

# SIMATIC HMI PRO Devices & Extension Units Technical slides

# SIMATIC HMI PROtected

## All-round IP65-protection – without compromises



### Scaling

Customizable for machines and applications through flexible selection of:

- Device type
- Performance class
- Display diagonal

### Configuring

Individual selection and combination of:

- Basic units
- Extension units
- Mounting options

### PROfitting

Time and money saved through:

- Use without control cabinet and all-round IP65 protection
- Easy installation and configuration - Plug & Play

**Innovative range of systems – which have won the iF Design Award 2017 – for attractive, customized operating solutions in slim-line design!**



[Video: SIMATIC HMI PRO & Extension Units \(EN\)](#)

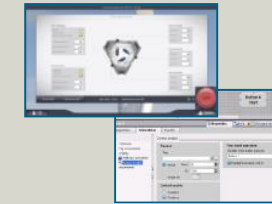
# PROtected with SIMATIC HMI

## Range of HMI&IPC solutions with all-round IP65 protection

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Our advantages stem from  
the **range of systems ...**

... of all-round IP65  
protection in the Advanced  
HMI area



... and the  
HMI software  
in the TIA Portal

**Comfort  
Panel PRO**  
12“- 22“

**Industrial Flat  
Panel PRO**  
15“- 22“

**Industrial Thin  
Client PRO**  
15“ – 22“

**Industrie – PC PRO**  
15“- 22“

**System components**



# Agenda

- 1 **General Information**
- 2 SIMATIC Comfort Panel PRO
- 3 SIMATIC IPC477 PRO
- 4 SIMATIC IFP PRO
- 5 SIMATIC ITC V3 PRO
- 6 SIMATIC Extension Units & System Components
- 7 Mounting

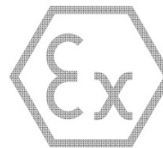
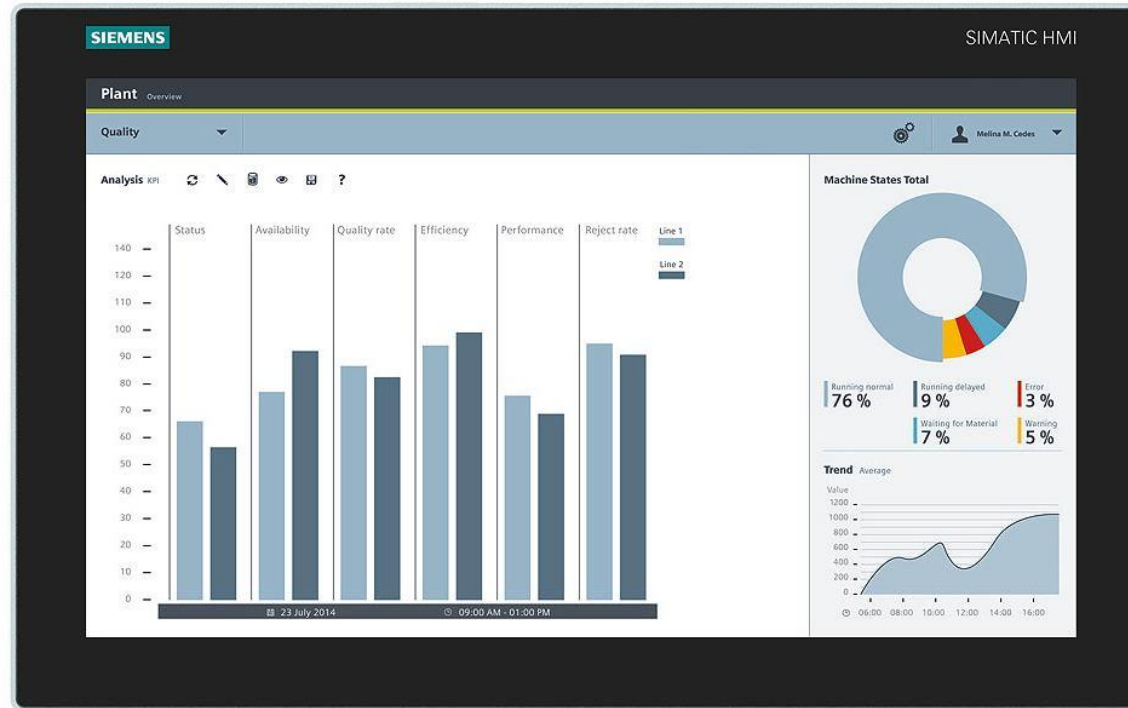
# Technical details: General Certificates & approvals of basic units

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KCC for Comfort Panel PRO in work

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ATEX/IECEx approval coming soon (only for use in environments of Class I, Zone 2, Groups A, B, C and D)



UL-Zulassung



# Technical details: General Resolutions and front versions



## Resolutions

12.1"



1280 x 800

15.6"



1366 x 768

18.5"



1366 x 768

21.5"



1920 x 1080

## Front versions

**Standard design**

with Siemens Logo  
& SIMATIC lettering



**Neutral design**




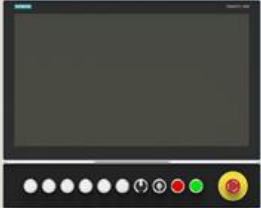

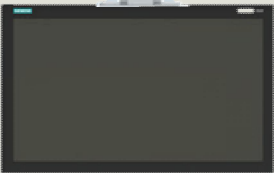
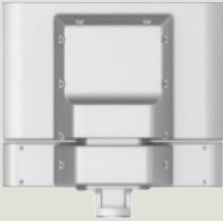
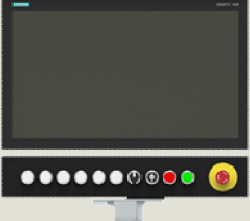
without Siemens  
& SIMATIC lettering



**Neutral design for customers with special requirements**

Technical details: General  
Overview of installation versions



	Support arm		Pedestal
	Expandable (e.g. with Extension unit or keyboard)	Not expandable  	Expandable (e.g. with Extension unit or keyboard)
IPC477 PRO	<p>"... for support arm" (expandable, round tube)</p>  	<p>"... for support arm" (not expandable, flange above)</p>  	<p>"... for pedestal" (expandable, flange below)</p>  
Comfort Panel PRO			
IFP PRO			
ITC PRO			

Important: Remember to include any potential expansions when ordering the device!

## Technical details: General – Mounting versions ... for support arm (expandable, flange below)

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### Support arm mounting with flange mount



**OR**



**OR**



With flange mount  
(optionally available)

With VESA  
flange mount  
(optionally available)

Standard  
ø48.3 mm  
flange mount<sup>2)</sup>

### Suitable for extension components



2x Extension Units



Keyboard or  
keyboard tray



Handles

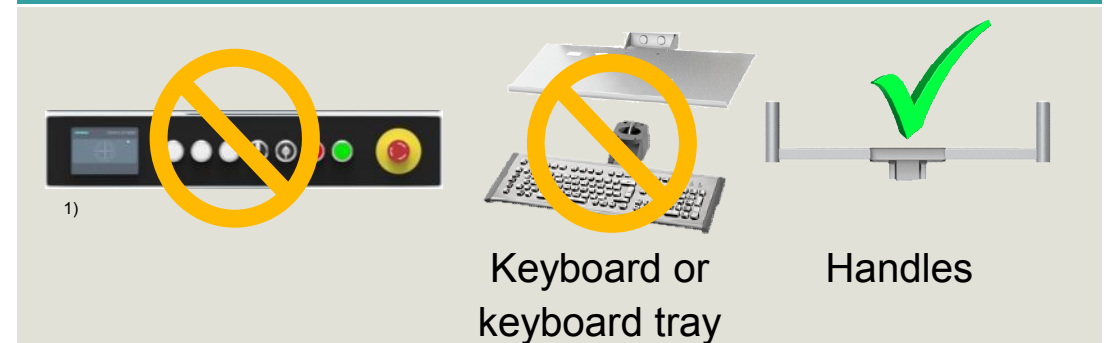
## Technical details: General - Mounting versions ... for support arm (not expandable, flange above)



### Support arm mounting with basic adapter



### Not suitable for extension components



## Technical details: General – Mounting versions ... for pedestal (expandable, flange below)

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### Pedestal mounting by means of basic adapter



Basic adapter included in the scope of delivery



### Suitable for extension components



2 x Extension Units



Keyboard or  
keyboard tray



Handles

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- 7 Mounting

# SIMATIC HMI Comfort Panels PRO

## Technical details



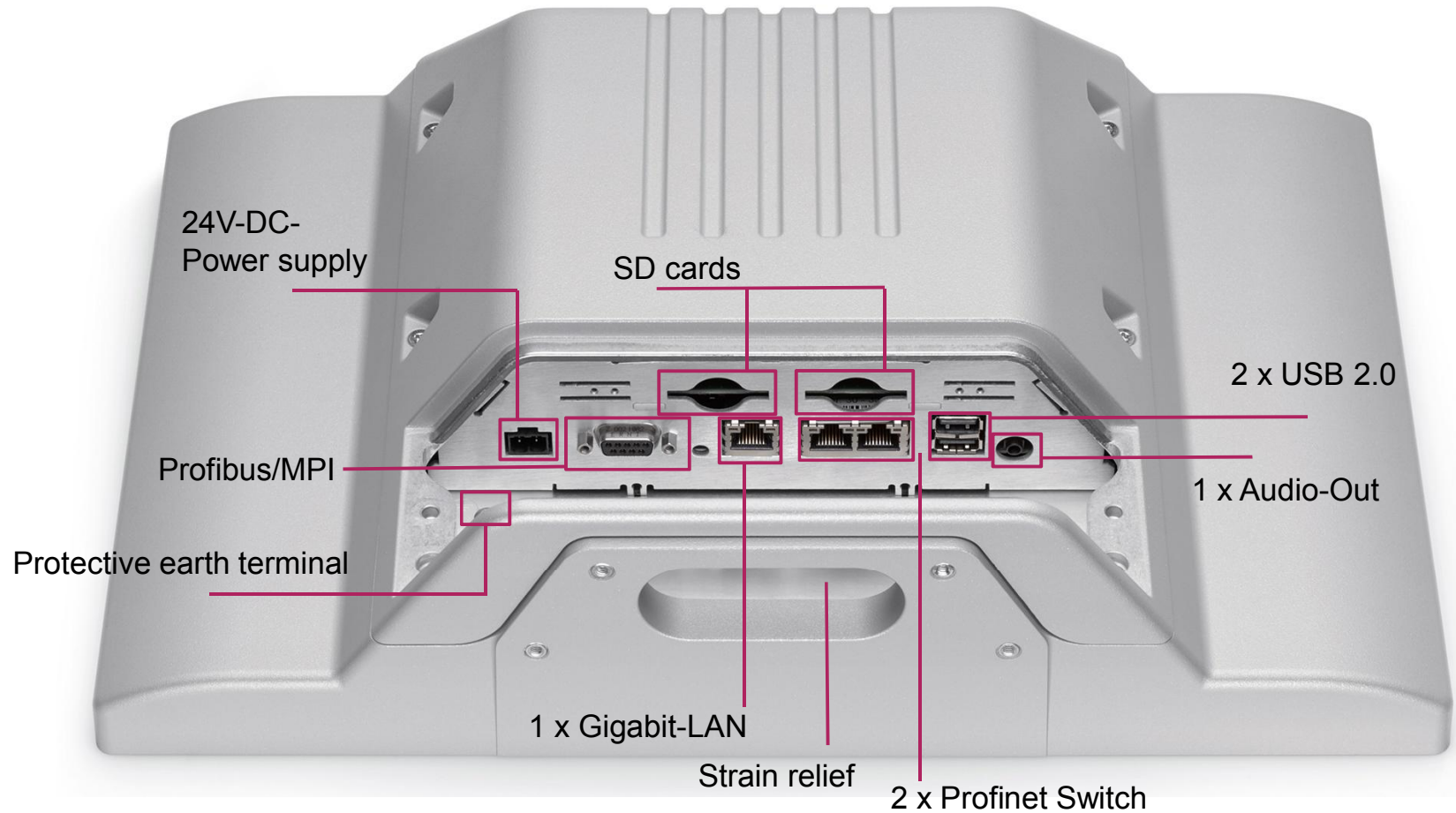
### Basic data

	TP1200	TP1500	TP1900	TP2200
Display size	12"	15"	19"	22"
For support arm ( <b>not expandable</b> , flange above)	6AV2124-0MC24-0AX0	6AV2124-0QC24-0AX0	6AV2124-0UC24-0AX0	6AV2124-0XC24-0AX0
For pedestal ( <b>expandable</b> , flange below)	6AV2124-0MC24-1AX0	6AV2124-0QC24-1AX0	6AV2124-0UC24-1AX0	6AV2124-0XC24-1AX0
For support arm ( <b>expandable</b> , round tube)	6AV2124-0MC24-0BX0	6AV2124-0QC24-0BX0	6AV2124-0UC24-0BX0	6AV2124-0XC24-0BX0
Mounting				
Display	16 Mio colors	1280x800	1366x768*	1366x768
Viewing angle	Up to 170°			
Energy saving	Dimmable LED backlight			
Operating mode	Capacitive single touch			
Interface	2x PROFINET / Industrial Ethernet (Switch) 1x GBit/s Industrial Ethernet 1x PROFIBUS / RS485/422; 2x USB (V2.0 USB Host); 2 x SD card slot			
PROFINET	Basic functions, PN/IO-Device , diagnosis, PROFIenergy, MRP, Transfer via PN/IE Routing			
Ambient temperature in operation	0°C - 45°C			
Power supply	24V DC, electrically isolated			

# SIMATIC HMI Comfort PRO

## Mounting with basic adapter – Overview interfaces

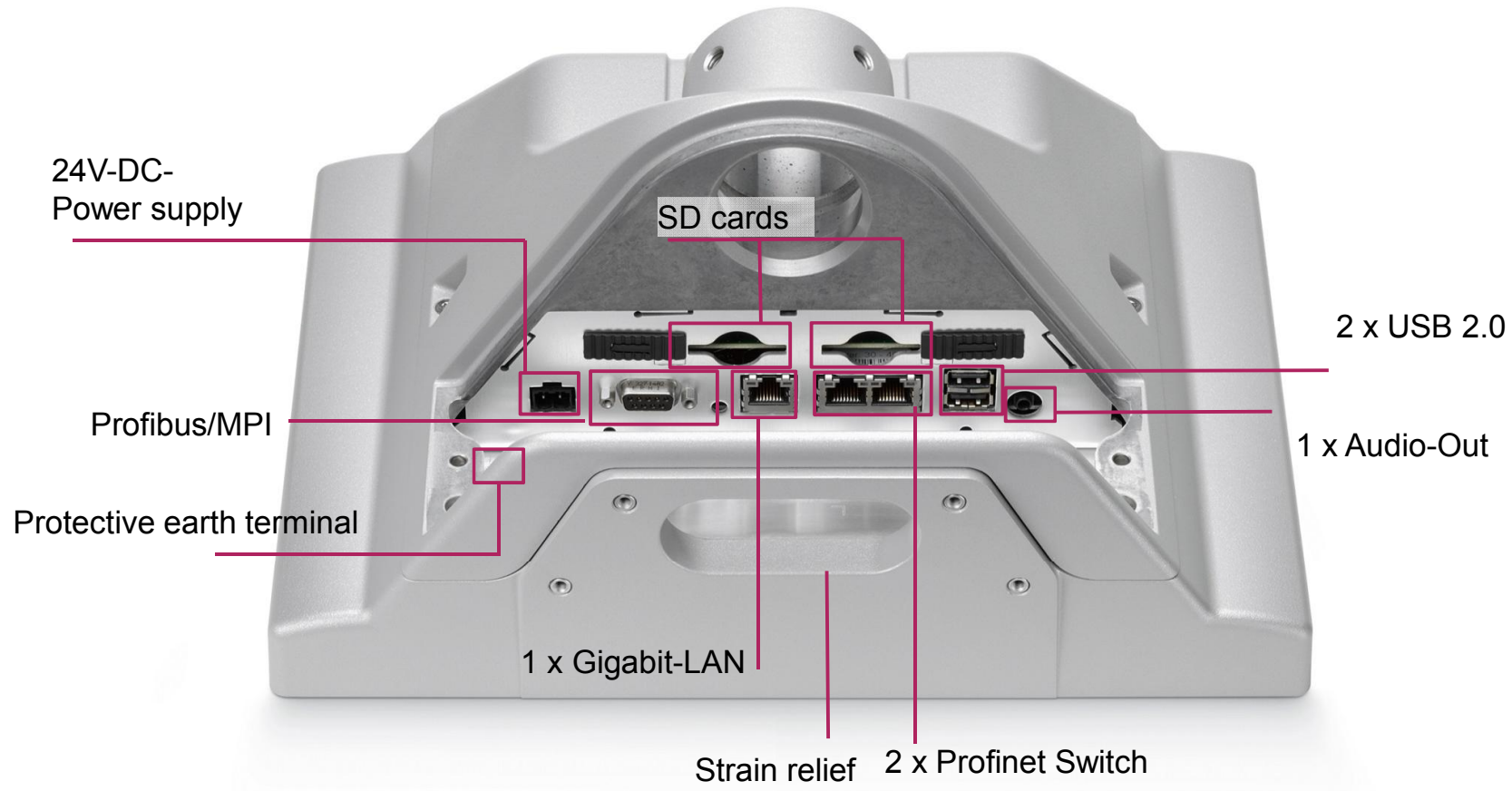
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# SIMATIC HMI Comfort PRO







## Mounting with round tube – Overview interfaces

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# SIMATIC HMI Comfort Panels PRO

## Common functions and differences to SIMATIC Comfort built-in device

-  Same Performance
-  Same software functions and quantity structure
-  Glass front and capacitive touch
-  12 "PRO has 2 IP addresses
-  PRO: no 4" – 9" versions
-  Resolution TP1500 Comfort (1280x800) different to TP1500 Comfort PRO (1366x768)

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- 1 General Information
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- 3 **SIMATIC IPC477 PRO**
- 4 SIMATIC IFP PRO
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- 6 SIMATIC Extension Units & System Components
- 7 Mounting

# SIMATIC IPC477 PRO

## Technical details

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### Basic data

Mounting		15“	19“	22“
	For support arm ( <b>not expandable</b> , flange above)	6AV725x-xBxxx-xxxx	6AV725x-xExxx-xxxx	6AV725x-xHxxx-xxxx
	For pedestal ( <b>expandable</b> , flange below)	6AV725x-xCxxx-xxxx	6AV725x-xFxxx-xxxx	6AV725x-xJxxx-xxxx
	For support arm ( <b>expandable</b> , round tube)	6AV725x-xDxxx-xxxx	6AV725x-xGxxx-xxxx	6AV725x-xKxxx-xxxx
Display	16 Mio. colors	1366x768	1366x768	1920x1080
Processor	IPC477DPro Intel Celeron U827E Intel Core i3- 3217UE Intel Core i7- 3517UE		IPC477EPro Intel® Celeron® Processor G3902E Intel® Core™ i3-6102E Processor Intel® Core™ i5-6442EQ Processor Intel® Xeon® Processor E3-1505L v5	
Main memory	1 GB... 8GB		4 GB... 16GB (477E)	
Interfaces	PROFIBUS DP/MPI <sup>1)</sup> , PROFINET, ETHERNET, 1x COM (RS232), 4x USB 3.0			
Video interfaces	DisplayPort & DVI			
Drives	SSD, Cfast Intern (2GB ...16GB), Cfast Extern (2GB ... 16GB)		SSD, CFast Extern (2GB ... 30GB)	
Operating conditions	Without fan			
Ambient temperature during operation	0°C to 45°C Exception: 0°C to 40°C with processor i3/i7 with SSD			
Power supply	24V DC, isolated			

