

SIEMENS



FS20

Fire detection system

Mounting

Installation

MP7

Imprint

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1 About this document

Goal and purpose

This document describes the installation process for the stations and components of the FS20 fire detection system. It especially provides information on the following:

- Mounting of the stations
- Mounting of the individual components
- Assembly of the stations

The document 008836 System description contains the overview of the structure and function of the fire detection system and of the structure of the documentation.

Document 008837 Product data contains the detailed technical description for the components of the FS20 fire detection system.

You will find information about assembling and installing the gateway (SIGMANET) and the associated components in the Gateway (SIGMANET) Technical Manual A6V10281424.

Scope

The information contained in this document is valid for the market package MP7.

The document also contains information on country-specific components. Country-specific components are marked with square brackets, e.g. [DE]. It may be the case that these cannot be used in your country.

Target groups

The information in this document is intended for the following target groups:

Target group	Activity	Qualification
System owner	<ul style="list-style-type: none"> According to EN 50110-1, 'nominated person with the overall responsibility to ensure the safe operation of the electrical installation by setting rules and organisation or framework.' 	<ul style="list-style-type: none"> 'This person can be the owner, employer, proprietor or a delegated person.' 'Some of these duties can be delegated to others as required. For large or complex electrical installations or networks, the duties can be delegated for parts of the installations or the network.'
Installation personnel	<ul style="list-style-type: none"> Assembles and installs the product components at the place of installation. Carries out a function check following installation. 	<ul style="list-style-type: none"> Has received specialist training in the area of building installation technology or electrical installations.
Commissioning personnel	<ul style="list-style-type: none"> Configures the product at the place of installation according to customer-specific requirements. Checks the product operability and releases the product for use by the operator. Searches for and corrects malfunctions. 	<ul style="list-style-type: none"> Has obtained suitable specialist training for the function and for the products. Has attended the training courses for commissioning personnel.
Maintenance personnel	<ul style="list-style-type: none"> Carries out all maintenance work. Checks that the products are in perfect working order. Searches for and corrects malfunctions. 	<ul style="list-style-type: none"> Has obtained suitable specialist training for the function and for the products.

Source language and reference document

- The source/original language of this document is German (de).
- The reference version of this document is the international version in English. The international version is not localized.

Document identification

The document ID is structured as follows:

ID code	Examples
ID_ModificationIndex_Language_COUNTRY -- = multilingual or international	A6V10215123_a_de_DE A6V10215123_a_en_-- A6V10315123_a_--_--

Date format

The date format in the document corresponds to the recommendation of international standard ISO 8601 (format YYYY-MM-DD).

Conventions for text marking

Markups

Special markups are shown in this document as follows:

▷	Requirement for a behavior instruction
1. 2.	Behavior instruction with at least two operation sequences
–	Version, option, or detailed information for a behavior instruction
⇒	Intermediate result of a behavior instruction
⇒	End result of a behavior instruction
•	Numbered lists and behavior instructions with an operation sequence
[→ X]	Reference to a page number
'Text'	Quotation, reproduced identically
<Key>	Identification of keys
>	Relation sign and for identification between steps in a sequence, e.g., 'Menu bar' > 'Help' > 'Help topics'
↑ Text	Identification of a glossary entry

Supplementary information and tips



The 'i' symbol identifies supplementary information and tips for an easier way of working.

1.1 Applicable documents

Document ID	Title
008836	FS20 Fire Detection System, System Description
008837	FS20 Fire Detection System, Product Data
009052	FS20 Fire Detection System, Commissioning, Maintenance, Troubleshooting
A6V10281424	Technical Manual FG2020
A6V11370439	Form for CE marking on an integrated extinguishing system
A6V11502888	FHA2061-A1 mounting kit (batteries)

1.2 Download center

You can download various types of documents, such as data sheets, installation instructions, and license texts via the following Internet address:

<https://siemens.com/bt/download>

- Enter the document ID in the search field.



You will also find information about search variants and links to mobile applications (apps) for various systems on the home page.

1.3 Technical terms and abbreviations

You will find details of technical terms and abbreviations in the 'Glossary' chapter.

See also

- 📄 Applicable documents [→ 11]

1.4 Revision history

The reference document's version applies to all languages into which the reference document is translated.



The first edition of a language version or a country variant may, for example, be version 'd' instead of 'a' if the reference document is already this version.

The table below shows this document's revision history:

Version	Edition date	Brief description
u	2018-08-29	Corrections and additions: 'Batteries [→ 230]', 'Applicable documents [→ 11]': Fixing the batteries with the mounting kit (batteries) FHA2061-A1 updated and reference to the separate document for the mounting kit added. 'Insert printing paper [→ 397]': Procedure corrected.
t	2018-06-25	MP7 New: New main chapter: Mounting and installing extinguishing control panels [→ 354] Corrections and additions: 'EF1/EF2 sockets for SAFEDLINK wiring [→ 141]', amended: 'between two 'Stations' 'Installing the fiber optic cable network module [→ 137]': Pin assignments [→ 140]: Fault contact changed and reference to EN 54-compliant power supply added. 'RT interface [CH] [→ 217]': 'Connection of cable tree to periphery board [→ 221]': Connecting chart of the current cable trees modified.
s	2016-01-27	Corrections and additions: Chapter 'Mounting and installation FC2080' – 'Wiring up the system supply and module bus': Pin assignments of the optocouplers K1 and K2 modified.

Version	Edition date	Brief description
r	2015-12-15	<p>Edition for MP6</p> <p>New:</p> <ul style="list-style-type: none"> • 'Installing an Ethernet switch (modular) FN2012' in 'Mounting and installation of the compact control panels' and 'Mounting and installation FC2080' • Pin assignment for power supply (70 W) FP2015 inserted <p>Corrections and additions:</p> <ul style="list-style-type: none"> • Chapter 'Installing mounting kits' adapted for FN2008 and FN2009 • Referenced documents updated • Chapter 'Mounting and installation of fire terminal (Touch)': Mounting of mains filter removed, mounting of desktop housing (FT2080) modified, installation in wall housing changed to housing (Standard) • Chapter 'Insert license key' updated • Notice about ground fault monitoring incorporated into chapter 'Mounting and installation FC2080' – 'Installing the operating unit and operating add-on' • Chapter 'Mounting and installation of the compact control panels' – 'Event printer' – 'Connection on printer side' product version 02 integrated • Chapter 'Mounting and installation FC2080' – 'Wiring up the system supply and module bus', 0 V connection inserted between PSU1 and PSU2 to guarantee ground fault monitoring, relay wiring K1 and K2 replaced by optocoupler • Chapter 'RS232/RS485 module'; cable gland on operating unit removed. All corresponding graphics revised • Chapter 'Mounting and installation FC2080' – 'Installing the key safe adapter [DE]': Wiring drawings modified
q	2014-02-10	Information on voltage ranges revised in relation to supply outputs for fire terminal board
p	2013-11-14	<p>Edition for MP5</p> <p>Change to date format according to ISO 8601</p> <p>New:</p> <p>Mounting and installation of fire terminal (Touch) FT2080-A1</p> <p>Installation of module bus cards for AlgoRex migration:</p> <ul style="list-style-type: none"> • Line card (AnalogPLUS) FCL2005-A1 • Line card (interactive) FCL2006-A1 • Line card (interactive Ex) FCL2007-A1 <p>Corrections and additions:</p> <ul style="list-style-type: none"> • Note on Ethernet loop FN2008 added. • RS485 module: Slot address assignment • FC2080: Chapter 'Wiring the system supply and module bus' moved up one level and detailed wiring diagrams added • FC2080: Chapter 'Parallel connection of three power supplies' – Connection diagram modified • FC2080: Wiring diagram of the mains supply cable on carrier (19", power supply) integrated • FC2080: Installing the power supply kit (150 W) – Wiring, connection diagram for mains supply cable modified • FC2080: Key safe adapter, chapter on wiring with FDCIO222 added and wiring via I/O card (programmable) changed (heating isolation integrated) • Various minor corrections and adaptations • CPR replaces CPD: The Construction Products Regulation (CPR 305/2011) replaces the previous Construction Products Directive (CPD 89/106).

Version	Edition date	Brief description
o	05.2012	<p>Edition MP-EN 4.0</p> <p>Fire control panel FC2080:</p> <ul style="list-style-type: none"> • Housing (19", pedestal cabinet) FH2080-AA • Processor unit (19", FC2080) FCC2002-A1 • CPU card (FC2080) FCC2004-A1 • Communication card (FC2080) FCC2005-A1 • Network module (SAFEDLINK, CC) FN2010-A1 • I/O card (remote transmission) FCI2007-A1 • Installation and wiring of key safe adapter [DE] <p>Fire control panel FC2060/FC2080:</p> <ul style="list-style-type: none"> • I/O card (horn/monitored) FCI2009-A1 • Power supply unit (150 W) Version A5 <p>FG2020</p> <ul style="list-style-type: none"> • Link to the Technical Manual FG2020, A6V10281424 <p>Revision of:</p> <p>Power supply unit (150 W) Version A4</p>
n	05.2010	<p>Third edition MP3.0</p> <ul style="list-style-type: none"> • Revision history redefined and standardized • Installation of FN2008 and FN2009 revised (symmetry element removed) • Integration of PMI & mainboard FCM2027 • Mounting of remote EVAC-NL revised • Pin assignment for event printer FTO2001-A1 • Various minor changes
m	03.2010	<p>Second edition MP3.0 for VdS:</p> <ul style="list-style-type: none"> • Assignment of manufacturer designation "Scalance" to BT designation
l	10.2009	<p>First edition MP3.0 for VdS</p> <p>Integration of Scalance module for extended networking:</p> <ul style="list-style-type: none"> • Installation arrangement • Installing mounting kit • Installing Scalance modules
k	02.2009	<p>Fifth edition MP2.1</p> <ul style="list-style-type: none"> • Operating add-on FCM2015-D1 removed • Mounting of remote EVAC-NL FCM2008-N1 integrated • Mounting of EVAC-NL mimic display driver FT2003-N1 integrated • Various minor corrections
j	01.2009	<p>Fourth edition MP2.1</p> <ul style="list-style-type: none"> • Operating add-on FCM2008-N1 modified (adjustment elements)
i	11.2008	<p>Third edition MP2.1</p> <ul style="list-style-type: none"> • Various corrections • 150 W supply, horizontal • Card cage mounting • Module bus card pin assignment
h	08.2008	<p>Second edition MP2.1 for field test</p> <ul style="list-style-type: none"> • Various corrections and additions

Version	Edition date	Brief description
g	05.2008	First edition MP2.1 for VdS <ul style="list-style-type: none"> • New MP2.1 components • Minor changes
f	12.2007	Fourth, corrected and extended edition of MP1.2 <ul style="list-style-type: none"> • RT interface [CH] • Rear panels [CH] added to chap. 3 • Mounting material extended • Chap. 4 mounting process added to • Chap. 6.25 recess mounting kit, mounting steps corrected
e	09.2007	Third extended edition MP1.2 <ul style="list-style-type: none"> • Insert printing paper • Sounder module • RT interface [NL] • Chap. 4.3 new cascading diagrams
d	08.2007	Second extended edition MP1.2
c	06.2007	Extended edition MP1.2
b	02.2007	MP1.2 edition for VdS
a	09.2006	First edition MP1.1

2 Safety

2.1 Safety instructions

The safety notices must be observed in order to protect people and property.

The safety notices in this document contain the following elements:

- Symbol for danger
- Signal word
- Nature and origin of the danger
- Consequences if the danger occurs
- Measures or prohibitions for danger avoidance

Symbol for danger



This is the symbol for danger. It warns of **risks of injury**.
Follow all measures identified by this symbol to avoid injury or death.

Additional danger symbols

These symbols indicate general dangers, the type of danger or possible consequences, measures and prohibitions, examples of which are shown in the following table:



General danger



Explosive atmosphere



Voltage/electric shock



Laser light



Battery



Heat


Signal word

The signal word classifies the danger as defined in the following table:

Signal word	Danger level
DANGER	'DANGER' identifies a dangerous situation, which will result directly in death or serious injury if you do not avoid this situation.
WARNING	'WARNING' identifies a dangerous situation, which may result in death or serious injury if you do not avoid this situation.
CAUTION	'CAUTION' identifies a dangerous situation, which could result in slight to moderately serious injury if you do not avoid this situation.
<i>NOTICE</i>	'NOTICE' identifies a possibly harmful situation or possible damage to property that may result from non-observance. 'NOTICE' does not relate to possible bodily injury.


How risk of injury is presented

Information about the risk of injury is shown as follows:

	⚠ WARNING
	Nature and origin of the danger Consequences if the danger occurs <ul style="list-style-type: none"> • Measures / prohibitions for danger avoidance

How possible damage to property is presented

Information about possible damage to property is shown as follows:


	NOTICE
	Nature and origin of the danger Consequences if the danger occurs <ul style="list-style-type: none"> • Measures / prohibitions for danger avoidance

2.2 Safety regulations for the method of operation



National standards, regulations and legislation

Siemens products are developed and produced in compliance with the relevant European and international safety standards. Should additional national or local safety standards or legislation concerning the planning, mounting, installation, operation or disposal of the product apply at the place of operation, then these must also be taken into account together with the safety regulations in the product documentation.

Electrical installations

	⚠ WARNING
	Electrical voltage Electric shock <ul style="list-style-type: none"> • Work on electrical installations may only be carried out by qualified electricians or by instructed persons working under the guidance and supervision of a qualified electrician, in accordance with the electrotechnical regulations.

- Wherever possible disconnect products from the power supply when carrying out commissioning, maintenance or repair work on them.
- Lock volt-free areas to prevent them being switched back on again by mistake.
- Label the connection terminals with external voltage using a 'DANGER External voltage' sign.
- Route mains connections to products separately and fuse them with their own, clearly marked fuse.
- Fit an easily accessible disconnecting device in accordance with IEC 60950-1 outside the installation.
- Produce earthing as stated in local safety regulations.

	⚠ CAUTION
	<p>Noncompliance with the following safety regulations</p> <p>Risk of injury to persons and damage to property</p> <ul style="list-style-type: none"> • Compliance with the following regulations is required.
	<ul style="list-style-type: none"> • Specialist electrical engineering knowledge is required for installation. • Only an expert is permitted to carry out installation work. <p>Incorrect installation can take safety devices out of operation unbeknown to a layperson.</p>

Mounting, installation, commissioning and maintenance

- If you require tools such as a ladder, these must be safe and must be intended for the work in hand.
- When starting the fire control panel ensure that unstable conditions cannot arise.
- Ensure that all points listed in the 'Testing the product operability' section below are observed.
- You may only set controls to normal function when the product operability has been completely tested and the system has been handed over to the customer.

Testing the product operability

- Prevent the remote transmission from triggering erroneously.
- If testing building installations or activating devices from third-party companies, you must collaborate with the people appointed.
- The activation of fire control installations for test purposes must not cause injury to anyone or damage to the building installations. The following instructions must be observed:
 - Use the correct potential for activation; this is generally the potential of the building installation.
 - Only check controls up to the interface (relay with blocking option).
 - Make sure that only the controls to be tested are activated.
- Inform people before testing the alarm devices and allow for possible panic responses.
- Inform people about any noise or mist which may be produced.
- Before testing the remote transmission, inform the corresponding alarm and fault signal receiving stations.

Modifications to the system design and the products

Modifications to the system and to individual products may lead to faults, malfunctioning and safety risks. Written confirmation must be obtained from Siemens and the corresponding safety bodies for modifications or additions.

Modules and spare parts

- Components and spare parts must comply with the technical specifications defined by Siemens. Only use products specified or recommended by Siemens.
- Only use fuses with the specified fuse characteristics.
- Wrong battery types and improper battery changing lead to a risk of explosion. Only use the same battery type or an equivalent battery type recommended by Siemens.
- Batteries must be disposed of in an environmentally friendly manner. Observe national guidelines and regulations.

Disregard of the safety regulations

Before they are delivered, Siemens products are tested to ensure they function correctly when used properly. Siemens disclaims all liability for damage or injuries caused by the incorrect application of the instructions or the disregard of danger warnings contained in the documentation. This applies in particular to the following damage:

- Personal injuries or damage to property caused by improper use and incorrect application
- Personal injuries or damage to property caused by disregarding safety instructions in the documentation or on the product
- Personal injury or damage to property caused by poor maintenance or lack of maintenance

2.3 Standards and directives complied with


A list of the standards and directives complied with is available from your Siemens contact.


2.3.1 Current Firmware Version Status

!	<p>NOTICE</p> <p>Not the current firmware version status of a newly installed fire detection installation</p> <p>Possible limitations for the configuration or use of devices.</p> <ul style="list-style-type: none"> • Compare the firmware version of a newly installed fire detection installation with the currently approved firmware version status. • Use the currently approved firmware version status. • Update the firmware if required, in accordance with the chapter 'FW update for main CPU and additional CPUs' in document 009052; see chapter 'Applicable documents'.
----------	--

2.4 Release Notes

Limitations to the configuration or use of devices in a fire detection installation with a particular firmware version are possible.

	⚠ WARNING
	<p>Limited or non-existent fire detection Personal injury and damage to property in the event of a fire.</p> <ul style="list-style-type: none">• Read the 'Release Notes' before you plan and/or configure a fire detection installation.• Read the 'Release Notes' before you carry out a firmware update to a fire detection installation.

	NOTICE
	<p>Incorrect planning and/or configuration Important standards and specifications are not satisfied. Fire detection installation is not accepted for commissioning. Additional expense resulting from necessary new planning and/or configuration.</p> <ul style="list-style-type: none">• Read the 'Release Notes' before you plan and/or configure a fire detection installation.• Read the 'Release Notes' before you carry out a firmware update to a fire detection installation.

3 Setup of the compact control panels

3.1 Packaging units

The stations can be delivered in several packaging units. Mounting and assembly are carried out on-site.

The delivery consists of the following packaging units:

- Pre-installed rear panel, with periphery board, power supply, disconnect terminal block and wiring
- Pre-installed operating unit with cover cap
- If ordered: Operating add-on with cover cap
- Options



When unpacking the station do not damage or dispose of the packaging.

The packaging includes a drilling template for the corresponding station housing. The packaging of the rear panel can be used as protection after mounting to protect the open station against soiling and damage.

3.2 Station rear panels (packaging unit)

The following chapters show views of the stations as they are delivered. The design of the rear panels differs depending on the housing and the type of the station.

You will find detailed information about the housing types and individual stations in document 008836.

You will find detailed information about the individual components in document 008837.

3.2.1 Rear panel in Eco housing

The fire terminal is available in the Eco housing.

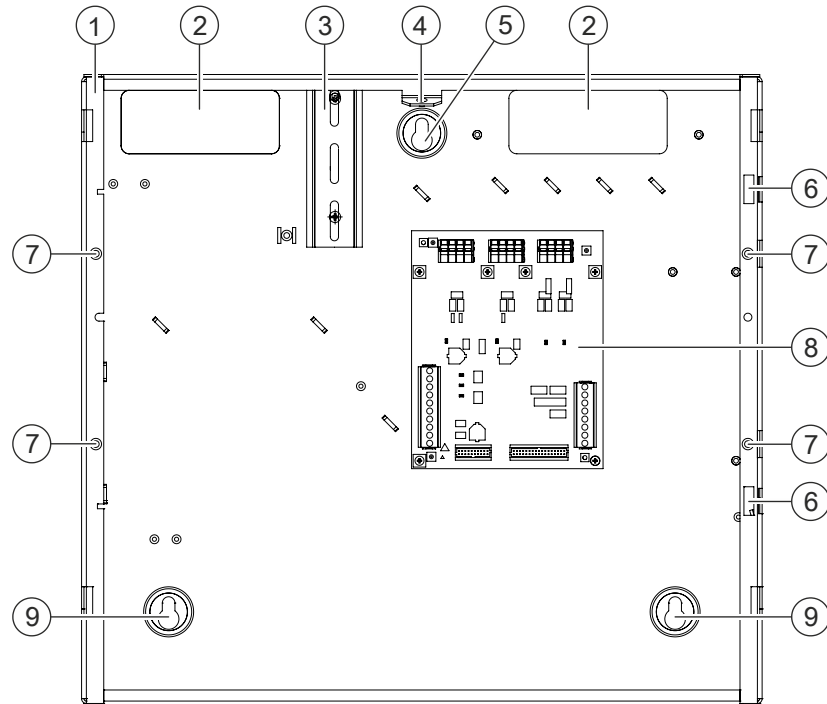


Figure 1: Fire terminal in Eco rear panel

- 1 Eco rear panel
- 2 Opening for cable feed from rear side
- 3 DIN rail for disconnect terminal blocks
- 4 Fastening tabs for the cover cap
- 5 Hole for wall mounting (top)
- 6 Recesses for the hinges of the operating unit
- 7 Mounting holes for operating unit
- 8 Fire terminal board
- 9 Holes for wall mounting (bottom)

3.2.2 Rear panel in Standard housing

The setup of the different fire control panels in the Standard housing is always identical.

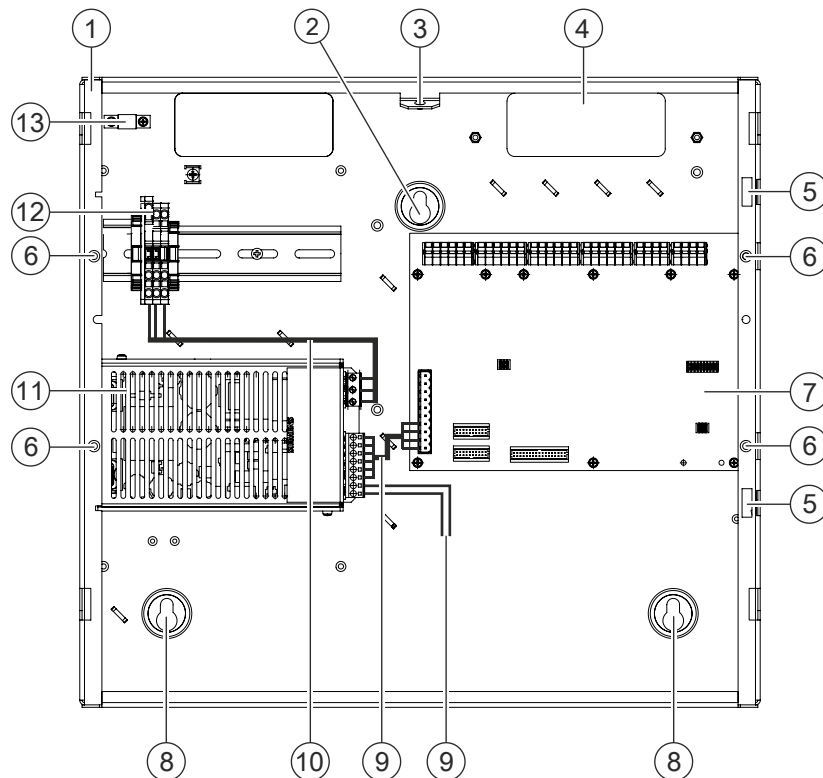


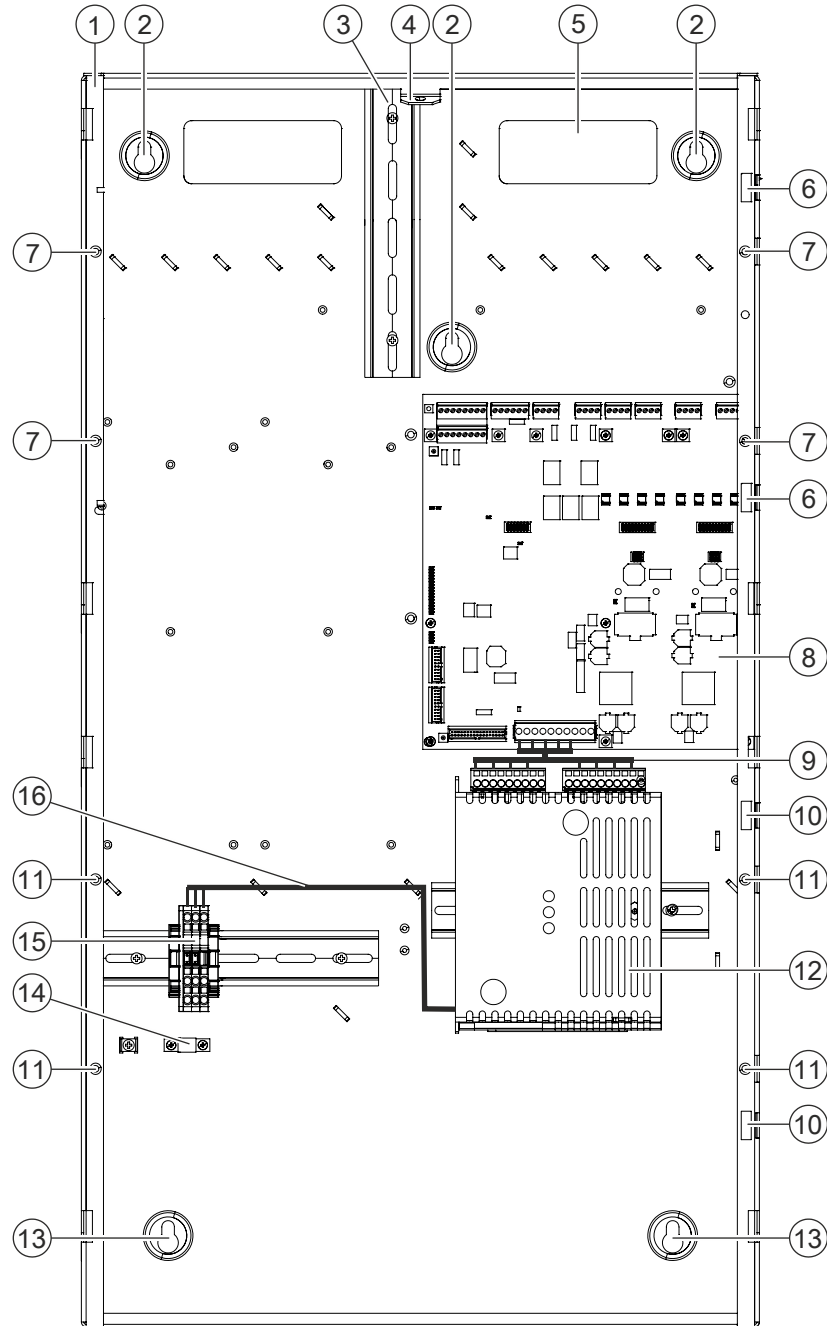
Figure 2: Fire control panel in Standard rear panel

- 1 Standard rear panel
- 2 Hole for wall mounting (top)
- 3 Fastening tabs for the cover cap
- 4 Openings for cable feed from rear side
- 5 Recesses for the hinges of the operating unit
- 6 Mounting holes for operating unit
- 7 Periphery board (2-loop)
- 8 Holes for wall mounting (bottom)
- 9 Secondary-side cabling of the power supply
- 10 Primary-side cabling of the power supply
- 11 Power supply
- 12 DIN rail with network separation terminals, also for additional components
- 13 Strain relief for mains supply cable

3.2.3 Rear panel in Comfort housing

With the exception of the periphery board type, the setup of fire control panels FC2020 and FC2040 in the Comfort housing is identical. One exception is the fire control panel FC2040-BB [SE], [FI], which is supplied in the Large housing.

Example of a fire control panel FC2040 in Comfort rear panel:



- 1 Comfort rear panel
- 2 Holes for wall mounting (top)
- 3 DIN rail for additional components
- 4 Fastening tabs for the cover cap
- 5 Openings for cable feed from rear side
- 6 Recesses for the hinges of the operating unit
- 7 Mounting holes for operating unit
- 8 Periphery board
- 9 Secondary-side cabling of the power supply
- 10 Recesses for the hinges of the operating add-on
- 11 Mounting holes for the operating add-on
- 12 Power supply (150 W)
- 13 Holes for wall mounting (bottom)
- 14 Strain relief for mains supply cable
- 15 DIN rail with network separation terminals, also for additional components
- 16 Primary-side cabling of the power supply

3.2.4 Rear panel in Comfort housing FC2030

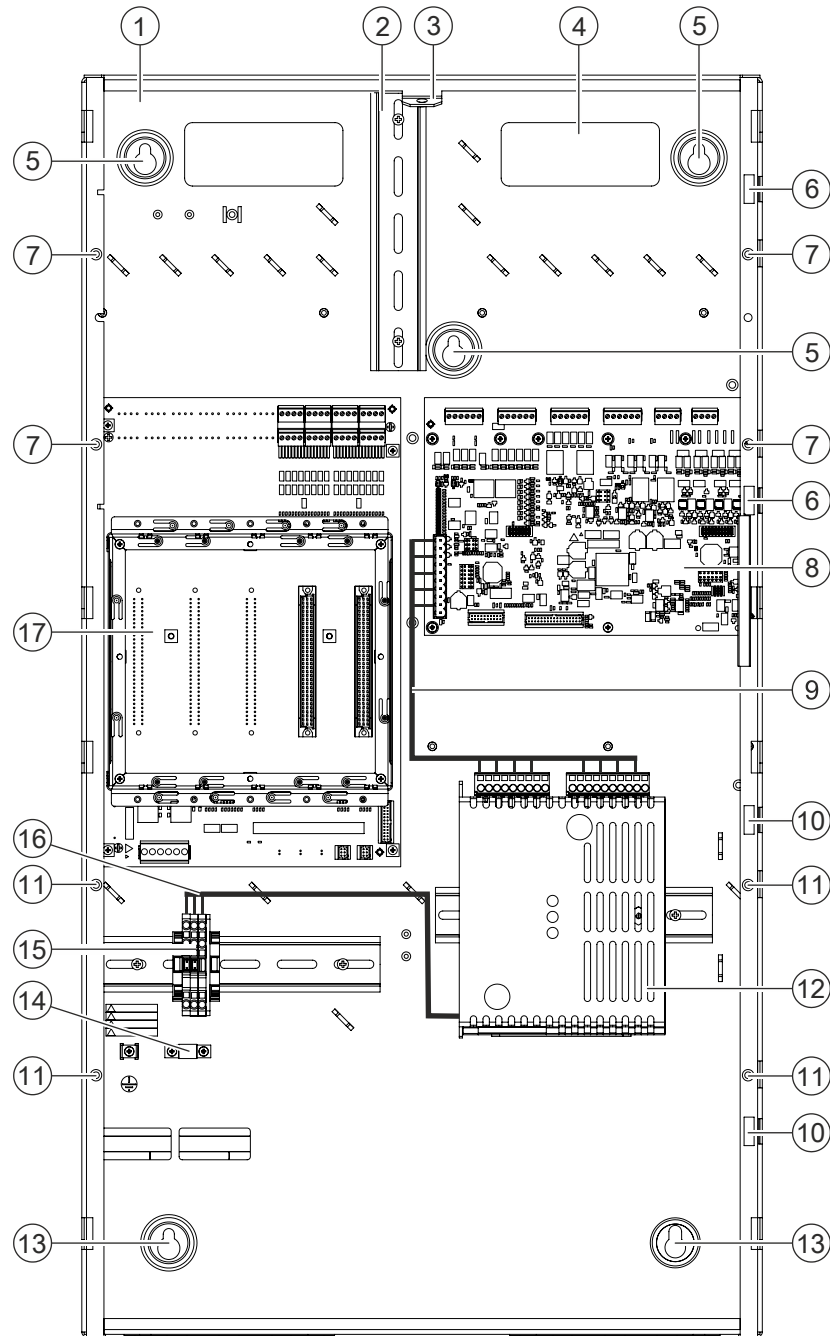


Figure 3: Fire control panel FC2030 in Comfort rear panel

- 1 Comfort rear panel
- 2 DIN rail for additional components
- 3 Fastening tabs for the cover cap
- 4 Openings for cable feed from rear side
- 5 Holes for wall mounting (top)
- 6 Recesses for the hinges of the operating unit
- 7 Mounting holes for operating unit
- 8 Periphery board (2-loop)
- 9 Secondary-side cabling of the power supply
- 10 Recesses for the hinges of the operating add-on
- 11 Mounting holes for the operating add-on
- 12 Power supply (150 W)
- 13 Holes for wall mounting (bottom)
- 14 Strain relief for mains supply cable
- 15 DIN rail with network separation terminals and for additional components
- 16 Primary-side cabling of the power supply unit
- 17 Card cage (2 slots) for modernization cards

3.2.5 Rear panel in Large housing

FC2060 as an example of the fire control panel setup in the Large housing:

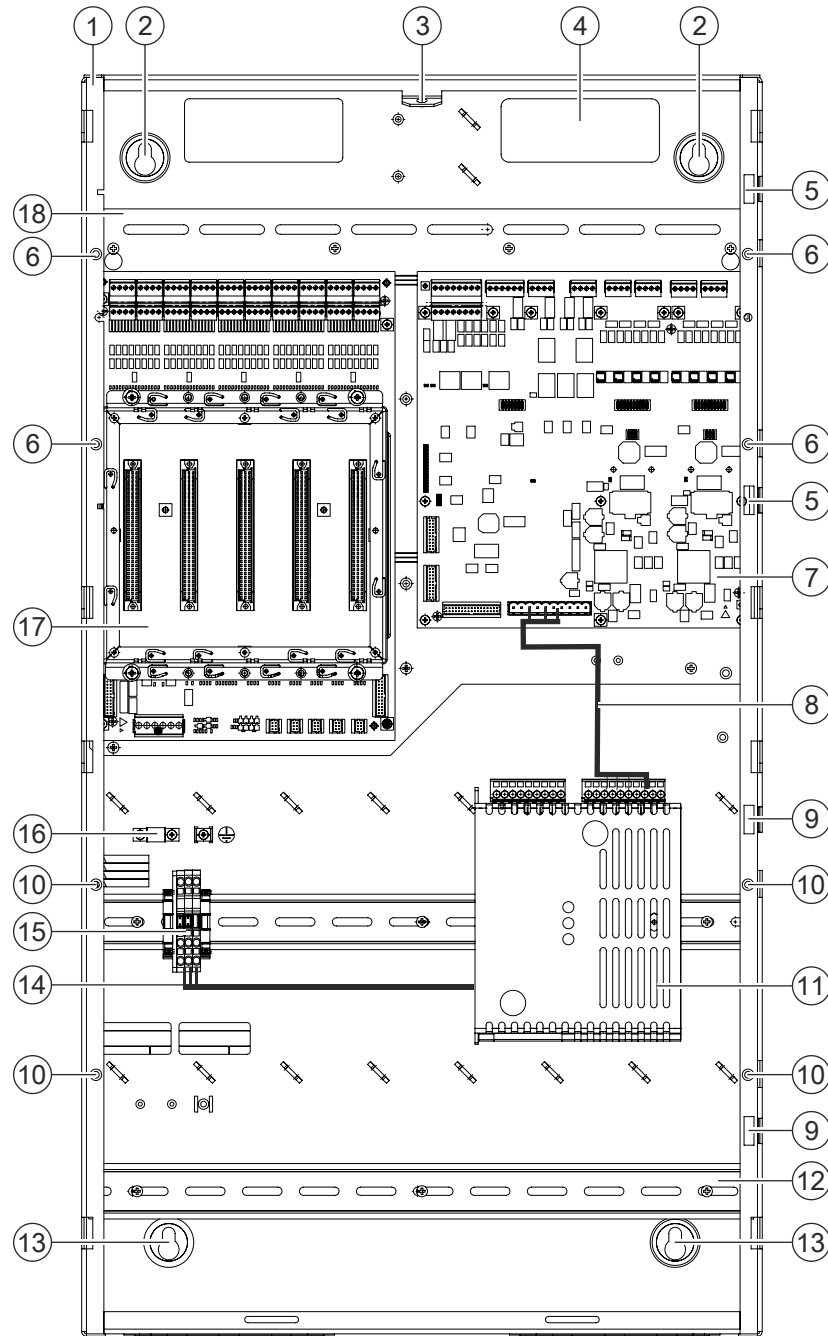


Figure 4: Fire control panel in Large rear panel

- 1 Large rear panel
- 2 Holes for wall mounting (top)
- 3 Fastening tabs for the cover cap
- 4 Openings for cable feed from rear side
- 5 Recesses for the hinges of the operating unit
- 6 Mounting holes for operating unit
- 7 Periphery board (4 loops)
- 8 Secondary-side cabling of the power supply
- 9 Recesses for the hinges of the operating add-on
- 10 Mounting holes for the operating add-on
- 11 Power supply (150 W)
- 12 DIN rail for additional components
- 13 Holes for wall mounting (bottom)
- 14 Primary-side cabling of the power supply
- 15 DIN rail with network separation terminals and for additional components
- 16 Strain relief for mains supply cable
- 17 Card cage (5 slots) for module bus cards.
- 18 Mounting plate with slots for fastening the shield connection terminal blocks ¹

¹ The mounting plate, as a carrier for the periphery board and the card cage, is offset around 2 cm from the rear panel. The cables of the external supplies and power line can then be led behind the mounting plate.

3.2.6 Mounting material

The following mounting material is supplied with all stations:

- 6 Rear panel screws Ø 6/40 mm
- 6 Nylon wall plugs Ø 4.5-6 mm
- 6 Cable ties 2.4 x 137 mm
- 5 Philips screws M 3/6 ¹
- 2 Philips screws M 3/12 (²)
- 2 Edge protection strip 40 x 100 x 1.5 mm
- 3 Trapezoid edge protection strip
- 4 Pole protection caps
- 2 Flat cable mounting
- 1 Installation plate ³
- 5 Aluminum sticker for the cover cap of the wall mountings ⁴
- 1 Pre-assembled connection cable for the batteries
- 1 2k2/500 mW resistance
- 3 3k01/500 mW resistance
- 3 1 kV/1 A diodes

¹ There are three extra screws with the Eco and Standard housings.

² Both M3/12 screws are required for cable strain relief if a thick supply cable is used.

³ The installation plate must be affixed to the outside of the control panel housing and must be clearly legible (EN 54-2). The installation number and the date of commissioning must be added upon commissioning.

⁴ If the station is mounted on a combustible surface, the mounting holes must be covered with the aluminum stickers (CE directive).

In addition, the following documentation is enclosed with the stations:

- Letter with feedback sheet (return fax)
- License agreement A5Q00021001
- Product insert for the station (mounting instructions) A5Q00015754
- Product insert for the power supply

3.3 Rear panels version [CH]

This chapter provides an overview of all components built in the stations of the country variants for Switzerland [CH].

