Modular Fire Panel

FPA-5000

BOSCH

en System Infomation

Table of contents

1   System Information

Safety Instructions

Danger!

The fire panel contains live components.

Touching live components can result in electric shock.

Disconnect the power supply to the fire panel before all maintenance or installation work.

Notice!

The fire panel may only be installed and commissioned by trained specialist personnel.

Notice!

Have maintenance and inspection work carried out regularly by trained, qualified personnel. Bosch Sicherheitssysteme GmbH recommends a functional and visual inspection at least once a year.

Notice!

The fire panel is designed for indoor installation.

After installing batteries, the poles must be masked. Appropriate masking strips are included with the housing in which the batteries are installed.

Use fuses complying with national regulations to protect the power lines.

Notice!

Do not dispose of batteries with domestic waste. Use the collection points provided locally.

See http://www.boschsecurity.com/standards for further information.

Notice!

Consider national and local regulations when installling and operating the fire system.

2   Product Description

With its modular design, the FPA-5000 Fire Panel is easily adapted to local circumstances and regulations. Due to the different functional modules, country-specific characteristics are accommodated in the connection just as quickly as the respective alarm protocol.

2.1   FPA-5000 with Functional Modules

The fire panel is available with two different housings:
–   Housing for mounting directly on the wall
–   Frame installation housings, which are fitted to the mounting frame and can be swiveled.
Special installation kits also allow installation in 482.6 mm (19") racks. All housings can be extended with various additional housings.
The fire panel is configured on a laptop using the FSP-5000-RPS programming software.

The MPC Panel Controller is the central component of the system. All messages are shown on the display. The complete system is operated via a touch screen. The user-friendly interface adapts to the relevant situation. This allows correct operation that is both simple and clear and targeted and intuitive. The FSP-5000-RPS programming software enables adaptation to country-specific circumstances.

The panels can be networked with one another and with the remote keypad using the external CAN bus interface. With a loop or bus structure, this networking is adapted to the conditions of use (see *Networking, page 22*).

The FPA-5000 can be connected to the Bosch UGM Universal Security System and thus integrated into large-scale systems.

Connection to a building management system (Bosch Building Integration System BIS) is possible via an Ethernet interface using an OPC server (see *Connection to BIS, page 22*). The FSM-5000-FSI Software Interface Package allows custom connections to "external" management systems.

The FPA-5000 can be connected to a Plena Voice Alarm System (see *Connecting a Voice Alarm System, page 23*). The Praesideo Evacuation system can be connected using an IP based interface module.

The FMR-5000-C Remote Keypad allows decentralized operation of the panel or the panel network.
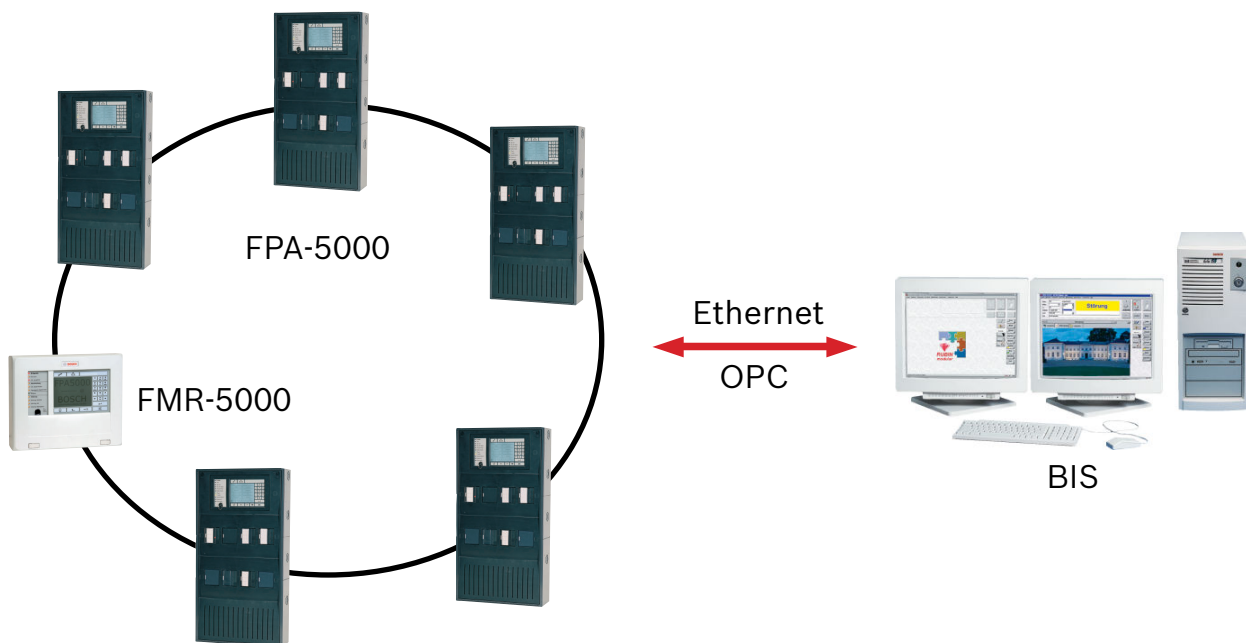
Figure 2.1: FPA-5000 Fire Panel (with FMR-5000-C Remote Keypad) in a network

System Overview

The figure below shows an example configuration:
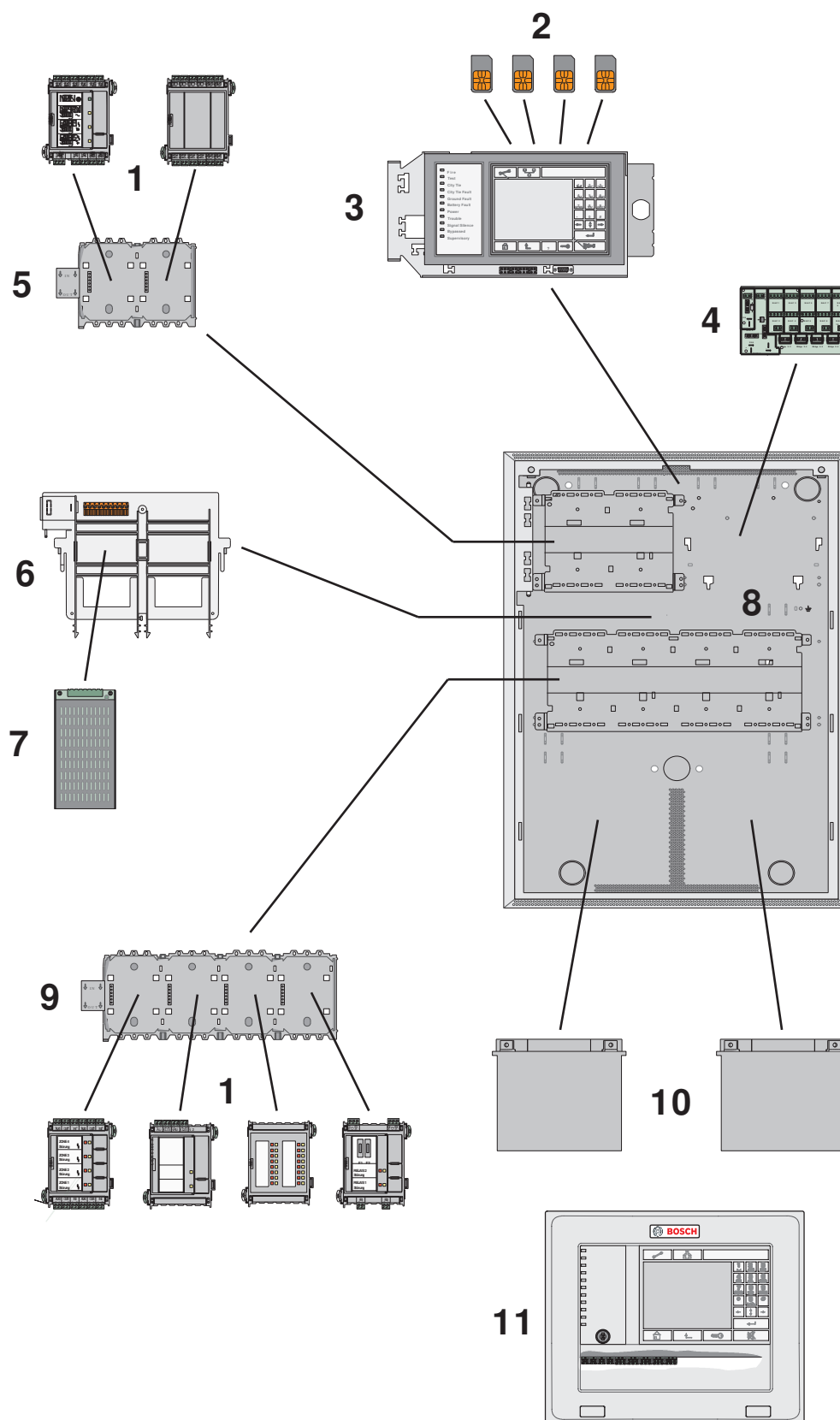
Figure 2.2: Example configuration

Position	Description	Position	Description
1	Functional modules	7	Power supply unit
2	Address cards	8	Housing (in this case: HCP 0006 A)
3	Panel controller	9	Panel rail, long
4	Distributor, optional (RLE)	10	Batteries
5	Panel rail, short	11	Remote keypad
6	Power supply bracket		

Functions

Due to its modular structure, the FPA-5000 Modular Fire Panel provides complete flexibility and thus customized solutions for any application.

The configuration of the components is supported by Planning Software by Bosch for fire alarm systems. The software provides information about the size and number of housings, the modules and the energy balance calculation.

Depending on specific requirements, the planning involves choosing from the following options:

- **Housing type (frame and wall mounting)**
  - Selection of a basic housing
  - Extension housing, optional
  - Power supply housing, optional
  - Installation kits (optional) for installation in 482.6 mm (19") racks
- **Panel controller**
  - Selection from a range of language versions
- **Panel rail**
  - Selection according to housing type and/or number of functional modules required
- **Power supply**
  - Batteries
  - Power supply units for additional power supply
  - Power supply brackets
    The power supply brackets on frame installation housings are preinstalled ex works; for wall-mounted housings, power supply brackets can be selected as required.
- **Thermal printer**
  - THP 2020 A Thermal Printer
    The thermal printer is used to document operating procedures on the panel, as well as alarm and fault messages (see *THP 2020 A Thermal Printer, page 122*). Plain text can also be printed. Programming is carried out via the programming software FSP-5000-RPS.
- **Additional accessories**
  - Front doors
  - Cable sets for special applications (see *Cable Sets, page 119*)
- **Functional modules**
  Functional modules are independent, encapsulated units that can be inserted into any slot on the panel. The power supply and the data traffic with the panel are therefore provided automatically. The module is identified by the panel with no further settings and operates in the default operating mode (plug and play).

Wiring to external components is performed using compact connector/screw terminals. After a replacement, only the connectors need to be reinserted; there is no need for extensive rewiring.

Module	Description	Function
ANI 0016 A	Annunciator Module	Indicating system statuses; with 16 red and 16 yellow freely programmable LEDs
BCM-0000-B	Battery Controller Module	Monitoring the power supply to the panel and the battery charge level
CZM 0004 A	4 Zone Conventional Module	Connecting existing conventional peripherals using four monitored conventional lines
ENO 0000 B	Fire Service Interface Module	Connecting fire service equipment complying with DIN 14675
FPE-5000-UGM	Interface Module	Connection to UGM systems
IOP 0008 A	Input/Output OC Module	Individual displays or flexible connection of various electrical devices, with 8 independent digital inputs and 8 open collector outputs
IOS 0020 A	20 mA Communication Module	With S20, RS232 and S1 interfaces
IOS 0232 A	RS232 Communication Module	Connection of two devices using two independent serial interfaces, e.g. a Plena Voice Alarm System, laptop or printer.
LSN 0300 A	LSN improved Module 300 mA	Connection of an LSN loop with up to 254 LSN improved elements or 127 LSN classic elements at a maximum line current of 300 mA
LSN 1500 A	LSN improved Module 1500 mA	Connection of an LSN loop with up to 254 LSN improved elements at a maximum line current of 1500 mA or 127 LSN classic elements at a maximum line current of 300 mA
NZM 0002 A	Notification Appliance Zone Module	Allows connection of two conventional, monitored notification appliance circuit lines
RMH 0002 A	Relay Module	Monitored connection of external elements with feedback, with two changeover contact relays suitable for switching mains voltage
RML 0008 A	Relay Module	For low voltage switching, with eight changeover contact relays

Further information can be found in *Functional Modules, page 98*.
The technical data can be found in *Housing and Accessories, page 146*.

	Notice!
[i]	Planning Software by Bosch can be used to plan fire alarm systems that conform to the relevant limits (e.g. in terms of cable length and power supply).

	Notice!
[i]	Planning Software by Bosch for fire alarm systems enables the system dimensions, the energy requirements and the quantity and prices of the elements required to be estimated at each different phase in the planning process. The software is designed for planners and engineering offices that want to produce a quotation for a fire alarm system.

2.2 MPC Panel Controller

The panel controller is the central component of the fire detection system. All messages are shown on the display. The entire system is operated via a touch screen. The user-friendly user interface adapts to the various situations. This allows correct operation that is both simple and clear and targeted and intuitive.

The FSP-5000-RPS programming software enables adaptation to country-specific circumstances.
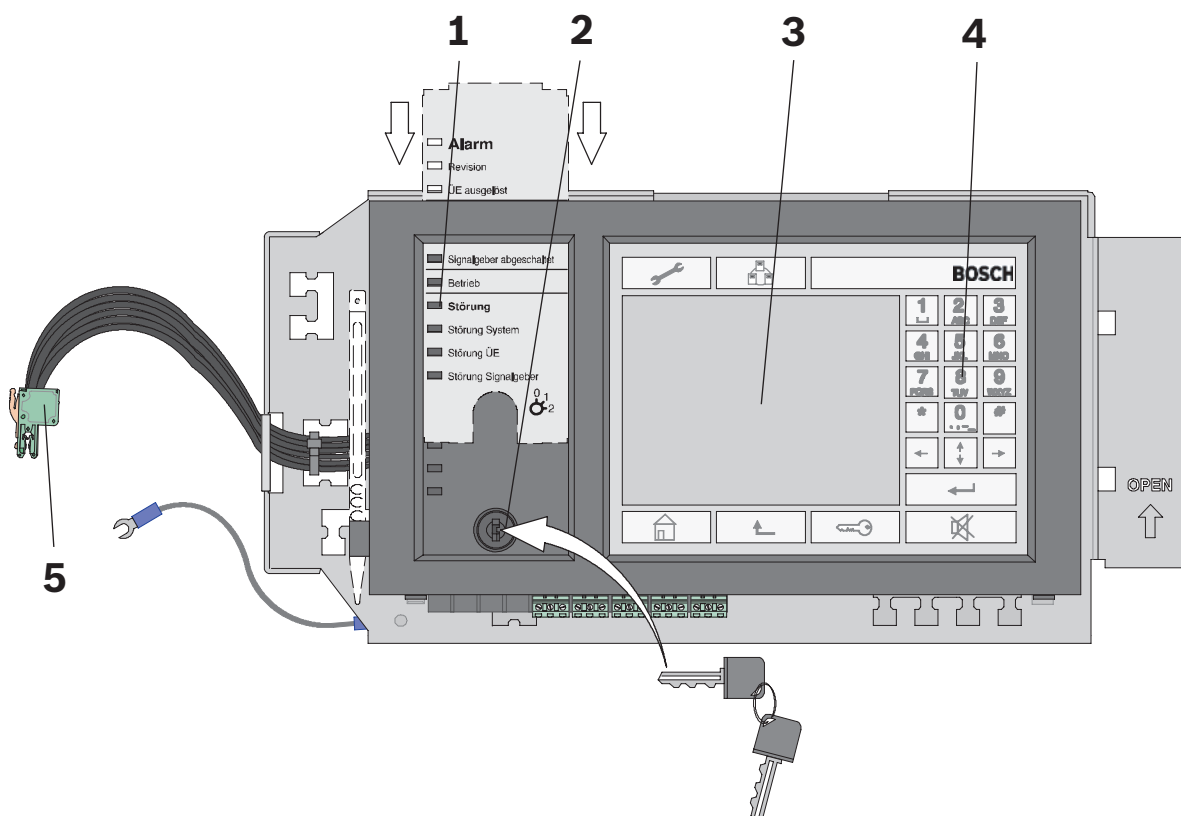
Figure 2.3: Overview of MPC system

Position	Description
1	LEDs for displaying the operating status, with labeling strips
2	Key switch

Position	Description
3	Touch screen
4	Membrane keys
5	CAN bus, internal

Networking

Up to 32 panel controllers, remote keypads and OPC servers can be combined to form a network.

Alarm Indication

The display element is an LCD touch screen with automatically activated backlighting. 11 LEDs provide continuous information about the operating status of the panel or system. Additional LED indicator modules each with 16 detection points can be used to provide visual indication of alarms or faults.

Operation and Processing of Messages

The panel is operated and all messages are processed on the functionally designed operating panel with the integrated LCD touch screen. There are permanent keys on the right, at the bottom, and along the top of the display as well as variable virtual keys located in the touch screen area.

The language for the menu navigation can be selected as required.

Below the status LEDs is a key switch with two programmable positions, e.g.:

– for switching between day/night mode, or
– for switching local alarm on/off (internal/external alarm)

Interfaces

A USB interface is provided to quickly transfer the required configuration to the panel controller. There is also an Ethernet interface for adding the BIS software to the local network, for example.

Saving and Printing Messages

All incoming messages and events are saved internally and can be viewed on the display at any time. A log printer for printing incoming messages can be connected.

Installation

Information on installing the panel controller can be found in *MPC Panel Controller, page 83*.
The technical data can be found in *MPC, page 149*.

2.3 Remote Keypad

The FMR-5000-C Remote Keypad can be used to perform the same operating procedures as the panel itself, enabling a networked system to be operated decentrally.

Power can be supplied by the panel or an external power supply unit such as the FPP-5000. The easy-to-install housing was designed for tilted installation and for surface or flush wall mounting.
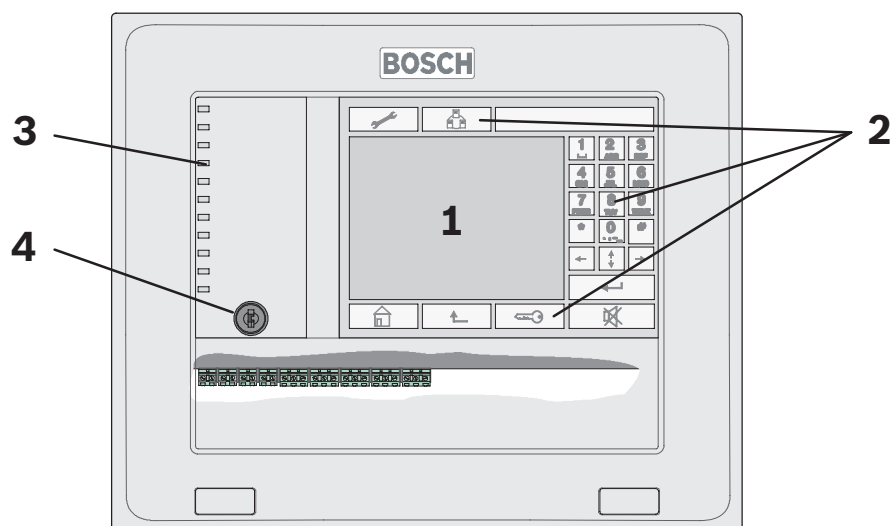
Figure 2.4: FMR-5000-C Remote Keypad

Position	Description
1	Touch screen
2	Membrane keys
3	LEDs for displaying the operating status
4	Key switch

Information on installing the Remote Keypad can be found in *Remote Keypad, page 126*.
The technical data can be found in *Remote Keypad, page 149*.

2.4   Housings for Frame Installation

Figure 2.5: Housings for frame installation

Frame installation housings are always used in conjunction with the associated mounting frame.

The housings are hooked into the mounting frame and can be swiveled to the front for installation and servicing. The mounting frames are screwed to the wall surface and hold the pre-cabling.

Alternatively to surface mounting, installation in 482.6 mm (19") racks is also possible using special installation kits.

12 V/45 Ah batteries can be used in the frame installation housing.

The modular system makes it easy to extend the system.

Housing Designs and Combinations

Two frame installation housings are available as a base unit:
– CPH 0006 A (for 6 modules) or
– MPH 0010 A (for 10 modules)

These housings can accommodate an MPC Panel Controller with an operating and display unit.

The CPH 0006 A and MPH 0010 A basic housings can be extended to meet individual requirements using:
– EPH 0012 A extension housing for an additional 12 modules, frame installation
– PSF 0002 A or PMF 0004 power supply housing for two or four 12 V/45 Ah batteries respectively and an additional power supply unit.
– USF 0000 A Universal Housing Small, Frame Installation.

A power supply bracket for a UPS power supply is fitted ex-works in housing units CPH 0006 A, PSF 0002 A and PMF 0004 A.

Mounting Frames

All mounting frames have integrated terminal blocks for the mains supply, integrated junction boards, as well as permanently installed cable ducts to facilitate clear and tidy cable routing.

The mounting frames are available in three sizes:
– FBH 0000 A Mounting Frame Large
– FMH 0000 A Mounting Frame Medium
– FSH 0000 A Mounting Frame Small

The large mounting frame is also available in a design with a distributor rail complying with EN 60715:
– FHS 0000 A Mounting frame large with distributor rail

The housings for frame installation require the following mounting frames for surface-mounted version:

Housing type	Mounting frames
CPH 0006 A	FBH 0000 A / FHS 0000 A
MPH 0010 A	FBH 0000 A / FHS 0000 A
EPH 0012 A	FBH 0000 A / FHS 0000 A
PSF 0002 A	FSH 0000 A
PMF 0004 A	FMH 0000 A
USF 0000 A	FSH 0000 A

Notes:
– All mounting frames have an opening for routing cables that is sealed with an insert. Pre-punched cable entries can be created from this insert.
– The FBH 0000 A and FHS 0000 A mounting frames are equipped with an earth bar ex works.
– For the FMH 0000 A, the FPO-5000-EB Earth Bar can be ordered as an extension if required.
– For continuous installation in combination, all mounting frames have T-shaped guide rails on the base and T-shaped grooves on the top.

Mounting Plate

An HMP 0003 A Mounting plate can be mounted in large mounting frames FBH 0000 A and FHS 0000 A; this mounting plate can be individually equipped. It contains fixing holes for a distributor rail.

The USF 0000 A is fitted with a mounting plate ex works, which can be equipped as required. It contains fixing holes for two distributor rails.

Equipment Limits

The table below shows the maximum number of:
- Modules
- Panel rails (short PRS-0002-C, long PRD 0004 A)

Housing type	Modules	Short rails	Long rails
CPH 0006 A	6	1	1
MPH 0010 A	10	1	2
EPH 0012 A	12	-	3
PSF 0002 A	-	-	-
PMF 0004 A	-	-	-
USF 0000 A	-	-	-

The table below shows the maximum number of:
- Panel controllers
- UPS power supply units
- Batteries

Housing type	MPC	UPS power supply units	Batteries
CPH 0006 A	1	1	2 x 45 Ah
MPH 0010 A	1	-	-
EPH 0012 A	-	-	-
PSF 0002 A	-	1	2 x 45 Ah
PMF 0004 A	-	1	4 x 45 Ah
USF 0000 A	-	-	-

Installation Kits for 482.6 mm (19") racks

Special installation kits are available for installing the frame installation housing in 482.6 mm (19") racks:

Housing type	Installation kit, 482.6 mm
CPH 0006 A	FRB 0019 A
MPH 0010 A	FRB 0019 A
EPH 0012 A	FRB 0019 A
PSF 0002 A	FRB 0019 A
PMF 0004 A	FRM 0019 A
USF 0000 A	FRS 0019 A

No mounting frame is required when using the 482.6 mm installation kits.

Front Doors

The CPH 0006 A, MPH 0010 A and EPH 0012 A housings can be equipped with optional transparent front doors made of impact-resistant plastic, with a lock on the left or right:
–   FDT 0000 A Front Door Transparent, lock right side
–   FDT 0003 A Front Door Transparent, lock left side

Scope of Delivery

Housing type	Scope of delivery (each x 1)
CPH 0006 A	- Housing, painted sheet steel - Power supply bracket - Sheet steel front panel with plastic cover - Accessories pack with installation material
MPH 0010 A	- Housing, painted sheet steel
EPH 0012 A	- Housing, painted sheet steel
PSF 0002 A	- Housing, painted sheet steel - Power supply bracket - Cable set for battery connection
PMF 0004 A	- Housing, painted sheet steel - Power supply bracket - Cable set for battery connection
USF 0000 A	- Housing, painted sheet steel - Mounting plate

The technical data for the frame installation housings can be found in *Housings for Frame Installation, page 146*.

2.5   Housings for Wall Mounting

Figure 2.6: Housings for wall mounting

Wall mounting housings are screwed directly onto the wall. This reduces the installation depth by approx. 9 cm, although the smaller 12 V/28 Ah batteries must be used as a result.

The modular system makes it easy to extend the system.

Housing Designs and Combinations

Two wall mounting housings are available as a base unit:
–   HCP 0006 A (for 6 modules), and
–   HBC 0010 A (for 10 modules)

These housings can accommodate an MPC Panel Controller with operating and display unit as the central element.

The HCP 0006 A and HBC 0010 A basic housings can be extended to meet individual requirements using:
– HBE 0012 A Modular Extension Housing for an additional 12 modules, and 2 x 12 V/28 Ah batteries
– PSS 0002 A or PSB 0004 A Power Supply housings for additional power supply units and 12 V/28 Ah batteries
– DIB 0000 A Distribution Box
  The DIB 0000 A Distribution Box is equipped with a distributor rail and is used to install terminal strips.

Equipment Limits
The table below shows the maximum number of:
– Modules
– Panel rails (short PRS-0002-C, long PRD 0004 A)

Housing type	Modules	Short rail	Long rail
HCP 0006 A	6	1	1
HBC 0010 A	10	1	2
HBE 0012 A	12	-	3
PSS 0002 A	-	-	-
PSB 0004 A	-	-	-
DIB 0000 A	-	-	-

The table below shows the maximum number of:
– Panel controllers
– UPS power supply units
– Batteries

Housing type	MPC	UPS power supply units	Batteries
HCP 0006 A	1	1	2 x 28 Ah
HBC 0010 A	1	1	2 x 28 Ah
HBE 0012 A	-	1	2 x 28 Ah
PSS 0002 A	-	1	2 x 28 Ah
PSB 0004 A	-	1	4 x 28 Ah
DIB 0000 A	-	-	-

Installation Types
Various types of installation are possible:
– Surface mounted
– Installation in 482.6 mm (19") racks
For surface mounting, the housing is mounted directly on the wall. For installation in 482.6 mm (19") racks, the FRK 0019 A installation kit is used.
The housings have pre-formed cable bushings.

Front Doors
The housings can also be equipped with transparent front doors. The doors are made of impact-resistant plastic and are available in two sizes (each with a lock on the left or right).

Housing type	Front door, lock left side	Front door, lock right side
HCP 0006 A	FDT 0003 A	FDT 0000 A
HBC 0010 A	FDT 0002 A	FDT 0001 A
HBE 0012 A	FDT 0002 A	FDT 0001 A

The technical data for the housings can be found in *Housings for Wall Mounting, page 146*.

2.6 System Overview of FPA-5000 with Peripherals

The following figure shows a typical fire detection system design using an FPA-5000 Fire Panel.

Figure 2.7: System overview of FPA-5000 with peripherals

Position	Description
1	LSN loop (classic or improved version)
2	Conventional stub with EOL resistor or EOL module (optional: conventional loop)

The tables below list the various product groups with all compatible peripheral elements from our current range.

The devices approved for connection to the CZM 0004 A Conventional Module or the FLM-420/4-CON Conventional Interface Module can be found in the relevant compatibility lists:

Module/interface module	Compatibility list
CZM 0004 A	F.01U.164.327
FLM-420/4-CON	F.01U.079.455

The current versions of the compatibility lists are available on the Internet (see *Additional Documentation, page 143*).

Product group	Product name	LSN 0300 A / LSN 1500 A		CZM 0004 A	FLM-420/4-CON	FK 100 LSN
		improved	classic			
Automatic fire detectors	**Point detectors**					
	FAP-420/FAH-420	•	•			
	AVENAR detector 4000	•	•			
	FAP-520	•	•			
	FCP-500			•	•	
	FCP-320/FCH-320			•	•	
	DO1101A-Ex				•[1]	
	RF smoke detectors					
	DOW 1171					•
	Aspirating smoke detector					
	FAS-420-TM	•	•			
	FAS-420-TP/-TT	•	•			
	Linear smoke detectors					
	Fireray 50/100RV			•	•	
	Fireray 2000			•	•	
	FRAY5000-EN			•	•	
	FIRERAY3000			•	•	
	FIRERAY5000			•	•	
	Linear heat detectors					
	FCS-LWM-1			•	•	
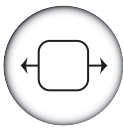
Product group	Product name	LSN 0300 A / LSN 1500 A		CZM 0004 A	FLM-420/4-CON	FK 100 LSN
		improved	classic			
	ADW 511A				•	
	N4387A			•	•	
	Infrared flame detectors					
	DF1192				•	
	DF1101A-Ex				•[1]	
	016519			•	•	
	016589			•	•	
	Duct smoke detectors					
	FAD-420-HS-EN	•	•			
	1) Connection via DCA1192/SB3 only					

Product group	Product name	LSN 0300 A / LSN 1500 A		CZM 0004 A	FLM-420/4-CON	FK 100 LSN
		improved	classic			
Manual call points	FMC-420RW	•	•			
	FMC-210-DM	•	•			
	FMC-210-SM	•	•			
	FMC-300RW			•	•	
	FMC-120-DKM			•	•	
	SMF 121					•
	DKM 2014/2-ex				•[1]	
	DM 1103 B-Ex				•[1]	
	1) Connection via DCA1192/SB3 only					

Product group	Product name	LSN 0300 A / LSN 1500 A		FLM-420-NAC/ NZM 0002 A	FLM-420/4-CON/ CZM 0004 A	RMH 0002 A
		improved	classic			
Notification appliances	**Audible notification appliances**					
	MSS 300-SA/WS-EC			•		
	MSS 300-WS			•	•	
	MSS 400 LSN		•			
	MSS 401 LSN		•			
	FNM-320			•		
	FNM-320V-A-RD/WH / -B-RD			•		

Product group	Product name	LSN 0300 A / LSN 1500 A		FLM-420-NAC/ NZM 0002 A	FLM-420/4-CON/ CZM 0004 A	RMH 0002 A
		improved	classic			
	ROLP-W-LX/ROLP-R-LX			•		
	FNM-420-A/-B/-A-BS	•	•			
	FNM-420U-A	•	•			
	FNM-420V-A	•	•			
	DS 10			•		
	HPW 11					•
	Visual notification appliances					
	FNS-320			•		
	FNS-P400RTH					•
	FNS-420-R	•	•			
	SOL-LX			•		

Product group	Product name	LSN 0300 A / LSN 1500 A	
		improved	classic
Interfaces	FLM-420/4-CON	•	•
	FLM-420-NAC	•	•
	FLM-I 420-S	•	•
	FLM-420-RHV	•	•
	FLM-420-RLV1	•	•
	FLM-420-RLV8-S	•	•
	FLM-420-I8R1-S	•	•
	FLM-420-I2	•	•
	FLM-420-O2	•	•
	FLM-420-O8I2-S	•	•
	FLM-420-O1I1	•	•
	FLM-420-RLE-S	•	•
	FK 100 LSN		•

Product group	Product name	Connection via
Fire service devices	FBF 100 LSN	LSN classic
	FAT 2002 RE	IOS 0020 A + IOP 0008 A (+ ADP-NB[2])

Product group	Product name	Connection via
	FAT 2002	– IOS 0020 A + FLM-420-I2 – IOS 0020 A + FLM-420-I8R1 – IOS 0020 A + FLM-420-O1I1 – IOS 0020 A + FLM-420-O8I2
	FMA-AT 2000-IP FMA-AT 2000-ISDN FMA-AT 2000-GSM	ENO 0000 B
	AT 3000 IP/GSM AT 3000 IP/GSM/Analog AT 3000 IP/GSM/ISDN	ENO 0000 B
	BGÜ 20 BGÜ 40 BGÜ 40/30	ENO 0000 B
	2) Included in the scope of delivery of the FAT 2002 RE	

Key deposits	Connection via:	ENO 0000 B

Door controls	Connection via:	– FAA-MSR 420 – FLM-420-RHV

2.7   Networking

> **Notice!**
> You will find detailed information about the CAN and Ethernet networking of the panels in the Networking Guide available for download at www.boschsecurity.com.

2.8   Connection to BIS

The MPC Panel Controller can be connected to a building management system (BIS) via an Ethernet connection and an OPC server.
The connection must be enabled with an ADC-5000-OPC license key (see *ADC-5000-OPC License Key , page 92*).
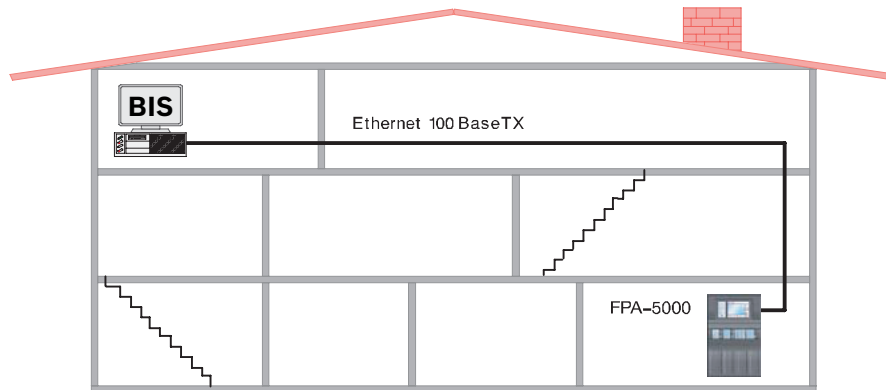
Figure 2.8: Connection to BIS

For a multiple-building network, it is essential to clarify with the network administrator:
– whether the network is designed for multiple-building connections (e.g. there must be no technical interference due to differences in grounding potential)
– whether the bus users are designed for this kind of network (e.g. sufficient bandwidth).

> **Notice!**
> For detailed information about the installation und configuration of the OPC server see the FSM-5000-OPC-Server manual.

2.9 Connecting a Voice Alarm System

The Praesideo or Plena voice alarm system can be connected via a data transmission line to the FPA-5000 system. This enables the FPA-5000 to control voice alarm zones. The control can be defined down to the individual detector level.
– For connection to a Praesideo system the Ethernet interface and IP protocols are used. The Praesideo system can be configured for up to 244 virtual VAS triggers. You will find detailed information in the Networking Guide which is available for download at www.boschsecurity.com.
– For connection to a Plena system the RS232 interface on the IOS 0020 A or IOS 0232 A is used. The Plena system can be configured for up to 120 virtual VAS triggers. You will find detailed information in the Wiring Guide which can be found on the "Bosch Security Systems Extranet".
The virtual VAS triggers are programmed using the FSP-5000-RPS programming software.
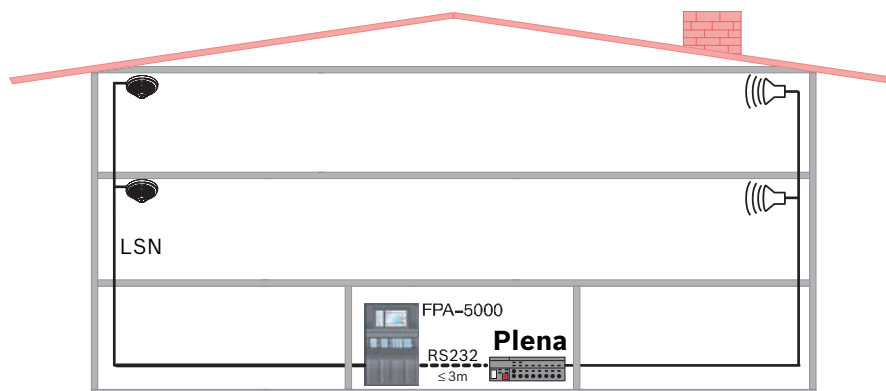
Figure 2.9: Connecting a Plena Voice Alarm System

3   Planning

> **Notice!**
> Planning Software by Bosch can be used to plan fire alarm systems that conform to the relevant limits (e.g. in terms of cable length, power supply and energy requirement).

3.1   General Information

–   Country-specific standards and guidelines must be considered during planning.
–   The regulations issued by regional authorities and institutions (e.g. fire service) must be adhered to.
–   Please note that standards and guidelines may require that a maximum of one function in more than one zone may fail.
    For example, if the auxiliary power fails, only the fire detectors and/or manual call points of one zone may fail.
–   We recommend the use of loops wherever possible, as they offer far greater security than stub lines.
–   Terminating each stub and each T-tap with EOL modules is essential to set up a complete fire alarm system complying with EN 54-13.
–   Conventional detectors approved for the FPA-5000 can be connected using one of the following methods:
    –   Using the CZM 0004 A 4 Zone Conventional Module
        The module provides four DC primary lines (zones).
    –   Using an FLM-420/4-CON GLT interface module on the LSN bus for two zones
–   When selecting the address cards, please note:
    Each element or input that can trigger an alarm after programming requires its own detection point. The inputs are classed as detection points if they are configured accordingly using the FSP-5000-RPS panel software.
    Refer to the information starting on *Detection Points, page 26*.
–   In accordance with EN54-2, no more than 512 detectors and their functions may fail if a system component fails. The corresponding measures are described under *Redundancy, page 39* .
–   12 V/45 Ah batteries can only be used with the frame installation housings.
–   Use fuses complying with national regulations to protect the power lines.
–   Recommended fire detector cable: J--Y (St) Y 2 x 2 x 0.8 mm, red.

LSN Modules
–   It is possible to combine LSN interface modules, LSN detectors and notification appliances on one loop or stub line.
–   For a mixed connection of LSN classic elements and LSN improved elements, a maximum of 127 elements are permitted.
–   The use of unshielded cables is possible.
–   Limits per LSN 0300 module:
    –   Up to 127 LSN classic elements or 254 LSN improved elements can be connected
    –   Current consumption of up to 300 mA
    –   Cable length of up to 1600 m (see also *Achievable Cable Length with LSN 0300 A, page 28*)
–   Limits per LSN 1500 module:
    –   Up to 127 LSN classic elements or 254 LSN improved elements can be connected

- – Up to 1500 mA current consumption if LSN improved elements are connected
- – Up to 300 mA current consumption if LSN classic elements are connected
- – Cable length of up to 3000 m
- – As stipulated by EN 54-2, systems with more than 512 LSN elements must be connected redundantly. This is ensured by using a second basic housing with an additional panel controller. A CRP 0000 A cable set is required for redundant connection.

Technical Data and System Limits

Refer to the system limits in *System Limits, page 144*.

The technical data for all components can be found in *Technical Data, page 144*.

3.2 Structures in Local Security Network

In a Local Security Network (LSN classic), fire detectors can be configured as a loop or as one or two stubs.

In an improved version Local Security Network (LSN improved), the detectors can be configured as a loop, a stub or T-tap or in any mixed loop or T-tap structures. However, it is important to note that mesh structures cannot be created.

The LSN improved version allows T-taps on stubs or loops and any number of nodes, branches per node and elements per branch as long as the maximum number of elements does not exceed 254.

Connections can be positioned anywhere along the LSN line.

---

i	**Notice!**
	Planning should take the anticipated total current and line resistance into account to ensure each detector has an operating voltage of at least 15 V DC.
	As soon as an LSN classic device is in a loop or stub, only loop or stub structures can be used. In this case, T-tapping is no longer possible.

1: Loop	2: 1 or 2 stubs	3: T-tap
4: 1 or 2 stubs and T-taps mixed	5: Loop and stubs mixed with T-taps	

Table 3.1: Possible structures in LSN

When configuring the detectors, it is essential to ensure that no mesh structures are created.

| Mesh structures within a stub structure | Mesh structures within a loop structure |
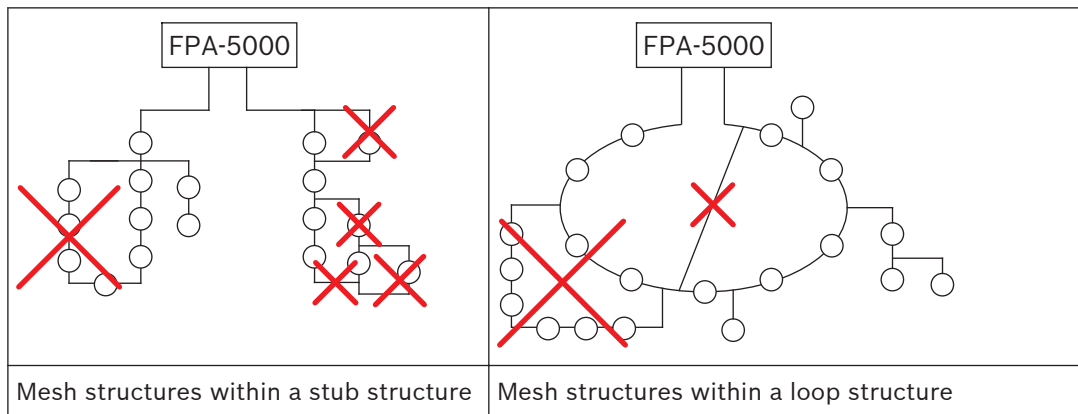
Table 3.2: Unusable network structures

3.3   Detection Points

Each element or input that can trigger an alarm after programming requires its own detection point. Detection points are enabled via address cards. One FPA-5000 manages up to 4096 detection points.

All elements and inputs that do not use the "Input" type in the "Message type" setting are regarded as detection points.

Therefore, all elements and inputs for which one of the following settings is programmed as the "Message type" are regarded as detection points:
–   Fire
–   Internal fire
–   Building control
–   Multi-criterion
–   Smoke
–   Fault
–   Heat
–   Water

Only some of these message types are available for selection depending on the element type. The elements and inputs that can trigger an alarm include all manual and automatic detectors, as well as the modules and interface modules listed below on the basis of the available inputs.

Modules:	CZM 0004 A	Up to 4 detection points (1 detection point per zone)
	IOP 0008 A	Up to 8 detection points (1 detection point per monitored input)

The ENO 0000 B Fire Service Interface Module only requires a detection point when an FSE release element is connected and has been programmed with the FSP-5000-RPS control panel software.

Interface modules:	FLM-420/4CON	Up to 2 detection points
	FLM-420-I8R1	Up to 8 detection points
	FLM-420-I2	Up to 2 detection points
	FLM-420-O8I2	Up to 2 detection points

| | FLM-420-O1I1 | Up to 1 detection point |
| | FLM-420-RLE | Up to 2 detection points |

No detection points need to be taken into account for the following interface modules:
FLM-420-NAC, FLM-420-RHV, FLM-420-RLV1, FLM-420-RLV8, FLM-420-O2.
No notification appliances or any of the outputs occupy detection points.
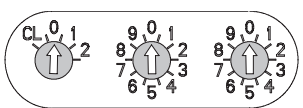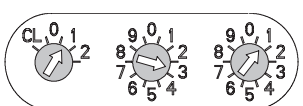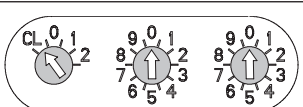
3.4 Addressing

LSN elements are addressed via rotary switches (e.g. FAP 420) or DIP switches (e.g. E/W versions of the FLM-420).

For the detectors, there are three rotary switches on the underside, which can be used to select automatic or manual addressing with or without automatic detection.
The following settings are possible:

Rotary switch setting	Address	Operating mode
	0 0 0	Loop/stub in LSN improved version mode with automatic addressing (T-tapping not possible) = factory default setting
	0 0 1 ... 2 5 4	Loop/stub/T-tapping in LSN improved version mode with manual addressing (address shown in example = 131)
	CL 0 0	Loop/stub in LSN classic mode with automatic addressing (T-tapping not possible, maximum number of elements = 127)

Table 3.3: Addressing via rotary switches

The rotary switches are moved to the required position using a slotted-head screwdriver.

Automatic Addressing
If addresses are automatically allocated by a fire panel with LSN improved version technology, all detectors must have the address "0 0 0" (factory default setting).

Manual Addressing
With manual addressing, the detector address is set using the three rotary switches. The right-hand rotary switch is used to set the units, the central rotary switch is used to set the tens and the left-hand rotary switch is used to set the hundreds.

Notice!
Using addresses greater than 254 is not permitted.
This will prompt the display of an error message on the fire panel.
With manual addressing, all the detectors in a loop, stub or T-tap must have an address between 1 and 254.

From the LSN module software version 1.0.35 onwards, you can operate LSN improved elements and LSN classic elements in combination in a loop or stub. If an LSN classic element is present, only 127 elements can be used in the loop.
Note that structures with T-tapping are only possible if only LSN improved elements are used (see *Structures in Local Security Network, page 25*).
For setting addresses with DIP switches, refer to the instructions in the installation guide supplied with the products.

3.5 Achievable Cable Length with LSN 0300 A

The usable cable length depends essentially on the resistance of the cable and the quantity and current consumption of the network elements. The way in which the elements are distributed locally on the bus also makes a difference.

The possible cable length can be estimated using the formula below. This formula is also used in the Planning Software by Bosch for fire alarm systems and is based on the critical application situation where all network elements are concentrated at the end of the bus line. The calculated cable lengths are therefore on the conservative side. The diagrams on *Using the Diagram for LSN classic, page 28* and *Using the Diagram for LSN classic, page 28* can be used to make a quick estimate.

$$\frac{q \times [U_0 - U_{END} - n_E \times R_{FET} \times \left(\frac{n_E}{2} \times I_{NE} + I_{trans} + I_{flash}\right) + \frac{1}{2} \times R_{FET} \times (I_{trans} + I_{flash})]}{2 \times \rho \times (n_E \times I_{NE} + I_{trans} + I_{flash})}$$

The following applies:

L = cable length to be calculated in [m]

U_0 = bus voltage at the connection terminals = 30 volt

U_{End} = bus end voltage = 15 volt (must not fall below this limit!)

q = cable cross section = 0.503 mm^2 (for cable $\varnothing$ 0.8 mm)

n_E = number of elements

ρ= specific resistance of copper = 0.0178 Ω mm^2/m)

R_{FET}= FET resistance = 0.7 Ω (LSN classic) or 0.35 Ω (LSN improved),

I_{NE} = average current consumption of elements in [A]

I_{trans} = transmission current = 0.012 A

I_{flash} = flash current = 0.018 A

For technical reasons the cable length must not exceed 1600 m. Note that the non-isolated cables for network elements must not exceed a total length of 500 m and must be included in the maximum cable length of 1600 m.

The 500 m limit applies to the following interface modules in the FLM-420 series (with non-isolated inputs).

FLM-420-RHV, FLM-420-I2, FLM-420-I8R2, FLM-420-O8I2, FLM-420-O1I1, FLM-420-RLE.

Using the Diagram for LSN classic

FET resistance = 0.7 Ω, fire alarm cable with $\varnothing$ 0.8 mm

Example 1:

You want to know the maximum cable length for a given number of network elements and a given current consumption (n_E = 50, I_{NE} = 3 mA). On the X axis, go vertically up at 50 until you reach the 3 mA curve. Then, from the point of intersection go horizontally to the left to the Y axis and read off the maximum achievable cable length. In this example it is 840 m.

Example 2:

You want to know the maximum number of network elements for a given cable length and an average current consumption of the network elements (L = 1000 m, I_{NE} = 20 mA). Starting from the Y axis at 1000, go horizontally across to the right as far as the 20 mA curve and then from the point of intersection vertically down to the X axis. Read off the maximum number of network elements, in this example it is 8.

Notice!

Remote alarm indications activated by the detector C point:

A maximum additional cable length of 500 m is allowed when using remote displays (e.g. MPA/FAA-420-RI). The total length of installed cable must not exceed the limit of 1600 m.
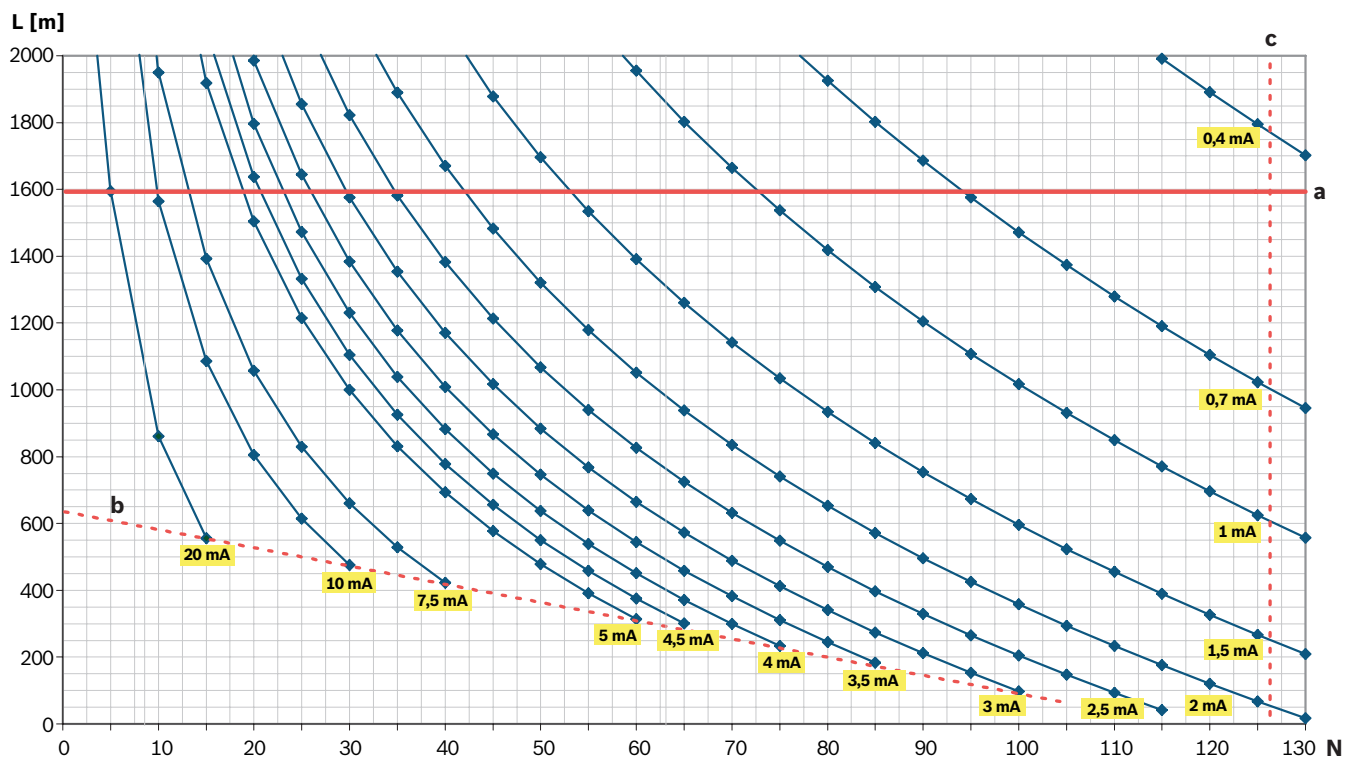
Figure 3.1: Diagram for determining the maximum achievable cable length: LSN classic elements with LSN 0300 A

L = cable length in meters

N = number of LSN classic elements

a = 1600 m limit

b = 300 mA limit

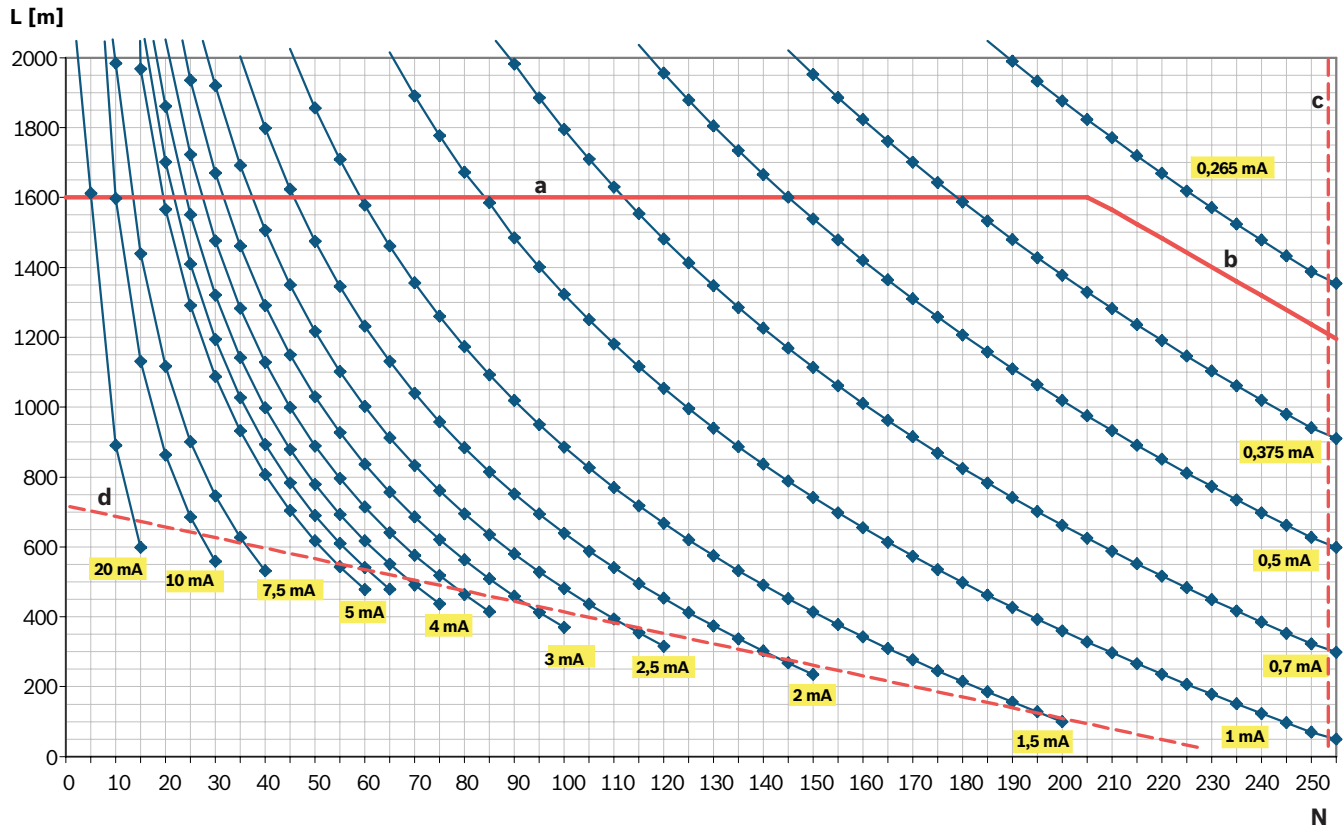c = maximum possible number of LSN classic elements = 127

L [m]

Figure 3.2: Diagram for determining the maximum achievable cable length: LSN improved elements with LSN 0300 A

L =   cable length in meters

N =   number of LSN improved elements

a =   1600 m limit

b =   bus dynamic limit

c =   maximum possible number of LSN improved elements = 254

d =   300 mA limit

3.6   Achievable Cable Length with LSN 1500 A

The usable cable length depends essentially on the resistance of the cable and the quantity and current consumption of the network elements.