# SIMATIC IPC477 PRO

## Common functions and differences to SIMATIC IPC477 built-in device



-  IPC477 PRO has the same basic equipment (processor, RAM, etc.)
-  PRO version offers installation without control cabinet, mounting options with all-round IP65 protection

 PRO no DVD and HDD option

 PRO no PCIe expansion

 PRO only with 24 V power supply

 PRO only 1 COM port

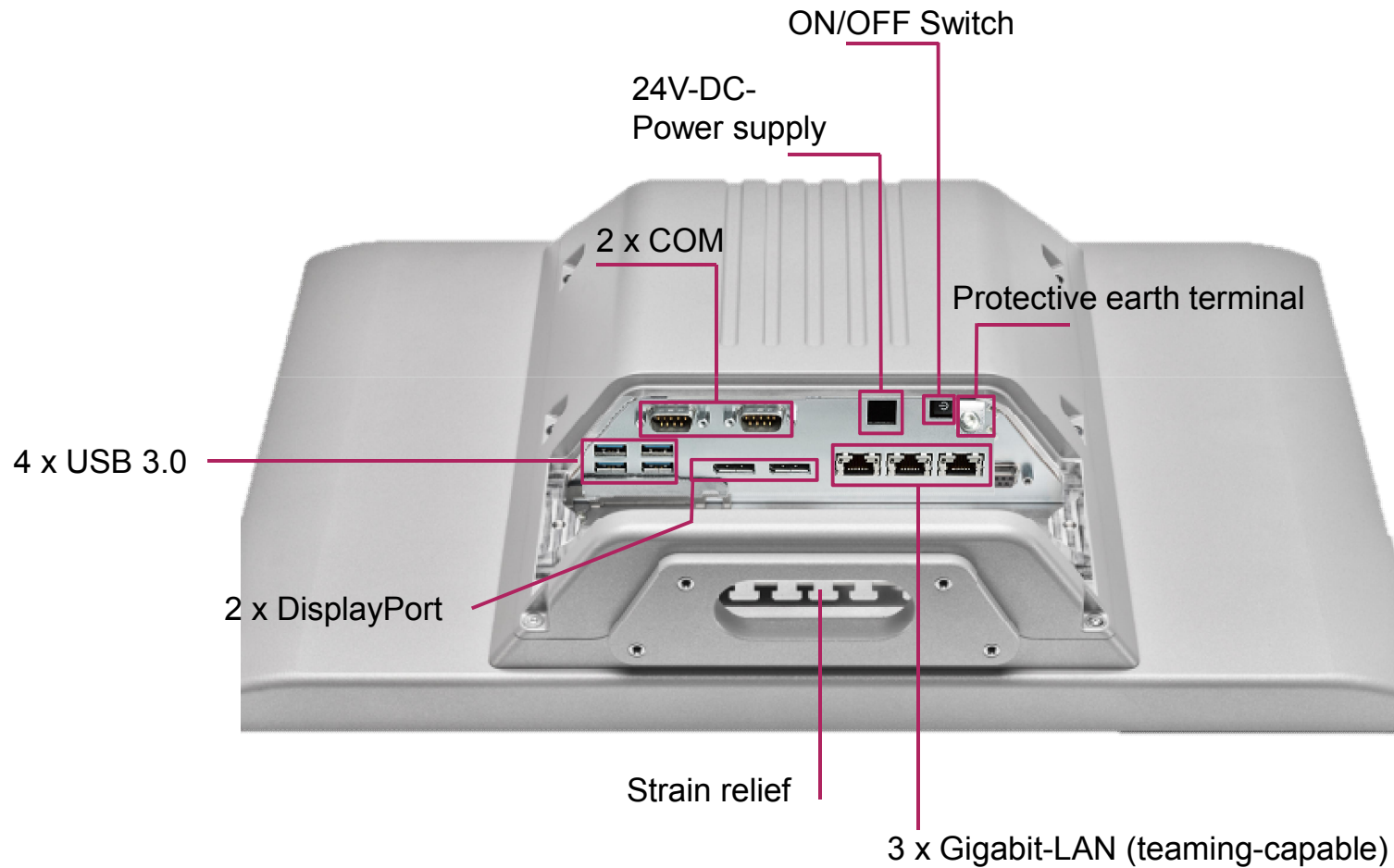
 PRO no bundles option

 IPC477D 15" PRO: no PROFIBUS interface  
IPC477E PRO: No PROFibus interface

# SIMATIC IPC477E PRO

## Mounting with basic adapter – Overview interfaces

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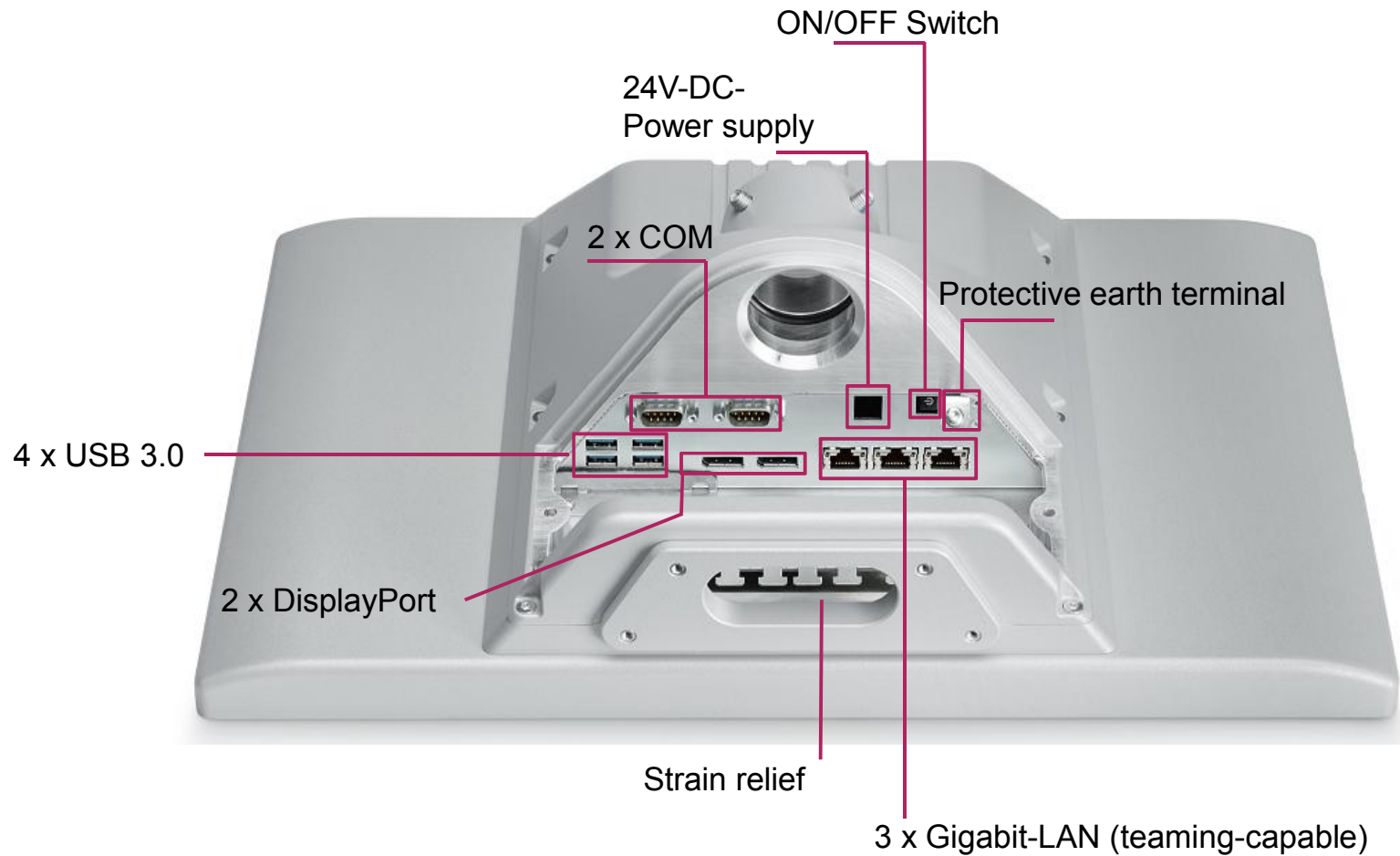


Easy access to the interfaces through the service cover

# SIMATIC IPC477E PRO

## Mounting with round tube – Overview interfaces

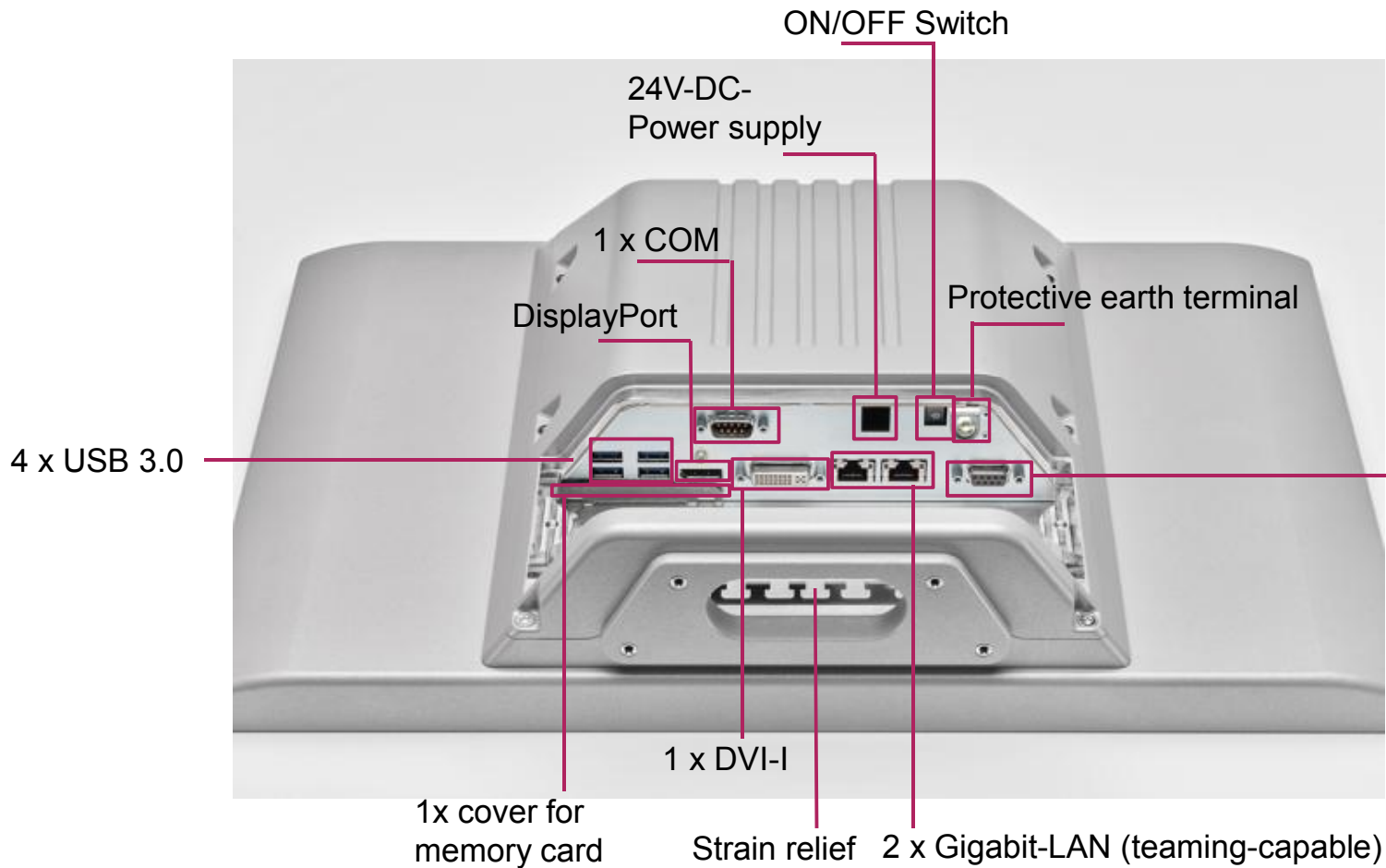
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Easy access to the interfaces through the service cover

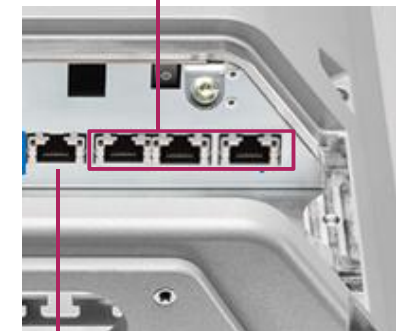
# SIMATIC IPC477D PRO

## Mounting with basic adapter – Overview interfaces



Easy access to the  
interfaces through  
the service cover

1 x Profibus oder  
1x PROFINET IRT

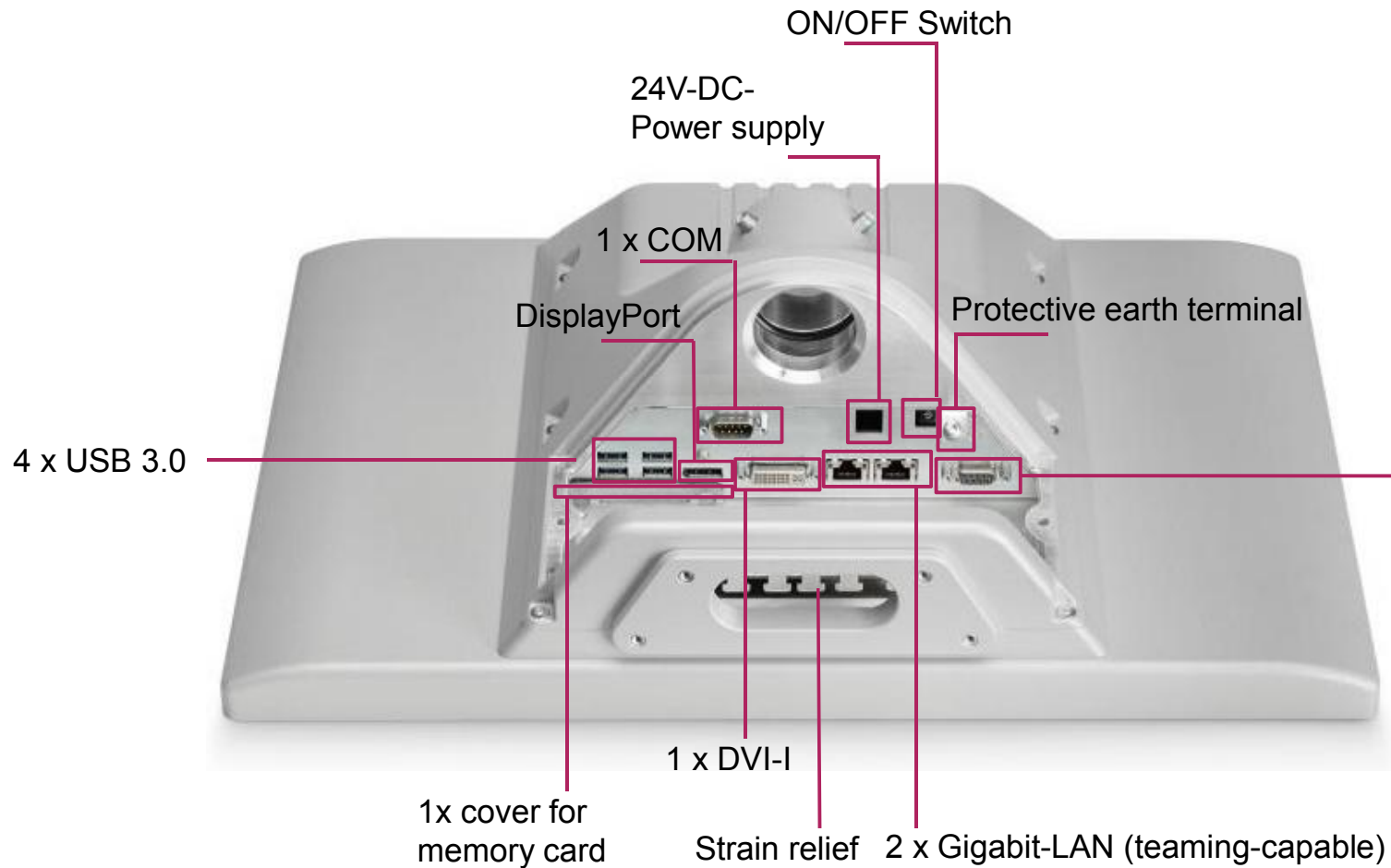


1 x Gigabit-LAN

# SIMATIC IPC477D PRO

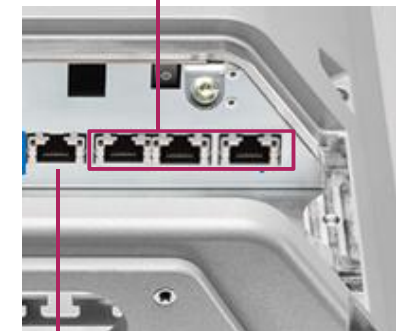
## Mounting with round tube – Overview interfaces

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Easy access to the  
interfaces through  
the service cover

1 x Profibus **order**  
1x PROFINET IRT

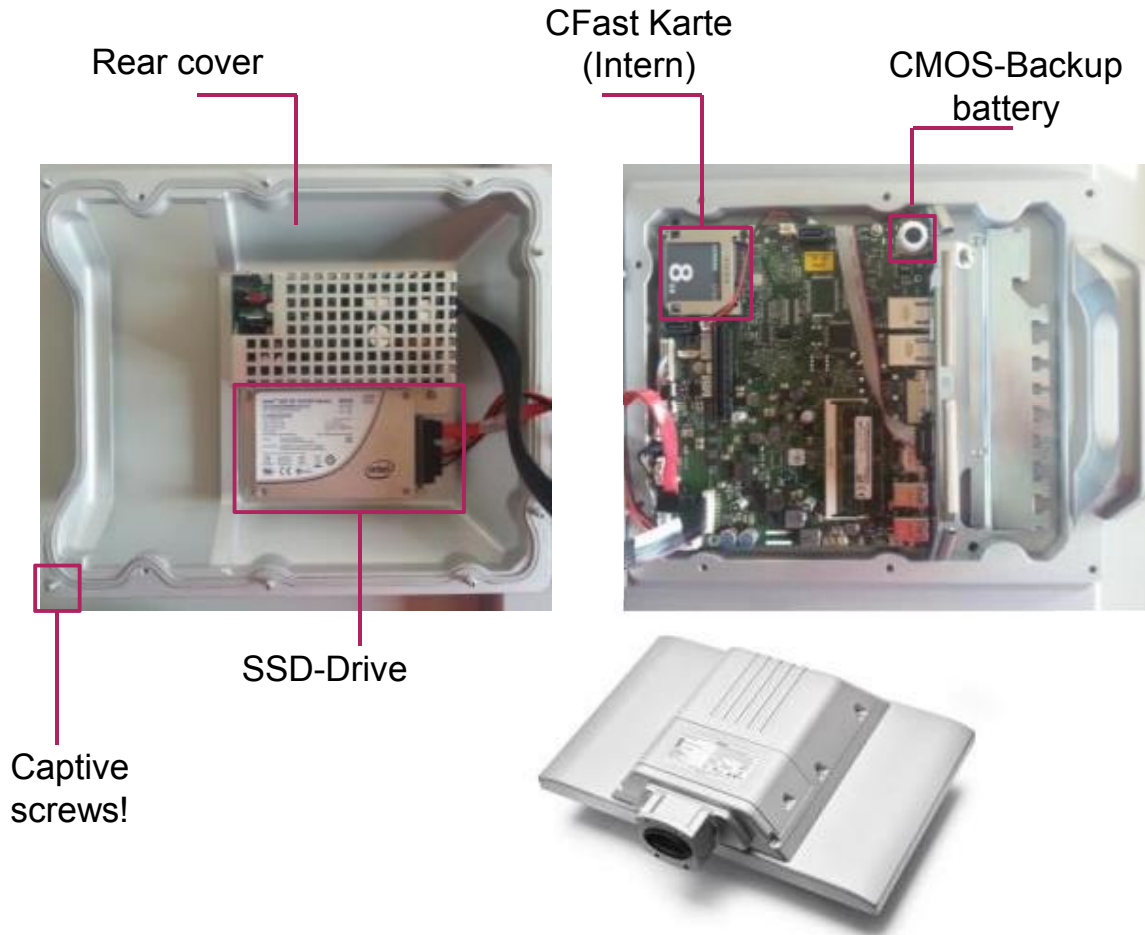


1 x Gigabit-LAN

# SIMATIC IPC477 PRO

## Maintenance

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### High system availability:

Integrated diagnostics for all bulk memories (similar to SMART)



### Serviceability:

Removable rear cover (even when the device is mounted on the support arm/pedestal system) – Internal components fast and simply accessible/exchangeable!