3.3.1 Eco rear panel of the FT2040-CZ

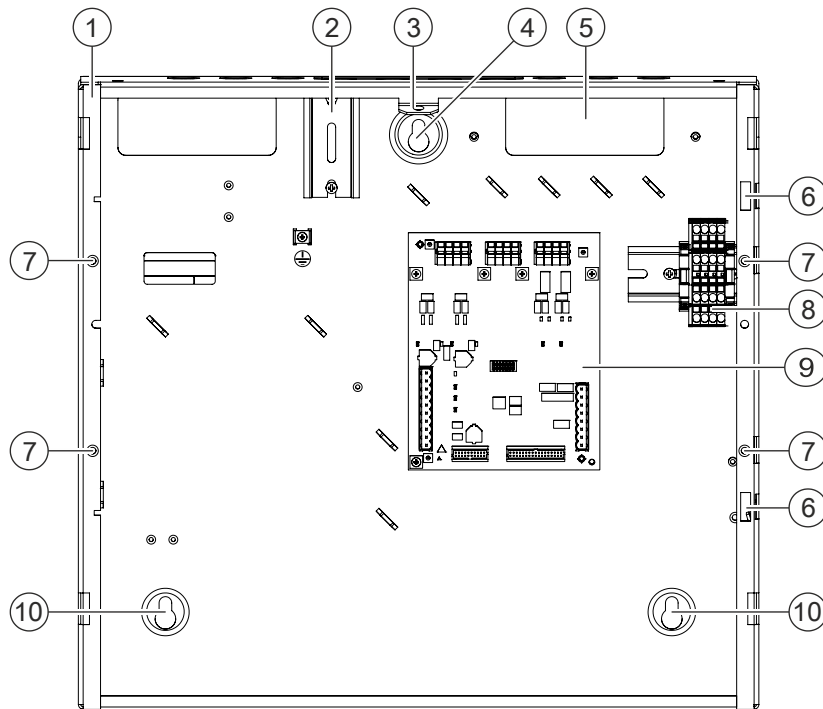


Figure 5: Fire terminal FT2040-CZ in Eco housing

- 1 Eco rear panel
- 2 DIN rail (L = 70 mm)
- 3 Fastening tabs for the cover cap
- 4 Hole for wall mounting (top)
- 5 Opening for cable feed from rear side
- 6 Recesses for the hinges of the operating unit
- 7 Mounting holes for operating unit
- 8 Terminal set on DIN rail (L = 70 mm)
- 9 Fire terminal board
- 10 Holes for wall mounting (bottom)

3.3.2 Standard rear panel for FC2020-CZ

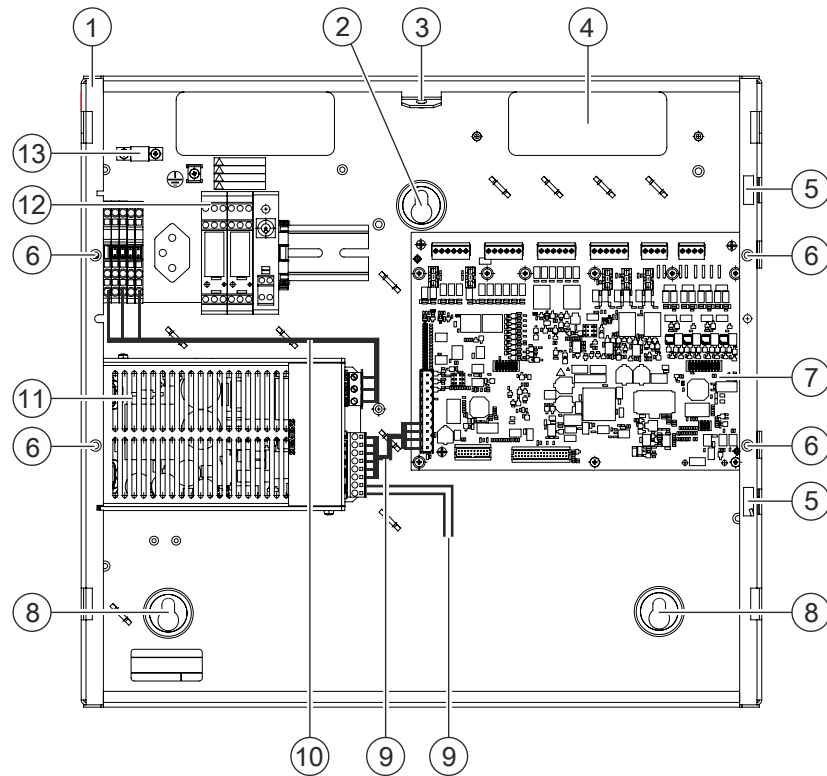


Figure 6: Fire control panel FC2020-CZ in Standard rear panel

- 1 Standard rear panel
- 2 Hole for wall mounting (top)
- 3 Fastening tabs for the cover cap
- 4 Openings for cable feed from rear side
- 5 Recesses for the hinges of the operating unit
- 6 Mounting holes for operating unit
- 7 Periphery board (2-loop)
- 8 Holes for wall mounting (bottom)
- 9 Secondary-side cabling of the power supply
- 10 Primary-side cabling of the power supply
- 11 Power supply (70 W)
- 12 DIN rail L = 180 mm with mains separation terminals, relay module and blocking module
- 13 Strain relief for mains supply cable

3.3.3 Comfort rear panel of the FC2020-CC

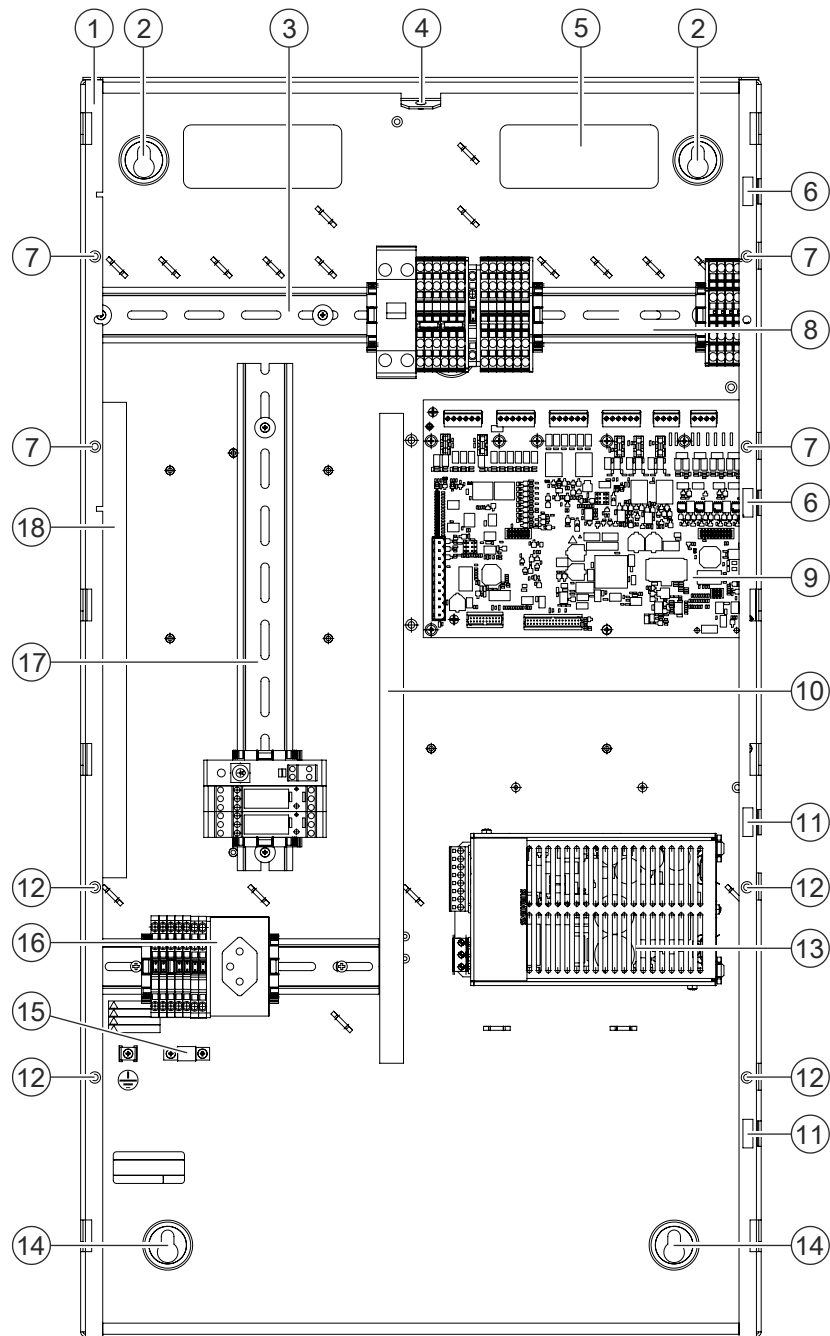


Figure 7: Fire control panel FC2020-CC in Comfort rear panel

- 1 Comfort rear panel
- 2 Holes for wall mounting (top)
- 3 DIN rail for additional components
- 4 Fastening tabs for the cover cap
- 5 Openings for cable feed from rear side
- 6 Recesses for the hinges of the operating unit
- 7 Mounting holes for operating unit
- 8 DIN rail L = 420 mm with terminal set
- 9 Periphery board (2-loop)
- 10 Cable duct L = 410 mm
- 11 Recesses for the hinges of the operating add-on
- 12 Mounting holes for the operating add-on
- 13 Power supply (70 W)
- 14 Holes for wall mounting (bottom)
- 15 Strain relief for mains supply cable
- 16 DIN rail L = 175 mm with mains separation terminal and socket type 13
- 17 DIN rail L = 320 mm with terminal set
- 18 Cable duct L = 300 mm

3.3.4 Comfort rear panel of the FC2030-CC

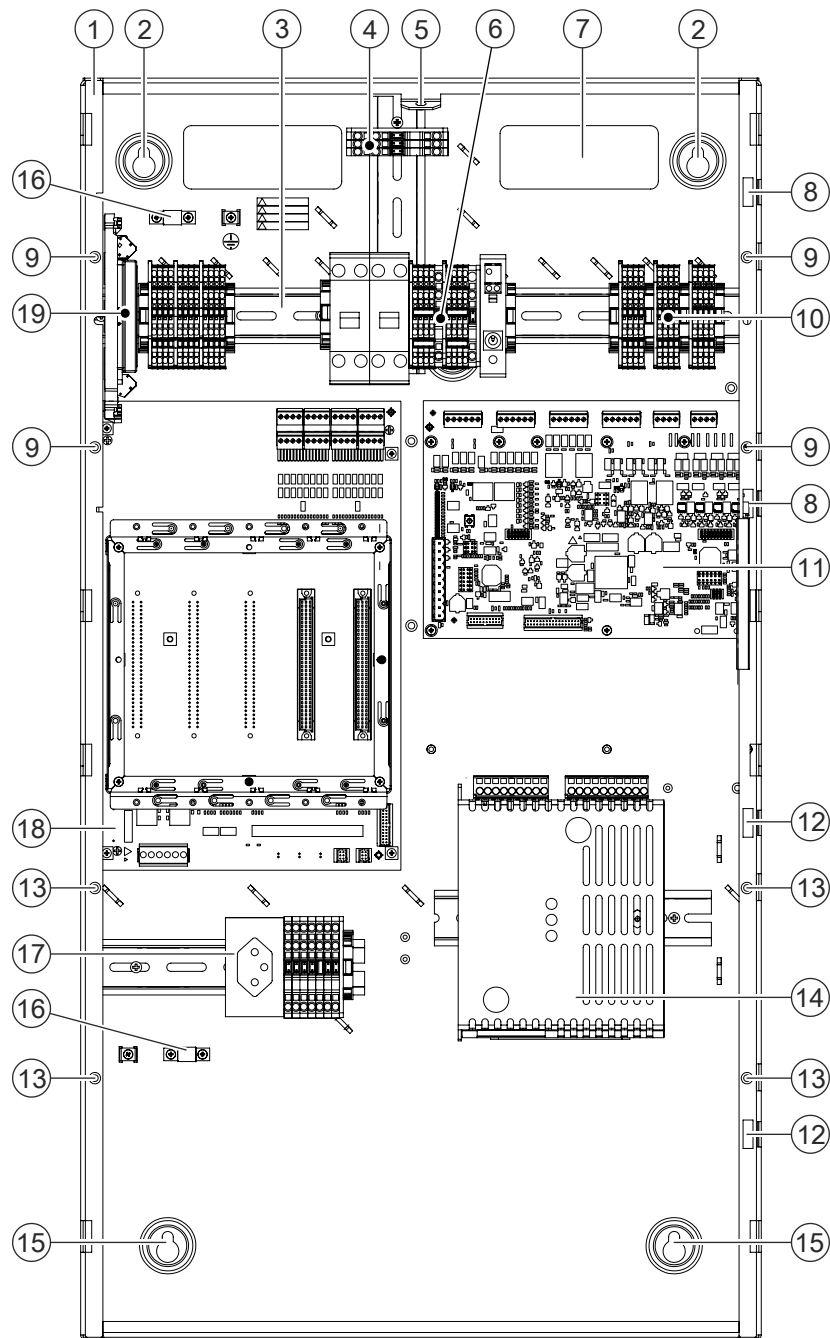


Figure 8: Fire control panel FC2030-CC in Comfort rear panel

- 1 Comfort rear panel FHA2003-A1
- 2 Holes for wall mounting (top)
- 3 DIN rail L = 420 mm with terminal blocks and fuses
- 4 DIN rail L = 175 mm with 3 mains input terminals
- 5 Fastening tabs for the cover cap
- 6 Terminal block, switch module, and 2 fuses for secondary supply
- 7 Openings for cable feed from rear side
- 8 Recesses for the hinges of the operating unit
- 9 Mounting holes for operating unit
- 10 Terminal block for control pipes
- 11 Periphery board (2 loops) FCI2002-A1
- 12 Recesses for the hinges of the operating add-on
- 13 Mounting holes for the operating add-on
- 14 Power supply (150 W) mounted on DIN rail L = 175 mm
- 15 Holes for wall mounting (bottom)
- 16 Strain relief for mains supply cable
- 17 DIN rail L = 175 mm with 7 mains separator terminals and socket type 13
- 18 Card cage (2 slots) FCA2007-A1
- 19 I/O module FDCIO222

3.3.5 Comfort rear panel of the FC2040-CC

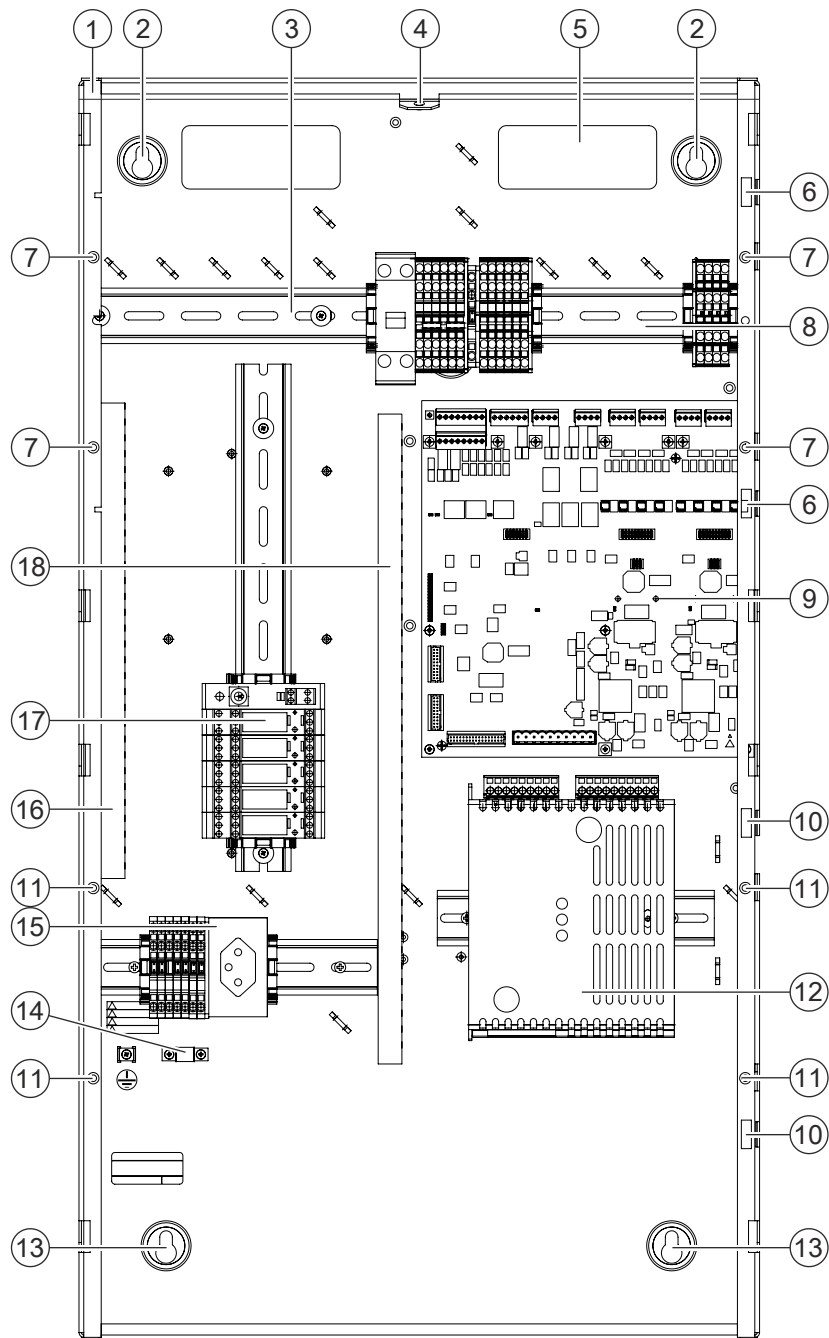


Figure 9: Fire control panel FC2040-CC in Comfort rear panel

- 1 Comfort rear panel
- 2 Holes for wall mounting (top)
- 3 DIN rail for additional components
- 4 Fastening tabs for the cover cap
- 5 Openings for cable feed from rear side
- 6 Recesses for the hinges of the operating unit
- 7 Mounting holes for operating unit
- 8 DIN rail L = 420 mm with terminal set
- 9 Periphery board (4 loops)
- 10 Recesses for the hinges of the operating add-on
- 11 Mounting holes for the operating add-on
- 12 Power supply (150 W) mounted on DIN rail
- 13 Holes for wall mounting (bottom)
- 14 Strain relief for mains supply cable
- 15 DIN rail L = 175 mm with mains separation terminal and socket type 13
- 16 Cable duct L = 300 mm
- 17 DIN rail L = 320 mm with terminal set
- 18 Cable duct L = 410 mm

3.4 Operating unit, operating add-on and cover cap (packaging unit)

The operating unit and the optional operating add-on are supplied together with the cover cap as a separate packaging unit.

3.4.1 Operating units and operating add-on

The operating unit is part of every station. In the Comfort housing the operating unit is installed in the upper section of the housing. The operating add-on is installed either in the bottom part of the Comfort or Large housing or in an additional empty housing.



In the operating units, MP3.0 uses the PMI & mainboard FCM2004 and also the PMI & mainboard FCM2027. You will find detailed information about this in document 008837.

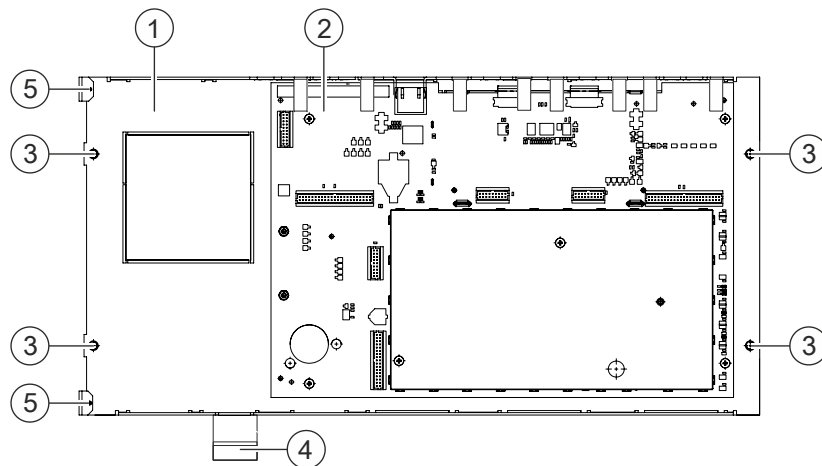


Figure 10: Rear view of operating unit (without options) with PMI & mainboard FCM2027

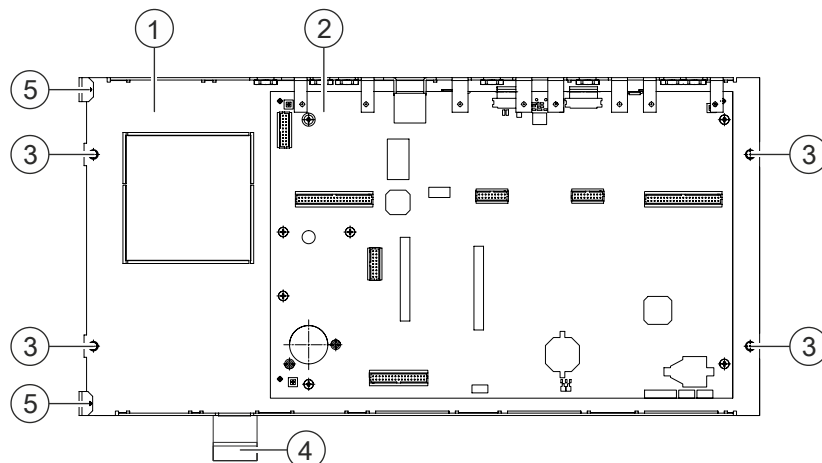


Figure 11: Rear view of operating unit (without options) with PMI & mainboard FCM2004

- 1 Support plate
- 2 PMI & mainboard
- 3 Mounting holes of operating unit
- 4 Lug with securing clip for ribbon cable
- 5 Hinge

Supplied mounting material

- 4x M5 screws for securing the operating unit
- 2x M2.5 screws for securing the hinge of the operating unit
- 1x ribbon cable for the connection from the PMI & mainboard to the periphery board
- Inscription set or inscription sheet (only for operating unit)



You will find additional inscription strips, e.g. for the operating add-on, in document 009026.

3.4.2 Cover cap

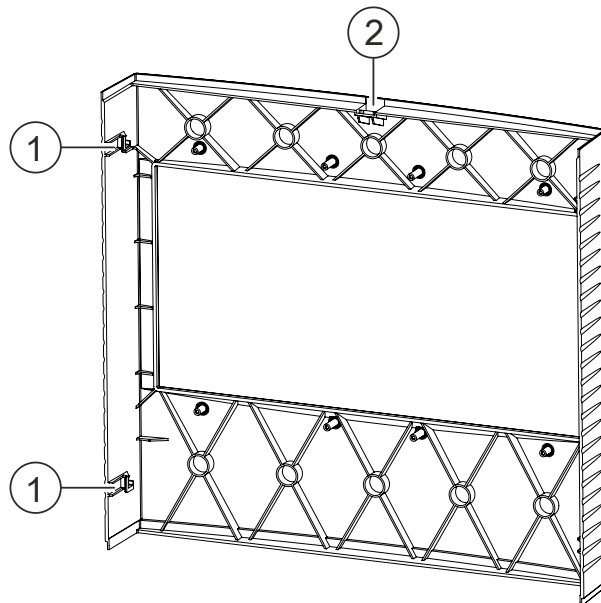


Figure 12: Rear view of cover cap

- 1 Distance pins
- 2 Fixing screw

3.5 Location of components

This chapter outlines the following components that can be installed in the station:

- Components installed as standard
- Optional components

Optional components are supplied in separate packaging units. The figures show the maximum possible scope of equipment.

You will find detailed information about the individual components in document 008837.

3.5.1 Eco housing (fire terminal)

The fire terminal is available in the Eco housing.

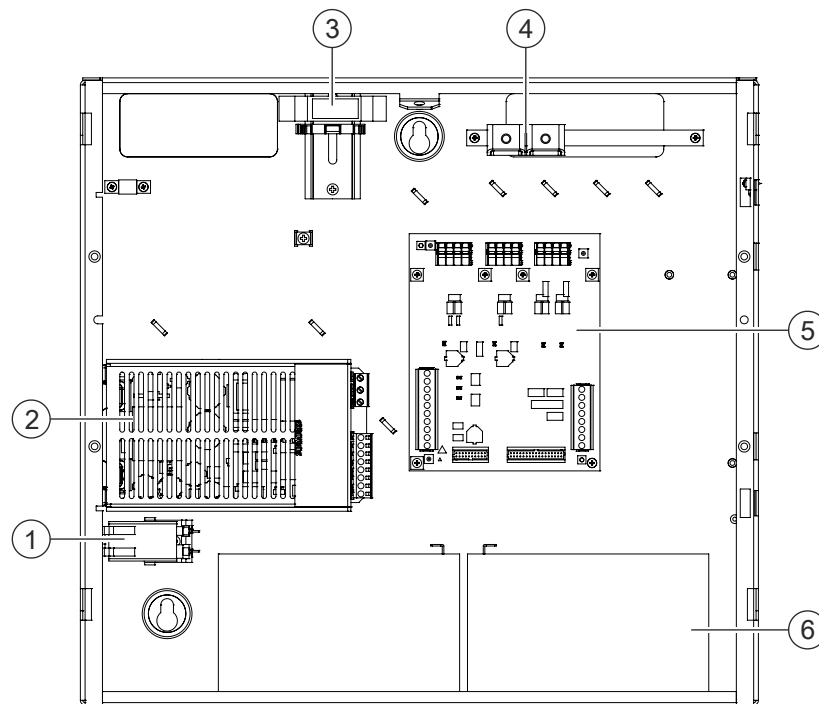


Figure 13: Components in the Eco housing (fire terminal)

- 1 Battery kit 9 V [FR] (option)
- 2 Power supply (70 W) (option)
- 3 Mains separation terminals or relays on DIN rail (options)
- 4 Shield connection terminal blocks [DE] or cable kit (communication), (option)
- 5 Fire terminal board
- 6 Batteries (option)

3.5.2 Standard housing (fire control panels)

The fire control panel FC2020 (2-loop) is available in the Standard housing.

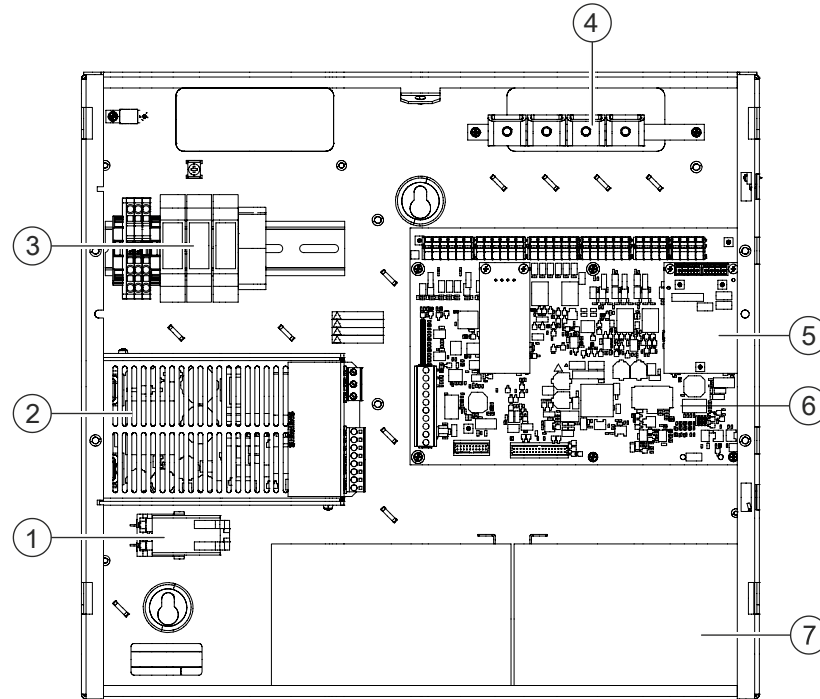


Figure 14: Components in the Standard housing (fire control panel)

- 1 Battery kit 9 V [FR] (option)
- 2 Power supply (70 W)
- 3 Relay (option) on DIN rail
- 4 Shield connection terminal blocks [DE] or cable kit (communication), (options)
- 5 Loop extension (FDnet) (option)
- 6 Periphery board (2-loop)
- 7 Batteries

3.5.3 Comfort housing (fire control panels)

Fire control panels FC2020, FC2030 and FC2040 are available in the Comfort housing. With the exception of the card cage and periphery board type, the setup is identical. One exception is fire control panel FC2040-BB [FI], [SE], which is supplied in the Large housing.

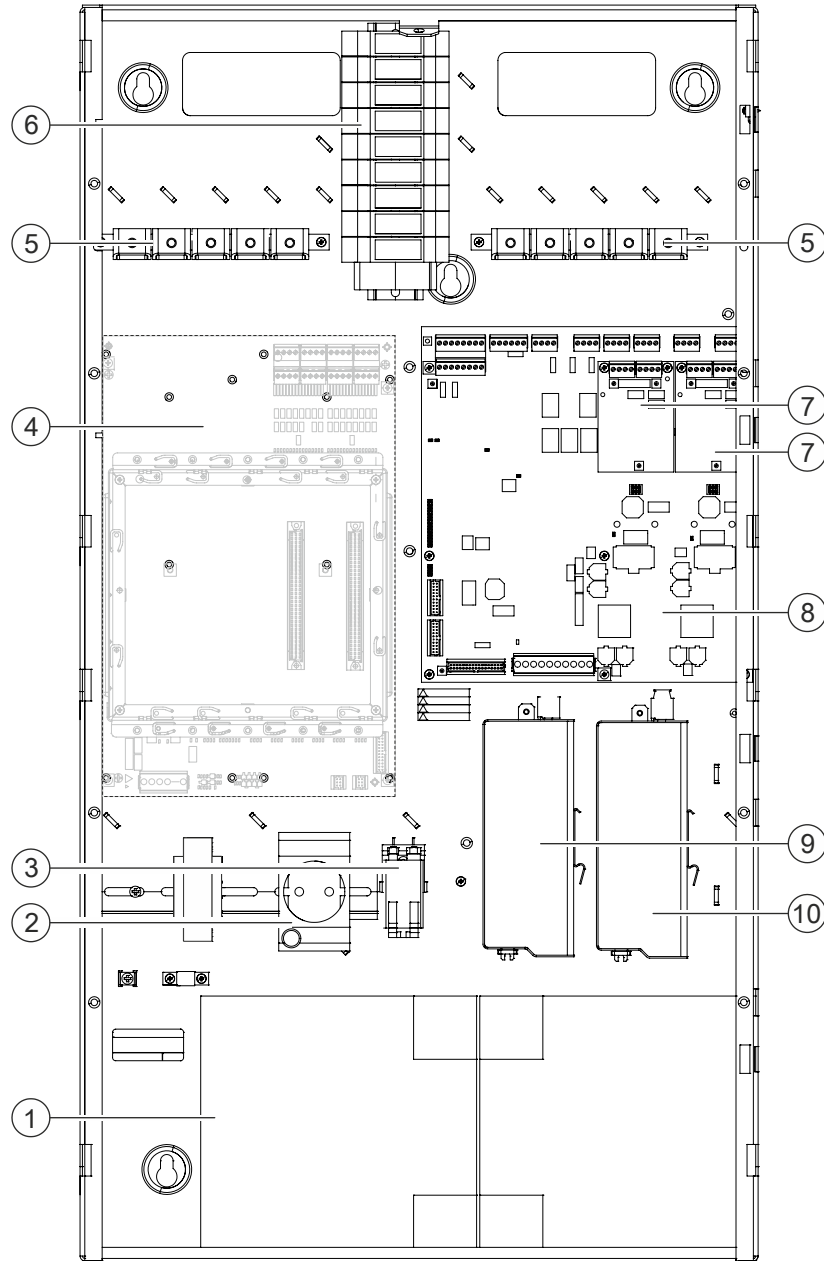


Figure 15: Components in the Comfort housing taking the example of fire control panel FC2040 with cascaded power supply

- 1 Batteries
- 2 Socket (option) on DIN rail
- 3 Battery kit 9 V [FR] (option)
- 4 Space for other options (e.g. fire brigade periphery module [DE]) or card cage (2 slots) with the FC2030
- 5 Shield connection terminal blocks [DE] or cable kit (communication), (option)
- 6 Relay module (option) on DIN rail
- 7 Loop extensions (FDnet) (option)
- 8 Periphery board (4-loop) with FC2040 and/or periphery board (2-loop) with FC2020 and FC2030
- 9 Power supply (150 W)
(fitted horizontally as standard)
- 10 Additional power supply (150 W) (option)

3.5.4 Large housing (fire control panels)

The fire control panel FC2060 is available in the Large housing as standard. Fire control panel FC2040-BB [FI], [SE] is also supplied in the Large housing.

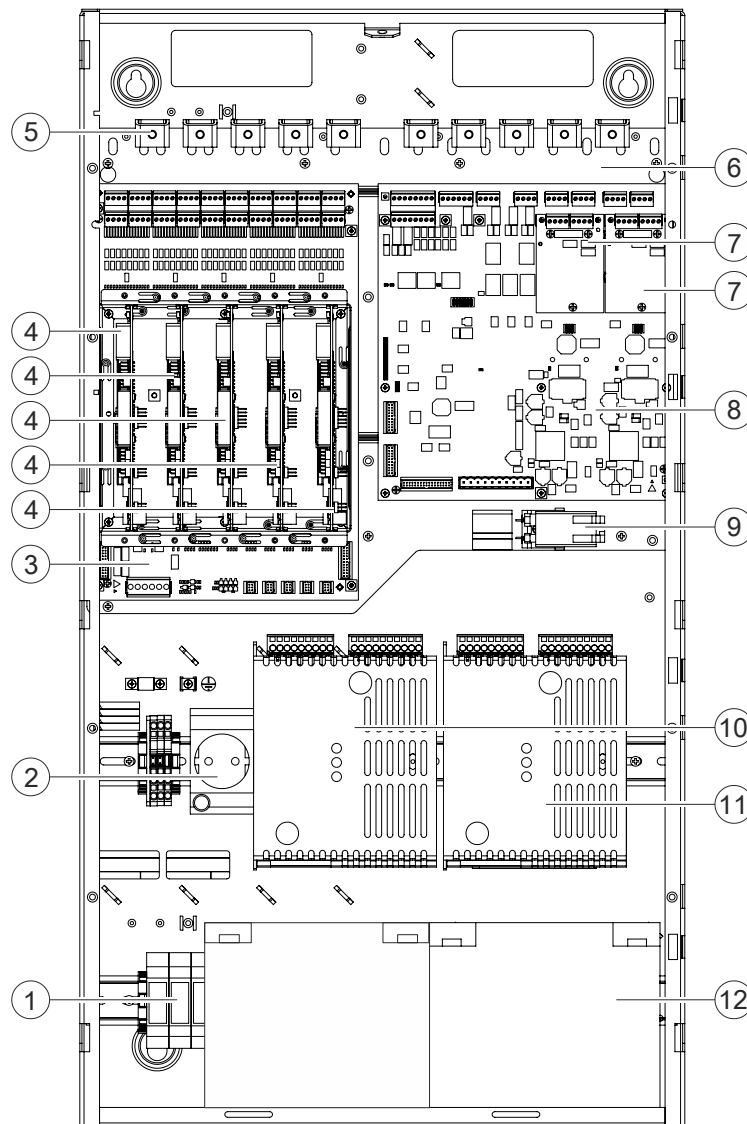


Figure 16: Example: Components in the Large housing of the fire control panel FC2060 with power supply switched in parallel

- 1 Relay module (option) on DIN rail
- 2 Socket (option) on DIN rail
- 3 Card cage (5 plug-in cards) (not in the FC2040-BB)
- 4 Module bus cards (max. 5 items) in card cage (not in the FC2040-BB)
- 5 Shield connection terminal blocks [DE] or cable kit (communication) on mounting plate (options)
- 6 Mounting plate for card cage (5 slots) and periphery board (4-loop)
- 7 Loop extensions (FDnet) (option)
- 8 Periphery board (4 loops)
- 9 Battery kit 9 V [FR] (option)
- 10 Additional power supply (150 W) (option)
- 11 Power supply (150 W)
- 12 Batteries

3.5.5 Operating unit



In the operating units, MP3.0 uses the PMI & mainboard FCM2004 and also the PMI & mainboard FCM2027. You will find detailed information about this in document 008837.

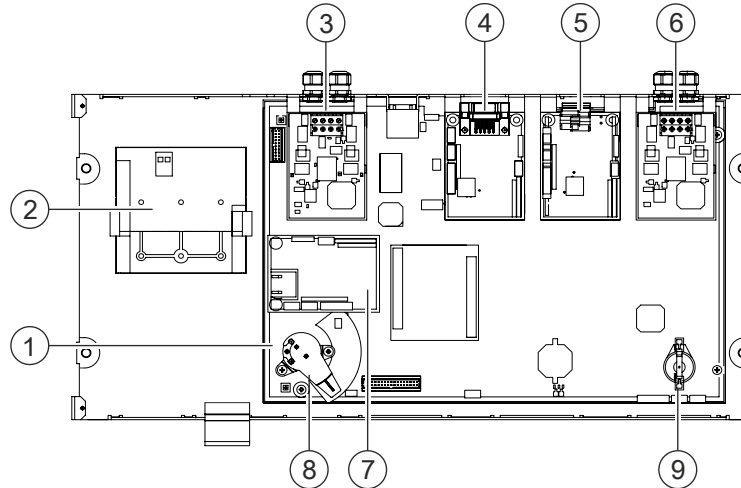


Figure 17: Components on the operating unit with PMI & mainboard FCM2004

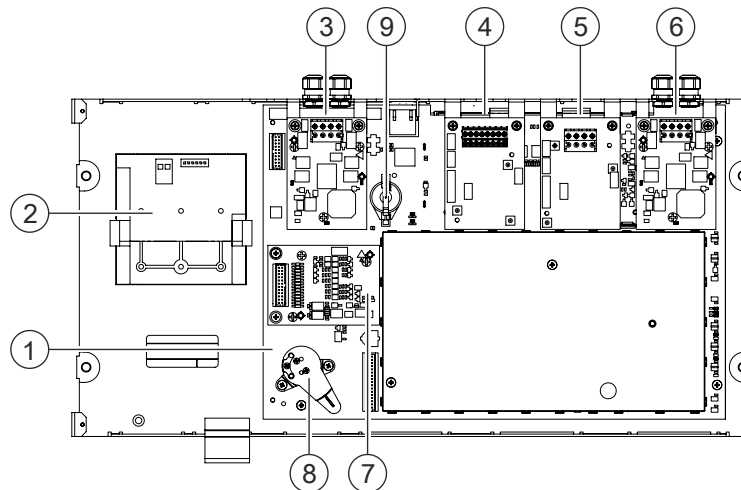


Figure 18: Components on the operating unit with PMI & mainboard FCM2027

- 1 PMI & mainboard
- 2 Space for options (printer or LED indicator)
- 3 Network module (SAFEDLINK) on X13 (master module), (option)
- 4 Slot 1 [SER_OPT1] for the first serial module at X14 (option)
- 5 Slot 2 [SER_OPT2] for the second serial module at X19 (option)
- 6 Degraded mode network module (SAFEDLINK) on X12 (option)
- 7 Connection module (card cage) on X11 (standard with FC2030 and FC2060)
- 8 Key switch (Kaba or Nordic), (option)
- 9 License key (option)

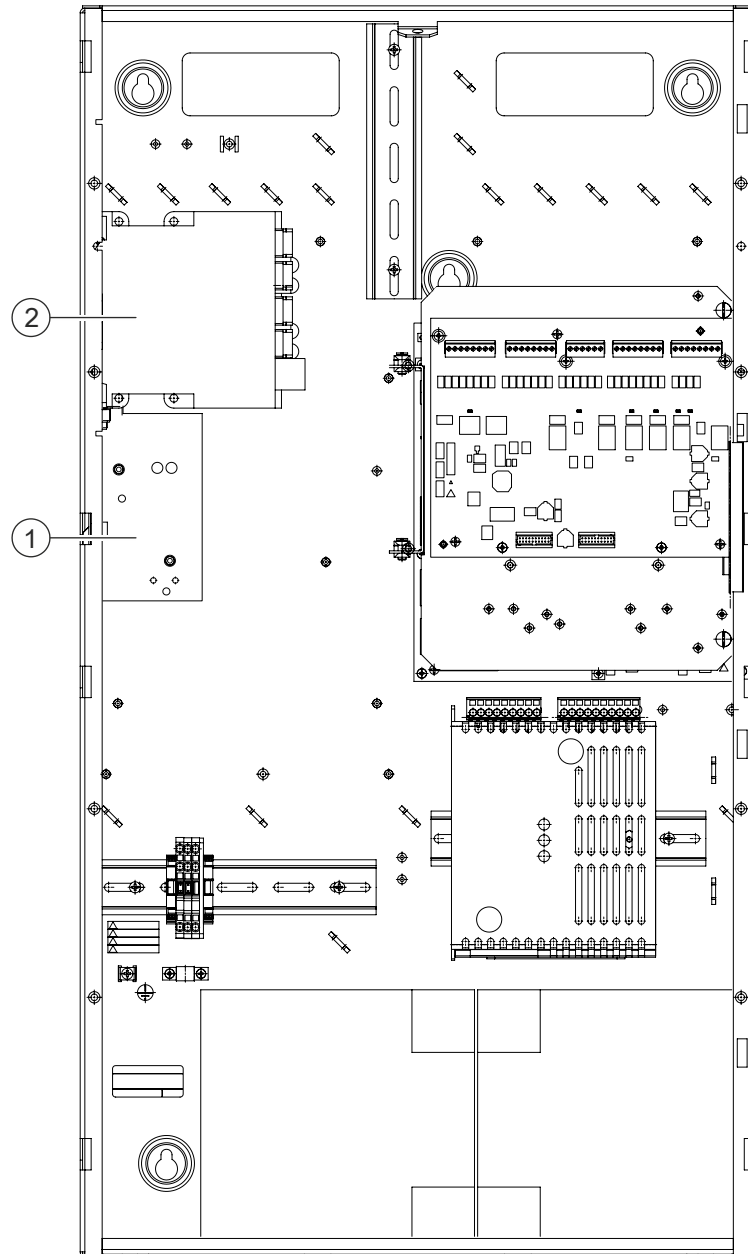


Both slots X14 and X19 can hold the RS232 or RS485 serial module.

