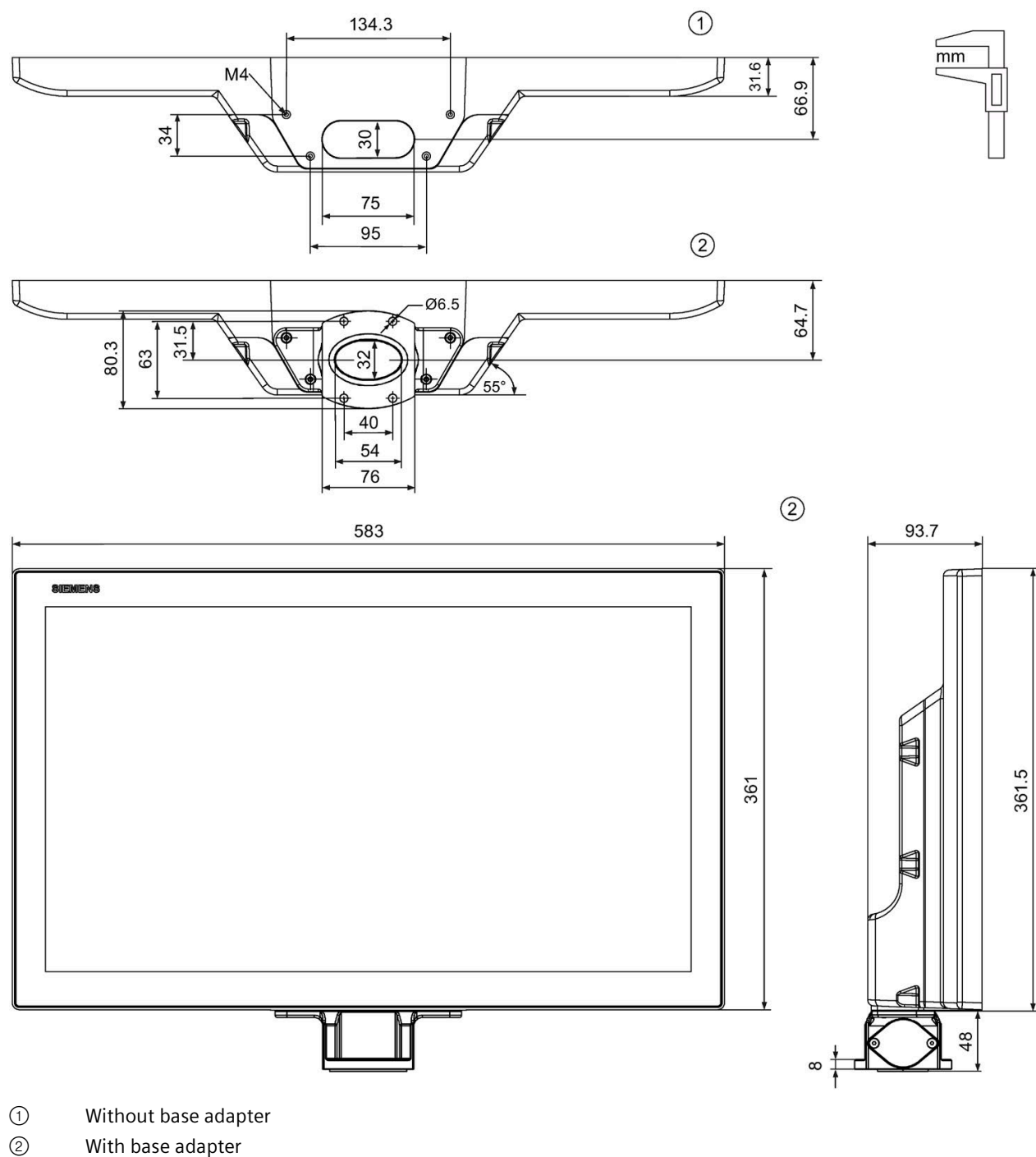


IFP2200 V2 PRO for support arm (extendable, round tube)