### Easy cleaning

The housing's design reduces dirt adhesion and facilitates deep cleaning.

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# SIMATIC IFP1900/2200 PRO

## Technical details








### Basic data

		19"	22"
Mounting	For pedestal ( <b>expandable</b> , flange below)	-6AV7863-3MA14-0AA0	-6AV7863-4MA14-0AA0
	For support arm ( <b>not expandable</b> , flange above)	-6AV7863-3MA15-0AA0	-6AV7863-4MA15-0AA0
	For support arm ( <b>expandable</b> , round tube)	-6AV7863-3MA16-0AA0	-6AV7863-4MA16-0AA0
Display	16 Mio. colors	1366x768	1920x1080
Variant	- Industrial Flat Panel – Extended Variante		
Operating concept	Centraliced Decentralized: up to 30m away from the Industry-PC <sup>1)</sup>		
Viewing angle	Up to 170°		
Interfaces	2x USB 2.0 / 1x USB Typ B / 1x USB-Link (RJ45)		
Video interfaces	DisplayPort & DVI		
Energy saving	Dimmable LED backlight		
Ambient temperature during operation	0°C - 45°C		
Power Supply	24V DC		

# SIMATIC IFP1900/2200 PRO

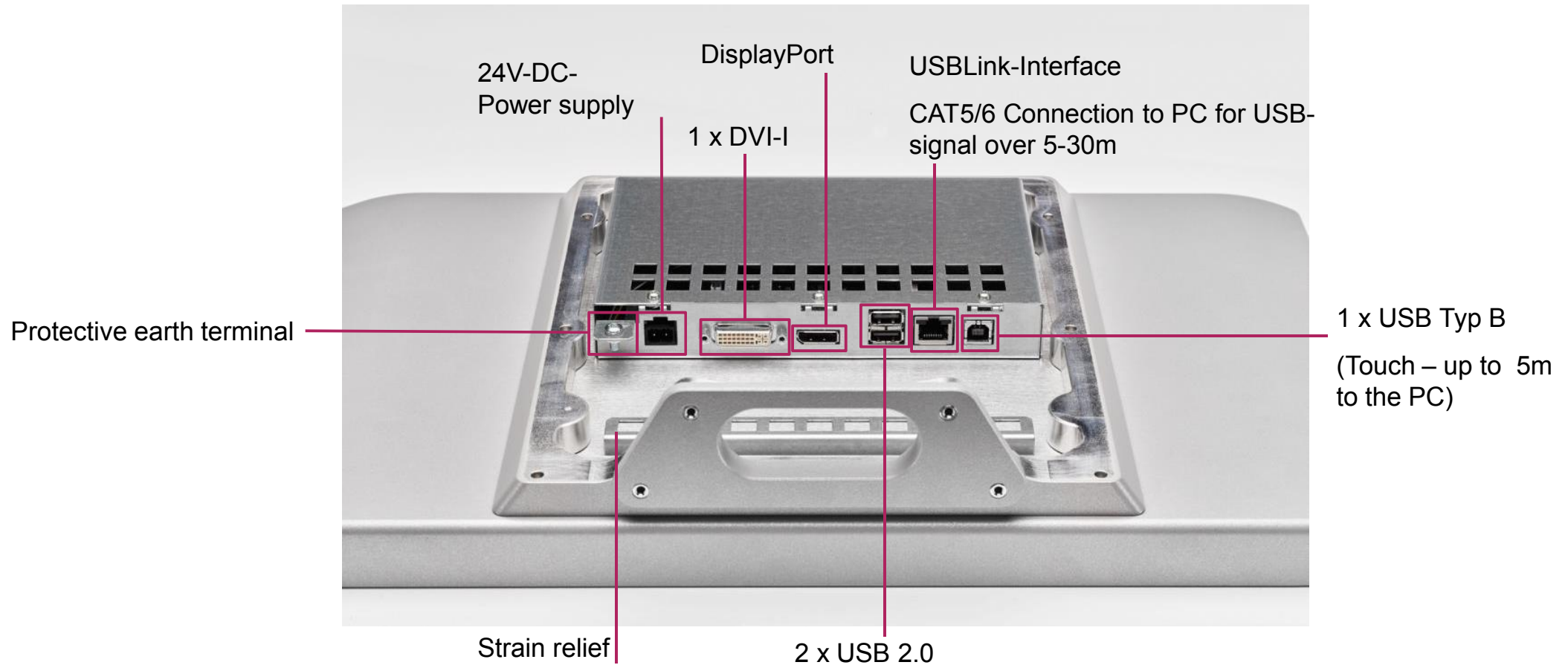
## Common functions and differences to IFP1900/2200 MT built-in device



-  IFP PRO has the same basic equipment (processor, RAM, etc.)
-  PRO version offers installation without control cabinet, mounting options with all-round IP65 protection
-  PRO only available as version remote installation up to 30 m
-  PRO only with 24 V DC power supply
-  PRO no 15" version (only as IFP Ethernet PRO)

# SIMATIC IFP1900/2200 PRO

## Overview interfaces



# IFPxx00 Ethernet PRO

## Technical details

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### Basic data

		15"	19"	22"
Montage	For pedestal ( <b>expandable</b> , flange below) / For support arm ( <b>not expandable</b> , flange above)	6AV7466-5MA01-0AA0	6AV7466-6MA01-0AA0	6AV7466-8MA01-0AA0
	For support arm ( <b>expandable</b> , round tube)	6AV7466-5MA02-0AA0	6AV7466-6MA02-0AA0	6AV7466-8MA02-0AA0
Variant	Industrial Flat Panel – Ethernet Monitor			
Operating concept	Centralized Decentralized: up to 100m (Ethernet) and up to 5m (Display Port) from the Industry PC			
Viewing angle	Up to 170°			
Interfaces	2x USB 2.0 / 1x USB Typ B / 1x Ethernet (RJ45)			
Video interfaces	DisplayPort & Ethernet			
Energy saving	Dimmable LED backlight			
Resolution	1920 x 1080 Pixel			
Ambient temperature during operation	0°C - 50°C (45°C for 22")			
Power Supply	24V DC			

**SIMATIC IFPxx00 Ethernet PRO only available in neutral design**

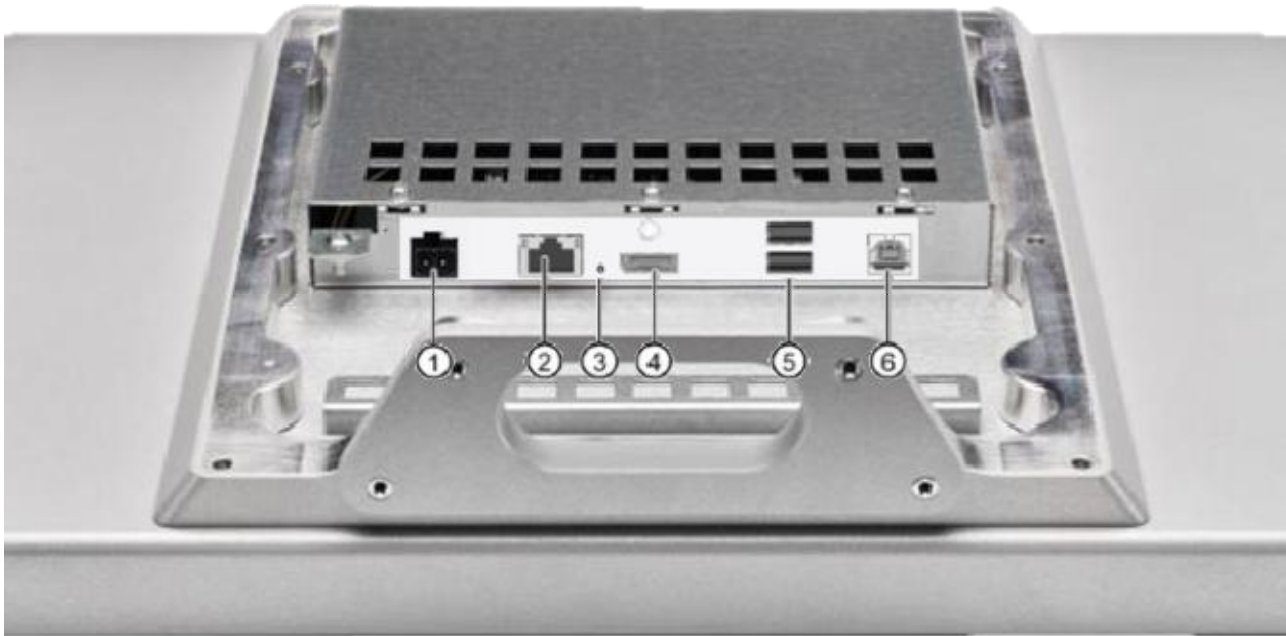
# SIMATIC IFPxx00 PRO Ethernet

## Common functions and differences to IFPxx00 Ethernet built-in device

-  IFP PRO has the same basic equipment (processor, RAM, etc.)
-  PRO version offers installation without control cabinet, mounting options with all-round IP65 protection
-  Ethernet PRO version with Full HD resolution (1920 x 1080)
-  Ethernet PRO version can be used as „normal“ IFP with Display Port and USB
-  Ethernet PRO version also as IFP1500 available
-  Ethernet PRO only as Neutral design available
-  PRO only with 24 V DC power supply

# SIMATIC IFPxx00 Ethernet PRO

## Overview interfaces



- ① X80 Connection for DC 24 V power supply
- ② X1 Ethernet interface
- ③ Reset button
- ④ X70 DisplayPort-Schnittstelle
- ⑤ X61/X62 USB Typ A
- ⑥ X60 USB Typ B

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# SIMATIC Industrial Thin Client PRO

## Technical details

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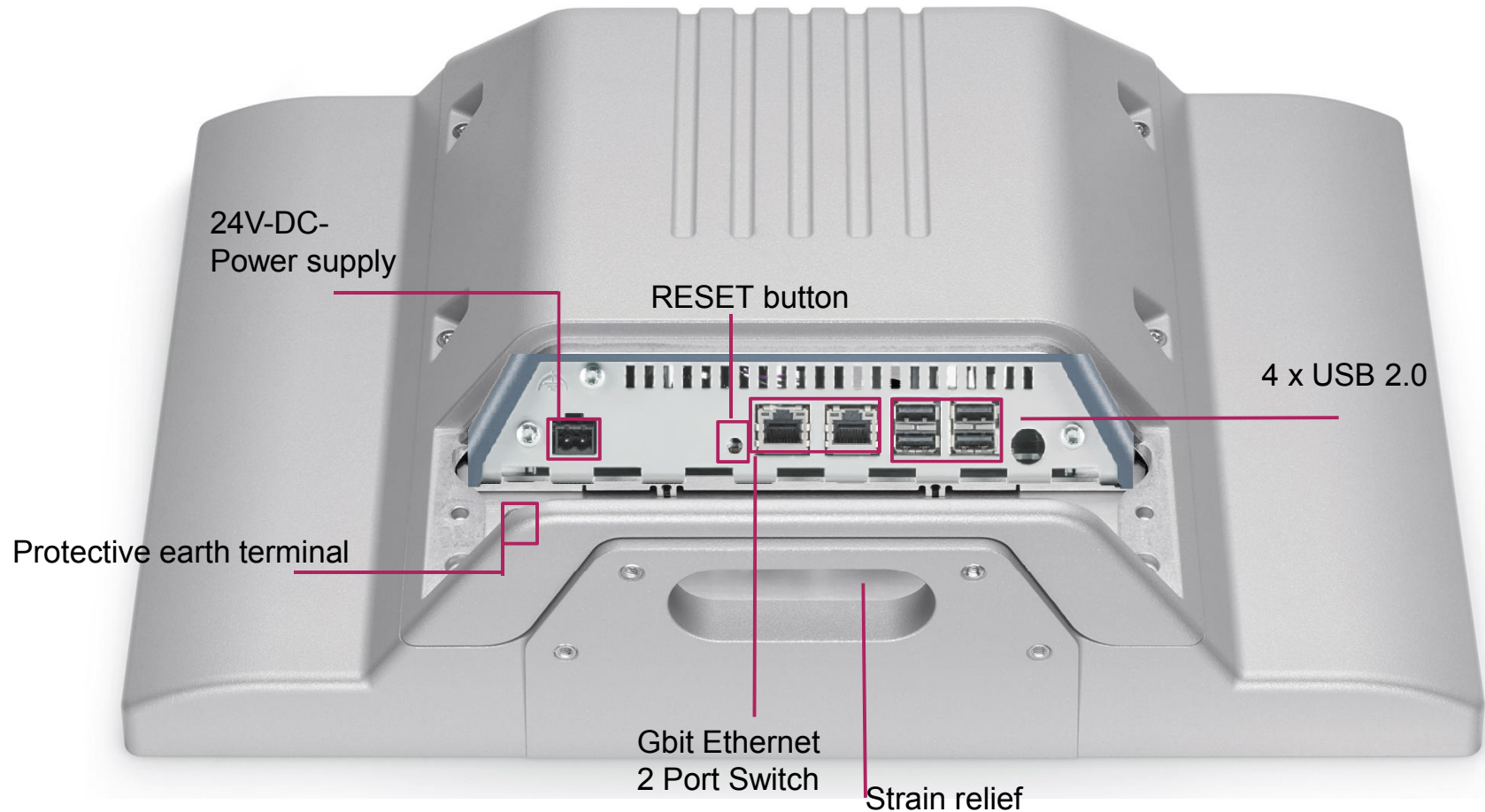


Basic information				
Monting		ITC1500 V3 PRO	ITC1900 V3 PRO	ITC2200 V3 PRO
	Displaygröße	15"	19"	22"
	For support arm ( <b>not expandable</b> , flange above)	6AV6646-1BC15-0AA0	6AV6646-1BC18-0AA0	6AV6646-1BC22-1AA0
	For pedestal ( <b>expandable</b> , flange below)	6AV6646-1BB15-0AA0	6AV6646-1BB18-0AA0	6AV6646-1BB22-1AA0
	For support arm ( <b>expandable</b> , round tube)	6AV6646-1BD15-0AA0	6AV6646-1BD18-0AA0	6AV6646-1BD22-1AA0
Display	16 Mio colors	1366x768	1366x768	1920x1080
Viewing angle	Bis 170°			
Energy saving	Dimmbare LED Hintergrundbeleuchtung			
Operator	Kapazitiver Touch, PCAP			
Interfaces	2 x Ethernet 1Gbit (switched) 4 x USB 2.0			
Protocols	Web-Browser-Funktionalität, SIMATIC WinCC Sm@rtServer, Standard RDP (Remote Desktop Protocol) von Microsoft, VNC (Virtual Network Computing), On-Demand-Applikations-Service von Citrix , WinCC OA			
Ambient tempera-ture during operation	0°C bis 45°C			
Power supply	24V DC			

# SIMATIC Industrial Thin Client V3 PRO




## Overview interfaces

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# ITC V3 PRO vs. ITC V3

## ITCxx00 PRO and ITCxx00 common functions and differences

-  ITC PRO contains same standard specifications (processor, RAM, interfaces...)
-  PRO version offers assembly possibilities without a control cabinet – All-way IP65 protected
-  Identical firmware and protocols

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  - 6.2 Extension Unit Hardwired
  - 6.3 Extension Unit PROFINET
  - 6.4 Extension Unit PROFIsafe
  - 6.5 Extension Unit box
  - 6.6 Extension Unit KPXX (Advanced)
  - 6.7 Engineering in TIA Portal

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  - 6.2 Extension Unit Hardwired
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  - 6.5 Extension Unit box
  - 6.6 Extension Unit KPXX (Advanced)
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# Range of HMI&IPC solutions with all-round IP65 protection

## System components at a glance

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### Advanced operation with Extension Units ✓

- Expansion of the basic unit by additional operator control and monitoring
- ... with a multitude of elements

### Customization by means of labeling ✓

- Individual labeling of the Extension Unit operator controls is possible
- Labeling as label holder or as inscription plate
- Insert strips KP12

### Stainless steel keyboard and accessories ✓

- Keyboard or keyboard tray can be expanded
- Handles
- Optional USB connection to the basic adapter

### Mounting accessories ✓

- Mounting accessories allow for flexible connection of the Extension Unit and connection to additional mounting systems