3.5.6 Position of modules for extended networking

3.5.6.1 Modules in station with Comfort housing


Installation arrangement of an Ethernet switch (MM) FN2008-A1 or Security module (firewall) FN2009-A1 taking the example of the FC2040-AA with fire brigade periphery module FCI2001-D1.



- 1 Mounting kit (switch, Comf.), installation bracket with two DIN rails
- 2 FN2008-A1 or FN2009-A1

3.5.6.2 Modules in station with Standard housing

Due to space constraints, no Ethernet switch (MM) FN2008-A1 or Security module (firewall) FN2009-A1 can be installed in a fire control panel FC2020. An additional empty housing (Eco or Standard) is needed for this application and is fitted under the fire terminal.

	NOTICE
	<p>Protection from battery leakage</p> <p>The cable connections into the bottom housing must be led through a packed gland to ensure protection from battery leakage.</p>

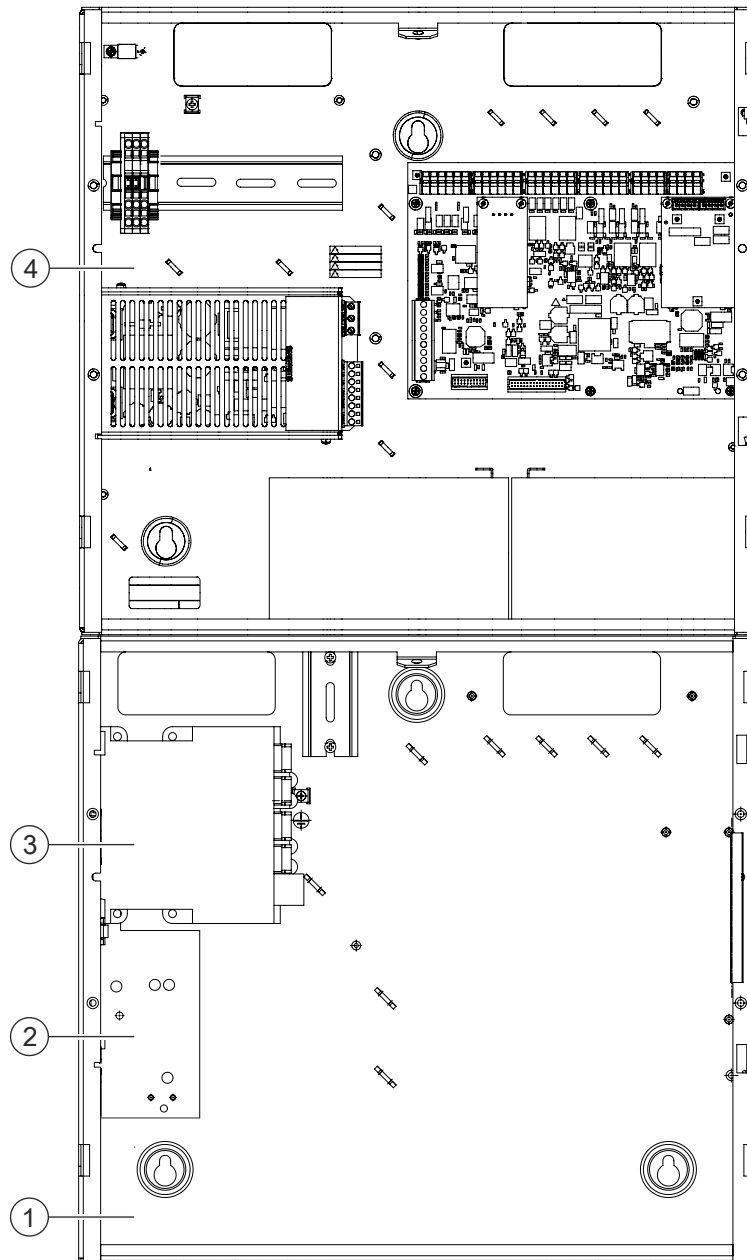


Figure 19: Example of module arrangement with fire control panel in the Standard housing with an additional empty housing (Eco)

- 1 Housing (Eco) FH2001-A1, empty
- 2 Mounting kit (switch, Comf.), mounting bracket with two DIN rails
- 3 FN2008-A1 or FN2009-A1
- 4 Fire control panel FC2020 in the housing (Standard)

3.5.6.3 Modules in the fire terminal

Due to space constraints, no Ethernet switch (MM) FN2008-A1 or Security module (firewall) FN2009-A1 can be installed in the fire terminal FT2040. An additional empty housing (Eco) is needed for this application and is fitted under the fire terminal.

!	NOTICE
	<p>Protection from battery leakage</p> <p>The cable connections into the bottom housing must be led through a packed gland to ensure protection from battery leakage.</p>

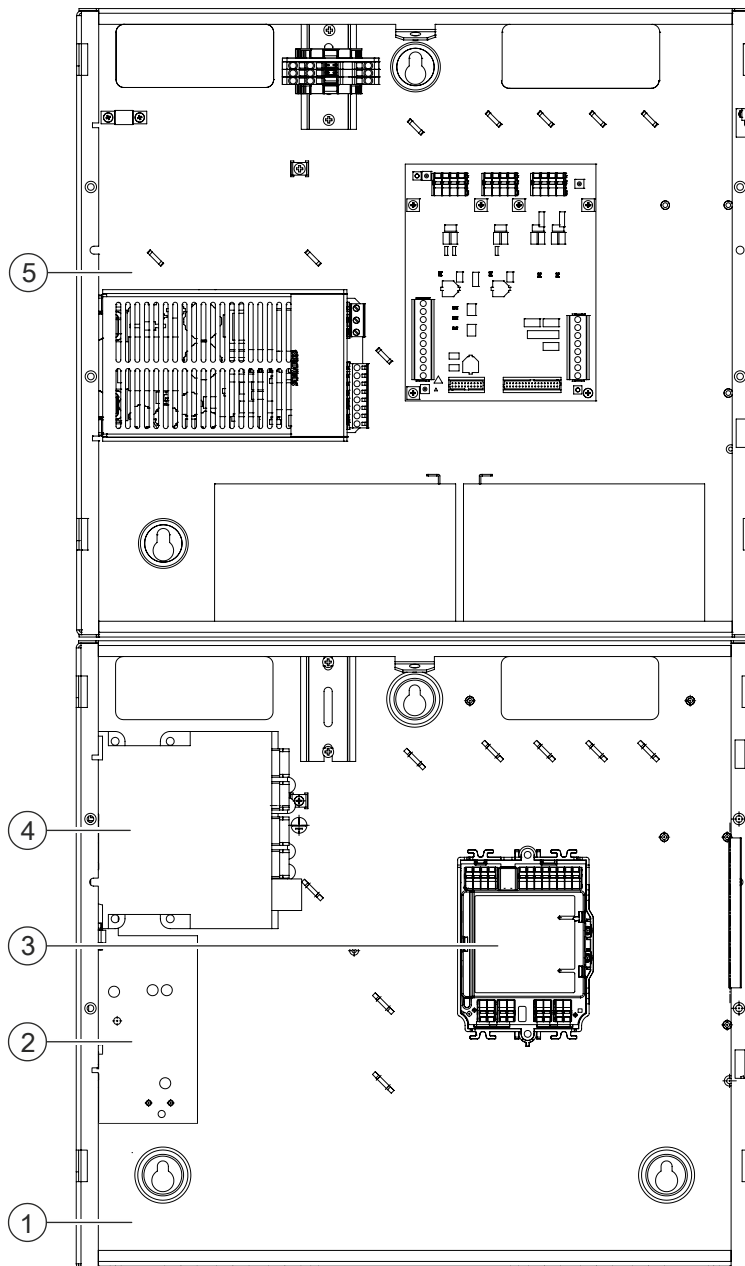


Figure 20: Sample structure of fire terminal with FN2008-A1 or FN2009-A1 in additional housing

- 1 Housing (Eco) FH2001-A1, empty
- 2 Installation kit (switch, comf.)
- 3 I/O module for alarming the detector contact
- 4 FN2008-A1 or FN2009-A1
- 5 FT2040 fire terminal with optional power supply and batteries

4 Setup of FC2080

4.1 Packaging units

The fire control panel FC2080 is delivered in several packaging units. Mounting and assembly are carried out on-site.

Housing (19", pedestal cabinet) incl. accessories

- Housing incl. door with plan compartment, standing on ½ Euro pallet, wrapped with plastic film
- Base for housing incl. mounting material
- 2 C rails with 10 screws M4 x 6
- 2 cable ducts 80 x 80 x 80 x 1500 mm
- 12 Philips screws M6 x 10
- 2 toothed discs M6
- 10 shield connection terminal blocks
- 1 switch
- 1 power socket (Euro)
- 4 expansion bolts with screws for wall mounting
- 1 Siemens/Sinteso sticker each
- 4 screws to fix the cabinet on the base

Components

Each component is a packaging unit.

- Battery tray (FC2080)
- Basic components
 - Processor unit (19", FC2080) incl. plug-in cards and installation plate
 - Carrier (19", power supply) incl. mounting accessories
- Additional components and devices incl. accessories in line with order
- Batteries
- Operating unit and operating add-ons, optional
- Options for the operating unit

4.2 Location of components

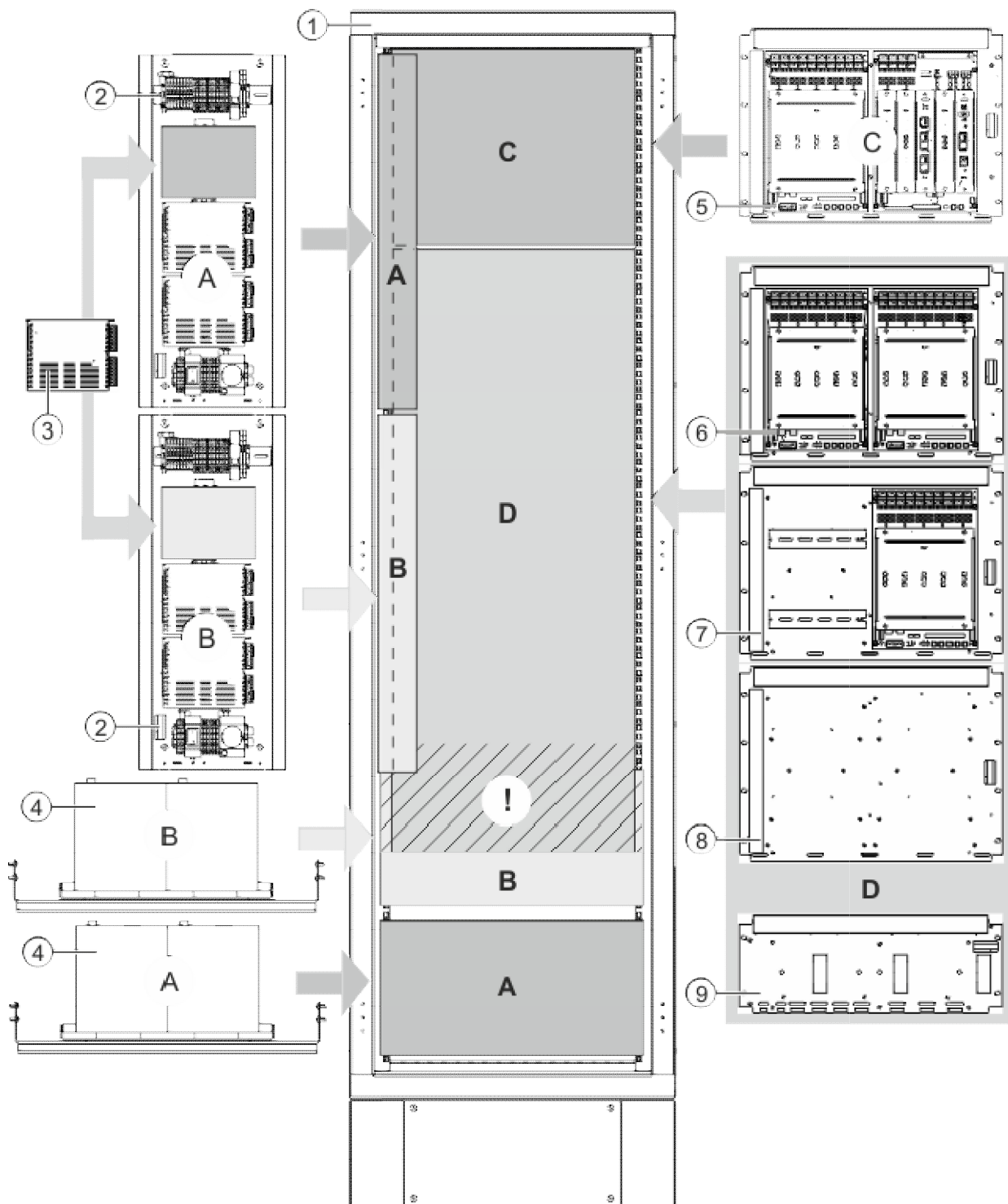


Figure 21: FC2080, location of components

- 1 Housing (19", free-standing cabinet) with base
 - 2 Carrier (19", power supply) with two power supplies (150 W)
 - 3 Power supply kit (150 W, A)
 - 4 Battery tray (19") with batteries
 - 5 Processor unit (19", FC2080)
 - 6 Carrier (19", card cage) with two installed card cages (5 slots)
 - 7 Carrier (19", card cage) with one installed card cage (5 slots) and DIN rails
 - 8 Carrier (19", card cage)
 - 9 Carrier (19", option)
- A First power supply group with carrier (19", power supply) and battery tray (19") with batteries.
- Carrier (19", power supply) must be installed in the highest possible position.
 - Battery tray (19") with batteries must be installed in the lowest possible position.
- B Second power supply group with carrier (19", power supply) and battery tray (19") with batteries.
- Carrier (19", power supply) must be installed directly below the first carrier.
 - Battery tray (19") with batteries must be installed above the first battery tray.
- C Processor unit (19", FC2080) must be installed at the top.
- D Free installation space for card cages, additional devices and relays
- ! When installing a second power supply group, the free installation space for card cages etc. is reduced according to the battery size.

4.3 Setup with one power supply group (sample)

FC2080 with one carrier (19", power supply) and the maximum number of card cages.

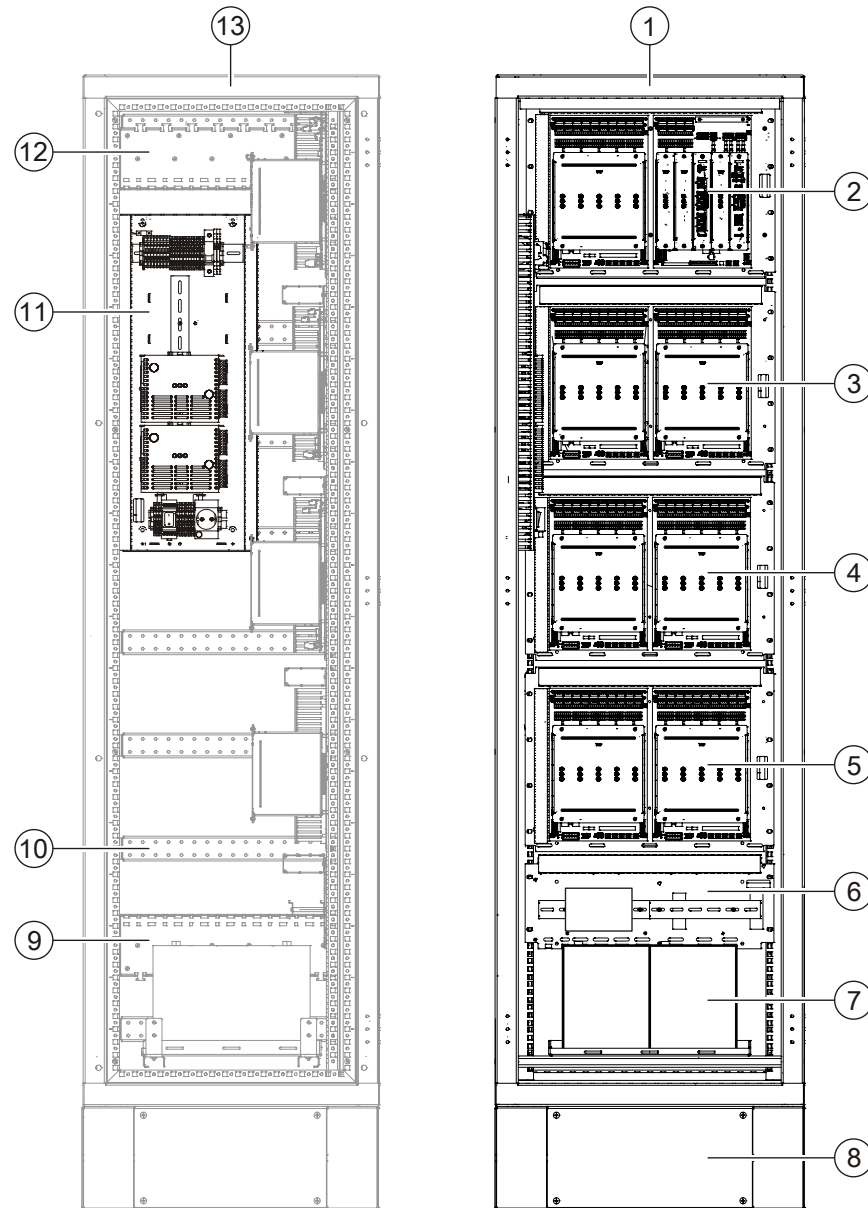


Figure 22: FC2080 with one battery kit and the maximum number of card cages (view of the left-hand side wall and view from the front)

- 1 FC2080 view of rear panel
- 2 Processor unit (19", FC2080)
- 3 Carrier (19", card cage) with two card cages (5 slots)
- 4 Second carrier (19", card cage) with two card cages (5 slots)
- 5 Third carrier (19", card cage) with two card cages (5 slots)
- 6 Carrier (19", optional) with installed fiber optic cable network module
- 7 Battery tray (19") with batteries
- 8 Base
- 9 Bottom grounding terminal
- 10 Carrier on side wall
- 11 Carrier (19", power supply)
- 12 Top grounding terminal
- 13 FC2080 view of the right-hand side wall

4.4 Setup with two power supply groups (sample)

FC2080 with two carriers (19", power supply) and two battery groups.

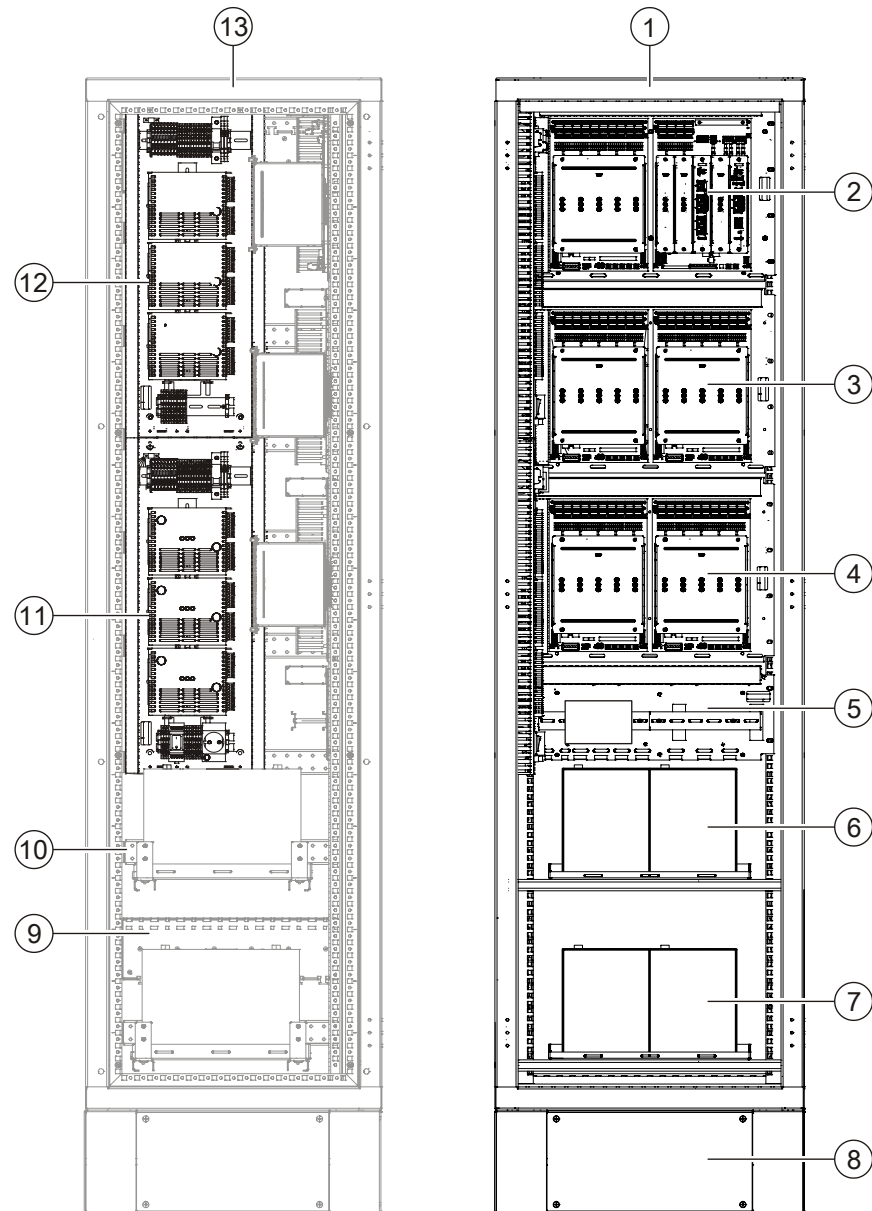


Figure 23: FC2080 with the maximum number of batteries (view of the left-hand side wall and view from the front)

- 1 FC2080 view of rear panel
- 2 Processor unit (19", FC2080)
- 3 Carrier (19", card cage) with two card cages (5 slots)
- 4 Second carrier (19", card cage) with two card cages (5 slots)
- 5 Carrier (19", optional) with installed fiber optic cable network module
- 6 Top battery tray (19") with batteries
- 7 Bottom battery tray (19") with batteries
- 8 Base
- 9 Grounding terminal
- 10 Carrier
- 11 Bottom carrier (19", power supply)
- 12 Top carrier (19", power supply)
- 13 FC2080 view of the left-hand side wall

4.5 Optional operating units and operating add-ons

Operating units and their operating add-ons are separate stations if observed functionally and can be installed in the door of the FC2080 as an option.

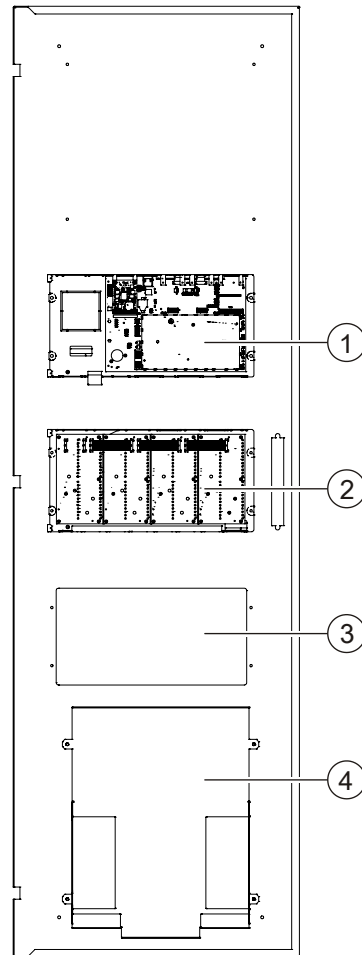


Figure 24: FC2080 with optional operating unit, view of the inside of the cabinet door

- 1 Operating unit (option)
- 2 Operating add-on (option)
- 3 Breakout opening for second operating add-on
- 4 Plan compartment A3

5 Mounting and installation of the compact control panels

5.1 Mounting procedure

Mounting takes the following sequence:


- Mounting of rear panel
- Fitting all components
- Assembly of the stations


Prerequisites

- All parts have been checked to make sure they are complete and intact.
- The mains supply cable is disconnected from the power supply.

Mounting steps

The detailed mounting steps in the following chapters are largely optimized, but do not have to be complied with.

	⚠ WARNING
	<p>Electrical voltage Mortal danger due to electric shock</p> <ul style="list-style-type: none"> • Before working on the station check that the mains supply cable is disconnected from the power supply. • Check to make sure that the mains is secured against inadvertently being switched on. • Always connect the grounding (PE) to the mains supply cable first. • The components must be installed by a qualified electrician or a trained person.

	NOTICE
	<p>Damage to hardware</p> <ul style="list-style-type: none"> • Perform all mechanical work before installing the components. • Insert possible plug-in cards only after installing all the card cages. • Do not connect up the batteries after installation but wait until commissioning.

1. Mount the rear panel.
2. Install the options in the rear panel.
3. Mount options on the operating unit.
4. Secure the operating unit and the optional operating add-on on the hinge of the rear panel and wire them up.
5. Fit the batteries (do not connect).
6. Insert the inscription strips into the operating unit or the operating add-on.
7. Screw the operating unit or the operating add-on to the wall.

8. Fit the cover cap(s) and screw into place.
 9. Secure the installation plate on the outside of the control panel housing such that it is clearly legible.
 - Add the site number 'No.:' and the commissioning date 'Date:!' during commissioning in accordance with EN 54-2.
- ⇒ The station is then ready for commissioning.

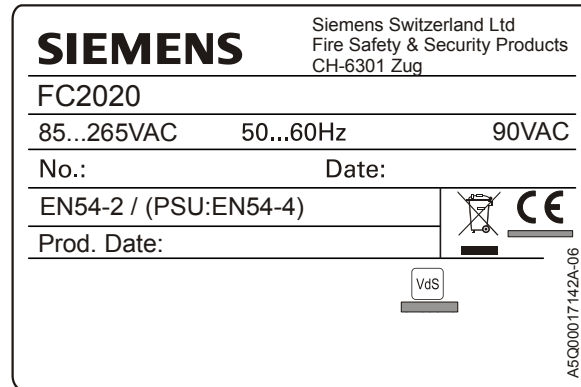


Figure 25: Sample installation plate

5.2 Mounting and assembling a station

5.2.1 Install rear panel


5.2.1.1 Surface mounting


Mounting instructions

Any surface irregularities can be compensated with washers or wooden wedges.

- The rear panel is attached to the wall using screws with a diameter of 6 mm.
- The supplied edge protection strip must be placed around rectangular breakout openings.
- Depending on the cable type, up to max. eight cables can be fed through each round breakout opening (20 mm with rubber grommet).
- Only one cable may be fed through each screwed cable gland (not within the scope of delivery).

Mounting steps

	<p>⚠ WARNING</p>
	<p>Electrical voltage Electric shock</p> <ul style="list-style-type: none"> • The mains supply may only be connected by an expert.

	<p>⚠ WARNING</p>
	<p>Heat bridge between the station and mounting surface caused e.g. by overheating of the batteries Danger of fire</p> <ul style="list-style-type: none"> • If you mount the station on a flammable wall, all cut-out sections for the mounting holes must be sealed using the supplied aluminium stickers.

1. Break out the required cable openings on the rear panel. Signal and control cables must be fed into the housing from above or from the rear (EMC protection).
2. Screw in the cable gland for the mains cable (Ø 20 mm), or insert a rubber grommet.
3. Mark the bore holes for the dowels using the supplied drilling template. The cardboard cover in the packaging is also the drilling template. The holes in the cardboard cover correspond to the fixing holes in the rear panel. You can also mark the holes based on the specifications provided in the product insert.
4. Drill the holes and insert the supplied dowels.
5. Attach the housing using the supplied screws.
6. Stick the supplied aluminium stickers over all holes for wall mounting.
7. Feed the mains cable into the housing and fix the cable with cable ties.
8. Protect the electronics if necessary using the cover of the packaging or other suitable means.

5.2.2 Installing an additional housing

Separate housings can be mounted for components which do not have any space in the housing or for decentralized supply units. The additional housings are generally mounted right below the stations and attached to them with screws.

The housings comprise the following elements:

- Rear panel
- Operating add-on (with LED indicators depending on the version)
- Cover cap

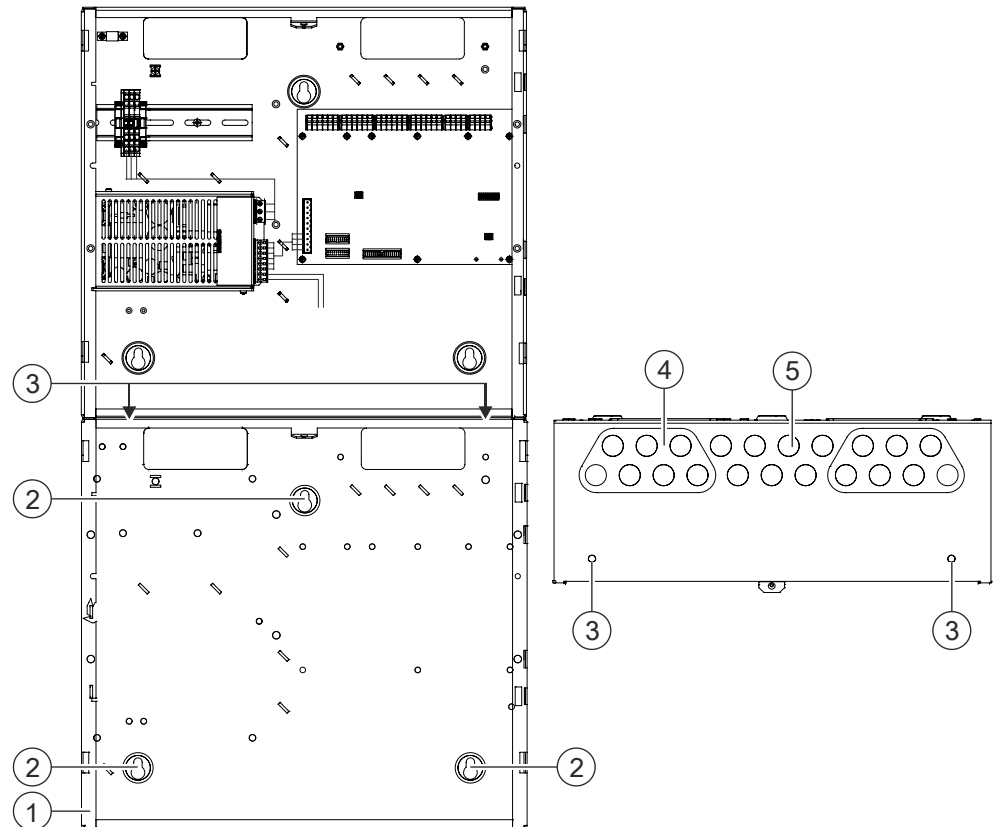




Figure 26: Mounting additional housing (example: Standard housing), view from the front and view of the additional housing from above

- 1 Empty additional housing
- 2 Holes for wall mounting
- 3 Holes for housing assembly
- 4 Breakouts for cable entry
- 5 Breakout holes for cable entry

Mounting steps

	⚠ WARNING
	Heat bridge between the station and mounting surface caused e.g. by overheating of the batteries Danger of fire <ul style="list-style-type: none">• If you mount the station on a flammable wall, all cut-out sections for the mounting holes must be sealed using the supplied aluminium stickers.

1. Break out the required cable entries at the bottom of the rear panel and the cover of the additional housing (4, 5), as well as the mounting holes for housing assembly (3).
2. Attach edge protection strips or rubber grommets to the cable entries.
3. Fasten the rear panel of the additional housing (1) in the same way as that of the station. Make sure that the alignment is exact.
4. Stick the supplied aluminium stickers over all holes for wall mounting.
5. Attach the two housings to one another by putting screws through the mounting holes (3) in the bottom and the cover.

	NOTICE
	Battery leakage Damage to hardware <ul style="list-style-type: none">• If you assemble two housings one on top of the other, you fit the batteries in the lower housing.

5.2.3 Connect the mains cable

5.2.3.1 Cable routing

Guidelines

- The network cables must be inserted from above.
- The mains lead must be placed along the left side of the housing (observe EMC zone boundary).
- Signal and control lines must only be fed into the housing on the right from above or from the rear.
- Batteries must be installed so that they cannot leak.
- No cable openings should be made in the base of the housing, unless an additional housing is mounted below the station to accommodate the batteries.

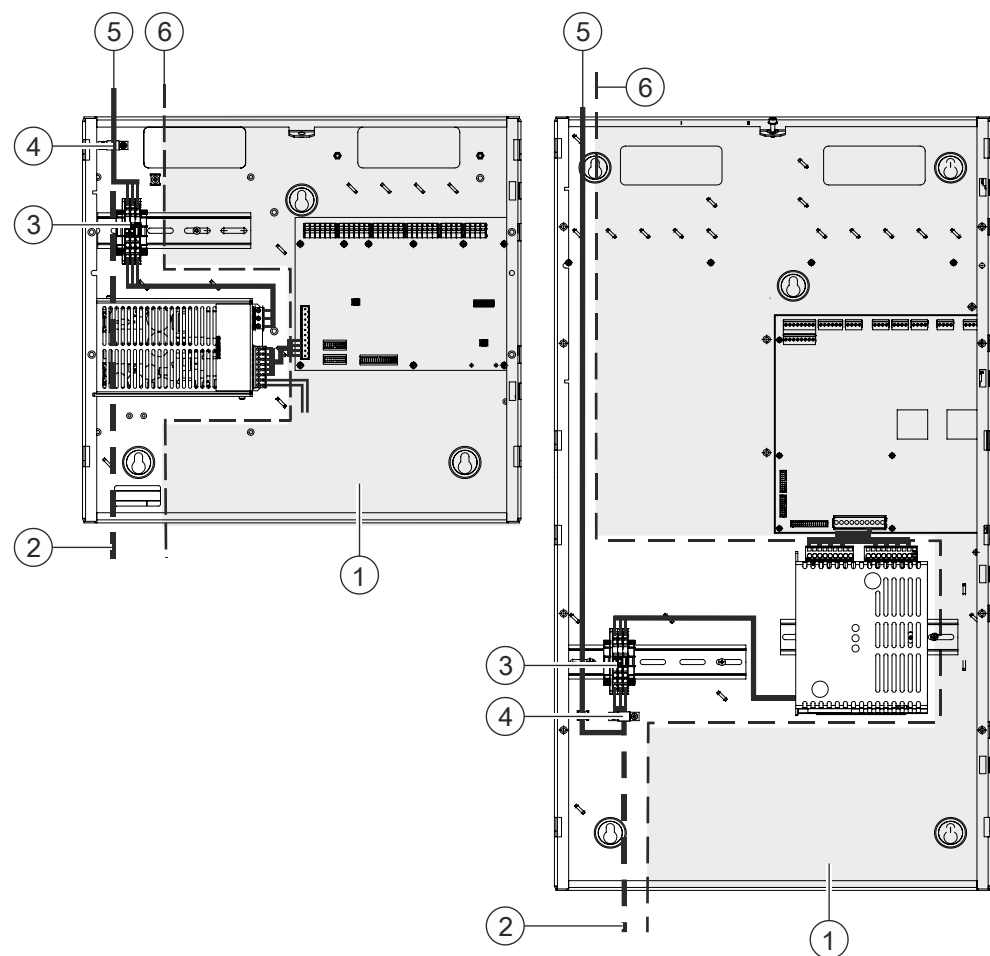



Figure 27: Laying the mains cable for the Standard housing (left) and the Comfort housing (right)

- 1 EMC-critical zone (no high-voltage power permitted)
- 2 Mains connection from below (not recommended)
- 3 Disconnect terminal blocks
- 4 Cable strain relief for mains supply line
- 5 Mains connection from above (recommended)
- 6 EMC boundary

	⚠ WARNING
	Electrical voltage Electric shock <ul style="list-style-type: none">• Before connecting the mains cable, make sure that the cable is current-free.• Ensure that the mains is secured against inadvertently being switched on.

Installation

1. Lay the mains cable (5) along the left side of the housing.
2. Insulate the mains cable as needed and connect it to the disconnect terminals (3) according to the pin assignment specified in the next chapter. Use cable end sleeves for wires.
3. Fix the cable with the strain relief clamp (4).
4. Secure the cable with cable ties.