The way in which the elements are distributed locally on the bus also makes a difference. The possible cable length can be estimated using the formula below. This formula is also used in the Planning Software by Bosch for fire alarm systems and is based on the critical application situation where all network elements are concentrated at the end of the bus line. The calculated cable lengths are therefore on the conservative side.

The diagrams on pages *Using the Diagram for LSN improved, page 31* and *Using the Diagram for LSN improved, page 31* can be used to make a quick estimate.

$$\frac{q \times [U_0 - U_{END} - n_E \times R_{FET} \times (^{n_E}/_2 \times I_{NE} + I_{trans} + I_{flash}) + ^1/_2 \times R_{FET} \times (I_{trans} + I_{flash})]}{2 \times \rho \times (n_E \times I_{NE} + I_{trans} + I_{flash})}$$

The following applies:

L = cable length to be calculated in [m]

U_0 = bus voltage at the connection terminals = 30 volt

U_{End} = bus end voltage = 15 volt (must not fall below this limit!)

q = cable cross section = 0.503 mm^2 (for cable $\varnothing$ 0.8 mm)

n_E = number of elements

ρ= specific resistance of copper = 0.0178 mm^2/m)

R_{FET}= FET resistance = 0.7 Ω (LSN classic) or 0.35 Ω (LSN improved),

I_{NE} = average current consumption of elements in [A]

I_{trans} = transmission current = 0.012 A

I_{flash} = flash current = 0.018 A

For technical reasons the cable length must not exceed 3000 m. Note that the non-isolated cables for network elements must not exceed a total length of 500 m and must be included in the maximum cable length of 3000 m.

The 500 m limit applies to the following interface modules in the FLM-420 series (with non-isolated inputs).

FLM-420-RHV, FLM-420-I2, FLM-420-I8R2, FLM-420-O8I2, FLM-420-O1I1, FLM-420-RLE.

Using the Diagram for LSN improved

FET resistance = 0.35 Ω, fire alarm cable with $\varnothing$ 0.8 mm

Example 1:

You want to know the maximum cable length for a given number of network elements and a given current consumption (n_E = 120, IN_E = 0.5 mA). On the X axis, go vertically up at 120 until you reach the 0.5 mA curve. Then, from the point of intersection go horizontally to the left to the Y axis and read off the maximum achievable cable length. In this example it is 1950 m.

Example 2:

You want to know the maximum number of network elements for a given cable length (L = 1000 m, I_{NE} = 2 mA). Starting from the Y axis at 1000, go horizontally across to the right as far as the 2 mA curve and then from the point of intersection vertically down to the X axis. Read off the maximum number of network elements, in this example it is 73.

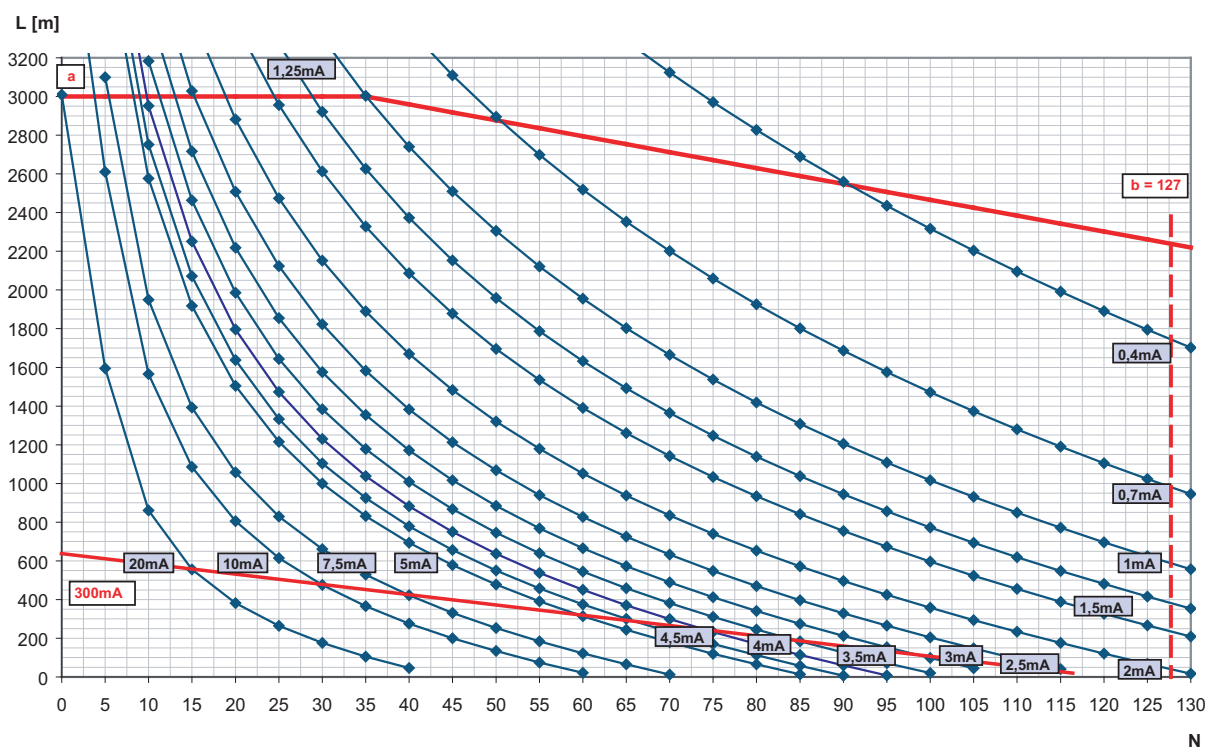**Notice!**

Remote alarm indications activated by the detector C point:

A maximum additional cable length of 500 m is allowed when using remote displays (e.g. MPA/FAA-420-RI).

The total length of installed cable must not exceed the limit of 3000 m.

Figure 3.3: Diagram for determining the maximum achievable cable length: LSN classic elements with LSN 1500 A

L =   cable length in meters

N =   number of LSN classic elements

a =   3000 m limit

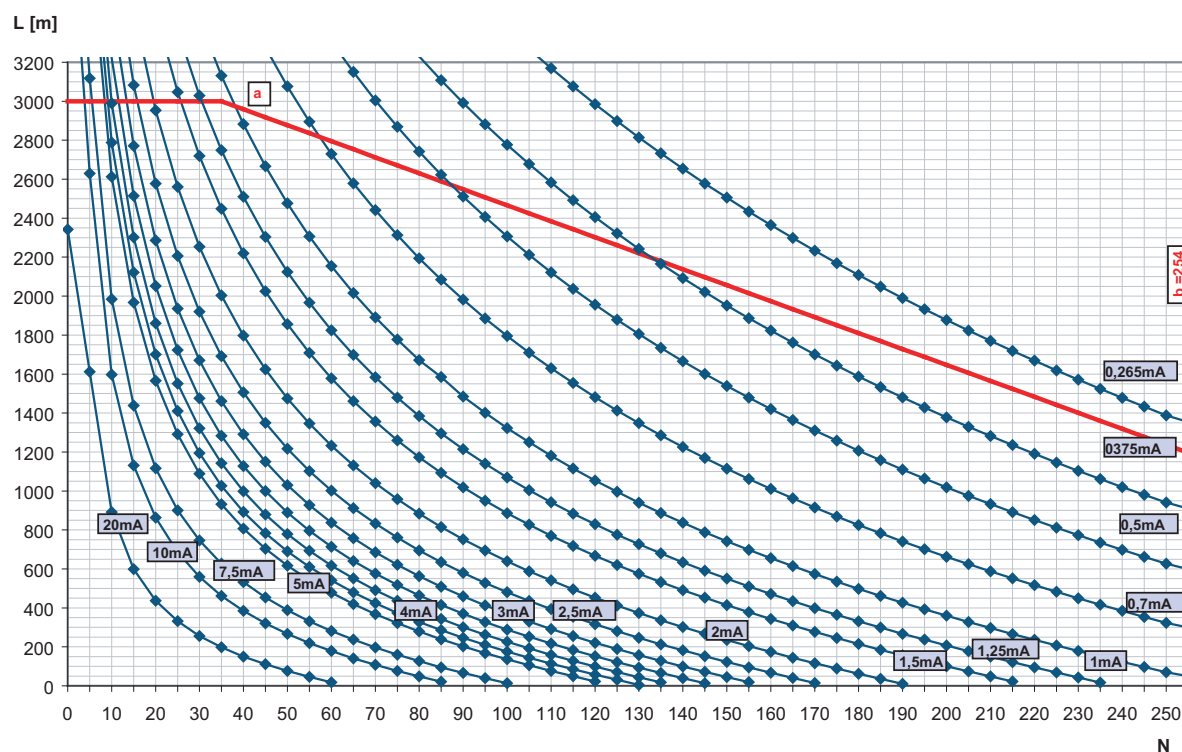b =   maximum possible number of LSN classic elements = 127

Figure 3.4: Diagram for determining the maximum achievable cable length: LSN improved elements with LSN 1500 A

L =   cable length in meters

N =   number of LSN improved elements

a =   Bus dynamic limit

b =   maximum possible number of LSN improved elements = 254

3.7 Examples of Housing Equipment

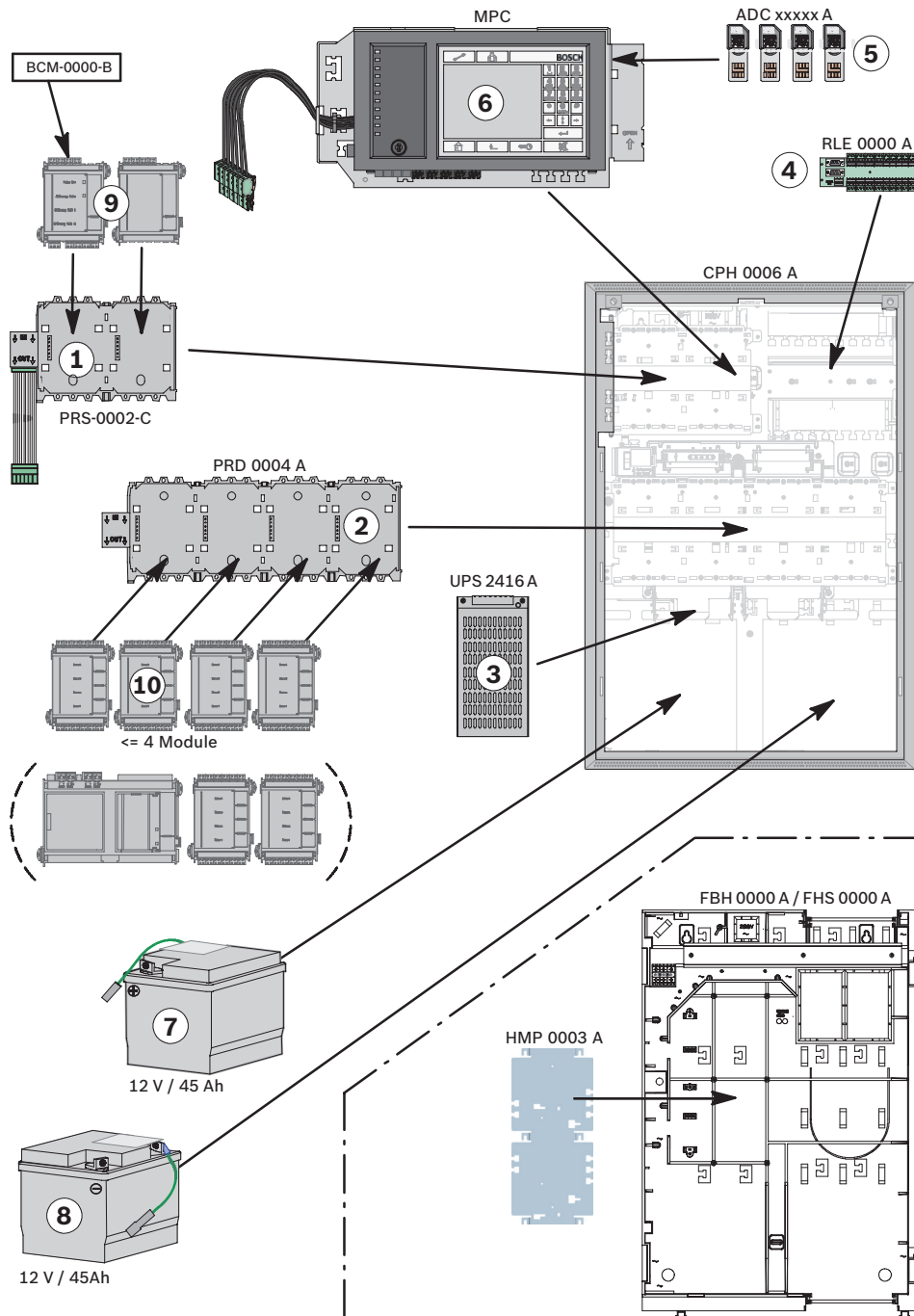### CPH 0006 A, Fully Configured Panel, with Installation Sequence

Figure 3.5: Example of configuration with CPH 0006 A frame installation housing for 6 modules

HCP 0006 A, Fully Configured Panel, with Installation Sequence
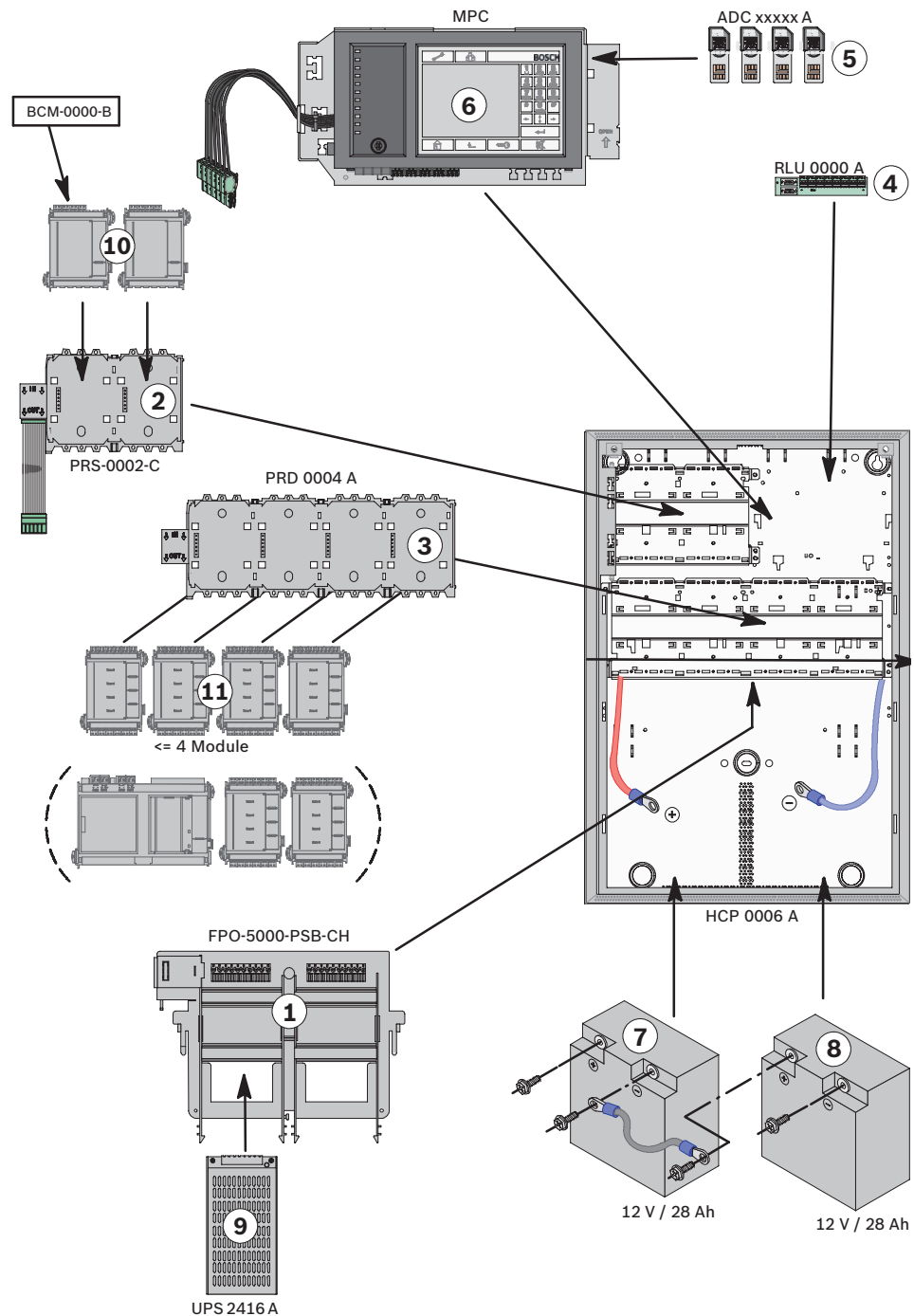
Figure 3.6: Example of configuration with HCP 0006 A Modular Panel Housing for 6 Modules

3.8   Configuration of BCM Battery Controller Module

The panel can be powered by up to 8 BCM-0000-B Battery Controller Modules, each with its own UPS 2416 A Universal Power Supply. Current consumption is equally distributed among all battery controller modules.

Notes

–   The 24 V switch outputs may not be connected in parallel.
–   The total current for all connected components including the battery charge current may not exceed 6 A.

–   The batteries connected to the BCM must all be of the same type and have identical
       electrical properties.
–   The cable length at the switch outputs for faults may not exceed 3 meters.
–   The cables for the switch outputs for faults may only be routed inside the housing.
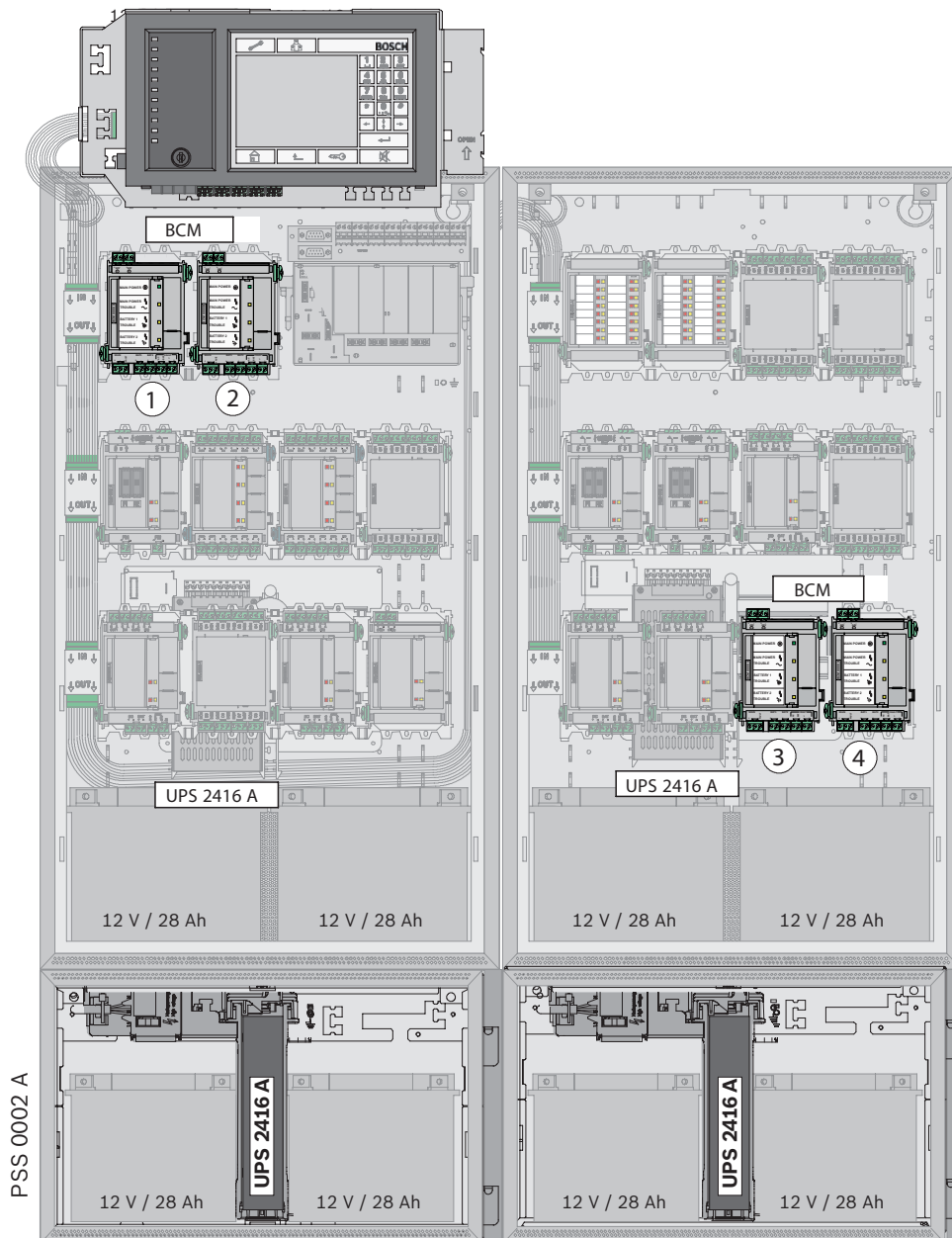Information on installation of the BCM module can be found in *BCM-0000-B Battery Controller
Module, page 100*.

Configuration with One to Four BCM Modules in Wall Mounting Housings
–   Up to 2 BCM-0000-B modules on short panel rail
–   Maximum 2 BCM-0000-B modules at the end of the long panel rail
–   Each BCM-0000-B module requires one UPS 2416 A Universal Power Supply.

Figure 3.7: Configuration of 1 to 4 BCM modules (wall mounting)

Configuration with One to Four BCM Modules in Frame Installation Housings
–   Up to 2 BCM-0000-B modules on short panel rail
–   Maximum 2 BCM-0000-B modules at the end of the last long panel rail

– Each BCM-0000-B module requires one UPS 2416 A Universal Power Supply.
Depending on the back-up time, a PMF 0004 A housing may be required instead of the PSF
0002 A housing for the power supply.
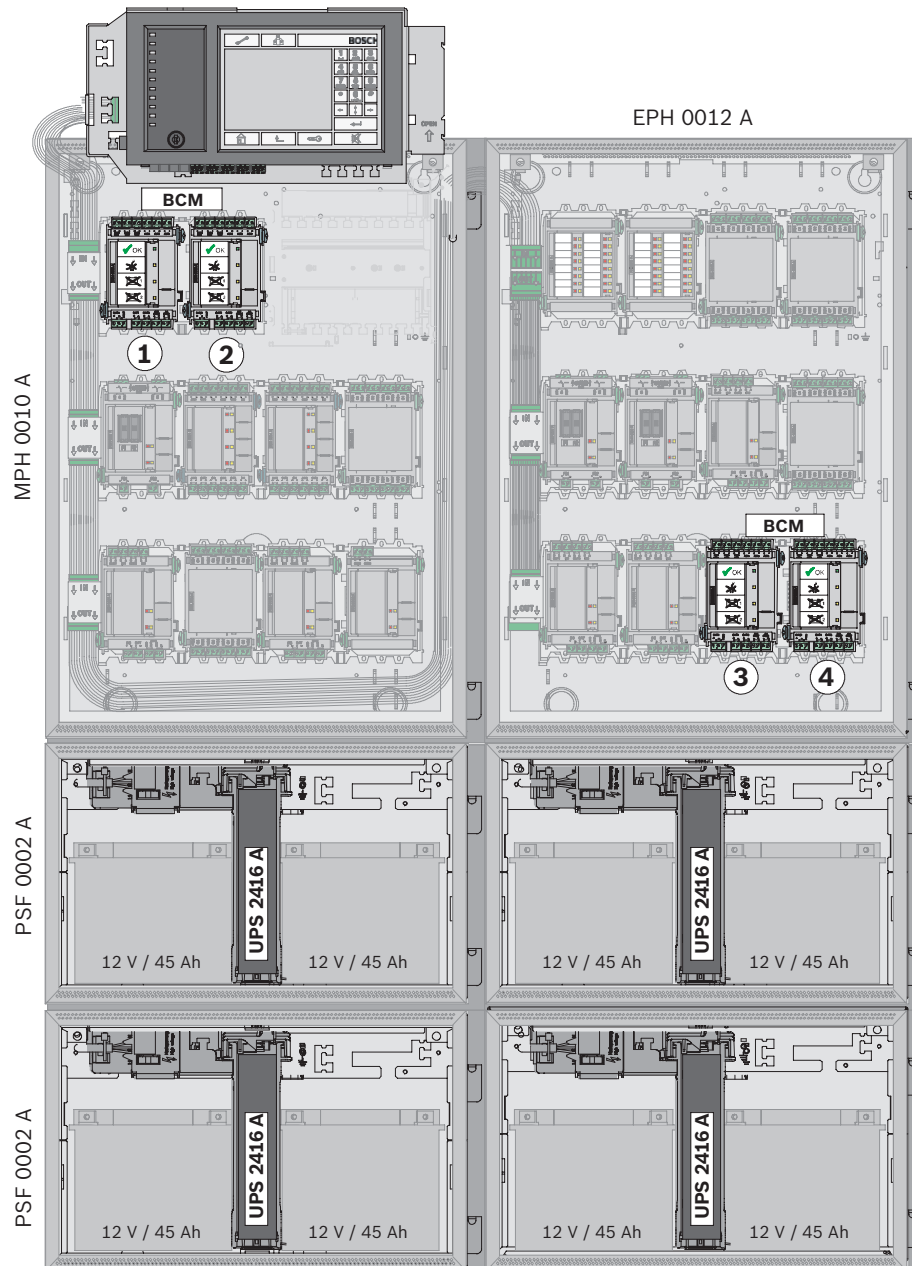
Figure 3.8: Configuration of 1 to 4 BCM modules (frame installation)

Configuration with 5 to 8 BCM Modules in Wall Mounting Housings

– 2 BCM-0000-B modules on short panel rail
– 2 BCM-0000-B modules at the end of the long panel rail
– The remaining BCM-0000-B modules on a panel rail in the center of the system.
– Each BCM-0000-B module requires one UPS 2416 A Universal Power Supply.
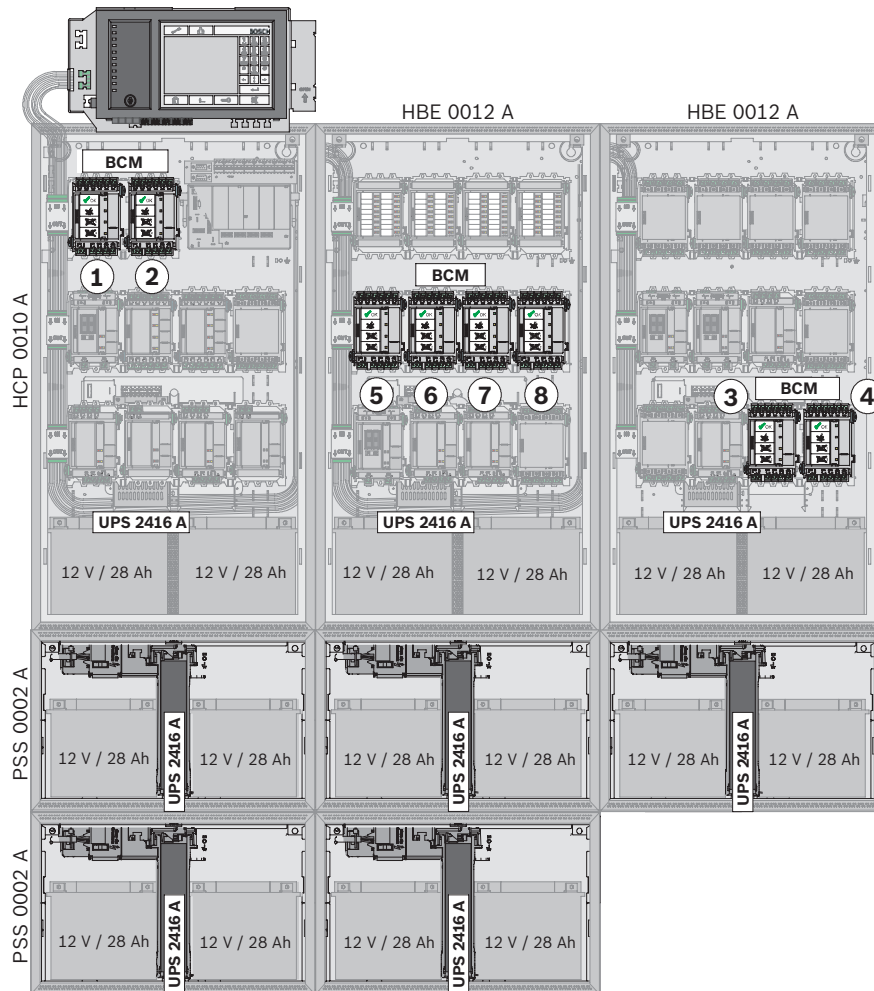
Figure 3.9: Configuration of 5 to 8 BCM modules (wall mounting)

Limits:

The current load on a panel rail may not exceed the maximum value of 12 A.

The current load via a panel rail plug may not exceed the maximum value of 10 A.

Figure 3.10: Area 1

Figure 3.11: Area 2

Standby Current Calculation to EN 54-4

$$(1)\ I_{max,\,Standby} = \frac{C_{Batt} - I_{Alarm} \times 0{,}5h}{t_{Standby}} \qquad (2)\ I_{max,\,A} = 6A - \frac{C_{Batt}}{18h}$$
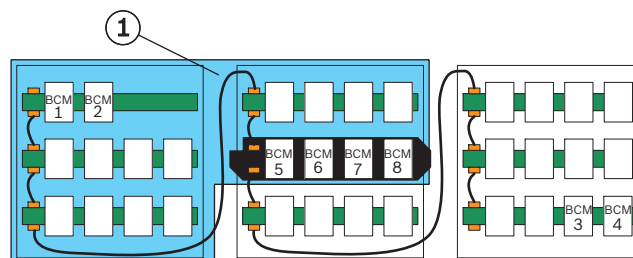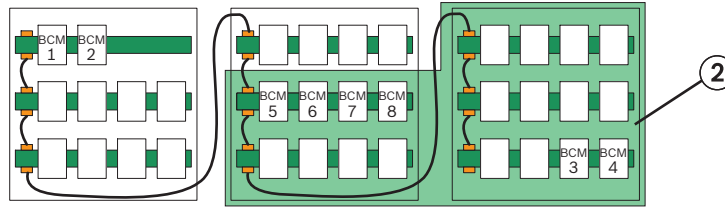
$$(3)\quad \mathbf{I_{nom}} = \mathbf{min\left[I_{max,\,Standby},\ I_{max,\,A}\right]}$$

Formula (1) describes the maximum system current to guarantee a particular back-up time (Imax,Standby).

Formula (2) describes the maximum system current taking into account simultaneous battery charging (Imax.A).

The system standby current (Inom) to be selected is calculated from the lower of the two maximum system current values, as shown in the formula (3).

Parameters:

– $t_{Standby}$ = back-up time in hours

– I_{Alarm} = maximum alarm current (Imax,B)

– C_{Batt} = battery capacity in Ah

Possible capacities (CBatt):

– 24 - 26 Ah or 36 - 45 Ah with 2 batteries

– 48 - 52 Ah or 72 - 90 Ah with 4 batteries

3.9   Redundancy

Standards and guidelines (e.g. DIN VDE 0833-2, EN 54-2) require different, country-specific redundancy conditions for specific applications:

– In the event of a system fault in the panel or the system, no more than 512 detectors may fail (EN 54-2). In such cases, redundant system components must be used:

  – Redundant panel controller

  – Redundant connection to a higher-level UGM unit via a redundant FPE-5000-UGM Interface Module

  – The redundant connection of the transmission device (TD or AT 2000) in line with the connections as described in the FPA-5000/FPA-1200 wiring guide (document number F.01U.009.201)

– Activation of extinguishing systems in accordance with VdS 2496: If a signal processing unit fails, no more than one extinguishing area may fail. In such cases, redundant system components must be used:

  – Redundant panel controller

  – Redundant LSN 0300 module when using more than one FLM-420-RLE in an LSN loop

Redundant panel controller

For a redundant connection, a second basic housing with an additional panel controller and a CRP 0000 A Cable Set is required, where applicable. The figure below shows a configuration with a redundant panel controller. The slots **(2)** behind a redundant panel controller **(1)** must not be occupied with modules.

CPH 0006 A   EPH 0012 A   CPH 0006 A

CPH 0006 A   EPH 0012 A   CPH 0006 A

Figure 3.12: Redundant configuration

Pos.	Designation	Description
1	MPC	Redundant panel controller
2	PRS-0002-C	Short panel rail (may not be occupied with modules)

Pos.	Designation	Description
3	CRP 0000 A	Redundant MPC cable set
4	CPH 0006 A or MPH 0010 A	Redundant panel housing, additionally installed PRD 0004 A Panel Rail Long (1 x in the CPH 0006 A or 2 x in the MPH 0010 A) may be fitted with modules.

For installation reasons, only 42 modules can be programmed when configuring a redundant panel. Without redundancy, 46 modules per panel are possible if one housing is set up with the panel controller and 10 modules and three housings each with 12 modules.

Notice!

In line with EN 54-2, a redundant panel controller must be used if there are more than 512 detectors connected.

---

4 Installation

4.1 General Information

Danger!

Some devices contain live components.

Touching live components entails a risk of death or serious injury.

Disconnect the power supply before all installation work.

Warning!

Electrostatic discharge.

The standard precautions for CMOS technology must be taken when handling PC boards.

- The fire panel may only be installed and commissioned by trained specialist personnel.
- Only use installation materials recommended by BOSCH Security Systems. Otherwise, interference resistance cannot be guaranteed.
- Connection conditions set down by the regional authorities and institutions (police, fire service) must be observed.

Environmental Conditions
- Fire panels can only be installed in dry, clean interior rooms.
- The following environmental conditions must be noted:
  - Permissible ambient temperature: - 5° C to + 50 °C
  - Permissible relative humidity: max. 95 %, non-condensing
- To ensure optimum battery service life, the panel should only be operated at sites with normal room temperatures.
- Do not operate devices showing condensation.

Positioning
- Operating and display elements should be positioned at eye level.
  The distance between the upper edge of the housing and the center of the panel controller display is around 11 cm. For example, if the eye level required is 164 cm, the housing upper edge installation dimension is 175 cm.

–   For frame installation housings, a clearance of at least 230 mm is required to the right of the last housing to swivel out the installed housing (e.g. for connection, maintenance or service).
–   Sufficient space should be left below and next to the panel for any possible extensions, e.g. for an additional power supply or an extension housing.
–   The installation dimensions can be found in *Installation Dimensions for Wall Mounting Housing, page 46* to *Installation Kits for 482.6 mm (19") Racks, page 58*.

Functional Modules
–   Functional modules are encapsulated; the connection terminals are protected against static discharge.

Building Management System
–   If connected to a building management system (Bosch Building Integration System BIS) via an Ethernet interface using an OPC server, the following must be noted:
In a multi-building network, it is essential to clarify with the network administrator whether the network is designed for multi-building connections (e.g. no interference due to differences in grounding potential).

Documentation
–   All product documentation including the operating instructions can be found on the CD that is supplied with the FPA-5000.
The current and full product documentation can also be found on the Internet at www.boschsecurity.com.
–   For those with access rights, the current wiring guide can be found on the "Bosch Security Systems Extranet" at http://www.boschbest.de. This contains information about the wiring of the functional modules and the peripherals.
–   A printed operating instructions in the relevant national language is supplied with the panel controller. Store the documents in a safe place.

4.2   Quick Installation Guide

1. Keep to hand:
–   The installation instructions supplied with the relevant components (housing, frame, cables etc.) (see *Installation of Housing Components, page 43*).
–   The required tools.
An overview of the required tools can be found in the installation instructions.

2. Preparation
–   Lay the pre-cabling.
–   Optional: network cabling.

3a. Installation of wall mounting housing
Install:
–   Housing
–   Optional: accessories for housing
–   Power supply bracket
–   Power supply unit and batteries
–   Panel rail
–   Panel controller
–   Functional modules

3b. Installation of frame installation housing
Install:
–   Mounting frames
–   Housing

- Optional: accessories for housing
- Power supply unit and batteries
- Panel rail
- Panel controller
- Functional modules

4. After installation

Store all documents.

4.3   Installation of Housing Components

Installation Instructions for Wall Mounting Housing and Mounting Frame

All listed mounting frames, wall mounting housings, and extension housings are supplied with the following installation materials:

- 3 6 x 50 mm screws
- 3 Ø 8 mm dowels
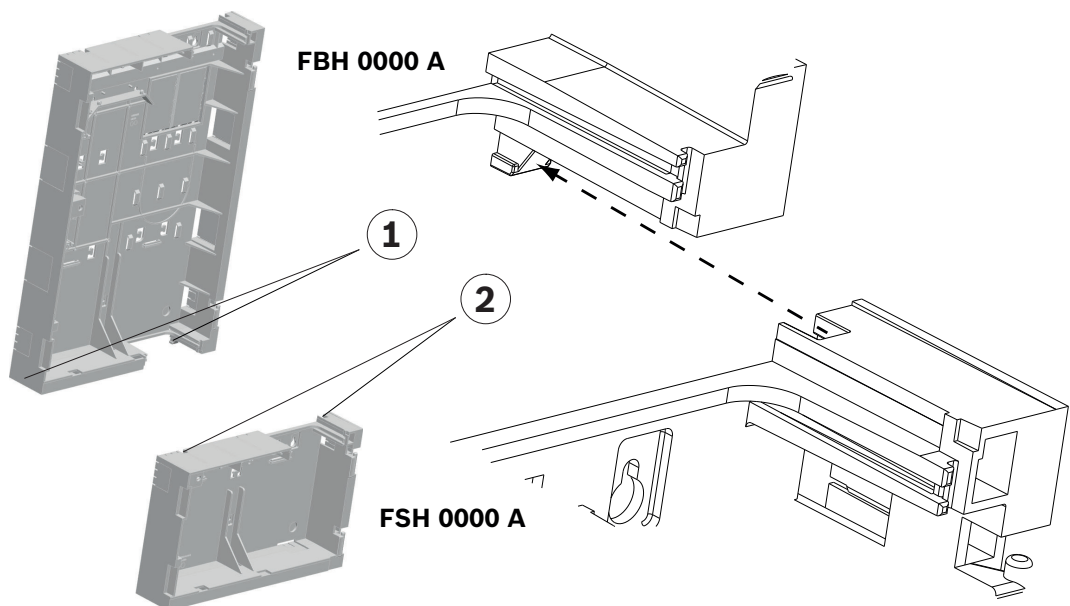
To install, proceed as follows:

1. Mark the 3 required holes on the wall as shown in the installation drawing.
2. At the marked points, drill holes approx. 55 mm deep with an 8-mm drill. Insert a dowel in each hole.
3. Screw the upper fixing screws to a distance of 5 mm from the wall and fit the housing or mounting frame.
4. Now fit the third fixing screw. This 'safety' screw prevents the housing from being pushed up and off the top screws.
5. Then check the installation position and securely tighten all screws.

Installing Several Housings

It is possible to install several housings for frame mounting directly beneath each other by connecting the frames to each other. The following instructions explain such an installation using the example of the FBH 0000 A and FSH 0000 A mounting frames.

First, install the FBH 0000 A mounting frame as explained above (steps 1–5).

1. Push the grooves of the FSH 0000 A **Mounting Frame (2)** onto the guide rails of the FBH 0000 A **Mounting Frame (1)**.

2. Mark the 3 required holes on the wall as shown in the installation drawing for the FSH 0000 A Mounting Frame (see *FSH 0000 A Mounting Frame Small, page 57*).

3.   Remove the FSH 0000 A Mounting Frame.
4.   At the marked points, drill holes approx. 55 mm deep with an 8-mm drill. Insert a dowel in each hole.
5.   Refit the FSH 0000 A Mounting Frame, as described in step 1.
6.   Screw the FSH 0000 A Mounting Frame tight.

4.3.1   Installation Instructions for Housing

All housings and housing components are supplied with installation instructions ex works.

You can also find the installation instructions at www.boschsecurity.com by searching for the type designation of the product you want to install. The document numbers of the installation instructions can be found in the footer on every page of the document.

The tables below show the instructions available.

Frame Mounting

Panel housings for frame installation		Document number
CPH 0006 A	Frame installation housing for 6 modules	4.998.154.002
MPH 0010 A	Frame installation housing for 10 modules	4.998.154.003

Extension housings		
EPH 0012 A	Frame installation extension housing for 12 modules	4.998.154.005
PMF 0004 A	Frame installation power supply housing	F.01U.003.083
PSF 0002 A	Frame installation power supply housing	F.01U.003.082
USF 0000 A	Universal frame installation extension housing	F.01U.003.106

Mounting frames		
FBH 0000 A	Mounting frame, large	4.998.153.998
FHS 0000 A	Mounting frame, large with distributor rail	4.998.154.018
FMH 0000 A	Mounting frame, medium	4.998.153.999
FSH 0000 A	Mounting frame, small	4.998.154.000

Installation kits		
FRB 0019 A	Installation kit for frame installation housing CPH 0006 A, MPH 0010 A and EPH 0012 A	4.998.154.015
FRM 0019 A	Installation kit for PMF 0004 A power supply housing	4.998.154.017
FRS 0019 A	Installation kit for frame installation housing PSF 0002 A and USF 0000 A	F.01U.003.352

Wall Mounting

Panel housings for wall mounting		Document number
HCP 0006 A	Modular panel housing for 6 modules	4.998.153.981
HBC 0010 A	Modular panel housing for 10 modules	4.998.153.995

Extension housings		
HBE 0012 A	Wall mounting extension housing for 12 modules	4.998.153.996
PSB 0004 A	Wall mounting power supply housing	4.998.154.010
PSS 0002 A	Wall mounting power supply housing	4.998.154.009
DIB 0000 A	Distribution box	F.01U.003.105

Installation kit		
FRK 0019 A	Universal installation kit for all wall mounting housings	F.01U.005.045

Front Doors

Type designation	Description	Document number
FDT 0000 A	Front door, transparent, lock right side	F.01U.003.101
FDT 0001 A	Front door, transparent, large, lock right side	F.01U.003.100
FDT 0002 A	Front door, transparent, large, lock left side	F.01U.003.104
FDT 0003 A	Front door, transparent, lock left side	F.01U.003.102

4.3.2   Installation Dimensions for Wall Mounting Housing

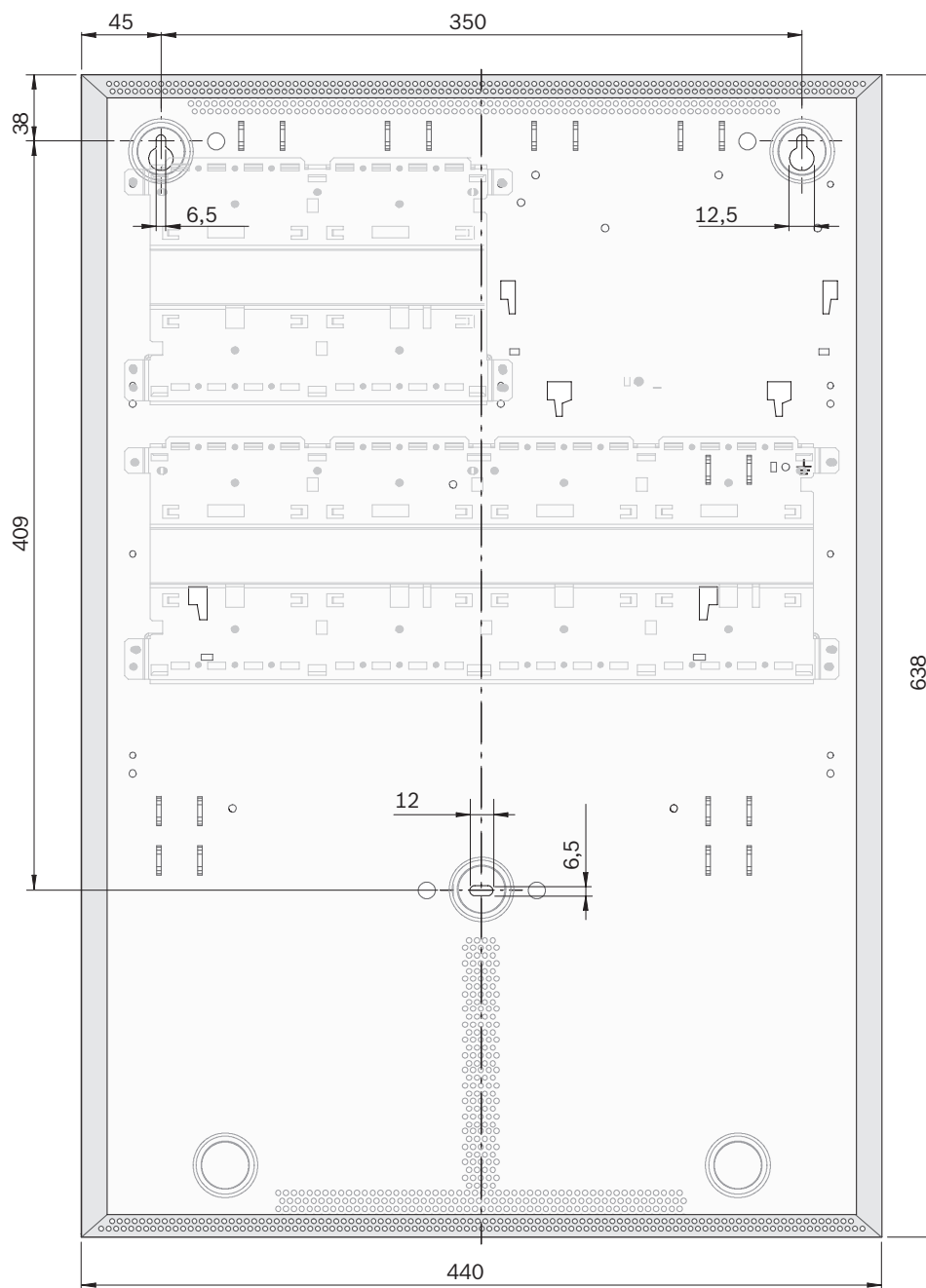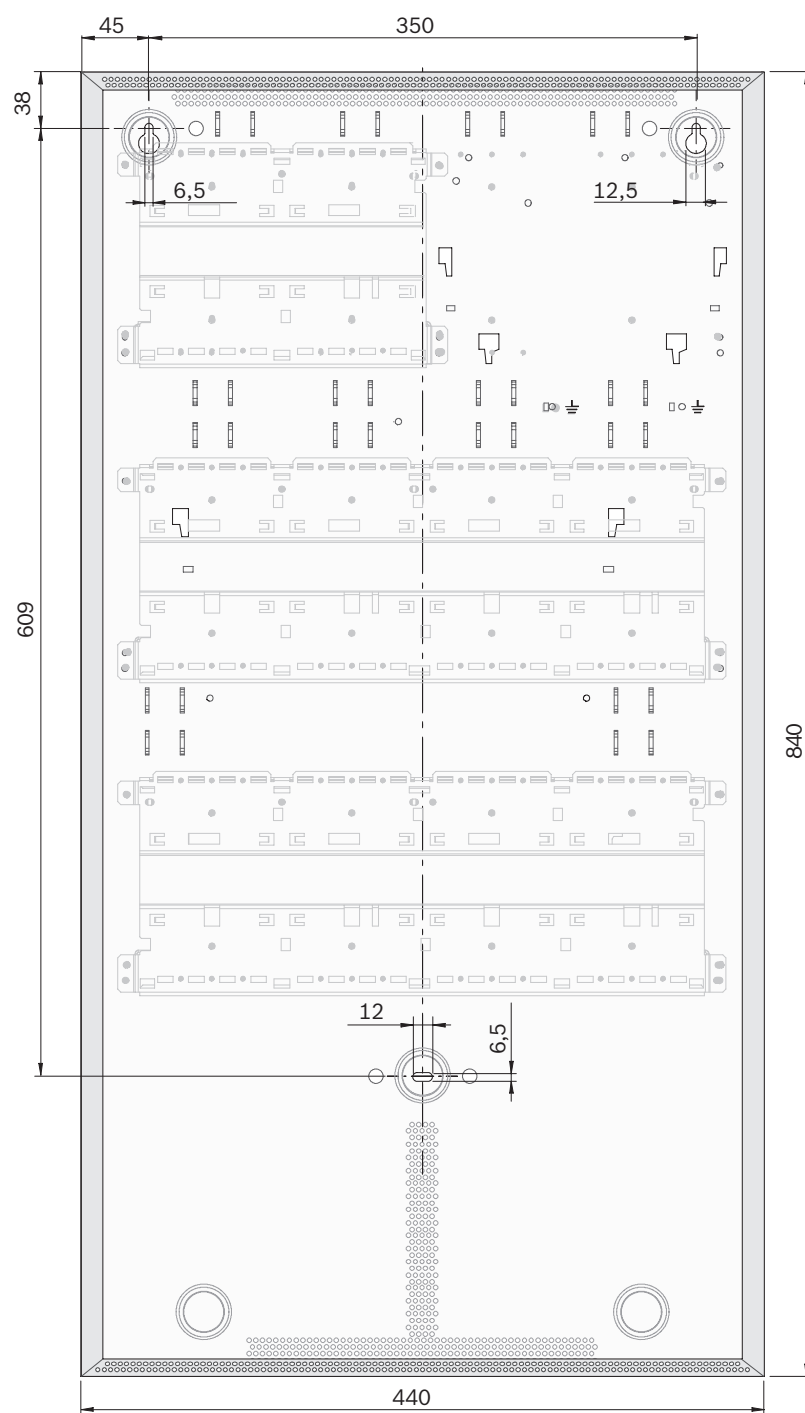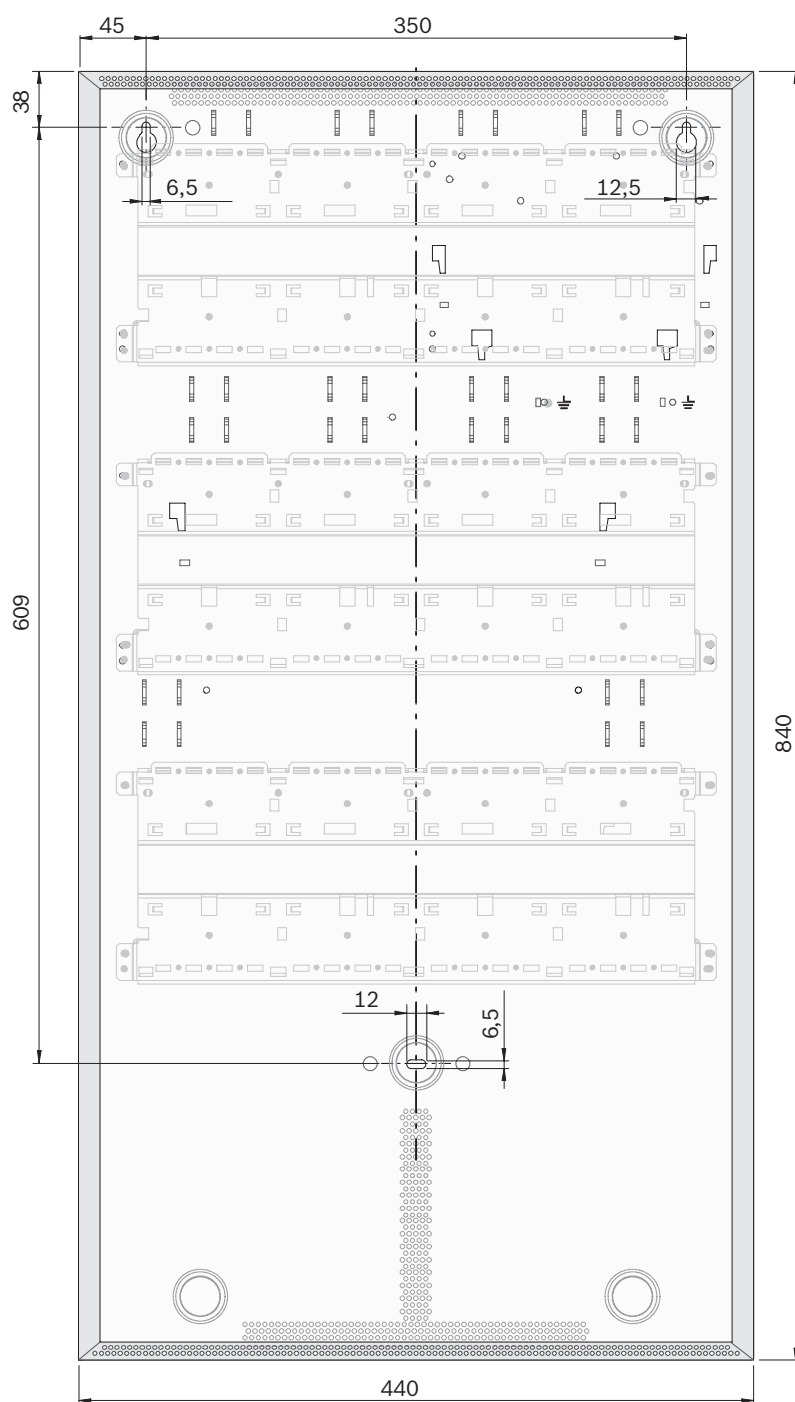### HCP 0006 A Modular Panel Housing for 6 Modules