# SIMATIC HMI PRO Extension Units with operator controls

## One operating concept – customized for your plant

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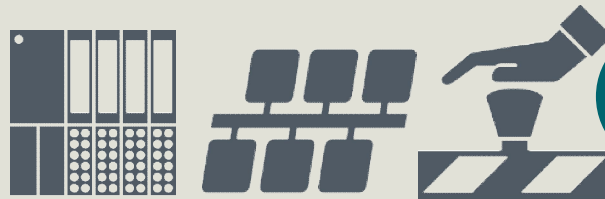
4 sizes: 12"- 22"



Maximum of 12 slots



Flexible connection options



Hardwired PROFINET PROFIsafe



Freely configurable



Can be retrofitted



Tailor-made to your application



Different operator controls



Selector switch



Emergency stop



RGB button<sup>1)</sup>



Keyswitch



Pushbutton with 5-color cover



RFID reader



Indicator light with 5-color cover



USB<sup>1)</sup>

Extension Unit box <sup>2)</sup>



Comprehensive assembly also via Siemens „Build To Order“

## Technical details: System components

### Approvals & certificates Extension Units

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In preparation



UL-Zulassung



No ATEX/IECEx approval possible

# SIMATIC HMI PRO Extension Units with operator controls

## Mounting options of the operator controls



### Extension unit ✓

- 12"/15"/19"/22" with communication modules:
- Hardwired
- PROFINET
- PROFIsafe
- KP12 (Advanced)

### Operator controls ✓

- Emergency stop
- Selector switch
- Illuminated pushbutton
- Key switch
- Indicator light (display function)
- USB execution
- RGB pushbutton <sup>2)</sup>

### Installation ✓





- On-site by customer (pre-stamped cut-outs)
- **Optional** pre-assembled<sup>1)</sup> delivery through Siemens Customized Automation is also available

1. Process: Selection of preferred hardware including operator control positions in the TIA Selection Tool – ordering data generated with export function.  
2 All-inclusive prices: 1-4 elements and 5-N elements – Followed by delivery of assembled components  
2. Nur mit Extension Unit KPXX PROFINET/PROFISAFE über BTO

# Technical details: System components – Extension Units

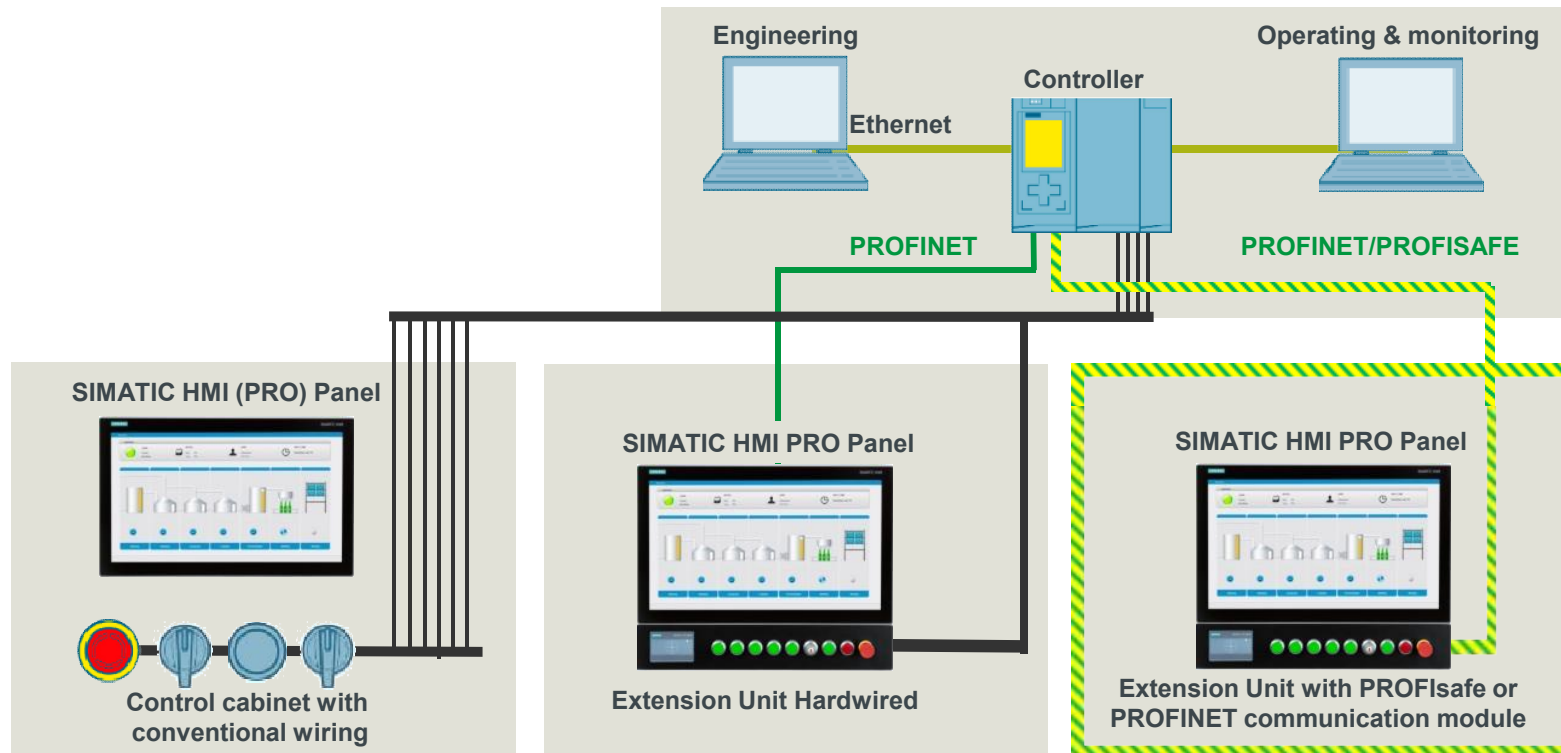
## Standard versions hardwired, PROFINET und PROFI-safe



	12" 	15" 	19" 	22" 
	6 Mounting slots	8 Mounting slots	10 Mounting slots	12 Mounting slots
PROFINET	Maximum 6 control elements	Maximum 8 control elements	Maximum 10 control elements	Maximum 12 control elements
PROFI-safe				
Hardwired			Maximum 10 control elements Regulations for wiring on slide 56	

**Attention: RFID Reader needs 3 mounting slots, maximum 2 emergency stops per Extension Unit**

# Extension Units Hardwired, PROFINET, PROFIsafe & Advanced Connection possibilities



## Comparison of a conventional wiring with

- Extension Unit Hardwired
- Extension Unit PROFINET/PROFIsafe

### Customer benefits

- Reduced effort with commissioning and service

### Advantages PROFINET / PROFIsafe






- Saving of wiring costs by using PROFINET / PROFIsafe
- Emergency stop does not need to be wired to the controller with PROFIsafe
- Detached solutions across long distances (to controller) possible
- Flexible mounting at desired place

### Advantages Hardwired

- Bundling to 1 cable within the Extension Unit – saving of wiring effort!
- Connection of Extension Unit to devices from different manufacturer

# Control elements

## Usable in hardwired, PROFINET, PROFIsafe and advanced

Standard control elements: not fail-safe control elements				Fail-safe
Illuminated Push button	Indicator light	Selector switch	Key switch	Emergency-Stop-mushroom push button
				
<b>Standard control element</b> <ul style="list-style-type: none"> <li>1xNO contact or</li> <li>1xNO and 1xNC contact</li> <li>Illuminated push buttons with 5 cover lenses (red, yellow, green, blue, white, black*)</li> </ul>	<b>Standard control element</b> <ul style="list-style-type: none"> <li>Standard control element</li> <li>Indicator light with 5 cover lenses (red, yellow, green, blue, white)</li> </ul>	<b>Standard control element</b> <ul style="list-style-type: none"> <li>2 NO contacts</li> <li>3 positions 2-0-1, latching 2 × 60°</li> </ul>	<b>Standard control element</b> <ul style="list-style-type: none"> <li>2 NO contacts</li> <li>3 positions 1-0-2: latching 2 × 90°</li> <li>3 removal positions of the key</li> </ul>	<b>Emergency-stop</b> <ul style="list-style-type: none"> <li>2 NC contacts</li> <li>Unlocking by turning</li> </ul> <b>Emergency-stop Backing plate</b> <ul style="list-style-type: none"> <li>optionally available in different languages</li> </ul>
Additional control elements available via Customized Project inquiry				

# Control elements

## RGB Button and further control elements

Only for KPXX (Advanced) versions

RGB- push buttons



### Standard control elements

- 1 NO-Contact
- Lighted push button with 4 LEDs (red, green, blue, yellow, white)
- RGB-Farben individually configurable

**Only useable in Extension Unit  
KPXX and ordering via BTO  
(Build to Order)**

For Customized Project inquiry

Further control elements



### Further control elements

- Mushroom push button
- Colored push buttons (red, grey, white, black)
- Selector switch and key switch (different positions as well as snapped or fumbled)
- ...

**Further control elements only available via  
Customized Project inquiry**

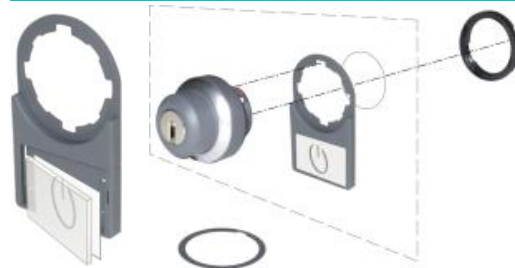
# Control elements for Extension Units Labeling

## Insertion stripes



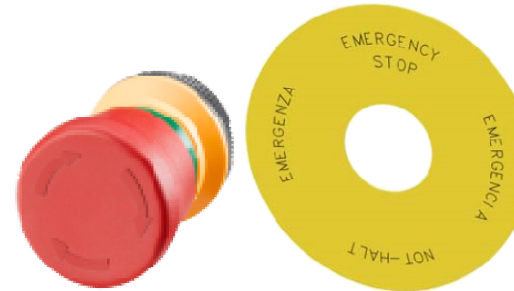
- Perforated DIN A4 labeling stripe for individual printing
- Template available
- Only suitable for light signals and light push buttons

## Schild bearer



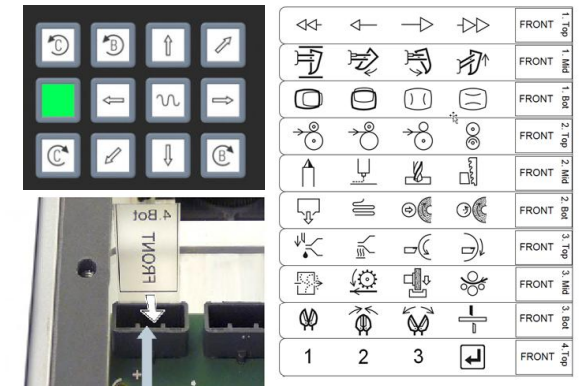
- Use of a transparent PMMA plate
- Template available as download
- Suitable for all control panels (except E-Stop)

## Backing plate



- SIRIUS ACT 3SU Backing plate can be used
- self-adhesive, outer diameter 75 mm,
- Available in different languages

## KPXX: Insertion stripes



- Perforated DIN A4 labeling stripe for individual printing
- Template available as download

Link to download templates: [Templates – labeling of control panels](#)

# System components

## Keyboard for SIMATIC HMI PRO devices

**SIEMENS**  
*Ingenuity for life*



**PRO device + Ext. Unit + keyboard\***



**PRO device + keyboard\***

The display/installation with a keyboard tray is done in similar fashion.

**Please note:**



For the version "Prepared for support arm and extension components (flange mount connection)", a basic adapter must also be purchased for installing a keyboard/keyboard tray.

## System components

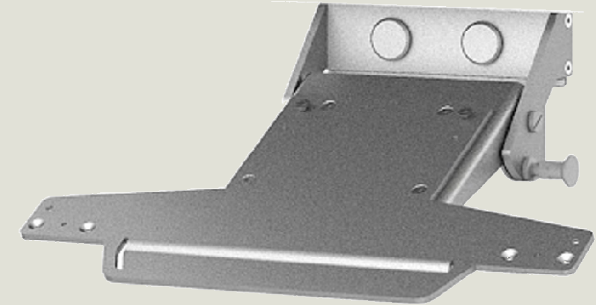
### New keyboard tray for PRO devices with keyboard tray plate

**SIEMENS**  
*Ingenuity for life*



**PRO device + Extension unit + handles + keyboard tray  
+ keyboard tray plate**

**To consider**



„keyboard tray plate for PRO-devices“ hat to be  
purchased in addition to the keyboard tray for  
PRO-devices

# System components

## New keyboard tray for PRO devices with INOX Keyboard

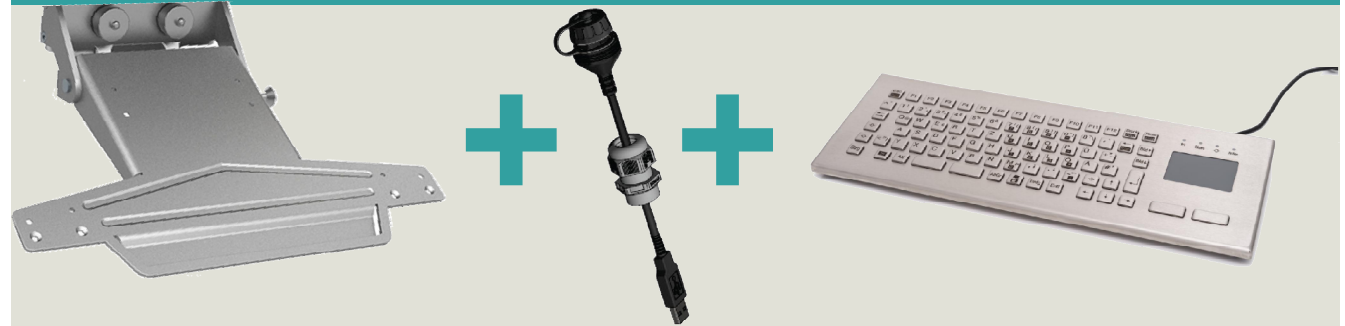


Expected from Q1 / 2019



PRO device + Extension unit + handles +  
keyboard tray + USB keyboard „TKV-086, INOX“

To consider



„USB keyboard „TKV-086, INOX“ has to be purchased in addition to the keyboard tray for PRO devices.



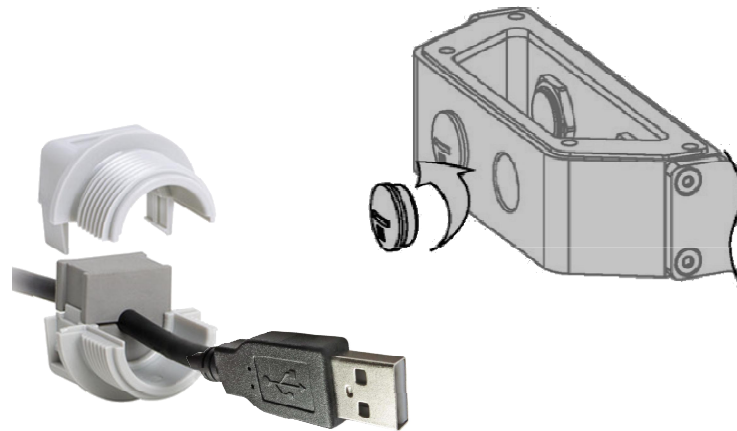
IP65 M20 USB wiring for keyboard tray for PRO devices is available as an option

# System components

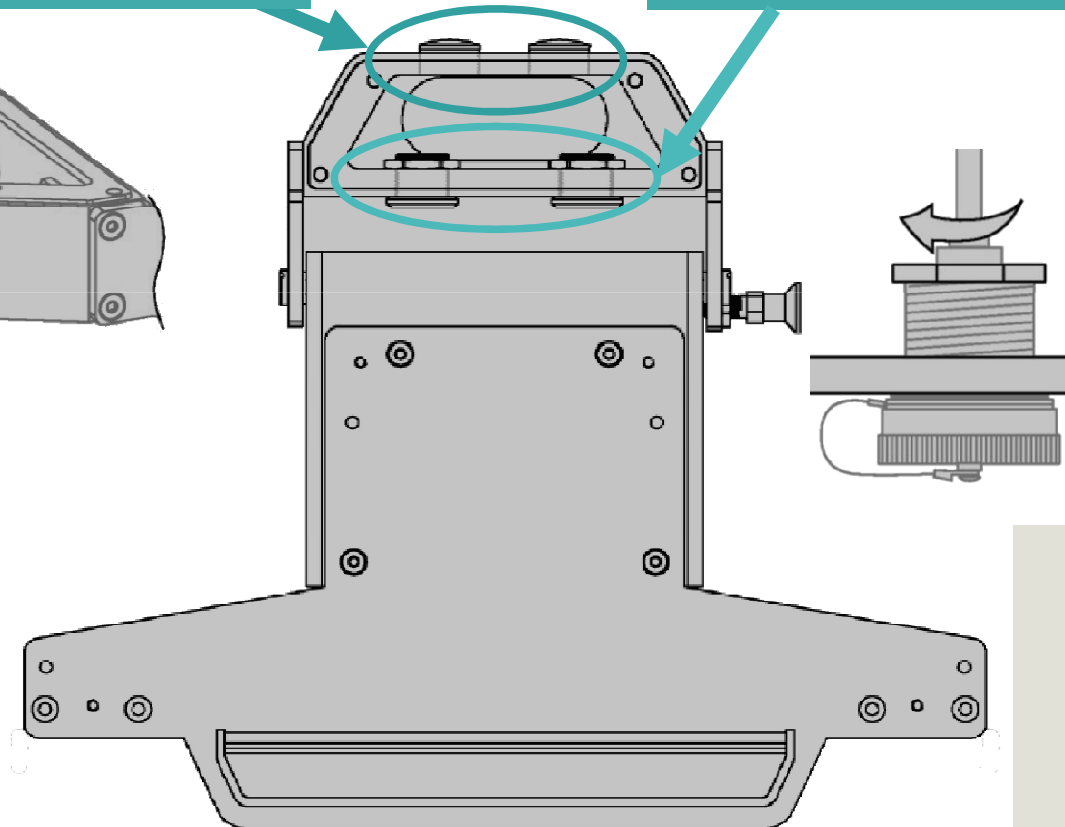
## New keyboard tray for PRO devices: USB integration