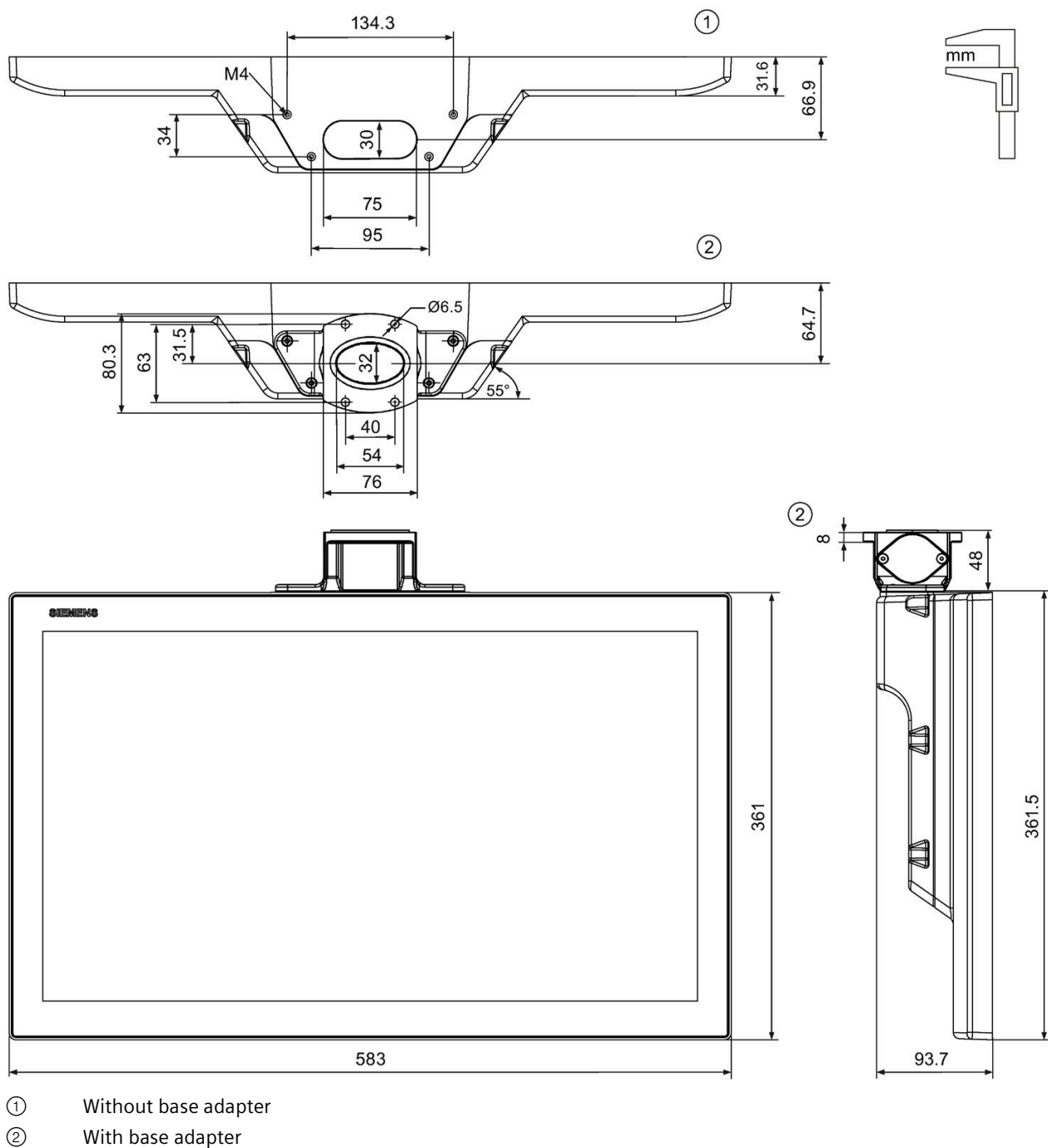


7.6.14 Dimension drawing of the IFP2400 V2 PRO