Figure 4.1: Housing: Installation dimensions - HCP 0006 A [in mm]

HBC 0010 A Modular Panel Housing for 10 Modules

Figure 4.2: Installation dimensions - HBC 0010 A [in mm]

HBE 0012 A Modular Extension Housing for 12 Modules

Figure 4.3: Installation dimensions - HBE 0012 A [in mm]

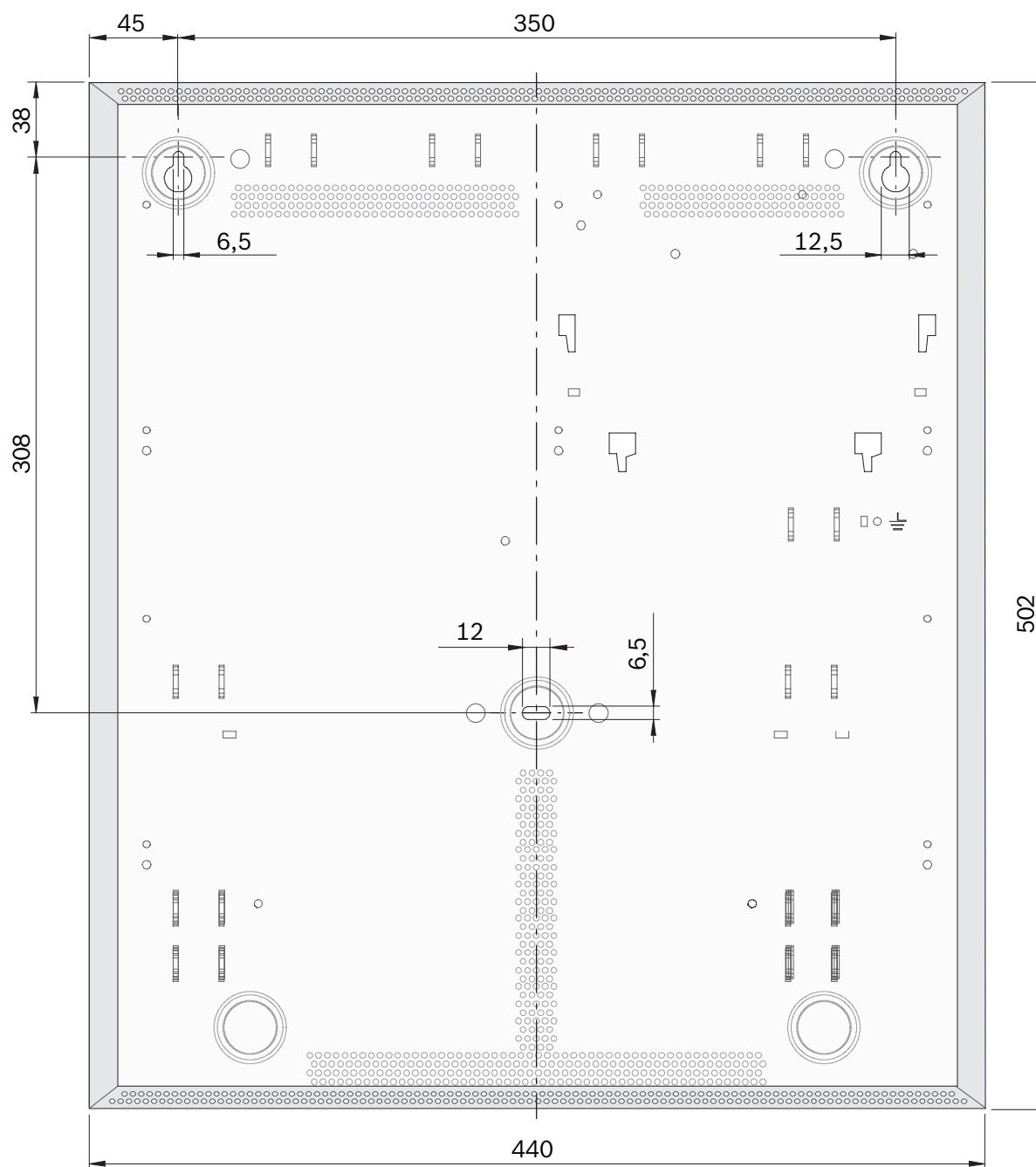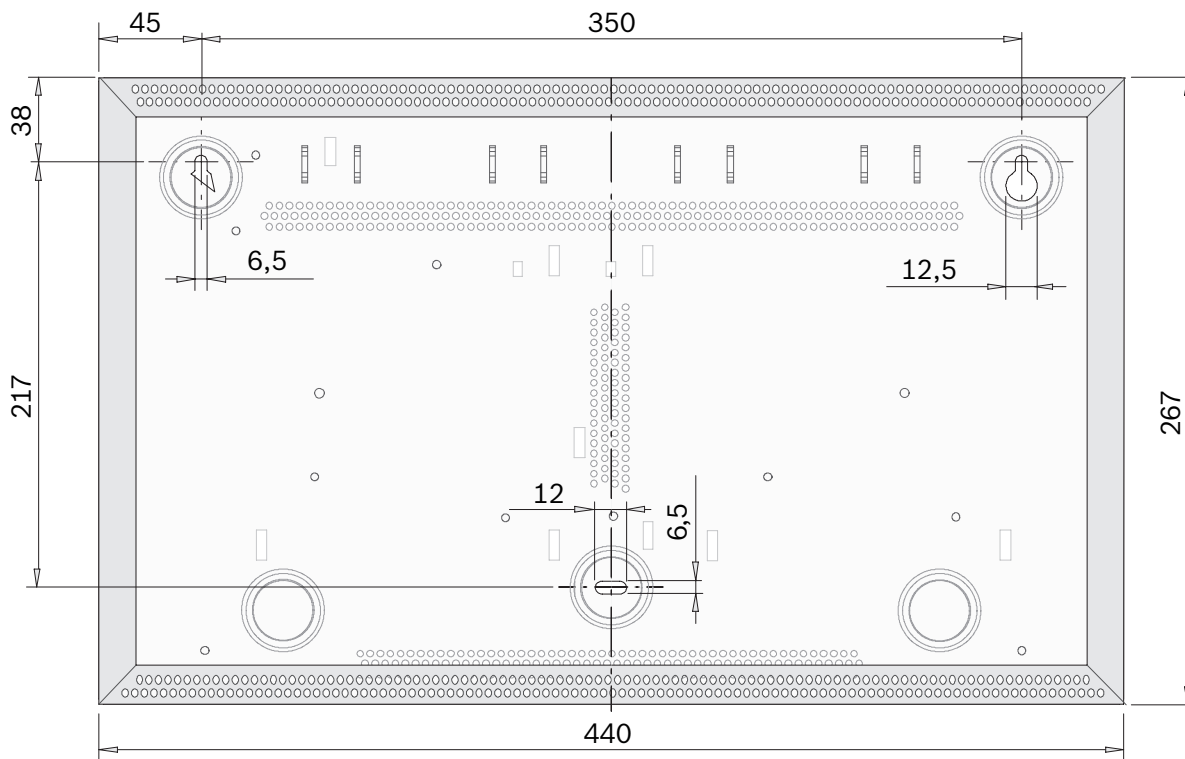### PSB 0004 A Power Supply Module, Wall Mounting

Figure 4.4: Installation dimensions - PSB 0004 A [in mm]

PSS 0002 A Power Supply Small/DIB 0000 A Distribution Box

Figure 4.5: Installation dimensions - PSS 0002 A/DIB 0000 A [in mm]

Cable Bushings

Wall mounting housings have pre-punched cable bushings with the three most common diameters (22 mm, 35 mm, 44 mm).

Notice!

Carefully punch out the pre-punched hole for the cable entry and fit a suitable cable grommet. When inserting the cable into the housing, pierce a hole in the grommet with a pointed object, do not cut.
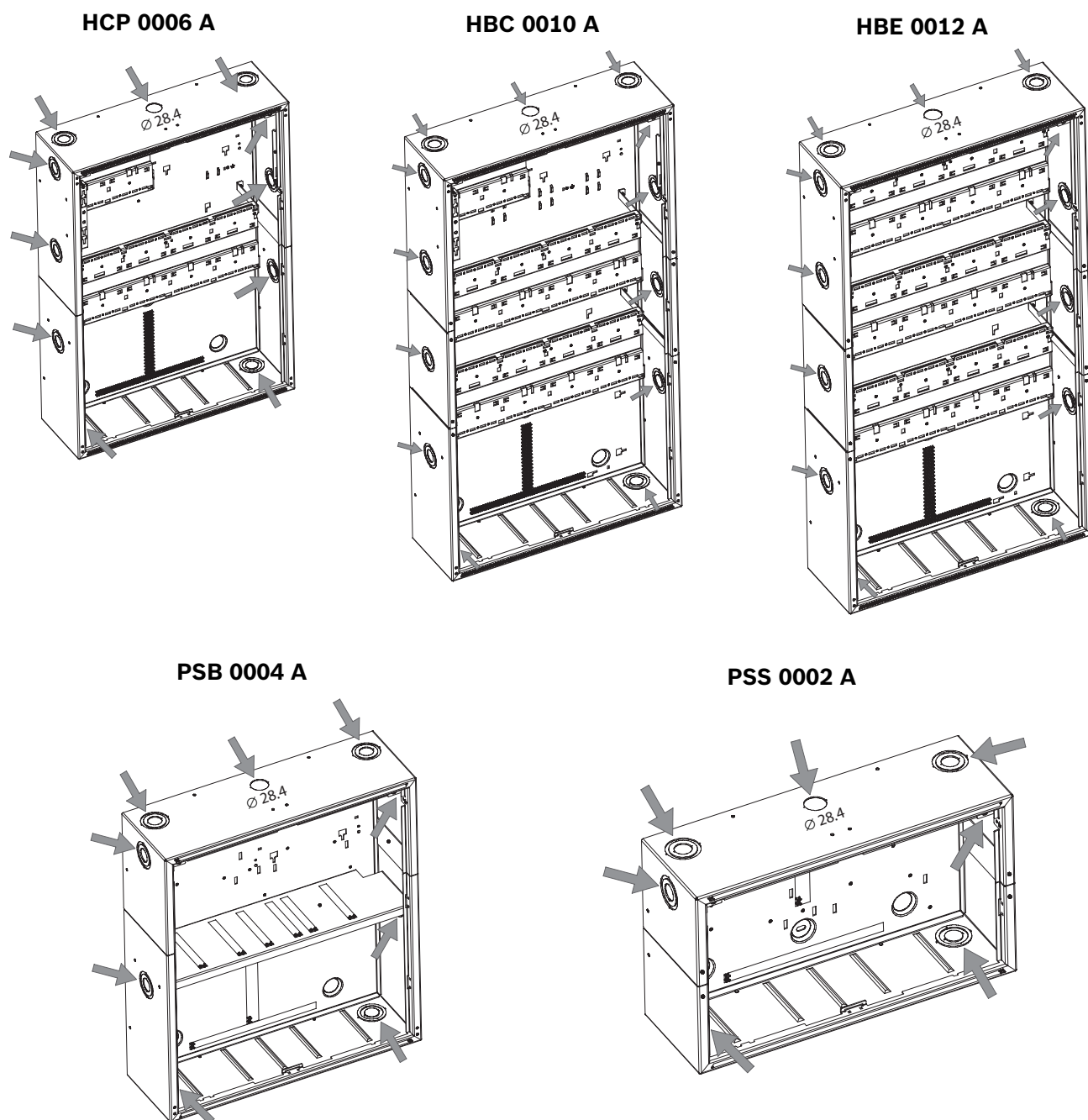

HCP 0006 A   **HBC 0010 A**   **HBE 0012 A**

PSB 0004 A   **PSS 0002 A**

Figure 4.6: Wall mounting housing cable bushings

4.3.3   Installation Dimensions for Frame Installation Housing

Installation Dimensions for CPH 0006 A, EPH 0012 A and MPH 0010 A with FBH 0000 A or FHS 0000 A Mounting Frames
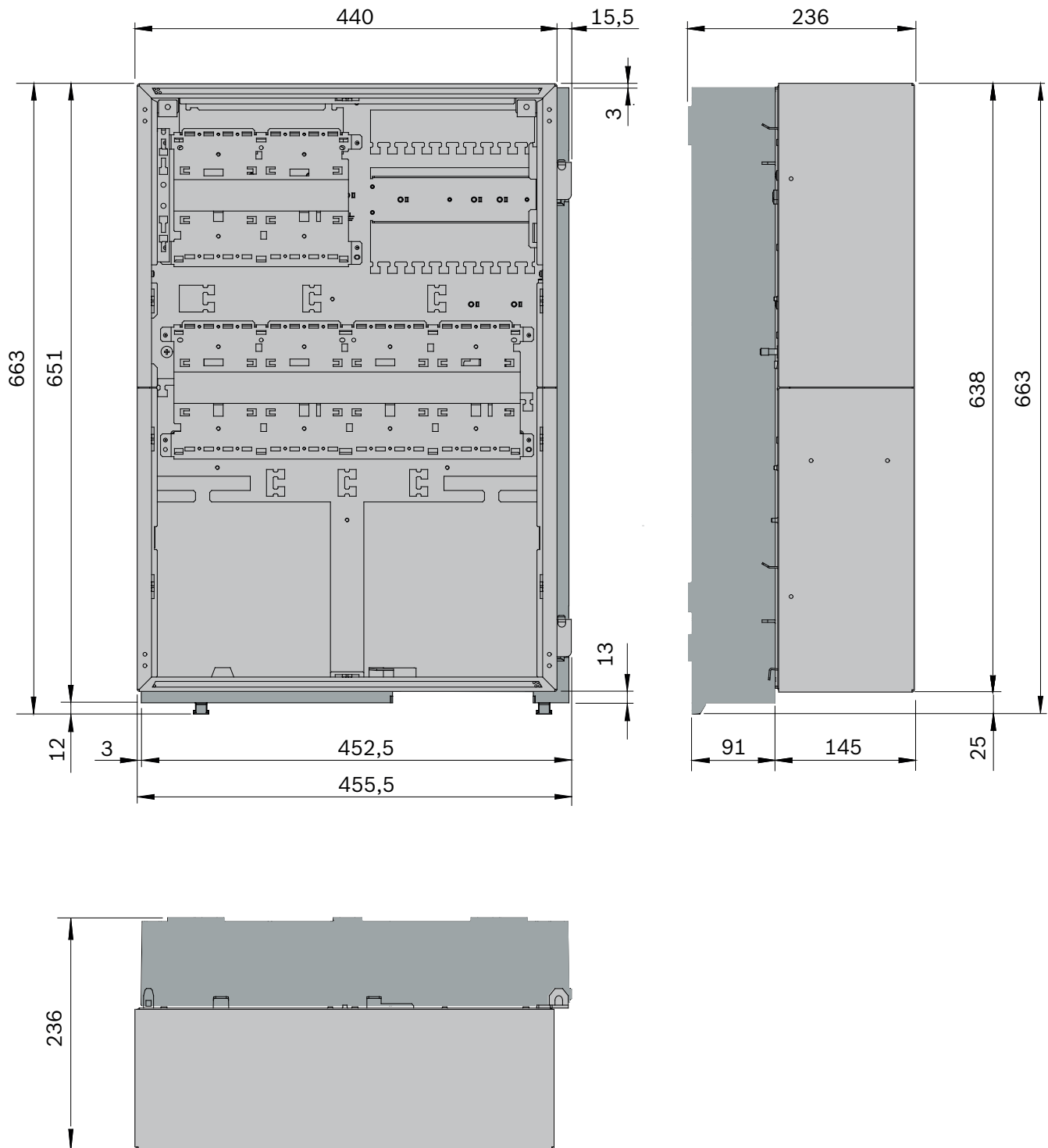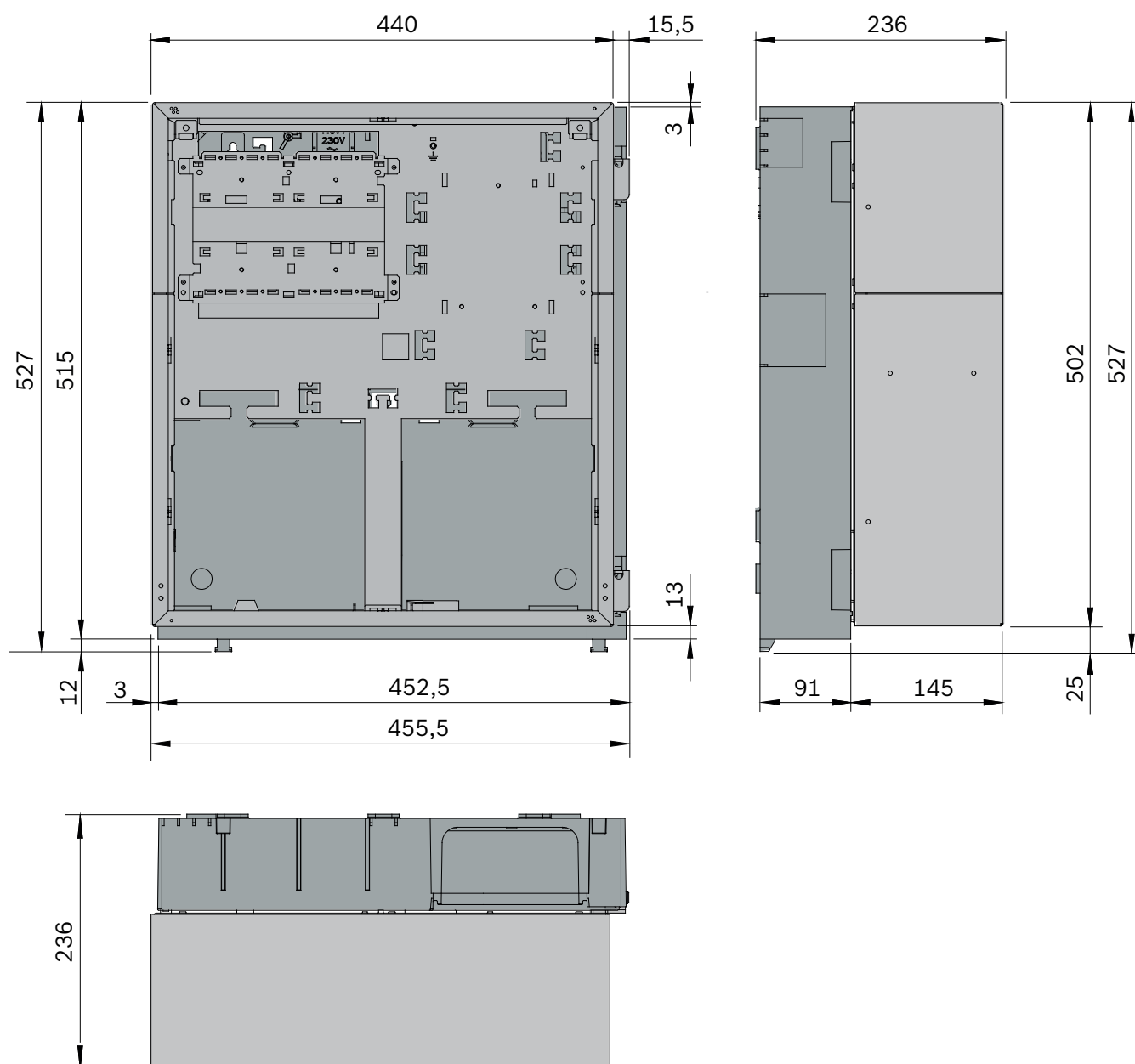

Figure 4.7: Housing:Installation dimensionsInstallation dimensions for CPH 0006 A, EPH 0012 A and MPH 0010 A [in mm]

Installation Dimensions for PMF 0004 A with FMH 0000 A Mounting Frame

Figure 4.8: Installation dimensions for PMF 0004 A [in mm]

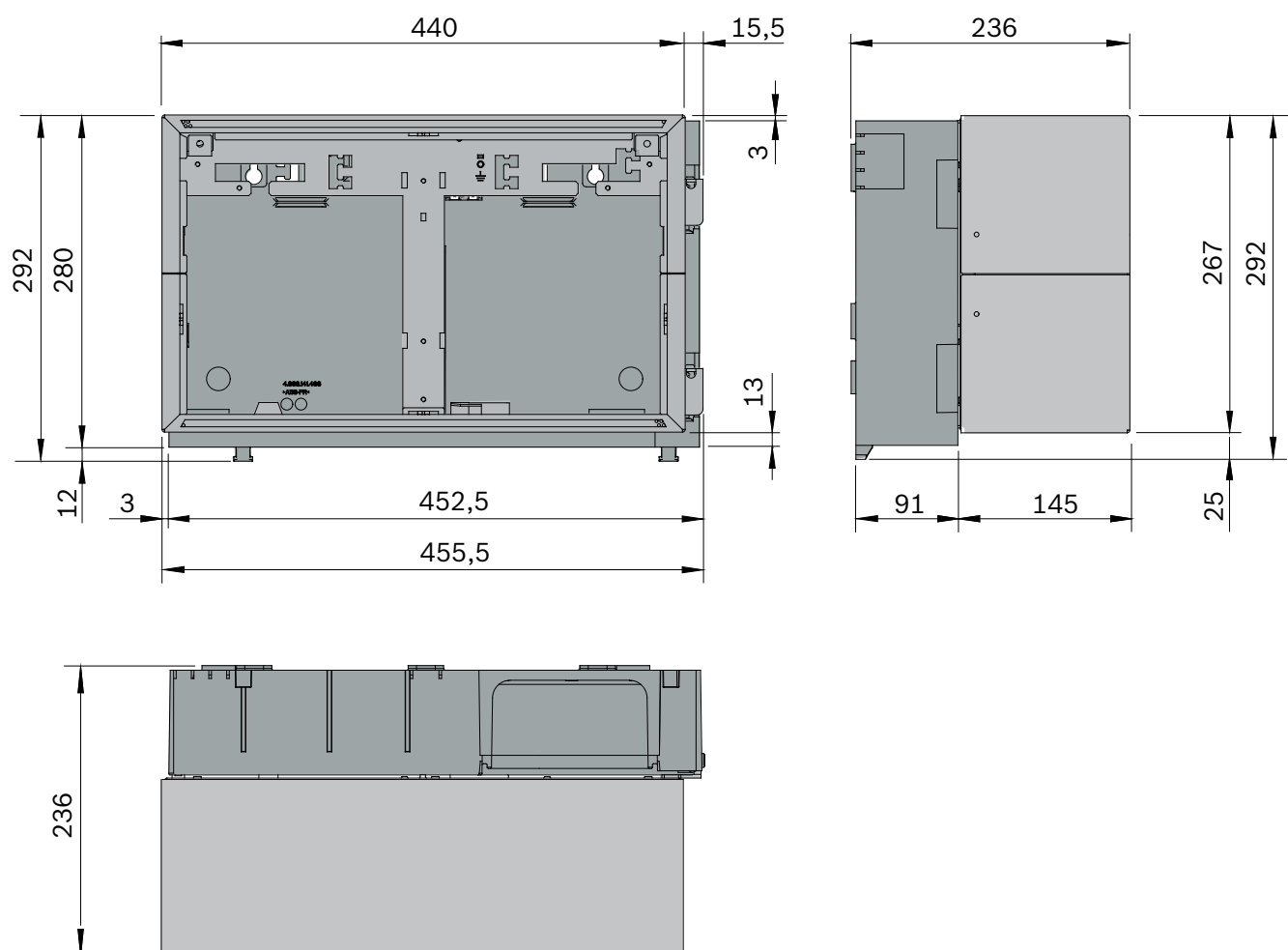**Installation Dimensions for PSF 0002 A and USF 0000 A with FSH 0000 A Mounting frame**

Figure 4.9: Installation dimensions for PSF 0002 A and USF 0000 A [in mm]

4.3.4 Installation Dimensions for Mounting Frames

FBH 0000 A/FHS 0000 A Mounting Frame Large

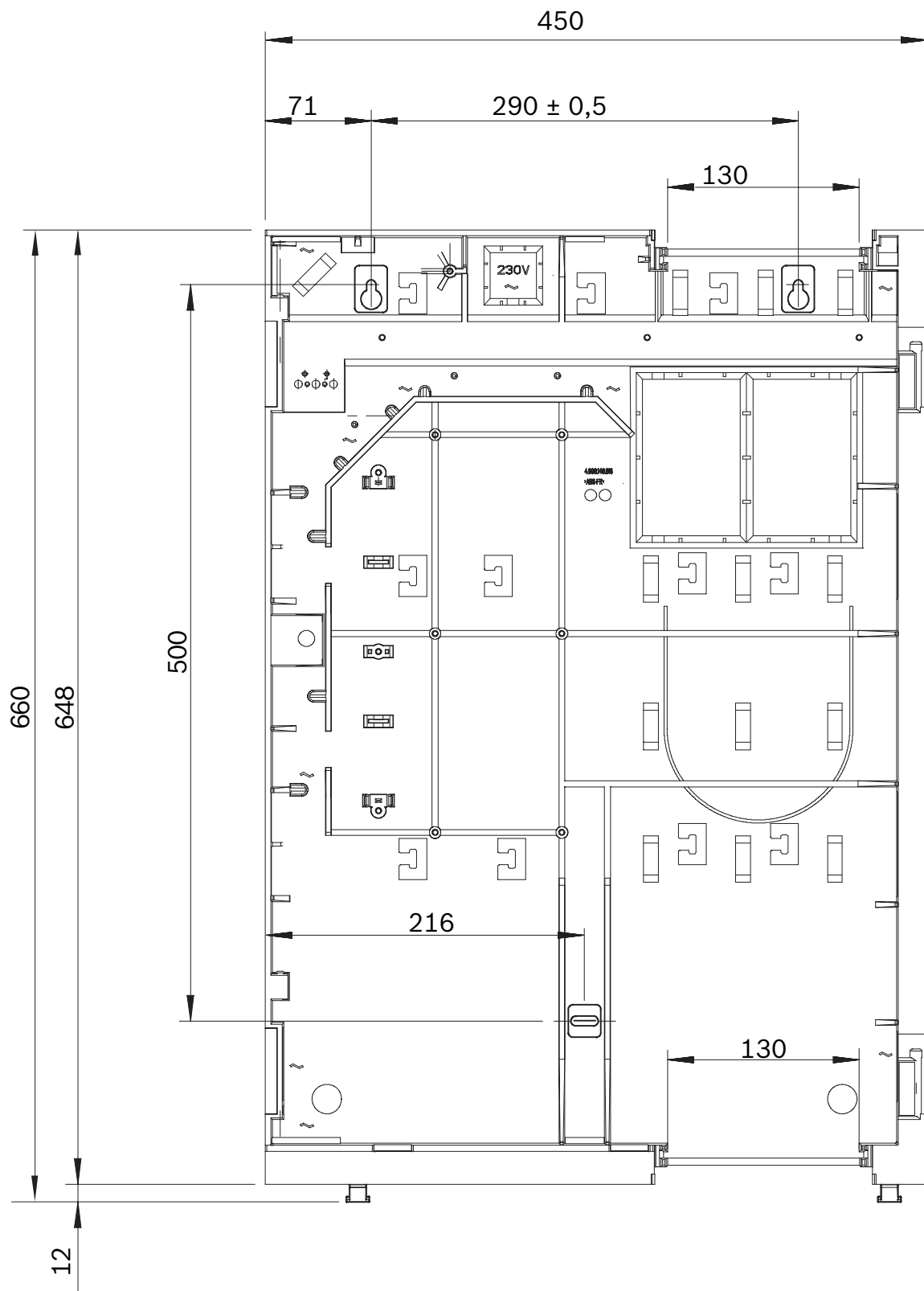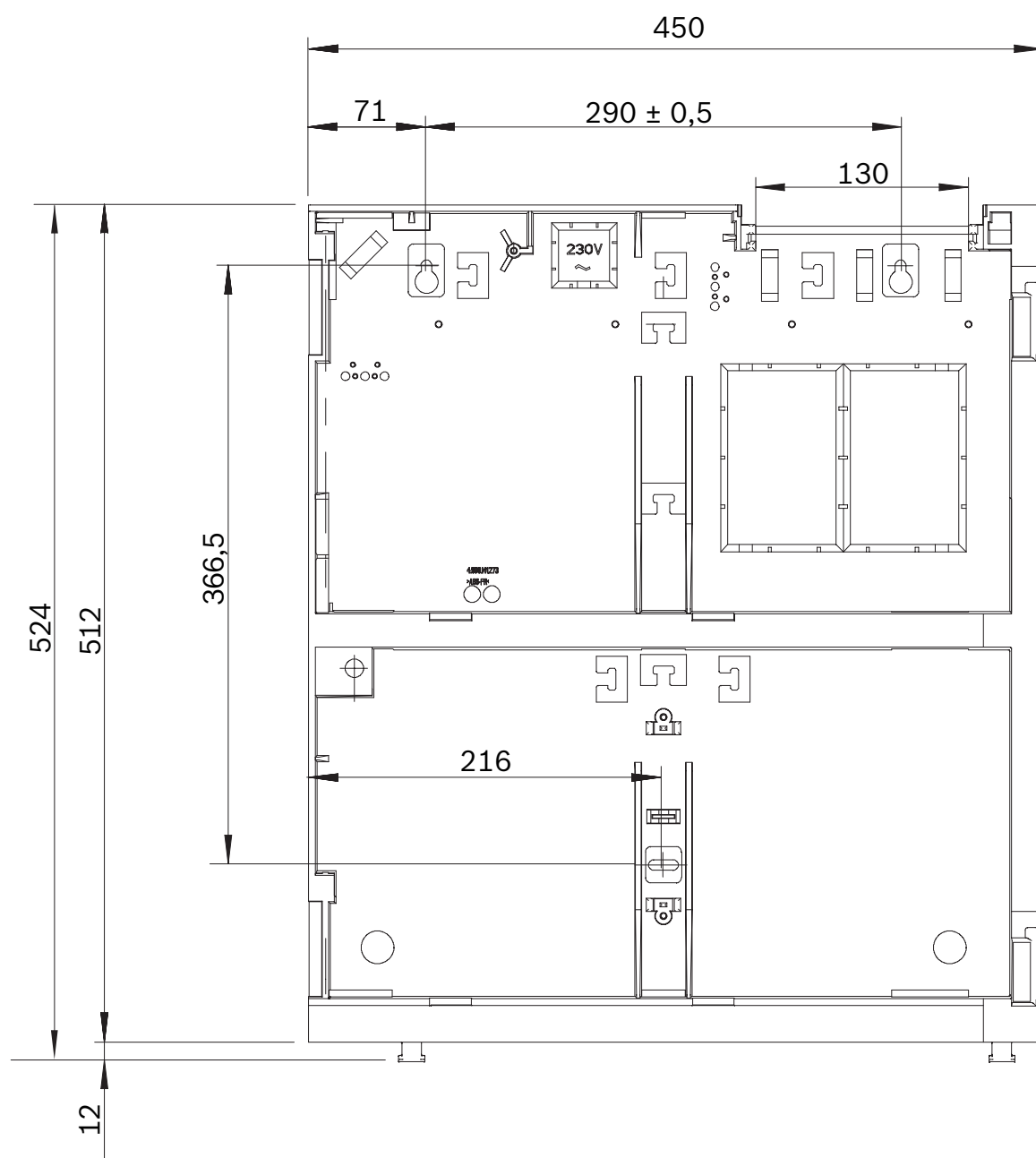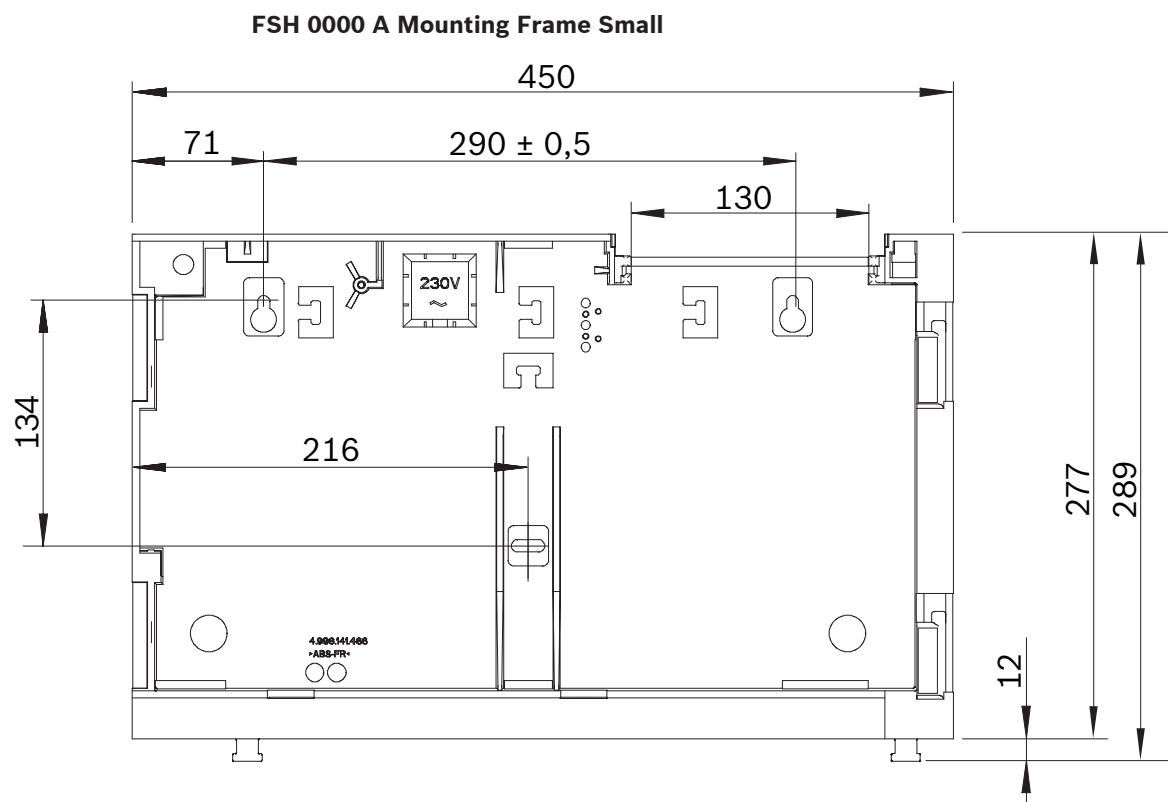**Figure 4.10: Mounting frame:Installation dimensionsInstallation dimensions - FBH 0000 A/FHS 0000 A [in mm]**

FMH 0000 A Mounting Frame Medium

Figure 4.11: Installation dimensions - FMH 0000 A [in mm]

FSH 0000 A Mounting Frame Small

Figure 4.12: Installation dimensions - FSH 0000 A [in mm]

4.3.5   Installation Kits for 482.6 mm (19") Racks

FRK 0019 A Rack Installation Kit for All Wall Mounting Housings

The FRK 0019 A Rack Installation Kit is used to install wall mounting housings in 482.6 mm (19") racks.

The two mounting brackets in the universal installation kit are fitted at distance H (see *FRK 0019 A Rack Installation Kit for All Wall Mounting Housings, page 58*). The dimensions of H for the different wall mounting housings can be found in the table below:

Housing	H
PSS 0002 A	217 mm
DIB 0000 A	217 mm
PSB 0004 A	308 mm
HCP 0006 A	409 mm
HBC 0010 A	609 mm
HBE 0012 A	609 mm

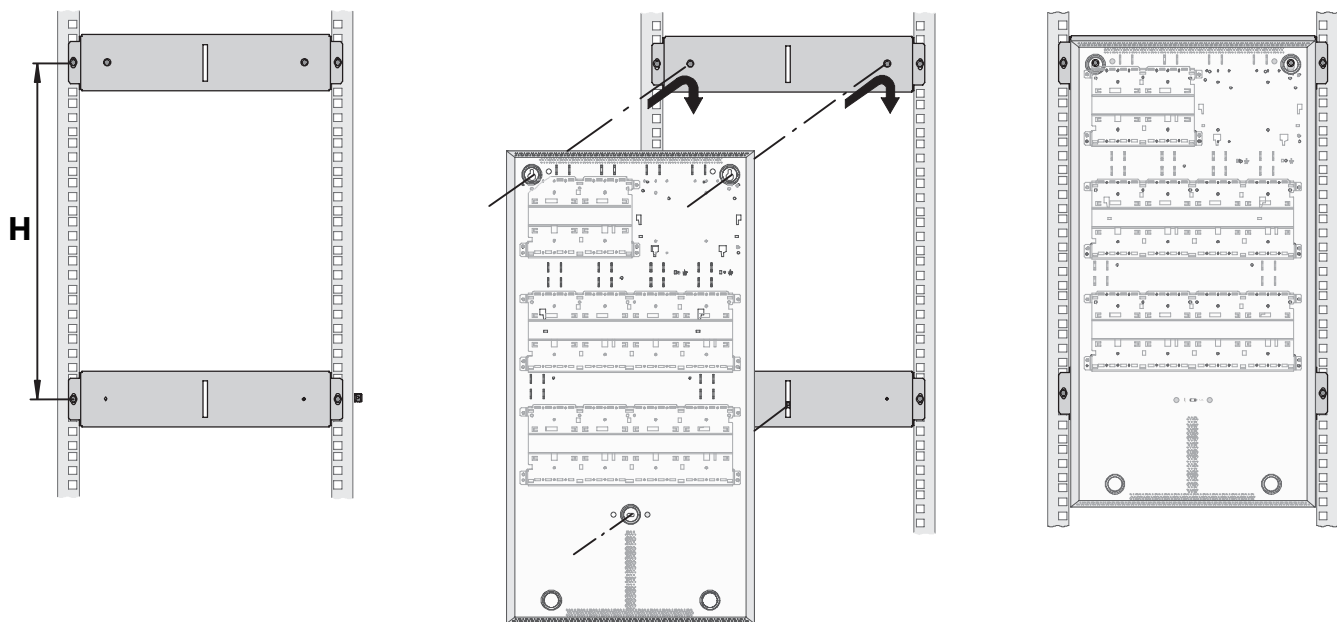**Figure 4.13: FRK 0019 A housing installation**

Installation Kits for Frame Installation Housings

Special installation kits are available for installing frame installation housings in 482.6 mm (19") racks:

Housing type	Installation kit	Height unit
CPH 0006 A	FRB 0019 A	15
MPH 0010 A	FRB 0019 A	15
EPH 0012 A	FRB 0019 A	15
PMF 0004 A	FRM 0019 A	12

Housing type	Installation kit	Height unit
PSF 0002 A	FRS 0019 A	6
USF 0000 A	FRS 0019 A	6

No mounting frame is required when using the 482.6 mm installation kits.

The table below shows the space required for the different frame installation housings when using the installation kits for 482.6 mm racks.

Installation kit	Housing types	Space required (H x B x T)
FRB 0019 A	CPH 0006 A, MPH 0010 A, EPH 0012 A	638 x 449 x 233.5 mm
FRM 0019 A	PMF 0004 A	502 x 449 x 233.5 mm
FRS 0019 A	PSF 0002 A, USF 0000 A	267 x 449 x 233.5 mm

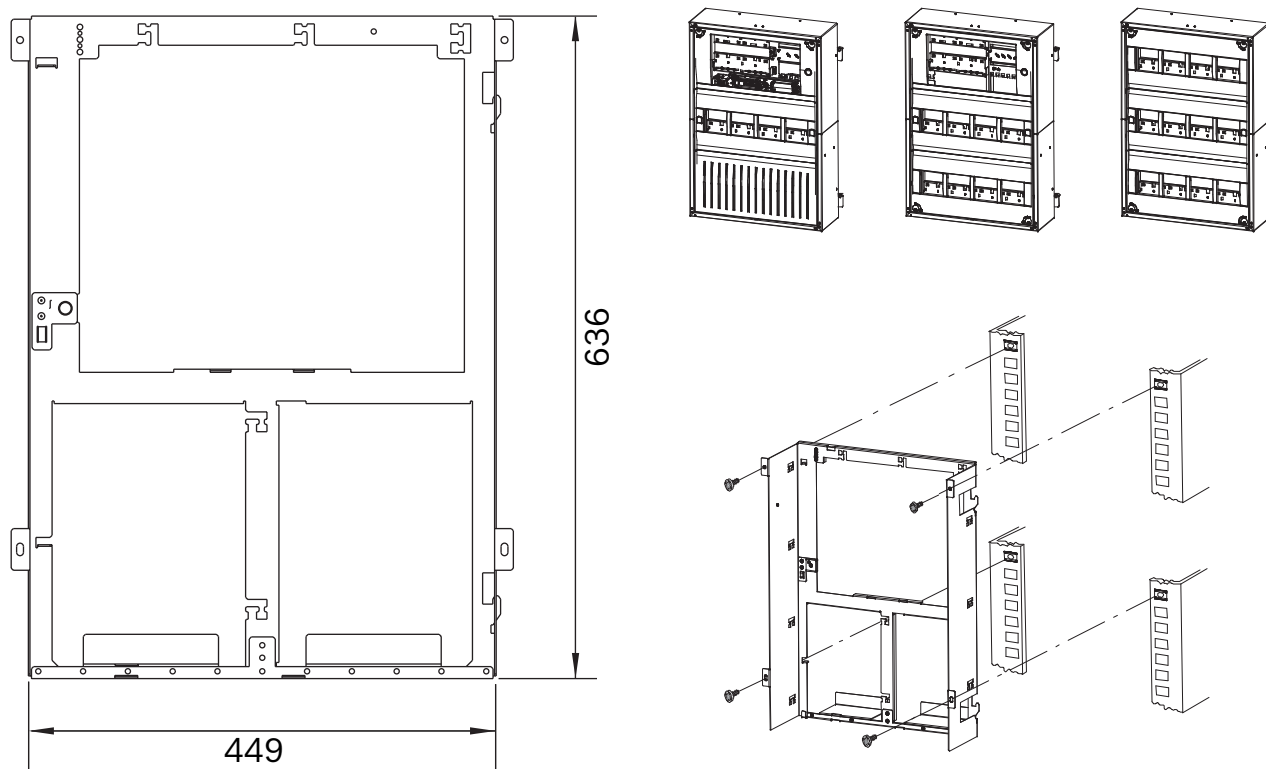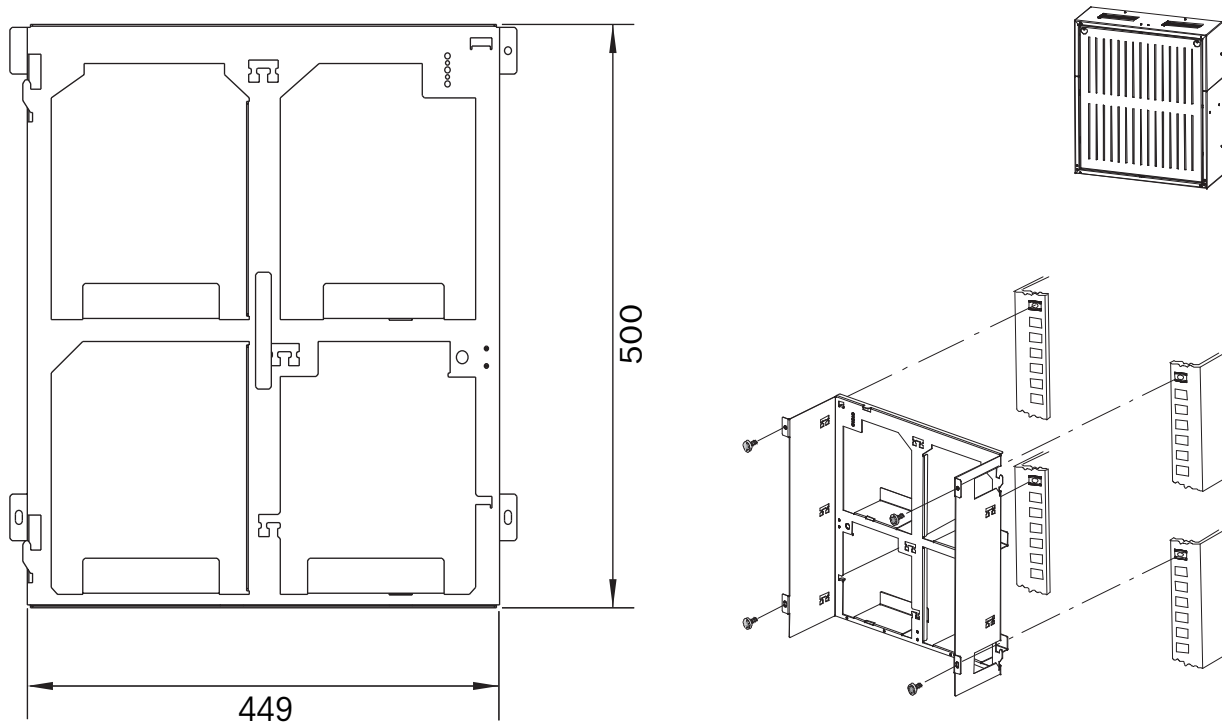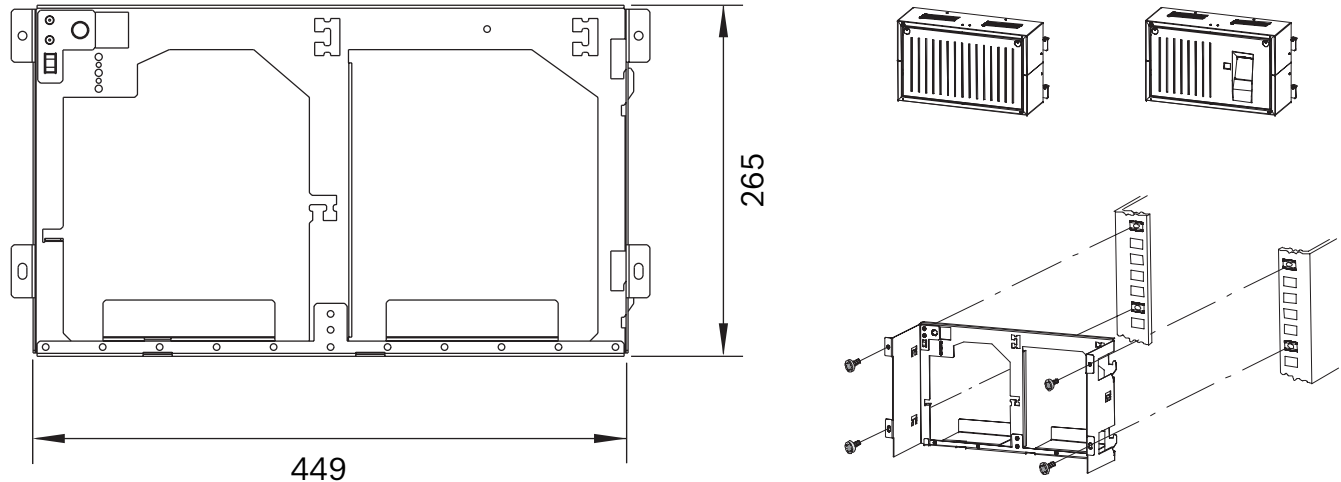**FRB 0019 A Rack Installation Kit, Large**

Figure 4.14: FRB 0019 A installation kit for CPH 0006 A, MPH 0010 A, EPH 0012 A [installation dimensions in mm]

FRM 0019 A Rack Installation Kit, Medium

Figure 4.15: FRM 0019 A installation kit for PMF 0004 A [installation dimensions in mm]

FRS 0019 A Rack Installation Kit, Small

Figure 4.16: FRS 0019 A installation kit for PSF 0002 A, USF 0000 A [installation dimensions in mm]

The FRS 0019 A installation kit is also used for the THP 2020 A Thermal Printer.