**Back side:** Mounting of dividable M20 x 1,5 cable gland

**Front side:** Mounting of USB interface „USB for basic adapter“ intended



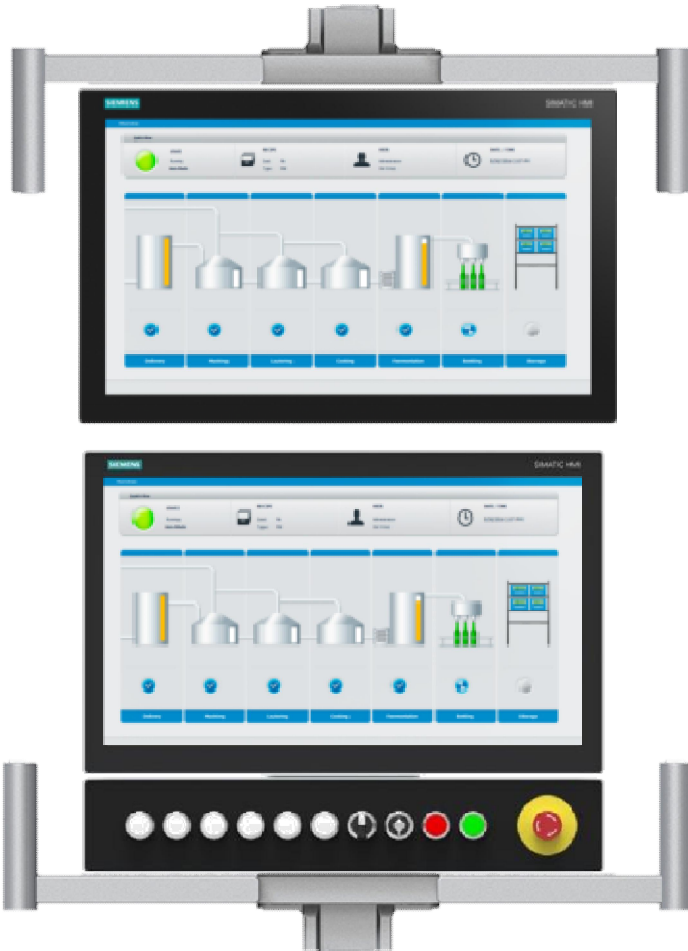
Due to different cable strengths of mouse and keyboards there are no dividable M20 x 1.5 cable glands

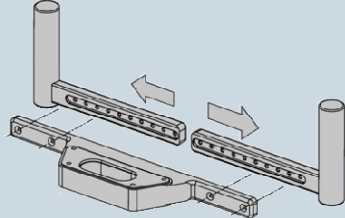


„USB for basic adapter“  
6AV7674-1LX00-0AA0

# System components

## Handles for HMI PRO devices



Basic data	
Mounting	<p>Mounting to 16:9 HMI/IPC PRO devices</p> <ul style="list-style-type: none"> <li>• Support arm device (expandable, round) / Pedestal devices (expandable, flange below): <ul style="list-style-type: none"> <li>➤ <b>Below</b> the SIMATIC HMI PRO device or below the Extension Unit</li> </ul> </li> <li>• Support arm device (not expandable, flange above): <ul style="list-style-type: none"> <li>➤ <b>Above</b> the SIMATIC HMI PRO device</li> </ul> </li> </ul>
Sizes	<p>Universal adjustable from 424 mm to 622 mm for SIMATIC HMI devices from 12" to 22"</p> 
Protection class	IP65 (all-round)
Ambient temperature in operation	0°C to 50°C

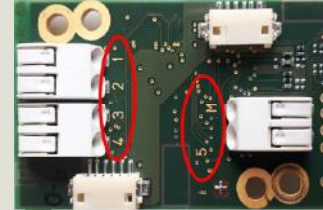
# System components

## Signal transmitter component with 5 outputs for signal lights

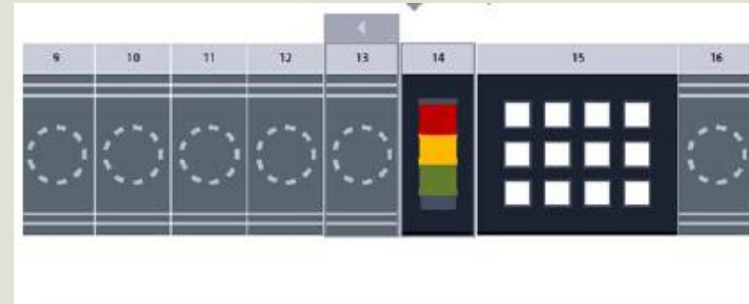
Expected from Q1 /  
2019



- Signal transmitter component with 5 outputs for signal lights



- Only 1x free mounting slot in the Extension Unit necessary
- 5 output signals projectable in TIA Portal



- Connection via PROFINET

**Only via Customized Automation project inquiry possible**

# System components for PRO devices

## PRO 4:3 system components for 16:9 PRO devices

Keyboard/ keyboard tray



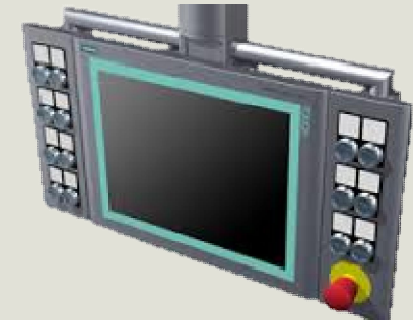
Can be used but differences in color  
(grey instead of silver)

Old USB ports



Usable for support arm devices  
(extendable, pedestal mount)  
- But different color  
(grey instead of silver)

Extension Units  
(for 4:3 PRO devices)



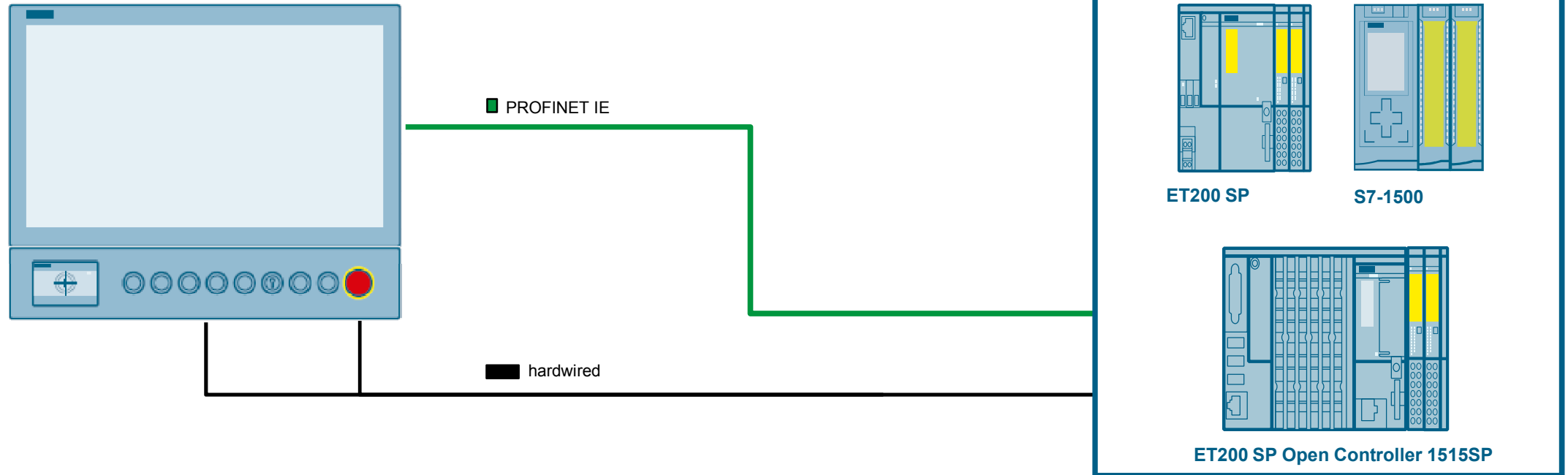
Not usable!

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  - 6.7 Engineering in TIA Portal

# Technical details: System components - Extension Units

## Overview hardwired variant



- Individual wiring of each control element is not necessary: Easy and fast wiring with 3 terminal blocks (incl. fail-safe signals)
- The Extension Units Hardwired can be connected with a distributed I/O with F-modules or with a fail-safe controller. If no E-stop is connected, the F-modules will not be necessary.

# Extension Units Hardwired

## Technical data



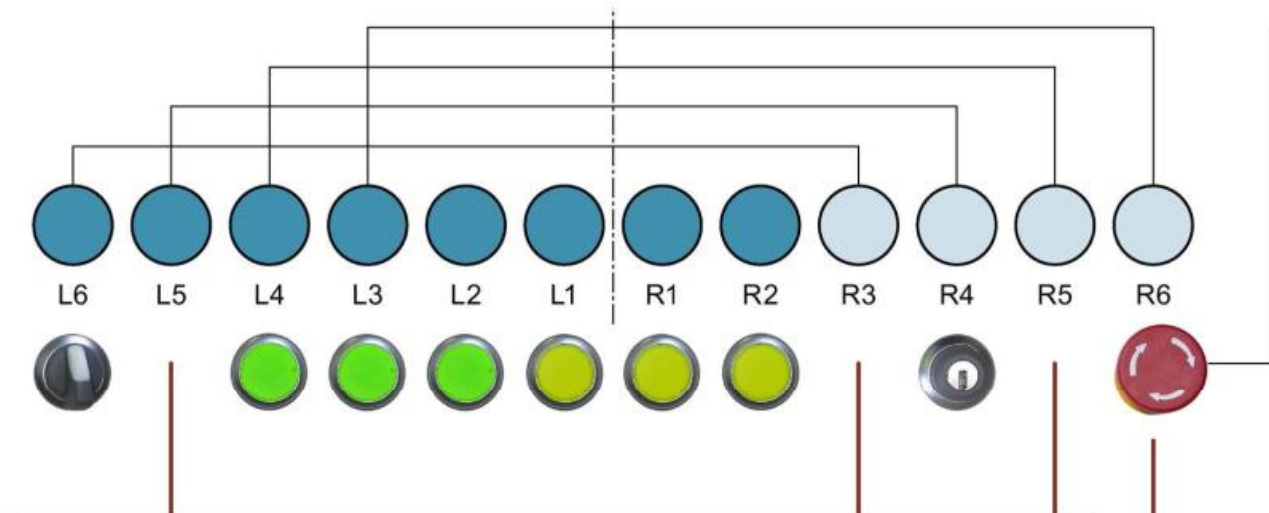
Basic information				
Mounting	Mounting on a 16:9 HMI/IPC PRO device (bottom area)			
Sizes	12"	15"	19"	22"
Mounting slots for control elements	6	8	10 <sup>1)</sup>	12 <sup>1)</sup>
Interfaces	LED-Module			12-pole Connector
	Contacts of control elements			16-pole Connector
	Safety-related Contacts			8-pole Connector
Protection class	IP65 (fully enclosed), in closed condition			
Stackable	Yes, it is allowed to mount up to 2 Extension Units one below the other			
Suitable for safety functions	Yes, for example mounting of an E-Stop button			
Interfaces	Hardwired			
Ambient temperature in operation	0°C to 50°C			
Power supply	24V DC			

1) Some rules must be followed. Please refer to the operating manual.

# Extension Units Hardwired

## Maximum of control elements

- Due to internal wiring, a maximum of 8 standard operator controls can be connected per Hardwired Extension Unit (the following are not standard elements: Emergency Stop, RFID reader and USB cable entry)
- However, more than 8 installation positions can be used for placement.
- The following slots use the same wiring (see right) and cannot be allocated simultaneously with standard operator controls (except EMERGENCY STOP, USB, RFID): Possible is either L6 or R3, L5 or R4, L4 or R5, L3 or R6)

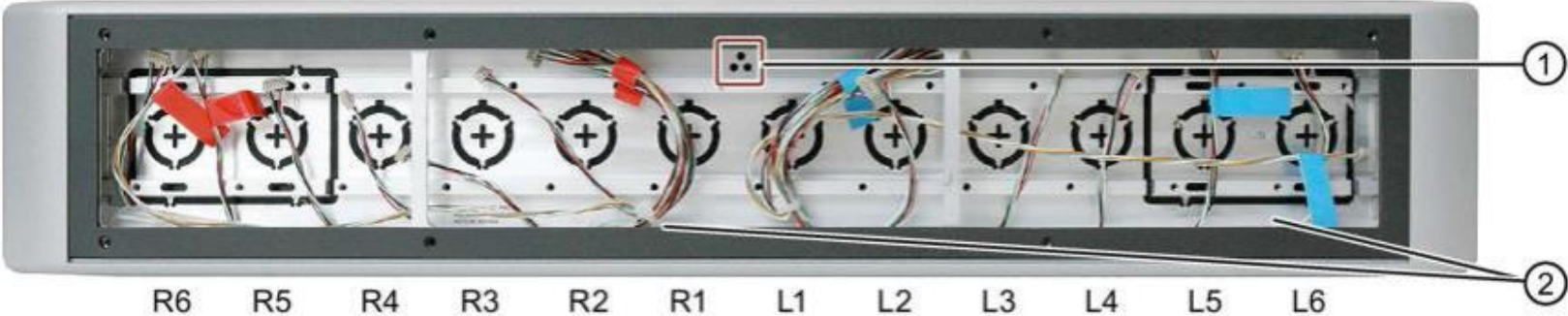
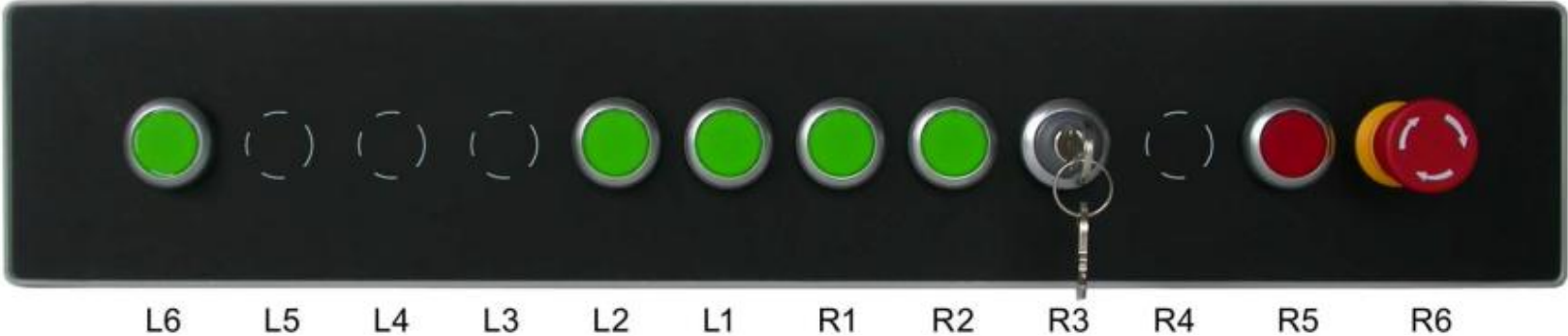


An diesen Positionen darf kein weiteres Standard-Bedienelement eingebaut werden, da L5/R4, L6/R3 und L4/R5 verbunden sind.

R6 ist zwar verbunden mit L3, aber an dieser Position kann ein NOT-Halt-Taster eingebaut werden, für den eine separate Leitung zur Verfügung steht.

**Hardwired supports a maximum of 8 connected standard operator controls**

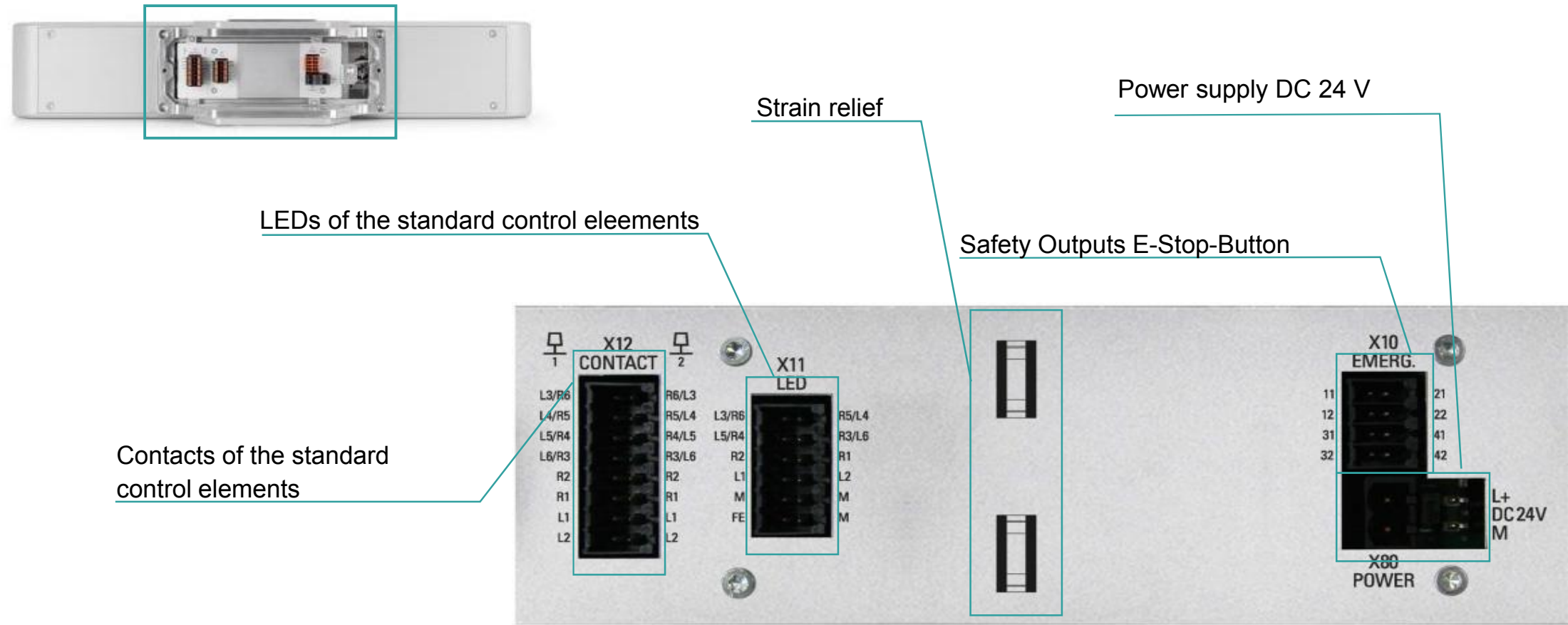
Extension Unit Hardwired  
Example Extension Unit 22“ Hardwired



- ① Marking for the top of the extension unit
- ① Cable harness

# Extension Unit Hardwired

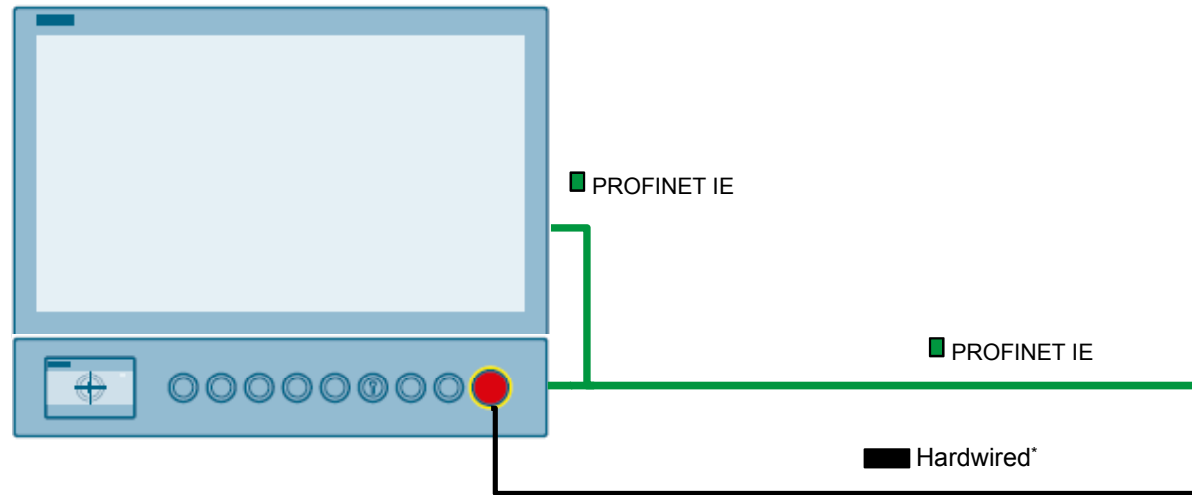
## Interfaces of the Extension Unit Hardwired: Rear view