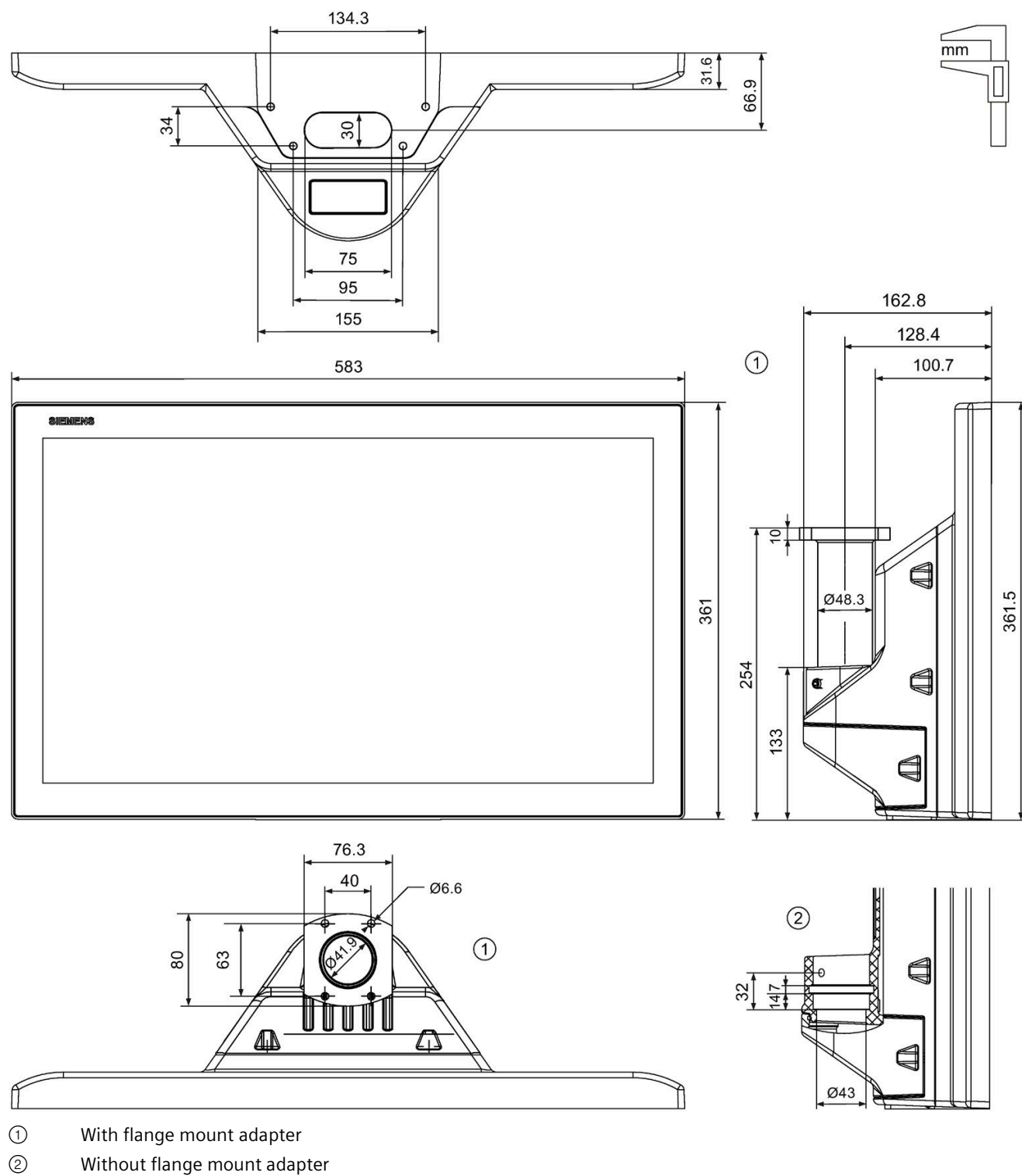
IFP2400 V2 PRO for pedestal (extendable, flange bottom)