5.2.3.2 Standard connection

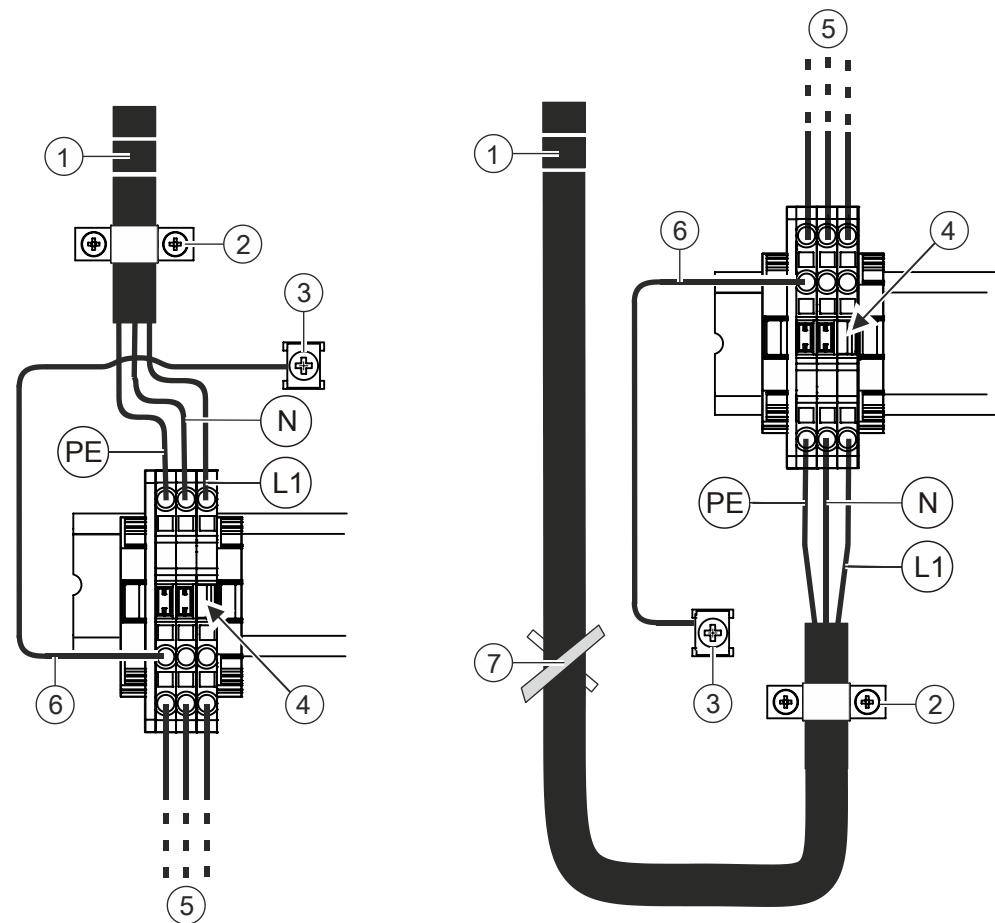


Figure 28: Mains connection in the Standard housing (left) and the Comfort housing (right)

- 1 Mains cable (feed from above)
- 2 Strain relief clamp
- 3 Ground on the rear panel
- 4 Disconnect terminal
- 5 Primary cabling for power supply
- 6 Ground cable (yellow/green), pre-assembled
- 7 Cable tie
- PE Protective conductor (terminal on the left)
- N Neutral conductor (terminal in the middle)
- L1 External conductor (terminal on the right, with mains disconnect)

5.2.3.3 Connection version [CH]

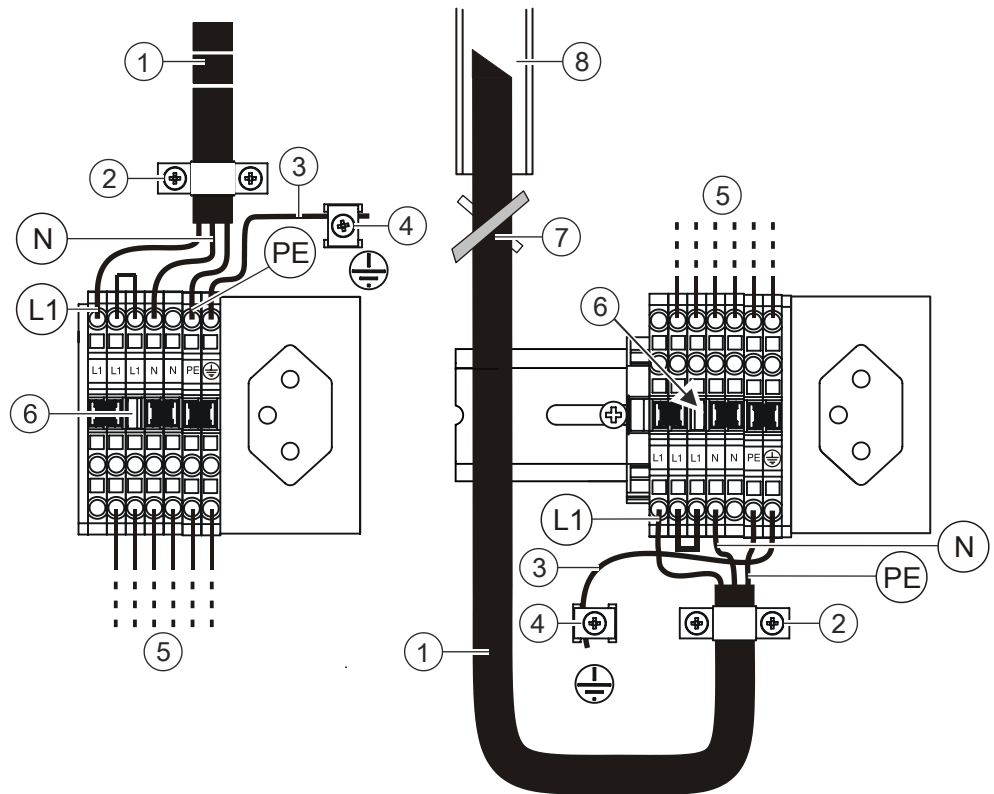


Figure 29: Swiss version mains connection in the Standard housing (left) and the Comfort housing (right)

- 1 Mains cable (feed from above)
- 2 Strain relief clamp
- 3 Ground cable (yellow/green) pre-assembled
- 4 Ground on the rear panel
- 5 Primary cabling for power supply
- 6 Disconnect terminal
- 7 Cable fixing with cable tie
- 8 Cable duct
- PE Protective conductor connection (terminal 7)
- N Neutral conductor (terminal 4)
- L1 External conductor (terminal 1)

5.2.3.4 Connection with EU socket

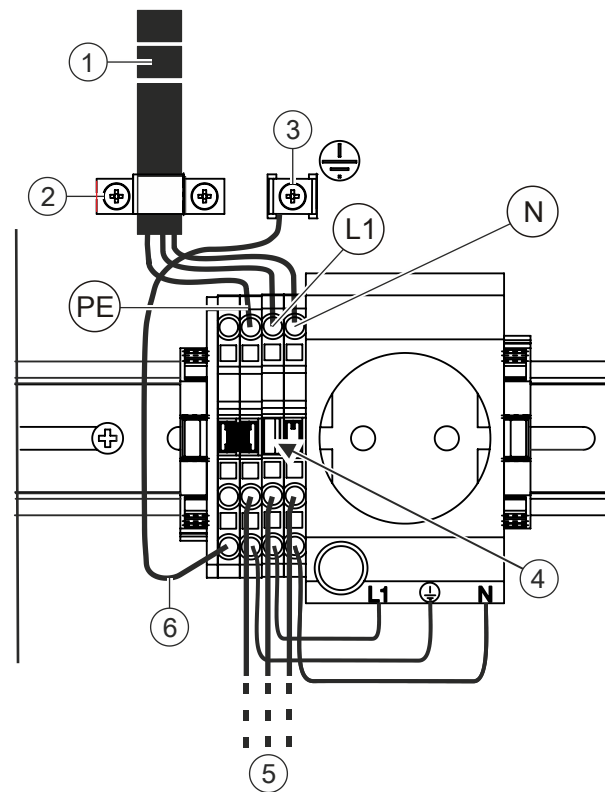


Figure 30: Mains wiring with EU socket taking example of fire control panel FC2040-BB

- 1 Mains cable (feed from above)
- 2 Strain relief clamp
- 3 Ground on the rear panel
- 4 Disconnect terminal
- 5 Primary cabling for power supply
- 6 Ground cable (yellow/green) pre-assembled
- PE Protective conductor connection (terminal 2)
- L1 External conductor (terminal 3)
- N Neutral conductor (terminal 4)

5.2.4 Installing the operating unit and the operating add-on

This chapter describes how to assemble the operating units.

Prerequisites

- The housing has been installed.
- The operating unit options are fitted.

5.2.4.1 Mounting and wiring the operating unit

The procedure for mounting the operating unit in the Siemens wall housing is the same for all operating units. The wiring differs according to which options are installed. However, the cable routing is the same for all operating units.



From MP-EN 4.0 onwards, the operating units are supplied with the PMI & mainboard FCM2027. Stations that are equipped with the PMI & mainboard FCM2004 must not be integrated in an extended network. You will find detailed information about this in product data document 008837 and in the planning document 008843.

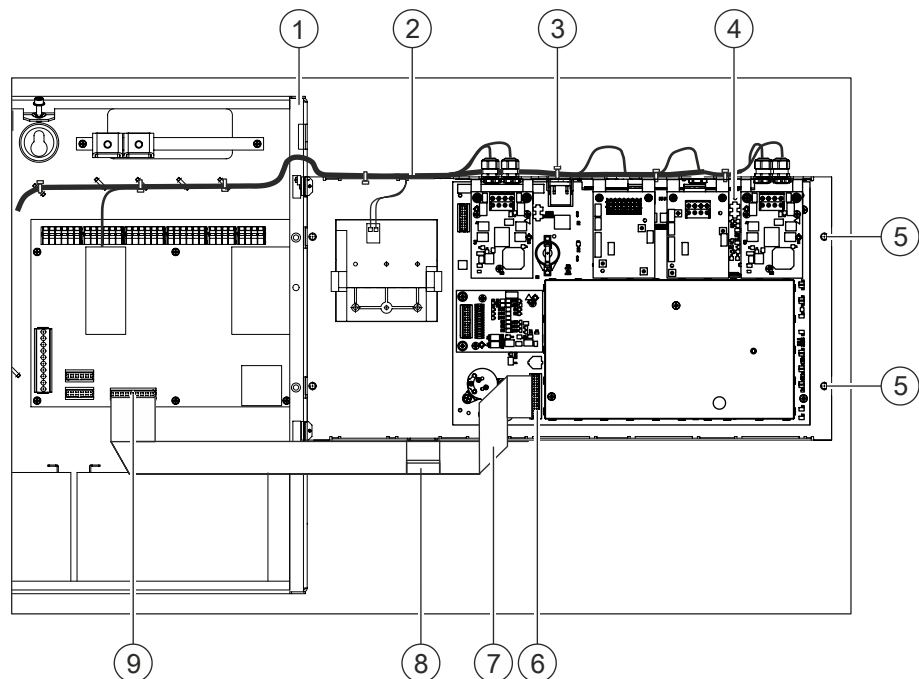


Figure 31: Mounting of the operating unit with PMI & mainboard FCM2027

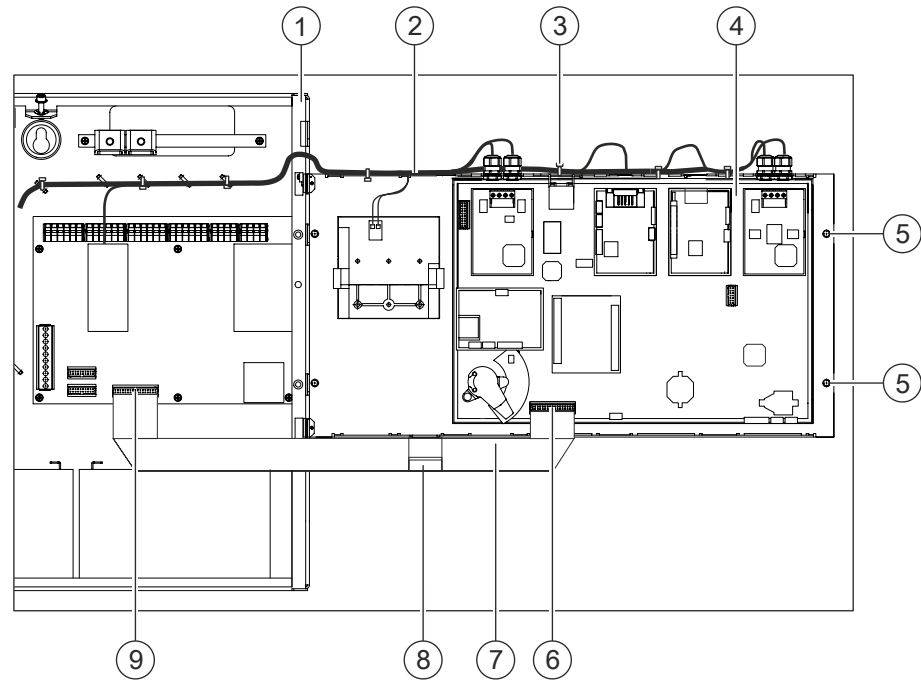


Figure 32: Mounting of operating unit with PMI & mainboard FCM2004

- 1 Hinge of the operating unit
- 2 Cable routing to the optional components
- 3 Cable ties for fixing the cables
- 4 Operating unit
- 5 Holes for securing the operating unit
- 6 Connection (X3) for the ribbon cable on the PMI & mainboard
- 7 Ribbon cable from the PMI & mainboard to the periphery board
- 8 Plastic clip for securing the ribbon cable
- 9 Connection (X3) for the ribbon cable on the periphery board

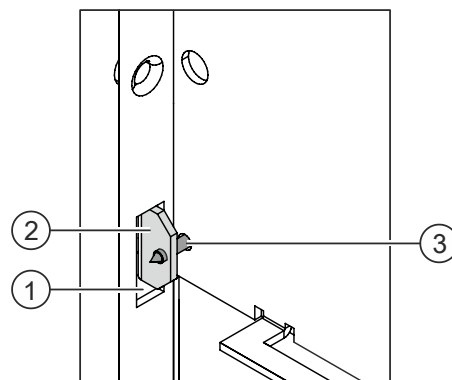


Figure 33: Detail view of the hinge of the operating unit

- 1 Cut-out section on the rear panel for the hinge of the operating unit
- 2 Hinge of the operating unit
- 3 Screw for securing the hinge

Mounting steps

1. From the rear side, hang the operating unit by inserting the hinges (2) into the openings in the rear panel of the housing (1).
2. Hold the operating unit in place and secure the hinges (2) with the screws (3).
3. Insert the connection cable to the periphery board into the respective plug-in positions (6 and 9) as shown in the figure.
4. Stick the supplied cable support to the inner right side of the station at the same height as the cable and fix the flat cable.
5. Guide the cables (2) of the operating unit options to the station as indicated and fix these cables with cable ties (3).
6. Insert the supplied inscription strips underneath the operating unit foil as shown in the illustration.
7. Swivel the operating unit towards the station and secure it using the four screws.

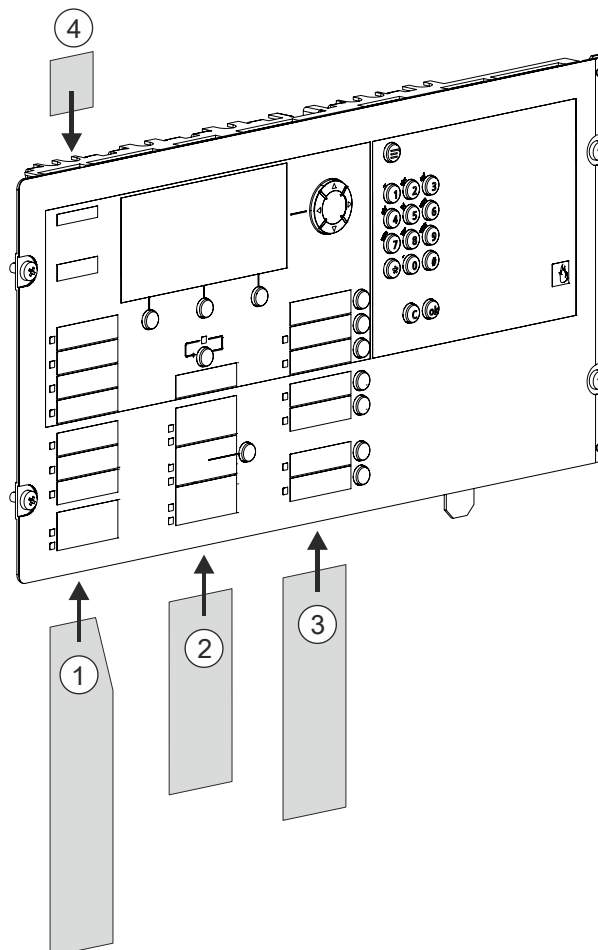


Figure 34: Inserting the inscription strips into the operating unit

- 1 Inscription LEDs
- 2 Inscription standard keys 1
- 3 Inscription standard keys 2
- 4 Inscription station type

5.2.4.2 Install operating add-on

For stations in a Comfort housing, operating add-ons are installed in the bottom half of the housing. For stations in an Eco or Standard housing, operating add-ons must be installed in a separate housing. Additional operating add-ons can be mounted in separate additional housings. The mounting is carried out as described for the operating unit.

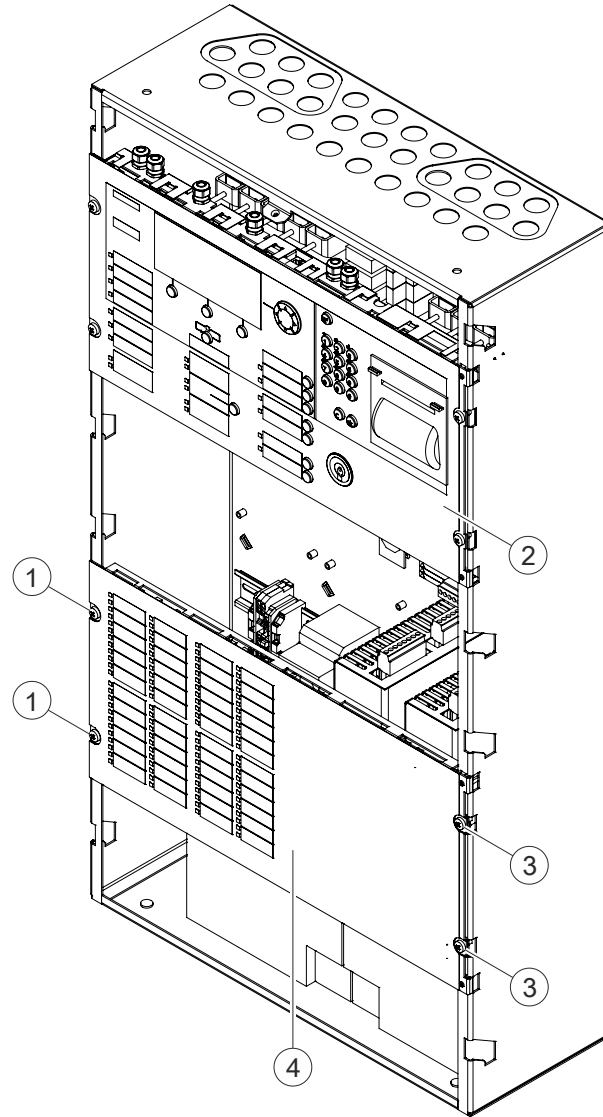


Figure 35: Example view of Comfort housing with operating add-on

- 1 Fixing screws (left)
- 2 Operating unit
- 3 Fixing screws (right)
- 4 Operating add-on

See also

- 📄 Mounting and wiring the operating unit [→ 71]

5.2.5 Mounting the cover cap

Prerequisites

- All options have been installed.
- The operating unit and the operating add-on have been mounted and fastened.
- The batteries have been installed.
- The mains voltage is switched off and secured against being switched on inadvertently.
- The jumper wire of the batteries for serial connection should **not be inserted**.

The cover cap is hooked into the rear panel with four holder cams and screwed at the top.

The housings must be opened and closed with an Allen key (standard equipment for service technicians).

Mounting steps

1. Always hook the lower cover cap in first.
2. Insert the cover cap at an angle into the guides on the rear panel.
3. Secure the topmost cover cap with the hexagon socket screw. The bottom cover cap is automatically fixed by the top one.

After the station has been assembled, it is ready to be commissioned. Commissioning must only be carried out by a trained specialist.

5.3 Periphery board (2-loop)

5.3.1 Installation

The periphery board (2-loop) FC12002-A1 is mounted in the fire control panels in the factory and only has to be replaced in the event of a repair.

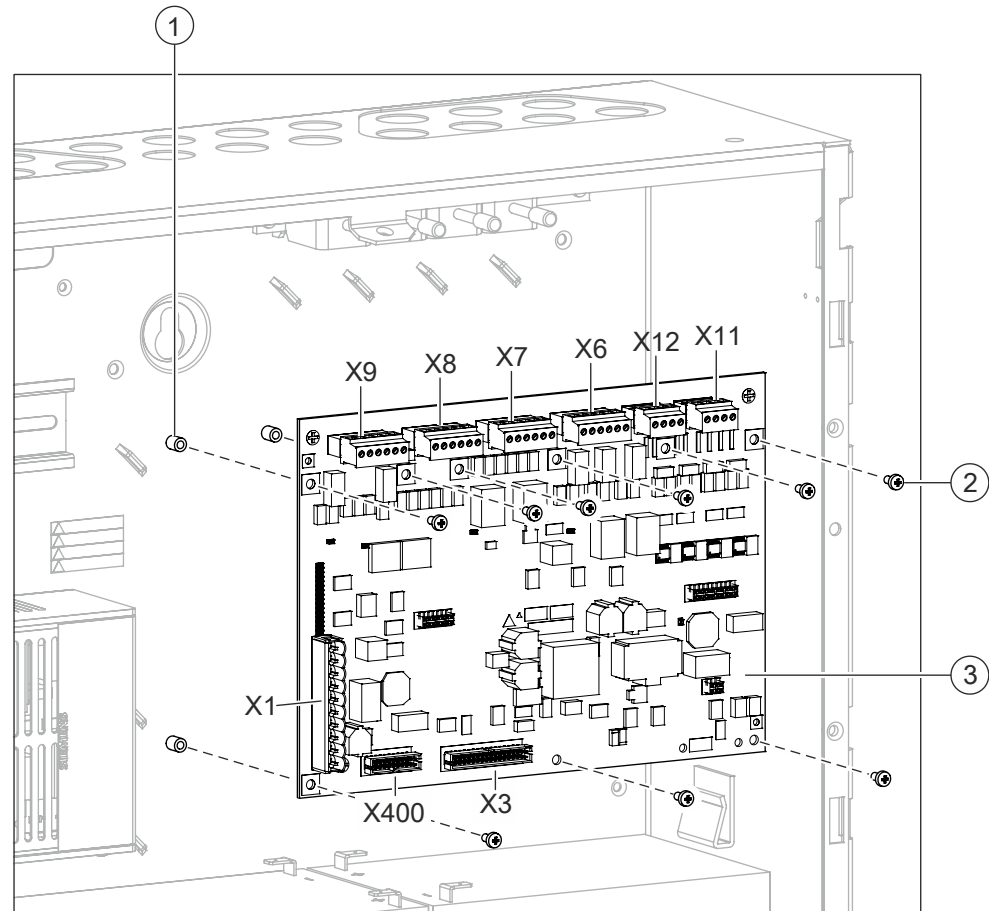


Figure 36: Mounting of periphery board (2-loop)

- 1 Threaded bolts on rear panel
- 2 9 fixing screws
- 3 Periphery board (2-loop)
- X1 Connector for supply
- X3 Connector for connection cable to PMI & mainboard (operating unit)
- X400 Connector for periphery bus

- ▷ Components that make access to the periphery board difficult are removed (e.g. mounting plate).
- ▷ Connections and plug-in contacts are disconnected and the cables are labelled.
- ▷ The periphery board is removed.

1. Mount the periphery board (3) with the nine fixing screws (2) to the threaded bolts (1) in the rear panel.
2. Wire up the periphery board (2-loop) according to the pin assignment.
3. Re-install any modules that you may have had to remove.

5.3.2 Pin assignments



Inputs and outputs which are not used do not require termination.
FDnet detector lines which are not used must not be terminated.

5.3.2.1 X1 supply

Pin	Designation	Description
1	#BATT	Message input from the power supply: Battery fault
2	#CONV	Message input from the power supply: Converter fault
3	#MAINS	Message input from the power supply: Mains failure
4	COMMON	Ground
5	3SRC+	Supply input for third supply source (+) [FR]
6	3SRC-	Supply input for third supply source (-) [FR]
7	VSYS+	Supply input from the power supply (+)
8	VSYS+	Supply input from the power supply (+)
9	VSYS-	Supply input from the power supply (-)
10	VSYS-	Supply input from the power supply (-)

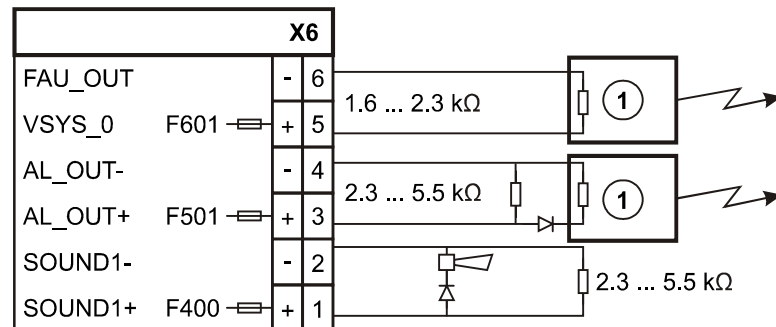
Admissible cable cross-section: 0.2...2.5 mm²

X1	
#BATT	1
#CONV	2
#MAINS	3
COMMON	4
3SRC+	5
3SRC-	6
VSYS+	7
VSYS+	8
VSYS-	9
VSYS-	10

5.3.2.2 X6 Horn, alarm and fault monitored outputs

Pin	Designation	Description
6	FAU_OUT	Output fault
5	VSYS_O	Supply output for consumer fault
4	AL_OUT-	Alarm output (-)
3	AL_OUT+	Alarm output (+)
2	SOUND1-	Horn output (-)
1	SOUND1+	Horn output (+)

Admissible cable cross-section: 0.2...1.5 mm²

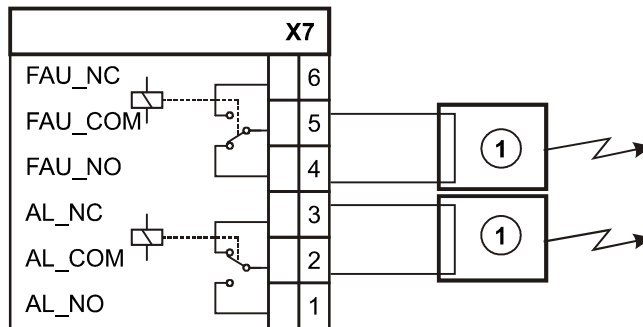


1 Remote transmission

5.3.2.3 X7 RT alarm and RT fault changeover contacts

Pin	Designation	Description
6	FAU_NC	↑ RT fault ↑ normally closed contact
5	FAU_COM	RT fault center tap (common)
4	FAU_NO	RT fault ↑ normally open contact
3	AL_NC	RT alarm break contact (normally closed)
2	AL_COM	RT alarm center tap (common)
1	AL_NO	RT alarm make contact (normally open)

Admissible cable cross-section: 0.2...1.5 mm²



1 Remote transmission

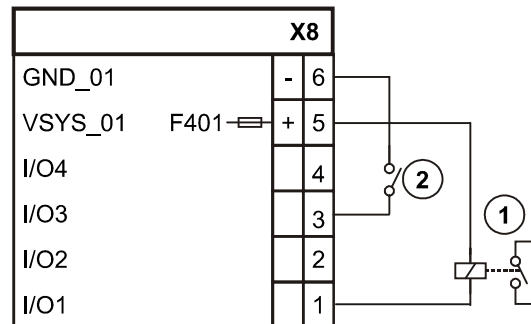
FAU... Diagram of relay in ↑ normal operation = contact 5/4 closed

AL... Diagram of relay in normal operation = contact 2/3 closed

5.3.2.4 X8 configurable inputs / outputs 1...4 and supply output 1

Pin	Designation	Description
6	GND_01	Supply output 1 (-)
5	VSYS_01	Supply output 1 (+)
4	I/O4	Configurable input/output 4
3	I/O3	Configurable input/output 3
2	I/O2	Configurable input/output 2
1	I/O1	Configurable input/output 1

Admissible cable cross-section: 0.2...1.5 mm²



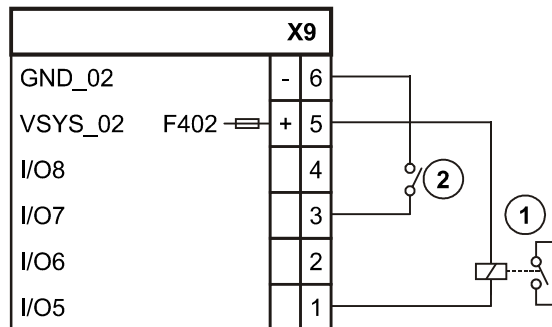
All inputs/outputs can be connected as follows:

- 1 Configured as output
- 2 Configured as input

5.3.2.5 X9 configurable inputs/outputs 5...8 and supply output 2

Pin	Designation	Description
6	GND_02	Supply output 2 (-)
5	VSYS_02	Supply output 2 (+)
4	I/O8	Configurable input/output 8
3	I/O7	Configurable input/output 7
2	I/O6	Configurable input/output 6
1	I/O5	Configurable input/output 5

Admissible cable cross-section: 0.2...1.5 mm²



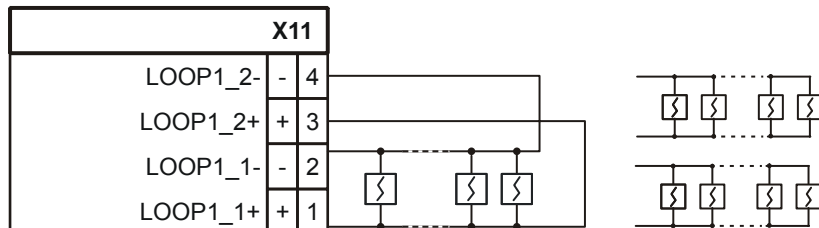
All inputs/outputs can be connected as follows:

- 1 Configured as output
- 2 Configured as input

5.3.2.6 X11 detector line loop 1

Pin	Designation	Description
4	LOOP1_2-	↑ Loop 1 / ↑ stub 2 (-)
3	LOOP1_2+	Loop 1 / stub 2 (+)
2	LOOP1_1-	Loop 1 / stub 1 (-)
1	LOOP1_1+	Loop 1 / stub 1 (+)

Admissible cable cross-section: 0.2...1.5 mm²

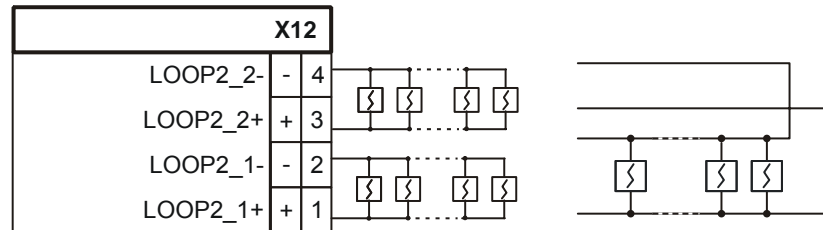


One ↑ loop or two ↑ stubs can be connected.

5.3.2.7 X12 detector line loop 2

Pin	Designation	Description
4	LOOP2_2-	↑ Loop 2 / ↑ stub 4 (-)
3	LOOP2_2+	Loop 2 / stub 4 (+)
2	LOOP2_1-	Loop 2 / stub 3 (-)
1	LOOP2_1+	Loop 2 / stub 3 (+)

Admissible cable cross-section: 0.2...1.5 mm²



One ↑ loop or two ↑ stubs can be connected.

5.4 Periphery board (4 loops)

5.4.1 Installation

The periphery board (4-loop) FCI2004-A1 is already mounted in the fire control panels in the factory and only has to be replaced in the event of a repair.

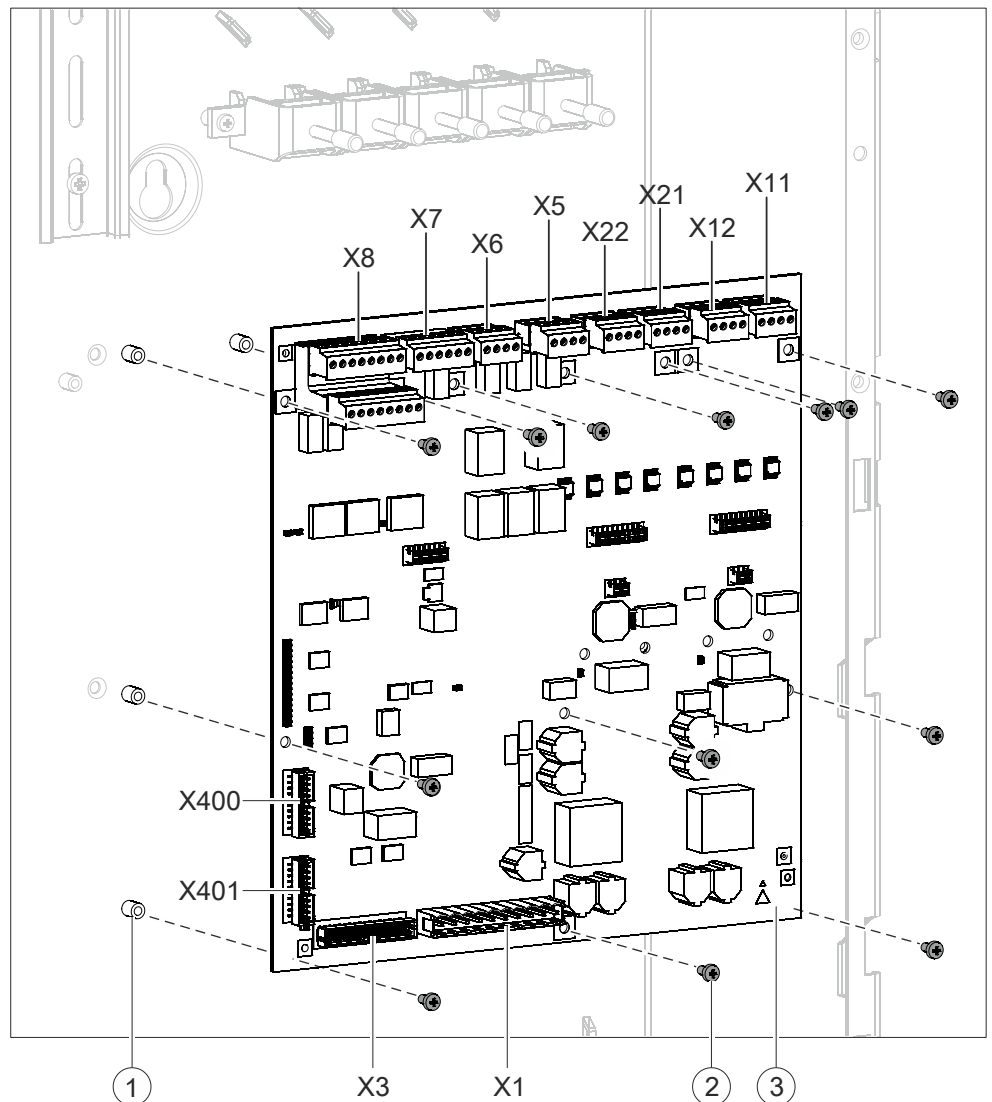


Figure 37: Mounting of the periphery board (4 loops)

- 1 Threaded bolts on rear panel
- 2 13 fixing screws
- 3 Periphery board (4 loops)
- X1 Connector for supply
- X3 Connector for connection cable to PMI & mainboard (operating unit)
- X400 Connector for the periphery bus to the fire brigade periphery module [DE]
- X401 Connector for periphery bus

- ▷ Components that make access to the periphery board difficult are removed (e.g. mounting plate).
 - ▷ Connections and plug-in contacts are disconnected and the cables are labelled.
 - ▷ The periphery board is removed.
1. Mount the periphery board (4-loop) (3) with the 13 fixing screws (2) to the threaded bolts (1) that are embedded in the rear panel or mounting plate (FC2060).
 2. Wire up the periphery board (4-loop) according to the following pin assignment.
 3. Re-install any modules that you may have had to remove.

5.4.2 Pin assignments



Inputs and outputs which are not used do not require termination.
FDnet detector lines which are not used must not be terminated.

5.4.2.1 X1 supply

Pin	Designation	Description
1	#BATT	Message input from the power supply: Battery fault
2	#CONV	Message input from the power supply: Converter fault
3	#MAINS	Message input from the power supply: Mains failure
4	COMMON	Ground
5	3SRC+	Third power supply input (+) [FR]
6	3SRC-	Third power supply input (-) [FR]
7	VSYS+	Supply input from the power supply (+)
8	VSYS+	Supply input from the power supply (+)
9	VSYS-	Supply input from the power supply (-)
10	VSYS-	Supply input from the power supply (-)

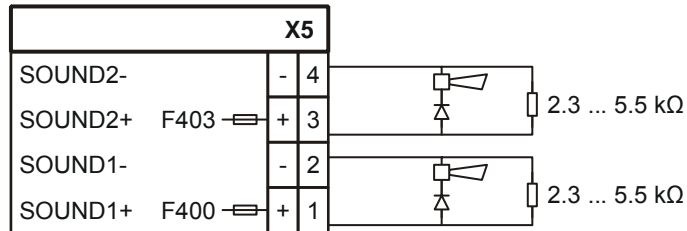
Admissible cable cross-section: 0.2...2.5 mm²

X1	
#BATT	1
#CONV	2
#MAINS	3
COMMON	4
3SRC+	5
3SRC-	6
VSYS+	7
VSYS+	8
VSYS-	9
VSYS-	10

5.4.2.2 X5 monitored horn outputs 1 and 2

Pin	Designation	Description
4	SOUND2-	Horn output 2 (-)
3	SOUND2+	Horn output 2 (+)
2	SOUND1-	Horn output 1 (-)
1	SOUND1+	Horn output 1 (+)

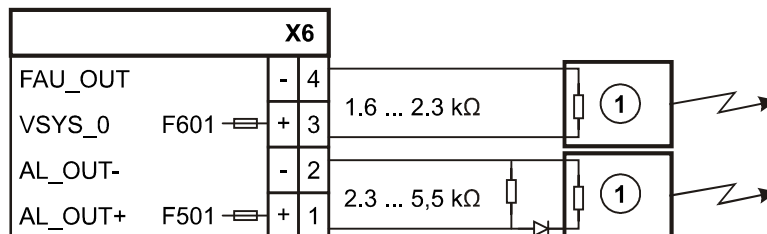
Admissible cable cross-section: 0.2...1.5 mm²



5.4.2.3 X6 alarm and fault monitored outputs

Pin	Designation	Description
4	FAU_OUT	Output fault
3	VSYS_O	Supply output for consumer fault
2	AL_OUT-	Alarm output (-)
1	AL_OUT+	Alarm output (+)

Admissible cable cross-section: 0.2...1.5 mm²

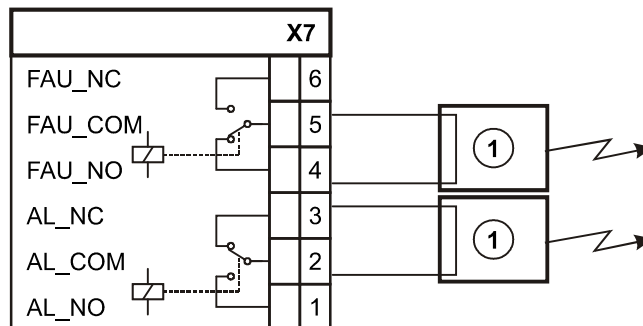


1 Remote transmission

5.4.2.4 X7 RT alarm and RT fault changeover contacts

Pin	Designation	Description
6	FAU_NC	↑ RT fault ↑ normally closed contact
5	FAU_COM	RT fault center tap (common)
4	FAU_NO	RT fault ↑ normally open contact
3	AL_NC	RT alarm break contact (normally closed)
2	AL_COM	RT alarm center tap (common)
1	AL_NO	RT alarm make contact (normally open)

Admissible cable cross-section: 0.2...1.5 mm²



1 Remote transmission

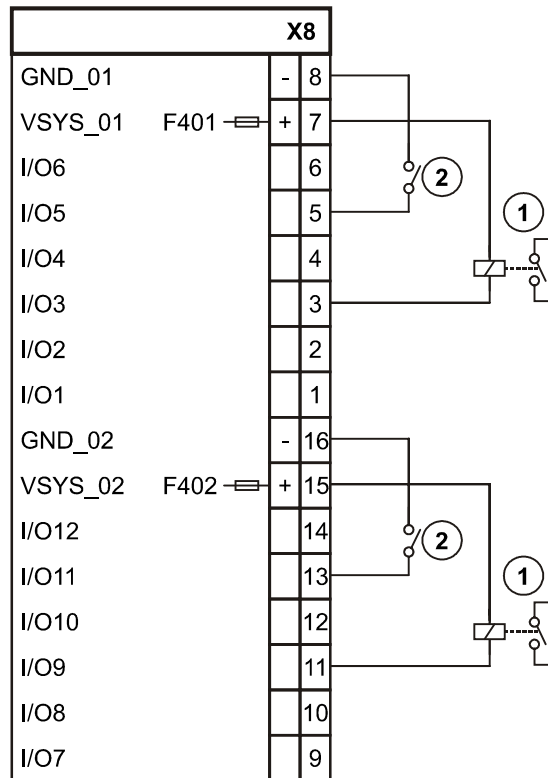
FAU... Diagram of relay in ↑ normal operation = contact 5/4 closed

AL... Diagram of relay in normal operation = contact 2/3 closed

5.4.2.5 X8 configurable inputs/outputs 1...12 and supply outputs 1...2

Pin	Designation	Description
8	GND_01	Supply output 1 (-)
7	VSYS_01	Supply output 1 (+)
6	I/O6	Configurable input/output 6
5	I/O5	Configurable input/output 5
4	I/O4	Configurable input/output 4
3	I/O3	Configurable input/output 3
2	I/O2	Configurable input/output 2
1	I/O1	Configurable input/output 1
16	GND_02	Supply output 2 (-)
15	VSYS_02	Supply output 2 (+)
14	I/O12	Configurable input/output 12
13	I/O11	Configurable input/output 11
12	I/O10	Configurable input/output 10
11	I/O9	Configurable input/output 9
10	I/O8	Configurable input/output 8
9	I/O7	Configurable input/output 7

Admissible cable cross-section: 0.2...1.5 mm²



All inputs/outputs can be connected as follows:

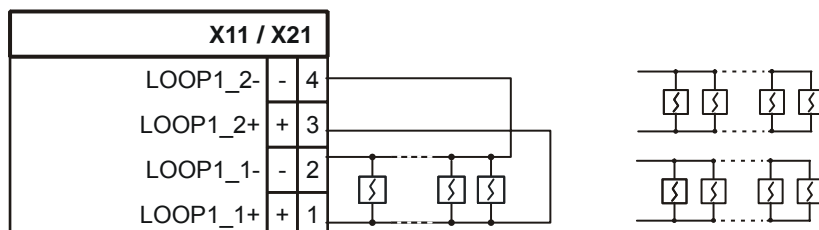
- 1 Configured as output
- 2 Configured as input

5.4.2.6 X11 / X21 detector line loop 1 (module 2/3)

Pin	Designation	Description	X11	X21 ¹
4	LOOP1_2-	↑ Loop 1 / ↑ stub 2 (-)	Connection - 1st Loop	Connection - 3rd Loop
3	LOOP1_2+	Loop 1 / stub 2 (+)	Connection + 1st Loop	Connection + 3rd Loop
2	LOOP1_1-	Loop 1 / stub 1 (-)	Connection - 1st Loop	Connection - 3rd Loop
1	LOOP1_1+	Loop 1 / stub 1 (+)	Connection + 1st Loop	Connection + 3rd Loop

Admissible cable cross-section: 0.2...1.5 mm²

¹ Loop number without loop extension



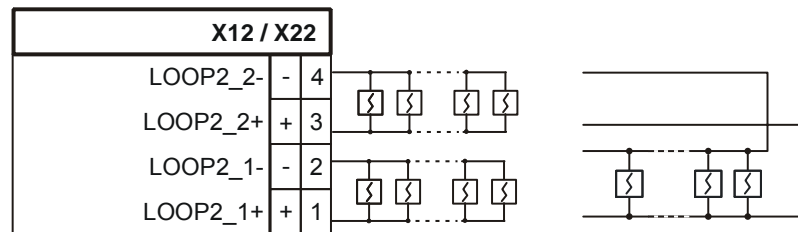
- The technical term LOOP 1 applies to both loops on connectors X11 and X21.
- One loop or two stubs can be connected.