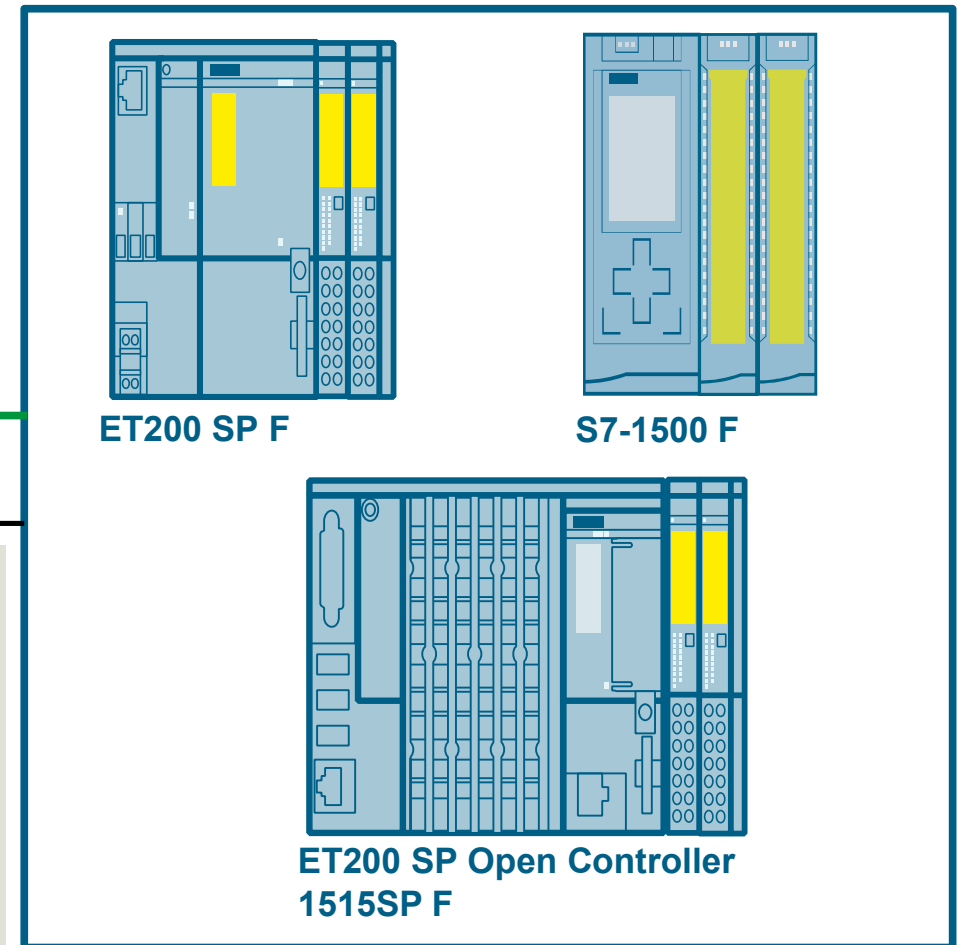
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# Extension Units PROFINET Overview



- No rules for layout/number of control elements must be considered
- Communication of standard control elements (not fail-safe) via PROFINET
- E-Stop connection via conventional hard wiring
- Integrated Switch to loop through PROFINET (MRP protocol supported)
- Wiring saving and und error prevention while assembly/commissioning



# Extension Units PROFINET

## Technical data



Basic information				
Mounting	Mounting on a 16:9 HMI/IPC PRO device (bottom area)			
Sizes	12"	15"	19"	22"
Mounting slots for control elements	6	8	10	12
Connection types	PROFINET		2x RJ45 (PROFINET) incl. Switch	
	Safety-related Contacts		8-pole Connector	
Protocols	MRP (Media redundancy protocol)		Yes - support of ring topology	
Protection class	IP65 (fully enclosed), in closed condition			
Stackable	Yes, it is allowed to mount up to 2 Extension Units one below the other			
Suitable for safety functions	Yes, for examble mounting of an E-Stop button			
Ambient temperature in operation	0°C to 50°C			
Power supply	24V DC			

# Extension Unit PROFINET

## Interfaces of the Extension Unit Hardwired: Rear view

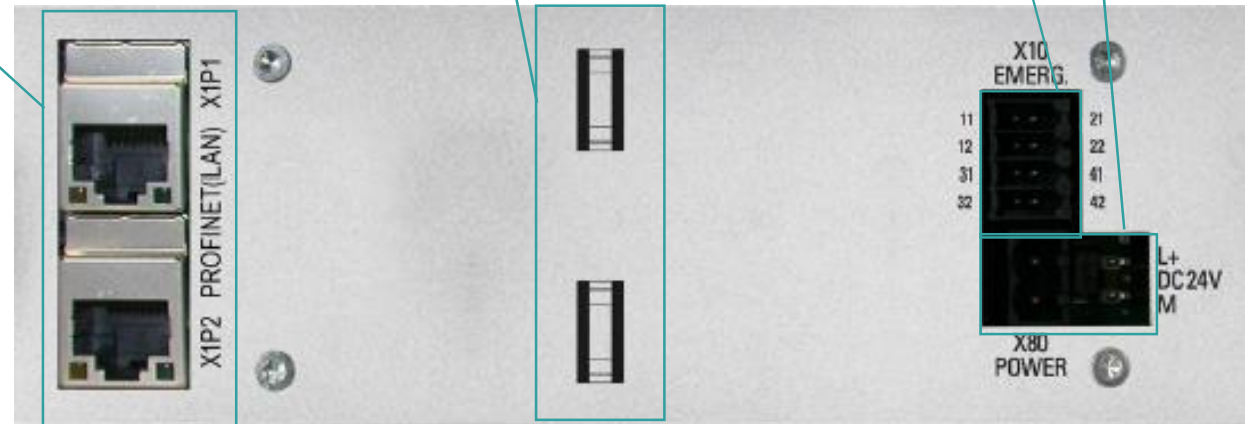


2x PROFINET/ PROFIsafe (LAN) –  
RJ45 10/100Mbit/s  
With integrated Switch

Strain relief

Power supply DC 24 V

Safety Outputs E-Stop-Button



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# Extension Units PROFIsafe

## Technical data



Basic Information				
Mounting	Mounting on a 16:9 HMI/IPC PRO device (bottom area)			
Sizes	12"	15"	19"	
Mounting slots for control elements	6	8	10	
Interfaces	PROFINET		2x RJ45 (PROFINET) incl. Switch	
Protocols	PROFIsafe		1x SIL 2 (dual-channel) or 2x SIL 3 (single-channel)	
	MRP		Yes - support of ring topology	
Protection class	IP65 (fully enclosed), in closed condition			
Stackable	Yes, it is allowed to mount up to 2 Extension Units one below the other			
Suitable for safety functions	Yes, communication via PROFIsafe ( with 2 fail-safe inputs for max. 2 E-Stop buttons)			
Ambient temperature in operation	0°C to 50°C			
Power supply	24V DC			

# Extension Unit PROFIsafe

## Interfaces of the Extension Unit Hardwired: Rear view

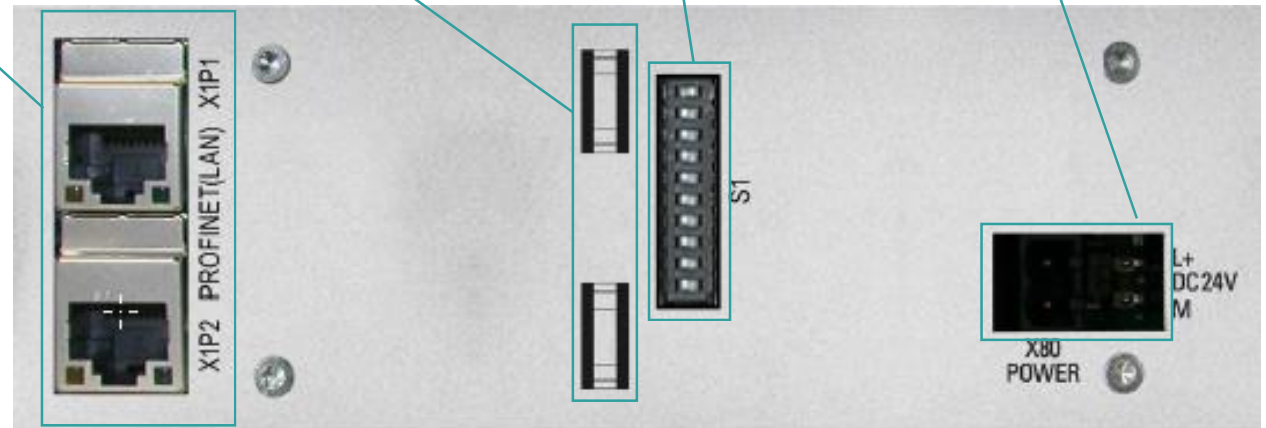


2x PROFINET/ PROFIsafe (LAN) –  
RJ45 10/100Mbit/s  
Mit integriertem Switch

Zugentlastung

DIP-Schalter (für die Adressierung  
der Sicherheitssignalen)

Stromversorgung DC 24 V



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  - 6.7 Engineering in TIA Portal

# Extension Units box

## Basic data

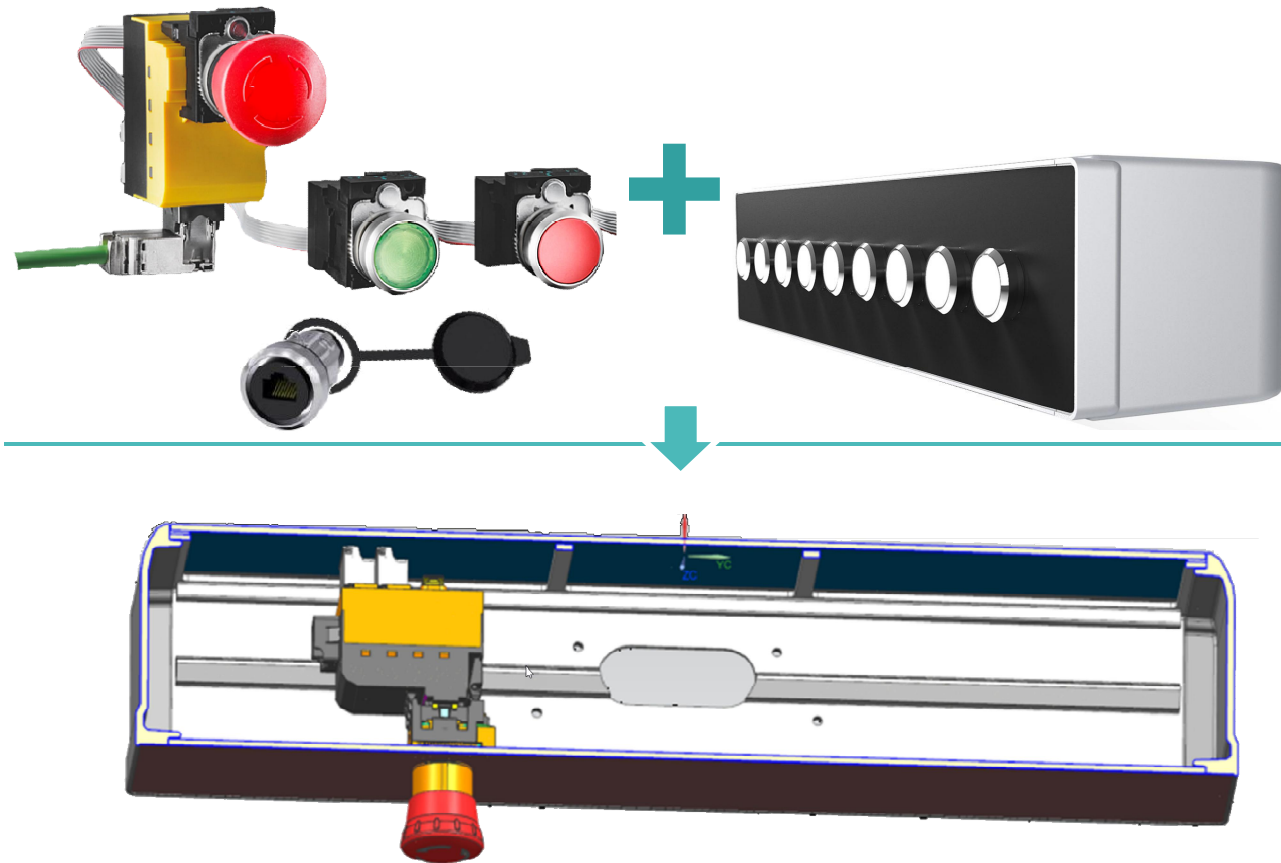


Basic data				
Mounting	Mounting to a 16:9 SIMATIC HMI/IPC PRO device (lower area)			
Sizes	12"	15"	19"	22"
Mounting slots for control elements	About 6 <sup>1)</sup>	About 8 <sup>1)</sup>	About 10 <sup>1)</sup>	About 12 <sup>1)</sup>
Control elements	<ul style="list-style-type: none"> <li>Unrestricted use of the SIRIUS ACT portfolio (including USB and RJ45 execution) <a href="#">[Link Release Document]</a></li> <li>Installation of other components possible</li> </ul>			
Electronics	No integrated electronics (No wiring and no communication module)			
Protection class	IP65 (overall), in closed condition			
Stackable	Yes. Up to two extension units can be assembled above resp. below one another			
Ambient temperature in operation	0°C to 50°C			
Permitted supply voltage	24V DC			

1) Mounting slots are not pre-performed and have to be created individually.  
The amount of mounting slots is dependent on the used control elements.

# Extension Units box SIRIUS ACT PROFINET/PROFISAFE Interface module & Ethernet

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Estimated from 11/2018

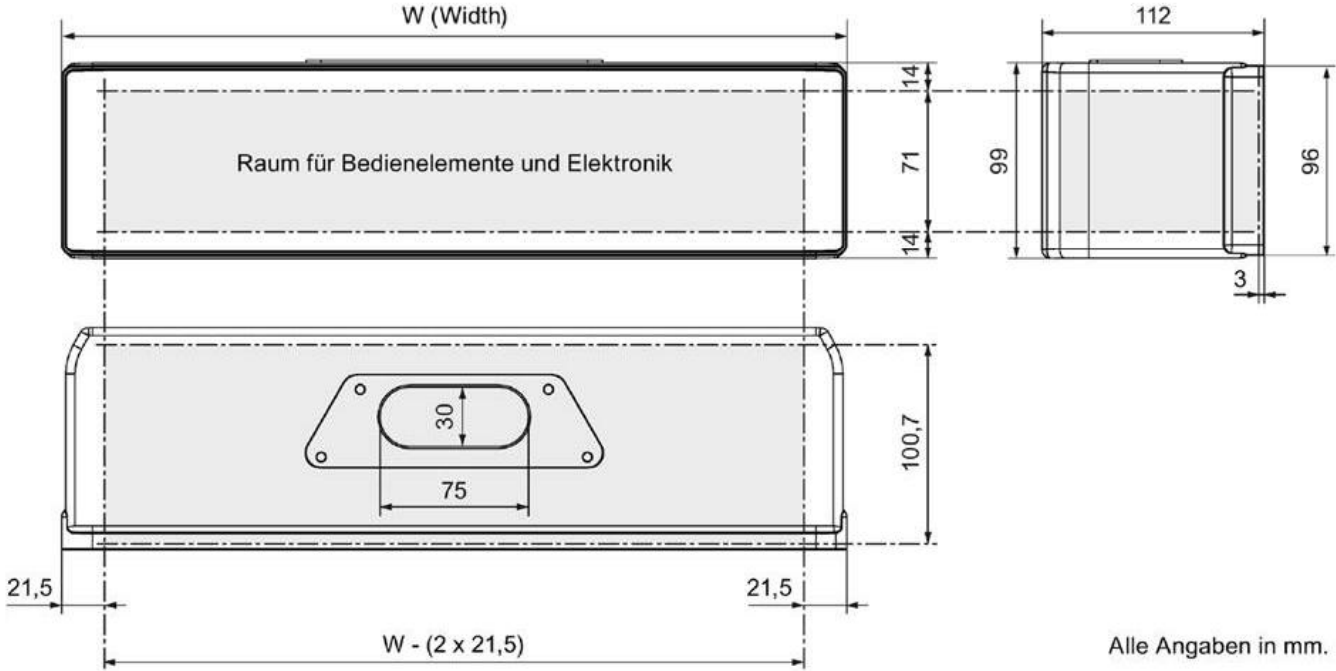
- With the SIRIUS ACT PROFINET/PROFISAFE interface module (Screw types) a transmission of the control elements via PROFINET and PROFISAFE in the Extension Unit box will be possible.
  - → Devices get a new plug
- Transmission of signals via PROFINET or PROFIsafe to the SPS
- Efficient wiring of control elements with flat ribbon cable
- Projection in TIA Portal or with [GSD Data](#)

# Extension Unit box

## Dimensions



Extension Unit 12"	Extension Unit 15"	Extension Unit 19"	Extension Unit 22"
W = 313 mm	W = 396 mm	W = 462 mm	W = 527 mm



Alle Angaben in mm.