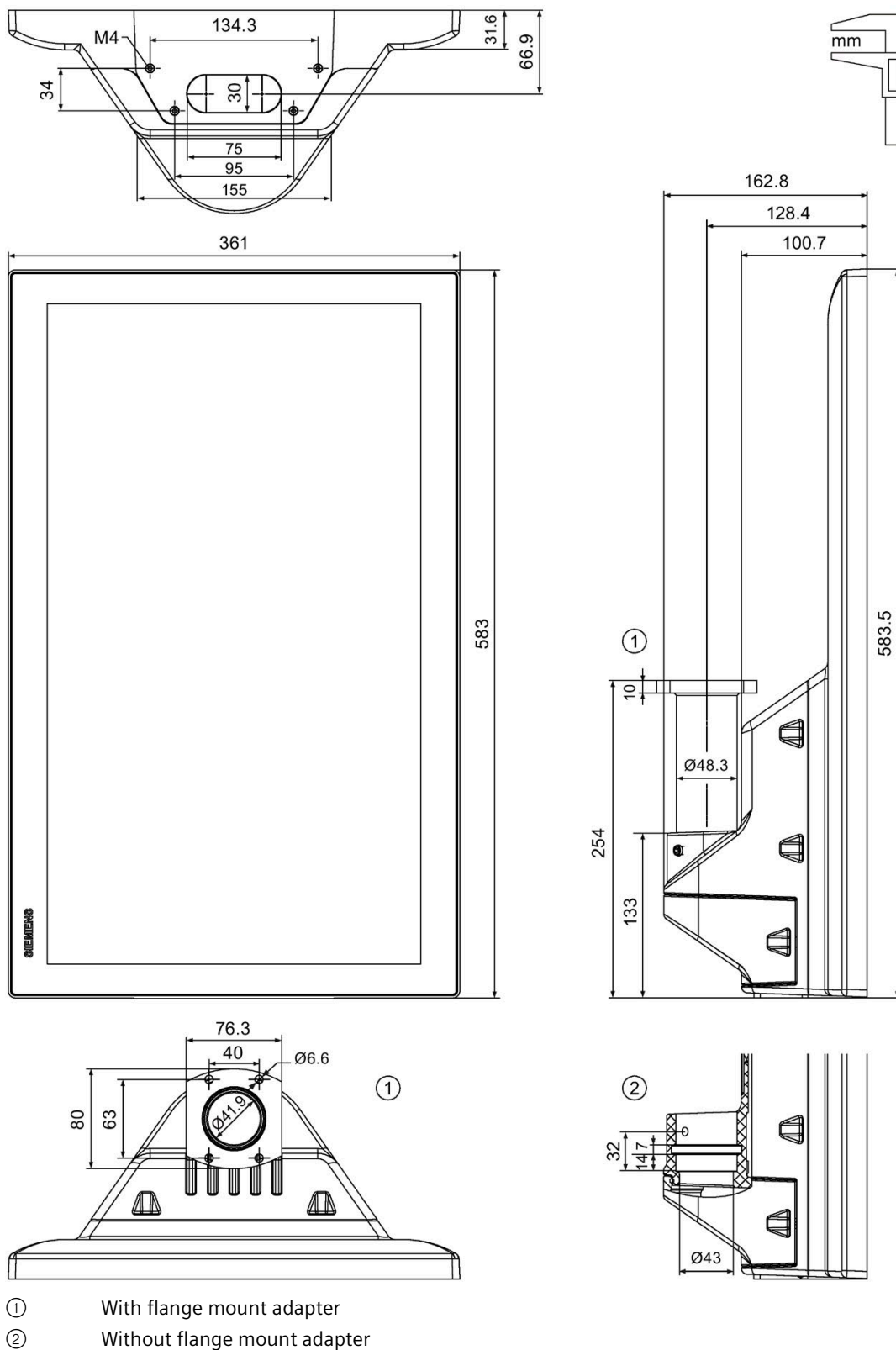
IFP2400 V2 PRO for support arm (not extendable, flange top)



IFP2400 V2 PRO for support arm (extendable, round tube)



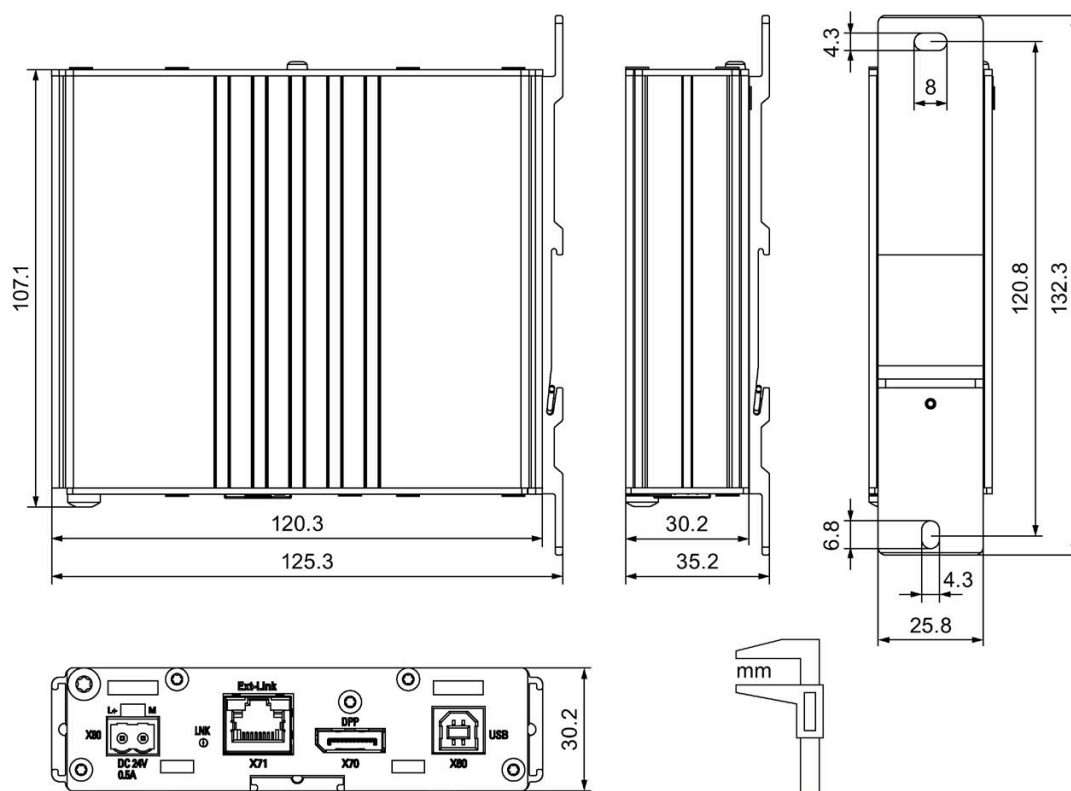
IFP2400 V2 PRO Portrait for support arm (extendable, round tube)