5.4.2.7 X12 / X22 detector line loop 2 (module 2/3)

Pin	Designation	Description	X12	X22 ¹
4	LOOP1_2-	↑ Loop 1 / ↑ stub 2 (-)	Connection – 2nd Loop	Connection – 4th Loop
3	LOOP1_2+	Loop 1 / stub 2 (+)	Connection + 2nd Loop	Connection + 4th Loop
2	LOOP1_1-	Loop 1 / stub 1 (-)	Connection – 2nd Loop	Connection – 4th Loop
1	LOOP1_1+	Loop 1 / stub 1 (+)	Connection + 2nd Loop	Connection + 4th Loop

Admissible cable cross-section: 0.2...1.5 mm²

¹ Loop number without loop extension



- The technical term LOOP 2 applies to both ↑ loops on connectors X12 and X22.
- One loop or two stubs can be connected.

5.5 Fire terminal board

5.5.1 Installation

The fire terminal board FTI2002-A1 is already mounted in the fire terminal in the factory and only has to be replaced in the event of a repair.

Prerequisites

- Components that make access to the periphery board difficult are removed.
- All connections and plug-in contacts are disconnected (label cables before disconnecting them).
- The fire terminal board is removed.

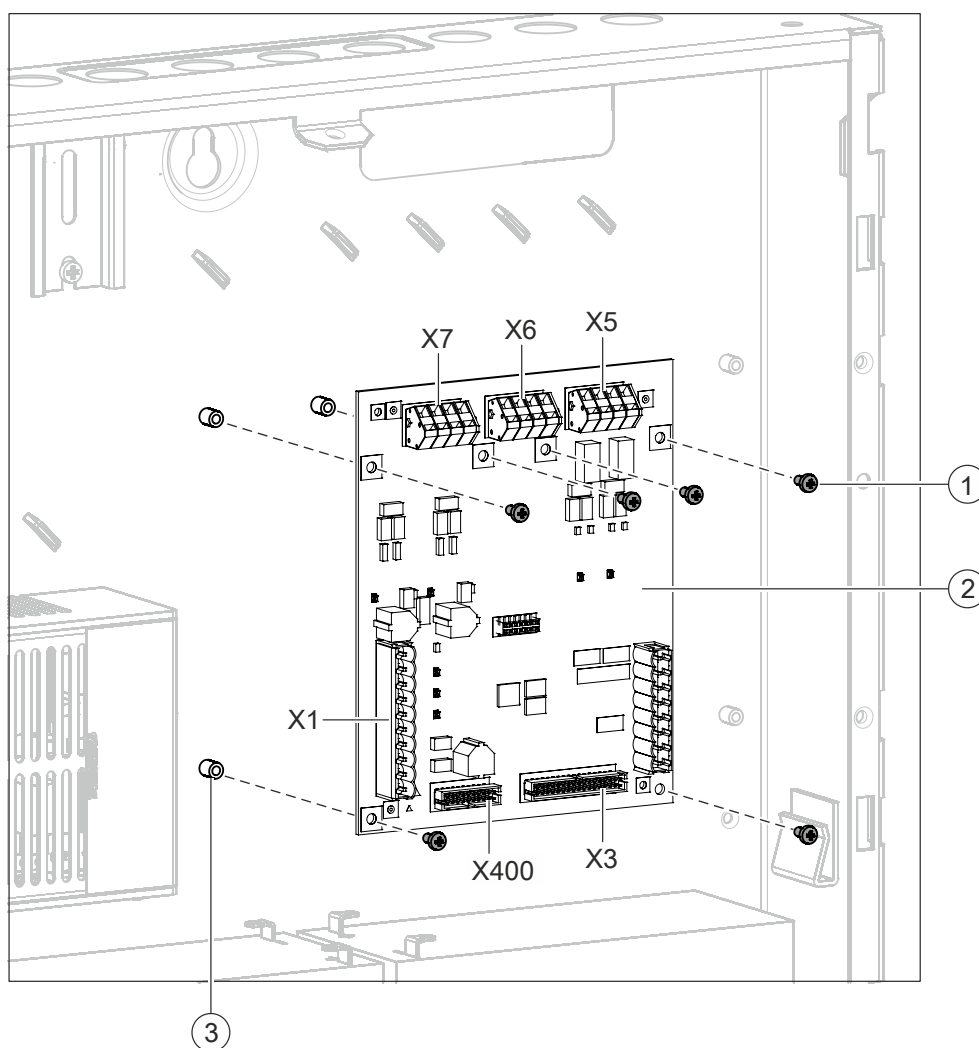


Figure 38: Mounting of fire terminal board

- 1 6 fixing screws
- 2 Fire terminal board
- 3 Screw bushings on the rear panel
- X1 Connector for power supply input
- X3 Connector for the connection cable to PMI & mainboard (operating unit)
- X5 Connector for power supply output Vsys
- X6 Connector for supply input Vsys 2
- X7 Connector for supply input Vsys 1
- X400 Connector for periphery bus

Mounting steps

1. Mount the fire terminal board (2) with the six fixing screws (1) to the screw bushings (3) that are embedded in the rear panel.
2. Wire up the fire terminal board according to the following pin assignment.
3. Re-install any modules that you may have had to remove.

5.5.2 Pin assignments

5.5.2.1 X1 supply

The optional power supply or the external 24 V supply is connected to supply input X1.

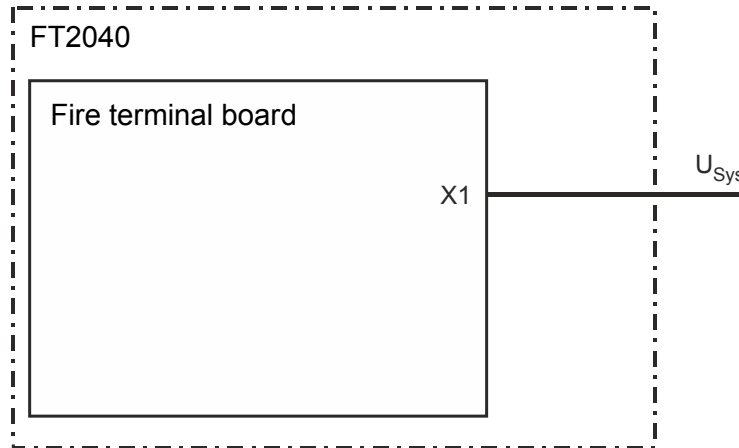
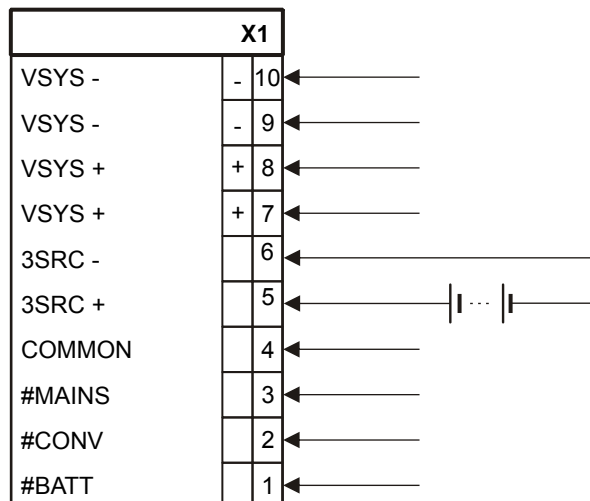


Figure 39: FTI2001-A1, supply input for external supply or fitted power supply (optional)

Pin	Designation	Description
10	VSYS-	Supply input from the power supply (-)
9	VSYS-	Supply input from the power supply (-)
8	VSYS+	Supply input from the power supply (+)
7	VSYS+	Supply input from the power supply (+)
6	3SRC-	Input for third supply source (-) [FR]
5	3SRC+	Input for third supply source (+) [FR]
4	COMMON	Ground
3	#MAINS	Message input from the power supply: Mains failure
2	#CONV	Message input from the power supply: Converter fault
1	#BATT	Message input from the power supply: Battery fault

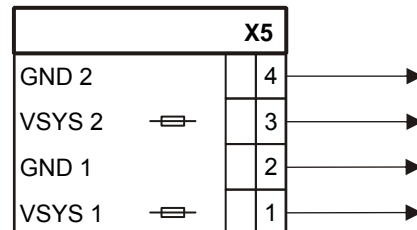
Admissible cable cross-section: 0.2...2.5 mm²



5.5.2.2 X5 supply output

Pin	Designation	Description
4	GND 2	Ground
3	VSYS 2	System supply (+) (1 A/T)
2	GND 1	Ground
1	VSYS 1	System supply (+) (1 A/T)

Admissible cable cross-section: 0.2...2.5 mm²



5.5.2.3 X6/X7 supply input 2/1

If the fire terminal is supplied by a fire control panel, a redundant supply is needed according to EN 54. For reasons of reliability, the two supply lines must be routed separately.

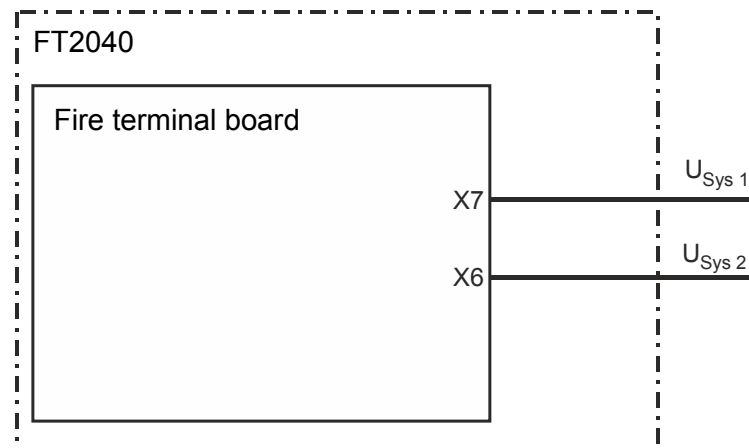
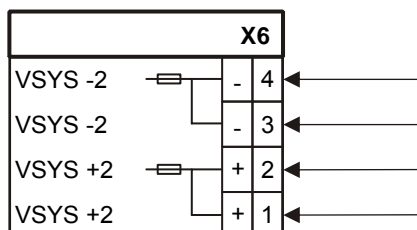


Figure 40: FT12001-A1, supply via a fire control panel

X6, supply input 2

Pin	Designation	Description
4	VSYS - 2	Ground
3	VSYS - 2	Ground
2	VSYS + 2	System supply (+)
1	VSYS + 2	System supply (+)

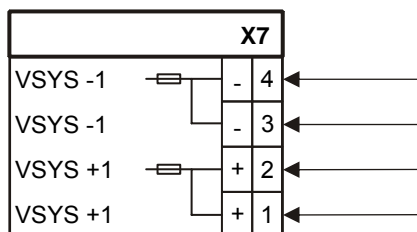
Admissible cable cross-section: 0.2...2.5 mm²



X7, supply input 1

Pin	Designation	Description
4	VSYS - 1	Ground
3	VSYS - 1	Ground
2	VSYS + 1	System supply (+)
1	VSYS + 1	System supply (+)


Admissible cable cross-section: 0.2...2.5 mm²




5.6 Power supply (70 W)

In fire control panels, the power supply (70 W) FP2001-A1 or FP2015-A1 is always built-in. In fire terminals and additional housings, the power supply (70 W) is an option.

Primary wiring

	⚠ WARNING
	Electrical voltage Electric shock <ul style="list-style-type: none"> • Before connecting the mains cable, make sure that the cable is current-free. • Ensure that the mains is secured against inadvertently being switched on.

Secondary wiring

	NOTICE
	Short-circuit Damage to hardware <ul style="list-style-type: none"> • Before removing or fitting the power supply, remove the jumper wire between the two batteries. <p>⇒ This ensures that the secondary side is current-free and that no components can be damaged due to a short circuit.</p>



EN 54-2 stipulates that the power supply must be installed in the housing.

Fit the power supply (70 W) in close proximity to the batteries as it does not have an external temperature sensor.

5.6.1 Installation

The 70 W power supply FP2001-A1 or the FP2015-A1, which is identical in construction, is only installed in Standard and Eco housings.

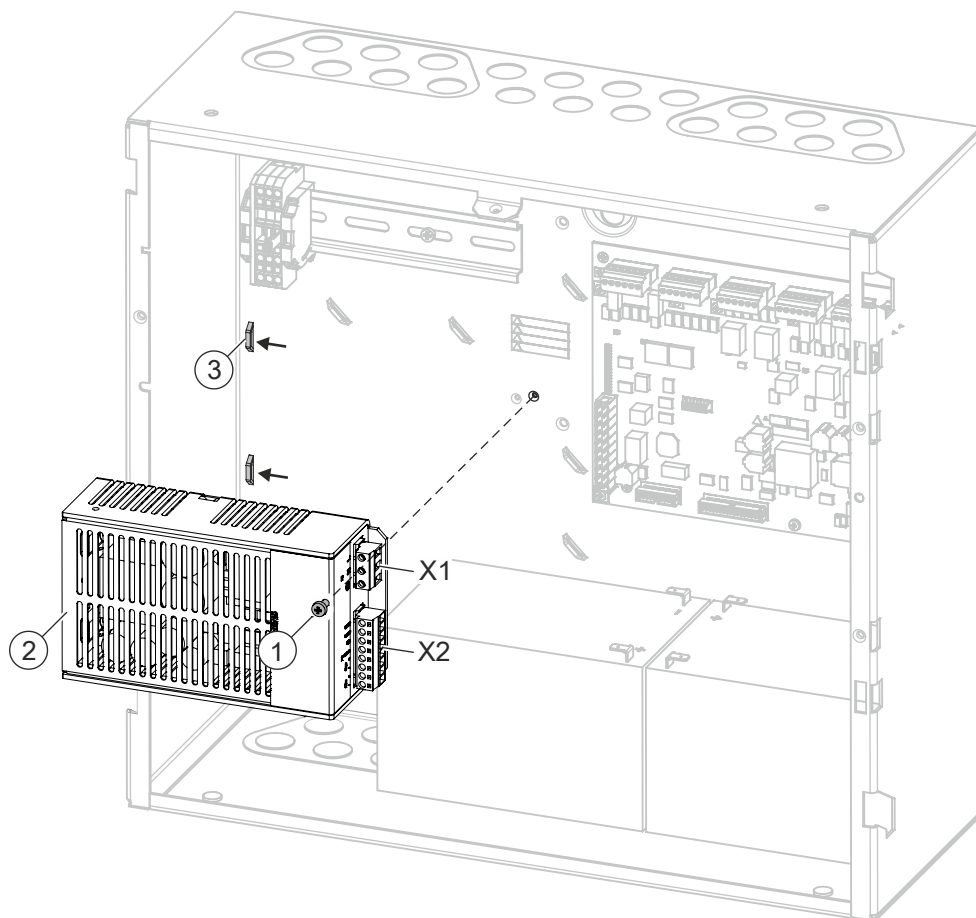


Figure 41: Example: Installation of the power supply (70 W) in the Standard housing

- 1 Fixing screw (under mains connection terminal X1)
- 2 Power supply (70 W) FP2015
- 3 Guides for the distance pins of the power supply unit
- X1 Mains connection terminal primary wiring
- X2 Supply output secondary wiring

1. On the rear side of the power supply, insert the pins laterally into the guides (3) in the rear panel.
2. Fasten the power supply (2) (under the mains connection terminal X1) using the Phillips screw (1).
3. Mount the mains connection terminals onto the power supply (over the fixing screw).
4. Connect the power supply according to the following pin assignment.

5.6.2 Pin assignments

5.6.2.1 X1 mains connection

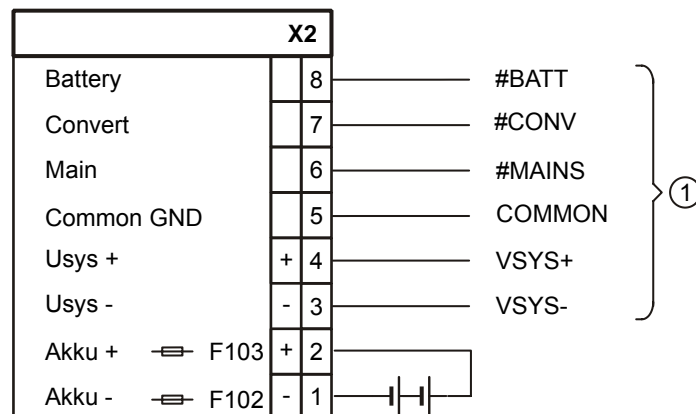
Pin	Designation	Description
1	⊕	Ground (protective conductor PE)
2	N	Neutral conductor
3	L	External conductor (L1)

Admissible cable cross-section: 0.2...2.5 mm²

5.6.2.2 X2 Power supply and signal lines FP2001

Pin	Designation	Description
8	Battery	Detection line (#BATT): Battery fault
7	Convert	Detection line (#CONV): Power supply fault
6	Mains	Detection line (#MAINS): Mains fault
5	Common GND	Ground (COMMON)
4	U _{sys} +	System supply (V _{SYS} +))
3	U _{sys} -	System supply (V _{SYS} -)
2	Akku +	Battery supply (+)
1	Akku -	Battery supply (-)

Admissible cable cross-section: 0.2...2.5 mm²



1 Cable tree to periphery board or fire terminal board

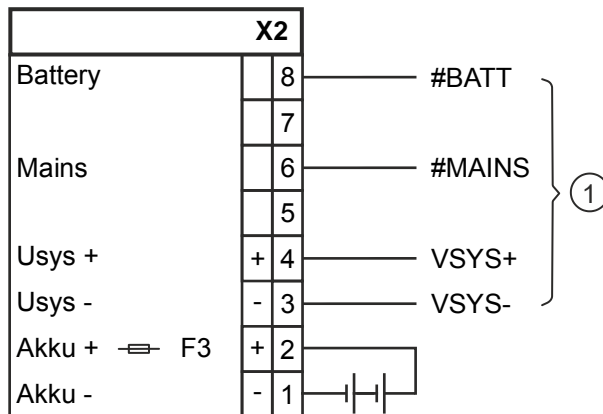
See also

- 📄 X1 supply [→ 77]
- 📄 X1 supply [→ 85]
- 📄 X1 supply [→ 93]

5.6.2.3 X2 battery supply and signal lines

Pin	Designation	Description
8	Battery	Detection line (#BATT): Battery fault
7	Not used	
6	Mains	Detection line (#MAINS): Mains fault
5	Not used	
4	U _{sys} +	System supply (VSYS+)
3	U _{sys} -	System supply (VSYS-)
2	Akku +	Battery supply (+), protected with F3
1	Akku -	Battery supply (-)

Admissible cable cross-section: 0.2...2.5 mm²



1 Cable tree to periphery board or fire terminal board


5.7 Power supply (150 W)

The description for installing the power supply (150 W) applies to both versions of the power supply, for the type A4 and for the type A5. Only the wiring of the network connection and when switching in parallel are different.


With fire control panels in the Comfort housing, the power supply (150 W) FP2004-A1 is always built-in. If you want to install an additional 150 W power supply FP2005-A1 (optional), you must mount both power supplies in a vertical position.

When installing a power supply (150 W) in an additional empty housing, it can be mounted horizontally on the DIN rail.

Primary wiring

	⚠ WARNING
	Electrical voltage Electric shock <ul style="list-style-type: none"> • Before connecting the mains cable, make sure that the cable is current-free. • Ensure that the mains is secured against inadvertently being switched on.

Secondary wiring

	NOTICE
	Short-circuit Damage to hardware <ul style="list-style-type: none"> • Before removing or fitting the power supply, remove the jumper wire between the two batteries. <p>⇒ This ensures that the secondary side is current-free and that no components can be damaged due to a short circuit.</p>



EN 54-2 stipulates that the power supply must be installed in the housing. The power supply (150 W) has an external temperature sensor. This must be positioned directly next to the batteries.

5.7.1 Installation

The power supply (150 W) FP2004-A1 is fitted horizontally on a DIN rail as standard in the fire control panels in the Comfort and Large housing.

Preparatory work

We would recommend first removing the batteries when removing and refitting the power supply.

Mounting in the power supply

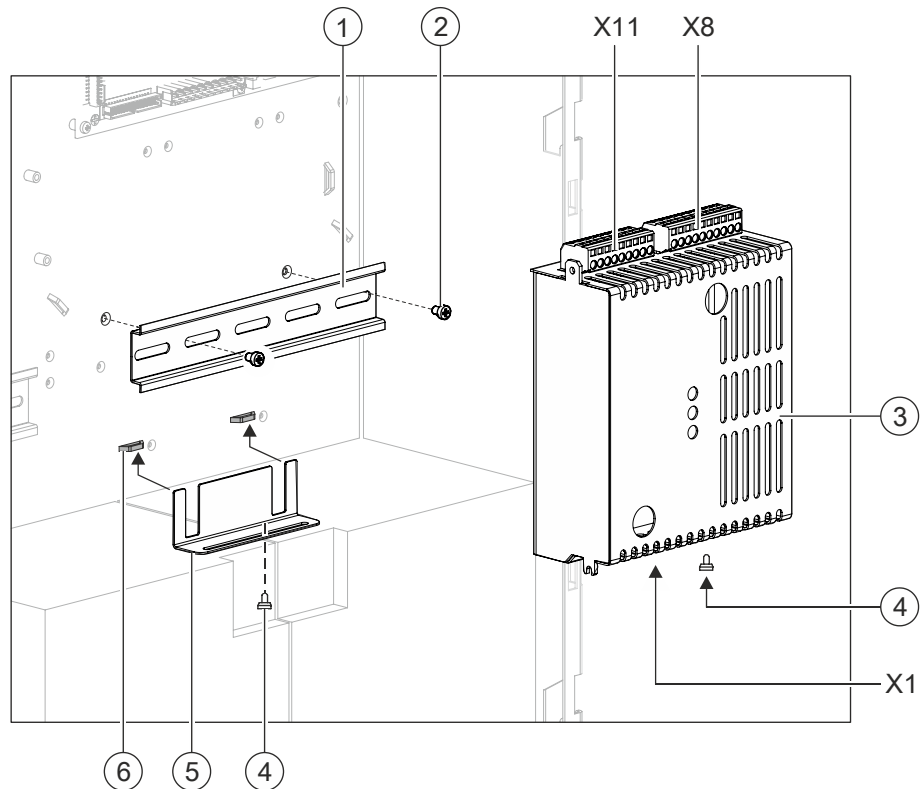


Figure 42: Installation of the 150 W power supply in the Comfort housing

- 1 DIN rail for power supply
- 2 Fixing screws for DIN rail
- 3 Power supply (150 W) FP2004-A1
- 4 Bottom fixing screw
- 5 Retaining bracket
- 6 Slot for retaining bracket
- X1 Mains connection terminal
- X8 Supply output terminal
- X11 Monitoring signals terminal

1. Slide the retaining bracket (5) into the mounting slot (6) from below as shown. The bracket jams solidly.
2. Attach the power supply (3) to the DIN rail (1) as shown using the affixed DIN rail clip. To do this, hook the power supply on at the top and then press it down.
3. Screw the power supply (3) to the retaining bracket (5) with fixing screw (4) from below.
4. Connect the power supply according to the pin assignment.

Installing the temperature sensor

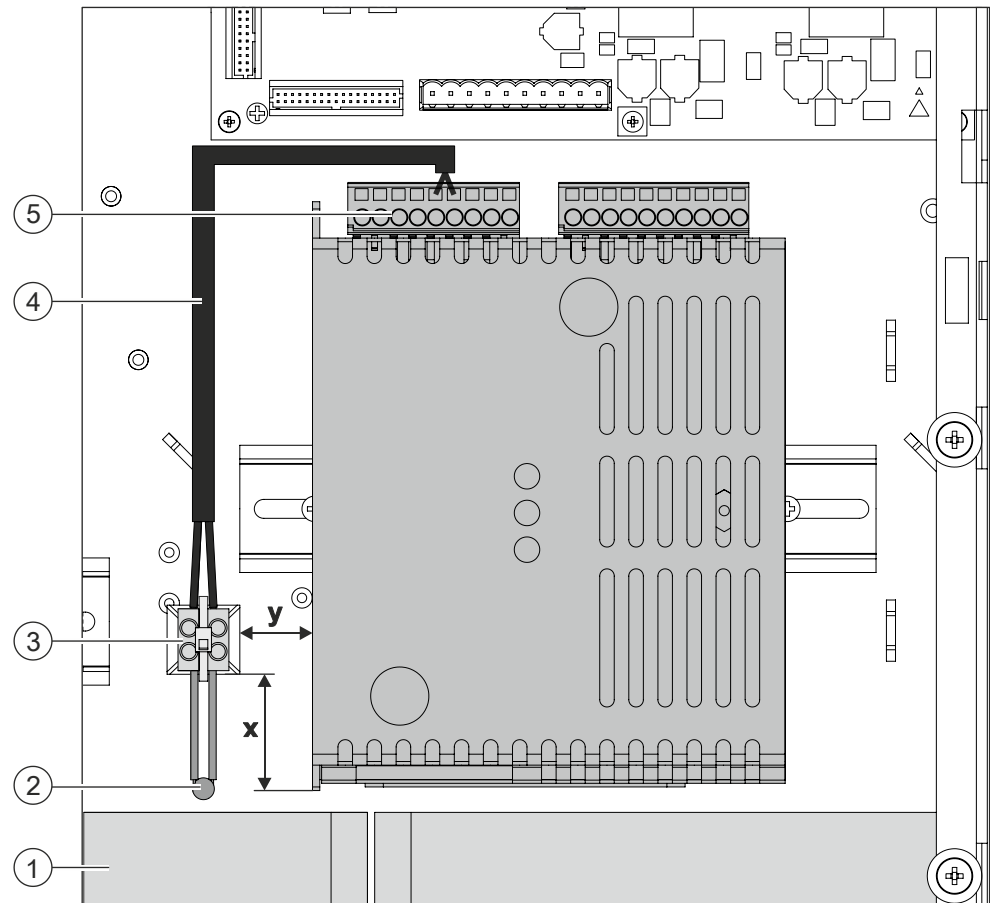


Figure 43: Position of temperature sensor in housing

- 1 Batteries
- 2 Temperature sensor
- 3 Luster terminal
- 4 Connection cable to the power supply
- 5 Connection terminal X11 to the power supply for the temperature sensor
- x Approximate distance to the lower edge of the power supply: 20 mm
- y Approximate distance to the side wall of the power supply: 5 mm

1. Position the luster terminal (3) in accordance with the dimensions (x) and (y) and secure the luster terminal with the supplied adhesive mount.
2. Connect the assembled cable (4) to the luster terminal (3) and to the connection terminal X11 (5) of the power supply according to the pin assignment shown in the next chapter.
3. Secure the temperature sensor (NTC resistor) (2) directly next to the batteries (1) as shown.



Secure the temperature sensor as close to the batteries as possible.

5.7.2 Fitting an additional power supply (150 W)

The additional power supply (150 W) FP2005-A1 in the Comfort housing is installed vertically along with the existing power supply to save space.

Preparatory work

Before the additional power supply FP2005-A1 can be installed, the existing power supply and the DIN rail must be removed as described in the previous chapter.

Installing a power supply

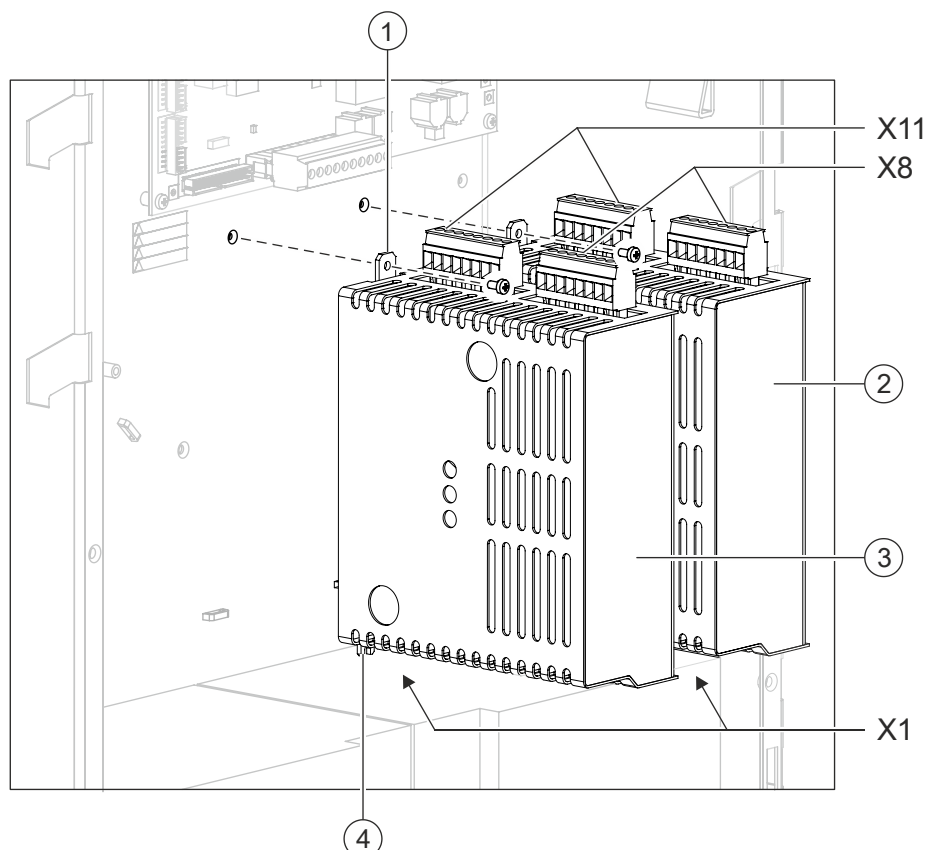


Figure 44: Installation of an additional power supply (150 W) in the Comfort housing

- 1 Lugs at the top for screw fastening
- 2 Additional power supply (150 W)
- 3 Existing power supply (150 W)
- 4 Distance pins at the bottom
- X1 Mains connection terminal
- X8 Supply output terminal
- X11 Monitoring signal terminal

Mounting steps

1. At the bottom of the power supply (4), insert the distance pins into the guide on the rear panel as shown.
2. Fasten the power supply (2 and 3) to the lug at the top (1) using the Phillips screw.
3. Connect the power supply according to the pin assignment in the next chapter.

Installation of the temperature sensor

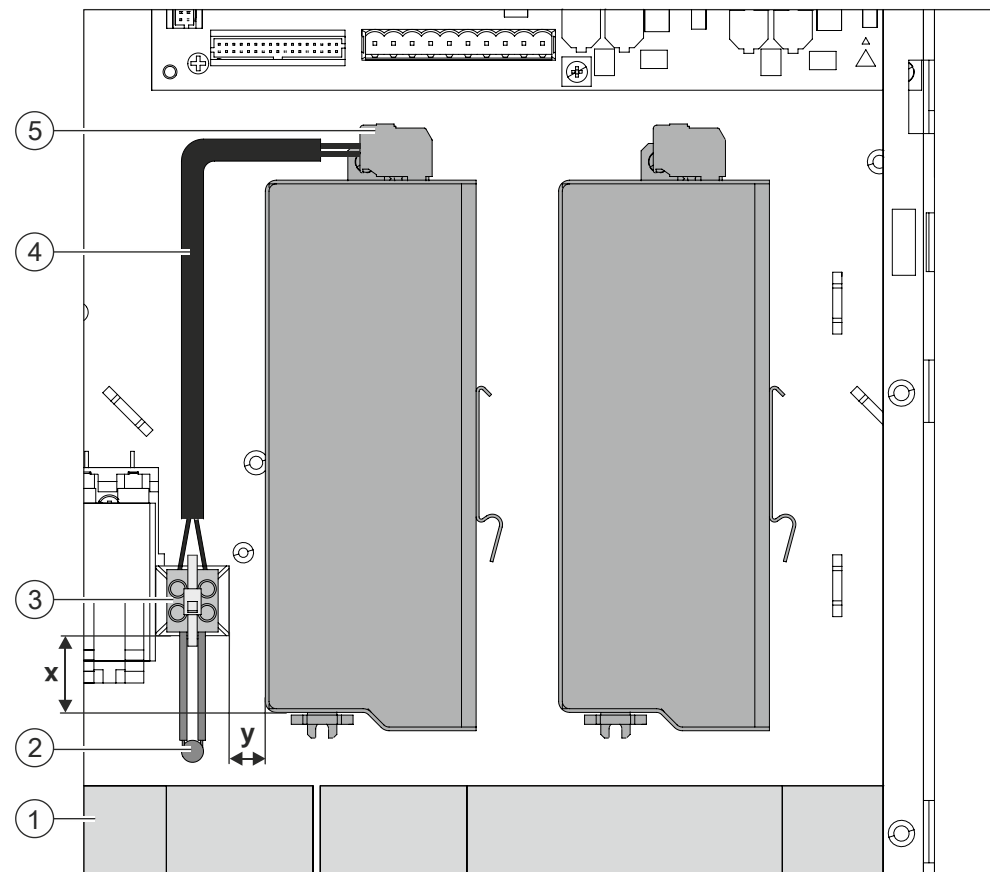


Figure 45: Installation of the temperature sensor

- 1 Batteries
- 2 Temperature sensor
- 3 Luster terminal
- 4 Connection cable to the power supply
- 5 Connection terminal X11 to the power supply for the temperature sensor
- x Approximate distance to the lower edge of the power supply: 20 mm
- y Approximate distance to the side wall of the power supply: 5 mm

Mounting steps

1. Position the luster terminal (3) in accordance with the dimensions (x) and (y) and secure the luster terminal with the supplied adhesive mount.
2. Connect the assembled cable (4) to the luster terminal (3) and to the connection terminal X11 (5) of the power supply according to the pin assignment shown in the next chapter.
3. Secure the temperature sensor (NTC resistor) (2) directly next to the batteries (1) as shown.



Secure the temperature sensor as close to the batteries as possible.

When using two power supplies (150 W) just one temperature sensor has to fitted despite this.

5.7.3 Pin assignments version A4

5.7.3.1 X1 mains connection

Pin	Designation	Description
1	PE	Earth (protective conductor)
2	L	External conductor (L1)
3	L	External conductor (L1)
4	N	Neutral conductor
5	N	Neutral conductor

Admissible cable cross-section: 0.2...2.5 mm²

5.7.3.2 X8 output voltage

Pin	Designation	Description
10	+B _I -begr.	Connection for battery, current limited via internal battery fuse F2 (without parallel switching)
9	+B _I -unbegr.	Connection for battery, no current limit (when switching in parallel, fuse in the cable tree)
8	+24 V	Supply output +24 V
7	+24 V	Supply output +24 V
6	+24 V	Supply output +24 V
5	+24 V	Supply output +24 V
4	+24 V	Supply output +24 V
3	0 V	Supply output 0 V
2	0 V	Supply output 0 V
1	0 V	Supply output 0 V

Admissible cable cross-section: 0.2...2.5 mm²

Batteries may be connected either on terminal 10 or, with external fuse, to terminal 9.