4.4 Accessories for Housing

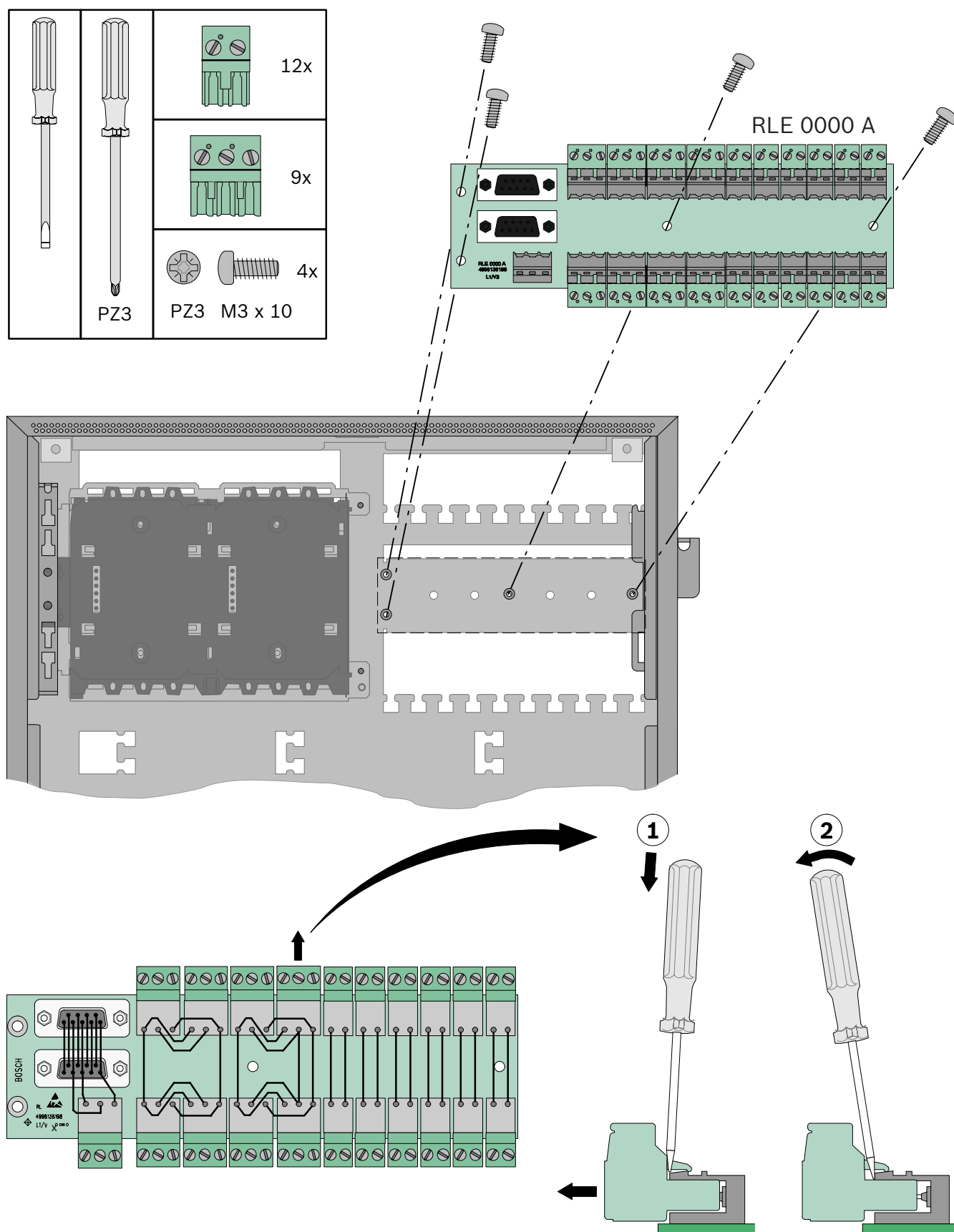### 4.4.1 RLE 0000 A Junction Board

The RLE 0000 A Junction Board is designed for installation in the CPH 0006 A and MPH 0010 A frame installation housings.

Junction boards receive the cables coming from outside and allow clear onward transmission to the individual modules.

The RLE 0000 A junction board is also required to connect the AT 2000 transmission device.

Figure 4.17: RLE 0000 A installation

4.4.2   HMP 0003 A Mounting Plate for Mounting Frame
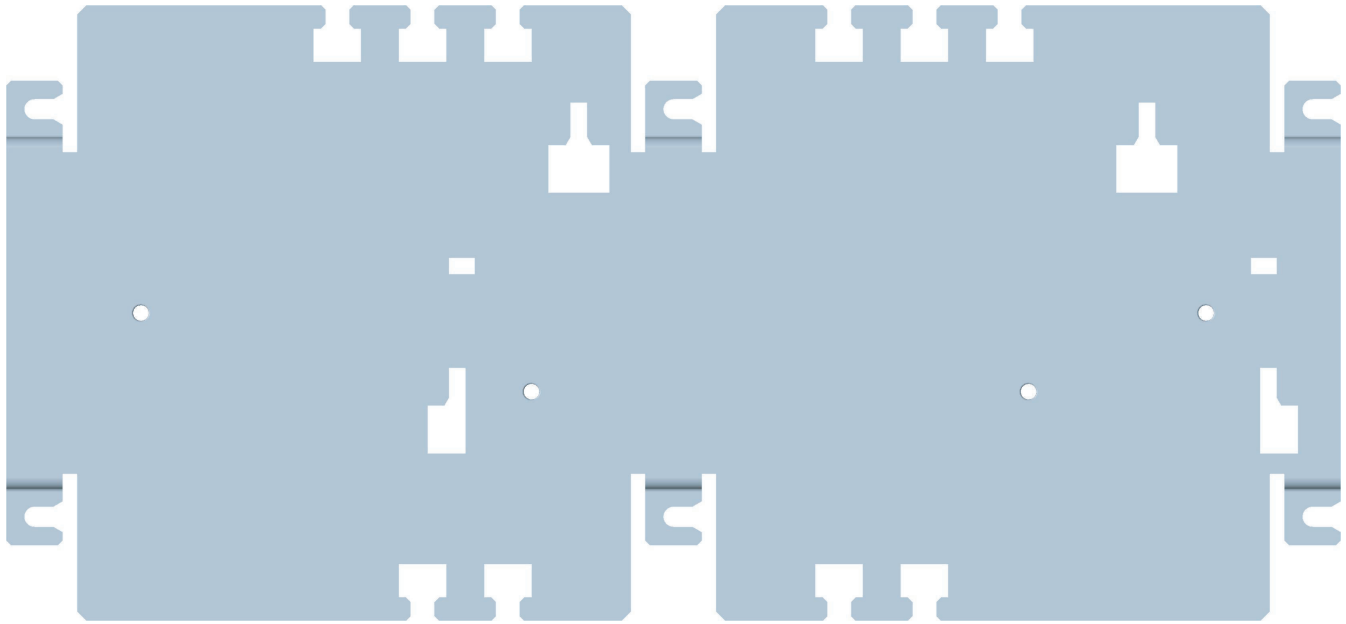
Figure 4.18: HMP 0003 A Mounting Plate for Mounting Frame

The HMP 0003 A Mounting Plate is used in both the large FBH 0000 A and FHS 0000 A mounting frames.

The mounting plate is required to install interface modules, external device controllers, relays and other components. It can be fitted with a distributor rail.

> **i**   **Notice!**
> The distributor rail is not included in the scope of delivery for the HMP 0003 A Mounting Plate.

Figure 4.19: HMP 0003 A installation

4.4.3   FPO-5000-EB Earth Bar

The FPO-5000-EB Earth Bar is inserted in the FMH 0000 A Mounting Frame Medium in a prefabricated bracket. It allows star grounding of a centrally positioned extension housing.

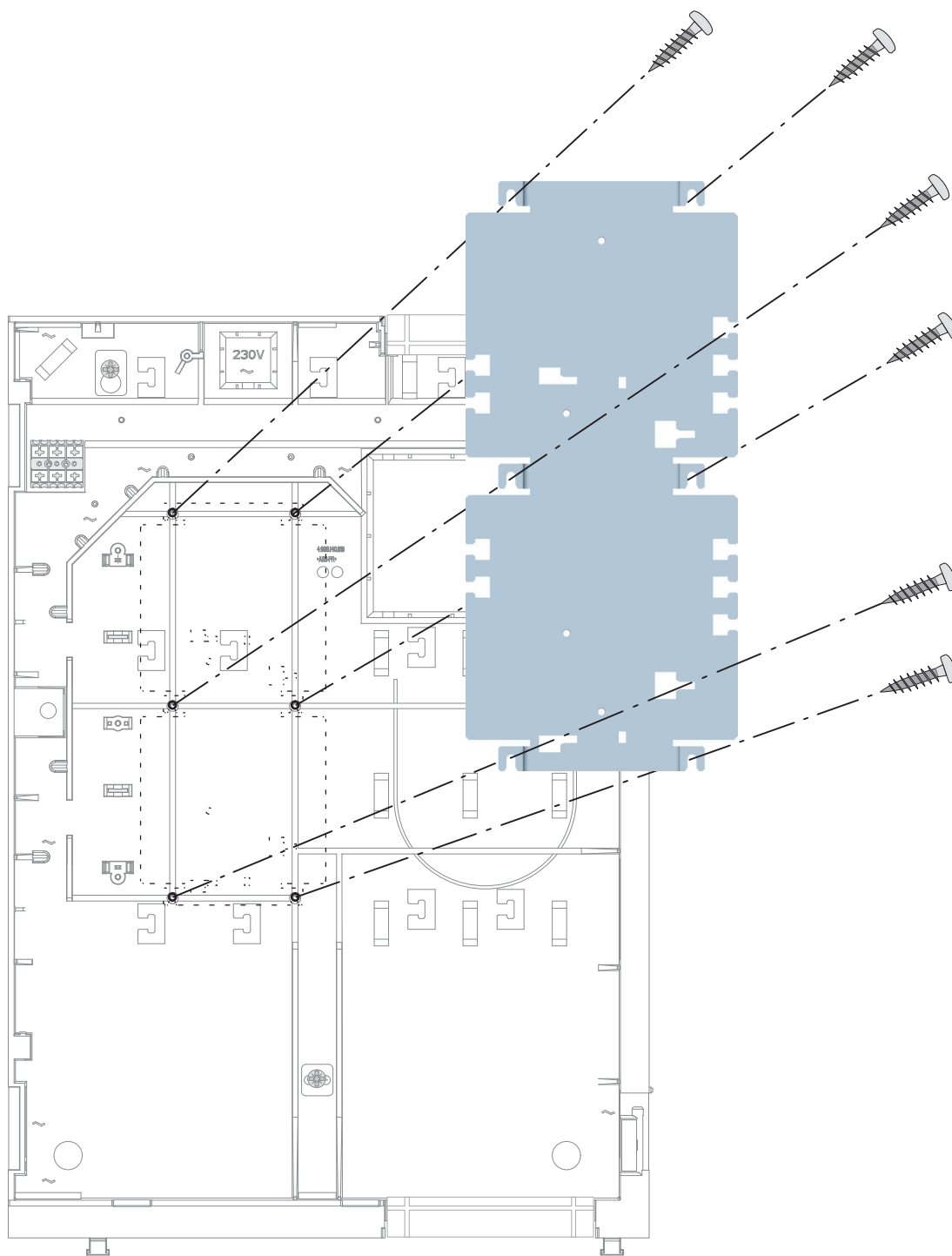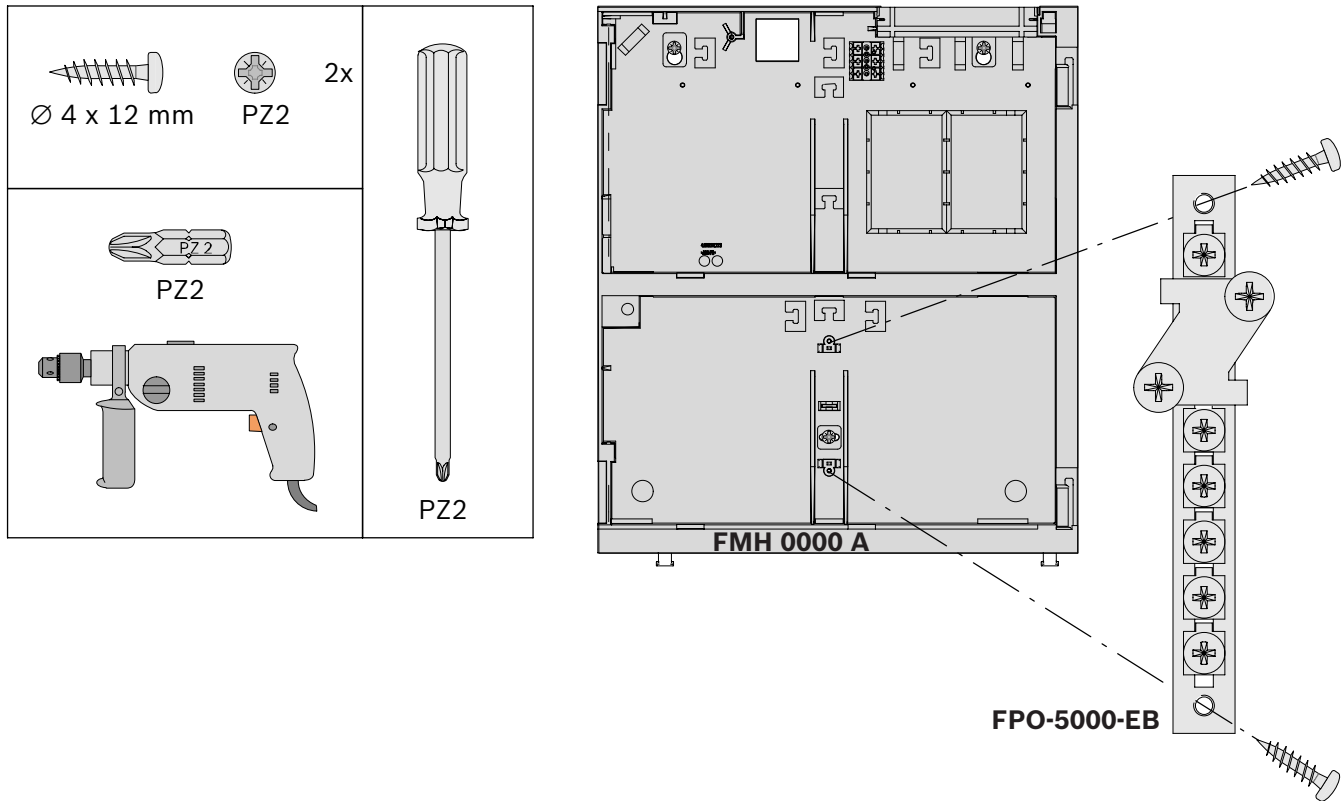**Figure 4.20: FPO-5000-EB installation**

4.5   Power Supply Brackets

Danger!

The device contains live components.

Touching live components entails a risk of death or serious injury.

Disconnect the power supply before all installation work.

The power supply brackets are designed for installation in wall mounting housings and can hold a UPS 2416 A Universal Power Supply. This is ready for immediate operation via the pre-wired plug connection.

The brackets are made of fiberglass-reinforced plastic and have a fuse (T 10 A) and a temperature sensor, which is positioned between the batteries.

Warning!

There is a risk of injury if the temperature sensor is not positioned between the batteries.

The temperature sensor is supplied with the power supply bracket and protects the batteries against overheating. If the sensor is not positioned correctly, the batteries can overheat and explode.

Position the temperature sensor between the batteries.

Power supply brackets are available in the FPO-5000-PSB-CH (see *FPO-5000-PSB-CH Power Supply Bracket, page 66*) and FPO-5000-PSB1 (see *FPO-5000-PSB1 Power Supply Bracket, page 70*) versions.

All frame installation housings designed for a power supply bracket are supplied with one of these brackets, which is fitted ex works.

> **Notice!**
>
> A maximum of one power supply bracket and one power supply can be installed in the power supply housing.
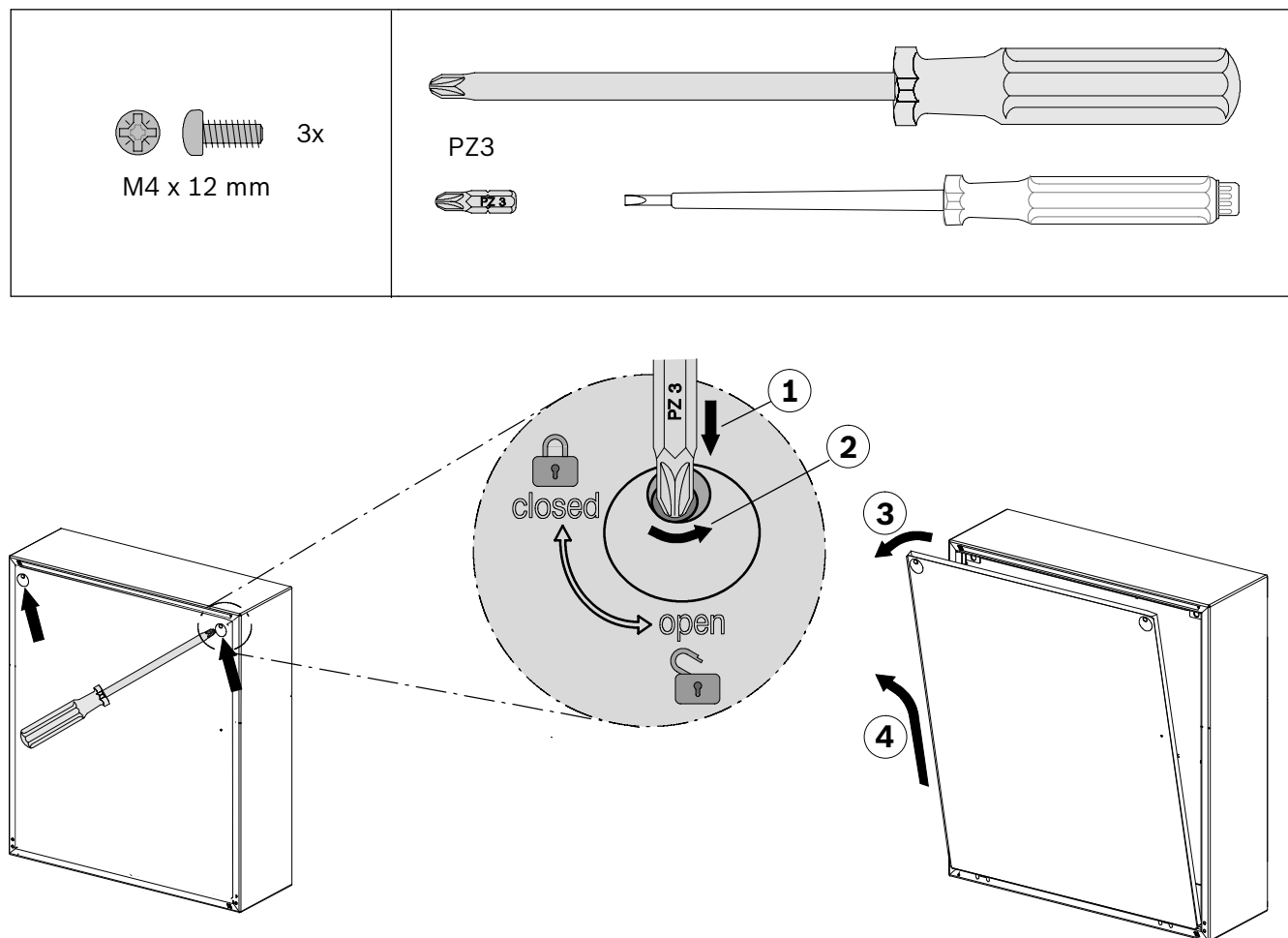
Figure 4.21: FPO-5000-PSB-CH/FPO-5000-PSB1 installation (1-4)

4.5.1   FPO-5000-PSB-CH Power Supply Bracket
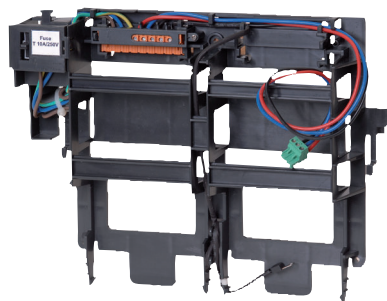
Figure 4.22: FPO-5000-PSB-CH Power Supply Bracket

The FPO-5000-PSB-CH Power Supply Bracket is used in the HCP 0006 A, HBC 0010 A and HBE 0012 A wall mounting housings.

The technical data can be found in *FPO-5000-PSB1/FPO-5000-PSB-CH Power Supply Brackets, page 148*.

HCP 0006 A   HBC 0010 A   HBE 0012 A
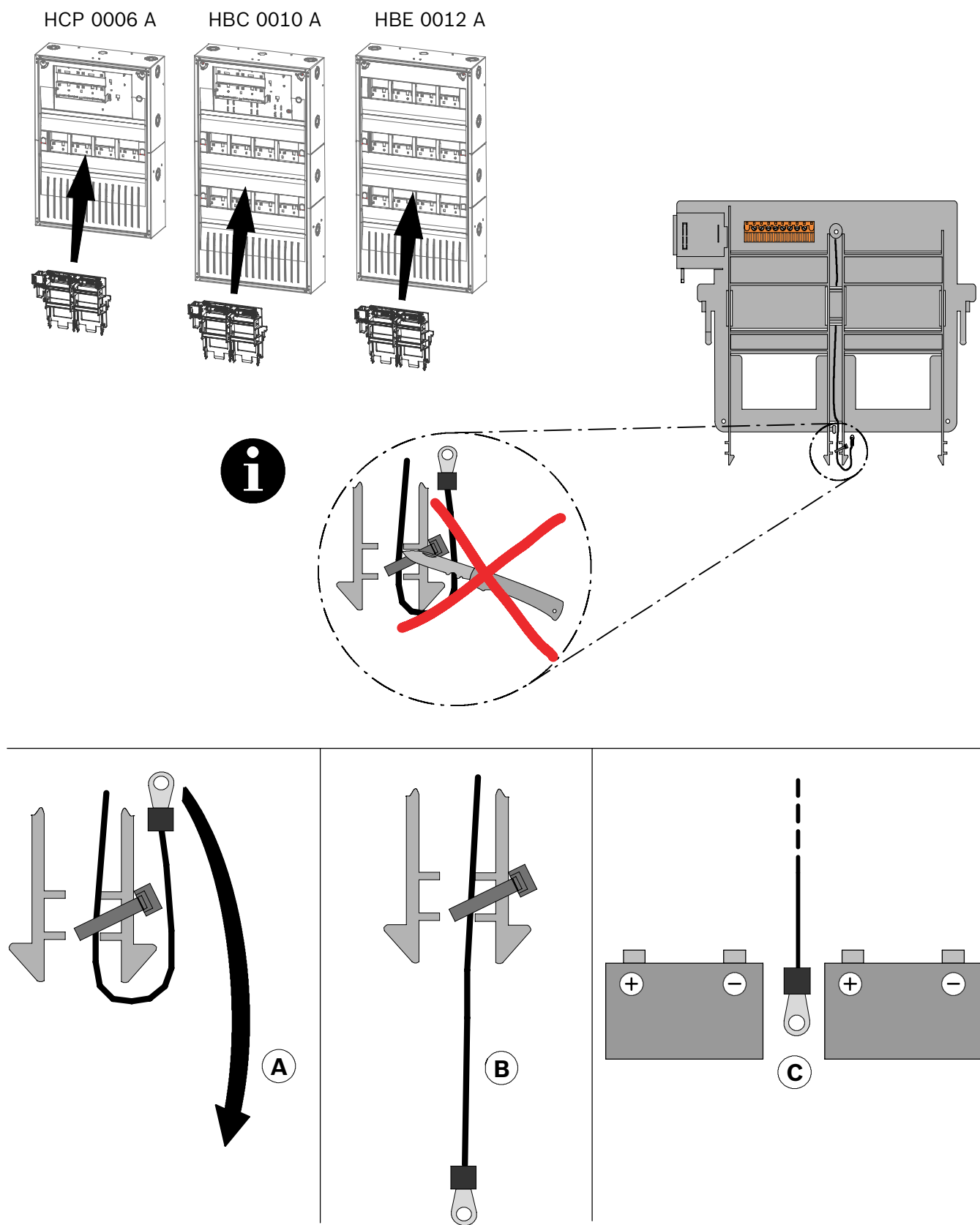
Figure 4.23: FPO-5000-PSB-CH housing compatibility and installation of temperature sensor
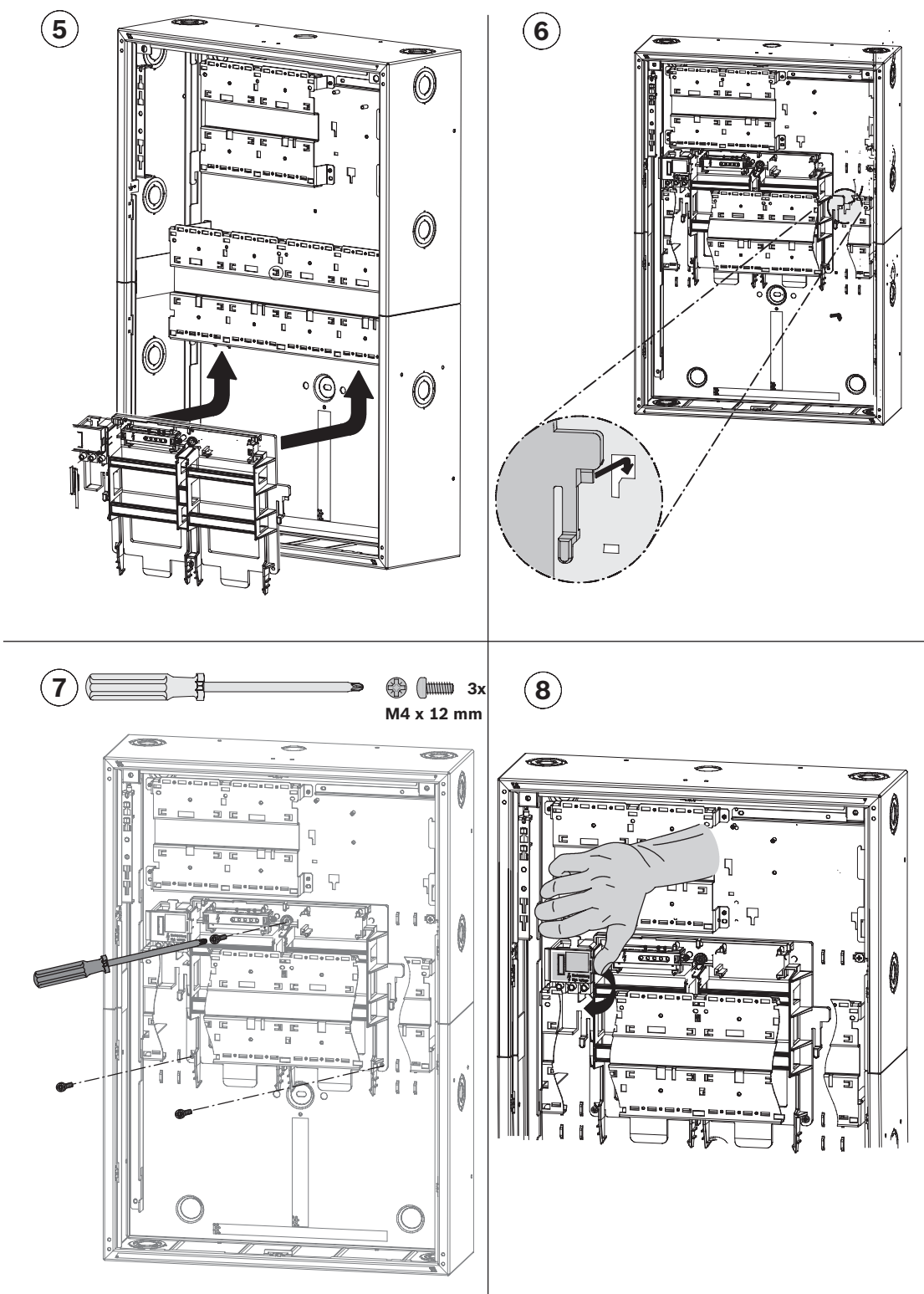
Figure 4.24: FPO-5000-PSB-CH installation (5-8)
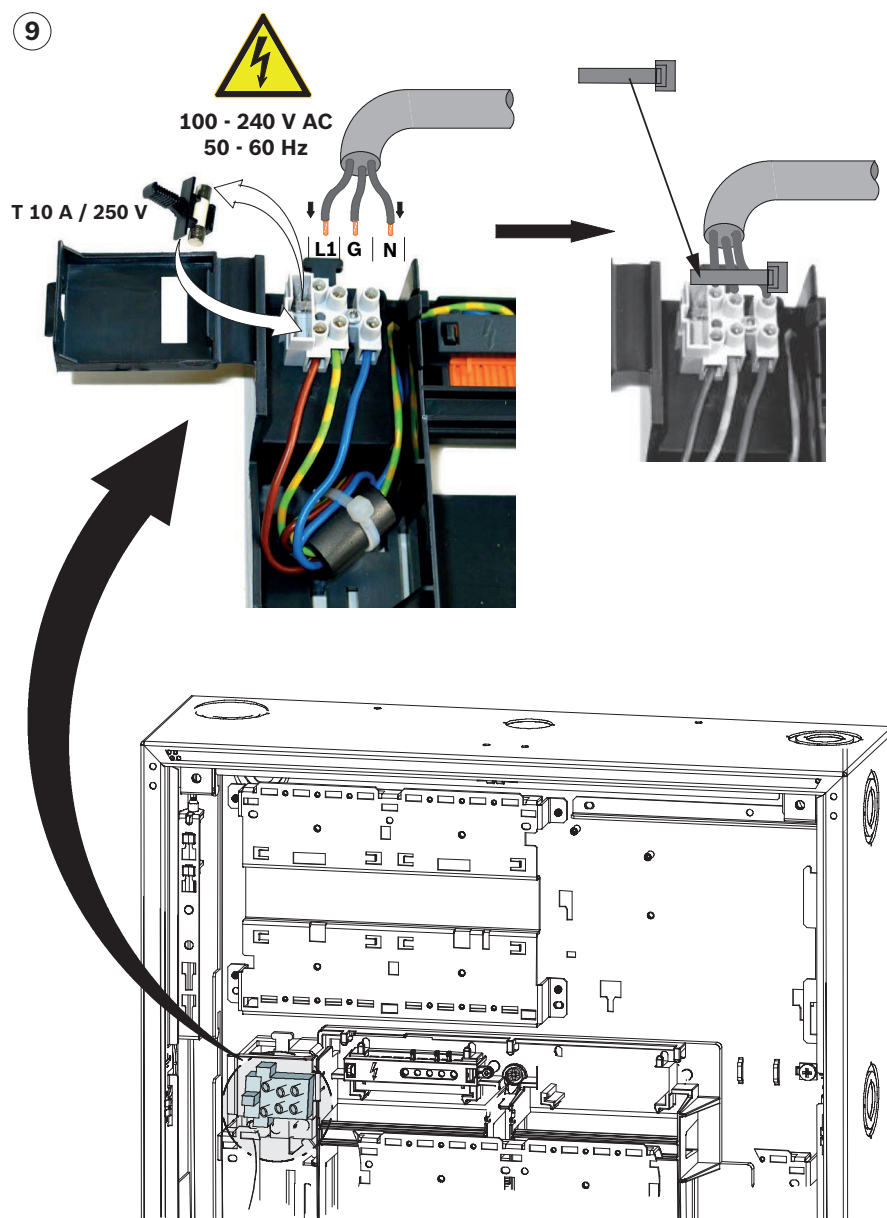
Figure 4.25: FPO-5000-PSB-CH installation (9)

4.5.2   FPO-5000-PSB1 Power Supply Bracket

Figure 4.26: FPO-5000-PSB1 Power Supply Bracket

The FPO-5000-PSB1 Power Supply Bracket is used in the PSS 0002 A and PSB 0004 A power supply housings.

It is installed in a central position between two batteries.

The technical data can be found in *FPO-5000-PSB1/FPO-5000-PSB-CH Power Supply Brackets, page 148*.
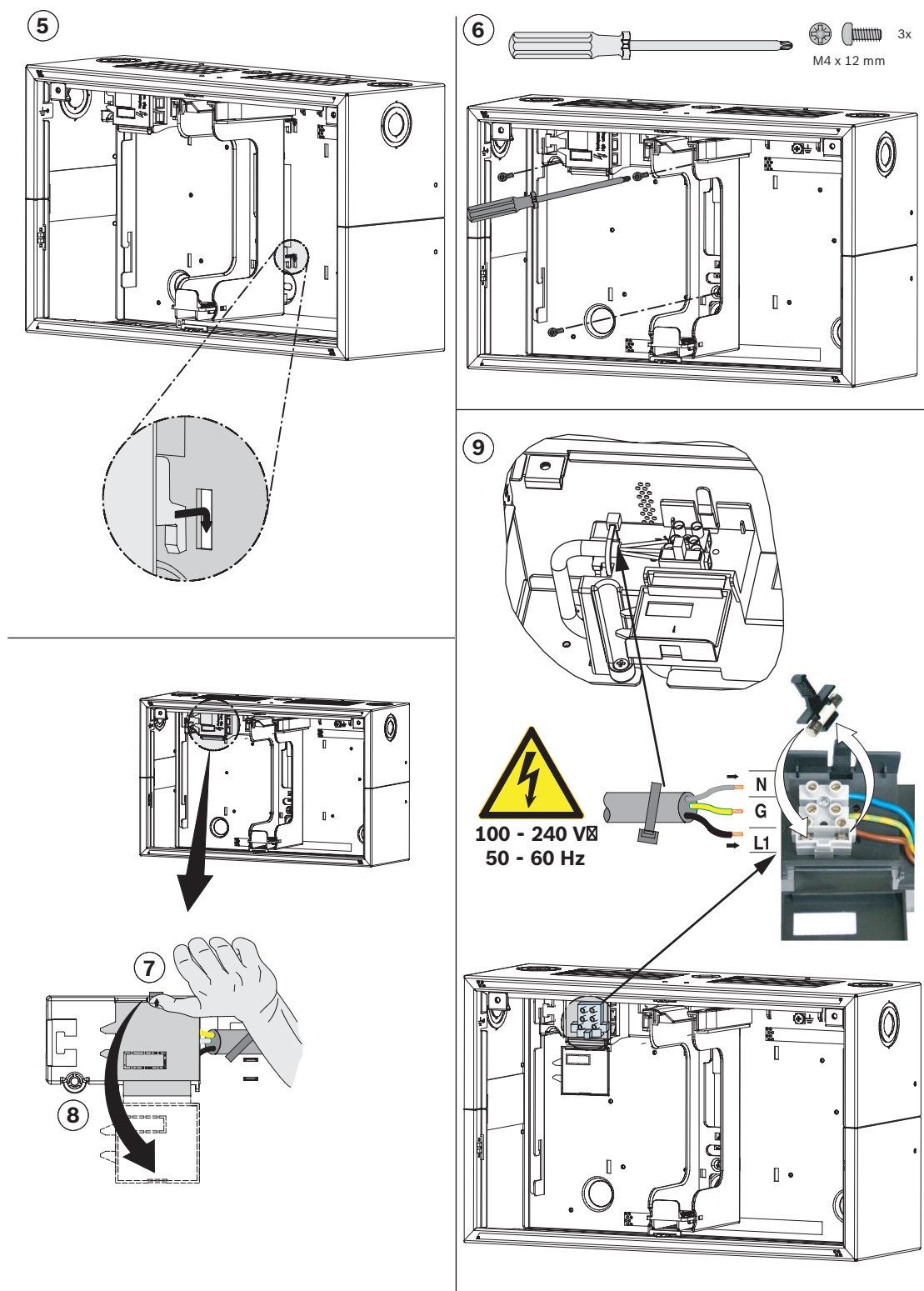
Figure 4.27: FPO-5000-PSB1 installation (5-9)

4.6   UPS 2416 A Universal Power Supply 24 V/6 A

The UPS 2416 A is a plug-and-play switching power supply that provides the power for the FPA-5000 Fire Panel. It is inserted into a power supply bracket and is then ready to use immediately.

The power supply unit is protected against pole reversal and overvoltage. A green LED on the power supply unit itself indicates that it is functioning.

The temperature-dependent output voltage is monitored and regulated by the BCM Battery Controller Module.

The output voltage is monitored and regulated by a temperature sensor. If there is a fault, the FAULT output drops to 0 V.

> ⚠️ **Warning!**
>
> The power supply unit may only be used in the specially designed brackets and in a fireproof cover (such as a panel housing).

> ⚠️ **Warning!**
>
> There is a risk of injury if the temperature sensor is not positioned between the batteries.
>
> The temperature sensor is supplied with the power supply bracket and protects the batteries against overheating. If the sensor is not positioned correctly, the batteries can overheat and explode.
>
> Position the temperature sensor between the batteries.
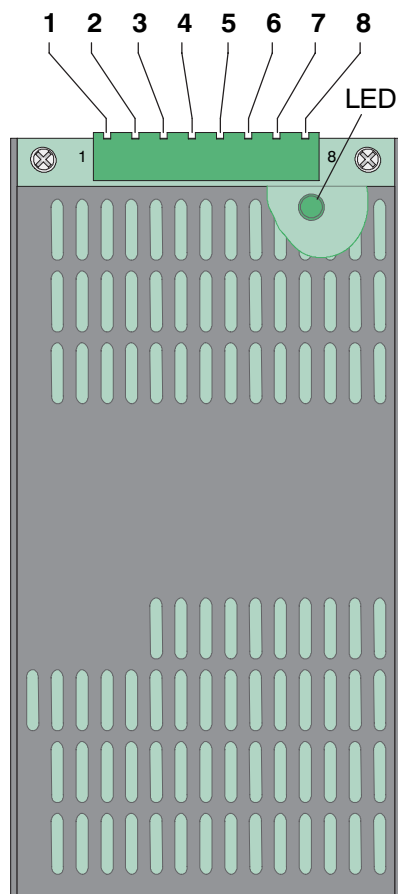
Figure 4.28: UPS 2416 A Universal Power Supply 24 V/6 A

Pos.	Labeling	Connection
1 - 2	ACL | ACN	Mains supply
3	⏚	Protective ground

Pos.	Labeling	Connection
4 - 5	DC+ | DC-	26.76 V DC output plus/0 V DC output minus
6	FAULT	Mains fault output
7 - 8	RTH+ | RTH-	Temperature sensor plus/minus

The universal power supply is used with the FPO-5000-PSB1 and FPO-5000-PSB-CH Power Supply Brackets. These power supply brackets can be used in the following wall mounting housings:

Power supply bracket	Housing
FPO-5000-PSB1	PSS 0002 A, PSB 0004 A
FPO-5000-PSB-CH	HCP 0006 A, HBC 0010 A, HBE 0012 A

Information on power supply brackets can be found in *Power Supply Brackets, page 64*.
The technical data can be found in *UPS 2416 A Universal Power Supply 24 V/6 A, page 148*.

UPS 2416 A   ☒ **FPO-5000-PSB1**

①

BCM-0000-B
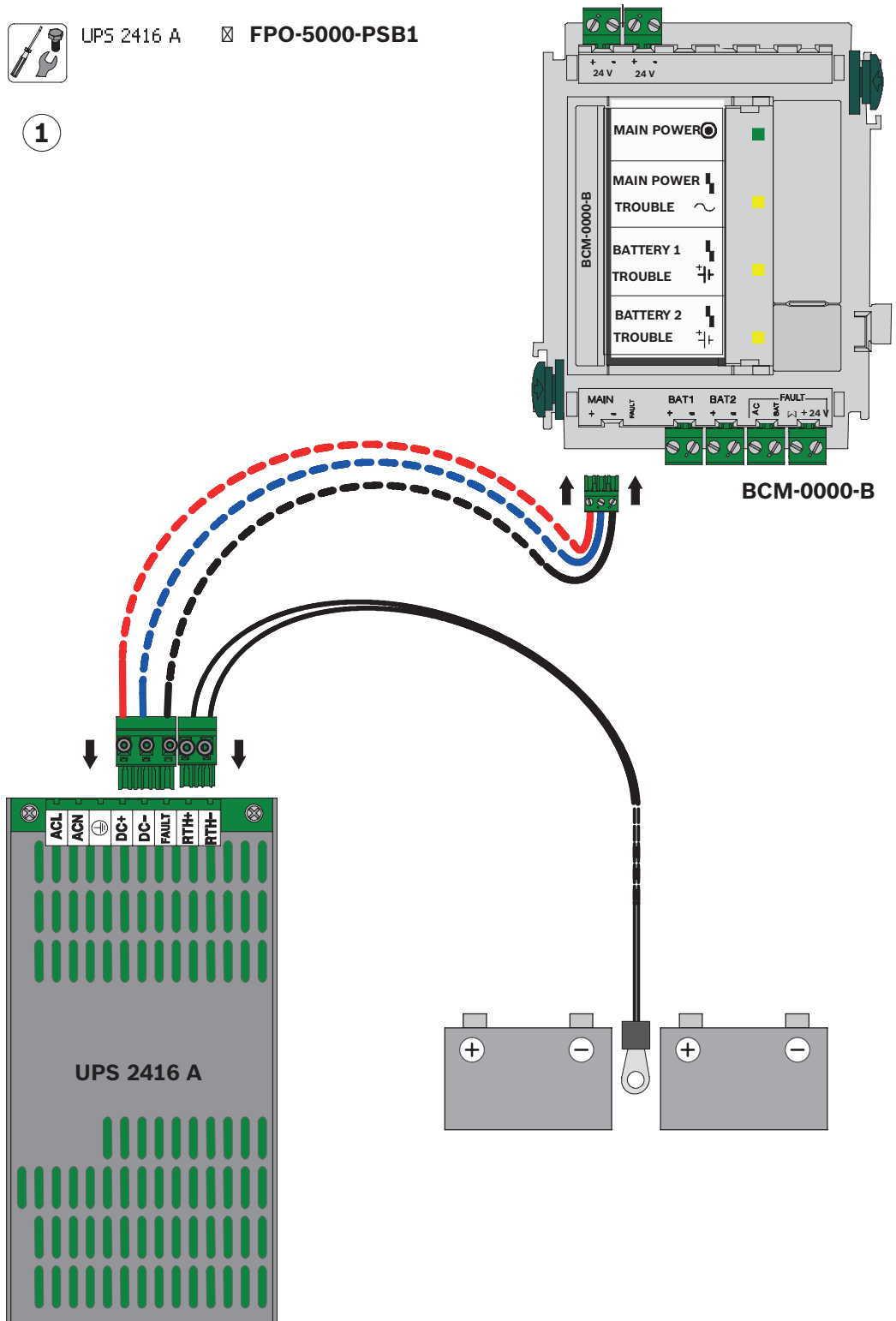
Figure 4.29: Installation of UPS 2416 A in FPO-5000-PSB1 (1)

UPS 2416 A   ☒ FPO-5000-PSB1
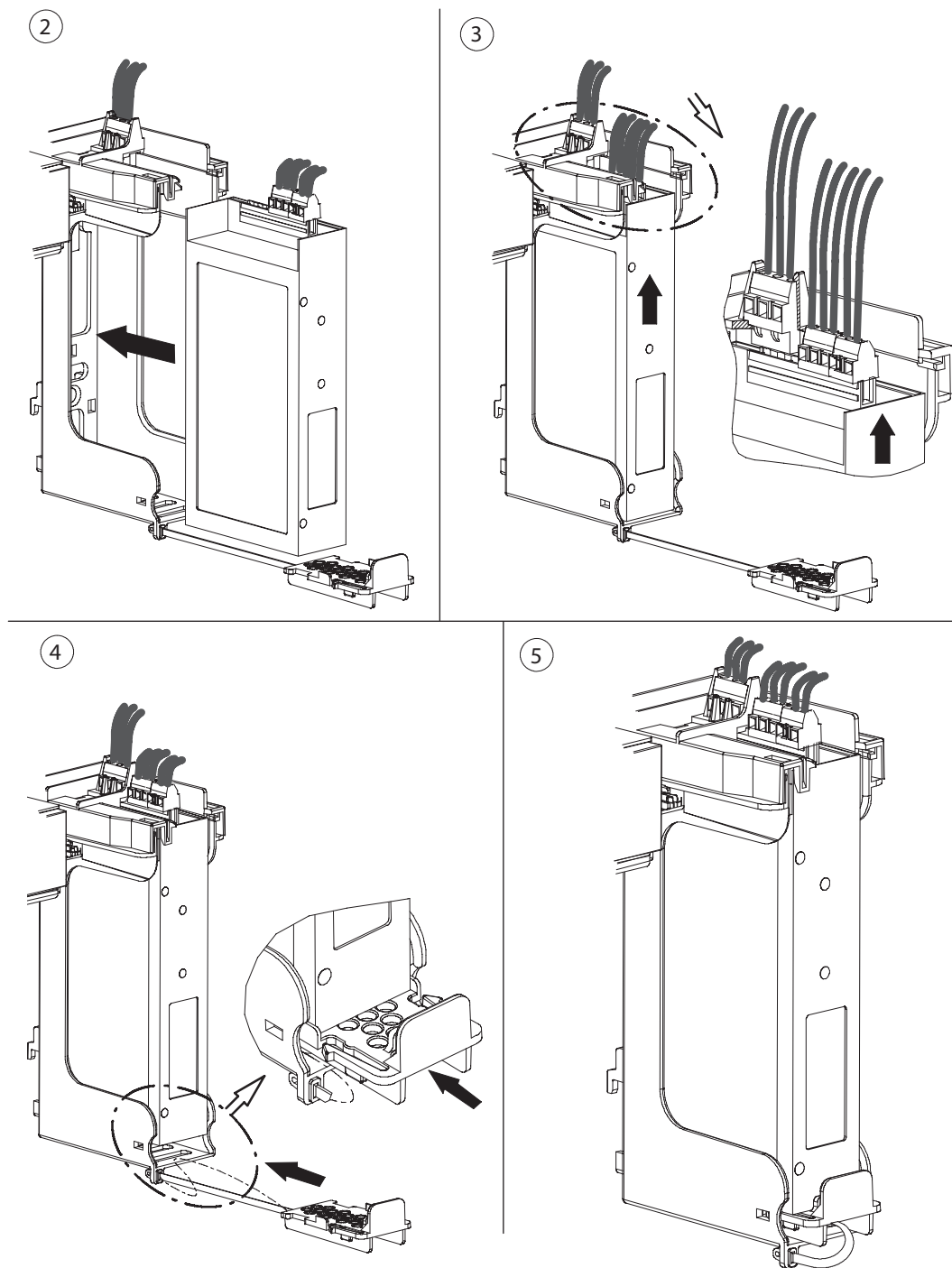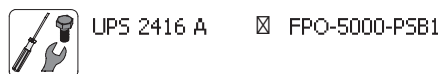
Figure 4.30: Installation of UPS 2416 A in FPO-5000-PSB1 (2-5)

	Notice!
i	Only one power supply unit can be installed in the FPO-5000-PSB-CH Power Supply Bracket (see figure).

UPS 2416 A   ☒   FPO-5000-PSB-CH
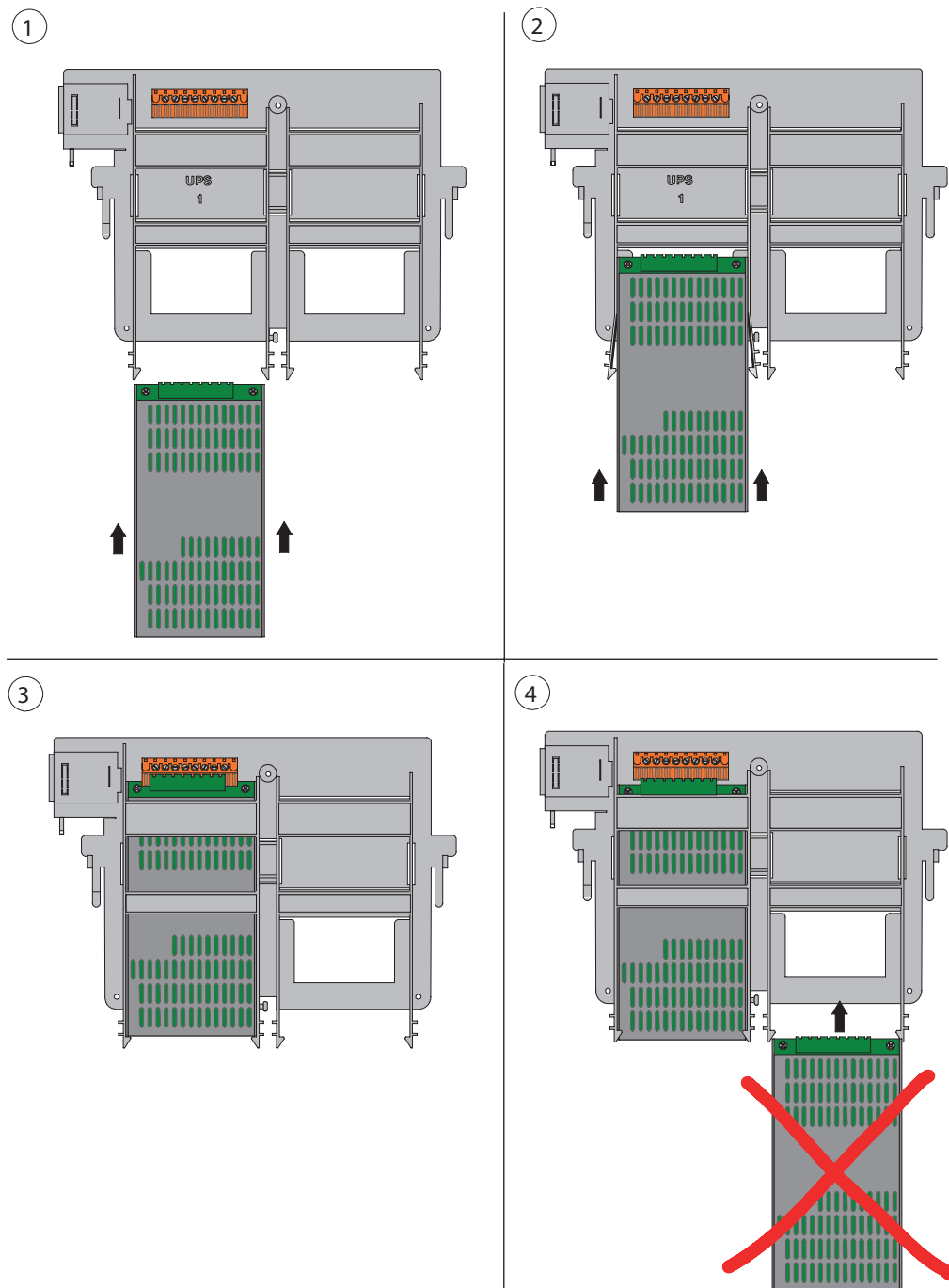
Figure 4.31: Installation of UPS 2416 A in FPO-5000-PSB-CH (1-4)

> **Notice!**
>
> Each power supply unit and each housing comes with a self-adhesive product label. Attach the sticker to the outside of the housing (see figure).
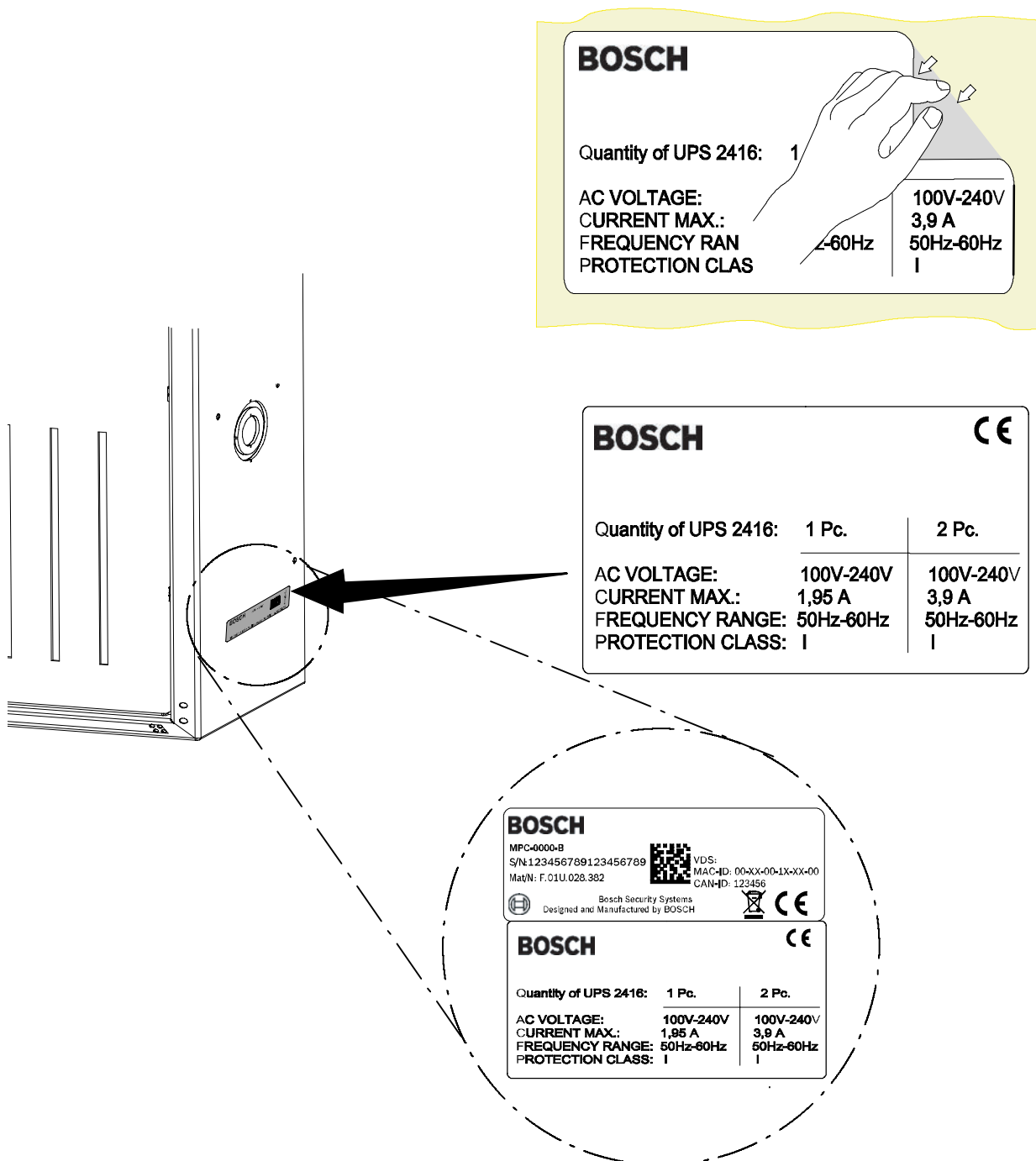
Figure 4.32: Attaching the stickers

4.7   Panel Rails

4.7.1   PRS-0002-C Panel Rail Short for 2 Modules

The PRS-0002-C Panel Rail Short has two module slots and is supplied with 24 V DC by the BCM-0000-B. An integrated voltage converter then generates the 5 V DC operating voltage required by the modules. Due to its concealed position behind the operating and display panel, the PRS-0002-C Panel Rail Short is intended for installation of the following modules without operating and display elements:

–   BCM-0000-B Battery Controller Module

– IOS 0020 A and IOS 0232 A Communication Modules
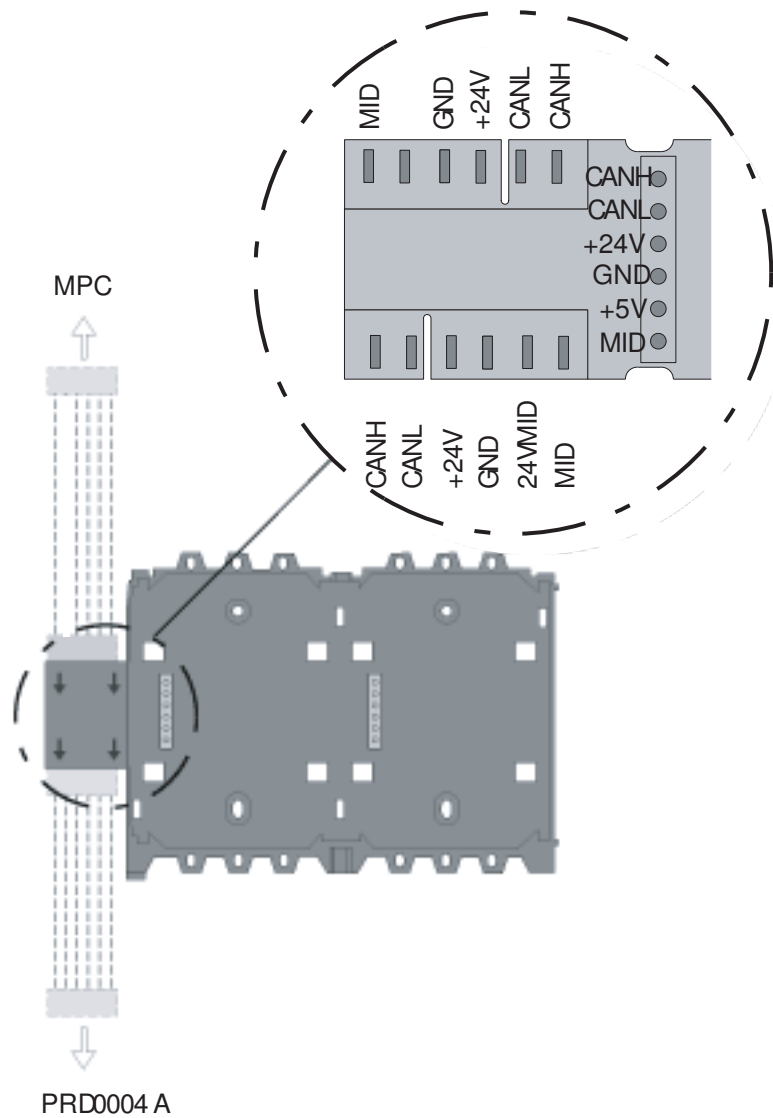
Figure 4.33: PRS-0002-C connections

The technical data can be found in *PRS-0002-C Panel Rail Short for 2 Modules, page 147*.