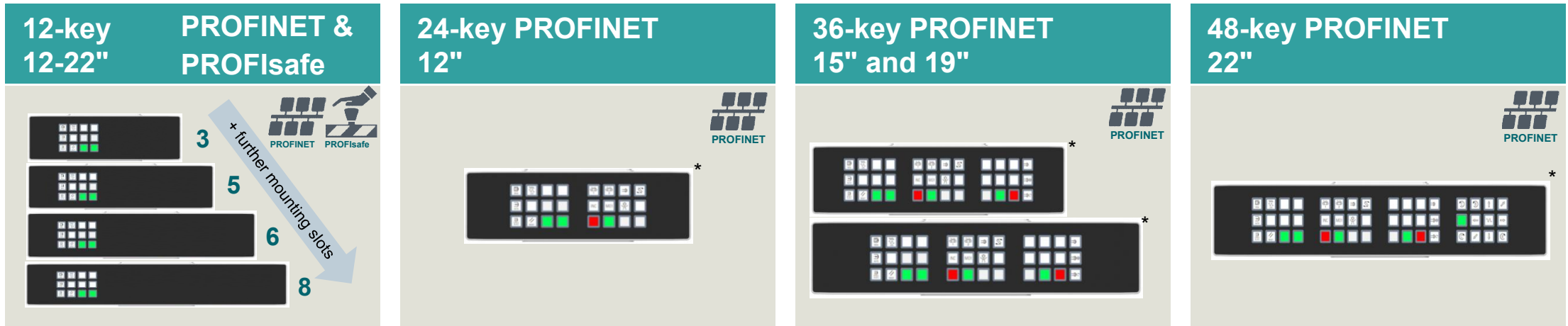
To check whether a control element is suitable for the extension unit box, detailed 3D data will be available after delivery:  
[Link](#)

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  - 6.7 Engineering in TIA Portal

# System components: Extension Units Key Panels

## KP24, 36, 48 PN (PROFINET) and KP12 PF (PROFIsafe)



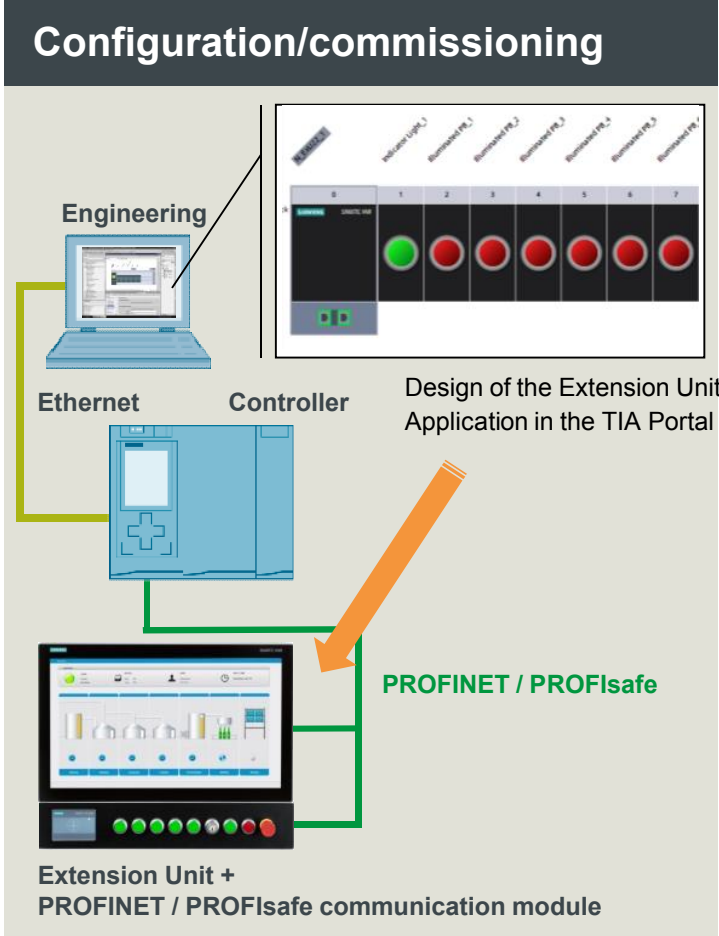
- + 12-key versions are available in PROFIsafe and can be expanded to include operator control, for example, EMERGENCY OFF button
- + Can be configured individually in the TIA Portal – an action, color and feedback can be stored for each key
- + Simple customization using labeling strips
- + Tactile feedback thanks to short-stroke keys and raised key edge

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# System components for PRO devices: Extension Units

## Extension Units PN/PS completely integrated in the TIA Portal



### Features

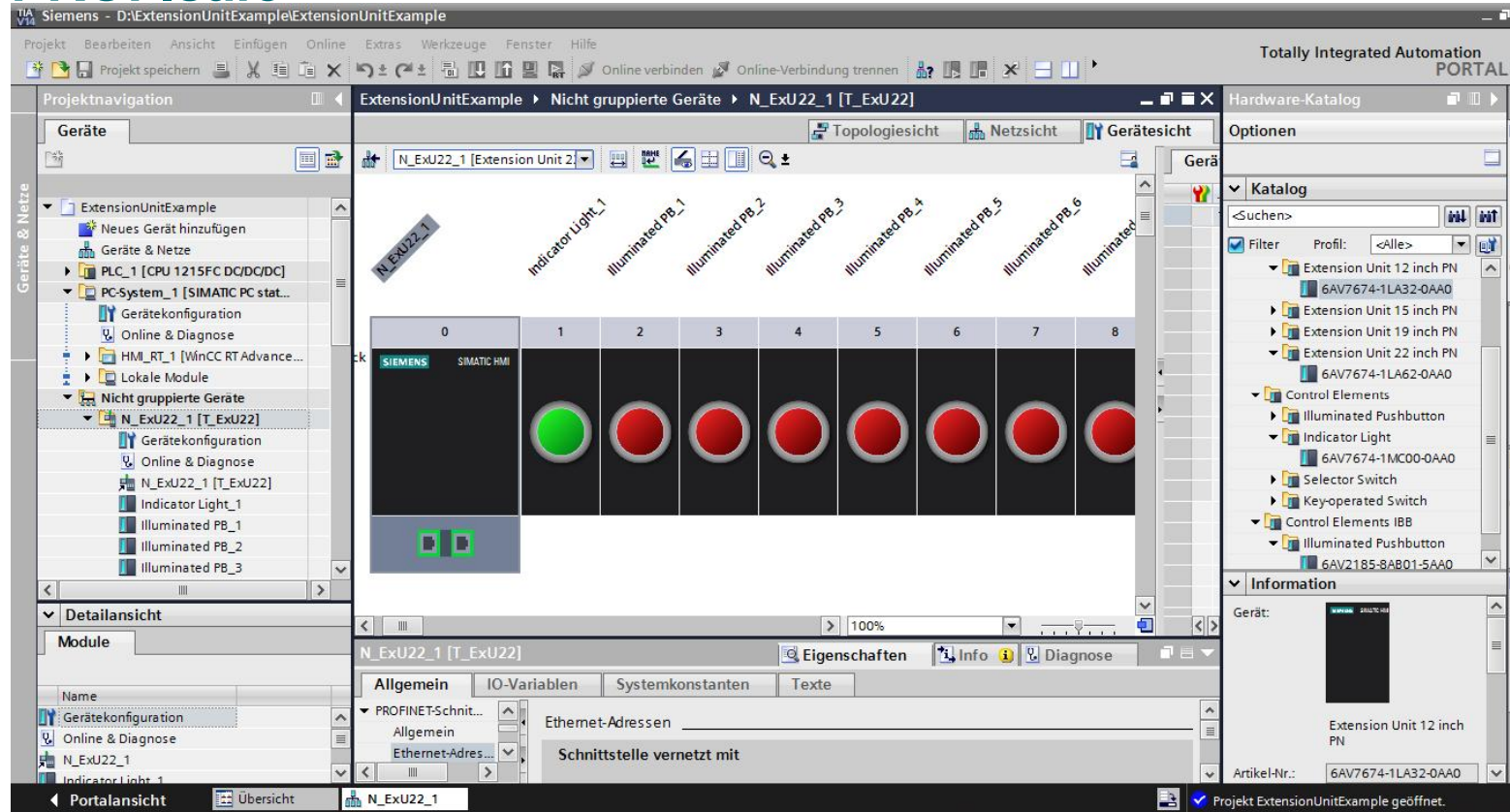
- Efficient engineering in the TIA Portal
- Intuitive hardware configuration of the Extension Unit
- Easy linking of Extension Unit and controller with the PROFINET / PROFIsafe communication module
- Import of order configuration from TIA Selection Tool to the TIA Portal
- Plant protection thanks to keyswitch and RFID access authorization

### Customer benefits

- Uniform data management
- **Time and cost savings** thanks to intuitive hardware configuration
- Communication between Extension Unit and controller is monitored continuously through **integrated PROFINET** functionality
- **Cost savings** during commissioning phase
- **Protects your processes** and plants from unauthorized access

# Project in TIA Portal Engineering of the Extension Units PROFINET und PROFIsafe

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## Projecting TIA Portal

Engineering takes place via HSP in TIA-Portal V14 and V14 SP1

From the next version the Ext. Units PROFINET and PROFIsafe will be included in TIA Portal

## Link to HSP (hardware support package):

[Support Packages for the hardware catalog in the TIA Portal \(HSP\)](https://support.industry.siemens.com/cs/ww/en/view/109753218)

## Getting Started & application example

<https://support.industry.siemens.com/cs/ww/en/view/109753218>

# Technical details: System components

## User login with RFID card reader

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### Local user administration

Free application in the Online Support: 99808171

User Login to Operator Panels with RFID Card Reader for

- WinCC Advanced V14 SP1
- SIMATIC IPC
- SIMATIC HMI PRO devices

<https://support.industry.siemens.com/cs/ww/en/view/99808171>

SIMATIC HMI Option+ incl. RFID Login

- SIMATIC Comfort Panels as well as Comfort Panels PRO

<https://support.industry.siemens.com/cs/ww/de/view/109754400>



### Central user administration

Fee-based PM-LOGON Premium add-on for login, e.g. RFID with central user administration:

- SIMATIC Comfort Panels
- WinCC RT Professional & Advanced
- WinCC 7.X and PCS 7



<https://www.siemens.de/industriesolutions/de/de/wincc/produkte/pm-logon/seiten/default.aspx>



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  - 7.1 SIMATIC HMI PRO devices
  - 7.2 SIMATIC Extension Unit

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  - 7.1 **SIMATIC HMI PRO devices**
  - 7.2 SIMATIC Extension Unit

# Mounting

## Maximal building of a PRO device



**PRO device** for pedestal mounting (expandable, flange below) or for support arm (expandable, round tube)



- ① **Extension Unit 1**  
(Hardwired, PROFINET and PROFIsafe or box)
- ② **Extension Unit 2**  
(Hardwired, PROFINET and PROFIsafe or box)
- ③ **Handles**
- ④ **Keyboard tray** for mounting the keyboard tray plate or a suitable keyboard
- ⑤ **Keyboard tray plate**

**A maximum of two extension units below a PRO device with pedestal mounting is possible**

# Mounting

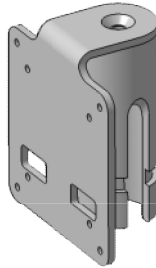
## Mount systems for SIMATIC HMI PRO devices

### Flange mount



- The flange mount turns the round tube connection into a mechanically compatible interface to the basic adapter. The flange of flange mount has the same drilling pattern as the basic adapter.
- The flange of the flange mount has the same hole pattern as the basic adapter

### VESA flange mount



- The VESA flange mount changes the flange mount of the PRO devices to the VESA75/100 interface.
- Cable feed via a side warded slit in the adapter → IP 20 for the complete solution

### Basic adapter (for 16:9 PRO devices)



- Available in scope of delivery
- Color: silver
- matching with the 16:9 PRO devices
- For support arm and pedestal mounting
- Mounting with several support arm system suppliers

### Adapter set VESA75/100

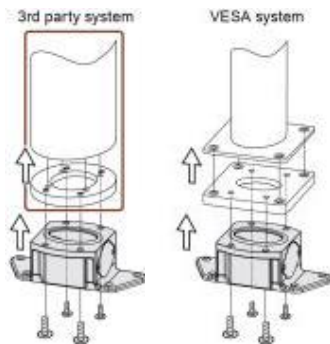
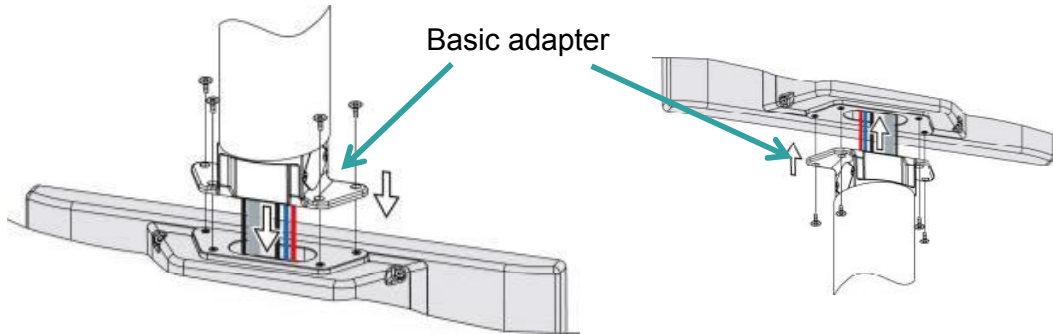


- Color: dark grey → matching to 4:3 PRO devices. However, mechanically compatible to 16:9 PRO devices
- Compatible with the basic adapter and the flange mount

# Mounting

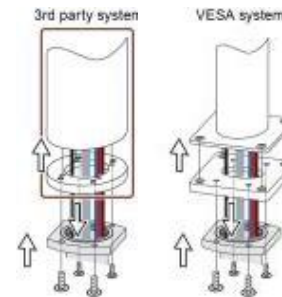
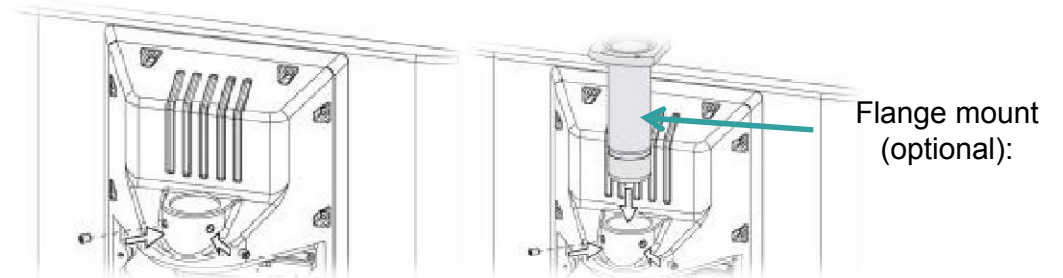
## Mounting of SIMATIC HMI PRO device

### Mounting – basic adapter



- basic adapter available in scope of delivery
- Support of different support arm manufacturers

### Mounting – round tube



The flange of the flange mount has the same hole pattern as the basic adapter

- Mounting with:
- Siemens flange mount (optional) or
- A  $\varnothing 48,3\text{mm}$  round tube
- Support of different support arm manufacturers
- The flange mount turns the round tube connection into a mechanically compatible interface to the basic adapter..

# Mounting

## Supported support arm and pedestal systems

**SIEMENS**  
Ingenuity for life



[Rittal product page](#)

### RITTAL

Adapter for Siemens PRO Panel:

- Order number: 6206.500
- On support arm systems:
  - CP40 steel
  - CP60/120 for 120 x 65 mm support arm connection



[ROLEC product page](#)

### ROLEC

Adapter for Siemens PRO Panel:

- Order number: 142.024.000
- On support arm systems:
  - profiPlus-50
  - Suitable for clutch standing/ hanging (rotation range max. 310°) plus clutch N standing/ hanging (rotation range max. 310°, backward tilt angle 15°, forward tilt angle 35°)



[Bernstein product page](#)

### BERNSTEIN

- No intermediate plate necessary
- Coupling with integral adapter for PRO devices
- Coupling for Siemens SIMATIC Pro:
  - 1015300187 RAL 9006 white aluminum
  - 1015300043 RAL 7016 anthracite gray
- On support arm systems:
  - CS-3000



[Rose product page](#)

### ROSE

Adaption for Siemens PRO Panel:

- GTN II-PRO adapter plate: 49. 47 00 01
- GTN II-PRO coupling: 49. 47 73 02
- GTN II-PRO angle coupling: 49. 47 75 02

Available for other support arm systems:

- GTS
- GTKe
- GT 48/2

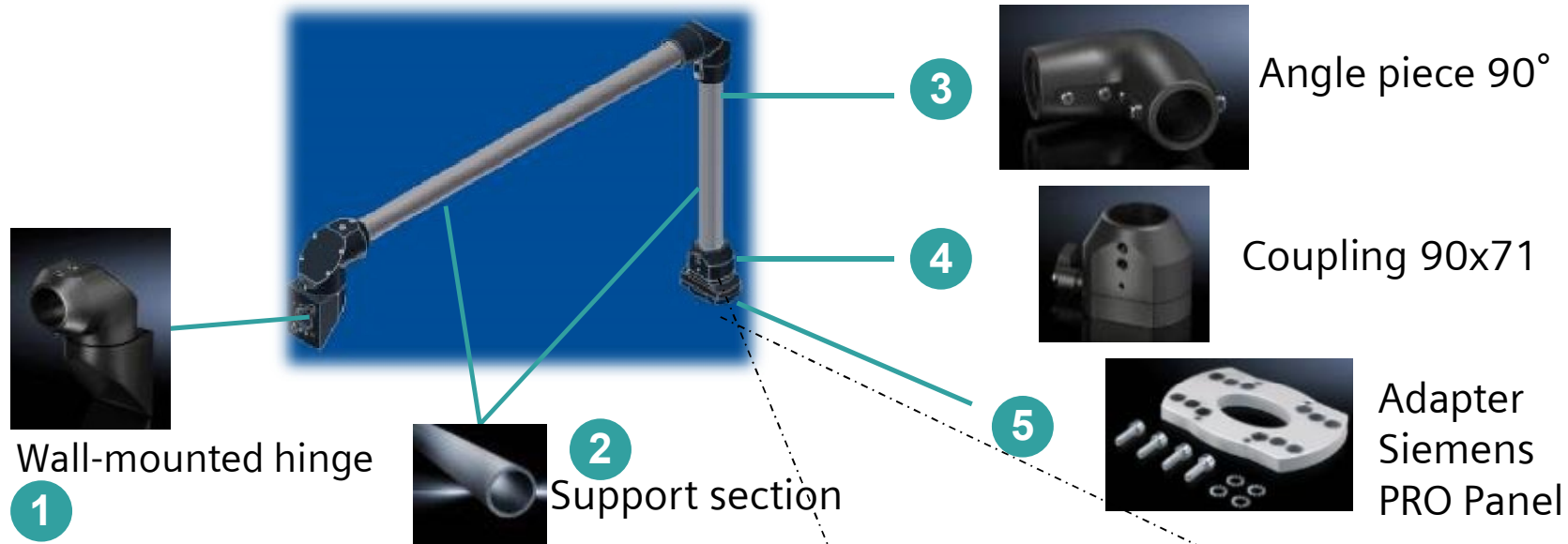
**Support arm and pedestal systems incl. adapter in responsibility of the different manufacturer**

# Mounting with Rittal components

## Mounting with basic adapter

**SIEMENS**  
*Ingenuity for life*

**Rittal**



**Typical configuration with  
CP 40 System.**  
(other configurations & other  
systems are also possible )



**SIEMENS**

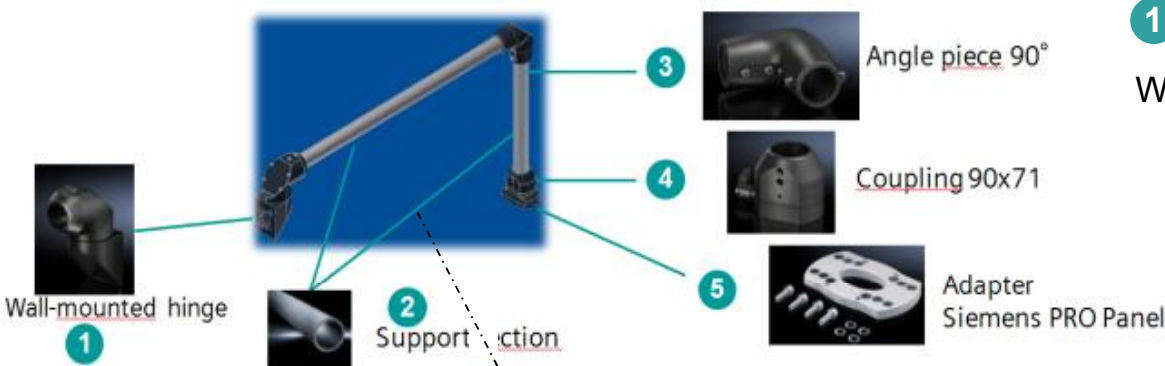
**The manufacturer also offers adequate pedestal mounting solutions**