- ① With flange mount adapter
- ② Without flange mount adapter

7.6.15 Dimension drawing of the Transceiver Unit

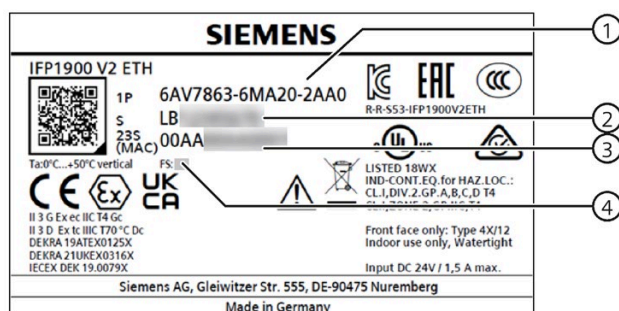
The following figures show the dimensions of the Transceiver Unit with mounting rail.



7.7 Rating plate

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

The following figure shows, as an example, the rating plate on the IFP1900 V2 ETH device.

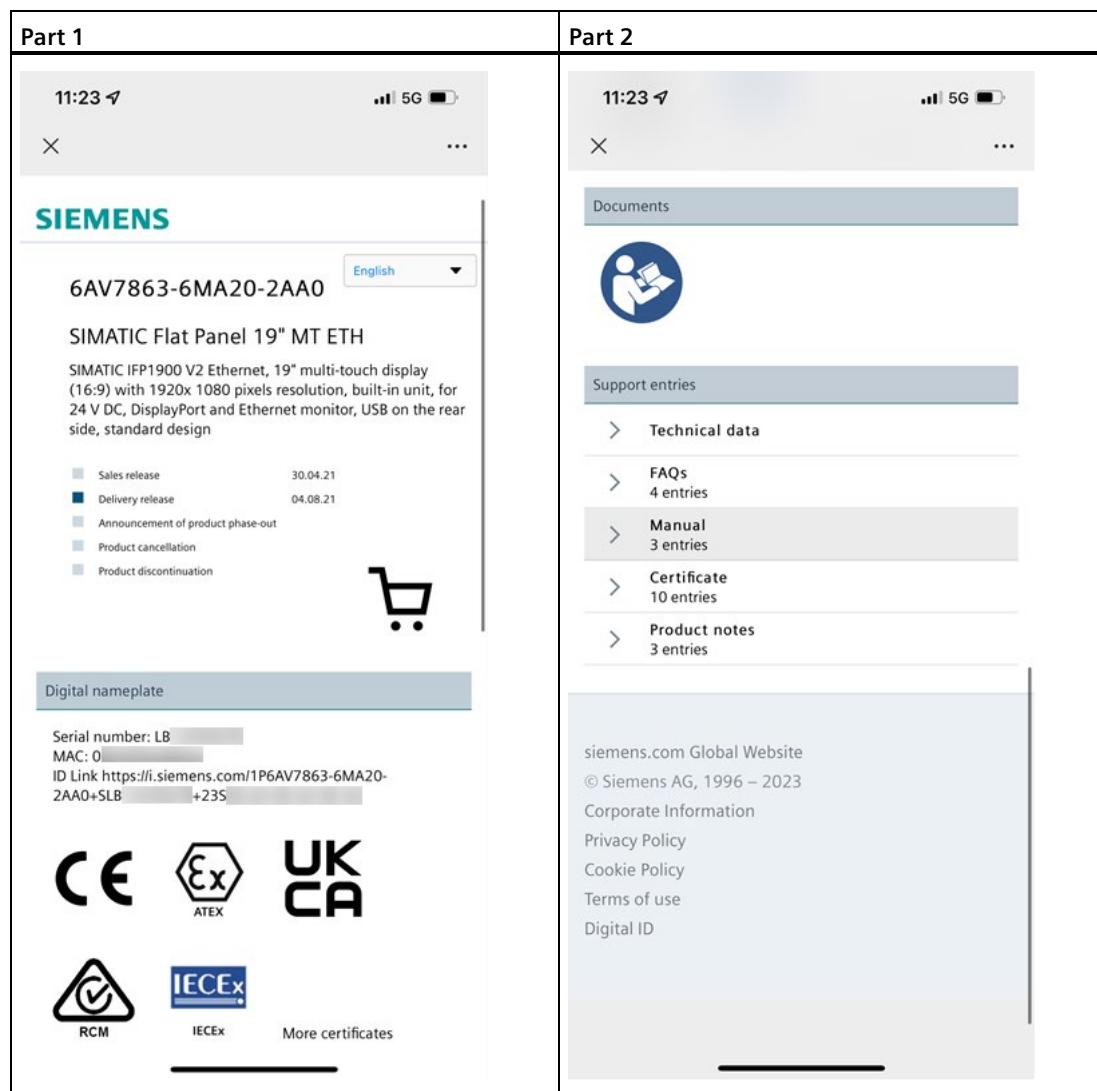


- ① Article number
- ② Serial number
- ③ Mac address
- ④ Production version

You can scan the Quick Response Code (QR code) to navigate to a web page to look through the following information:

- Manuals: *Quick Install Guide*, *Operating Instructions* and *Original Instructions*
- Certificates
- Technical data
- FAQ information
- Product notes

The screenshots of mobile web page are as follows:



7.8 Technical specifications of the IFPs

Weight of the built-in devices

Built-in devices	12"	15"	19"	22"	24"
Weight without packaging, with strain relief plate	3.0 kg	4.0 kg	5.0 kg	6.4 kg	7.9 kg

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

Support arm/pedestal devices	12" PRO	15" PRO	19" PRO	22" PRO	24" PRO
Weight without packaging, with strain relief plate	4.0 kg	5.3 kg	6.3 kg	7.6 kg	9.2 kg

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

Round tube devices	12" PRO	15" PRO	19" PRO	22" PRO	24" PRO	24" PRO Portrait
Weight without packaging, with strain relief plate	4.4 kg	5.9 kg	6.9 kg	8.2 kg	9.9 kg	9.2 kg

Display

IFP V2 devices	12" devices	15" devices	19" devices	22" devices	24" devices
Type	LCD widescreen TFT				
Active display diagonal	12.1"	15.6"	18.5"	21.5"	23.8"
Active display area	261 x 163 mm	344.2 x 193.5 mm	409.8 x 230.4 mm	475.2 x 267.3 mm	527.0 x 296.5 mm