4.7.2 PRD 0004 A Panel Rail Long for 4 Modules

The PRD 0004 A Panel Rail Long has four module slots and is supplied with 24 V DC by the BCM. An integrated voltage converter then generates the 5 V DC operating voltage required by the modules.
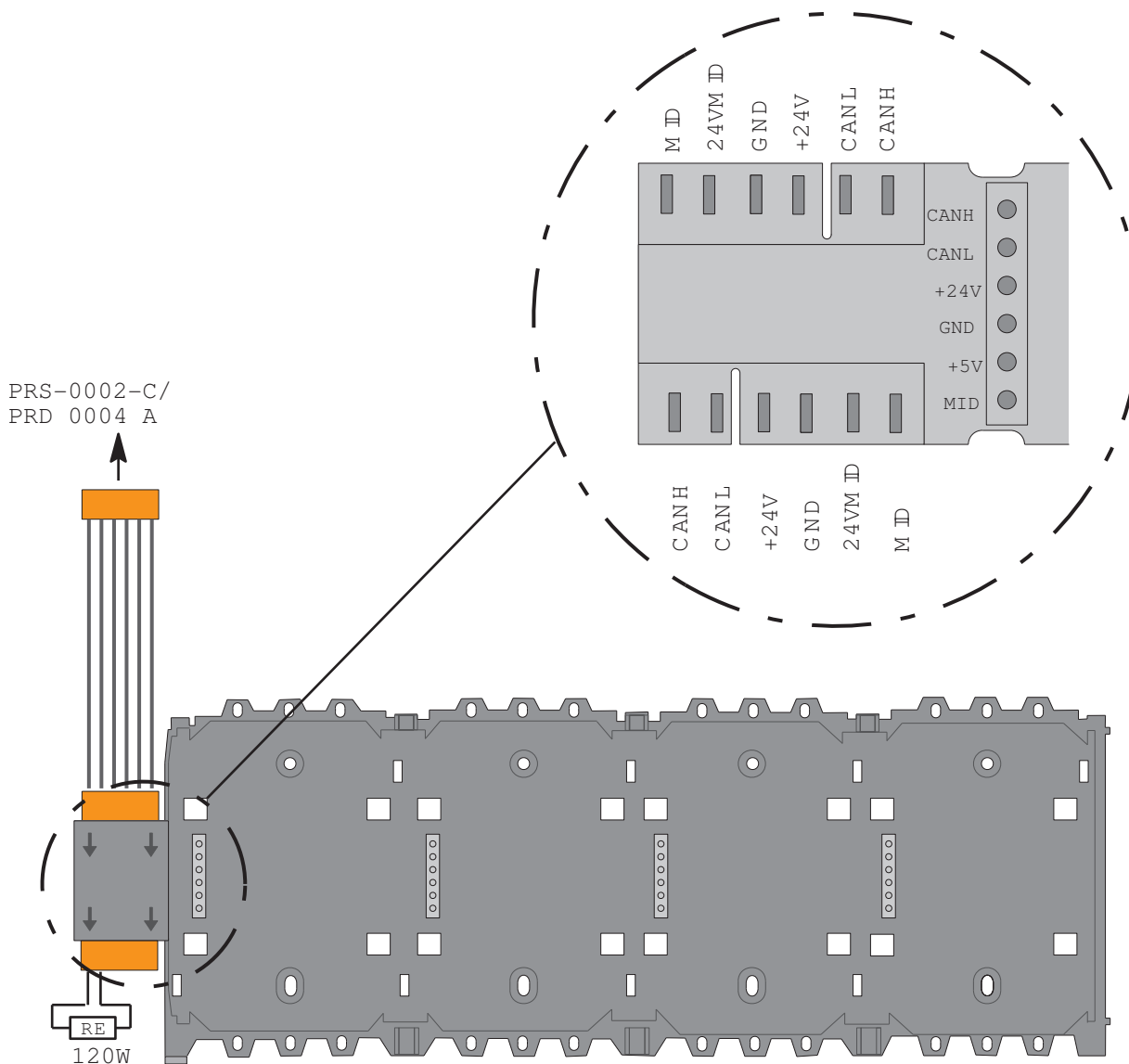
Figure 4.34: PRD 0004 A connections

The technical data can be found in *PRD 0004 A Panel Rail Long for 4 Modules, page 147*.
A line terminator (RE) has to be plugged at the open end of the last rail.

4.7.3   **Panel Rail Installation**

Short rail installation

CPH 0006 A   MPH 0010 A   HCP 0006 A   HBC 0010 A
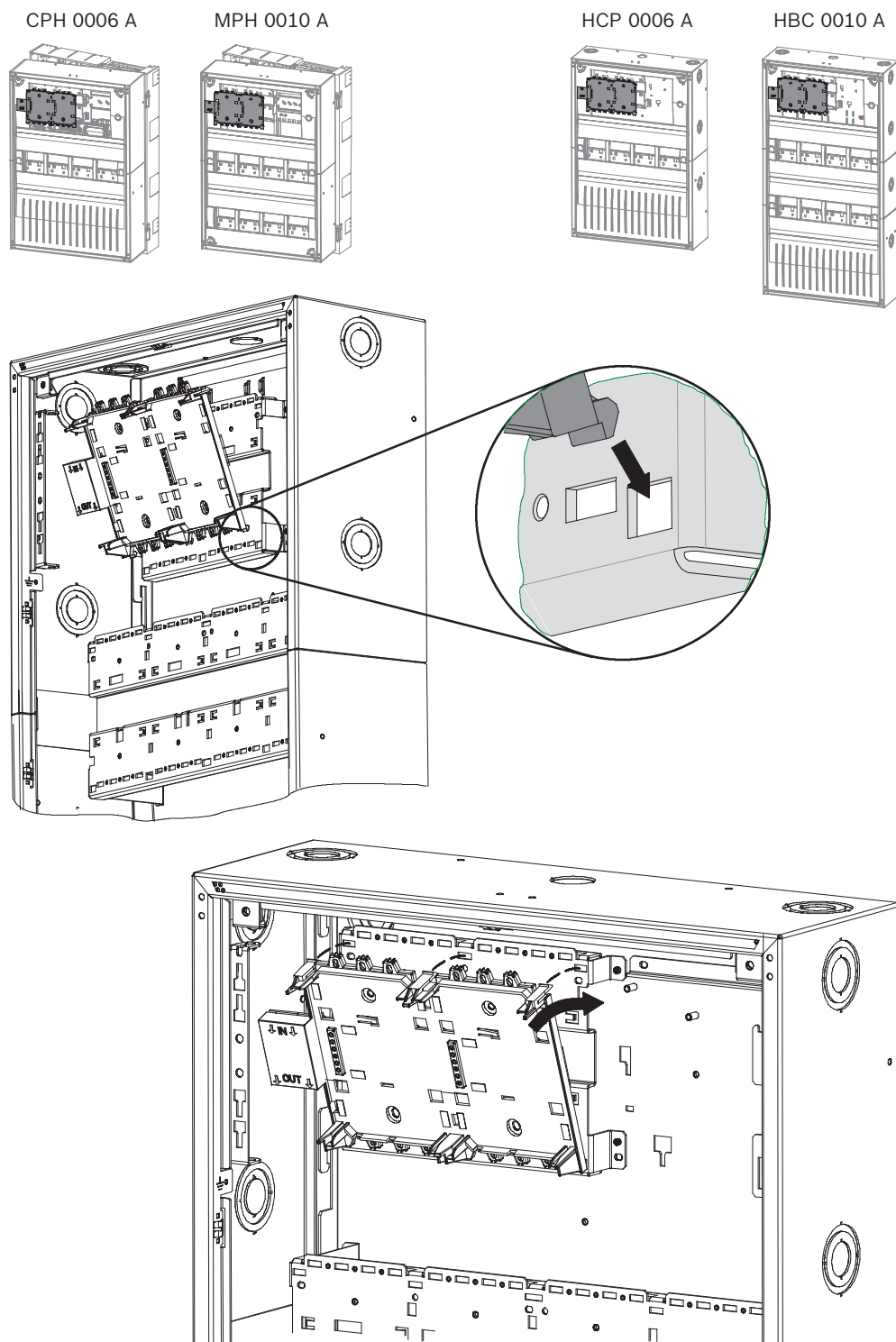
Figure 4.35: PRS-0002-C installation
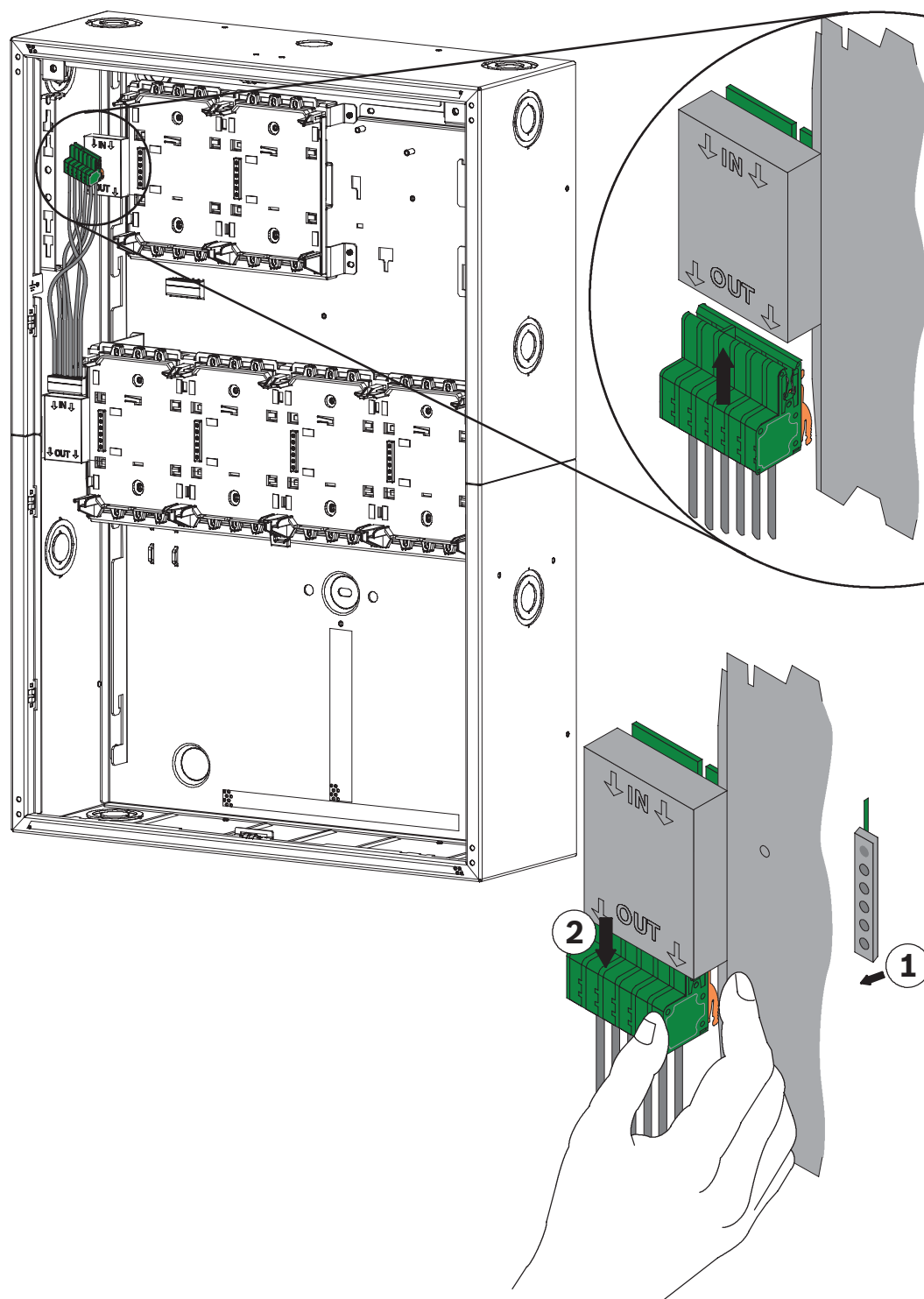
Figure 4.36: Connection of panel rail

Long rail installation

CPH 0006 A   MPH 0010 A   EPH 0012 A

HCP 0006 A   HBC 0010 A   HBE 0012 A
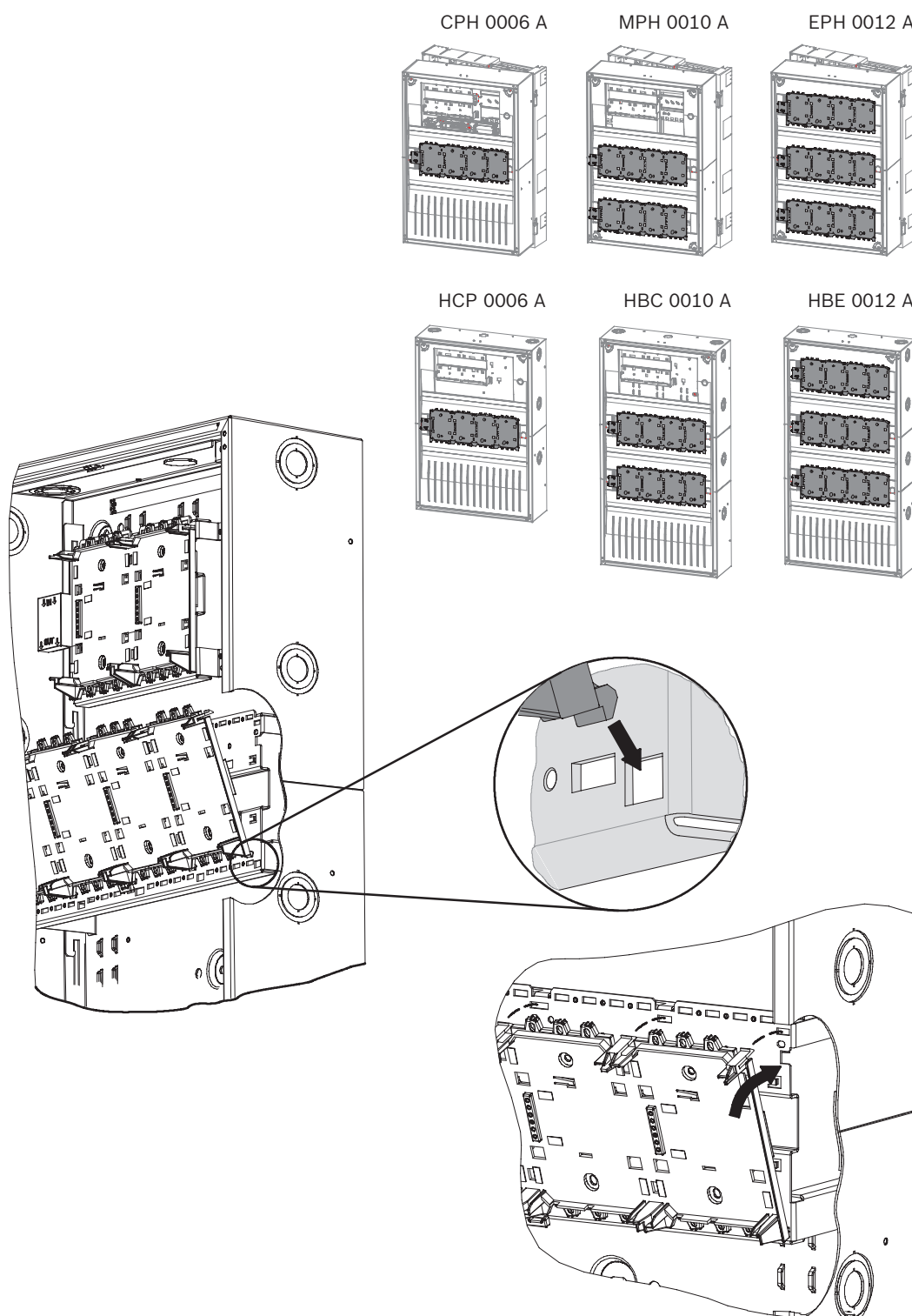
Figure 4.37: PRD 0004 A installation
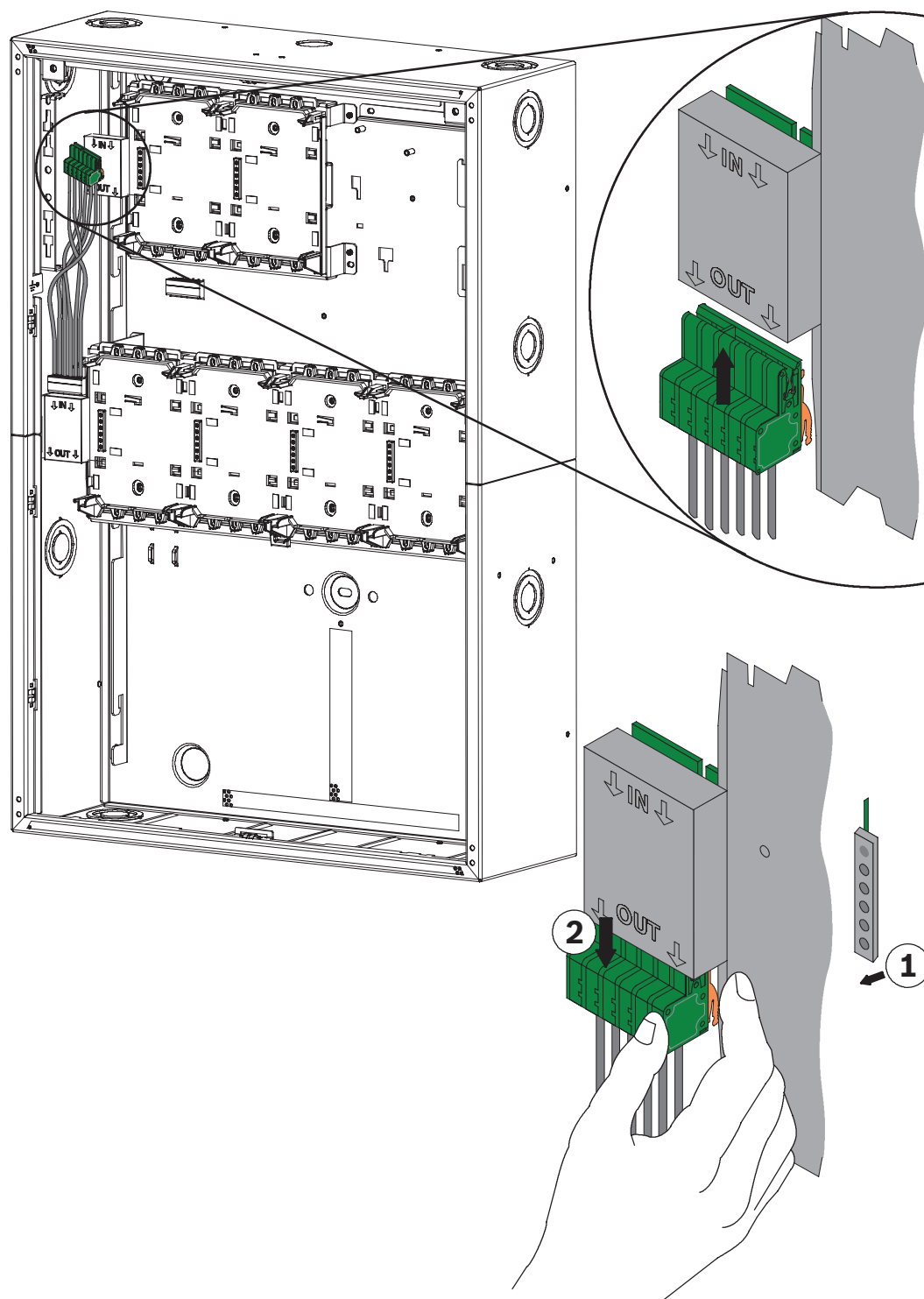
Figure 4.38: Connection of panel rail

4.8 MPC Panel Controller

The panel controller with the operating and display unit is the central element of the fire detection system.

> **Notice!**
> Installation must only be performed by authorized and specialized personnel!

> **Notice!**
> The CD includes the FSP-5000-RPS Programming Software and the required product documentation of the panel.

The technical data can be found in *MPC, page 149*.
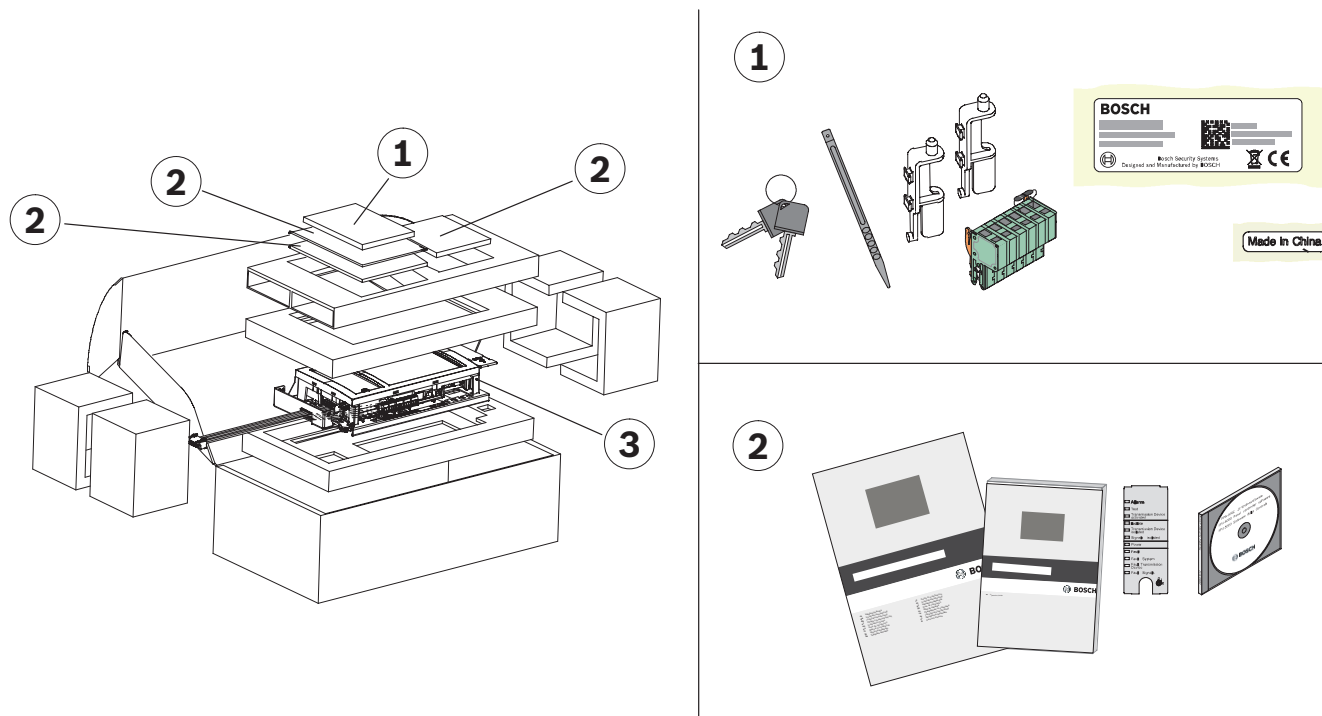
Figure 4.39: Scope of delivery for MPC

Functional Description
The panel controller controls all components in the system and has the following functional elements
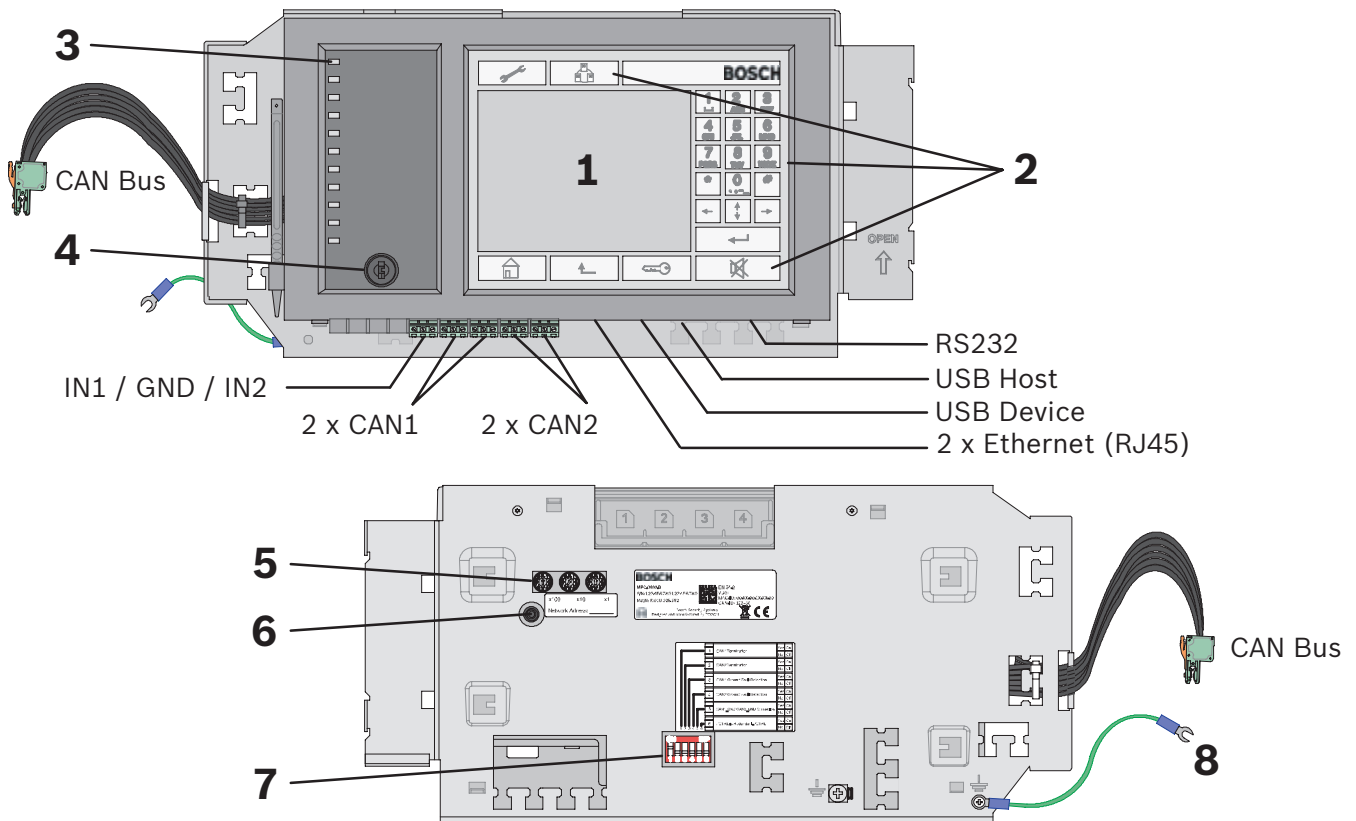
Figure 4.40: MPC functional elements

Position	Designation	Function
1	Touch screen	Operation of the panel using virtual keys and variable display windows
2	22 permanent keys	Standard inputs
3	11 LEDs	Display operating status. The LED strip can be provided with a labeling strip. A country-specific insert strip is enclosed with the operating instructions.
4	Key switch	Two switch positions, freely programmable, e.g. for switching between day/night mode or activating/deactivating local alarms
5	3 rotary switches	Address setting
6	Reboot button	Panel hardware reset
7	6-pin DIP switch	Configuration setting
8	Grounding cable	Panel controller grounding

Networking and Interfaces

The panel controller has

– 2 CAN interfaces (CAN1/CAN2) for networking
– 2 Ethernet interfaces (ETH1/ETH2) für Vernetzung
– 2 signal inputs (IN1/IN2)
– 1 USB and 1 RS232 interface

Note the maximum cable length of 2 m for connection to the USB and RS232 interface.

Notice!

You will find detailed information about the CAN and Ethernet networking of the panels in the Networking Guide available for download at www.boschsecurity.com.

When connecting to a building management system (BIS) via an OPC server and Ethernet 100BaseTX in multiple building networks, you must clarify with the network administrator whether

1.   the network is designed for multiple building connections (e. g. there must be no technical interference due to differences in grounding potential);
2.   the bandwidth of the bus users is sufficient for the network.

Information about address setting and configuration in the network can be found in section *Addressing and Settings in the Network, page 94*.

Notice!

For detailed information about the installation und configuration of the OPC server see the FSM-5000-OPC-Server manual.

USB Device   RS232

max. 3 m   max. 3 m
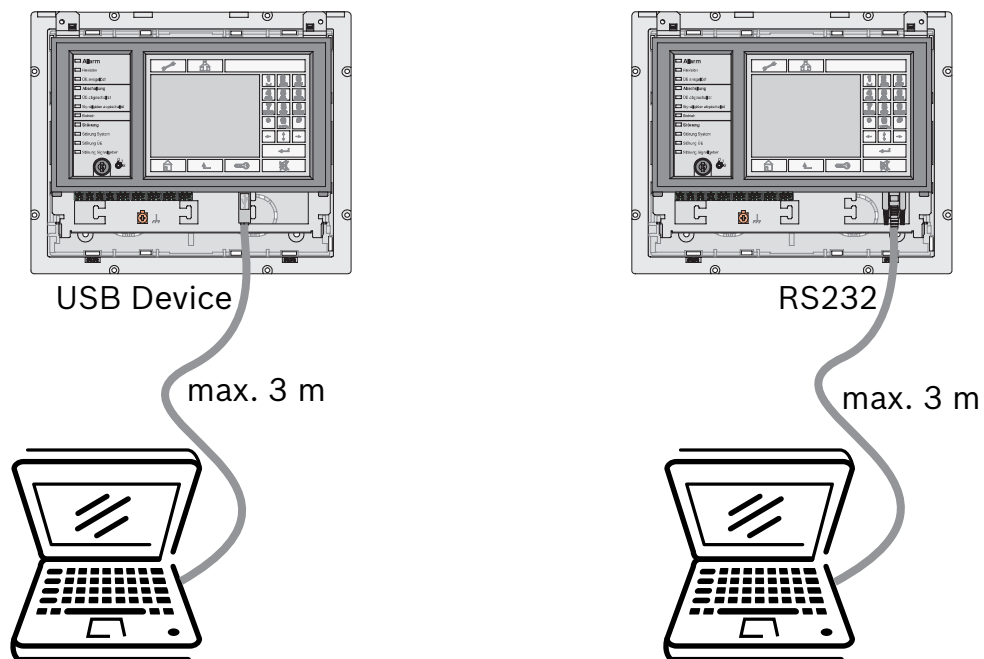
Figure 4.41: MPC, USB and RS232 interfaces
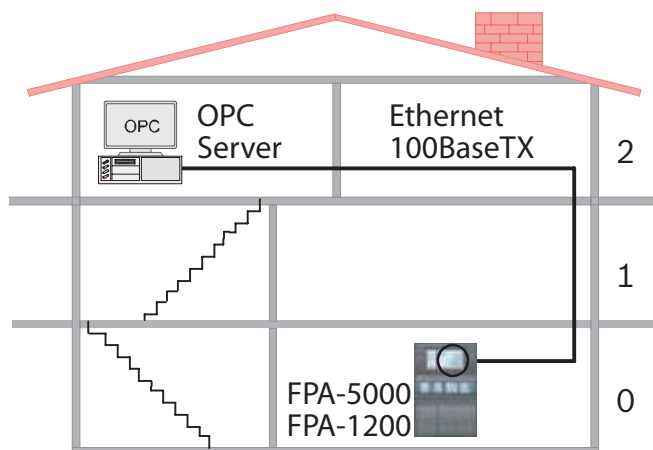
Figure 4.42: MPC connection to BIS via OPC server

Installation

The MPC Panel Controller can be installed in the following housings: CPH 0006 A, MPH 0010 A, HCP 0006 A and HBC 0010 A.

For installation, follow the instructions on the following pages.

Notes:

– Make sure the Panel Rail Short is installed before you install the panel controller.
– Secure the grounding cable at the screw provided on the housing (4).
– Plug the cable into the "IN" slot on the Panel Rail Short (6).
    Caution: Connection at the "OUT" slot or to a Panel Rail Long is not permissible.
– Plug the terminal element for the data bus into the "OUT" slot on the last occupied panel rail (8).

1.

PRS-0002-C

2.

3.
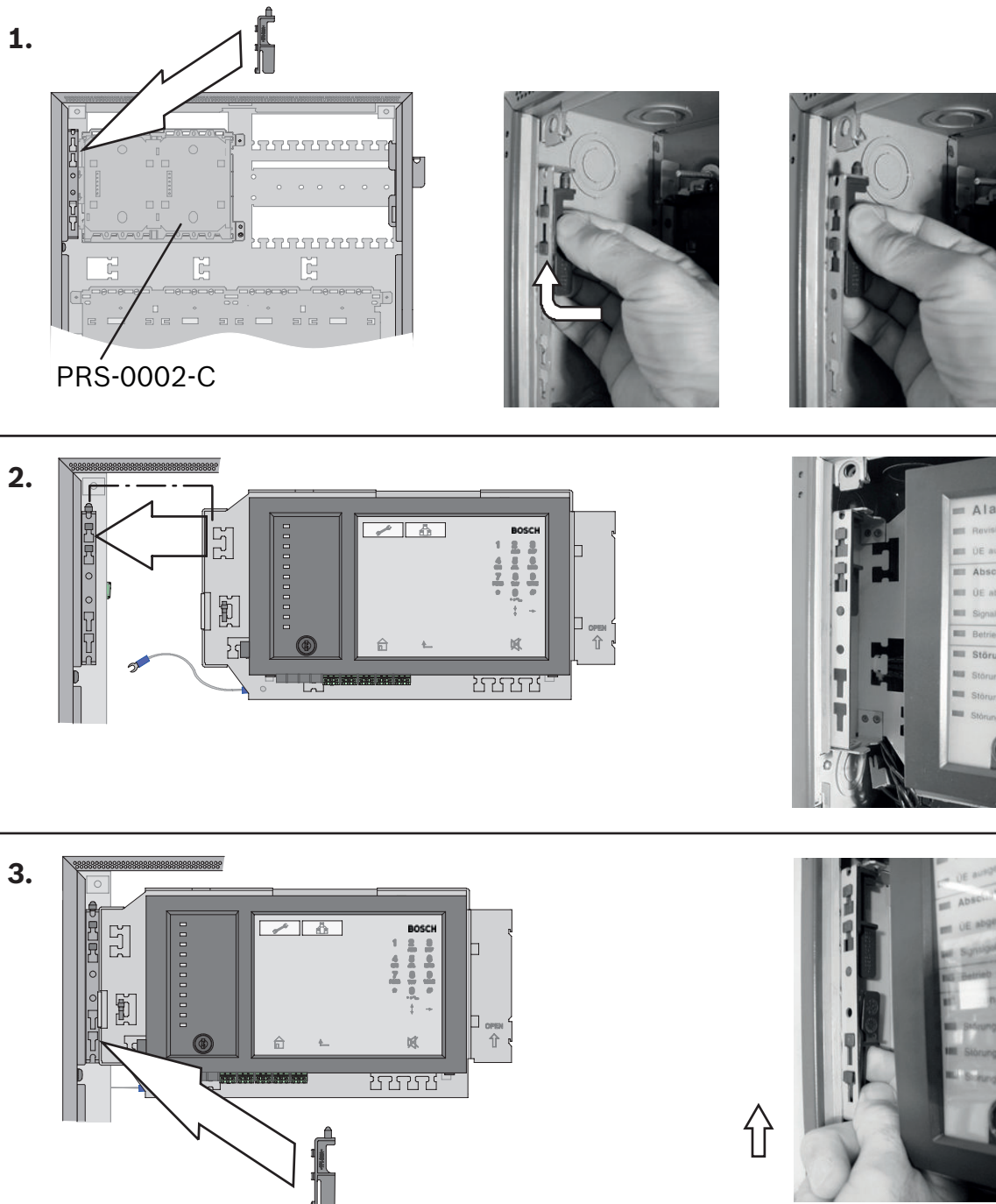
Figure 4.43: MPC installation (1-3)

4.

5.

6.

PRS-0002-C

PRD-0004-A
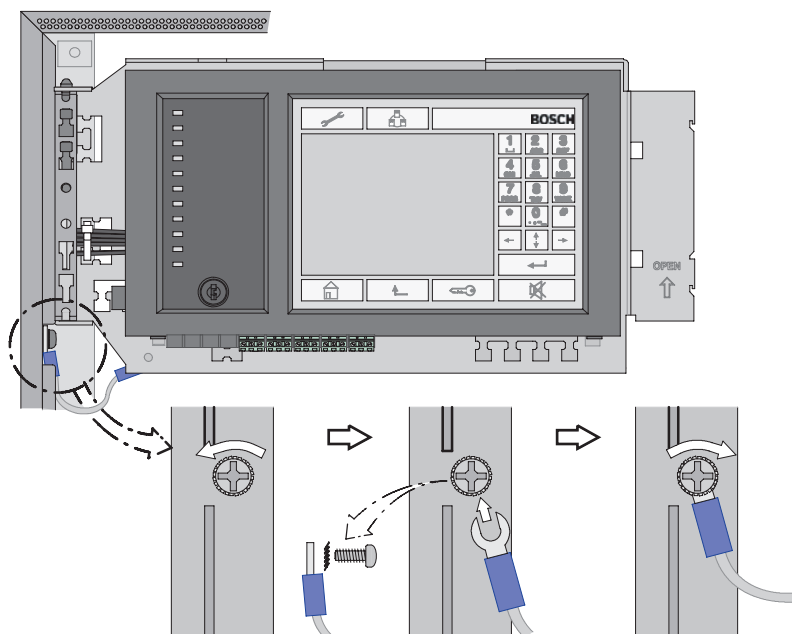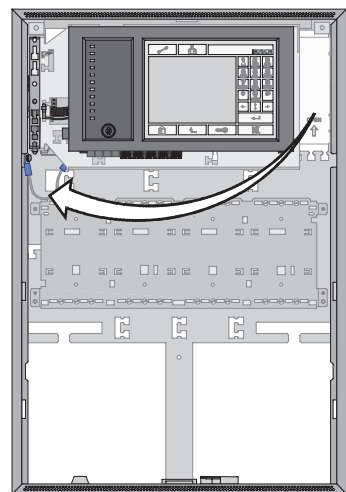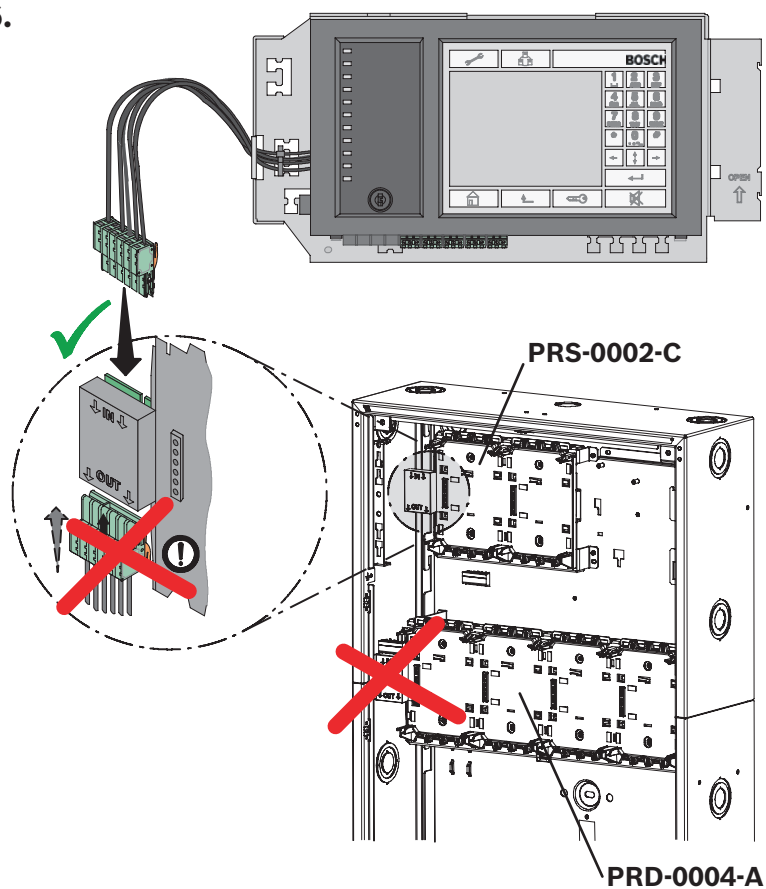
Figure 4.44: MPC installation (4-6)

7.

8.

9.

Figure 4.45: MPC installation (7-9)

Address Cards ADC xxxx A

Address cards are used to specify the number of possible detection points.

Figure 4.46: ADC XXXX A address cards

One panel can be equipped with up to four address cards each with 64, 128, 512, 1024 or 2048 addresses, depending on requirements. The address cards are plugged into slots on the back of the panel controller. The address cards can be used in any order.

Designation	Description
ADC 0064 A	SIM card with 64 addresses
ADC 0128 A	SIM card with 128 addresses
ADC 0512 A	SIM card with 512 addresses
ADC 1024 A	SIM card with 1024 addresses
ADC-2048-A	SIM card with 2048 addresses

When selecting the address card, note:
– Each module, each monitored module input and each LSN element occupies a detection point (an address).
– An FPA-5000 can manage up to 4096 addresses.

A detailed explanation of addresses and detection points can be found starting on *Detection Points, page 26*.

1	2	3	4	Σ	/OPC/OPC+VA ≤ 2048
X	X	0064	OPC/VA/OPC+VA	0064	✔
X	X	0128	OPC/VA/OPC+VA	0128	✔
X	0128	0128	OPC/VA/OPC+VA	0256	✔
0128	0128	0128	OPC/VA/OPC+VA	0384	✔
X	X	0512	OPC/VA/OPC+VA	0512	✔
X	0128	0512	OPC/VA/OPC+VA	0640	✔
0128	0128	0512	OPC/VA/OPC+VA	0768	✔
0128	0128	0128	0512	0896	✔
X	0512	0512	OPC/VA/OPC+VA	1024	✔
0128	0128	1024	OPC/VA/OPC+VA	1280	✔
0512	0512	0512	OPC/VA/OPC+VA	1536	✔
0064	0128	0512	1024	1728	✔
0512	0512	1024	OPC/VA/OPC+VA	2048	✔
0128	1024	1024	VA	2176	✖
0064	0128	1024	1024	2240	✖
0512	1024	1024	VA	2560	✖
0128	0512	2048	VA	2688	✖
0064	0128	0512	2048	2752	✖
0512	0512	2048	VA	3072	✖
0128	1024	2048	VA	3200	✖
0064	0128	1024	2048	3264	✖
0512	1024	2048	VA	3584	✖
0128	0512	1024	2048	3712	✖
1024	1024	2048	VA	4096	✖

Figure 4.47: Address Cards ADC xxxx A

ADC-5000-OPC License Key

The ADC-5000-OPC License Key is a special address card that enables communication between the OPC server and an FPA-5000 Modular Fire Panel. The OPC server connects the fire panel to a building management system (BIS).

Although all the panels in a network can be connected to the OPC server, the license key only needs to be fitted to one of them.

The address cards can be in any order in a panel.

Further information can be found in *Connection to BIS, page 22*.

ADC-5000-VA Licence Key

The ADC-5000-VA enables the IP Ethernet data interaction between the FPA-5000/FPA-1200 fire panel and the Praesideo voice alarm system. The activation of all programmed voice zones is realized by only one data connection without additional devices.

ADC-5000-OPC-VA Licence Key

OPC server connection and Praesideo voice alarm system are independently activated with only one licence key.

1	2	3	4	Σ	/OPC/OPC+VA ≤ 2048
X	X	0064	OPC/VA/OPC+VA	0064	✔
X	X	0128	OPC/VA/OPC+VA	0128	✔
X	0128	0128	OPC/VA/OPC+VA	0256	✔
0128	0128	0128	OPC/VA/OPC+VA	0384	✔
X	X	0512	OPC/VA/OPC+VA	0512	✔
X	0128	0512	OPC/VA/OPC+VA	0640	✔
0128	0128	0512	OPC/VA/OPC+VA	0768	✔
0128	0128	0128	0512	0896	✔
X	0512	0512	OPC/VA/OPC+VA	1024	✔
0128	0128	1024	OPC/VA/OPC+VA	1280	✔
0512	0512	0512	OPC/VA/OPC+VA	1536	✔
0064	0128	0512	1024	1728	✔
0512	0512	1024	OPC/VA/OPC+VA	2048	✔
0128	1024	1024	VA	2176	✖
0064	0128	1024	1024	2240	✖
0512	1024	1024	VA	2560	✖
0128	0512	2048	VA	2688	✖
0064	0128	0512	2048	2752	✖
0512	0512	2048	VA	3072	✖
0128	1024	2048	VA	3200	✖
0064	0128	1024	2048	3264	✖
0512	1024	2048	VA	3584	✖
0128	0512	1024	2048	3712	✖
1024	1024	2048	VA	4096	✖

Figure 4.48: ADC-5000-OPC License Key

Addressing and Settings in the Network

The panels and remote keypads are identified in the network by a unique address. This address is set on the rotary switches and is known as the rotary switch number (RSN) (see the figures in the circle on the circuit diagrams). The rotary switches are located on the rear of the panel controller (see *Addressing and Configuration of MPC Panel Controller , page 96*). Note the address on the sign below the rotary switches (see *Addressing and Configuration of MPC Panel Controller , page 96*, step 2).

The DIP switches are located on the rear of the panel controller (see *Addressing and Configuration of MPC Panel Controller , page 96*).

Mark the selected setting on the sign above the DIP switches (see *Addressing and Configuration of MPC Panel Controller , page 96*, step 4).

i	**Notice!** Redundant panels must have identical addresses.

i	**Notice!** You will find detailed information about the CAN and Ethernet networking of the panels in the Networking Guide available for download at www.boschsecurity.com.