# Mounting

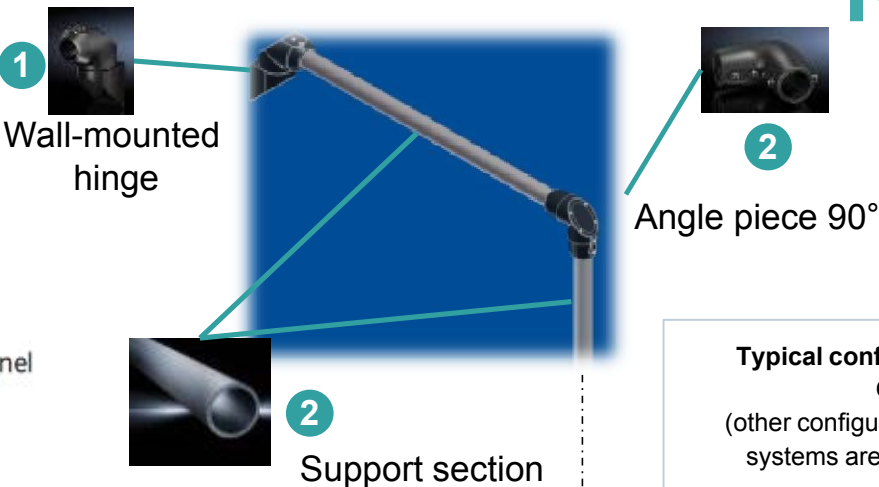
## Mounting with Rittal components (round tube mounting)

**SIEMENS**  
*Ingenuity for life*

Option A: with Siemens flange mount



Option B: with standard round tube <sup>1)</sup>



**Rittal**

Flange mount  
(Optional available)



PRO Devices

Variant: suitable for support arm  
(expandable, round tube)



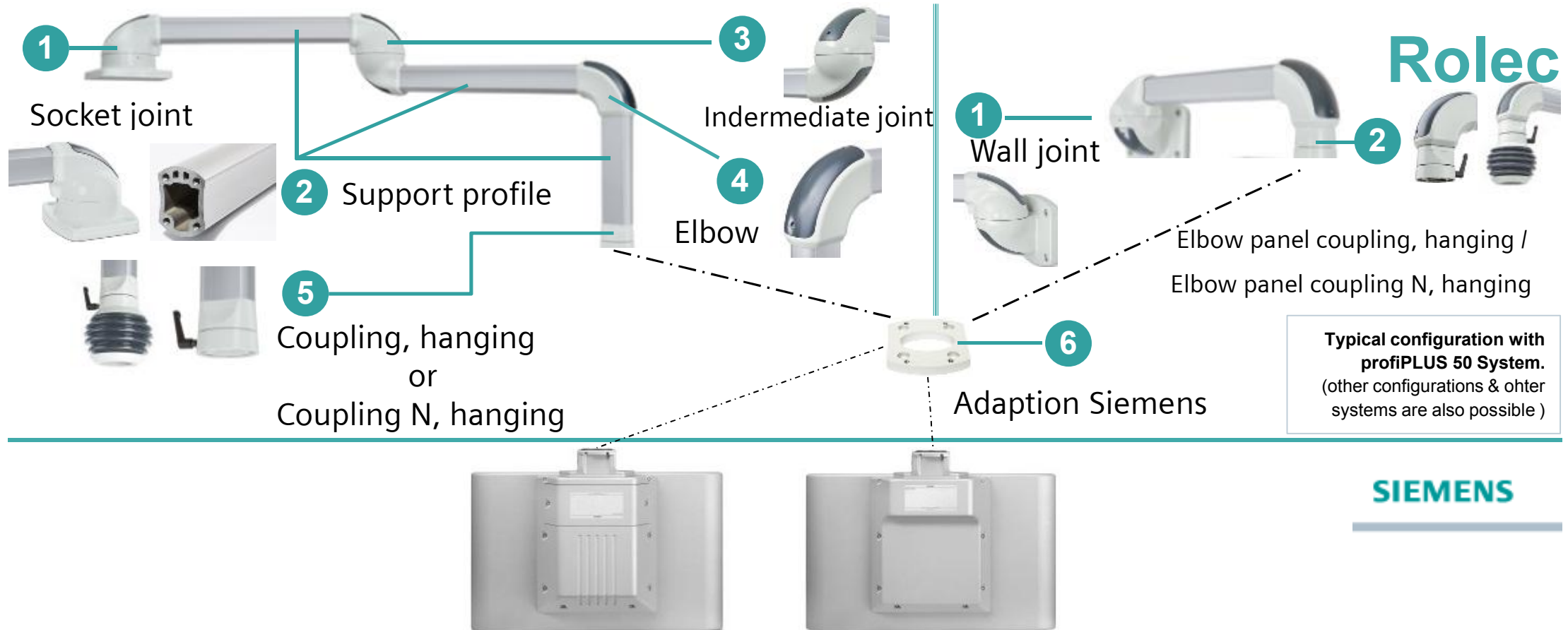
**SIEMENS**

1) Option B does not support rotating/tilting functionality

# Mounting

## Mounting with Rolec components (with basic adapter)

**SIEMENS**  
*Ingenuity for life*



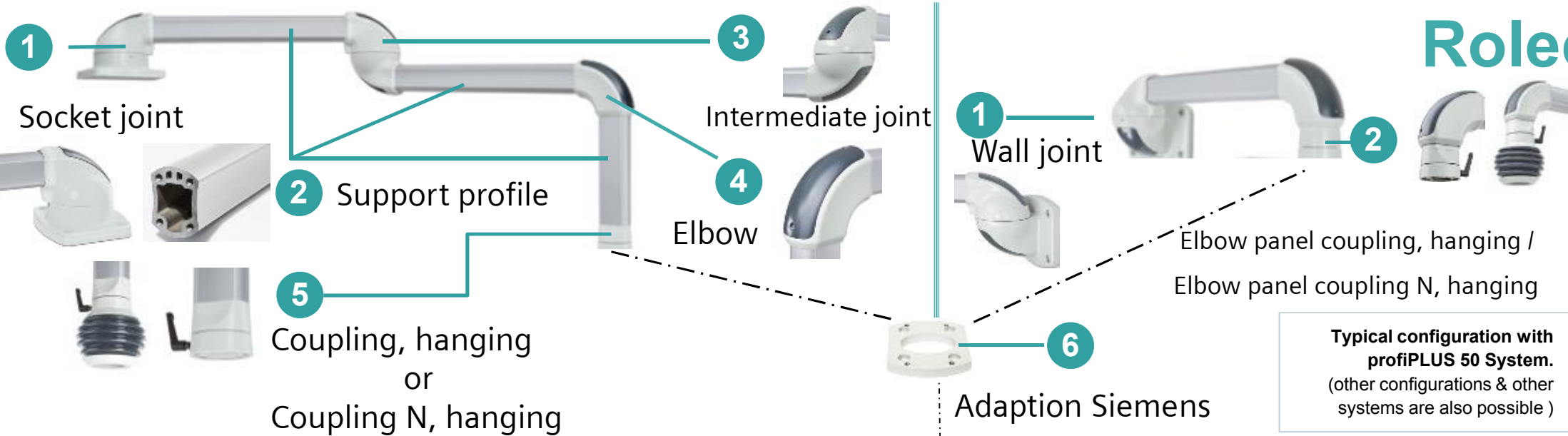
The manufacturer also offers adequate pedestal mounting solutions

# Mounting

## Mounting with Rolec components (round tube mounting)

**SIEMENS**  
*Ingenuity for life*

**Rolec**



**PRO Devices**

Variant: suitable for support arm  
(expandable, round tube)

**Flange mount**

(Optional available)



**SIEMENS**

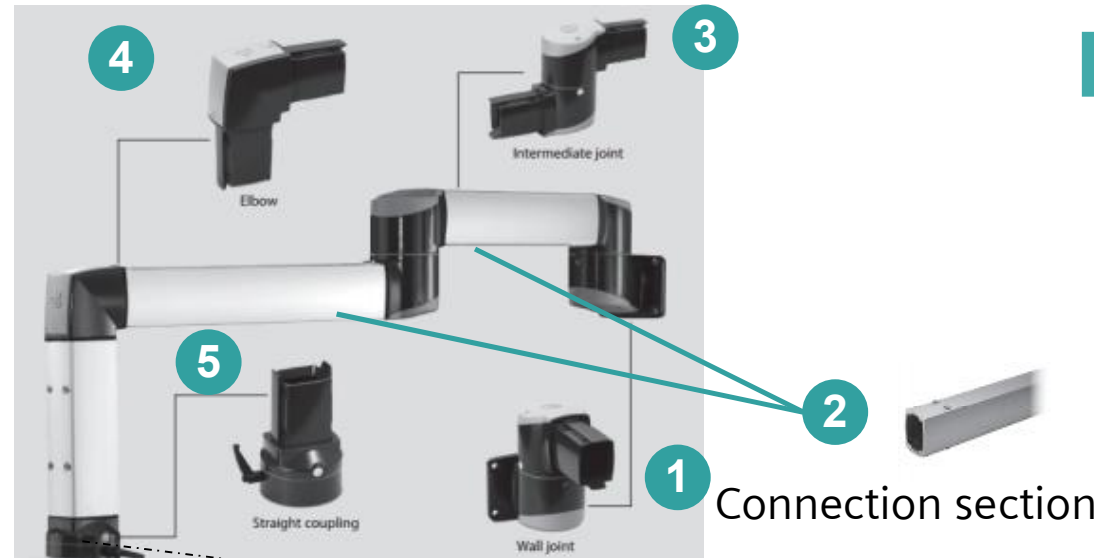
# Mounting

## Mounting with Bernstein components (with basic adapter)

**SIEMENS**  
*Ingenuity for life*

**Bernstein**

**5** Coupling with integrated adaption to PRO devices (no intermediate plate necessary)



**SIEMENS**

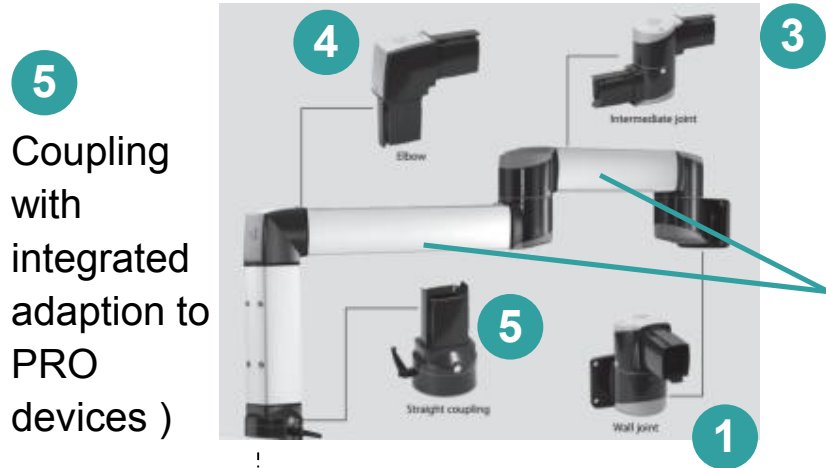
**The manufacturer also offers adequate pedestal mounting solutions**

# Mounting

## Mounting with Bernstein components (round tube mounting)

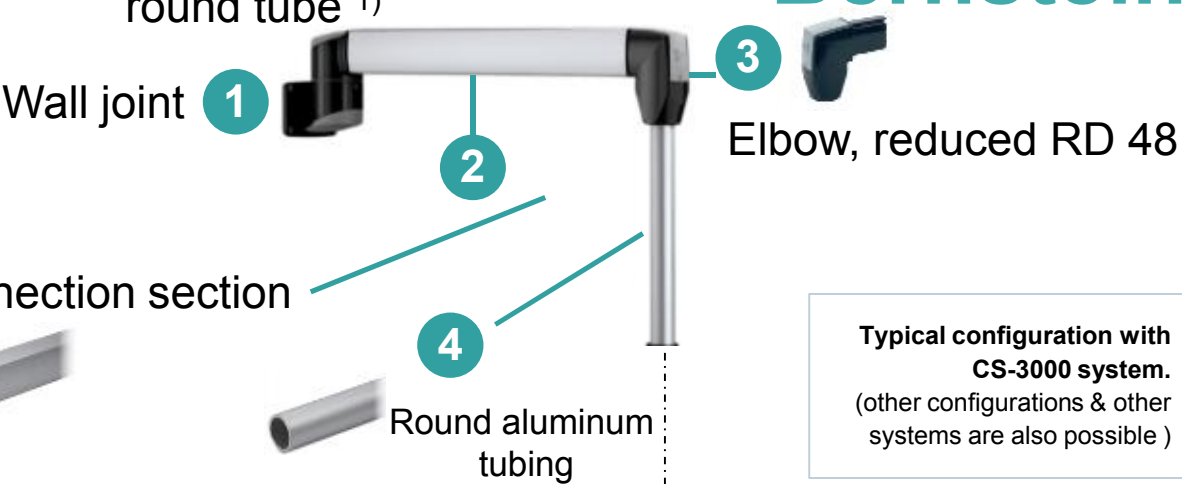


Option A: with Siemens flange mount



5  
Coupling  
with  
integrated  
adaption to  
PRO  
devices )

Option B: with standard  
round tube <sup>1)</sup>



Bernstein

Typical configuration with  
CS-3000 system.  
(other configurations & other  
systems are also possible )



Flange mount  
(Optional available)

PRO Devices

Variant: suitable for support arm  
(expandable, round tube)



SIEMENS

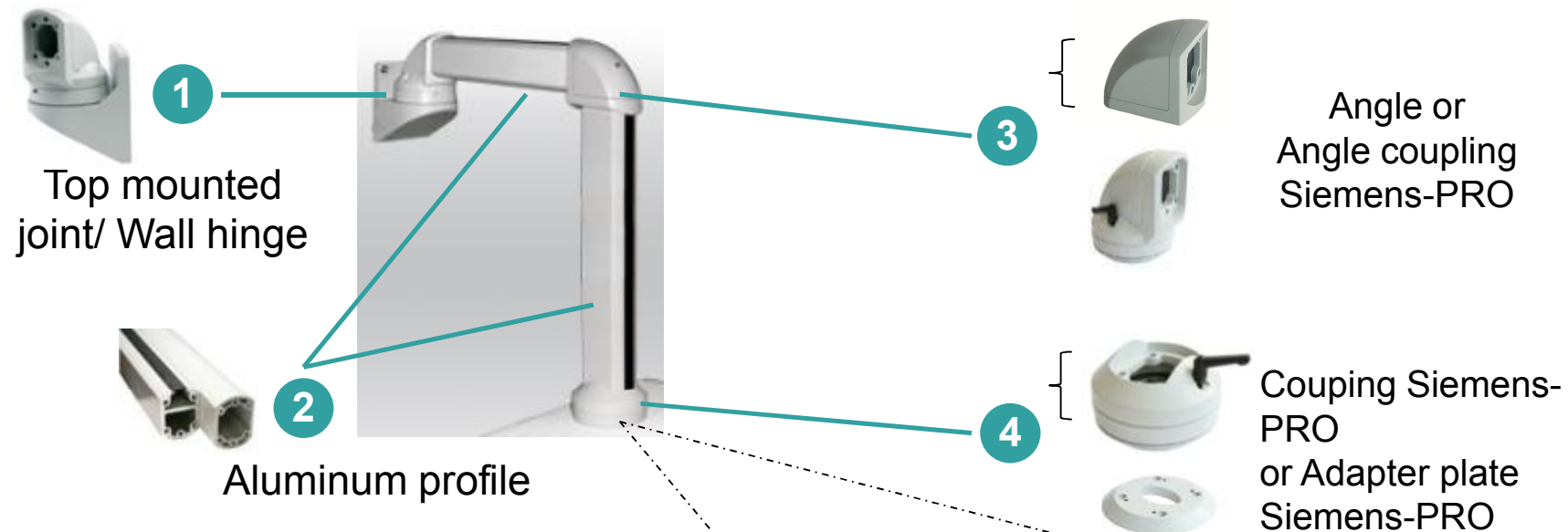
1) Option B does not support rotating/tilting functionality

# Mounting

## Mounting with Rose components (with basic adapter)

**SIEMENS**  
*Ingenuity for life*

**Rose**



**SIEMENS**

The manufacturer also offers adequate pedestal mounting solutions

# Mounting with Rose components

## Round tube mounting

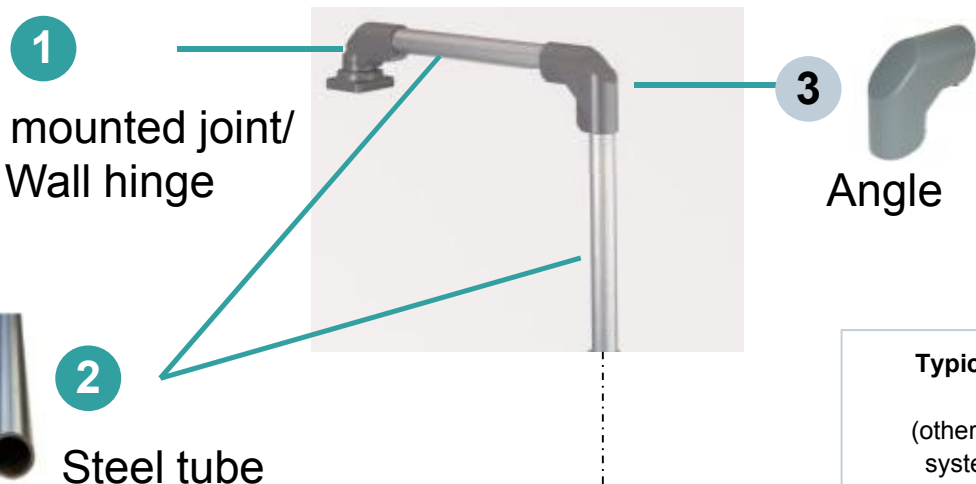
Option A: with Siemens flange mount



Flange mount  
(Optional available)



Option B: with standard round tube <sup>1)</sup>



PRO Devices  
Variant: suitable for support  
arm (expandable, round tube)



Typical configuration with  
GT48/2 System.  
(other configurations & other  
systems are also possible )

1) Option B does not support rotating/tilting functionality