Resolution	1280 × 800 pixels	1920 × 1080 pixels	1920 × 1080 pixels	1920 × 1080 p ixels	1920 × 1080 pi xels
Possible colors	Up to 16 million				
Brightness (typical value)	400 cd/m²	400 cd/m²	350 cd/m²	250 cd/m²	250 cd/m²
Contrast Ratio	800:1	700:1	1000:1	1000:1	1000:1
Brightness control	Yes, using PDT software				
Backlight	LED			LED	
Half Brightness Life Time (MTBF ¹)	50000 h			30000 h	
Pixel error class in accordance with ISO 9241-307	II				

¹ 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 PROFlenergy.

Input device

IFP V2 devices	12"	15"	19"	22"	24"
Touch screen	Yes, projective capacitive				

Interfaces

IFP V2 devices	Standard versions	Extended versions and PRO devices	Ethernet Monitors
DVI-D	Yes	No	
DisplayPort	Yes, DisplayPort V1.2		Yes, DisplayPort V1.1

7.9 Technical specifications of the Transceiver Unit

IFP V2 devices	Standard versions	Extended versions and PRO devices	Ethernet Monitors
USB Type A ¹	Yes, USB hub		
USB Type B, host	Yes		
Ext-Link ²	No	Yes	No
Ethernet	No		Yes

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

² Proprietary interface for internal communication

DC power supply

IFP V2 devices	12"	15"	19"	22"	24"
Rated voltage	24 V DC				
Permitted voltage range	+19.2 V ... +28.8 V				
Mains and voltage buffering time	1 ms				
Rated current at 24 V DC, without loads	0.65 A	1 A	1.2 A	1 A	1.5 A
Rated current, load-dependent	0.5 ... 1.0 A	0.8 ... 1.3 A	1.0 ... 1.5 A	0.8 ... 1.3 A	1.3 ... 1.9 A
Power consumption ¹	15.6 W	24 W	29 W	24 W	36 W
Inrush current I _{2t}	0.5 A ² s				
Maximum permitted transients	35 V (500 ms)				
Minimum time between two transients	50 s				
Internal protection	Electronic				