Addressing and Configuration of MPC Panel Controller
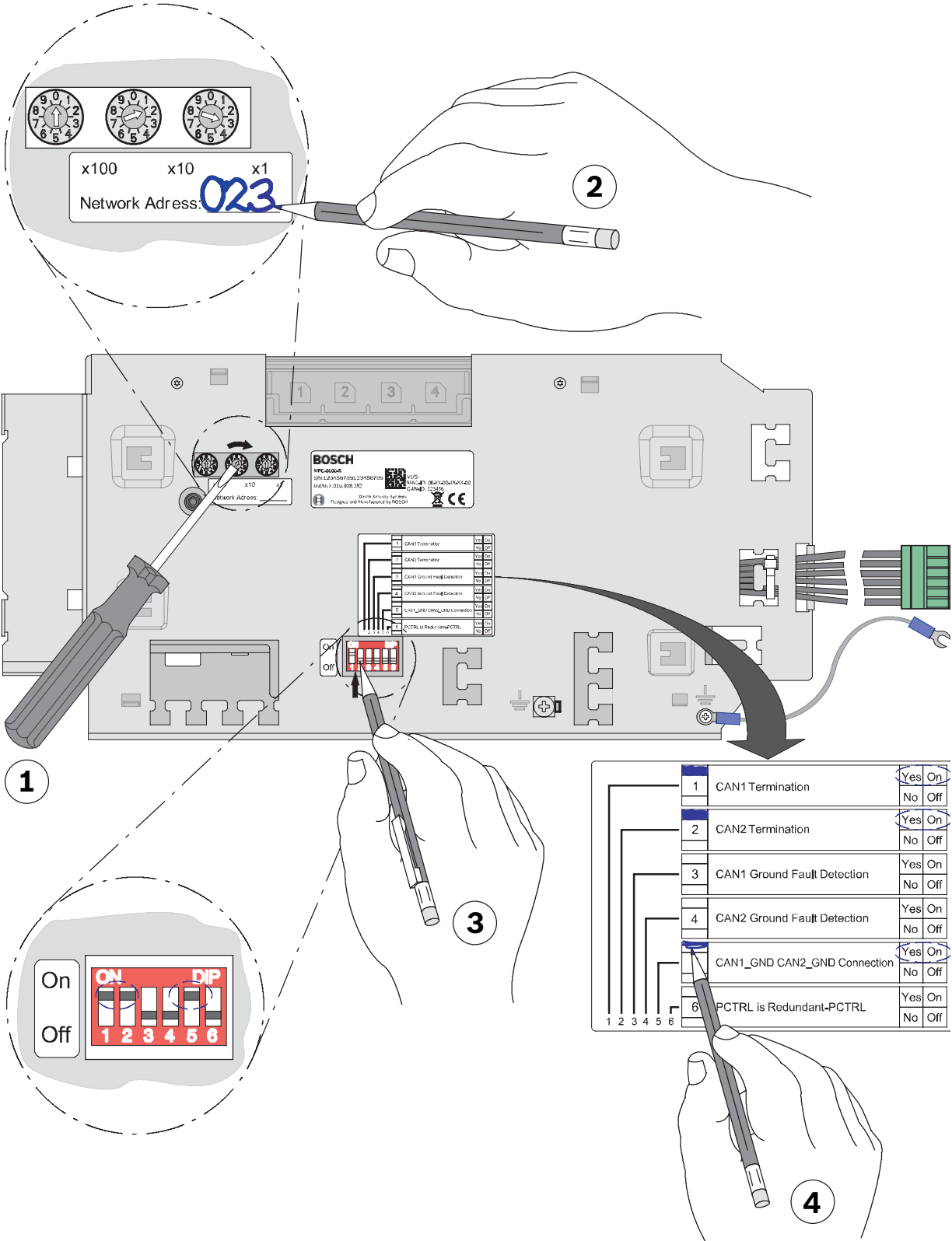
Figure 4.49: MPC Panel Controller, addressing

		Yes	On
1	CAN1 Termination		
		No	Off
2	CAN2 Termination	Yes	On
		No	Off
3	CAN1 Ground Fault Detection	Yes	On
		No	Off
4	CAN2 Ground Fault Detection	Yes	On
		No	Off
5	CAN1_GND CAN2_GND Connection	Yes	On
		No	Off
6	PCTRL is Redundant-PCTRL	Yes	On
		No	Off
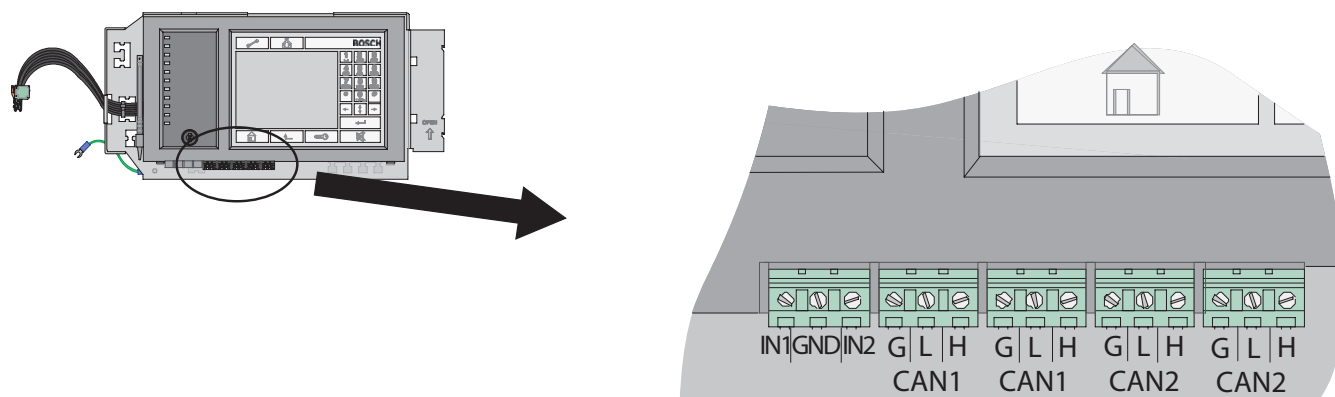
Figure 4.50: MPC Panel Controller, network connections

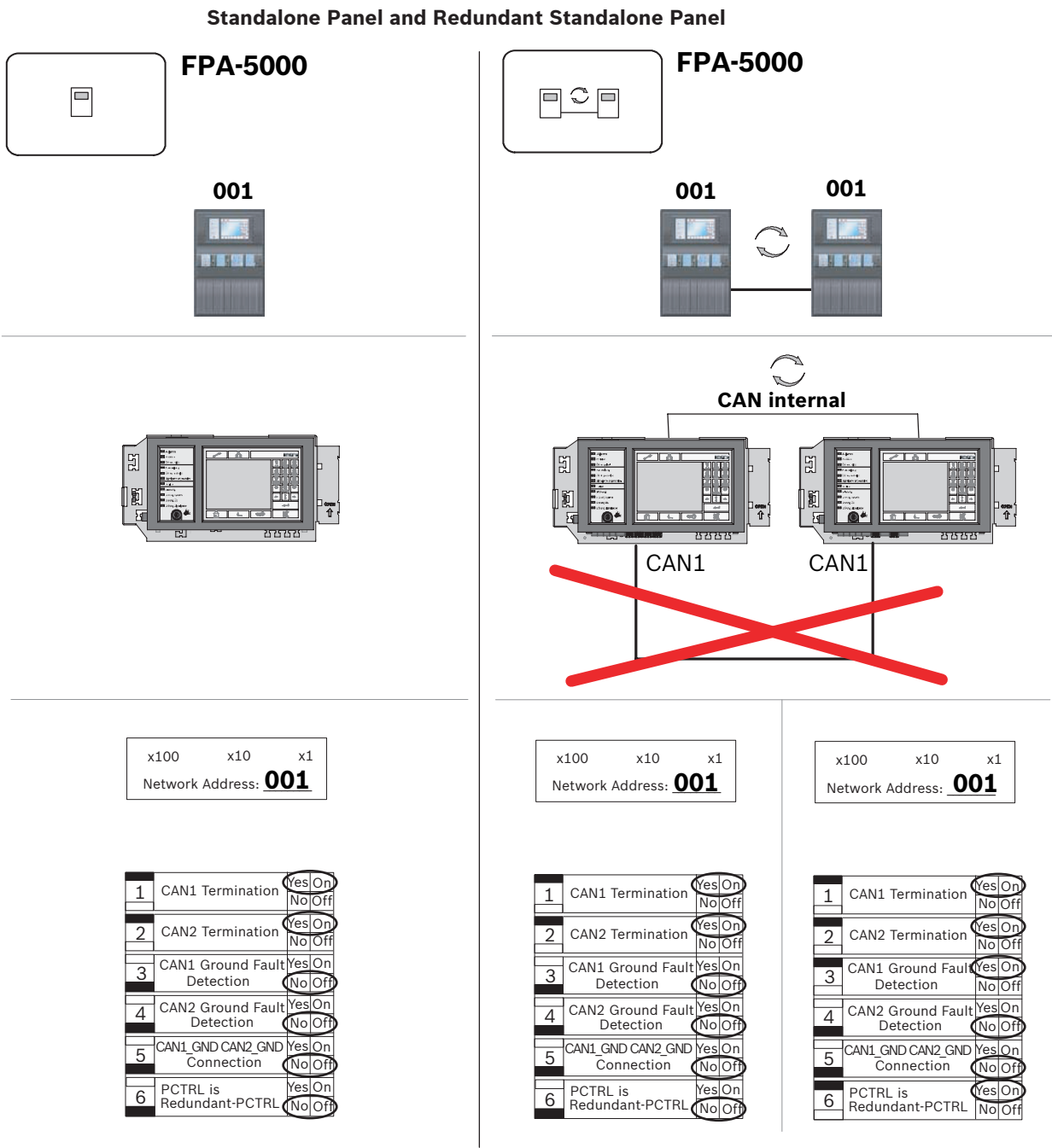**Standalone Panel and Redundant Standalone Panel**

Figure 4.51: Standalone panel (regular and redundant): Configuration in network

4.9   Functional Modules

Each functional module has been developed for a specific function within the fire detection system.

All modules feature:

– robust, totally enclosed housings
– replacement during operation
– pluggable connection terminals
– automatic detection

The plug contacts in the panel rail provide the power supply to the modules and handle all data traffic between the module and control panel.

The module is automatically identified as soon as it is plugged in. Contact with peripherals is achieved with compact plug/screw terminals. If a module is replaced
the plug/screw terminals are simply re-fitted, with no need for complex rewiring.
Functional settings on the modules are made using the FSP-5000-RPS programming software.
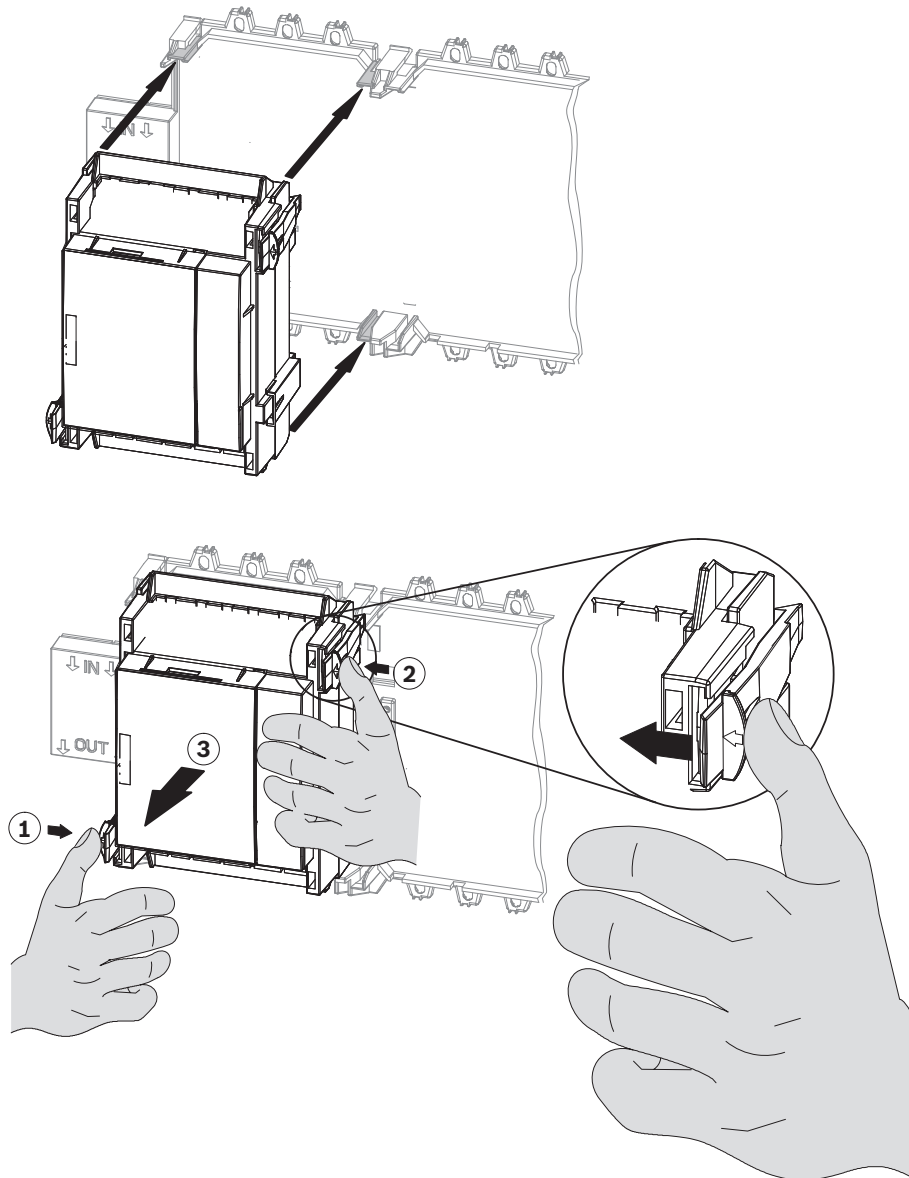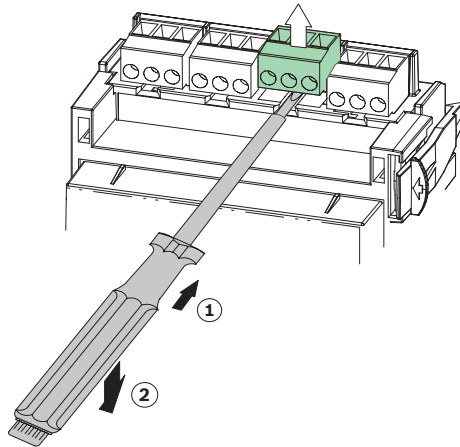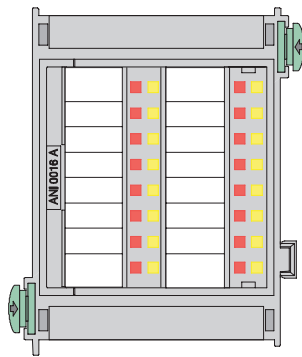
4.9.1   Installation and Removal

Figure 4.52: Installation and removal of functional modules

Figure 4.53: Detaching the screw terminal block

4.9.2   ANI 0016 A Annunciator Module

Figure 4.54: ANI 0016 A Annunciator Module

The annunciator module has 16 red and 16 yellow LEDs for displaying the operating states of 16 definable detection points.

The activation of each LED is defined using the FSP-5000-RPS programming software.

This defines which detection points will activate the LEDs in which state.

The technical data can be found in *ANI 0016 A Annunciator Module, page 150*.

4.9.3   BCM-0000-B Battery Controller Module

The BCM-0000-B Battery Controller Module monitors the power supply of the entire panel and regulates the temperature and time-controlled charging of up to four batteries.

The following functions are available using the keys on the module **(1)**:

–   The four LEDs on the module light up as a confirmation and LED test each time the key is pressed.

–   If the batteries have a voltage of between 18 V and 21 V, the battery charging procedure can be started manually. Please note that a power supply must be available.

–   The 24 V switch outputs can be reset.

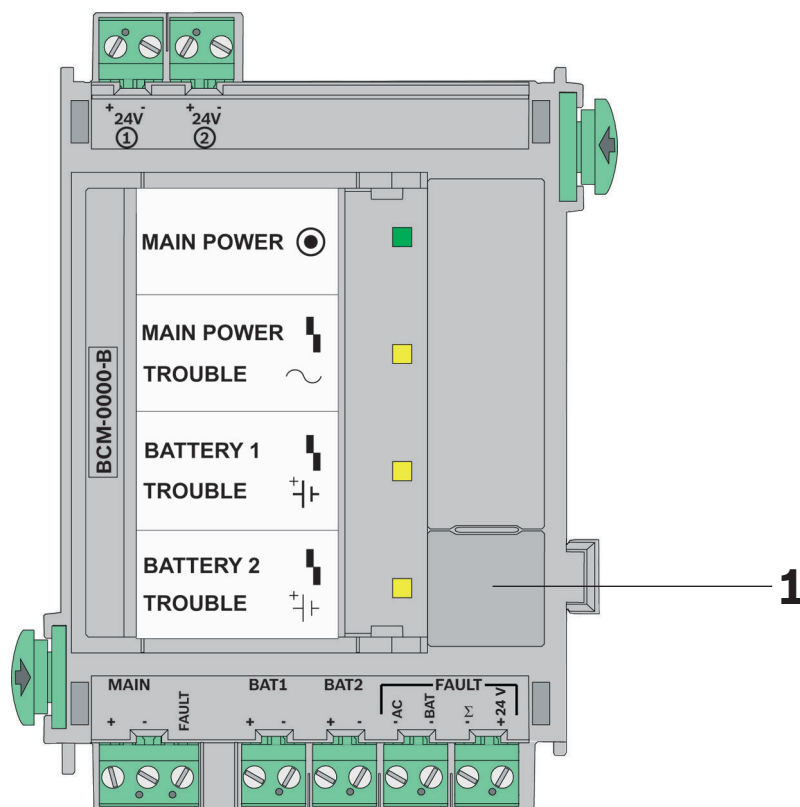   The switch output is deactivated if a fault occurs.

Figure 4.55: BCM-0000-B Battery Controller Module

| Top connections, from left to right	
24 V + | -	Switch output +24 V max. 2.8 A (battery buffered, optional)
24 V + | -	Switch output +24 V max. 2.8 A (battery buffered, optional)
Lower connections, from left to right	
MAIN + | -	Power supply unit connection
MAIN FAULT	Signal input for power supply unit fault
BAT1 + | -	Battery pair 1 connection
BAT2 + | -	Battery pair 2 connection
FAULT AC -	Switch output for mains fault
FAULT BAT -	Switch output for battery fault
FAULTΣ -	Switch output for collective fault
FAULT +24 V	Switch output +

Notes

– The module can only be used with the MPC Panel Controller from software version 2.1 onwards.
– If the FPA-5000 Fire Panel is not supplied with mains power, it can only be started
    – if a battery pair is connected to BAT1 and
    – no second battery pair is connected to BAT2.

If batteries are connected to the BAT2 connection on the module, the system will report a battery fault and will not start. This battery fault can only be reset if the FPA-5000 Fire Panel is supplied with mains power and the BAT 2 connection is configured.

– If the FPA-5000 Fire Panel is not supplied with mains power for an extended period, ensure that the batteries are disconnected.

– When using the module in the FPP-5000 External Power Supply, only one battery pair can be charged (see *FPP-5000 External Power Supply Unit Kit 24 V/6 A, page 120*).

– Refer to the configuration information in *Configuration of BCM Battery Controller Module, page 35*.

The technical data can be found in *BCM-0000-B Battery Controller Module, page 151*.

Wiring Diagram
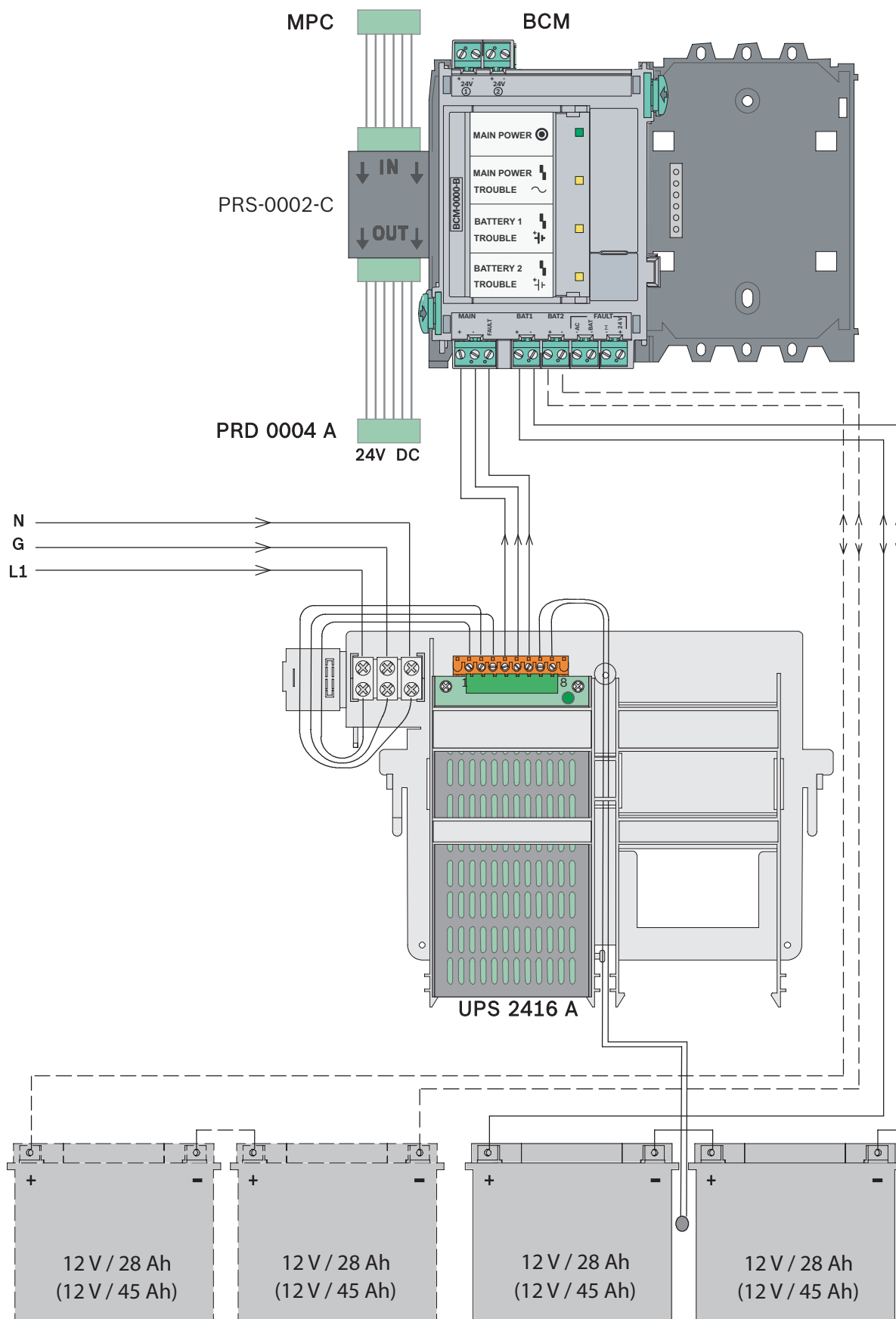
Figure 4.56: Wiring diagram for BCM-0000-B

Battery Connection
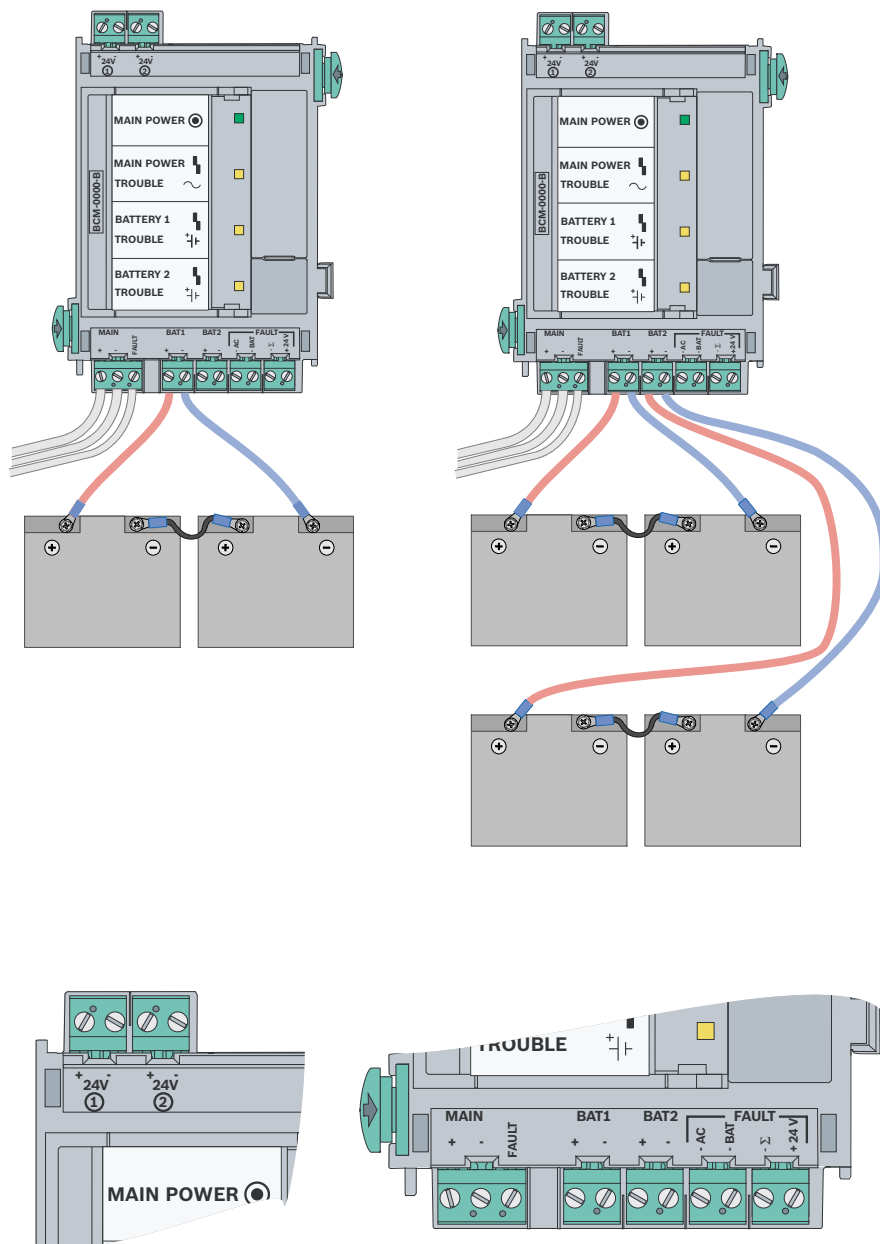
Figure 4.57: BCM-0000-B battery connection

Cable Set

A cable set is supplied and contains 2 connection cables: BCM/battery (90 cm) and battery/ battery (17 cm).

If you want to install the batteries in a power supply housing, you require the CBB 0000 A Cable Set (BCM/battery cable length 180 cm).

Warning!

There is a risk of injury if no temperature sensor is positioned between the batteries.

The temperature sensor is supplied with the power supply bracket and protects the batteries against overheating. If the sensor is not positioned correctly, the batteries can overheat and explode.

Position the temperature sensor between the batteries.

4.9.4 CZM 0004 A 4 Zone Conventional Module

The CZM 0004 A Conventional Module enables particular existing conventional peripherals to be connected. It provides connections for four monitored conventional lines.
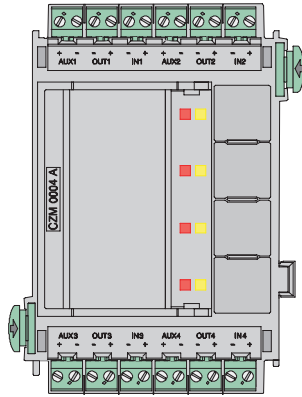

Figure 4.58: CZM 0004 A 4 Zone Conventional Module

Labeling	Connection
AUX1 +	AUX1 -	24 V DC auxiliary power supply zone 1
OUT1 -	OUT1 +	Zone 1 output low/zone 1 output high
IN1 -	IN1 +	Zone 1 input low/zone 1 input high
AUX2 +	AUX2 -	24 V DC auxiliary power supply zone 2
OUT2 -	OUT2 +	Zone 2 output low/zone 2 output high
IN2 -	IN2 +	Class A zone 2 input low/class A zone 2 input high
AUX3 +	AUX3 -	24 V DC auxiliary power supply zone 3
OUT3 -	OUT3 +	Zone 3 output low/zone 3 output high
IN3 -	IN3 +	Class A zone 3 input low/class A zone 3 input high
AUX4 +	AUX4 -	24 V DC auxiliary power supply zone 4
OUT4 -	OUT4 +	Zone 4 output low/zone 4 output high
IN4 -	IN4 +	Class A zone 4 input low/class A zone 4 input high

Notes
– All additional voltage outputs (AUX 1–AUX 4) can be switched on and off simultaneously.
– Two and four-wire conventional components can be connected.
– Note the maximum line resistance:
    – 25 Ohm for conventional lines with FMC-300-RW or automatic fire detectors
    – 12 Ohm for conventional lines with FMC-120-DKM call points

Notice!

To ensure that operation of the fire detection system complies with EN 54-13, each conventional line must be terminated with EOL modules.
The EOL modules can be used with CZM modules from software version 1.1.10 onwards.

The technical data can be found in *CZM 0004 A 4 Zone Conventional Module, page 151*.

4.9.5   ENO 0000 B Fire Service Interface Module

The ENO 0000 B is used to connect fire service equipment:

– Transmission device to the fire brigade
– Key deposit
– Signal lamp (e.g. BEGA flush-mounting lamp or BL 200)
– FSE release element monitoring
– Four freely programmable changeover relays

> **Notice!**
>
> The requirements of the local fire department must be taken into account during programming.
>
> The module is used almost exclusively in Germany.
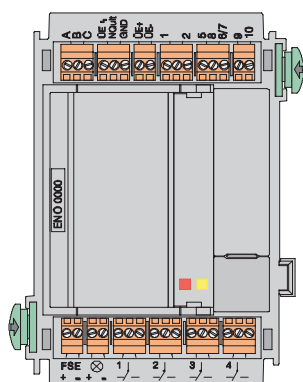
Figure 4.59: ENO 0000 B Fire Service Interface Module

Labeling	Connection
A	Ground
B	Transmission unit control
C	Feedback contact
ÜE	Automatic dialer and transmission unit fault
NQuit	Acknowledge
GND	Ground
ÜE+	ÜE-	Power supply of transmission unit
1	Monitoring key deposit
2	Ground
5	Door release magnet, +12 V/24 V, approx. 10 W
8	Key deposit lock monitoring
6	7	Ground
9	Heating, +24 V, approx. 0.8 W
10	Ground
FSE+	–	FSE release element monitoring

Labeling	Connection
⊗ + | −	Signal lamp, e.g. BEGA lamp +24 V, approx. 10 W
x /	Relay 1-4

Information on the redundant connection of the module can be found in *Redundancy, page 39*.
The technical data can be found in *ENO 0000 B Fire Service Interface Module, page 152*.

4.9.6   FPE-5000-UGM Interface Module

The interface module allows the FPA-5000 Modular Fire Panel or an FPA-5000/FMR-5000-C
network to be connected to a higher-level system such as the UGM, FAT-2002/RE or
FSM-2000, and provides two bi-directional transmission paths.

The module has two LEDs per transmission path for indicating the status (green =
transmission, yellow = fault), and a key for testing the LEDs.
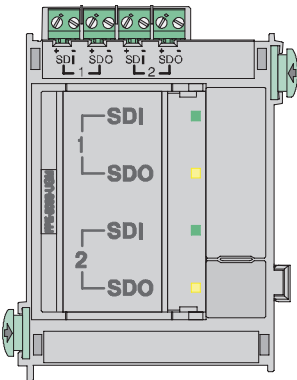
Figure 4.60: FPE-5000-UGM Interface Module

Labeling	Connection	
SDI 1 + | -	Transmission path 1	Data input + | -
SDO 1 + | -		Data output + | -
SDI 2 + | -	Transmission path 2	Data input + | -
SDO 2 + | -		Data output + | -

Information on the redundant connection of the module can be found in *Redundancy, page 39*.
The technical data can be found in *FPE-5000-UGM Interface Module, page 152*.

4.9.7   IOP 0008 A Input/Output Module

The IOP 0008 A Input/Output Module has 8 independent digital inputs and 8 open collector outputs for individual displays or for flexible connection of various electrical devices.
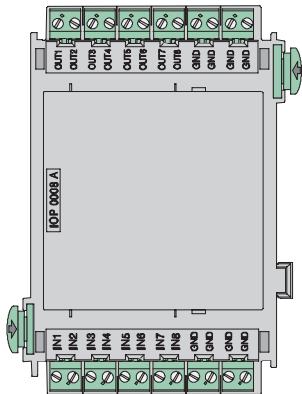

Figure 4.61: IOP 0008 A Input/Output Module

Labeling	Connection
OUT1-OUT8	Outputs, max. voltage of 35 V DC at 1.5 A per output (nominal 0.7 A)
GND	Ground
IN1-IN8	Inputs, max. voltage of 5 V DC at 0.1 mA per input
GND	Ground

The technical data can be found in *IOP 0008 A Input/Output Module, page 153*.

4.9.8 IOS 0020 A 20 mA Communication Module

The 20 mA communication module has an S1 interface, an RS232 interface (e.g. for connecting a printer) and an S20 interface (20 mA). The FAT 2002 Fire Service Display Panel or the THP 2020 A Thermal Printer is connected to the S20 interface. The Plena Voice Alarm System can be connected via the RS232 interface.
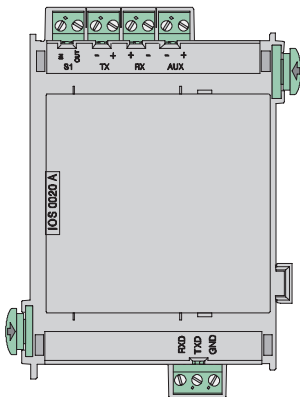
Figure 4.62: IOS 0020 A 20 mA Communication Module

Labeling	Connection
S1 IN | S1 OUT	S1 interface
TX - | TX + | RX + | RX -	S20 interface (20 mA interface)
AUX - | AUX +	Power supply +24 V DC/max. 1.3 A
RXD | TXD | GND	RS232 interface

Assignment of DSUB 9 Plug

Figure 4.63: DSUB 9 plug

PIN no.	Connection
2	TxD0
3	RxD0
5	GND

The technical data can be found in *IOS 0020 A 20 mA Communication Module, page 153*.

4.9.9   IOS 0232 A RS232 Communication Module

The module has two independent serial interfaces, which can be used to connect two devices, e.g. a Plena Voice Alarm System, laptop or printer.
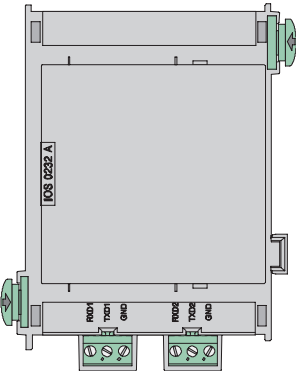
Figure 4.64: IOS 0232 A RS232 Communication Module

Labeling	Connection
RXD1	TXD1	GND	RS232 interface 1
RXD2	TXD2	GND	RS232 interface 2

Assignment of DSUB 9 Plug
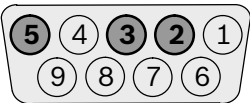
Figure 4.65: DSUB 9 plug

PIN no.	Connection
2	TxD0
3	RxD0
5	GND

The technical data can be found in *IOS 0232 A RS232 Communication Module, page 153*.

4.9.10 LSN 0300 A LSN improved Module 300 mA

This module enables an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements to be connected, with a maximum line current of 300 mA and a cable length of up to 1600 m (depending on configuration and cable type).

> **i** | **Notice!**
> | To ensure that the fire detection system is operated in compliance with EN 54-13, each LSN stub and T-tap must be terminated with EOL modules.

Figure 4.66: LSN 0300 A LSN improved Module 300 mA

Labeling	Connection	
	LSN loop	**LSN stub**
AUX1 +	AUX1 -	Auxiliary power supply	Auxiliary power supply for stub 1
LSN a1-	LSN b1+	LSN a1- / LSN b1+ outgoing	Stub 1 LSN a1- / Stub 1 LSN b1+
AUX2 +	AUX2 -	Auxiliary power supply*	Auxiliary power supply for stub 2
LSN a2-	LSN b2+	LSN a2- / LSN b2+ incoming	Stub 2 LSN a2- / Stub 2 LSN b2+
* The auxiliary voltage may only be fed back to AUX2 when isolators (ERT technology) are used in the loop (suitable components include YBO-R/SCI isolators).		

The technical data can be found in *LSN 0300 A LSN improved Module 300 mA, page 154*.

4.9.11 LSN 1500 A LSN improved Module 1500 mA

This module can be used to connect an LSN loop with

– up to 254 LSN improved elements with a max. line current of 1500 mA and a cable length of up to 3000 m (depending on configuration and cable type)
– up to 127 classic LSN elements with a max. line current of 300 mA and a cable length of up to 3000 m (depending on configuration and cable type).

Caution!

The module may only be connected to a PRD 0004 A Panel Rail Long, where it requires two slots (see *Installation in Panel Rail, page 114*).

The module must be connected to the first two slots on the left of the panel rail.

Notice!

To ensure that the fire detection system is operated in compliance with EN 54-13, each LSN stub and T-tap must be terminated with EOL modules.
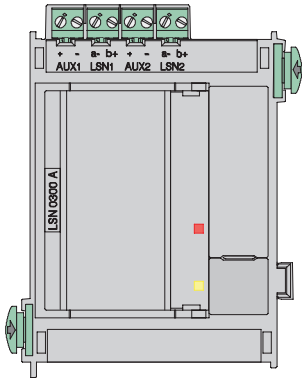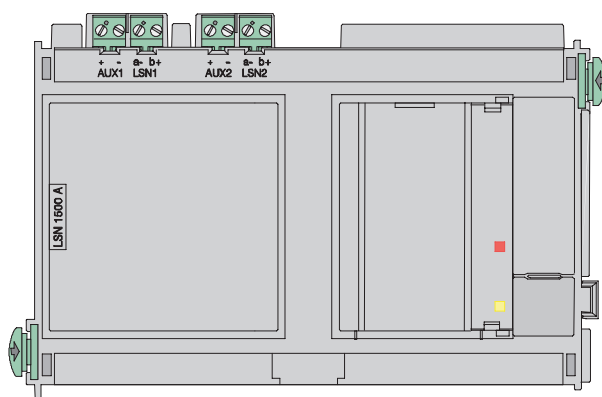

Figure 4.67: LSN 1500 A LSN improved Module 1500 mA

Labeling	Connection	
	LSN loop	**LSN stub**
AUX1 + | AUX1 -	Auxiliary power supply	Auxiliary power supply for stub 1
LSN a1- | LSN b1+	LSN a1- / LSN b1+ outgoing	Stub 1 LSN a1-/stub 1 LSN b1+
AUX2 + | AUX2 -	Auxiliary power supply*	Auxiliary power supply for stub 2
LSN a2- | LSN b2+	LSN a2- / LSN b2+ incoming	Stub 2 LSN a2-/stub 2 LSN b2+
* The auxiliary voltage may only be fed back to AUX2 when isolators (ERT technology) are used in the loop (suitable components include YBO-R/SCI isolators).		

The technical data can be found in *LSN 1500 A LSN improved Module 1500 mA, page 154*.

Installation in Panel Rail

PRD 0004 A

LSN 1500 A

PRS-0002-C

PRD 0004 A

LSN 1500 A

LSN 1500 A

LSN 1500 A

PRD 0004 A
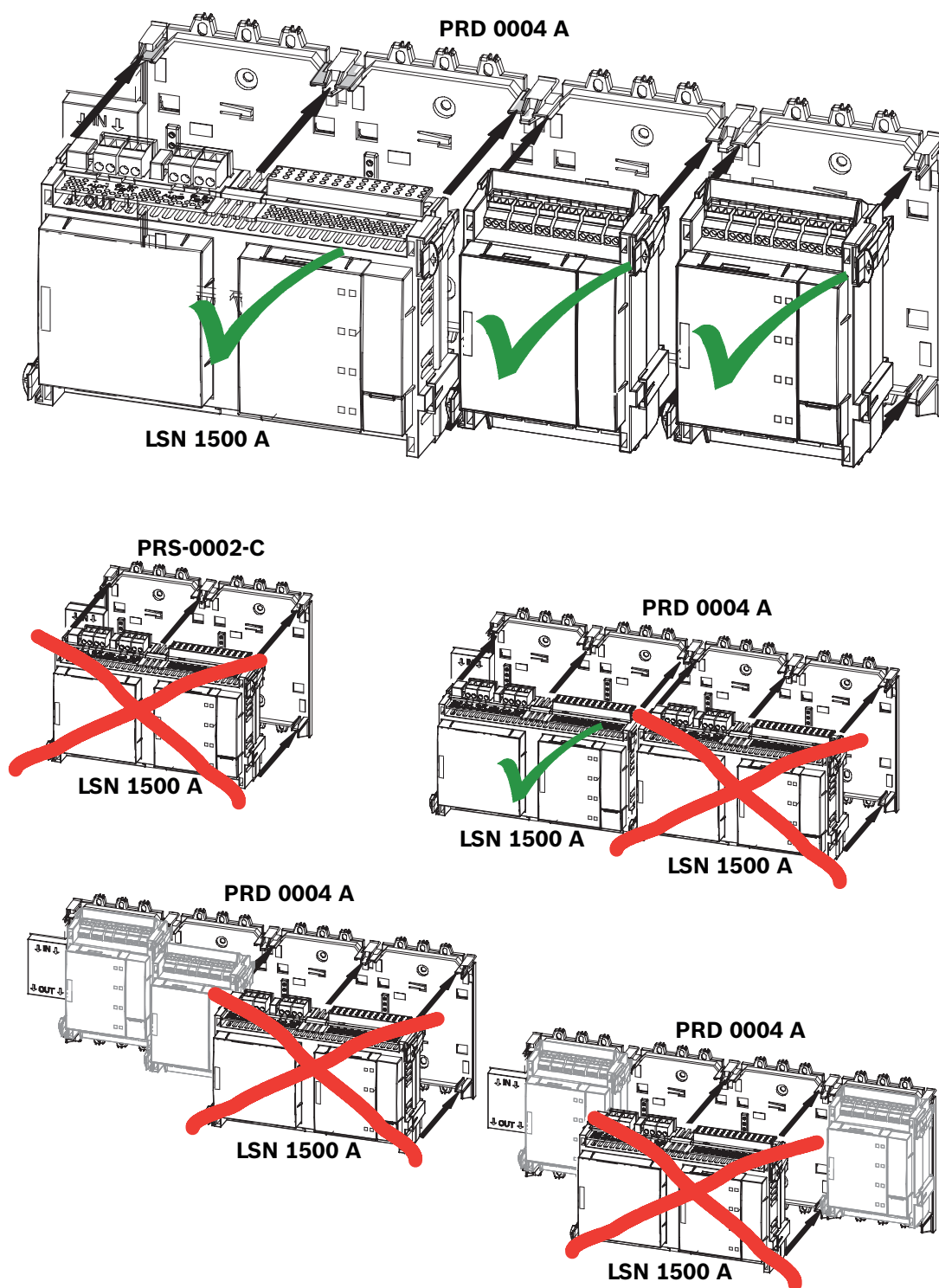
LSN 1500 A

PRD 0004 A

LSN 1500 A

Figure 4.68: LSN 1500 A - Inserting the module

4.9.12   NZM 0002 A Notification Appliance Zone Module

The NZM 0002 A Notification Appliance Zone Module provides two monitored primary lines.

This enables the connection of two separate notification appliance lines.

The following can be connected:

– Sounders
– Strobes
– Horns

The operating status of each zone is shown by a red and a yellow status LED.
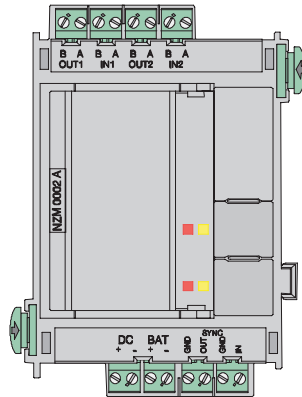
Figure 4.69: NZM 0002 A Notification Appliance Zone Module

Labeling	Connection
B OUT1	A OUT1	B IN1	A IN1	NAC zone 1
B OUT2	A OUT2	B IN2	A IN2	NAC zone 2
DC +	DC -	External power supply
BAT +	BAT -	24 V DC input, battery voltage
SYNC GND	SYNC OUT	Output synchronization
SYNC GND	SYNC IN	Input synchronization

The technical data can be found in *NZM 0002 A Notification Appliance Zone Module, page 155*.

4.9.13   RMH 0002 A Relay Module for Mains Voltage

> **Danger!**
> The device contains live components.
> Touching live components entails a risk of death or serious injury.
> Disconnect the power supply before all installation work.

The module has two changeover contact relays (type C) for monitored connection of external elements with feedback, e.g.
– Electromagnetic door holders
– Fans
– Smoke dampers

Each relay has one NO (normally open) and one NC (normally closed) contact and is protected by a 6.3 A fuse.

The outputs are not monitored.

The maximum permissible contact load is 5 A at 120 V/230 V AC and 5 A at 30 V DC.

The relay module can also be used as an extinguishing system interface in accordance with VdS 2496.
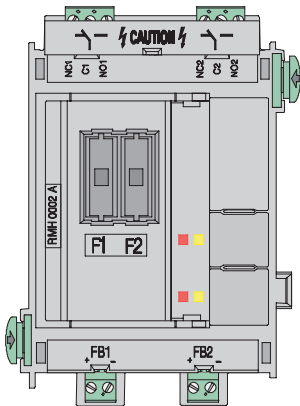
Figure 4.70: RMH 0002 A Relay Module for mains voltage

Labeling	Connection
NC1 | C1 | NO1	Relay 1
NC2 | C2 | NO2	Relay 2
FB1 + | FB1 -	Feedback relay 1
FB2 + | FB2 +	Feedback relay 2

The technical data can be found in *RMH 0002 A Relay Module for mains voltage, page 155*.

4.9.14 RML 0008 A Relay Module for Low Voltage

Relay module for low voltage with eight changeover relays (type C relays) for connecting external elements e.g. notification appliances, smoke dampers etc.

Each relay has one NO (normally open) and one NC (normally closed) contact.

The maximum permissible contact load is 30 V DC/1 A.
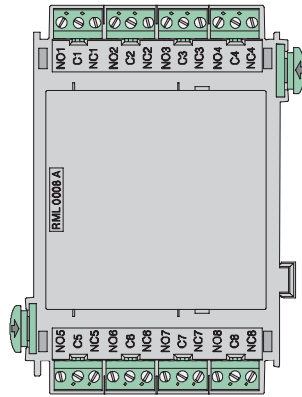
Figure 4.71: RML 0008 A Relay Module for Low Voltage

Labeling	Connection
NO1	C1	NC1	Relay 1
NO2	C2	NC2	Relay 2
NO3	C3	NC3	Relay 3
NO4	C4	NC4	Relay 4
NO5	C5	NC5	Relay 5
NO6	C6	NC6	Relay 6
NO7	C7	NC7	Relay 7
NO8	C8	NC8	Relay 8

The technical data can be found in *RML 0008 A Relay Module for Low Voltage, page 156*.

4.9.15   Accessories for Functional Modules

PSL 0001 A Labeling Strips, Small
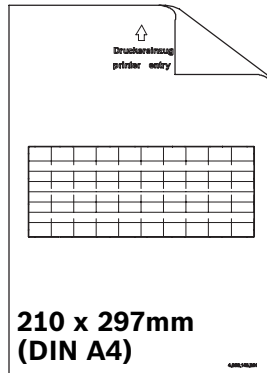
Figure 4.72: PSL 0001 A Labeling Strips, Small

The PSL 0001 A Labeling Strips, Small can only be used for the ANI 0016 A Annunciator Module.

The strips can be individually printed using a standard laser printer. A dot file is included on the CD supplied with the MPC Panel Controller.

Scope of delivery: 20 sheets of 10 strips.

PSK 0001 A Labeling Strips, Wide
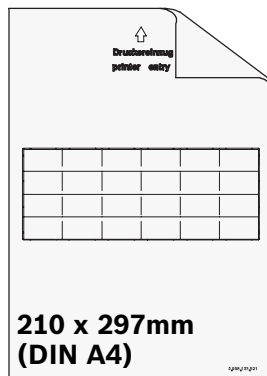
Figure 4.73: PSK 0001 A Labeling Strips, Wide

White A4 paper, with pre-punched blank labeling strips for the function keys on the modules. Each sheet contains six labeling strips.

The PSK 0001 A Universal Labeling Strips can be used in the following functional modules: BCM-0000-B, CZM 0004 A, ENO 0000 B, LSN 0300 A, LSN 1500 A, NZM 0002 A and RMH 0002 A.

The strips can be individually printed using a standard laser printer. A dot file is included on the CD supplied with the MPC Panel Controller.
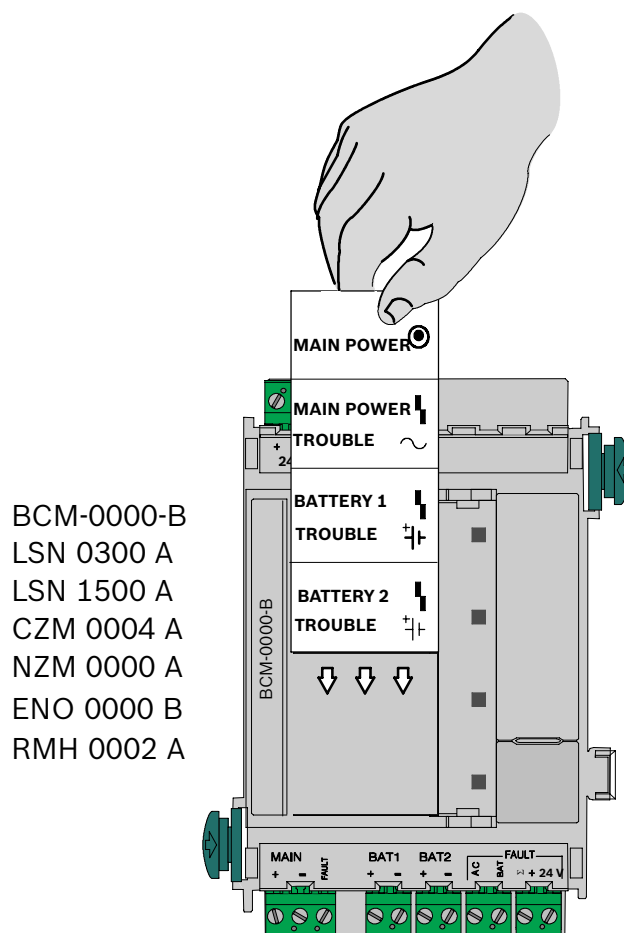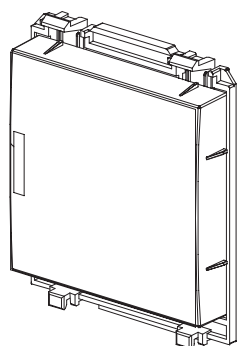
Scope of delivery: 20 sheets of 6 strips.

BCM-0000-B
LSN 0300 A
LSN 1500 A
CZM 0004 A
NZM 0000 A
ENO 0000 B
RMH 0002 A

Figure 4.74: PSK 0001 A - Inserting the labeling strip

FDP 0001 A Dummy Cover Plate

Figure 4.75: FDP 0001 A Dummy Cover Plate

Fit the dummy cover plates on unused module slots in the front panels of the housings.

4.10   Cable Sets

Overview

There are various cable sets available for connecting the central components.

All cable sets are supplied with installation instructions ex works. You can also find the installation instructions at www.boschsecurity.com by searching for the type designation of the product. The document numbers of the installation instructions can be found in the footer on every page of the document.

The table below shows the instructions available.

Type designation	Connection of ...	... to	Document number
CBB 0000 A 1)	BCM Battery Controller Module	Battery pair	F.01U.003.099
CPA 0000 A	MPC Panel Controller	FMA-AT 2000-IP/-ISDN/-GSM, ENO 0000 B	F.01U.003.343
CPB 0000 A	BCM Battery Controller Module	UPS Universal Power Supply	F.01U.003.098
CPR 0001 A	MPC Panel Controller	RLE 0000 A Junction Board	F.01U.003.342
CRP 0000 A	MPC Panel Controller	MPC Panel Controller (Redundant)	F.01U.003.097
1) Required for power supply in a separate power supply housing. Compared to the enclosed standard cable sets, this cable set has a longer connecting cable to the battery.			

Notice!

In the installation instructions for the CPA 0000 A Cable Set: Please refer to the programming instructions for the FMA-AT 2000-IP/-ISDN/-GSM.

4.11   Monitoring auxiliary power according to EN 54-13

Auxiliary power supplies to the following modules can be monitored for creeping short circuits and creeping wire breaks: LSN 300, LSN 1500, and BCM-0000-B (when using FPP-5000-TI13). A creeping short circuit is detected by these modules. An FPP-5000-TI13 forwards the faults detected and reported by the BCM-000-B to the panel. Use additional 4-wire end of line elements to monitor for creeping wire break.

Procedure:

1.   Monitor with 4-wire end of line element:
     –   On stub cabling, terminate the exposed end of an AUX line with an FLM-420-EOL4W
     –   Insert an FLM-420-EOL4W as the last element of an LSN ring or of a stub
     –   Use an FLM-320-EOL4W for the conventional zone of a conventional zone module or a FLM-420-CON/4
2.   Activate EN 54-13 compliant operation.

Notice!

According to EN 54-13, no branch wiring (T-tapping) is permitted for auxiliary power supplies.