5.7.3.3 X11 monitoring signals

Pin	Designation	Description
9	NC	Not used
8	NC	Not used
7	SA	Control line for even current distribution (only when switching in parallel)
6	SA	Control line for even current distribution (only when switching in parallel)
5	F	Connection for temperature sensor (master only)
4	F	Connection for temperature sensor (master only)
3	BS	Signaling: Battery fault (↑ normal operation 1/3 closed)
2	NS	Signaling: Mains fault (normal operation 1/2 closed)
1	S	Signaling: Common fault contact

Admissible cable cross-section: 0.2...2.5 mm²

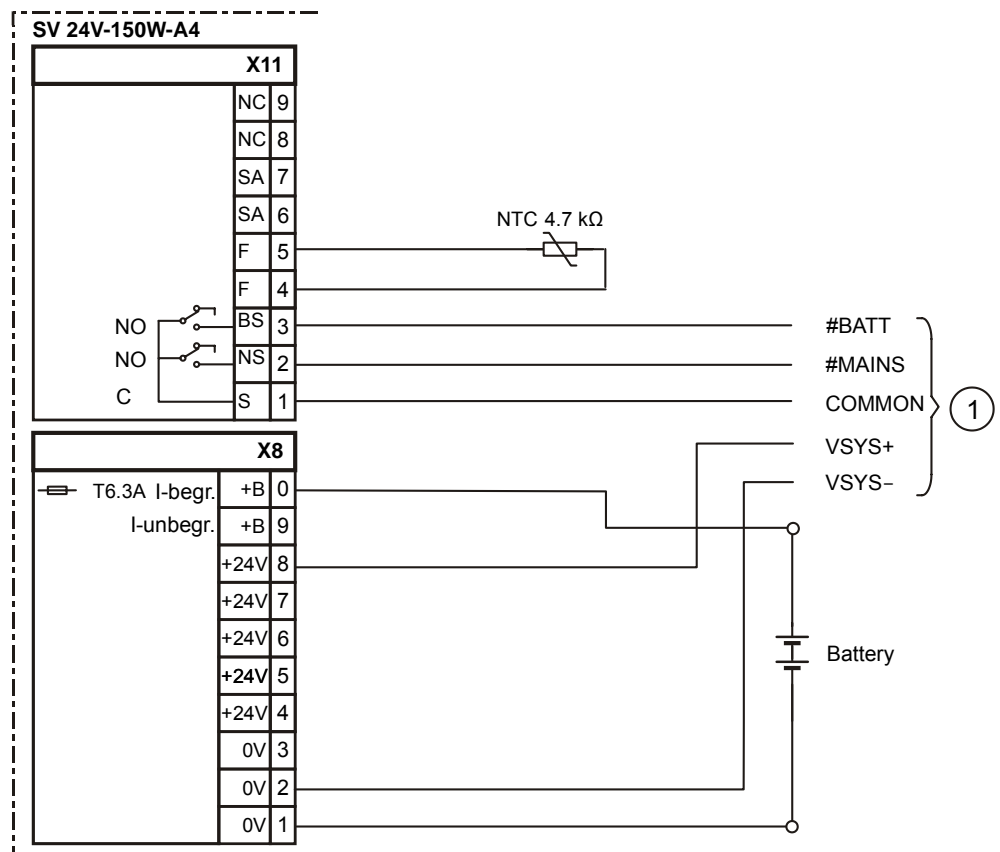


Figure 46: Wiring of the single power supply SV 24V-150W-A4

1 Cable tree to periphery board or fire terminal board

See also

- 📖 X1 supply [→ 77]
- 📖 X1 supply [→ 85]
- 📖 X1 supply [→ 93]

5.7.3.4 Parallel switching of two supply units



NOTICE

Damage to the power supply

Different versions (A4/A5) of the power supply (150 W) may not be switched in parallel.

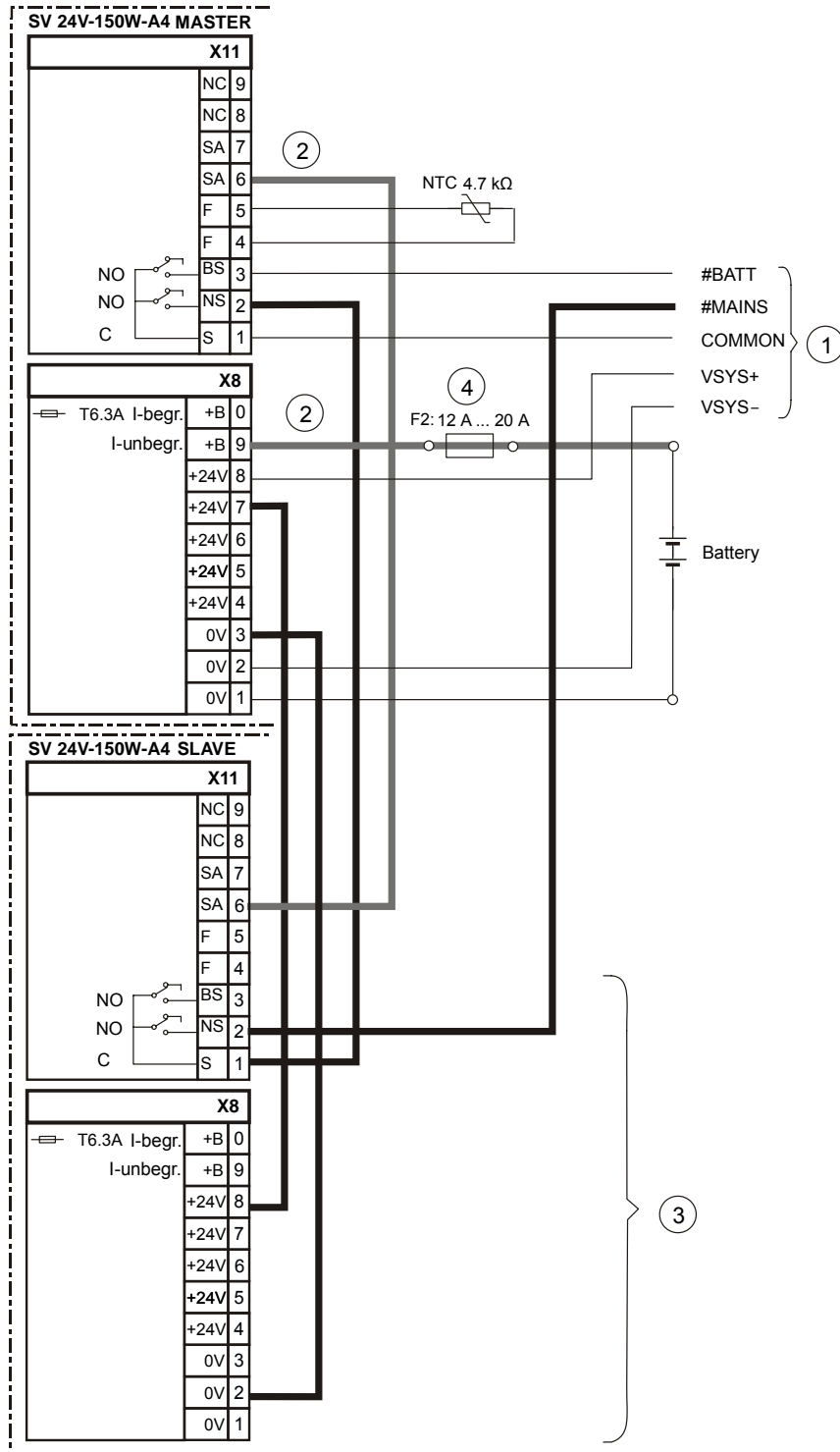


Figure 47: Parallel connection of two power supplies (150 W)-A4

- 1 Cable tree to periphery board or fire terminal board
 - 2 Existing cable tree (connection for master power supply)
 - 3 Additional cable tree for the second power supply (slave)
 - 4 Additional fused terminal (F2) on the DIN rail
- The **connection lines marked in bold** of the additional cable tree (3) and the existing cable tree (2) must be wired again when installing the second power supply (slave).
 - In order to avoid operating temperature differences, the two power supply units must be mounted next to each other in the same housing.
 - The batteries and the system supply must only be connected to the master power supply unit.
 - The positive pole for the batteries must be unwired at connection X8-9 (Master) and be provided with an external fuse.
 - Only one temperature sensor must be connected to the master power supply unit.
 - The temperature sensor must be fitted close to the batteries. (You will find precise details in document 008851).

5.7.4 Pin assignments version A5

5.7.4.1 X1 mains connection

Pin	Designation	Description
1	PE	Earth (protective conductor)
2	N	Neutral conductor
3	N	Neutral conductor
4	L	External conductor (L1)
5	L	External conductor (L1)

Admissible cable cross-section: 0.2...2.5 mm²



When replacing a power supply, note the different pin assignment as against that in the power supply SV 24V-150W-A4.

5.7.4.2 X8 output voltage

Pin	Designation	Description
10	+B _I -begr.	Connection for battery, current limited via internal battery fuse F2 (without parallel switching)
9	+B _I -unbegr.	Connection for battery, not current limited (when switching in parallel: Fuse in the cable tree)
8	+24 V	Supply output +24 V
7	+24 V	Supply output +24 V
6	+24 V	Supply output +24 V
5	+24 V	Supply output +24 V
4	+24 V	Supply output +24 V
3	0 V	Supply output 0 V
2	0 V	Supply output 0 V
1	0 V	Supply output 0 V

Admissible cable cross-section: 0.2...2.5 mm²

Batteries may be connected either on terminal 10 or, with external fuse, to terminal 9.

5.7.4.3 X11 monitoring signals

Pin	Designation	Description
9	SB	Control line B for even current distribution (only when switching in parallel)
8	SB	Control line B for even current distribution (only when switching in parallel)
7	SA	Control line A for even current distribution (only when switching in parallel)
6	SA	Control line A for even current distribution (only when switching in parallel)
5	F	Connection for temperature sensor (master only)
4	F	Connection for temperature sensor (master only)
3	BS	Signaling: Battery fault (↑ normal operation 1/3 closed)
2	NS	Signaling: Mains fault (normal operation 1/2 closed)
1	S	Signaling: Common fault contact

Admissible cable cross-section: 0.2...2.5 mm²

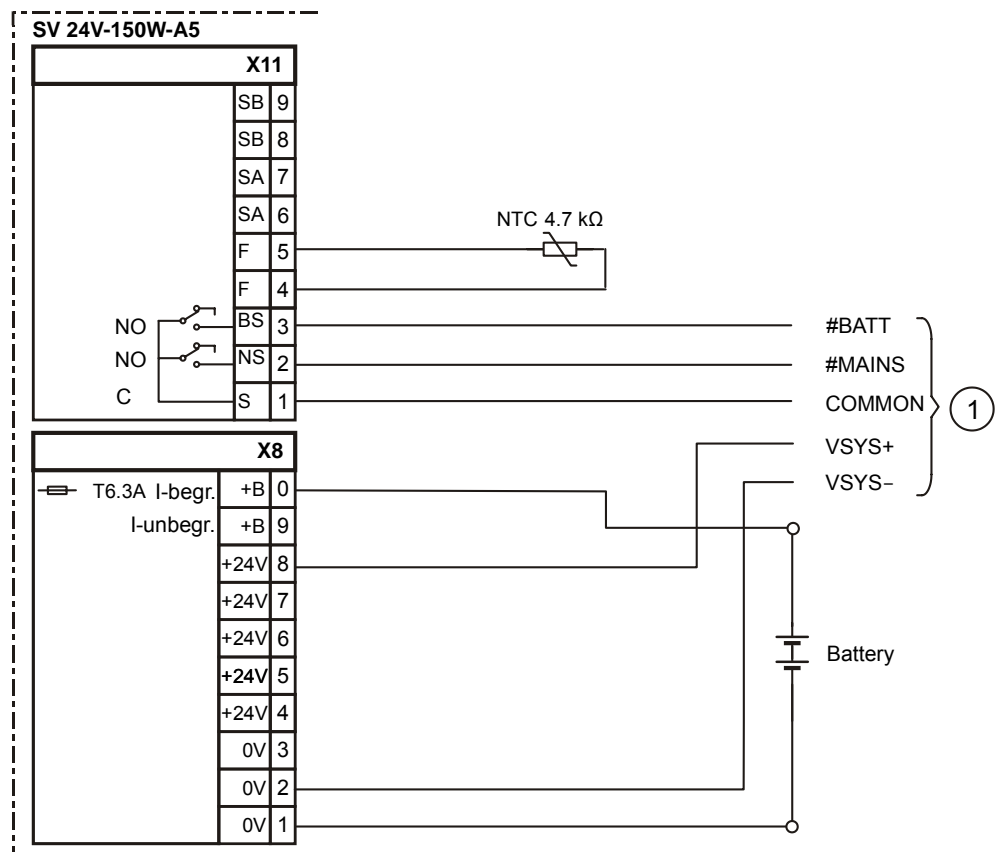


Figure 48: Wiring of the single power supply SV 24V-150W-A5

- 1 Cable tree to periphery board or fire terminal board

5.7.4.4 Parallel switching of two supply units

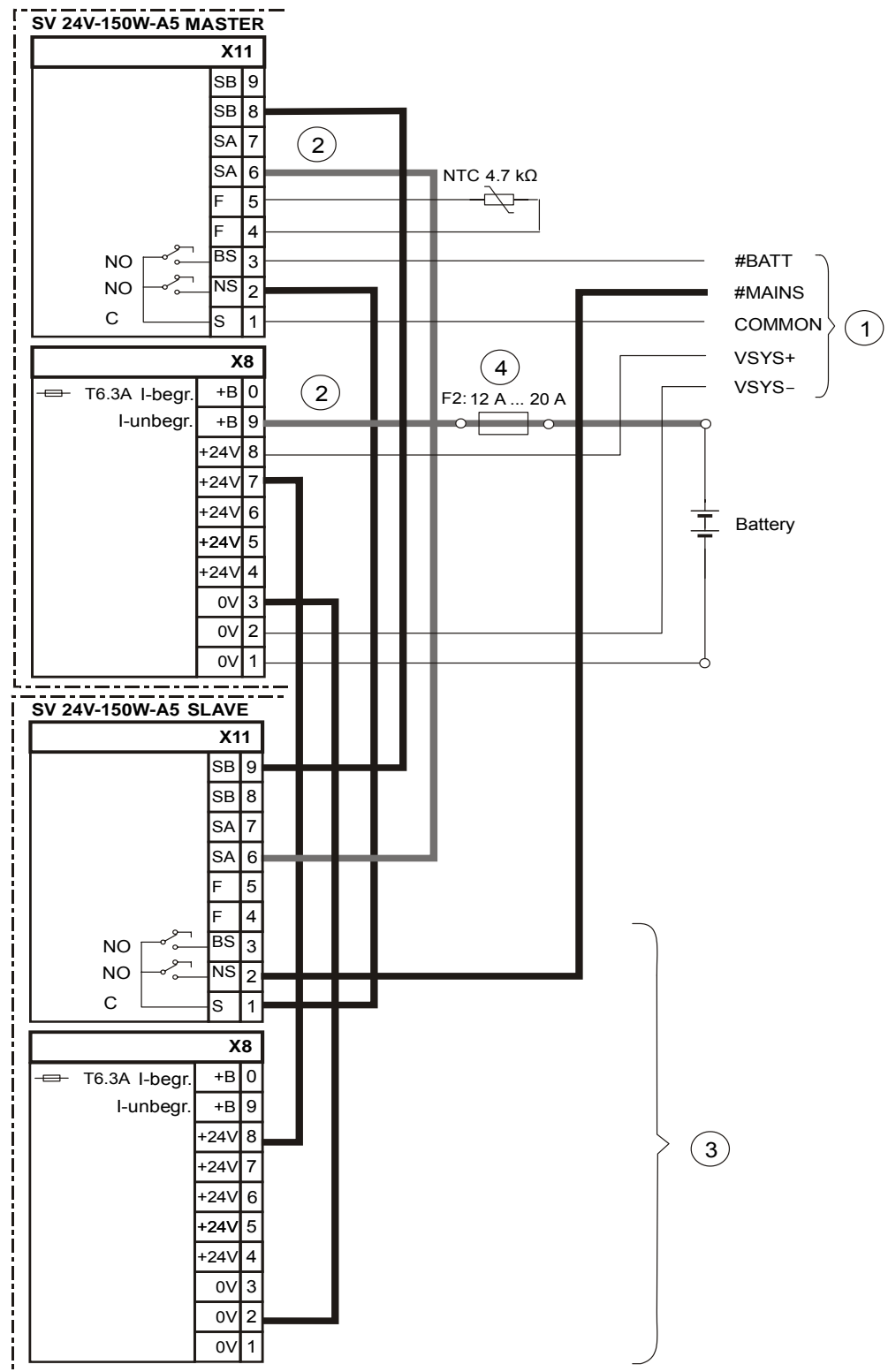


Figure 49: Parallel connection of two power supply units (150 W)-A5

- 1 Cable tree to periphery board or fire terminal board
 - 2 Existing cable tree (connection for master power supply)
 - 3 Additional cable tree for the second power supply (slave)
 - 4 Additional fused terminal (F2) on the DIN rail
- The **connection lines marked in bold** of the additional cable tree (3) and the existing cable tree (2) must be wired again when installing the second power supply (slave).
 - In order to avoid operating temperature differences, the two power supply units must be mounted next to each other in the same housing.
 - The batteries and the system supply must only be connected to the master power supply unit.
 - Only one temperature sensor must be connected to the master power supply unit.
 - The temperature sensor must be fitted close to the batteries. (You will find precise details in document 008851).

**NOTICE****Damage to the power supply**

Different versions (A4/A5) of the power supply (150 W) may not be switched in parallel.

5.7.4.5 Parallel switching of three supply units

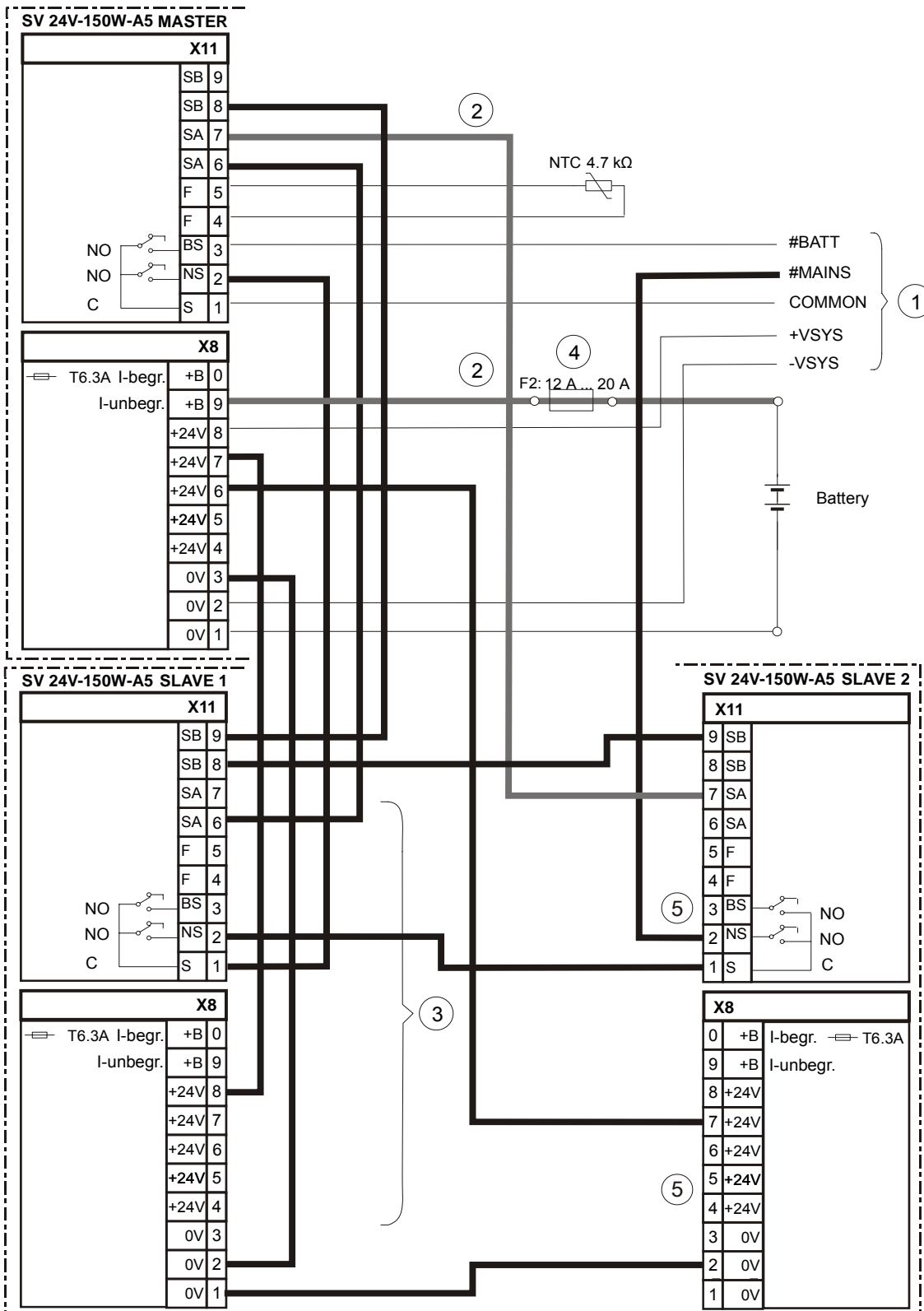



Figure 50: Parallel switching of three power supply units (150 W)-A5

- 1 Cable tree to periphery board or fire terminal board
 - 2 Existing cable tree (connection for master power supply)
 - 3 Additional cable tree for the second power supply (slave 1)
 - 4 Additional fused terminal (F2) on the DIN rail
 - 5 Additional cable tree for the third power supply (slave 2)
- The **connection lines marked in bold** of the additional cable tree (3 and 5) and the existing cable tree (2) must be wired again when installing the second power supply (slave).
 - In order to avoid operating temperature differences, all three power supply units must be mounted next to each other in the same housing.
 - The batteries and the system supply must only be connected to the master power supply unit.
 - Only one temperature sensor must be connected to the master power supply unit.
 - The temperature sensor must be fitted close to the batteries. (You will find precise details in document 008851).

	NOTICE
	Damage to the power supply Different versions (A4/A5) of the power supply (150 W) may not be switched in parallel.

5.8 Battery kit (9 V) [FR]

5.8.1 Installation in the Eco and Standard housings

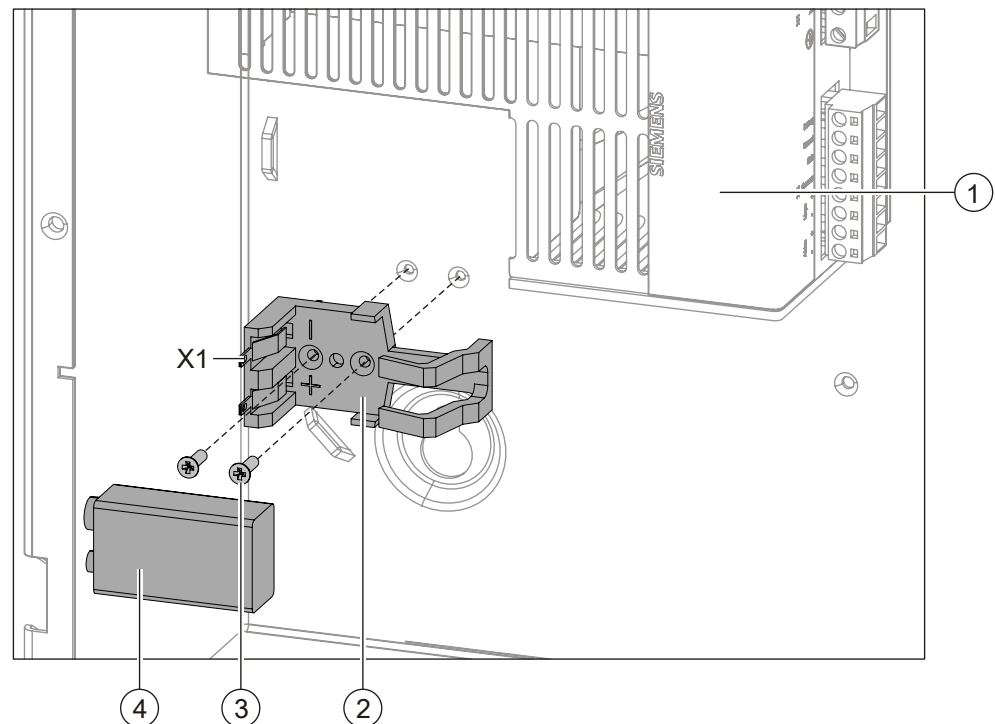


Figure 51: Mounting of battery kit FCA2010-F1 in Eco and Standard housing

- 1 Power supply (70 W), if installed
- 2 Battery holder
- 3 Fixing screws
- 4 Battery, 9 V block type E
- X1 Battery kit connection (9 V)

Mounting steps

1. Position the battery holder (2) under the power supply (1).
2. Fasten the battery holder using the two screws (3).
3. Connect the cable of the battery kit according to the pin assignment.
4. Insert the battery (4). Observe correct polarity.

5.8.2 Installation in Comfort housing

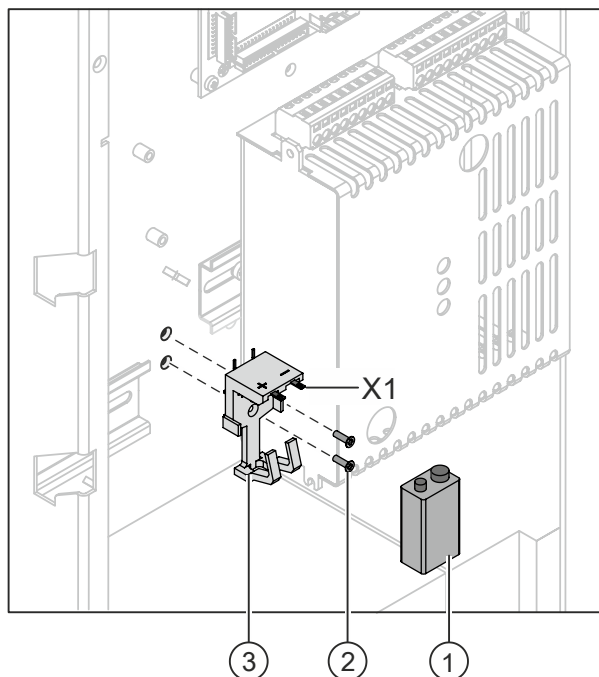


Figure 52: Mounting of battery kit FCA2010-F1 in Comfort housing

- 1 Battery, 9 V block type E
- 2 Fixing screws
- 3 Battery holder
- X1 Battery kit connection (9 V)

Mounting steps

1. Position the battery holder (3) to the left of the power supply.
2. Fasten the battery holder using the two screws (2).
3. Connect the cable of the battery kit according to the pin assignment.
4. Insert the battery (1). Observe correct polarity.

5.8.3 Pin assignments

Connecting the battery kit to the periphery board and the fire terminal board

X1	Designation	Connection
5	3SRC+	Positive pole, red
6	3SRC-	Negative connector, blue

Table 1: Pin assignment for terminal X1 on the periphery board and the fire terminal board

5.9 Shield connection terminal blocks [DE]

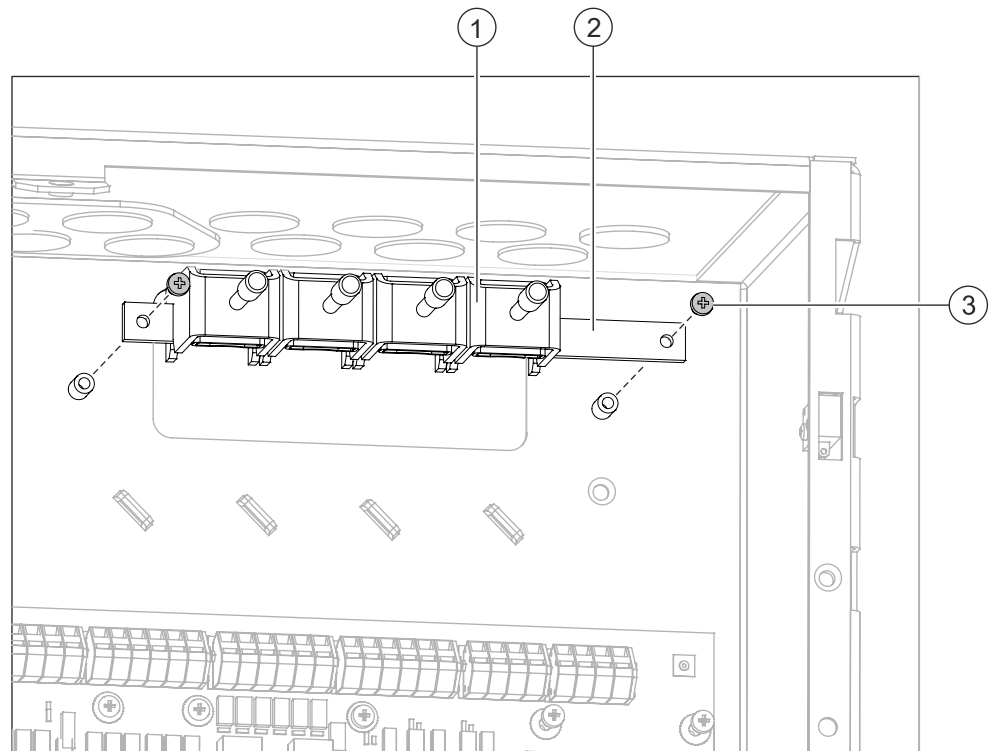


Figure 53: Mounting of the shield connection terminal blocks

- 1 Shield connection terminal block
- 2 Terminal strip
- 3 Philips screws M 3/6

Mounting steps

1. Fasten the terminal strip (2) using the two screws (3) as follows:
2. Eco and Standard housings: Above the rectangular cable breakout opening on the right
3. Comfort housing: One terminal strip above each of the rectangular cable breakout openings
4. Hang the shield connection terminal blocks (1) onto the terminal strip (2) and fasten them by tightening the knurled screws.

5.10 Loop extension

5.10.1 Installation

The loop extensions (FDnet) FCI2003-A1 are mounted onto the periphery board. The slots are located next to the corresponding detector line connections.

The installation of the two loop extensions on the periphery board (4-loop) is identical.

- Loop extension integrated line card 1:
 - Plug X15 / periphery board (4-loop)
 - Plug X15 / periphery board (2 loops)
- Loop extension integrated line card 2:
 - Plug X25 / periphery board (4-loop)

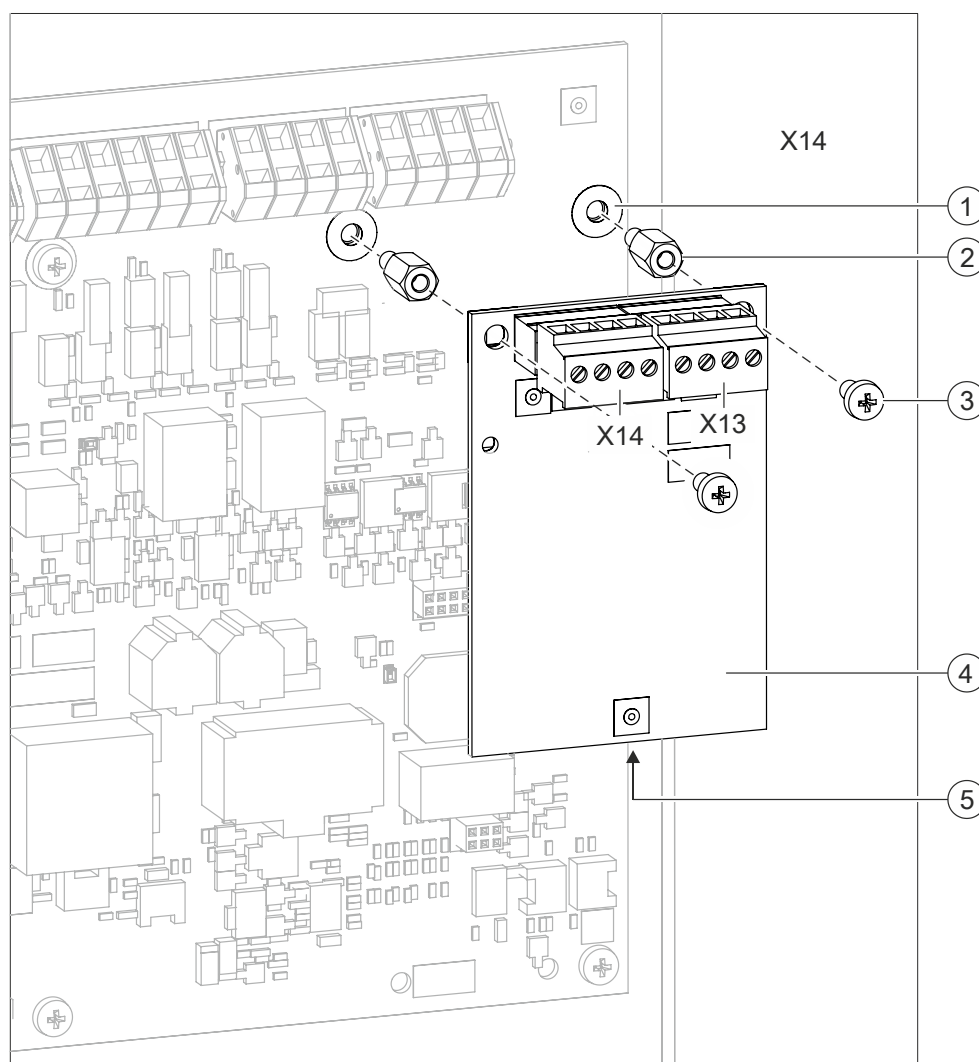


Figure 54: Installing a loop extension with the example of the periphery board (2-loop)

- 1 Mounting holes on periphery board
 - 2 Spacer bolts
 - 3 Fixing screws
 - 4 Loop extension (FDnet) FCI2003-A1
 - 5 Loop extension connector to the periphery board
- X13 Loop 3 connection terminal
X14 Loop 4 connection terminal

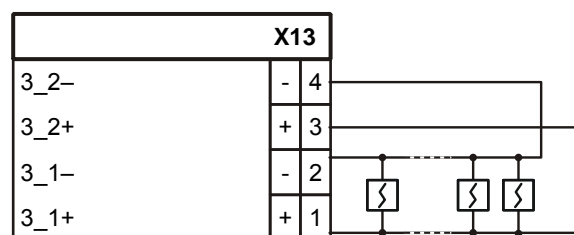
1. First, remove the relevant fixing screws (3) from the periphery board.
2. Screw the two spacer bolts (2) into the mounting holes (1) on the periphery board.
3. Mount the loop extension (FDnet) onto the connector (5) on the periphery board.
4. Screw the loop extension (FDnet) in place using the two fixing screws (3).
5. Wire up the detector lines according to the pin assignment.

5.10.2 Pin assignments

5.10.2.1 X13 connection loop 3

Pin	Designation	Description
4	3_2-	↑ Loop extension for loop 3 or ↑ stub 6 (-)
3	3_2+	Loop extension for loop 3 or stub 6 (+)
2	3_1-	Loop extension for loop 3 or stub 5 (-)
1	3_1+	Loop extension for loop 3 or stub 5 (+)

Admissible cable cross-section: 0.2...1.5 mm²

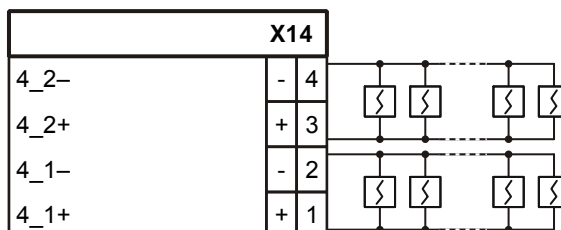


- One loop or two stubs can be connected to the ↑ loop extension (FDnet).
- The plug for the loop extension (FDnet) is always located at the corresponding ↑ detector line connection.

5.10.2.2 X14 connection loop 4

Pin	Designation	Description
4	4_2-	↑ Loop extension for loop 4 or ↑ stub 8 (-)
3	4_2+	Loop extension for loop 4 or stub 8 (+)
2	4_1-	Loop extension for loop 4 or stub 7 (-)
1	4_1+	Loop extension for loop 4 or stub 7 (+)

Admissible cable cross-section: 0.2... 1.5 mm²



- One loop or two stubs can be connected to the ↑ loop extension (FDnet).
- The plug for the loop extension (FDnet) is always located at the corresponding ↑ detector line connection.

5.11 Relay module

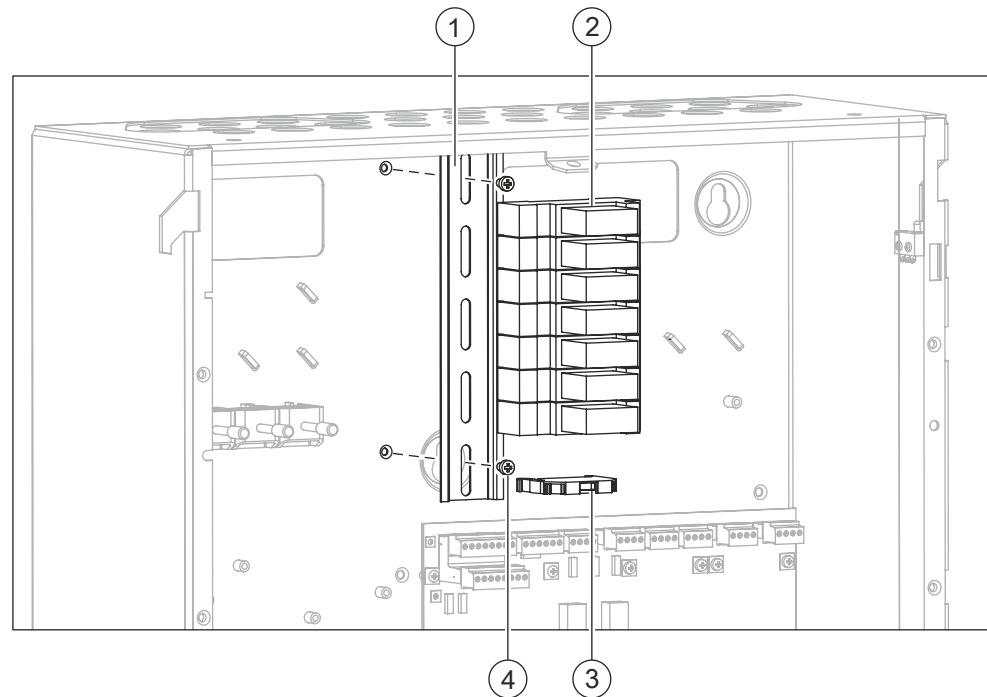


Figure 55: Mounting of relay module

- 1 DIN rail
- 2 Relays Z3B171
- 3 Locking clamp for the relays
- 4 Fixing screws for the DIN rail

1. Insert the relays (2) on the DIN rail (1) and press them down until they snap into place.
2. Mount the locking clamp (3) to secure the relays.
3. Depending on their intended use, connect the relays to the configurable control outputs of the periphery board. For the pin assignment, refer to the product data of the respective periphery board.

5.12 Mounting plate

The mounting plate FHA2007-A1 is used to hold components that have to be installed above the periphery board. It is supplied in a disassembled state and in a separate packaging unit.

There are two different kinds of installation:

- Installation in the Standard and Comfort housings
- Installation in Large housing

5.12.1 Install mounting plate

Mounting plate FHA2007-A1 is delivered unassembled and must be assembled prior to installation. The edge protector (included) can be slid onto the respective edges of the mounting plate to protect the cables.