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

7.9 Technical specifications of the Transceiver Unit

Weight

Weight of the Transceiver Unit including fixing accessories	0.35 kg
---	---------

Interfaces

DisplayPort	Yes
USB Type B, host	Yes
Ext Link ¹	Yes

¹ Proprietary interface for internal communication

DC power supply

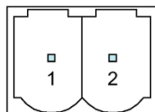
Rated voltage	24 V DC
Permitted voltage range	+19.2 V ... +28.8 V
Mains and voltage buffering time	20 ms
Rated current	0.2 A
Rated current, load-dependent	0.17 ... 0.25 A
Power consumption ¹	4.8 W
Inrush current I ² t	0.5 A ² s
Maximum permitted transients	35 V (500 ms)
Minimum time between two transients	50 s
Internal protection	Electronic

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

7.10 Interface description

7.10.1 24 V DC

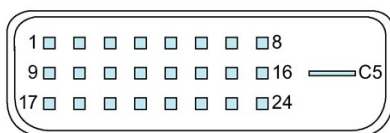
Power supply 24 V DC 2-pin



Pin	Meaning
1	+24 V DC
2	Ground

7.10.2 DVI-D

DVI-D, 25-pin socket



Pin	Name	Meaning
1	TMDS data2-	DVI data output 2-
2	TMDS data2+	DVI data output 2+
3	TMDS Data2 shield	Cable shield DVI data output 2
4	NC	Not assigned

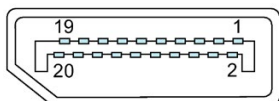
7.10 Interface description

Pin	Name	Meaning
5	NC	Not assigned
6	DDC clock (SCL)	Display Data Channel clock, bidirectional
7	DDC data (SDA)	Display Data Channel data, bidirectional
8	NC	Not assigned
9	TMDS data1-	DVI data output 1-
10	TMDS data1+	DVI data output 1+
11	TMDS Data1 shield	Cable shield DVI data output 1
12	NC	Not assigned
13	NC	Not assigned
14	+5 V VCC	+5 V output for DDC
15	GND	Ground for +5 V
16	HPD	Hot Plug Detect input
17	TMDS data 0-	DVI data output 0-
18	TMDS data 0+	DVI data output 0+
19	TMDS Data0 shield	Cable shield DVI data output 0
20	NC	Not assigned
21	NC	Not assigned
22	TMDS clock shield	Cable shield DVI clock output
23	TMDS clock+	DVI clock output
24	TMDS clock-	DVI clock output
C5	NC	Not assigned

7.10.3

DisplayPort

DisplayPort, 20-pin socket

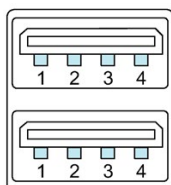


Pin	Name	Meaning
1	ML_Lane0+	DP data output 0+
2	GND	Ground
3	ML_Lane0-	DP data output 0-
4	ML_Lane1+	DP data output 1+
5	GND	Ground
6	ML_Lane1-	DP data output 1-
7	ML_Lane2+	DP data output 2+
8	GND	Ground
9	ML_Lane2-	DP data output 2-
10	ML_Lane3+	DP data output 3+
11	GND	Ground
12	ML_Lane3-	DP data output 3-
13	CONFIG1 CAD	Cable Adapter Detect input

Pin	Name	Meaning
14	CONFIG2	Ground (PullDown)
15	AUX_CH+	Additional channel, bidirectional
16	GND	Ground
17	AUX_CH-	Additional channel, bidirectional
18	HPD	Hot Plug Detect input
19	GND	Ground
20	DP_PWR	+3.3 V output, fused

7.10.4 USB hub Type A

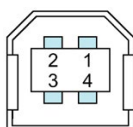
USB hub type A, 2 × 4-pin socket



Pin	Name	Meaning
1	VBUS	+5 V, fused
2	D-	Data channel, bidirectional
3	D+	Data channel, bidirectional
4	GND	Ground

7.10.5 USB Type B

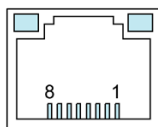
USB hub type B, 4-pin socket



Pin	Name	Meaning
1	VBUS	+5 V, fused
2	D-	Data channel, bidirectional
3	D+	Data channel, bidirectional
4	GND	Ground

7.10.6 Ext-Link

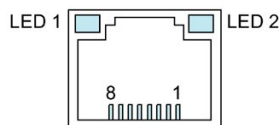
Interface to the Transceiver Unit for internal communication, RJ45 socket