4.12   FPP-5000 External Power Supply Unit Kit 24 V/6 A

The FPP-5000 External Power Supply Unit Kit is designed to provide a universal power supply, and has space for two 12 V/45 Ah batteries.
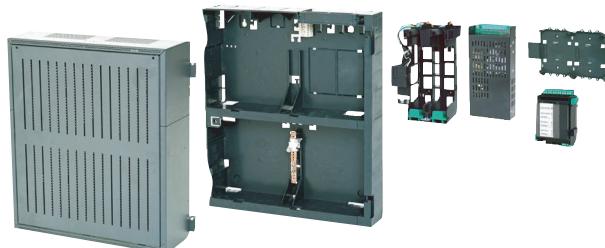
Figure 4.76: FPP-5000 External Power Supply Unit Kit 24 V/6 A

Scope of Delivery

–   PMF 0002 A Power Supply Housing Frame Installation medium
–   FMH 0000 A Mounting Frame Medium
–   Power supply bracket, installed
–   UPS 2416 A Universal Power Supply
–   PRS-0002-C Panel Rail Short
–   BCM-0000-B Battery Controller Module
–   Requisite cable sets

Can be Extended with:

–   2 x 12 V/45 Ah batteries
–   FPP-5000-TI Trouble Interface or FPP-5000-TI13 LSN Communication Interface
–   FPO-5000-EB Earth Bar

Notes

–   You can find the installation instructions for the FPP-5000 kit at www.boschsecurity.com by searching for the type designation (document number for installation instructions: F. 01U.005.065).
–   The installation dimensions are the same as those for the PMF 0004 A (see *Installation Dimensions for PMF 0004 A with FMH 0000 A Mounting Frame, page 53*).

FPP-5000-TI Trouble Interface

The FPP-5000-TI module is used in the FPP-5000 External Power Supply Unit with the BCM-0000-B to transmit faults to the fire panel via the Local Security Network (LSN).

Two independent signal inputs for "battery fault" and "mains current fault" allow a specified fault indication on the fire panel.

The FPP-5000-TI is connected directly to the LSN bus line and supplied with power via the bus line.
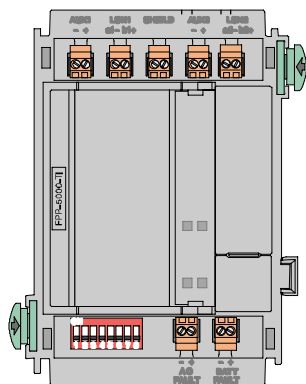
Figure 4.77: FPP-5000-TI Trouble Interface

Labeling	Connection
AUX1 - | AUX1 +	Auxiliary power supply, incoming
LSN1 a1 - | LSN1 b1 +	LSN in
SHIELD	Shield wire
AUX2 - | AUX2 +	Auxiliary power supply, outgoing (support points for looping through)
LSN1 a2 - | LSN1 b2 +	LSN outgoing

Labeling	Connection
AC FAULT - | +	Input of mains fault
BATT FAULT - | +	Input of battery fault

You can find the installation instructions for the FPP-5000-TI module at
www.boschsecurity.com (document number for installation instructions: F.01U.081.396).
The technical data can be found in *FPP-5000-TI Trouble Interface, page 157*.

**FPP-5000-TI13 Communication Interface**
The Communication Interface is an extension for the External Power Supply Unit Kit only. It is
the communication interface between the External Power Supply Unit Kit and the panel, and
transmits the following faults to the panel:

– Mains fault
– Battery fault
– Battery internal resistance fault
– BCM Battery Controller Module fault
– Short 24 V outputs
– Ground fault

Additionally, with the programming software, the switching outputs can be programmed and
the settings for the line monitoring according to EN54-13 can be done.

4.13   THP 2020 A Thermal Printer
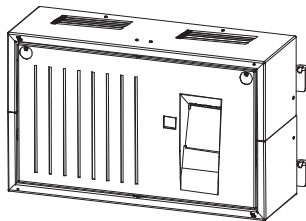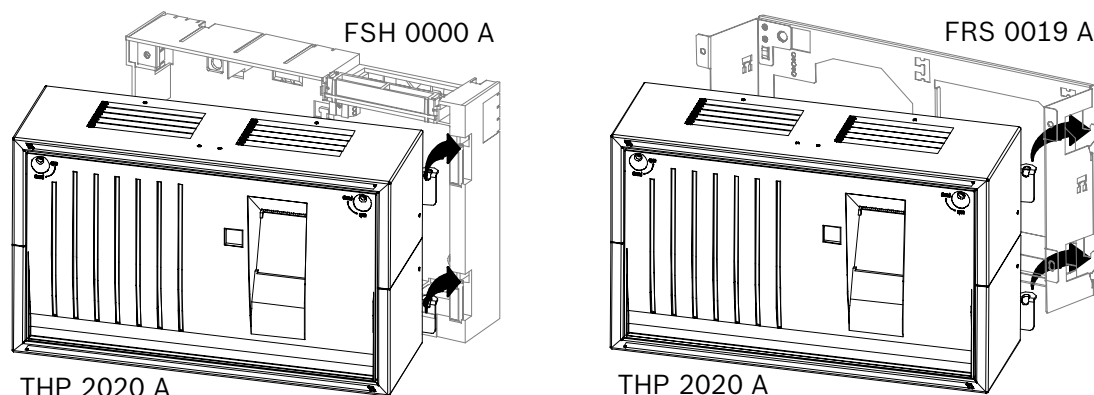

Figure 4.78: THP 2020 A Thermal Printer

Scope of Delivery
– Sheet steel housing, painted
– Thermal printer (installed), with connection cable
– Plastic front panel
– Accessories pack with installation materials

Required for Installation
– FSH 0000 A Mounting Frame Small, or
– FRS 0019 A Rack Installation Kit, Small

Figure 4.79: THP 2020 A mounting frame/installation kit

General Information
– The following information can be sent to the printer:
  – Operating procedures on the panel (e.g. daytime operation)
  – Alarm and fault messages
  – Plain text; programming is carried out via the programming software FSP-5000-RPS.
– On every printout:
  – The current date and the time are specified.
  – The most recent event is always at the top
– Entries stored in the history log can also be printed if the operator has the appropriate operational authorization.
– Always ensure the printer cover panel is closed properly. If the device contact is opened, incoming messages cannot be printed, even at a later date, as the printer does not have its own message memory. In this case, the message only appears on the display of the control panel.
– If the supply of paper is nearing its end, this is indicated by a message on the display of the control panel. When this message appears, you still have enough paper on the roll to print approx. 200 lines of text.

Printer Settings using Jumpers
Notes:
– The jumpers BR2, BR3 and BR4 must not be inserted if connecting to the FPA-5000.
– Caution: Inserting jumper BR1 changes the character set from Western to Cyrillic.

BR4   = DR 2020

       = **THP 2020** A (FPA-5000)

BR2   = 2400 bit/s (UEZ 2000)

       = **9600 bit/**s (FPA-5000)

BR1   = Б, И, Ф, Ш (Русский)

       = А, B, C, D (Western)
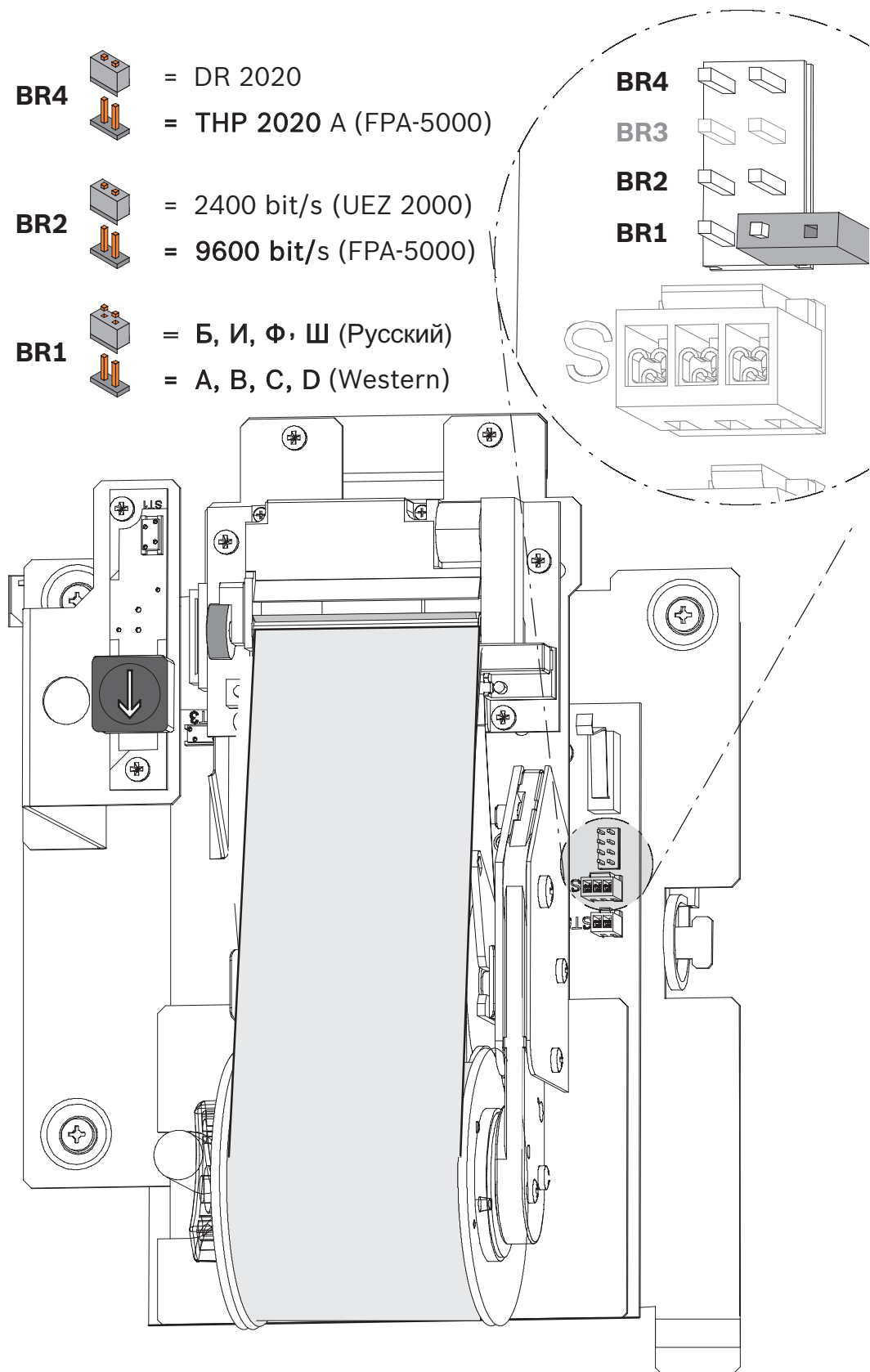
BR4

BR3

BR2

BR1

Figure 4.80: THP 2020 A jumpers

Changing the Paper Roll

The paper roll in the printer is changed as follows (see also *Changing the Paper Roll, page 124*):

1.   Open the locks and remove the housing front panel.
2.   Push down the paper locking lever.
3.   Pull out the paper roll unit.
4.   Tear off the paper before the last printed message, then hold the paper roll on the collecting spool and remove the securing disk by pulling it to the left. Remove the printed paper roll from the collecting spool.
5.   Lift out the empty paper roll, making sure that the support pin does not fall out.
6.   Remove the empty paper roll and slide a new paper roll onto the support pin.
7.   Push the support pin with the new paper roll back between the metal clips.
8.   Guide the paper behind the metal pin A and up behind the paper pressure roller B.
9.   Pull out the paper up to the paper roll unit and secure the paper with at least one of the pins of the securing disk. Always slide the securing pins accurately along the guide slots of the collecting spool.
10. Let the collecting spool fall back into its original position and lift up the paper locking lever (see arrow).
11. Close the housing front panel and secure with the safety screws.
12. If necessary, tension the paper by pressing the paper feed button.

Notice!
Only use the thermal printer paper specified by the manufacturer
(Bosch product ID 4.998.110.290, pack of 5 rolls).
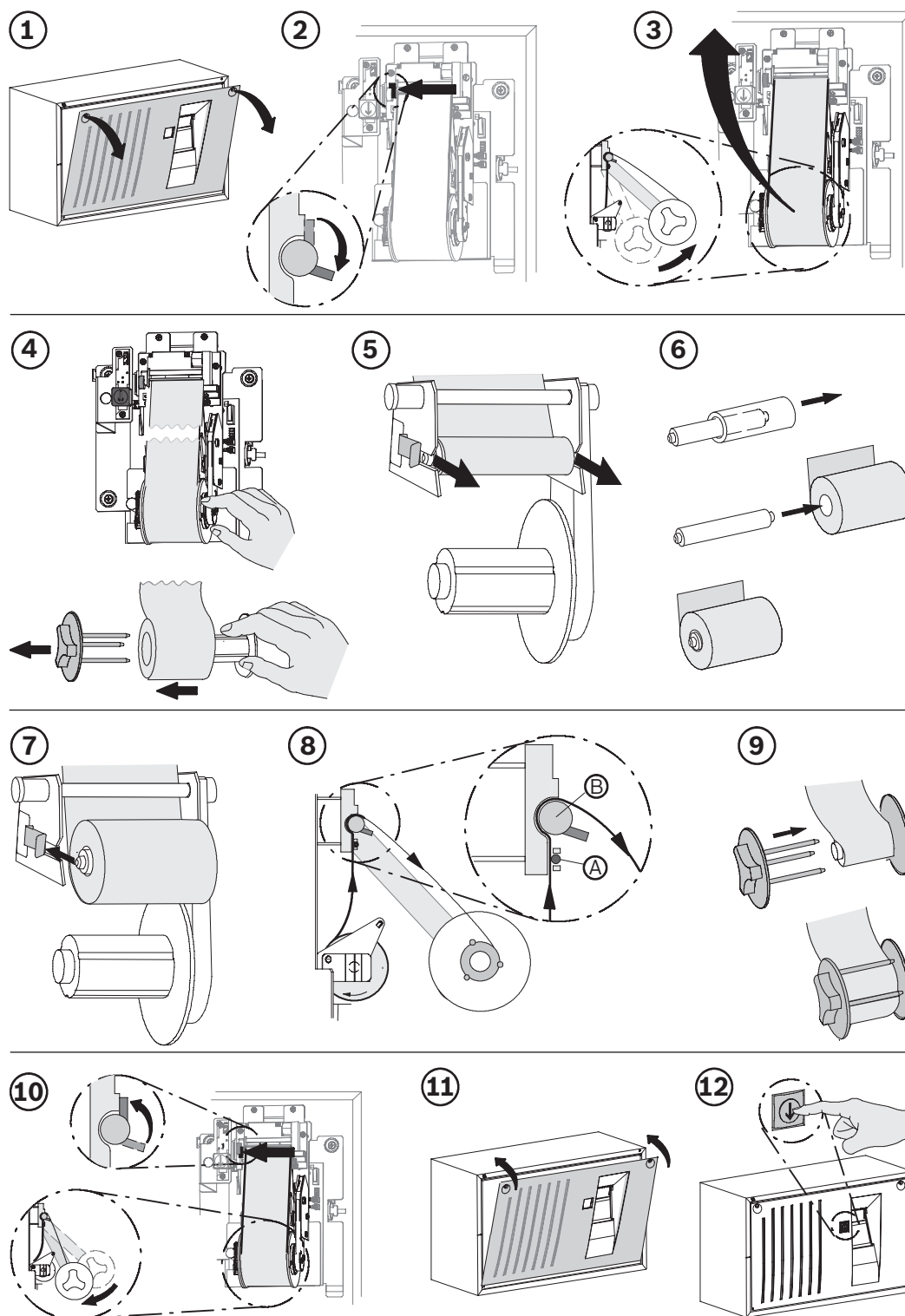The paper roll can be changed without turning off the printer.

Figure 4.81: THP 2020 A - Changing the paper roll

4.14   Remote Keypad

Notice!

Installation must only be carried out by authorized specialist personnel.

Please refer to the figure for the scope of delivery.

The technical data can be found in *Remote Keypad, page 149*.
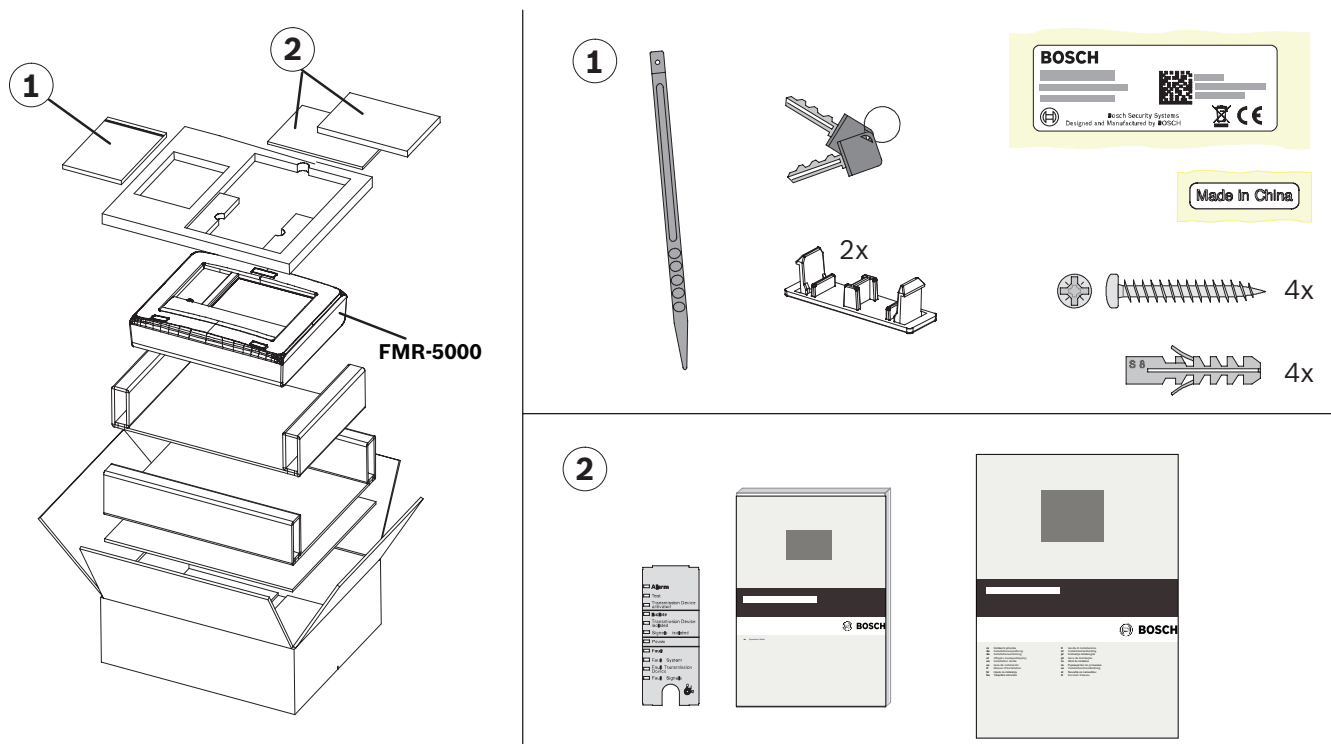
Figure 4.82: Remote Keypad - Scope of delivery

Functions

The remote keypad can be used to perform the same operating procedures as the (MPC) panel itself, enabling a networked system to be operated decentrally.

It has the following functional elements:

Figure 4.83: Remote Keypad - Functional elements

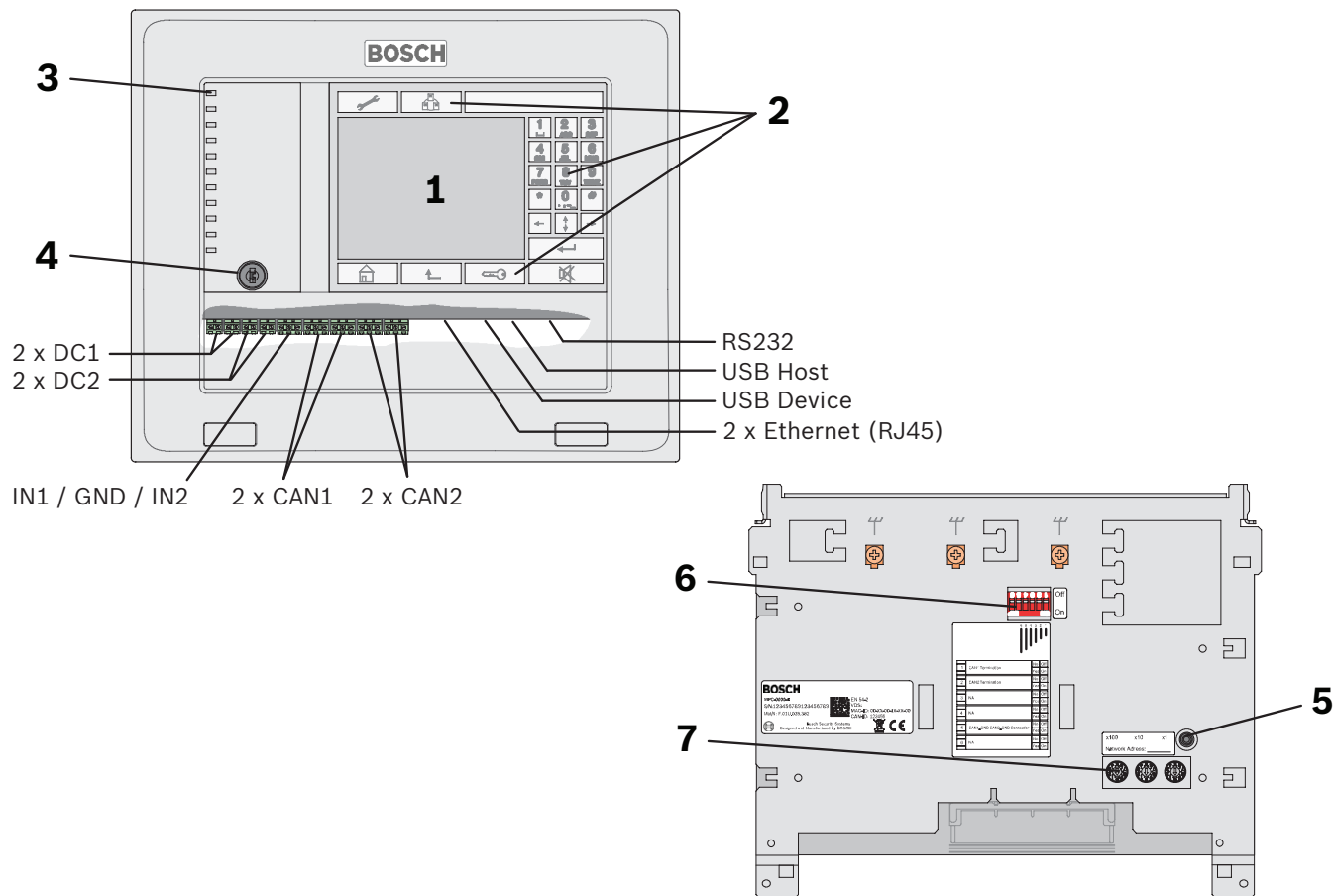| Pos.	Designation	Function
1	Touch screen	Operation of the networked system using virtual keys and variable display windows
2	Keypad	Standard inputs
3	11 LEDs	Display operating status
4	Key switch	Two switch positions, freely programmable, e.g. for switching between day/night mode or activating/deactivating local alarms
5	Reboot button	Remote keypad hardware reset
6	6-pin DIP switch	Configuration setting
7	3 rotary switches	Address setting

Note the maximum cable length of 2 m for connection to the USB and RS232 interfaces (see figure).

Information about address setting and configuration in the network can be found in *Addressing and Configuration in the Network, page 139*.

Installation

Follow the instructions for the required installation version.

Installation version	Installation instructions
Surface wall mounting (see figure, I)	See steps 1 to 13 and , *page 133*
Flush wall mounting (see figure, II)	See steps 1 to 13 and , *page 134*
Tilted installation (see figure, III)	See steps 1 to 13 and , *page 135*

i

Notice!

Dismantle the operating unit before housing installation. This avoids damage to the touch screen and makes it easier to screw in the lower fixing screws.
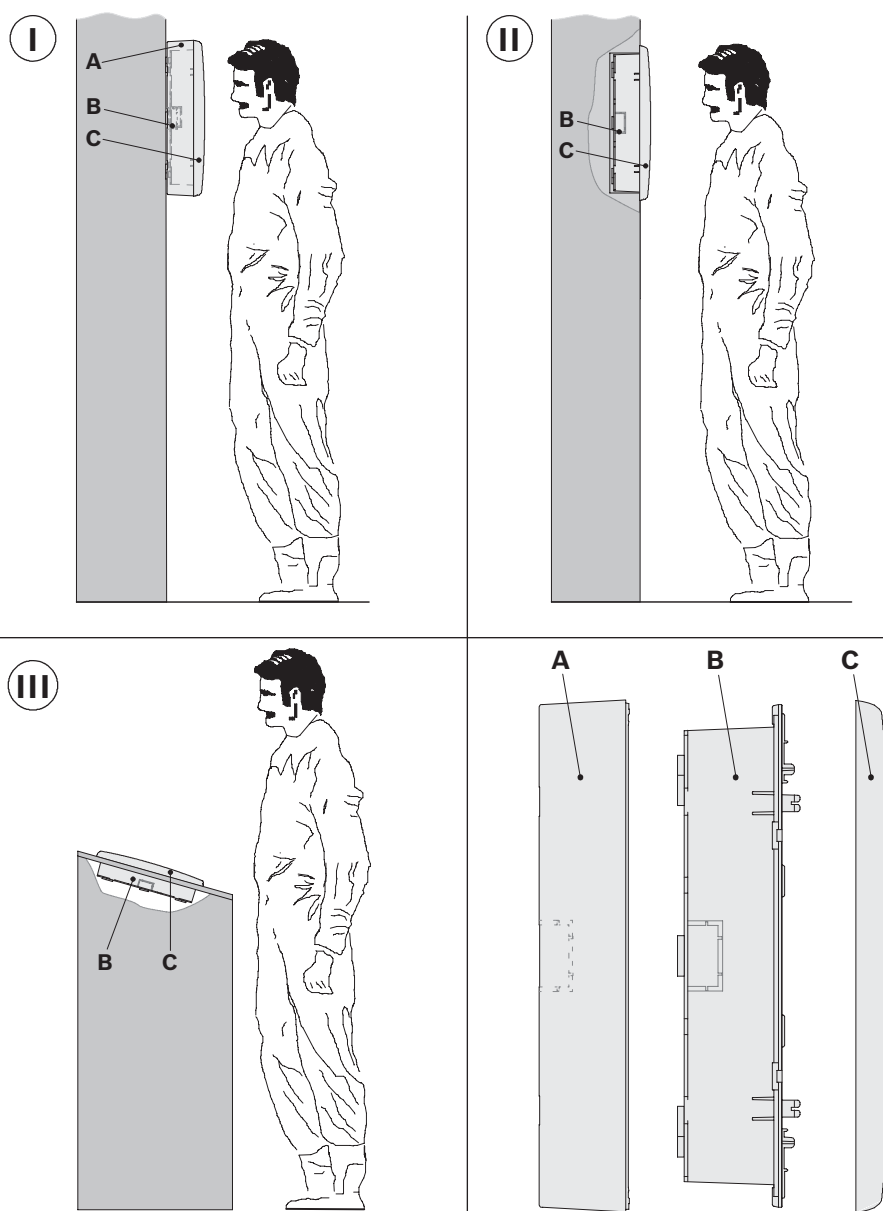
Figure 4.84: Remote Keypad installation variations
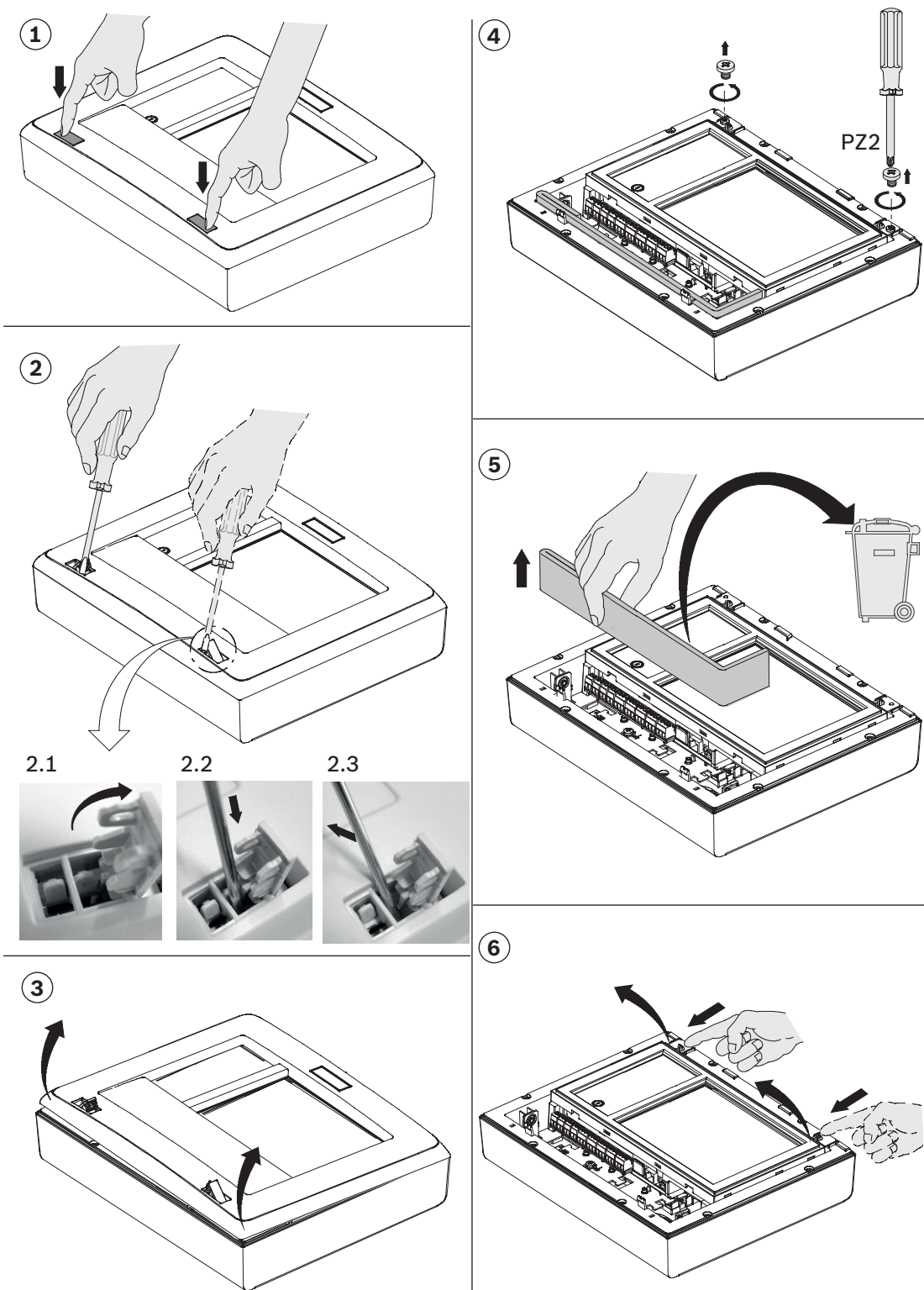
Figure 4.85: Remote Keypad installation (1-6)
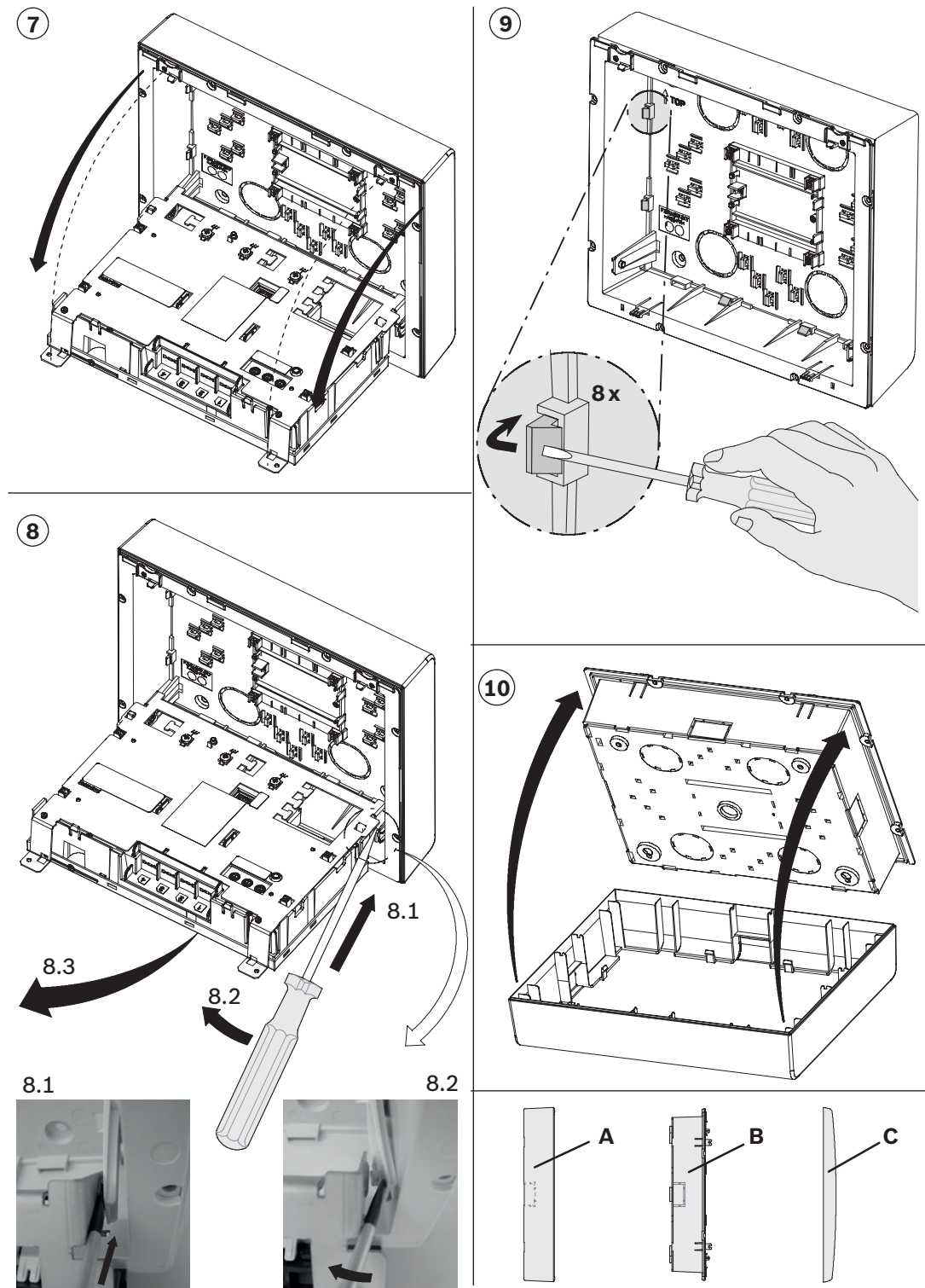
Figure 4.86: Remote Keypad installation (7-10)
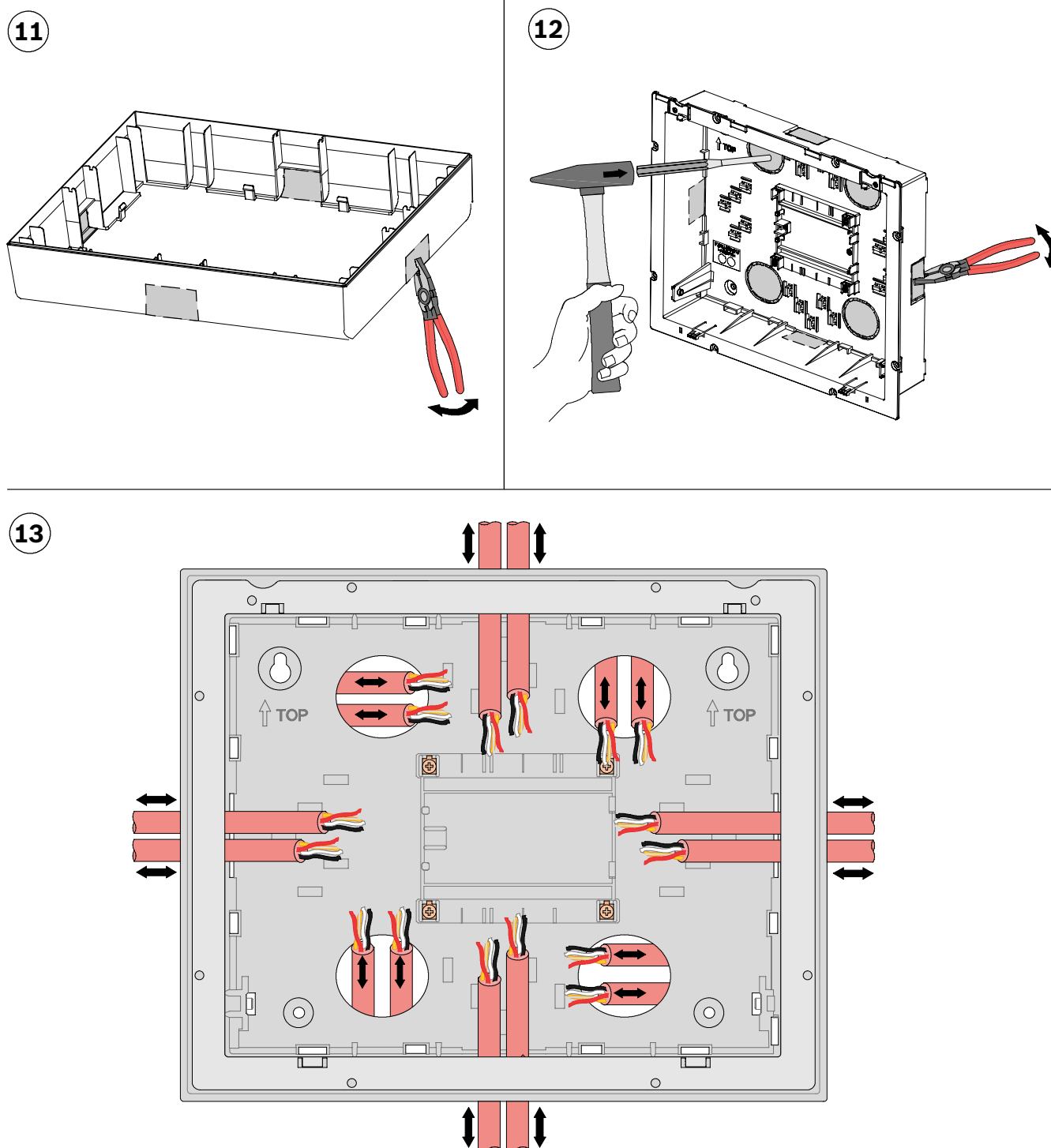
Figure 4.87: Remote Keypad installation (11-13)
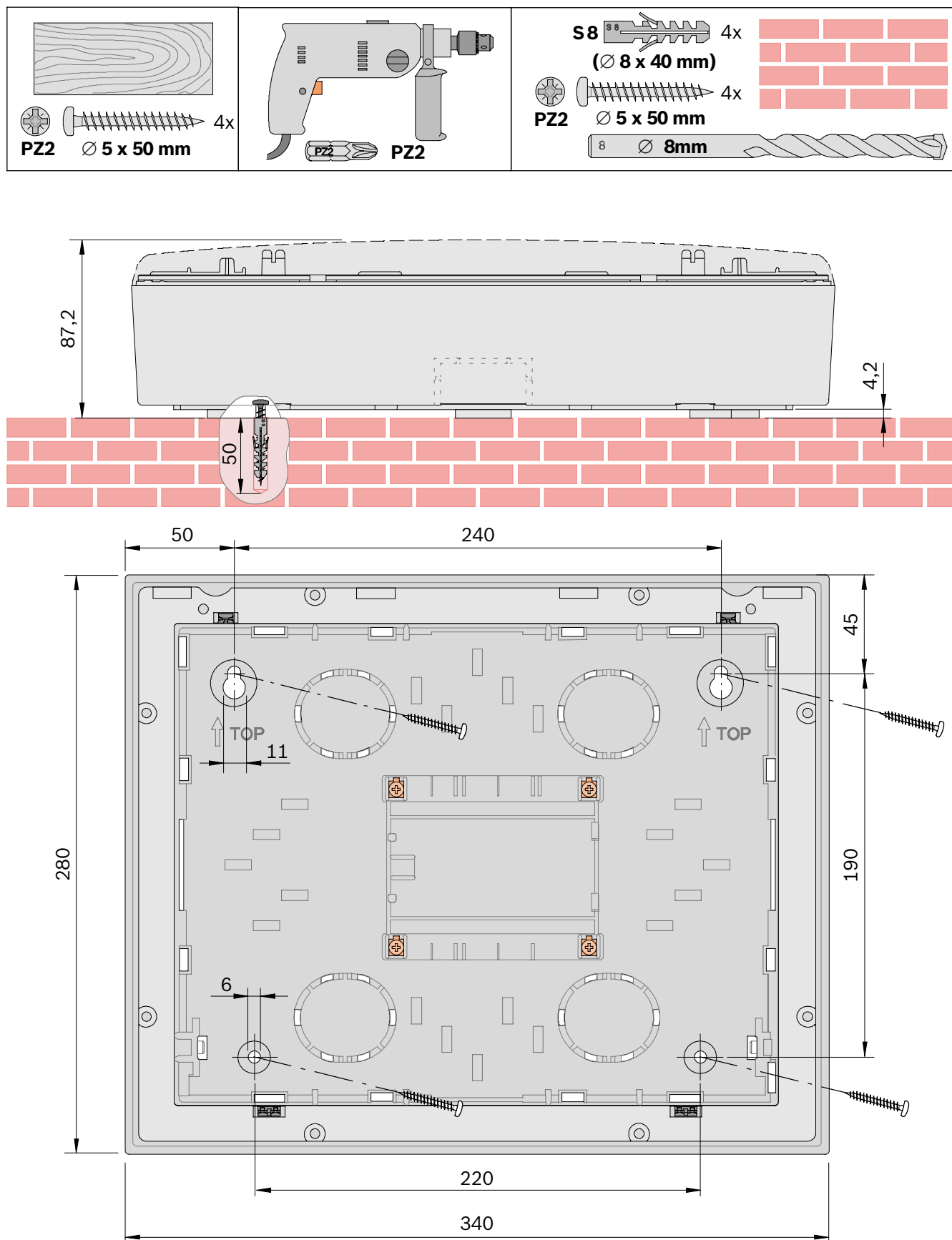
Figure 4.88: Remote Keypad surface mounting; dimensions in mm
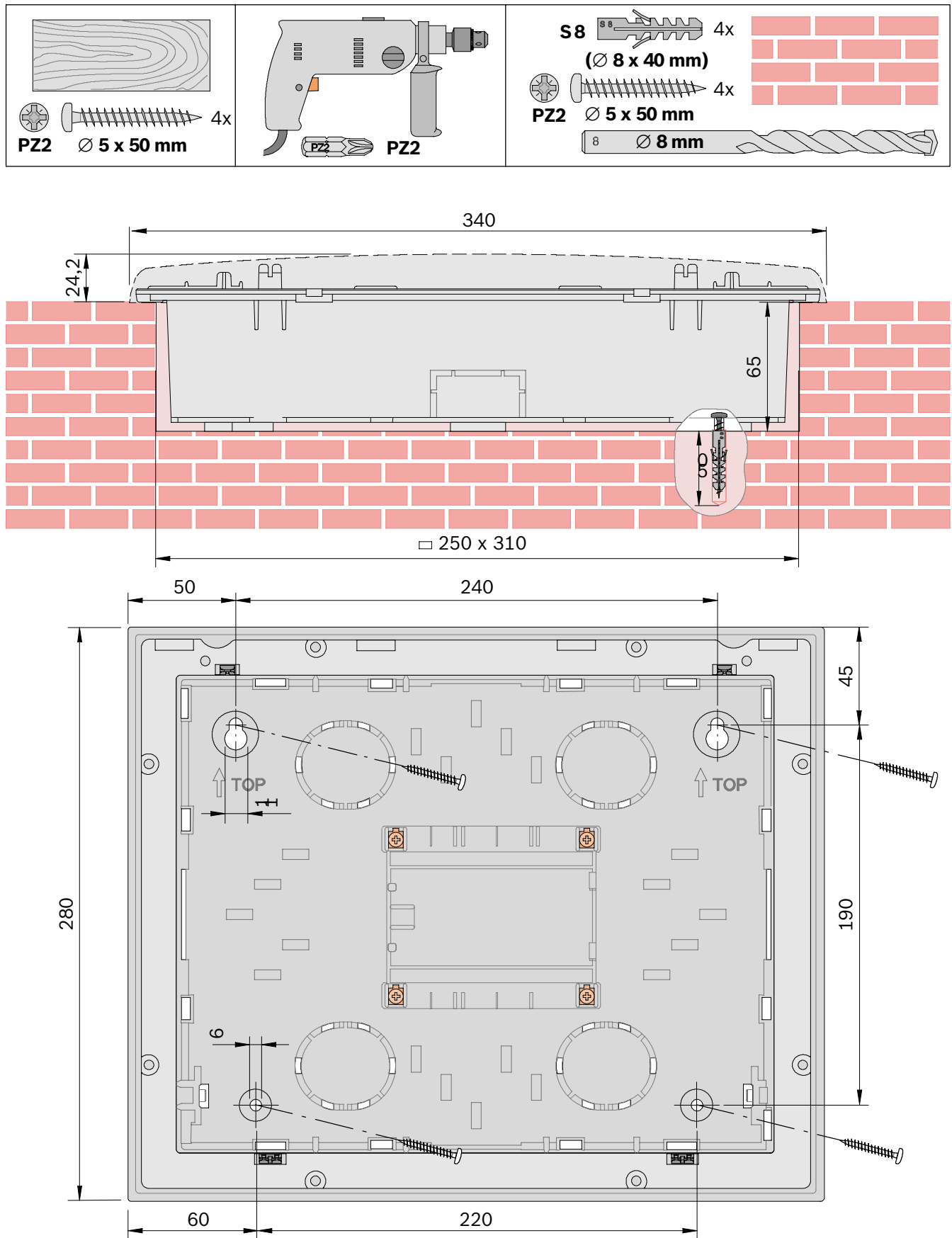
Figure 4.89: Remote Keypad flush mounting; dimensions in mm
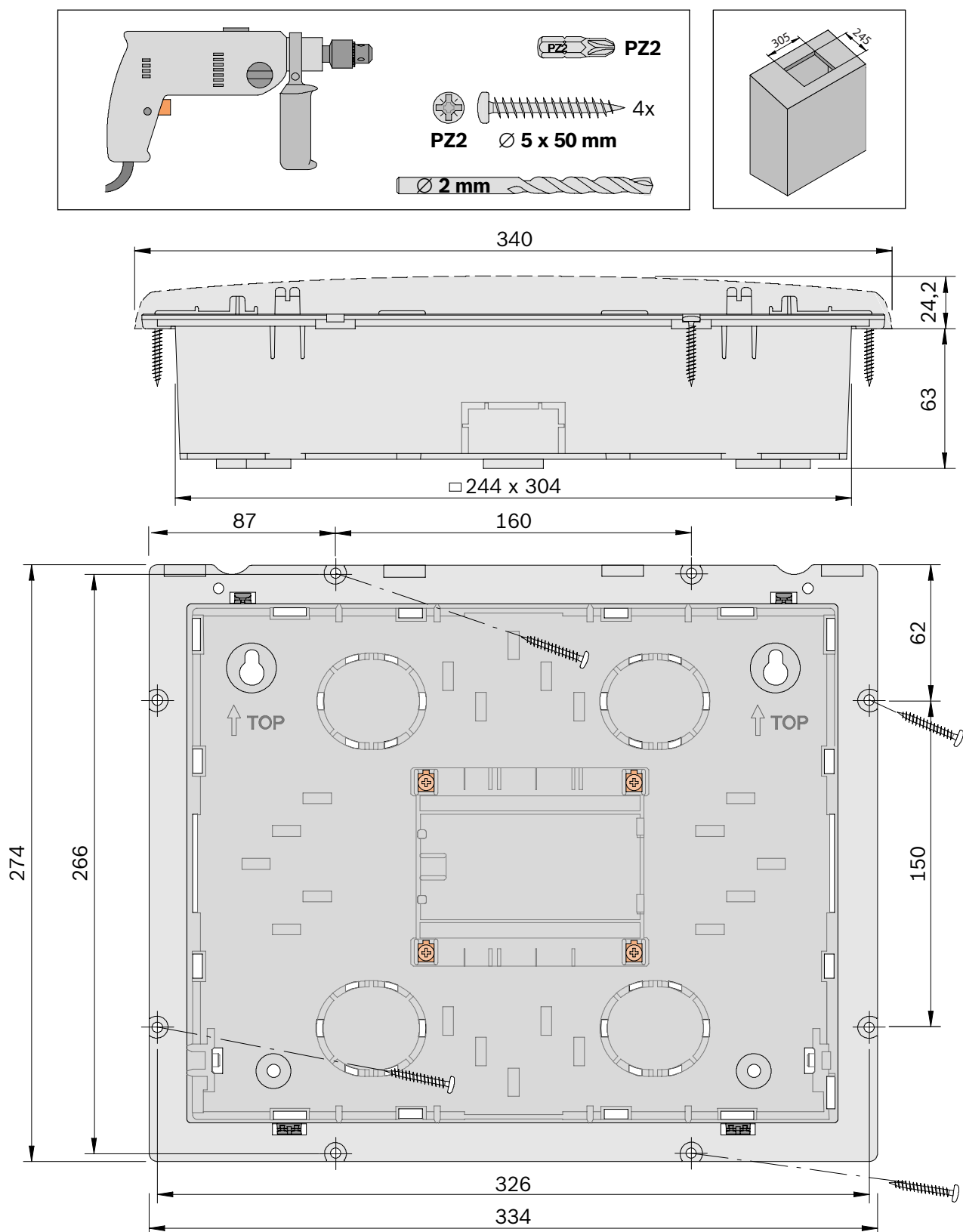
Figure 4.90: Remote Keypad tilting installation; dimensions in mm
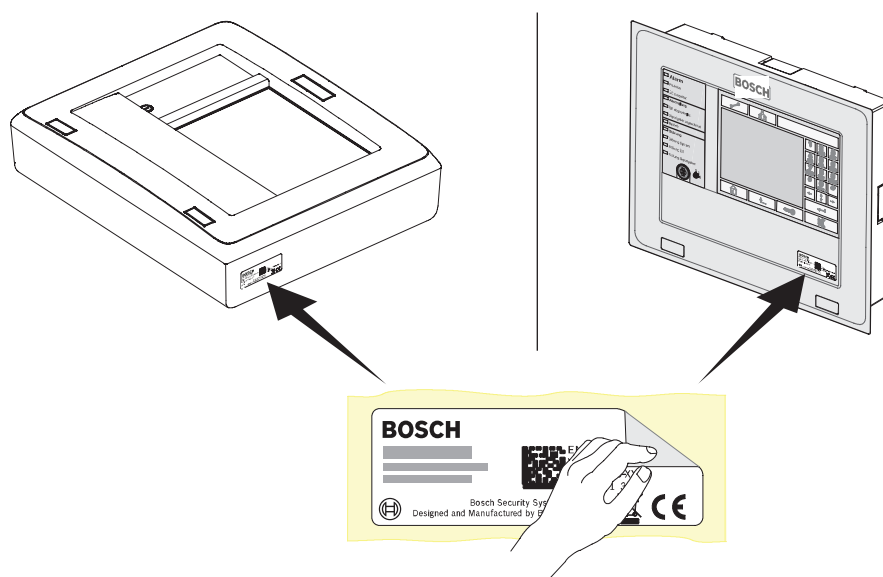
Figure 4.91: Remote Keypad sticker

Wiring

1. Place the shield wire on the support point (step 1)
2. Secure the cable with cable ties (step 1 to 4).

SHIELD

4x

2x
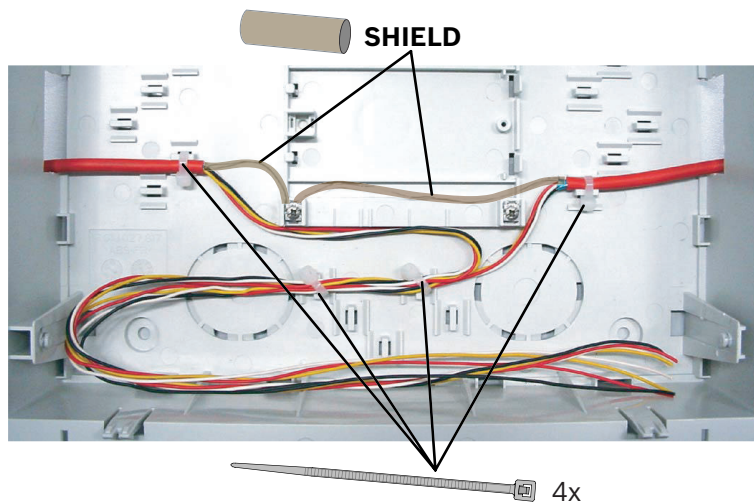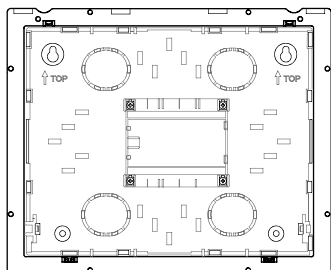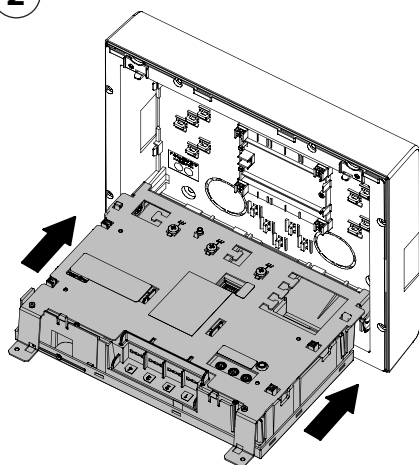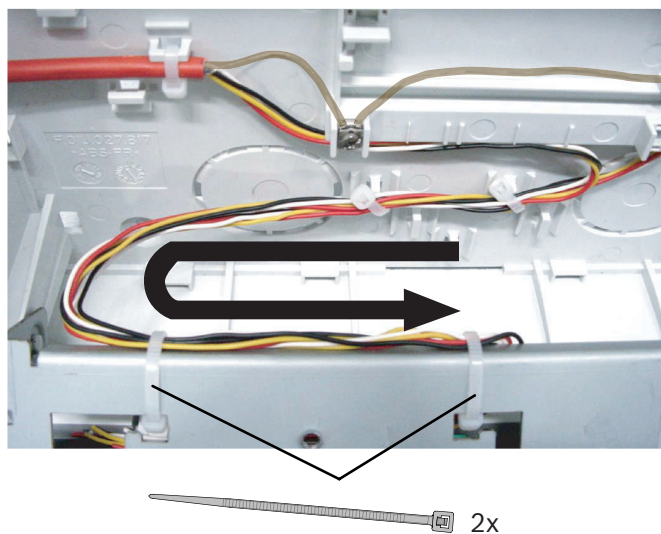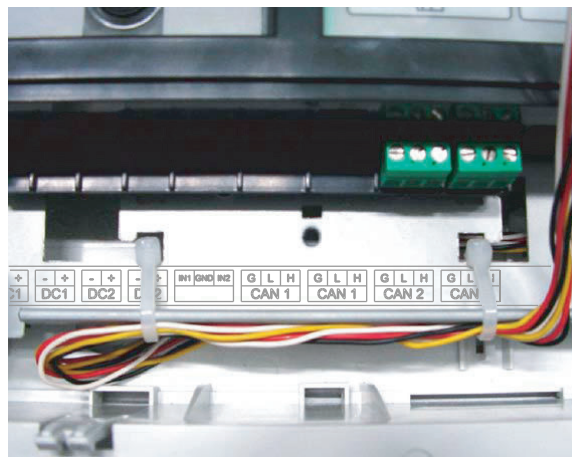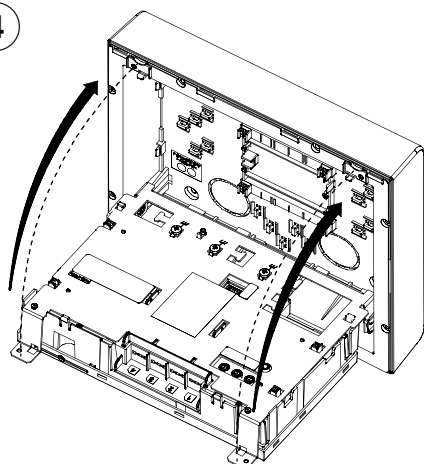
Figure 4.92: Remote Keypad wiring
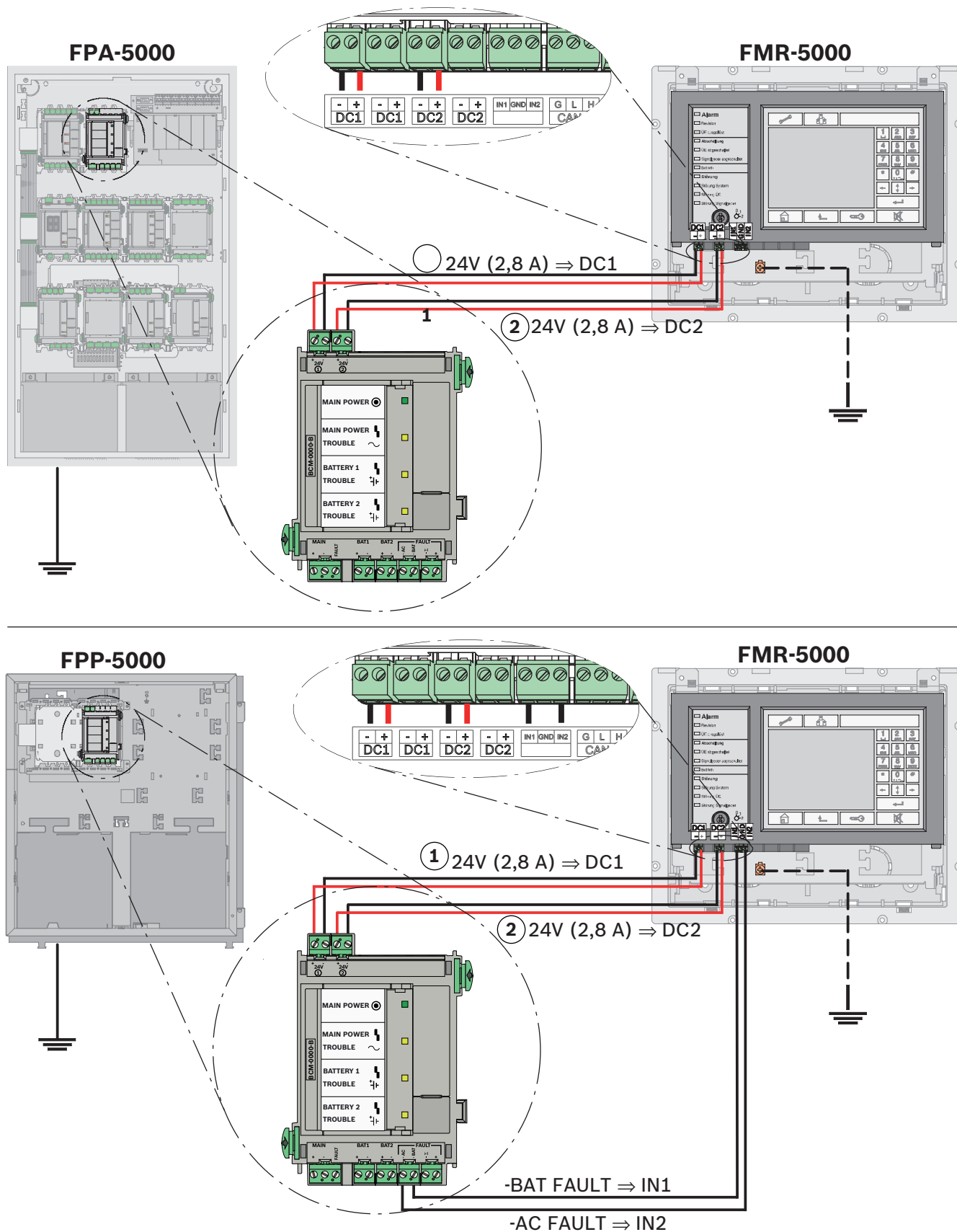
Figure 4.93: Remote Keypad wiring with BCM-0000-B

Notice!
The value 2.8 A must be set in the configuration window of the BCM-0000-B in the panel's programming software.