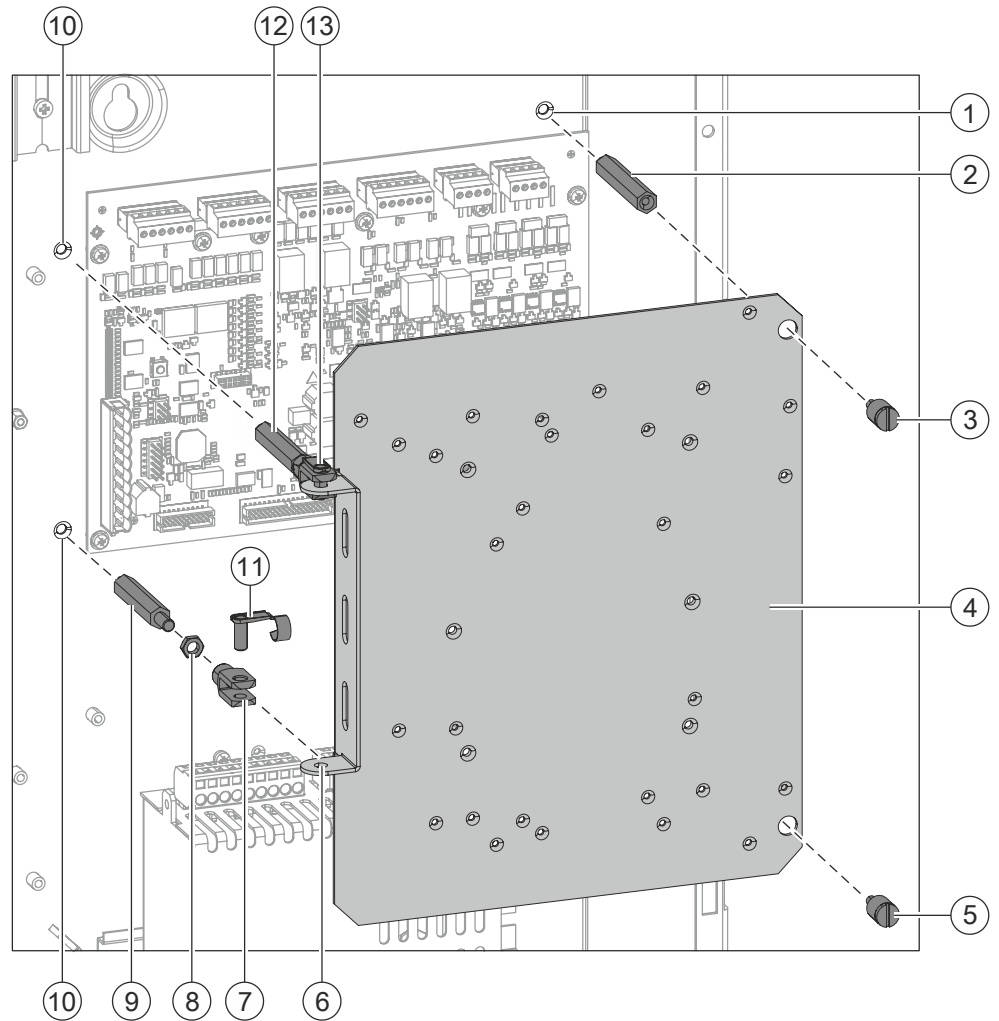


Figure 56: Example of installation of mounting plate FHA2007-A1 in housing (Comfort)

- 1 Threaded hole in rear panel for spacer
- 2 Spacers (2 pieces) for fixing the mounting plate
- 3 Top fixing screw with spring (pre-mounted)
- 4 Mounting plate
- 5 Bottom fixing screw with spring (pre-mounted)
- 6 Hinged bracket
- 7 Fork head (2 pieces) for mounting the hinge bracket
- 8 Counternut M 5 (2 pieces)
- 9 Spacer bolts (2 pieces)
- 10 Threaded holes in rear panel for spacer bolts
- 11 Fastening clamp, installation position (2 pieces)
- 12 Spacer bolts, assembled and mounted
- 13 Fastening clamp (fixed position)

1. Screw the spacers (2) into the threaded hole on the rear panel (1) to the right of the periphery board.
2. Screw the two spacer bolts (9) into the threaded holes (10) on rear panel to the left of the periphery board.
3. Screw one counternut (8) onto each spacer bolt (9).
4. Screw the fork heads (7) onto the spacer bolts (9) and fix them in a horizontal position (in accordance with the figure) using the counternut (8).
5. Insert the mounting plate (4) with the hinge brackets (6) into the fork heads (7) so that the fastening clamps (11) can be inserted into the fork heads from above as shown.
6. Swivel the fastening clamps (11) backwards so that they snap in place in the spacer bolts (9) (see [13] in figure).
7. Swivel the mounting plate (4) over the periphery board and fix it in the spacer bolts (2) with the fixing screws (3, 5).
8. If the mounting plate is not true, the fork heads can be adjusted with the counternuts (8) (loosen the fastening clamps and remove the mounting plate).

5.12.2 Installation of the mounting plate in the Large housing

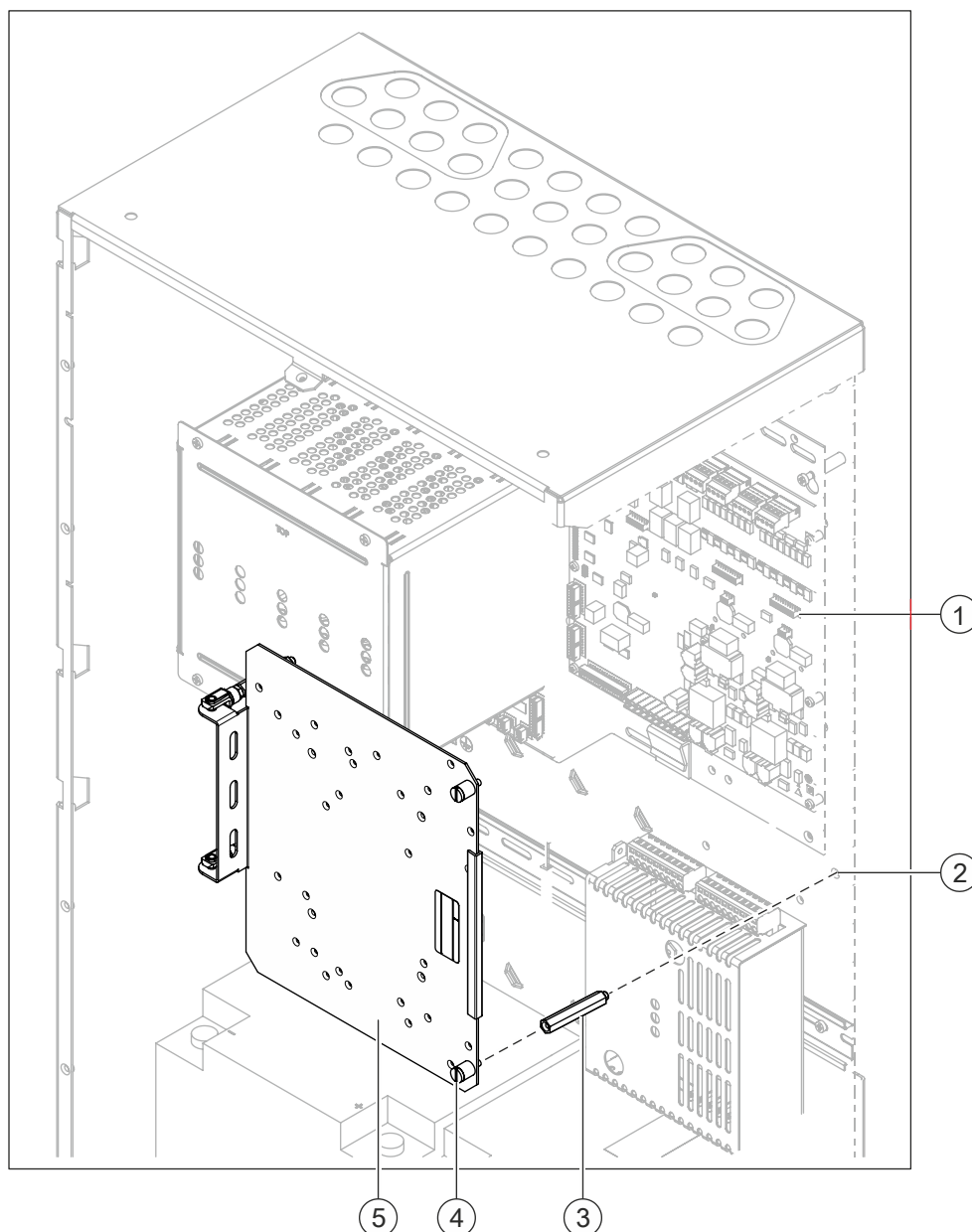


Figure 57: Installing the mounting plate FHA2007-A1 in the Large housing (FC2060)

- 1 Periphery board (4 loops)
- 2 Mounting hole in the rear panel for spacer
- 3 Spacer
- 4 Fixing screw for mounting plate
- 5 Assembled mounting plate

Mounting steps

1. Screw the spacer (3) to the rear panel (2) to the right below the periphery board (1).
2. Assemble the mounting plate (5) and install the mounting plate according to the instructions in the previous chapter (Installation for the Standard and Comfort housings).
3. Swivel the mounting plate (5) over the periphery board (1) and fix it in the spacer (3) with the fixing screw (4).

See also

-  Install mounting plate [→ 123]

5.13 Fire brigade periphery module [DE]

5.13.1 Installation

The fire brigade periphery module FCI2001-D1 can be mounted at different positions depending on the station type and equipment:

- In the Comfort housing to the left of the periphery board, if there is sufficient space
- In the Comfort, Standard and Large housings on the mounting plate above the periphery board

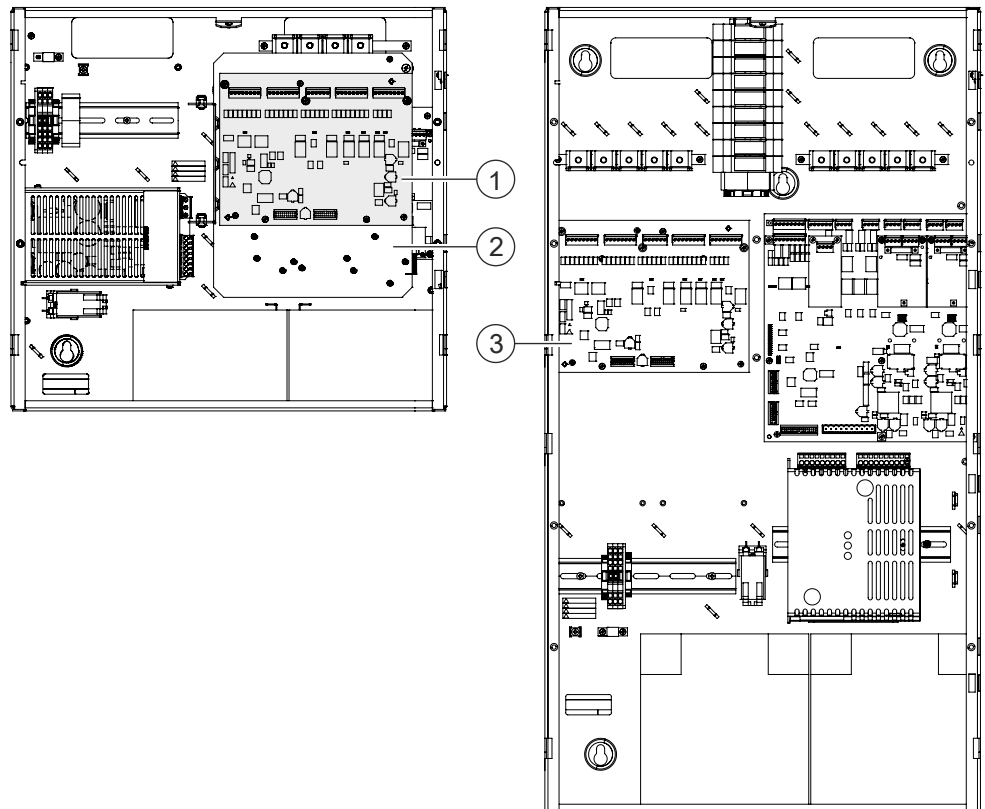


Figure 58: Examples of modes of mounting for fire brigade periphery module in Standard and Comfort housings

- 1 Fire brigade periphery module mounted on the mounting plate
- 2 Mounting plate above the periphery board
- 3 Fire brigade periphery module mounted on the rear panel

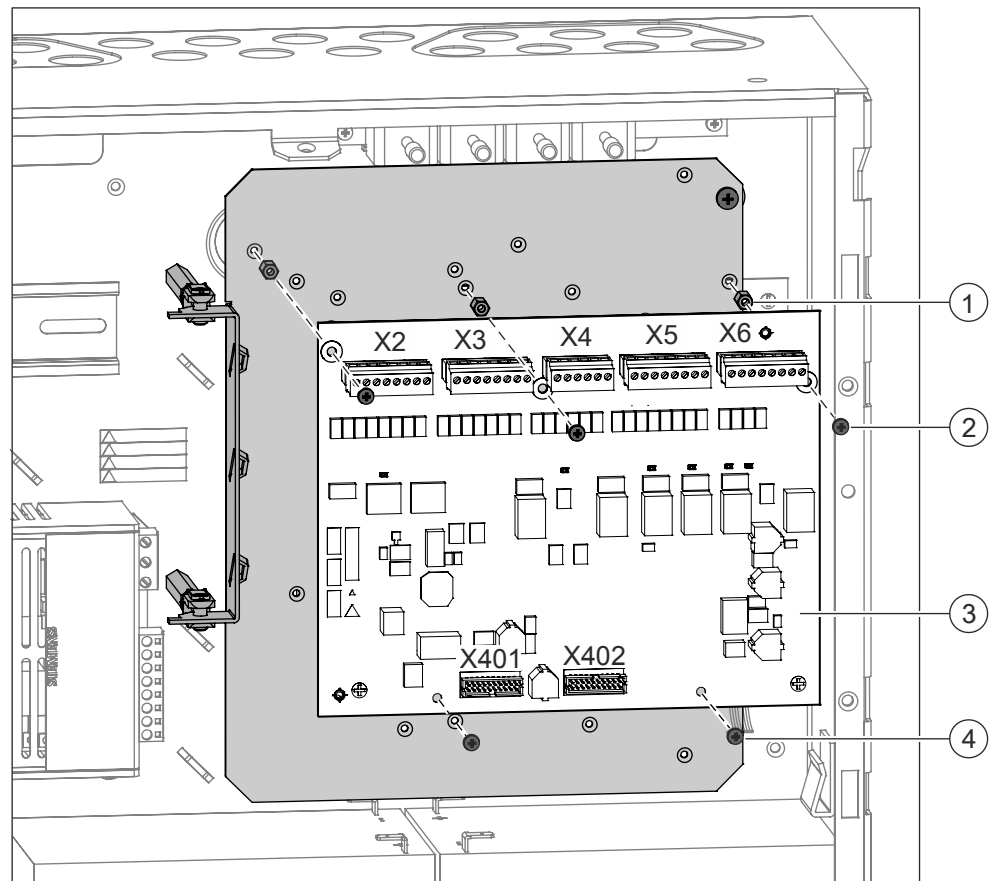


Figure 59: Mounting of the fire brigade periphery module

- 1 Spacer sleeves (5 pieces) (only required for mounting on the mounting plate)
- 2 3 fixing screws at top
- 3 Fire brigade periphery module FCI2001-D1
- 4 2 fixing screws at bottom
- X2 Connection for fire brigade operating panel
- X3 Connection for fire brigade operating panel
- X4 Connection for remote transmission / release element
- X5 Connection for fire brigade key depot
- X6 Connection for intrusion detection system, local alarm, identification lamp
- X401 Connection for periphery bus
- X402 Connection for periphery bus

1. Mount the fire brigade periphery module (3) to the mounting plate or the rear panel (observe correct installation position) as shown in the figure using the fixing screws (2 and 4). Spacer sleeves (1) must be used when installing on the mounting plate.
2. Wire up the fire brigade periphery module according to the pin assignment.

See also

- 📄 Install mounting plate [→ 123]

5.13.2 Pin assignments



Inputs and outputs which are not used do not require termination.

5.13.2.1 X2 fire brigade operating panel / X3 fire brigade operating panel

X2 fire brigade operating panel

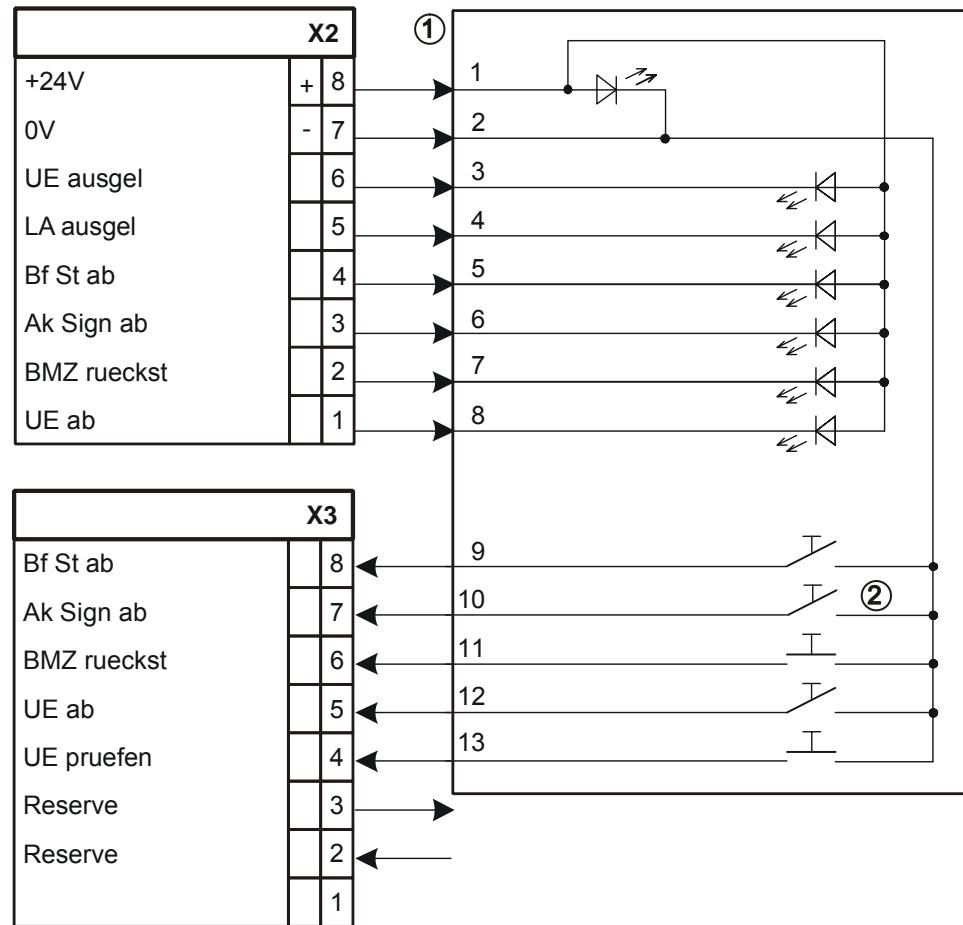
Pin	Designation	Description
8	+24V	Operating voltage (+24 V)
7	0 V	Operating voltage (-)
6	↑ UE ausgel	↑ Remote transmission triggered
5	LA ausgel	Extinguishing system triggered
4	Bf St ab	Fire controls off
3	Ak Sign ab	Acoustic signals off
2	BMZ rueckst	Reset fire control panel
1	UE ab	Remote transmission off

Admissible cable cross-section: 0.2...1.5 mm²

X3 fire brigade operating panel

PIN	Designation	Description
8	Bf St ab	Fire controls off
7	Ak Sign ab	Acoustic signals off
6	BMZ rueckst	Reset fire control panel
5	↑ UE ab	↑ Remote transmission off
4	UE pruefen	Check remote transmission
3	Reserve	Reserve output
2	Reserve	Reserve input
1		Not used

Admissible cable cross-section: 0.2...1.5 mm²

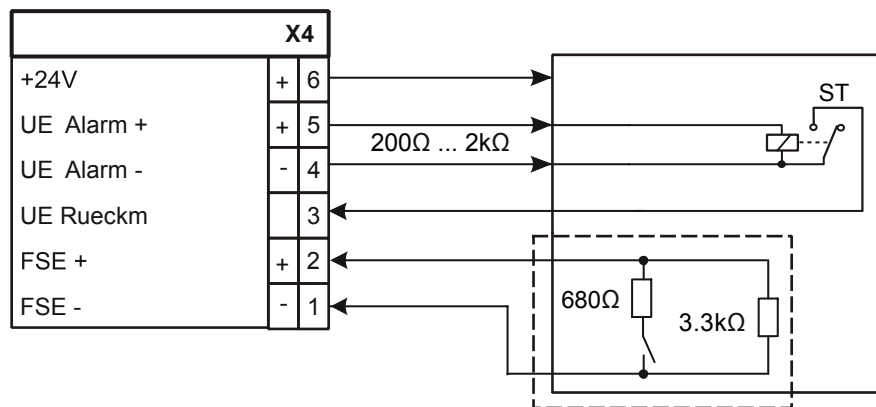


- 1 The connection details correspond to the FBF Type Wiesmeier FBF0770
- 2 Only switch possible

5.13.2.2 X4 remote transmission /release element

Pin	Designation	Description
6	+24V	Operating voltage (+24 V)
5	↑ UE Alarm+	↑ Remote transmission/device alarm (+)
4	UE Alarm-	Remote transmission/device alarm (-)
3	UE Rueckm	Remote transmission /device acknowledgement (+)
2	FSE+	Release element with monitored remote switching output or separately monitored key switch
1	FSE-	

Admissible cable cross-section: 0.2...1.5 mm²

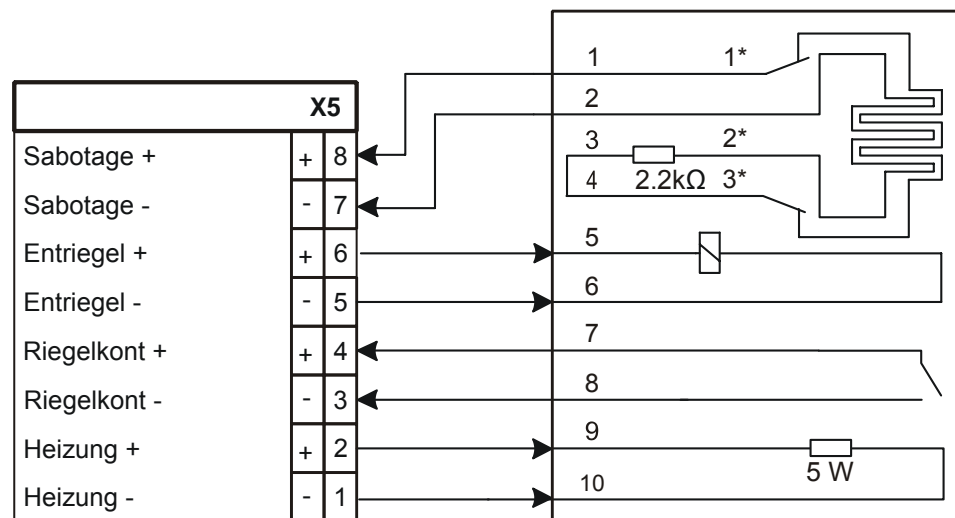


ST Fault contact of the transmission device

5.13.2.3 X5 fire brigade key depot


Pin	Designation	Description
8	Sabotage +	Tamper monitoring (+)
7	Sabotage -	Tamper monitoring (-)
6	Entriegel +	Unlocking (+)
5	Entriegel -	Unlocking (-)
4	Riegelkont +	Latch contact (+)
3	Riegelkont -	Latch contact (-)
2	Heizung +	Heating (+)
1	Heizung -	Heating (-)

Admissible cable cross-section: 0.2...1.5 mm²

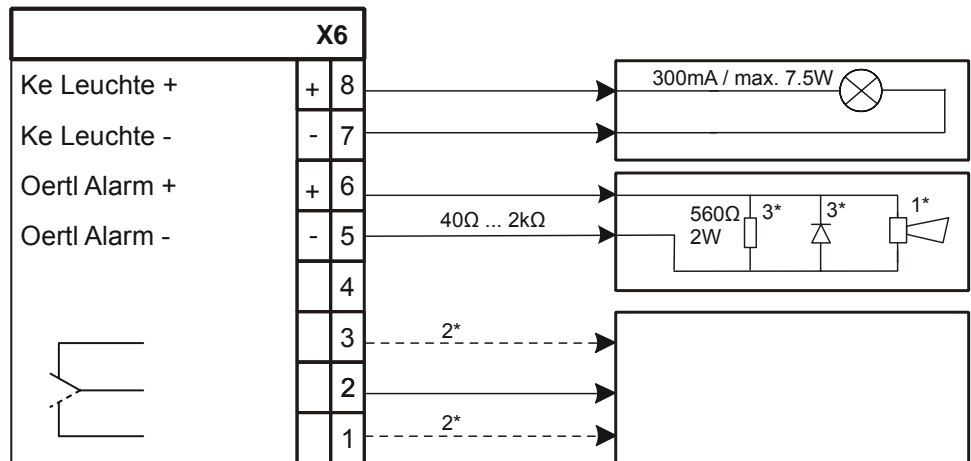


- 1* Door contact
- 2* Drill protection
- 3* Key contact

5.13.2.4 X6 intrusion detection system / local alarm / identification lamp

Pin	Designation	Description
8	Ke Leuchte +	Identification lamp (+)
7	Ke Leuchte -	Identification lamp (-)
6	Oertl Alarm +	Local alarm (+)
5	Oertl Alarm -	Local alarm (-)
4	-	Not used
3		FSD sabotage, closer (normally open)
2		FSD sabotage, common
1		FSD sabotage, opener (normally open)

Admissible cable cross-section: 0.2...1.5 mm²



- 1* Horn or beacon
- 2* FSD sabotage, connection for "Transmission intrusion detection system" (can be connected as NO or NC)
- 3* If necessary

5.14 Network module (SAFEDLINK)

5.14.1 Installation



This component is installed in exactly the same way as for the operating units with the PMI & mainboard FCM2004 and the PMI & mainboard FCM2027.

If you are installing only one network module (SAFEDLINK) FN2001-A1, you must do so in the left-hand slot (X13).

When two network modules are used (SAFEDLINK) FN2001-A1, installation is identical for both.

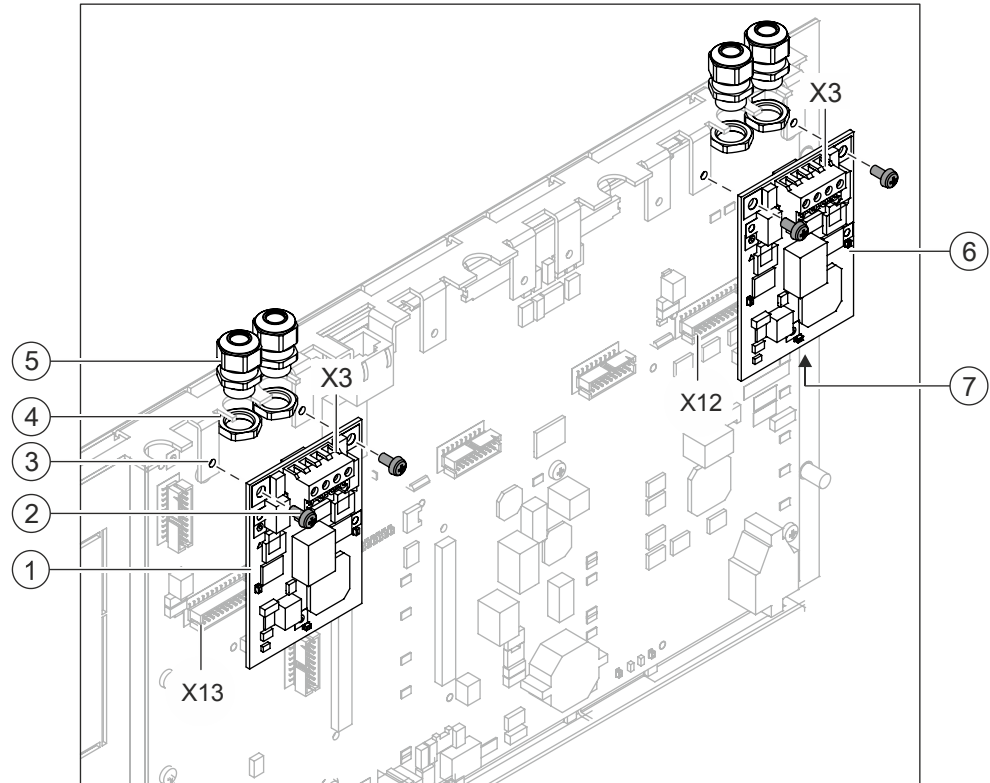


Figure 60: Installation of both network modules (SAFEDLINK)

- 1 Network module (SAFEDLINK) on X13 (master module)
 - 2 Fixing screws (2 pieces)
 - 3 Mounting links on support plate
 - 4 Nut for cable gland (2 per module) ¹
 - 5 Cable gland (2 per module) ¹
 - 6 Degraded mode network module (SAFEDLINK) on X12
 - 7 Connector X1 on the rear of the network module
- X3 Connection terminal FCnet
- X1 Plug-type connection for main module
3
- X1 Plug-type connection for degraded mode module
2

¹ When using shielded cables, the cable screw connections are needed to secure the shielding.



When installing only one network module (SAFEDLINK), ensure that the main module is installed at the correct position on X13.

Mounting steps

1. When shielded cables are used, mount the two cable glands (5) with the nuts (4) on the flange between the fastening tabs (3). These are needed to secure the shielding.
2. Connect the network module (SAFEDLINK) (1, 6) to the connector X1 (7) at the desired slot (X13, X12).
3. Fasten the module to the lugs (3) using the two screws (2). Ensure that the network module is secured correctly in order to prevent open lines.
4. Wire up the system bus according to the pin assignment at X3.

5.14.2 Pin assignments

5.14.2.1 Connector X3

Pin	Designation	Description
4	A1	Line 1 (+)
3	B1	Line 1 (-)
2	A2	Line 2 (+)
1	B2	Line 2 (-)

Admissible cable cross-section: 0.2...2.5 mm²

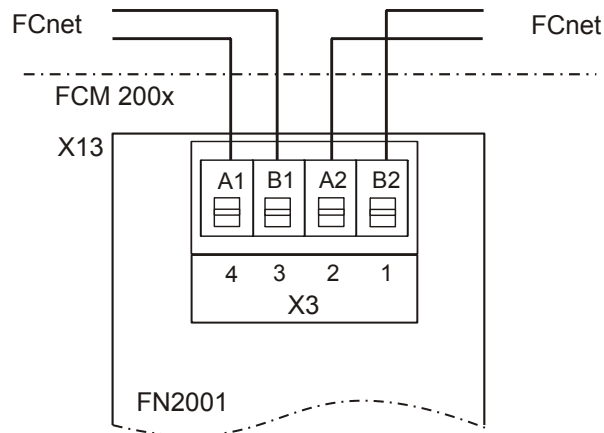


Figure 61: Wiring of 1 network module

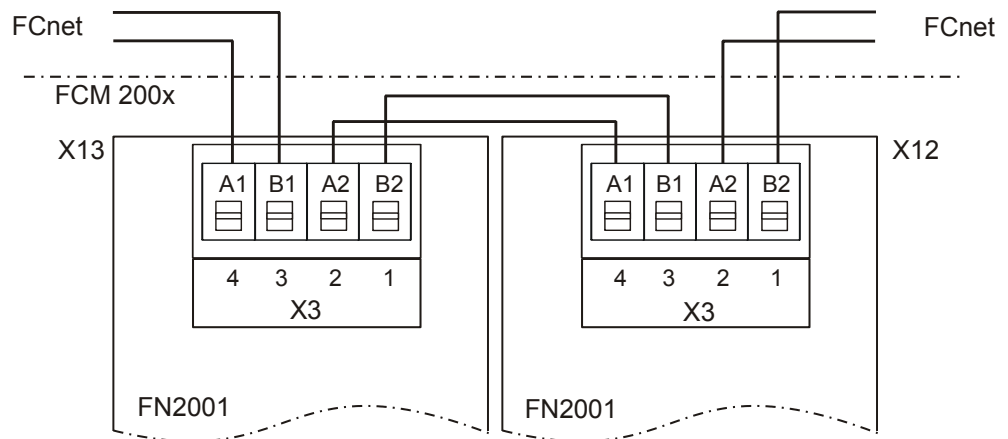


Figure 62: Wiring of 2 network modules



The main module must always be plugged in slot X13 of the operating unit FCM20xx.

When two network modules are used, the degraded mode module must be plugged in slot X12 of the FCM20xx operating unit.

5.15 Installing the fiber optic cable network module

5.15.1 Replacing the DIN rail clip

The identical fiber optic cable network modules FN2006 and FN2007 can be installed on a U-rail either horizontally or vertically. If the DIN rail clip is removed, horizontal installation on the flanges is also possible.

The diagram below shows how to install or replace the DIN rail clip for the installation variants.

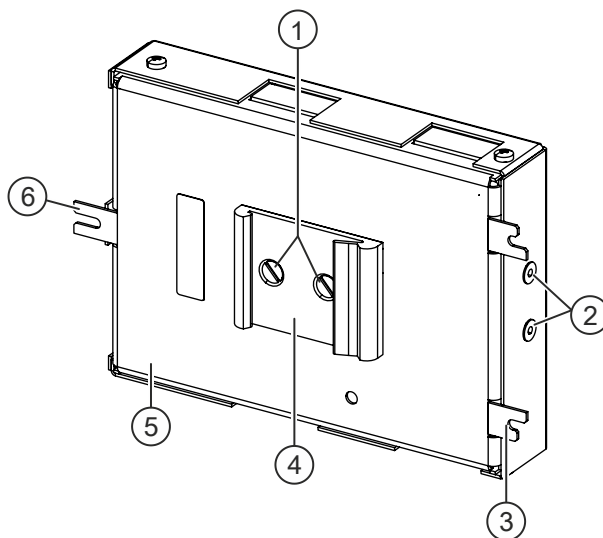


Figure 63: DIN rail clip installation variants

- 1 Fixing screws for DIN rail clip
- 2 Mounting holes for DIN rail clip on the front side
- 3 Lower flange for installation on the rear panel
- 4 DIN rail clip
- 5 Fiber optic cable network module on the rear side
- 6 Upper flange for installation on the rear panel

Replacing the DIN rail clip

1. Loosen the two countersunk screws (1) and remove the DIN rail clip (4).
2. Fasten the DIN rail clip (4), rotated by 90°, at the threaded holes (2) using both countersunk screws (1).

5.15.2 Compact control panel installation variants

The fiber optic cable network module can only be mounted horizontally on a U-rail in the compact stations. The space available depends on the station type and the options installed.

Limitations

- The fiber optic cable network module cannot be mounted on the flanges in all FS20 compact control panels because there is no suitable method of fastening it in the rear panels or on the mounting plate.
- Horizontal installation with a U-rail on a mounting plate is not possible because there are no installation parts (the U-rail cannot be ordered with installation material).
- Vertical installation is not possible because of space issues and a lack of certification.
- If the fiber optic cable network module cannot be installed in the control panel due to space issues, it must be installed remotely; in an empty housing, for example.

Required space incl. plug-type connections and cable radii

These measurements only apply to installation with screw terminals and without a housing.

- Minimum length or depth approx. 175 mm
- Minimum width approx. 180 mm

Installation example for horizontal installation on U-rail

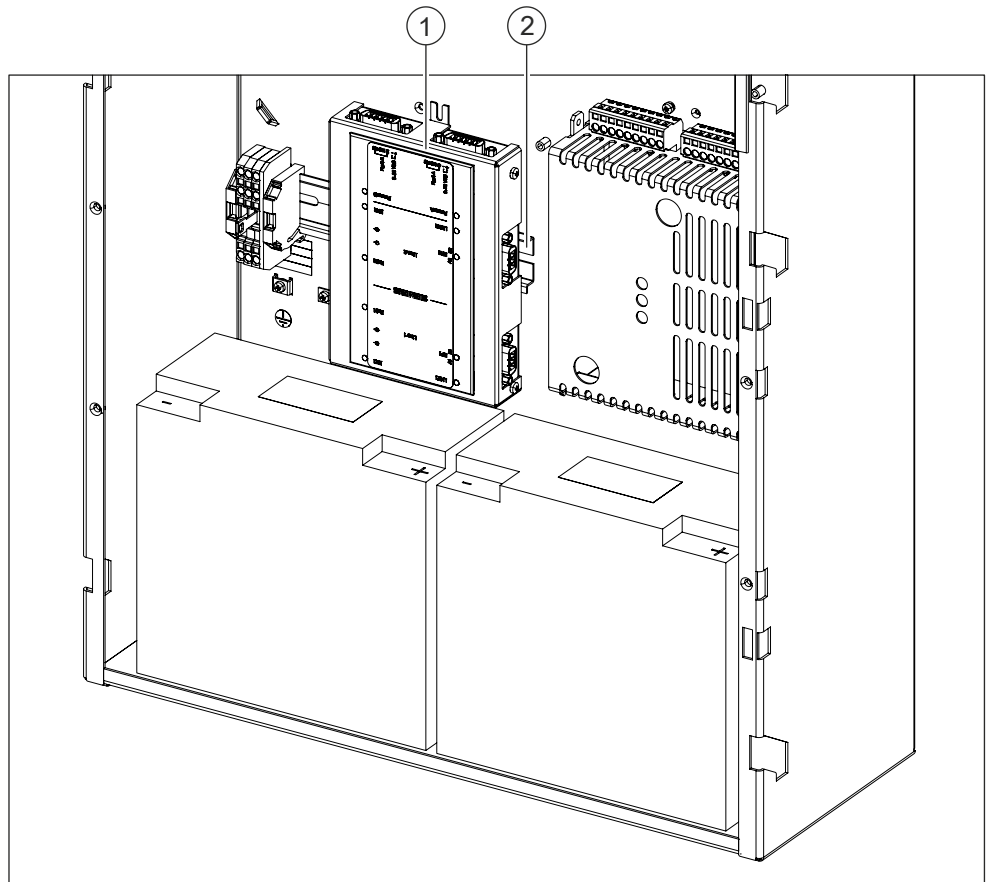


Figure 64: Example of installing a fiber optic network module horizontally on the U-rail

- 1 Fiber optic network module installed horizontally
- 2 U-rail

5.15.3 Pin assignments

5.15.3.1 Power A / B sockets and 'fault' relay contact

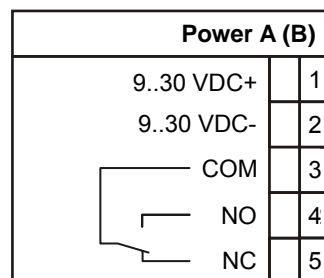
The 5-pin connector for the power supply is supplied with the fiber optic cable network module.

Pin	Designation	Description
1	+DC 9...30 V	Supply input +
2	-DC 9...30 V	Supply input -
3	COM	Fault relay: Common contact (DC 24 V)
4	NO	NO: Normally open ¹
5	NC	NC: Normally closed ²

¹ Relay contact open in normal operation

² Relay contact closed in normal operation

Permissible conductor cross-section: 0.14...1.5 mm²



- The power supply need not be monitored and made redundant when installing in the fire control panel.
- For remote installation, the power must be supplied by a power supply tested in accordance with EN54-4, which must be shielded and made redundant
- Relay contact opens in the event of an error. The display indicates the error. COM and NC (pin 5) are connected.