Pin	Name	Meaning
1	P0	Data output +
2	N0	Data output -
3	P1	Data output +
4	N1	Data output -
5	P2	Data output +
6	N2	Data output -
7	P3	Data output +
8	N3	Data output -

7.10.7 Ethernet

Ethernet, RJ45 socket



Pin	Name	Meaning		
1	BI_DA+	Bidirectional data A+		
2	BI_DA-	Bidirectional data A-		
3	BI_DB+	Bidirectional data B+		
4	BI_DC+	Bidirectional data C+		
5	BI_DC-	Bidirectional data C-		
6	BI_DB-	Bidirectional data B-		
7	BI_DD+	Bidirectional data D+		
8	BI_DD-	Bidirectional data D-		
S	GND	Cable shield for data cable		
	LED 1	Off: 10 Mbps	Lights up green: 100 Mbps	Lit orange: 1 Gbps
	LED 2 Yellow	Lit: Active LAN connection (e.g., to a hub)		Flashes: Activity

Technical Support

A.1 Service and support

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

- Technical support (<https://support.industry.siemens.com/cs/us/en/>)
- Support request form (<https://www.siemens.com/automation/support-request>)
- After Sales Information System SIMATIC IPC/PG (<https://www.siemens.com/asis>)
- SIMATIC Documentation Collection (<https://www.siemens.com/simatic-tech-doku-portal>)
- Your local representative (https://www.automation.siemens.com/aspa_app)
- Training center (<https://siemens.com/sitrain>)
- Industry Mall (<https://mall.industry.siemens.com>)
- TIA Selection Tool (<https://www.siemens.com/tia-selection-tool>)

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/cs/us/en/>). 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 (<https://www.siemens.com/asis>)

See also

Rating plate (Page 123)

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.	Uninstalling cannot be performed with an Ethernet Monitor. Use a different monitor for uninstalling.
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.

A.3 Information about the manufacturer

Siemens AG is the manufacturer of the HMI devices described in this document.

The manufacturer address is:

Siemens AG
Digital Industries
Postfach 48 48
90026 NÜRNBERG
GERMANY

Markings and symbols

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 observe 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	
	Observe 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
 24V MODULES	Protection class III, supply only with protective low voltage (SELV/PELV)	IEC 60417-1-5180 "Class III equipment"

B.1 Safety-relevant symbols

Symbol	Meaning	Reference
 INDOOR USE ONLY INDUSTRIAL USE ONLY	Only for industrial applications and indoor areas (control cabinet)	
	Device is to be integrated or installed in a control cabinet	
 ZONE 2 USE CABINET IP54	Integrate or install devices approved for Ex Zone 2 in a control cabinet with at least IP54	
 ZONE 22 USE CABINET IP6x	Integrate or install devices approved for Ex Zone 22 in a control cabinet with at least IP6x	

List of abbreviations

AC	Alternating current
ANSI	American National Standards Institute
BIOS	Basic Input Output System
DC	Direct Current
DP	DisplayPort
DVD	Digital Versatile Disk
DVI	Digital Visual Interface
ESD	Components and modules endangered by electrostatic discharge
EMC	Electromagnetic compatibility
GND	Ground
HF	High Frequency
HMI	Human Machine Interface
HPD	Hot Plug Detect
IFP	Industrial Flat Panel
IP	Ingress Protection
IPC	Industrial PC
LCD	Liquid Crystal Display
LED	Light Emitting Diode
NC	Not Connected
NBR	Nitrile butadiene rubber
PC	Personal Computer
PELV	Protective Extra Low Voltage
PG	Programming device
PL	Performance level
RJ45	Registered Jack Type 45
RoHS	Restriction of Hazardous Substances
SELV	Safety Extra Low Voltage
SIL	Safety Integrity Level
TMDS	Transition Minimized Differential Signaling
USB	Universal Serial Bus
VGA	Video Graphics Array

Glossary

Application

An application is a customer-specific plant installation or software that is directly based on the operating system. One application on the PC/PG is STEP 7, for example.

Display

Component for visualization in a display device. In an operating and display device, the display behind the touch screen is integrated into the front of the device.

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.

Hub

A term from network technology. In a network, a device joining communication lines at a central location, providing a common connection to other devices on the network.

Interface

The connection of individual hardware elements, e.g. programmable controller, PC, 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.

Touch screen

The touch screen is the input unit of an operating and display unit and is integrated into the front of the display. A resistive touch screen reacts to pressure, a capacitive touch screen reacts to touch.

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