Addressing and Configuration in the Network
The remote keypads are identified in the network by a unique address. This address is set on the rotary switches and is known as the rotary switch number (RSN) (see the figures in the circle on the circuit diagrams).
Note the address on the sign above the rotary switches (see *Addressing and Configuration of Remote Keypad, page 140*, step 2).
Configure the remote keypad using the DIP switches. Mark the selected setting on the sign below the DIP switches (see *Addressing and Configuration of Remote Keypad, page 140*, step 4).

Addressing and Configuration of Remote Keypad
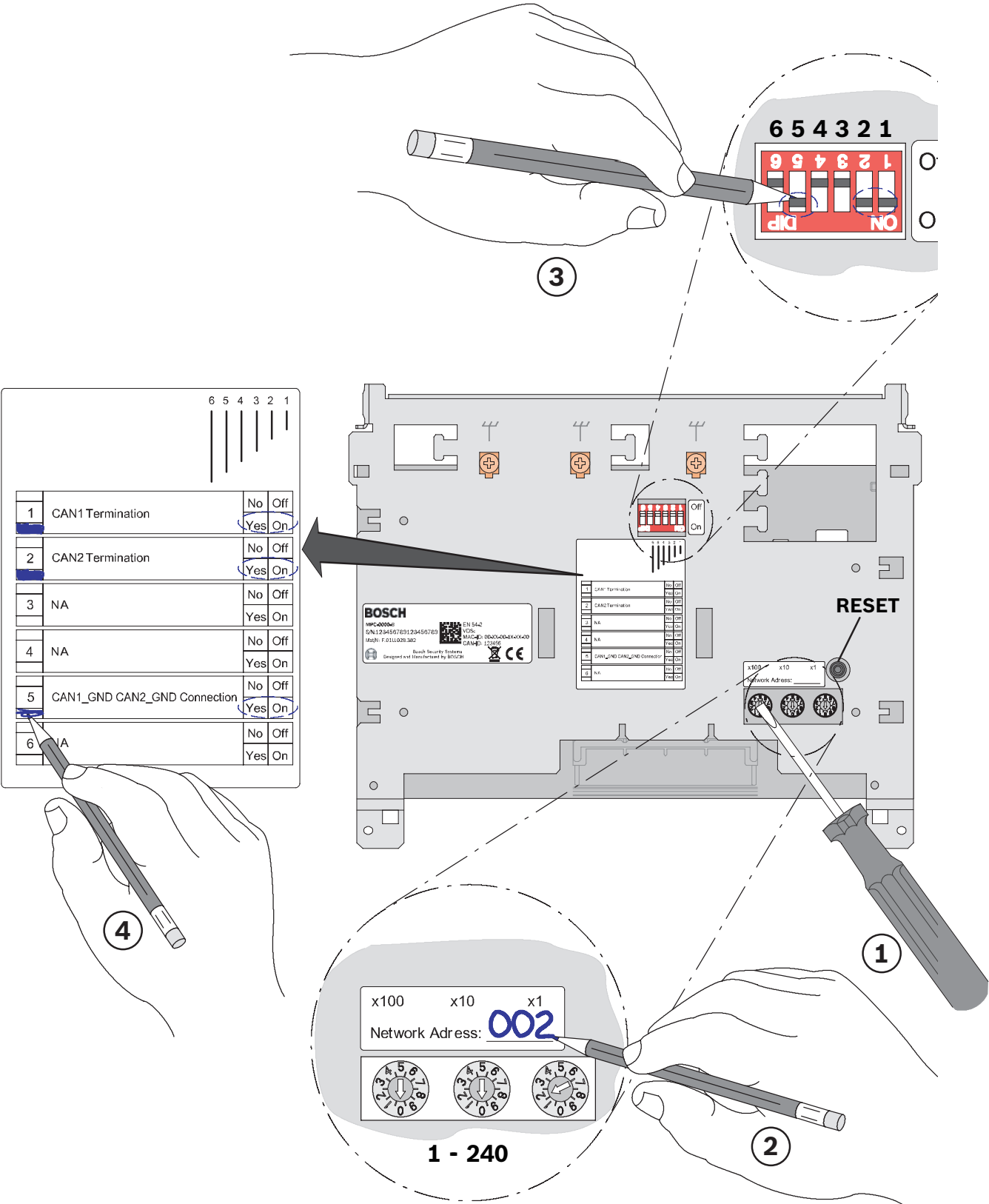
Figure 4.94: Addressing and Configuration
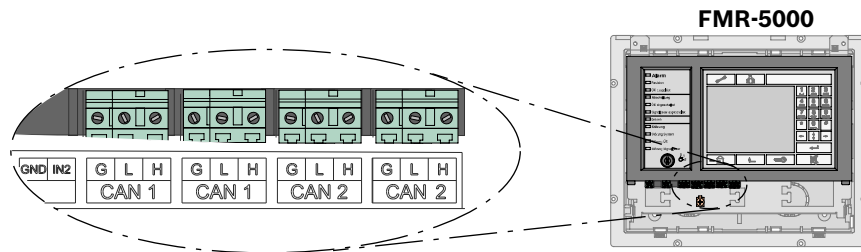
Figure 4.95: Network Connections

5 Commissioning

5.1 Notes

- Commissioning and the function test may only be carried out by authorized specialist personnel.
- Observe all country-specific testing and acceptance regulations.
- A function test must be carried out before commissioning (see *Functional Test, page 142*).
  Bosch Security Systems recommends at least one function test and one visual inspection per year.

5.2 Documentation

The panel controller is supplied with a CD on which you will find the product documentation (installation instructions, system description).

The current and full product documentation can also be found on the Internet at www.boschsecurity.com.

The fire panel is configured on a PC using the FSP-5000-RPS programming software. The programming software and the associated documentation can also be found on the CD supplied with the FPA-5000. More recent versions of the software are available on the Internet for those with access rights.

Information about the programming software is also included in the online help.

5.3 Quick Guide for Commissioning

1. Connect the panel to the power supply.
2. Connect the MPC Panel Controller to the PC (via USB). Make sure that the current version of the FSP-5000-RPS programming software is installed on your PC.
3. Start the auto-configuration. Edit the configuration according to the requirements of the fire detection system.
4. Load the configuration to the MPC Panel Controller.
5. Start the walktest.
6. Test the power supply (see *Testing the Power Supply, page 142*)
7. Check the conventional and LSN functions (see *Testing the Conventional and LSN Functions, page 142*).
8. Test all detection points and activations as programmed (see *Testing the Addressing/Activation, page 142*).
9. Read out the diagnosis file and save the file as a test log.

5.4   Functional Test

5.4.1   Preparation

Once all components of the fire detection system are installed and wired:

1.   Turn on the fire detection system.
2.   Connect the laptop on which the FSP-5000-RPS programming software is installed to the fire detection system.
3.   Load the configuration.

Now perform the function tests (as described in *Testing the Power Supply, page 142* to *Testing the Addressing/Activation, page 142*).

5.4.2   Testing the Power Supply

1.   Measure the voltage of the batteries.
     The target values are12.0 V to 14.1 V, or 24 V to 28.2 V.
2.   Test the power failure function
     Remove the fuse and make sure that the failure of the power supply is indicated on the display.
     Make sure that the time limit for failure of the power supply is set to around 25 min (in the configuration).
3.   Restore the power supply.
     Once the fire detection system is reconnected to the power supply, it automatically goes into standby mode, and the power supply failure display disappears.
4.   Test the battery failure function:
     Remove the cables between the batteries and the BCM module.
     Make sure that the time limit for failure of the batteries is set to around 25 min (in the configuration).
     Indication of battery failure can be delayed by up to 15 min.
5.   Reconnect the cables between the batteries and the BCM module.
     Once the connection with the batteries has been restored, the battery failure display must be reset manually.

5.4.3   Testing the Conventional and LSN Functions

1.   Testing a conventional/LSN loop:
     Disconnect the conventional/LSN loop by detaching the cable connection to the corresponding functional module.
     Failure of the conventional/LSN loop must be indicated on the display.
     Restore the connection between the conventional/LSN loop and the corresponding functional module and reset the error message. Now test all automatic and manual detectors.
2.   Testing a conventional/LSN stub:
     Disconnect the conventional/LSN stub by detaching the cable connection to the corresponding functional module.
     Failure of the conventional/LSN stub must be indicated on the display.
     Restore the connection between the conventional/LSN stub and the corresponding functional module and reset the error message. Now test all automatic and manual detectors.

5.4.4   Testing the Addressing/Activation

1.   Test the activation of the transmission devices (TD/DACT/TSN/GSM/X25/X31) by triggering the corresponding assigned detector.

2.   Test the activation of the transmission devices (TD/DACT/TSN/GSM/X25/X31) by initiating the corresponding fault.
3.   Test the activation of extinguishing systems, door controls etc.
4.   Test all internal alarm signaling equipment (e.g. audible and visual notification appliances).

6   Maintenance and Service

In Germany, maintenance work and inspection work on security systems are governed by the regulations of DIN VDE 0833; these regulations stipulate reference to the manufacturer's instructions for maintenance intervals.

> **Notice!**
> Have maintenance and inspection work carried out regularly by trained, qualified personnel. Bosch Sicherheitssysteme GmbH recommends a functional and visual inspection at least once a year.

> **Danger!**
> Touching live components can result in electric shock.
> Disconnect the power supply to the fire panel before all maintenance or installation work!

6.1   Warranty

Defective modules/devices are exchanged free of charge in the case of a claim under the warranty.

6.2   Repair

In the event of any defect, the entire module/device is exchanged.

6.3   Disposal

Unusable electrical and electronic devices/modules must not be disposed of with normal household refuse. They must be disposed of in compliance with the applicable regulations and directives (e.g. WEEE in Europe).

6.4   Additional Documentation

The installation instructions and operating instructions supplied with the device are available as PDF files on the Internet (www.boschsecurity.com).
Additional documents (including the wiring guide) are available to those with access rights on the "Bosch Security Systems Extranet" at www.boschsecurity.net/extranet.

> **Notice!**
> The hexadecimal error codes can be found on the BOSCH Extranet (access rights required):
> LSN diagnostic data (F.01U.081.090).

7   Technical Data

7.1   System Limits

Panels/remote keypads in the network	Max. number
Loop topology	32
Bus topology	8
Addresses	**Max. number**
Standalone	4096
In network, total	32768
In network, per panel	2048
Detection points/detector zones	**Max. number**
Standalone	4096
In network, total	32768
In network, per panel	2048
NAC groups with more than one FNM-420, per loop	6

Praesideo	Max. number
In network, total	1
Triggers (each trigger counts as one sounder group)	244

Per fire panel	Max. number
Sets, e.g. bypass group	192
Functional modules	46
Printer	4
Alarm counters (external, internal, testing)	3
Entries in the event database	10000
FSP-5000-RPS configuration interfaces (USB, COM)	2
Maximum number of outputs (sounders, controls, etc.) activated in parallel due to the same event	508

Configuration limits per fire panel (FSP-5000-RPS)	Max. number
Timer channels	20
Time control programs	19
Configuration for a Specific Day	365
Permission levels	4
User profiles	200
Sum counters and counters (in total)	60000

Configuration limits per fire panel (FSP-5000-RPS)	Max. number
Exportable objects including counters in the entire panel cluster (without pre-defined system counters)	2000
Importable objects including counters (without pre-defined system counters)	2000
Automatic connections to FMR-5000-C	3
Blocks of State-Dependent Rules (depending on what kind of activations are possible)	8
Maximum number of rules within a block	254

Number of functional modules	Max. number
ANI 0016 A	32
BCM-0000-B	8
CZM 0004 A	32
ENO 0000 B	8
FPE-5000-UGM	4
IOP 0008 A	32
IOS 0020 A	4
IOS 0232 A	4
LSN 0300 A	32
LSN 1500 A	11
NZM 0002 A	8
RMH 0002 A	32
RML 0008 A	32

7.2   Power loss of FPA-5000 Components

Component	Power loss
ANI 0016 A	0.62 W (all LEDs lit)
BCM-0000-B	– 0.96 W (controller + green LED lit) – 1.44 W (per AUX with 1.06 A load)
CZM 0004 A	– 1.65 W (for a line with 100 mA load) – 3.36 W (for 4 lines with 100 mA load each)
ENO 0000 B	– 1.44 W (1 relay activated) – 7.80 W (4 relays activated + key deposit heating active)
FMR-5000-C	5.52 W
FPE-5000-UGM	0.17 W

Component	Power loss
IOP 0008 A	0.24 W
IOS 0020 A	0.36 W
IOS 0232 A	0.36 W
LSN 0300 A	– 1.50 W (AUX with 490 mA load) – 2.72 W (LSN)
LSN 1500 A	– 8.00 W (AUX) – 14.70 W (LSN with 750 mA load)
MPC-xxxx-C	5.40 W
NZM 0002 A	0.96 W
PRD 0004 A	0.07 W
PRS-0002-C	0.07 W
RMH 0002 A	1.16 W
RML 0008 A	1.04 W (all relays activated)
UPS 2416 A	28.00 W

7.3   Housing and Accessories

7.3.1   Housings for Frame Installation

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015; front: anthracite gray, RAL 7016

Housing type	Dimensions (H x W x D)	Dimensions including mounting frame	Weight
CPH 0006 A	approx. 638 x 440 x 145 mm	approx. 663 x 455.5 x 236 mm	12.5 kg
MPH 0010 A	approx. 638 x 440 x 145 mm	approx. 663 x 455.5 x 236 mm	12.5 kg
EPH 0012 A	approx. 638 x 440 x 145 mm	approx. 663 x 455.5 x 236 mm	13.2 kg
PMF 0004 A	approx. 502 x 440 x 145 mm	approx. 527 x 455.5 x 236 mm	11.4 kg
PSF 0002 A	approx. 267 x 440 x 145 mm	approx. 292 x 455.5 x 236 mm	6.4 kg
USF 0000 A	approx. 267 x 440 x 145 mm	approx. 292 x 455.5 x 236 mm	6.4 kg

7.3.2   Housings for Wall Mounting

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015; front: anthracite gray, RAL 7016

Housing type	Dimensions (H x W x D)	Weight
HCP 0006 A	approx. 638 x 440 x 149 mm	12.5 kg
HBC 0010 A	approx. 840 x 440 x 149 mm	17.0 kg

Housing type	Dimensions (H x W x D)	Weight
HBE 0012 A	approx. 840 x 440 x 149 mm	17.0 kg
PSB 0004 A	approx. 502 x 440 x 149 mm	11.4 kg
PSS 0002 A	approx. 267 x 440 x 149 mm	6.4 kg
DIB 0000 A	approx. 267 x 440 x 149 mm	6.4 kg

7.3.3   PRS-0002-C Panel Rail Short for 2 Modules

Input voltage	24 V DC (20 V DC to 30 V DC)
Current consumption at 24 V DC	2.8 mA
Output voltage	5 V DC ± 4.5 %/24 V DC
Maximum input current	8 A at 24 V DC
Maximum output current	1 A at 5 V DC
Permissible operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permissible storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Material	ABS plastic, Polylac PA-766 (UL94 V-0)
Color	Satin finish, anthracite, RAL 7016

Installation of the panel rail is described in *Panel Rails, page 77*.

7.3.4   PRS 0002 A Panel Rail Short for 2 Modules (no longer available)

Input voltage	24 V DC (20 V DC to 30 V DC)
Current consumption at 24 V DC	7.6 mA
Output voltage	+5 V DC ± 4.5 %/24 V DC
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Material and color	ABS plastic (UL94 V-0), satin finish, anthracite, RAL 7016
Space required (H x W x D)	approx. 146 x 216 x 35 mm
Weight	approx. 136 g

7.3.5   PRD 0004 A Panel Rail Long for 4 Modules

Input voltage	24 V DC (20 V DC to 30 V DC)
Current consumption at 24 V DC	2.8 mA

Output voltage	+5 V DC ± 4.5 %/24 V DC
Maximum input current	8 A at 24 V DC
Maximum output current	1 A at 5 V DC
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Material and color	ABS plastic (UL94 V-0), satin finish, anthracite, RAL 7016
Space required (H x W x D)	approx. 146 x 396 x 35 mm
Weight	approx. 280 g

Installation of the panel rail is described in *Panel Rails, page 77*.

7.3.6   FPO-5000-PSB1/FPO-5000-PSB-CH Power Supply Brackets

Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Weight	
– FPO-5000-PSB1	approx. 550 g
– FPO-5000-PSB-CH	approx. 395 g
Material	PA6 plastic, Grilon BS V0 (UL94 V-0)
Color	satin finish, anthracite, RAL 7016

Installation of the devices is described in *Power Supply Brackets, page 64*.

7.3.7   UPS 2416 A Universal Power Supply 24 V/6 A

Input voltage range	100 V AC to 240 V AC
Input frequency	50 Hz to 60 Hz
Input current	max. 1.95 A
Efficiency	> 85 %
Back-up time	>16 ms at 115 V AC
Output voltage	26 V DC to 29 V DC
Maximum output current	6 A
Maximum power	160 W (permanent)
Cooling	Ventilation without ventilator
Safety standards	IEC 60950/EN 60950
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C

Housing material and color	Aluminum, anodized, black satin finish
Space required (H x W x D)	approx. 200 x 100 x 40 mm
Weight	approx. 780 g

Installation of the power supply unit is described in *UPS 2416 A Universal Power Supply 24 V/ 6 A, page 71*.

7.4 Panel Controller and Remote Keypad

7.4.1 MPC

Display element	TFT touch screen, 320 x 240 pixels, 127.5 mm x 170 mm active area
Operating elements	22 buttons, 1 key switch, 11 LEDs, 1 reboot button
Interfaces	CAN1, CAN2, ETH1, ETH2, USB, RS232
Signal inputs	IN1/IN2
Max. length of CAN cable for system networking	L_{max} = 1000 m, depending on configuration, cable type and topology
Input voltage	20 V DC to 30 V DC
Maximum current consumption	– Standby mode: 135 mA at 24 V DC – In case of alarm: 225 mA at 24 V DC
Permissible operating temp.	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 70 °C
Space required (H x W x D)	190 x 404 x 60 mm
Weight	Approx. 2 kg

Installation of the device is described in *MPC Panel Controller, page 83*.

7.4.2 Remote Keypad

Display element	TFT touch scree, 320 x 240 pixels, 127.5 mm x 170 mm active area
Operating and display elements	22 buttons, 1 key switch, 11 LEDs, 1 reboot button
Interfaces	CAN1, CAN2, ETH1, ETH2, USB, RS232
Signal inputs	IN1/IN2
Permissible length of CAN cable for system networking	L_{max} = 1000 m, depending on configuration, cable type and topology
Recommended cable type for CAN connection	J-Y-ST/Y2 x 2 x 0.8
Power supply connections	DC1 (power supply), DC2 (redundant power supply)
Input voltage	12 V DC to 30 V DC, from FPA-5000 or FPP-5000

Maximum power supply line resistance	18 Ω
Maximum current consumption	– Standby mode: 140 mA at 24 V DC – In case of alarm: 230 mA at 24 V DC
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 70 °C
Housing material and color	ABS plastic, light gray (similar to RAL 7035)
Space required (H x W x D)	280 x 340 x 87 mm
Weight	approx. 3 kg

Installation of the device is described in *Remote Keypad, page 126*.

7.4.3   FSP-5000-RPS Programming Software

The following minimum system requirements are defined for the FSP-5000-RPS Programming Software:

– Operating system: Windows XP, Vista, or 7 (Windows 64 bit operating systems are not supported).
  In the case of Windows XP, Service Pack 3 is required.
– Hard disk: At least 1 GB storage capacity.
– RAM: At least 500 MB.

7.5   Functional Modules

The functional modules have the following technical specifications in common:

Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Relative humidity	Max. 95 % non-condensing
Housing material and color	ABS plastic, satin finish, anthracite, RAL 7016
Safety standards	EN 60950
Protection class	IP 30

Alternative technical data is listed for the individual modules.

7.5.1   ANI 0016 A Annunciator Module

Display elements	16 red LEDs, 16 yellow LEDs
Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum current consumption	
– Standby mode (all LEDs off)	6 mA
– In case of alarm (all LEDs on)	26 mA
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 206 g

Installation of the power supply unit is described in *ANI 0016 A Annunciator Module, page 100*.

7.5.2   BCM-0000-B Battery Controller Module

Input voltage	20.4 V to 30 V
Current consumption at 23 V DC	
– Standby operation	25 mA
– Fault	40 mA
Permissible battery capacities	
– with 2 batteries	24 to 26 Ah, 36 to 45 Ah
– with 4 batteries	48 to 52 Ah, 72 to 90 Ah
Maximum current	
– of the module	Max. 6 A
– to panel rails	Max. 6 A
– for switch outputs	Max. 5.6 A (2 x 2.8 A cannot be connected in parallel)
Maximum load of fault outputs BAT FAULT, AC FAULT and collective fault	0 V/0 - 20 mA
Maximum battery resistance (fault threshold)	430 mΩ
Voltage outputs – 2 switchable outputs	+24 V (20.4 - 30 V), 2.8 A, battery buffered (programmable)
Display and operating elements	
– 1 green LED	Mains power on
– 3 yellow LEDs	Mains fault /fault in battery 1/fault in battery 2
– 1 button	LED test, start charging manually, reset switch outputs
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	193 g
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-25 °C to 85 °C

Installation of the power supply unit is described in *BCM-0000-B Battery Controller Module, page 100*.

7.5.3   CZM 0004 A 4 Zone Conventional Module

Input voltage	20 V DC to 30 V DC 5 V DC ± 5%
Maximum current consumption	
– Standby mode (all 4 zones)	65 mA (at 24 V DC)

– In case of alarm (all 4 zones)	65 mA + 100 mA per zone (at 24 V DC)
Outputs (OUT 1–OUT 4)	
– Maximum output voltage	20 V DC ± 5%
– Maximum output current	100 mA ± 10% per zone
– Max. line resistance	2 x 25 Ω per zone
Auxiliary power supply (AUX1–AUX4)	
– Max. output current (total of all 4 outputs)	230 mA
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight without packaging	Approx. 135 g
Operating and display elements	8 LEDs (4 x red, alarm/4 x yellow, fault) 4 keys (LED test)

Installation of the power supply unit is described in *CZM 0004 A 4 Zone Conventional Module, page 106*.

7.5.4 ENO 0000 B Fire Service Interface Module

Operating and display elements	2 LEDs (1 x red, 1 x yellow)/1 button (LED test)
Input voltage	20 V DC to 30 V DC
Current consumption	
– In standby	25 mA
– All relays tripped	60 mA
– Key deposit heating	additional 240 mA
Permissible relay contact load	1 A/30 V
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 150 g

Installation of the power supply unit is described in *ENO 0000 B Fire Service Interface Module, page 107*.

7.5.5 FPE-5000-UGM Interface Module

Operating and display elements	4 two color LEDs (green = transmission / yellow = fault), 1 button (LED test)
Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum cable length	1000 m
Maximum line resistance	70 Ω
Transmission rate	9600 bit/s at 1000 m to 38400 bit/s at 200 m
Maximum current consumption	

–	Standby operation	7 mA (at 24 V)
–	One transmission path active	10 mA (at 24 V)
–	Both transmission paths active	13 mA (at 24 V)
Space required (H x W x D)		approx. 110 x 90 x 60 mm
Weight		approx. 150 g

Installation of the power supply unit is described in *FPE-5000-UGM Interface Module, page 108*.

7.5.6   IOP 0008 A Input/Output Module

Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum current consumption	15 mA at 24 V DC
Maximum switch-on current	700 mA (short-circuit protected, I_{max} = 1.5 A)
Maximum cable length	3 m
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 150 g

Installation of the power supply unit is described in *IOP 0008 A Input/Output Module, page 109*.

7.5.7   IOS 0020 A 20 mA Communication Module

Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum current consumption	15 mA at 24 V DC
Maximum output current	1.3 A at 24 V DC resistive
Maximum cable lengths	– S1: 1000 m – S20: 1000 m – RS232: 3 m
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 175 g

Installation of the power supply unit is described in *IOS 0020 A 20 mA Communication Module, page 110*.

7.5.8   IOS 0232 A RS232 Communication Module

Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum current consumption	15 mA at 24 V DC
Maximum cable length	3 m per interface
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 180 g

Installation of the power supply unit is described in *IOS 0232 A RS232 Communication Module, page 111*.

7.5.9   LSN 0300 A LSN improved Module 300 mA

Operating and display elements	2 LEDs (1 x red, alarm/ 1 x yellow, fault) 1 button (LED test)
Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Output voltage	
– LSN standby voltage	30 ± 1.0 V DC
– LSN transmission voltage	30 ± 1.0 V DC + 1.6 ± 0.15 V DC (voltage range)
– Auxiliary supply AUX	28 ± 1.0 V DC
Maximum current consumption	1750 mA at 24 V DC
Nominal current consumption	
– Module	39 mA at 24 V DC
– LSN	1.7 x current consumption of the LSN elements
– AUX	1.2 x auxiliary supply AUX
Cable length	max. 1600 m, depending on configuration and cable type
Number of LSN elements	max. 127 LSN classic elements max. 254 LSN improved elements
LSN line current	max. 300 mA, depending on configuration and cable type
Auxiliary supply AUX (28 V DC)	max. 500 mA for an LSN loop (ERT technology) or 2 x max. 500 mA with 2 stubs
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 225 g

Installation of the power supply unit is described in *LSN 0300 A LSN improved Module 300 mA, page 112*.

7.5.10   LSN 1500 A LSN improved Module 1500 mA

Operating and display elements	2 LEDs (1 x red, alarm/1 x yellow, fault) 1 button (LED test)
Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Output voltage	
– LSN	30 ± 0.85 V DC
– Auxiliary supply AUX	28 ± 1.0 V DC
Maximum current consumption	4010 mA at 24 V DC
Nominal current consumption	
– Module	260 mA at 24 V DC

– LSN	1.7 x current consumption of the LSN elements
– AUX	1.2 x auxiliary supply AUX
Cable length	max. 3000 m, depending on configuration and cable type
Number of LSN elements	Max. 127 LSN classic elements Max. 254 LSN improved elements
LSN line current	
– Standby	max. 750 mA, depending on configuration and cable type
– Alarm	max. 1500 mA, depending on configuration and cable type max. 300 mA when connecting LSN classic elements
Auxiliary supply AUX (28 V DC)	max. 500 mA for an LSN loop (ERT technology) or 2 x max. 500 mA with 2 stubs
Space required (H x W x D)	approx. 127 x 190 x 60 mm
Weight	approx. 440 g

Installation of the power supply unit is described in *LSN 1500 A LSN improved Module 1500 mA, page 113*.

7.5.11 NZM 0002 A Notification Appliance Zone Module

Operating and display elements	4 LEDs (2 x red, alarm/2 x yellow, fault) 2 buttons (LED test)
Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum current consumption	
– Standby mode (both zones)	40 mA
– In case of alarms (both zones)	65 mA + 500 mA per notification appliance
Maximum output voltage	29.5 V DC
Maximum output current	
– For supply via panel rail	500 mA per notification appliance (in case of alarm)
– For external power supply	3 A per notification appliance (in case of alarm)
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	Approx. 135 g

Installation of the power supply unit is described in *NZM 0002 A Notification Appliance Zone Module, page 115*.

7.5.12 RMH 0002 A Relay Module for mains voltage

Operating and display elements	4 LEDs (2 x red, alarm/2 x yellow, fault) 2 buttons (each on/off)
Fuses	F1 = T 6.3 A, F2 = T 6.3 A

Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Feedback current	max. 8.5 mA per feedback output
Feedback voltage	max. 30 V DC
Maximum current consumption	
– Standby operation	10 mA
– Both relays tripped	50 mA
Maximum contact load	5 A at 120 V/230 V AC or 5 A at 30 V DC (resistive)
Maximum line resistance of feedback lines	2 x 25 Ω
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	Approx. 135 g

Installation of the power supply unit is described in *RMH 0002 A Relay Module for Mains Voltage, page 116*.

7.5.13   RML 0008 A Relay Module for Low Voltage

Input voltage	20 V DC to 30 V DC/5 V DC ± 5 %
Maximum current consumption	
– Standby operation	4 mA
– All relays tripped	68 mA
Maximum contact load	1 A at 30 V DC resistive
Space required (H x W x D)	approx. 127 x 96 x 60 mm
Weight	approx. 150 g

Installation of the power supply unit is described in *RML 0008 A Relay Module for Low Voltage, page 117*.

7.6   FPP-5000 External Power Supply Unit Kit 24 V/6 A

7.6.1   FPP-5000 Kit

Input voltage range	100 V AC to 240 V AC
Input frequency range	50 Hz to 60 Hz
Efficiency	> 85 %
Back-up time	>100 ms at 230 V AC
Output voltage	
– With mains supply	26 - 29 V DC (depending on temperature), 26.8 V DC nominal (at 40 °C)
– With battery supply	21 - 23 V DC
Maximum output current	6 A

Max. output	160 W (permanent)
Maximum load of fault outputs BAT FAULT, AC FAULT, and collective fault	0 V/0 - 20 mA
2 voltage outputs, switchable	+24 V/2.8 A (20.4 - 30 V), battery buffered
Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015 Front: anthracite gray, RAL 7016
Dimensions, installed (H x W x D)	approx. 527 x 456 x 326 mm
Protection class as per EN 60950	Class I equipment
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Relative humidity	Max. 95 % non-condensing
Cooling	Ventilation without ventilator

Installation of the power supply unit is described in *RMH 0002 A Relay Module for Mains Voltage, page 116*.

7.6.2   FPP-5000-TI Trouble Interface

Input voltage	15 V DC to 30 V DC
Maximum current consumption	1.15 mA (at 24 V), from LSN
Protection class (IEC 60529)	IP 20
Addressing	using eight DIP switches
Space required (H x W x D)	approx. 127 x 96 x 60 mm

The module is described in *FPP-5000 External Power Supply Unit Kit 24 V/6 A, page 120*.

7.6.3   FPP-5000-TI13 Communication Interface

Input voltage	15 V DC to 33 V DC
Current consumption – From panel rail at 24 V DC – From LSN	 – 13.2 mA – 3.25 mA
Protection class (IEC 60529)	IP 20
Space required (H x W x D)	approx. 127 x 96 x 60 mm

The module is described in *FPP-5000 External Power Supply Unit Kit 24 V/6 A, page 120*.

8   Appendix

8.1   Options with requirements under EN 54-2:1997/A1:2006

The FPA-5000 provides the following options with requirements under EN 54-2:1997/A1:2006:
- Output for activation of fire alarm devices
- Activation of fire alarm transmission equipment
  - Output to fire alarm transmission equipment

- – Alarm acknowledgement input from fire alarm transmission equipment
  - – Output for activation of fire protection equipment
    - – Output type A
    - – Output type B
    - – Output type C
    - – Fault monitoring of fire protection equipment
  - – Transmission delay
  - – Dependency of fire detection status on more than one alarm signal
    - – Type A dependency
    - – Type B dependency
  - – Alarm counter
  - – Fault signal status
    - – Fault signals from detection points
    - – Complete failure of power supply
    - – Output to fault signaling transmission equipment
  - – Disabled status
    - – Disabling of addressable points
  - – Test status

8.2 Component Overview

8.2.1 Frame Installation Housings, Mounting Frames and Installation Kits

Panel Housings for Frame Installation

Designation	Product ID
CPH 0006 A Modular Panel Housing for 6 Modules, Frame Installation	4.998.137.290
MPH 0010 A Modular Panel Housing for 10 Modules, Frame Installation	4.998.137.291

Extension Housings for Frame Installation

Designation	Product ID
EPH 0012 A Modular Extension Housing for 12 Modules	4.998.137.292
PMF 0004 A Power Supply Big, Frame Installation	4.998.137.294
PSF 0002 A Power Supply Small, Frame Installation	4.998.137.293
USF 0000 A Universal Housing Small, Frame Installation	4.998.147.119

Mounting Frames

Designation	Product ID
FBH 0000 A Mounting Frame Large	4.998.137.296
FHS 0000 A Mounting Frame Large with Distributor Rail	4.998.139.490
FMH 0000 A Mounting Frame Medium	4.998.137.297
FSH 0000 A Mounting Frame Small	4.998.137.298

482.6 mm (19") Installation Kits for Frame Installation Housing

Designation	Product ID
FRB 0019 A Installation kit, large, 15 height units	4.998.139.498
FRM 0019 A Installation kit, medium, 12 height units	4.998.139.499
FRS 0019 A Installation kit, small, 6 height units	4.998.139.500

8.2.2 Wall Mounting Housings and Installation Kits

Panel Housings for Wall Mounting

Designation	Product ID
HBC 0010 A Modular Panel Housing for 10 Modules	4.998.137.286
HCP 0006 A Modular Panel Housing for 6 Modules	4.998.137.285

Extension Housings for Wall Mounting

Designation	Product ID
DIB 0000 A Distribution Box	4.998.139.497
HBE 0012 A Modular Extension Housing for 12 Modules	4.998.137.287
PSB 0004 A Power Supply	4.998.137.289
PSS 0002 A Power Supply Small, Frame Installation	4.998.137.288

482.6 mm (19") Installation Kit for Wall Mounting Housing

Designation	Product ID
FRK 0019 A Installation kit	F.01U.511.304

8.2.3 Accessories for Housing

Front Doors (Transparent Plastic)

Designation	Product ID
FDT 0000 A Front Door Transparent, lock right side	4.998.147.120
FDT 0001 A Large Front Door Transparent, lock right side	4.998.153.238
FDT 0002 A Large Front Door Transparent, lock left side	4.998.153.239
FDT 0003 A Front Door Transparent, lock left side	F.01U.508.703

Mounting Plates/Installation Accessories

Designation	Product ID
FPO-5000-EB Earth Bar	F.01U.513.251
HMP 0003 A Mounting Plate for Mounting Frame	F.01U.511.305
RLE 0000 A Junction Board	4.998.153.241

Mounting Kits for Ethernet switch and media converter

Designation	Product ID
FPM-5000-KES Mounting Kit for Ethernet Switch	F.01U.266.844
FPM-5000-KMC Mounting Kit for Media Converter	F.01U.266.845

8.2.4 Panel Rails

Designation	Product ID
PRD 0004 A Panel Rail Long, for up to 4 Modules	4.998.137.280
PRS-0002-C Panel Rail Short, for up to 2 Modules	F.01U.284.903

8.2.5 Power Supply Units, Power Supply Brackets, Batteries

Designation	Product ID
FPP-5000 External Power Supply Unit Kit	F.01U.511.307
FPP-5000-TI Trouble Interface for FPP-5000	F.01U.073.324
FPP-5000-TI13 LSN Communication interface for FPP-5000	F.01U.161.679
UPS 2416 A Universal Power Supply 24 V/6 A	F.01U.500.367
FPO-5000-PSB-CH Power Supply Bracket	F.01U.078.860
FPO-5000-PSB1 Power Supply Bracket	F.01U.078.858
Battery 12 V/28 Ah	2.799.502.177
Battery 12 V/45 Ah	2.799.380.000

8.2.6 Panel Controller/Remote Keypad

MPC Panel Controllers

Designation	Product ID
MPC-0000-C Panel Controller DE, Labeling and documentation in German	F.01U.275.048
MPC-1300-CPanel Controller EN, Labeling and documentation in English	F.01U.275.049
MPC-1400-C Panel Controller PT, Labeling and documentation in Portuguese	F.01U.275.050
MPC-1500-C Panel Controller CZ, Labeling and documentation in Czech	F.01U.275.051
MPC-1600-C Panel Controller HU, Labeling and documentation in Hungarian	F.01U.275.052
MPC-1700-C Panel Controller IT/DE, Labeling and documentation in Italian/German	F.01U.275.053
MPC-2000-C Panel Controller ES, Labeling and documentation in Spanish	F.01U.275.054

Designation	Product ID
MPC-3000-C Panel Controller PL, Labeling and documentation in Polish	F.01U.275.055
MPC-5000-C Panel Controller FR/NL, Labeling and documentation in French/Dutch	F.01U.275.056
MPC-6000-C Panel Controller EL, Labeling and documentation in Greek	F.01U.275.057
MPC-7000-C Panel Controller RO/EN, Labeling and documentation in Romanian/English	F.01U.275.058
MPC-8000-C Panel Controller RU, Labeling and documentation in Russian	F.01U.275.059
MPC-9000-C Panel Controller TR, Labeling and documentation in Turkish	F.01U.275.060

Remote Keypads

Designation	Product ID
FMR-5000-C-00 Remote Keypad DE, Labeling and documentation in German	F.01U.275.061
FMR-5000-C-02 Remote Keypad ES, Labeling and documentation in Spanish	F.01U.275.062
FMR-5000-C-03 Remote Keypad PT Labeling and documentation in Portuguese	F.01U.275.063
FMR-5000-C-05 Remote Keypad FR/NL, Labeling and documentation in French/Dutch	F.01U.275.064
FMR-5000-C-06 Remote Keypad EL Labeling and documentation in Greek	F.01U.275.065
FMR-5000-C-07 Remote Keypad RO/EN Labeling and documentation in Romanian/English	F.01U.275.072
FMR-5000-C-08 Remote Keypad RU Labeling and documentation in Russian	F.01U.275.066
FMR-5000-C-09 Remote Keypad TR Labeling and documentation in Turkish	F.01U.275.067
FMR-5000-C-13 Remote Keypad EN Labeling and documentation in English	F.01U.275.068
FMR-5000-C-14 Remote Keypad PT Labeling and documentation in Portuguese	F.01U.275.069
FMR-5000-C-15 Remote Keypad CZ Labeling and documentation in Czech	F.01U.275.070

Designation	Product ID
FMR-5000-C-16 Remote Keypad HU Labeling and documentation in Hungarian	F.01U.275.071
FMR-5000-C-17 Remote Keypad IT/DE Labeling and documentation in Italian/German	F.01U.275.073

Address Cards

Designation	Product ID
ADC 0064 A 64 point Address Card	4.998.137.281
ADC 0128 A 128 point Address Card	4.998.137.282
ADC 0512 A 512 point Address Card	4.998.137.283
ADC 1024 A 1024 point Address Card	4.998.137.284
ADC-2048-A 2048 point Address Card	F.01U.076.111

License Key

Designation	Product ID
ADC-5000-OPC License key	F.01U.076.112
ADC-5000-VA Licence Key	F.01U.282.794
ADC-5000-OPC-VA Licence Key	F.01U.282.795

8.2.7 Functional Modules

Modules

Designation	Product ID
ANI 0016 A Annunciator Module	4.998.137.262
BCM-0000-B Battery Controller Module	F.01U.081.384
CZM 0004 A 4 Zone Conventional Module	4.998.137.270
ENO 0000 BFire Service Interface Module	F.01U.063.204
FPE-5000-UGM Interface Module	F.01U.028.289
IOP 0008 A Input/Output Module	4.998.137.269
IOS 0020 A 20 mA Communication Module	4.998.137.266
IOS 0232 ARS232 Communication Module	4.998.137.267
LSN 0300 ALSN improved Module 300 mA	4.998.137.277
LSN 1500 ALSN improved Module 1500 mA	4.998.137.278
NZM 0002 A Notification Appliance Zone Module	4.998.137.275
RMH 0002 A Relay Module (for mains voltage)	4.998.137.274
RML 0008 ARelay Module (for low voltage)	4.998.137.265

Accessories

Designation	Product ID
FDP 0001 Dummy Cover Plate, for empty module slots	F.01U.500.374
PSK 0001 A Labeling Strips, Wide, for module buttons	F.01U.500.366
PSL 0001 A Labeling Strips, Small, for ANI 0016 A module	F.01U.500.363

8.2.8 Cable Sets

Designation	Product ID
CBB 0000 A Cable Set BCM/Battery	4.998.153.244
CPA 0000 A Cable Set AT 2000	4.998.153.247
CPB 0000 A Cable BCM/UPS	4.998.153.243
CPR 0001 A Printer Cable	F.01U.500.372
CRP 0000 A Redundant MPC cable set	4.998.153.242

8.2.9 Thermal Printer

Designation	Product ID
THP 2020 AThermal Printer, in frame installation housing	4.998.137.295

8.2.10   CAN/FOC Adapters

Designation	Product ID
DL-CAN/1x13-MM-ST, PzP CAN-LWL System/MM	0 100 07421
DL-CAN/1x13-MM-SC	0 100 07423
DL-CAN/1x13-SM-ST	0 100 07431
DL-CAN/1x13-SM-SC	0 100 07433

8.3   Special Applications

8.3.1   Controlling Extinguishing Systems

The FPA enables the activation of extinguishing systems via the extinguishing interface described in VDE 0833 Part 2 or by the VdS (standard interface SST in line with VdS Guideline 2496). Connection occurs either at the panel using the RMH 0002 A Relay Module for mains power or in the field via the FLM-420-RLE Interface Module.

For each panel, a maximum of 8 extinguishing panels can be activated in each case via an RMH 0002 A Relay Module for mains power. For each LSN loop, a maximum of 8 extinguishing systems can be activated in each case via an FLM-420-RLE Interface Module.

The requirement is for a maximum of one extinguishing area to fail in the case of a system fault. This means that from the second extinguishing area, there must be a redundant MPC panel controller.

If several FLM-420-RLE Interface Modules are used to control the extinguishing system in each LSN loop, in addition to the redundant panel controller, the associated LSN 0300 A or LSN 1500 A module must also be duplicated.
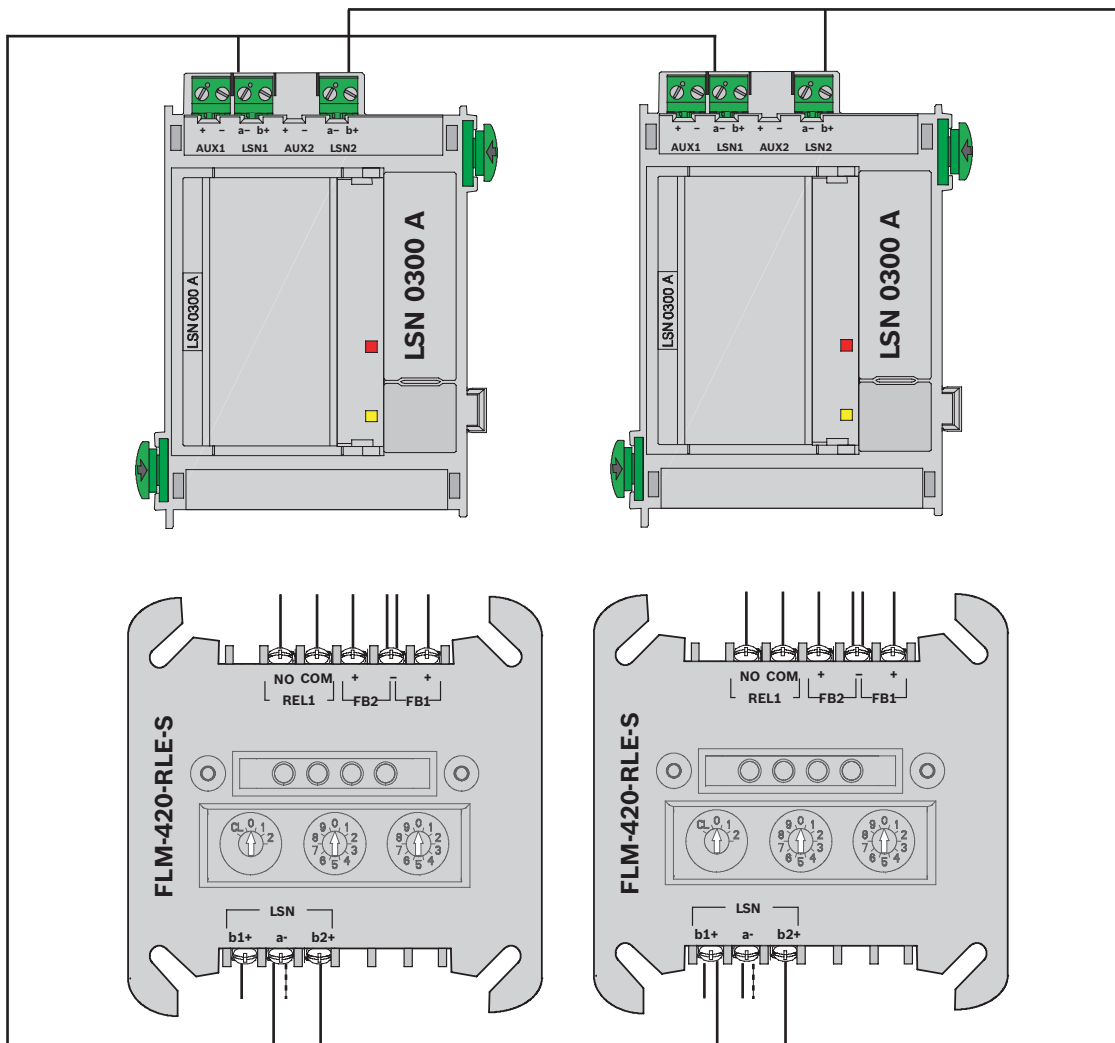
Figure 8.1: Several FLM-420-RLE modules in the LSN loop

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