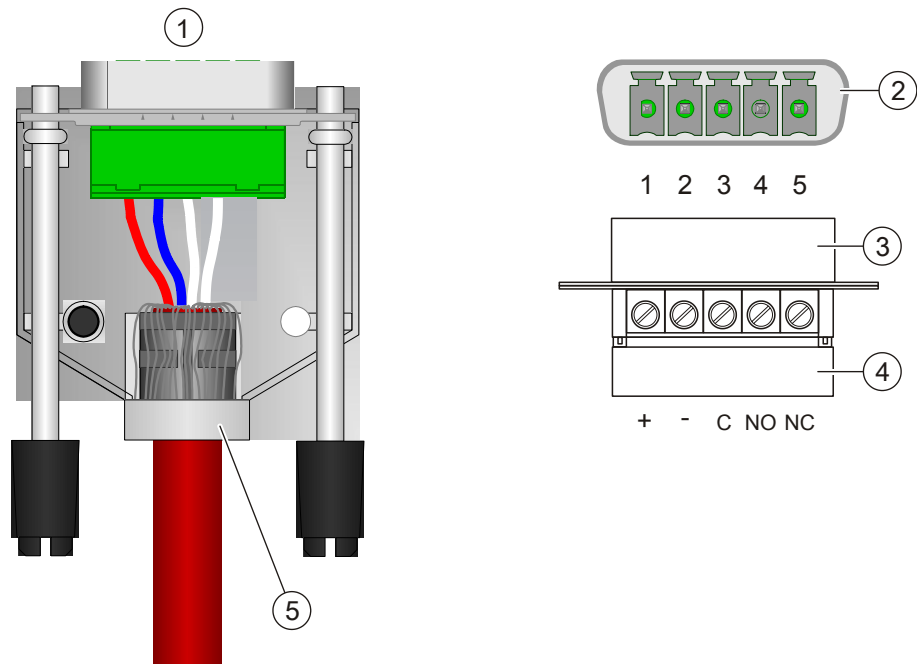


Figure 65: Connector for Power A and Power B sockets

- 1 Connector with housing
- 2 Socket on fiber optic cable network module
- 3 Connector without housing
- 4 Cover cap (open)
- 5 360° shielding

5.15.3.2 EF1/EF2 sockets for SAFEDLINK wiring

The 3-pin connector for the FCnet/SAFEDLINK connection is supplied with the fiber optic cable network module.

EF1 socket, FCnet A1/B1

Pin	Designation	Description
3	B1	FCnet line 1 (-)
2	-	-
1	A1	FCnet line 1 (+)

Permissible conductor cross-section: 0.14...1.5 mm²

EF2 socket, FCnet A2/B2

Pin	Designation	Description
3	B2	FCnet line 2 (-)
2	-	-
1	A2	FCnet line 2 (+)

Permissible conductor cross-section: 0.14...1.5 mm²

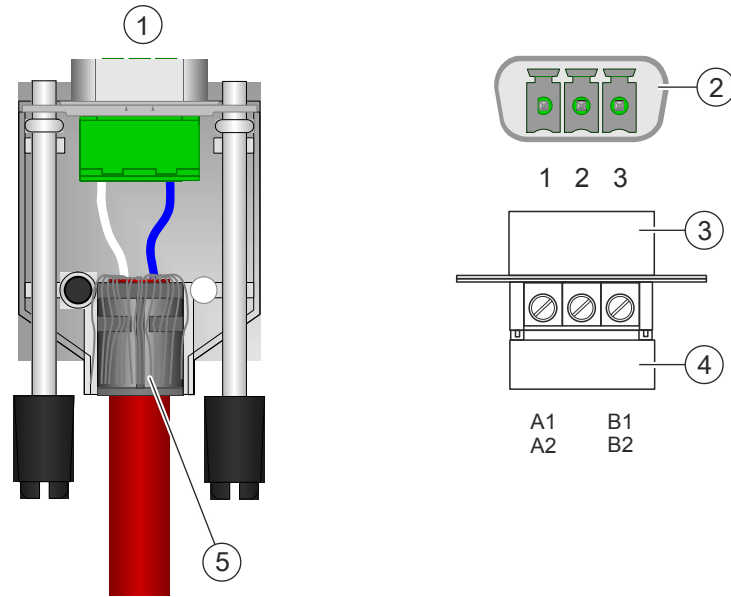


Figure 66: Connector for EF1/EF2 socket, for SAFEDLINK networking

- 1 Connector with housing
- 2 Socket on fiber optic cable network module
- 3 Connector without housing
- 4 Cover cap (open)
- 5 360° shielding

The feed line of the electric FCnet can be either shielded or unshielded. If the feed line is shielded, cable glands must be used for the ↑ network module (SAFEDLINK). You will find information in the description of network module (SAFEDLINK) FN2001.

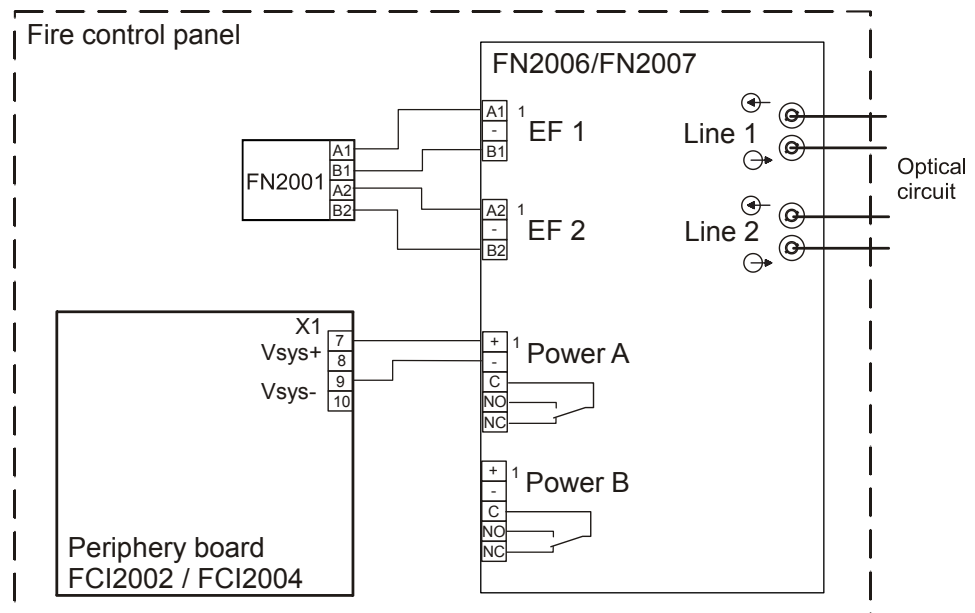


Figure 67: Example of wiring the FN2006 / FN2007 to the FN2001 for internal installation



The total cable lengths of the electric FCnet connections with copper cables, between two 'Stations' in the optical network, may be no longer than 1000 m.

!	NOTICE
	<p>Wiring cross-wise in the electrical FCnet</p> <p>If the FN2001 is wired cross-wise to the FN2006/FN2007, ground fault monitoring is not required. The wiring must be carried out 1:1 according to the diagram above (A1-A1, B1-B1, A2-A2, and B2-B2).</p>

5.15.3.3 Fiber optic cable connection

- If the fiber optic cable network module is mounted in the ↑ station, then only one supply must be connected.
- For remote installation, the power must be supplied by a power supply tested in accordance with EN54-4, which must be shielded and made redundant.

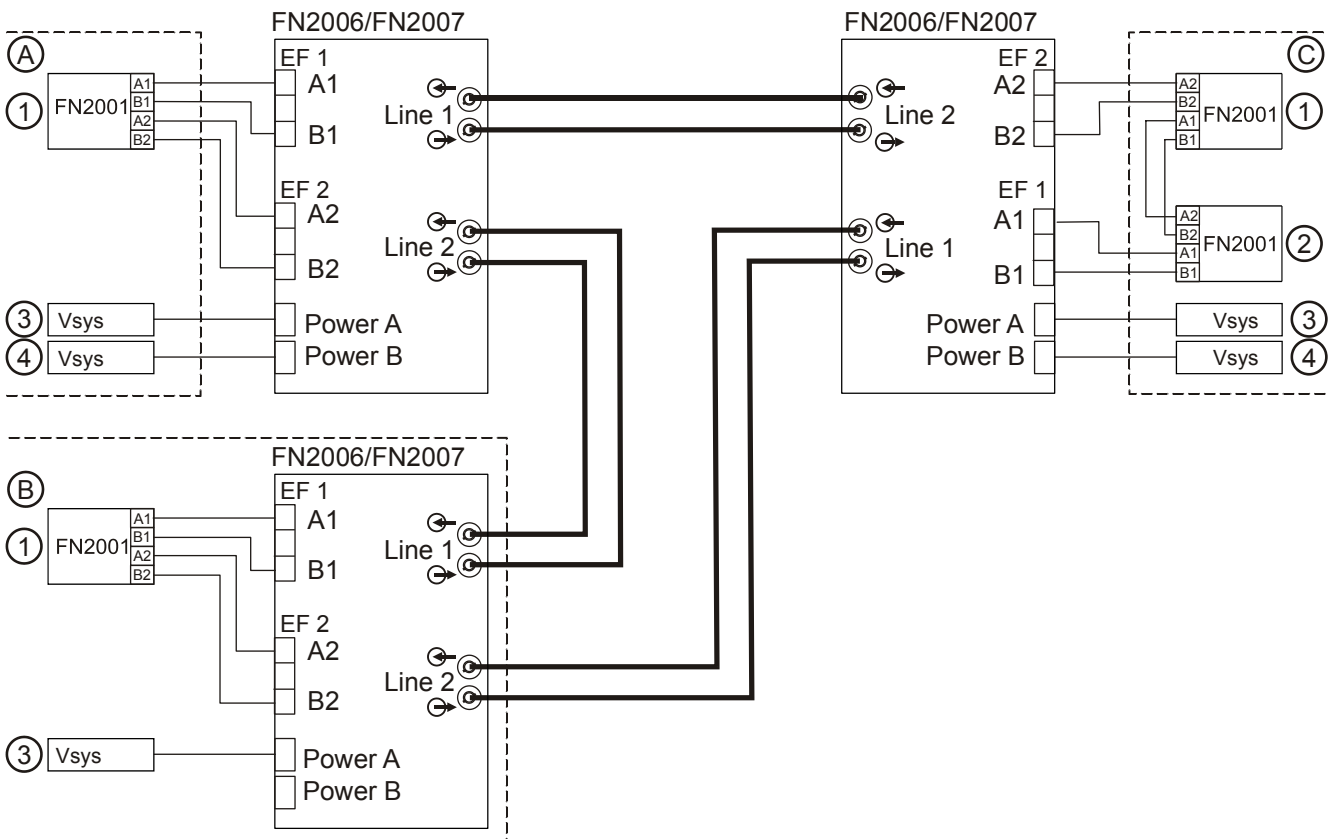






Figure 68: Example of different wirings of the fiber optic cable network module

Designation	Description
A	↑ Station with one ↑ network module (SAFEDLINK) and external fiber optic cable network module
B	Station with one network module (SAFEDLINK) and internal fiber optic cable network module
C	Station with two network modules (SAFEDLINK) and external fiber optic cable network module
1	Network module (SAFEDLINK), master module
2	Network module (SAFEDLINK), degraded mode module
3	'Power A', supply input A to fiber optic cable network module
4	'Power B', redundant supply input B to fiber optic cable network module
A1/B1	FCnet connection for line '1'
A2/B2	FCnet connection for line '2'
	Fiber optic cable connection (RX), optical receiver
	Fiber optic cable connection (TX), optical transmitter

Fiber optic cable wiring

- The accessible laser radiation is harmless. It corresponds to Laser Class 1 in accordance with IEC 60825/ANSI Z136.
- The fiber optic cable is wired cross-wise:
 - The optical transmitter (TX)  of one device must always be connected with the optical receiver (RX)  of the other device.
 - Line 1 must always be connected with line 2.
- The bending radius of the fiber optic cable must not be less than the manufacturer's specification (e.g., 10 x external diameter).
- Standard (PC) cable termination is sufficient, 8° polish (APC) is not necessary, but is supported.

5.16 Installing an Ethernet switch (modular) FN2012



Malfunctions during a partial upgrade

Ethernet switch (modular) FN2012 is not compatible with Ethernet switch (MM) FN2008 and so may only be used in panels \geq MP6.

5.16.1 Installation of Ethernet modules

The Ethernet switch (modular) must be equipped with Ethernet modules. Installation is the same for all modules.

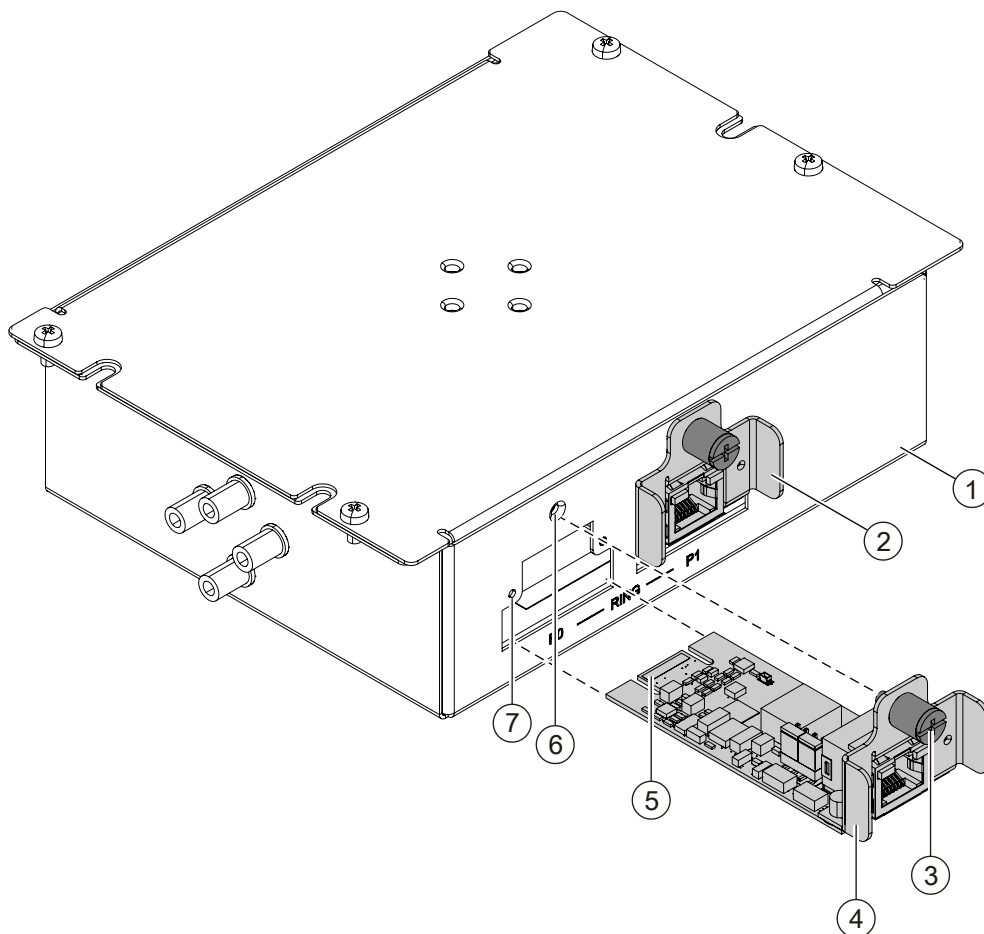


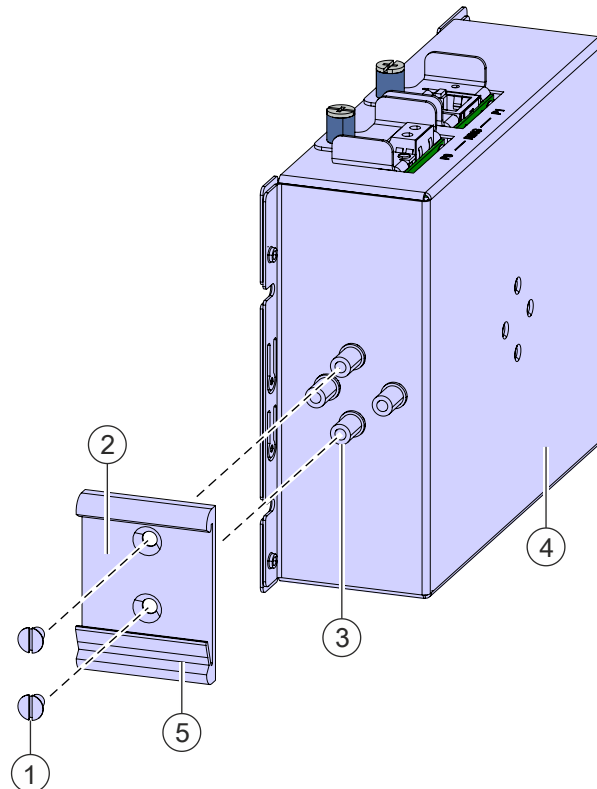
Figure 69: Installation of an Ethernet module in the Ethernet switch (modular)

- 1 Ethernet switch (modular)
- 2 Ethernet module built-in
- 3 Fixing screw with retaining spring
- 4 Ethernet module
- 5 Plug-in contacts
- 6 Threaded fixing hole
- 7 Positioning aid

1. Position the Ethernet module (4) as shown.
2. Push the Ethernet module (4) into the slot opening so the plug-in contacts (5) slide into the connector on the Ethernet switch.
3. Ensure that the Ethernet module (4) slides into the positioning aids (7).
4. Use the fixing screw (3) to fix the Ethernet module in the threaded hole (6).
5. Wire up the Ethernet module according to chapter 'Wiring'.

5.16.2 DIN rail clip mounting

The diagram below shows how to mount the DIN rail clip on the FN2012.



- 1 2x countersunk screws
- 2 DIN rail clip in mounting position
- 3 4x spacers with thread for fixing the DIN rail clip
- 4 Ethernet switch (modular) FN2012
- 5 Flange with retaining clamp

1. Place the DIN rail clip (2) in the required mounting position relative to the FN2012 (4) so that the flange with the retaining clamp (5) is at the bottom.
2. Fasten the DIN rail clip (2) using both countersunk screws (1) at the spacers (3) located one above the other.

5.16.3 Installing mounting kit FHA2029



The mounting kit (switch) is required to install Ethernet switch (modular) FN2012. VdS does not allow the Ethernet switch to be installed in any other way. If the stations do not provide enough room to install a mounting bracket, the Ethernet switch must be installed in an empty housing. This empty housing must be mounted below the station for conformity to VdS requirements.

Only one FN2012 may be mounted on a mounting bracket. The mounting brackets are screwed onto the rear panel of the housing or, in the case of the 'housing (19", pedestal cabinet)', onto the side walls.

The mounting kit FHA2029 contains two mounting brackets:

Small mounting bracket

- In the case of all wall-mounted empty housings, the installation position can be on the right or on the left
- In the case of stations in the Comfort housing, the installation position is on the left

Large mounting bracket

- In the case of stations in the Large housing, the installation position is on the right
- For FC2080 in 'housing (19", pedestal cabinet)'

Pack content

FHA2029 contains all the mechanical components required for installation in the respective housing, including a cable kit comprising the following:

- 2x RJ45 Ethernet cable 1 m
- 1x RJ45 Ethernet cable 3 m
- 2-core signal cable, shielded, 1 m
- Black cable AWG22, 1 m
- 1x blue and 1x red cable AWG18, 2 m
- 1x blue and 1x red cable AWG18, 3 m

View of mounting kit FHA2029

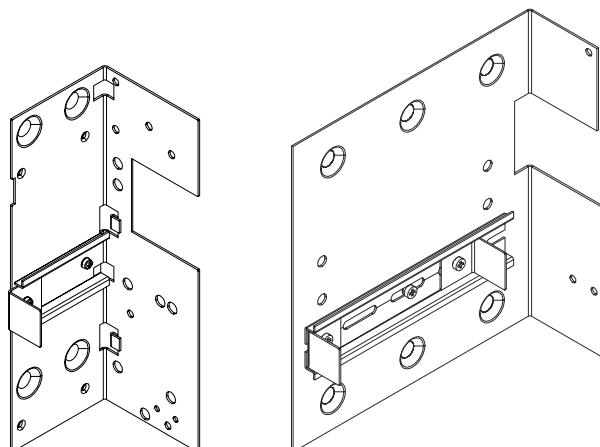


Figure 70: Mounting kit FHA2029, small and large mounting brackets

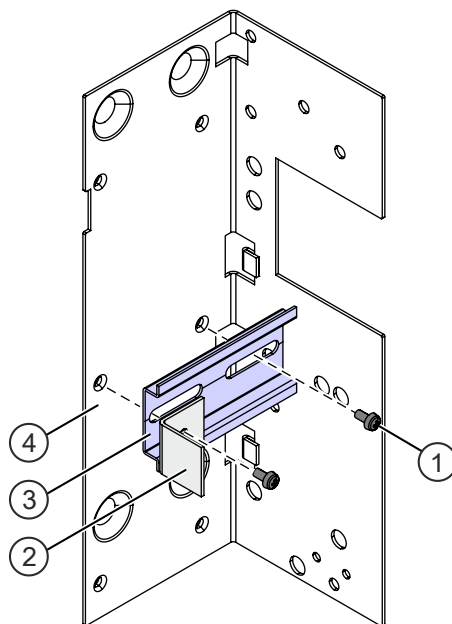
Types of installation

- The small mounting bracket is intended for installation in an empty housing and can be installed on both sides, i.e., in either the left or the right installation position. The bracket must be rotated 180 degrees to fit it on the right-hand side.
- The small mounting bracket must be mounted on the left-hand side if it is being installed in a station inside the Comfort housing.
- The large mounting bracket is intended for installation in a station inside a Large housing – where it has to be mounted on the right behind the power supply – or for installation in a 19" pedestal housing – where it can be mounted on the right- or left-hand side wall.

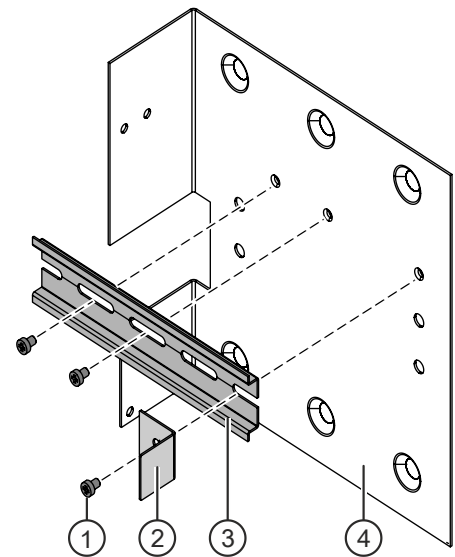
Installation



Please pay attention to the amount of space required for the wiring. The connections for the optical fibers must be aligned so they point upward.



Small mounting bracket, left-hand installation position



Large mounting bracket, right-hand installation position

- 1 2x/3x fixing screws for DIN rail
- 2 Retaining bracket for fixing the FN2012 on the side
- 3 U-rail L=65 mm for small mounting bracket and L=150 mm for large mounting bracket
- 4 Mounting bracket

1. Use the two or three screws (1) to mount the U-rail (3) and the retaining bracket (2) on the mounting bracket (4) as shown.
2. Mount the mounting bracket (4) in the relevant housing as described in the following chapters.
3. Mount the FN2012 according to chapter 'Installing Ethernet switch FN2012'.
4. Wire up the FN2012 according to chapter 'Wiring'.

5.16.3.1 Installation in empty and Comfort housing

The process of installing the small mounting bracket from mounting kit FHA2029 is identical for all empty housings and for stations in Comfort housings.

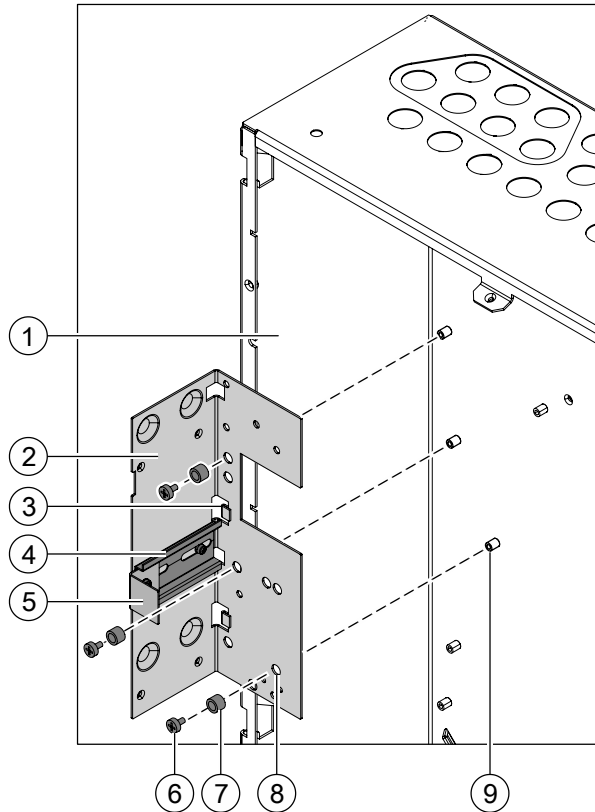


Figure 71: Installing the small mounting bracket in a Comfort housing

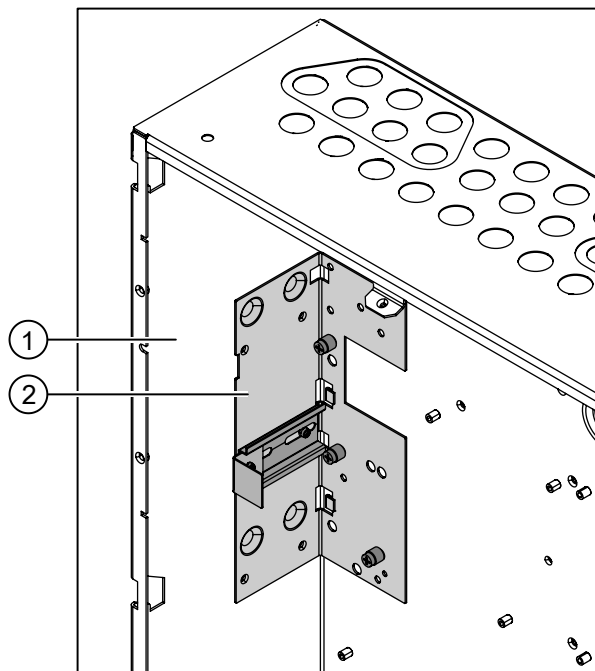


Figure 72: Small mounting bracket, installed in the Comfort housing

- 1 Empty Comfort housing
- 2 Small mounting bracket
- 3 Lugs for recesses for securing the power supply (70W)
- 4 DIN rail installed
- 5 Retaining bracket installed
- 6 3x fixing screws for mounting bracket
- 7 3x sleeves for fixing to spacer
- 8 3x holes in mounting bracket for spacer
- 9 3x spacers with thread in rear panel

1. Position the small mounting bracket (2) as shown.
2. In the case of the Eco and Standard housings, please ensure that the tabs (3) of the mounting bracket go into the recesses for the power supply (70 W).
3. Using the holes (8), push the mounting bracket (2) onto the spacers (9) that have been pressed into the housing.
4. Place the sleeves (7) on the spacers (8) of the rear panel and use the fixing screws (6) to secure the mounting bracket.

5.16.3.2 Installation in a station with a Large housing

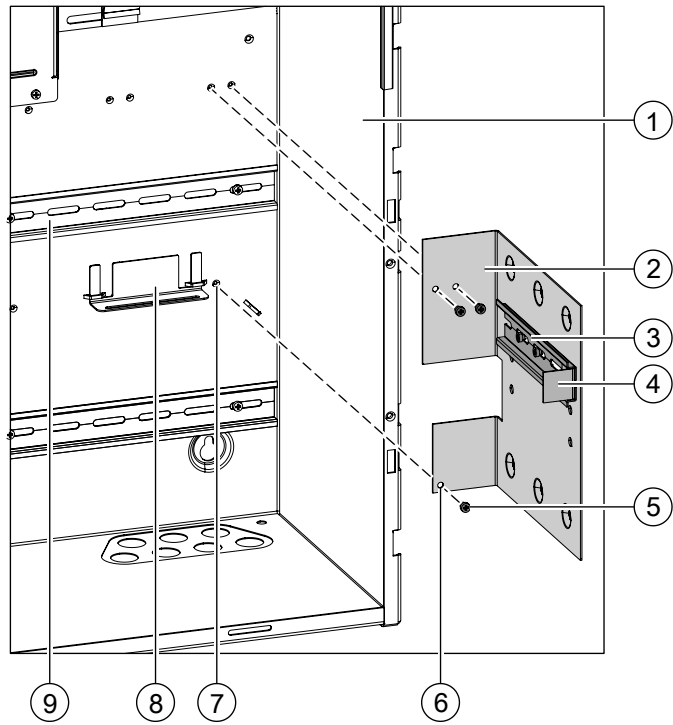


Figure 73: Screwing the large mounting bracket onto the Large rear panel

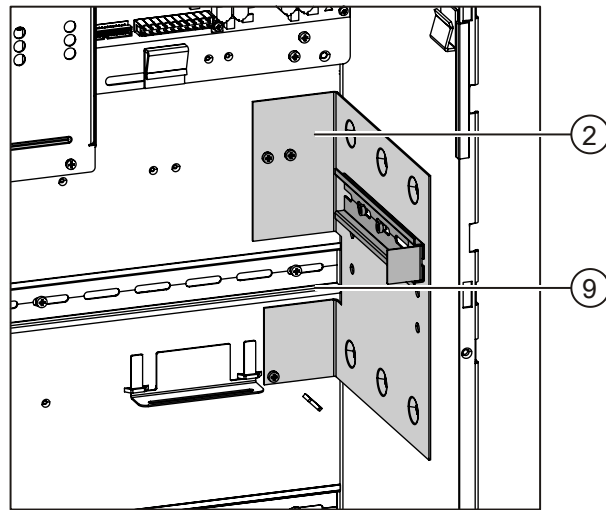


Figure 74: Large mounting bracket installed without supply

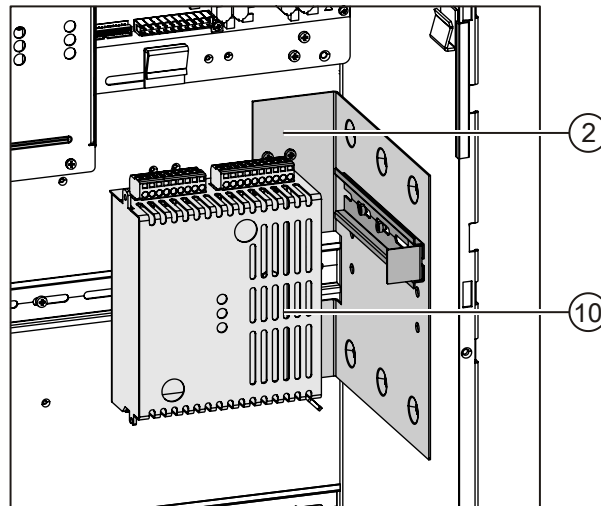


Figure 75: Supply installed on top of large mounting bracket

- 1 Housing (Large)
- 2 Large mounting bracket
- 3 U-rail installed
- 4 Retaining bracket installed
- 5 3x fixing screws for mounting bracket
- 6 3x holes for fixing screws
- 7 3x threaded holes in rear panel
- 8 Mounting flange for the power supply (150 W)
- 9 U-rail for the power supply (150 W)
- 10 Power supply (150 W)

▷ Power supply (150 W) is removed

1. Mount the mounting bracket (2) in the Large housing (1) as shown and screw the screws (5) into the threaded holes (7) in the rear panel.
 - ⇒ The power supply U-rail (9) is located in the recess of the mounting bracket.
2. Install the power supply (150 W) (10) on the mounting flange (8) and the U-rail (9).
3. Wire up the Ethernet switch according to chapter 'Wiring'.

5.16.4 Installing Ethernet switch FN2012



To ensure that installation conforms to VdS requirements, the FN2012 must be mounted vertically on a mounting bracket from mounting kit (switch) FHA2029. The connections for the fiber-optic cables must be aligned so they point upward.

5.16.4.1 FN2012 in empty housing

Installation of the small mounting bracket is the same for all empty housings.

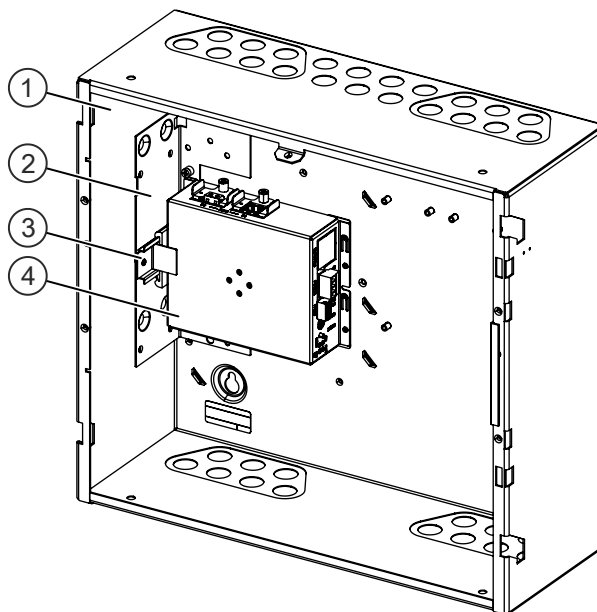


Figure 76: Example of installation in an empty Standard housing

- 1 Empty housing
- 2 Small mounting bracket from mounting kit FHA2029
- 3 DIN rail with retaining bracket
- 4 FN2012

▷ The DIN rail clip is mounted on the FN2012.

1. Holding it at an angle and working from below, place the FN2012 (4) against the bottom edge of the DIN rail (3) and press it up so that the retaining clamp in the flange gives way.
2. Push the upper flange into position over the DIN rail and release the spring pressure.
⇒ The DIN rail clip is now in place.
3. Check that the DIN rail clip is fully engaged on the DIN rail.
4. Wire up the FN2012 according to chapter 'Wiring [→ 157]'.

See also

📖 Wiring [→ 157]

5.16.4.2 FN2012 in a station with a Comfort housing

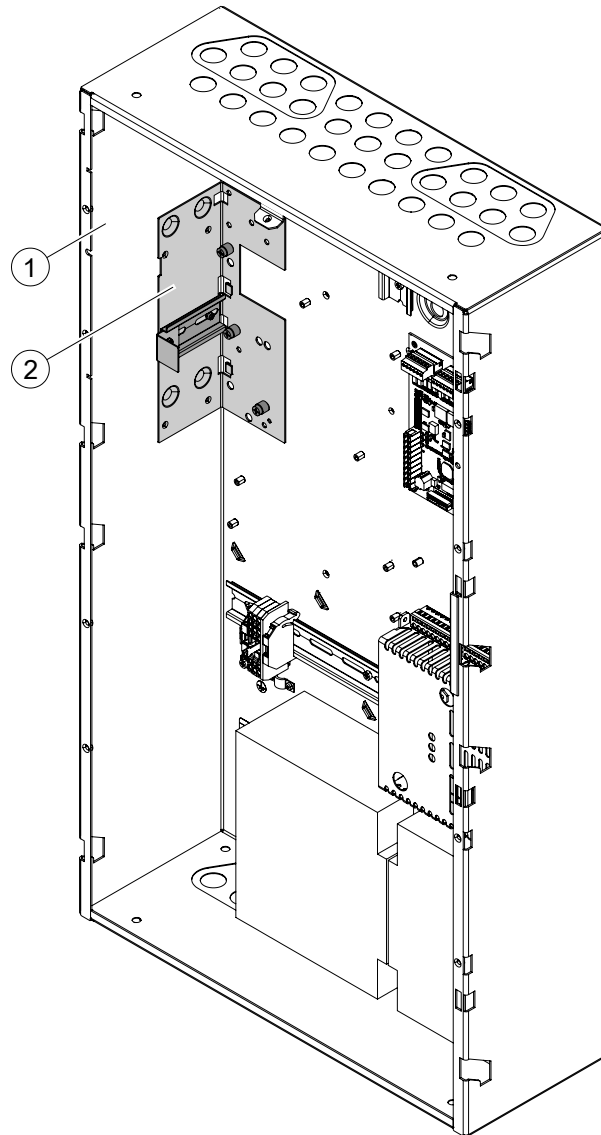


Figure 77: Small mounting bracket installed in a Comfort housing

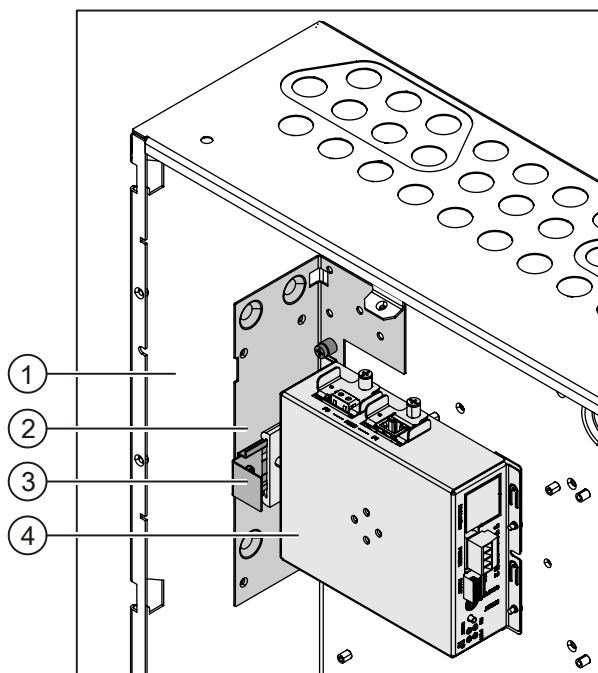


Figure 78: FN2012 in the Comfort housing

- 1 Comfort housing
- 2 Small mounting bracket from mounting kit FHA2029
- 3 DIN rail with retaining bracket
- 4 FN2012

▷ The DIN rail clip is mounted on the FN2012.

1. Holding it at an angle and working from below, place the FN2012 (4) against the bottom edge of the DIN rail (3) and press it up so that the retaining clamp in the flange gives way.
2. Push the upper flange into position over the DIN rail and release the spring pressure.
⇒ The DIN rail clip is now in place.
3. Check that the DIN rail clip is fully engaged on the DIN rail.
4. Wire up the FN2012 according to chapter 'Wiring [→ 157]'.

See also

📄 Wiring [→ 157]

5.16.4.3 FN2012 in a station with a Large housing

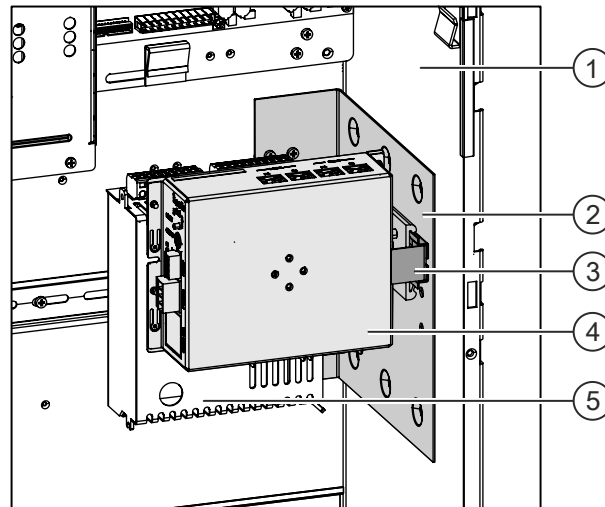


Figure 79: FN2012 mounted in the Large housing

- 1 Housing (Large)
- 2 Large mounting bracket from mounting kit FHA2029
- 3 DIN rail with retaining bracket
- 4 FN2012
- 5 Power supply (150 W)

▷ The DIN rail clip is mounted on the FN2012.

1. Holding it at an angle and working from below, place the FN2012 (4) against the bottom edge of the DIN rail (3) and press it up so that the retaining clamp in the flange gives way.
2. Push the upper flange into position over the DIN rail and release the spring pressure.
⇒ The DIN rail clip is now in place.
3. Check that the DIN rail clip is fully engaged on the DIN rail.
4. Wire up the FN2012 according to chapter 'Wiring [→ 157]'.

See also

📄 Wiring [→ 157]

5.16.5 Wiring

5.16.5.1 Wiring overview

The figure shows typical usage of the Ethernet switch in an FS20 station with all connections and in an optical Ethernet ring. All the connections shown are current-limited and monitored.



The electrical Ethernet cables for external connections P2 and P3 must be between min. 2 m and max. 6 m long.

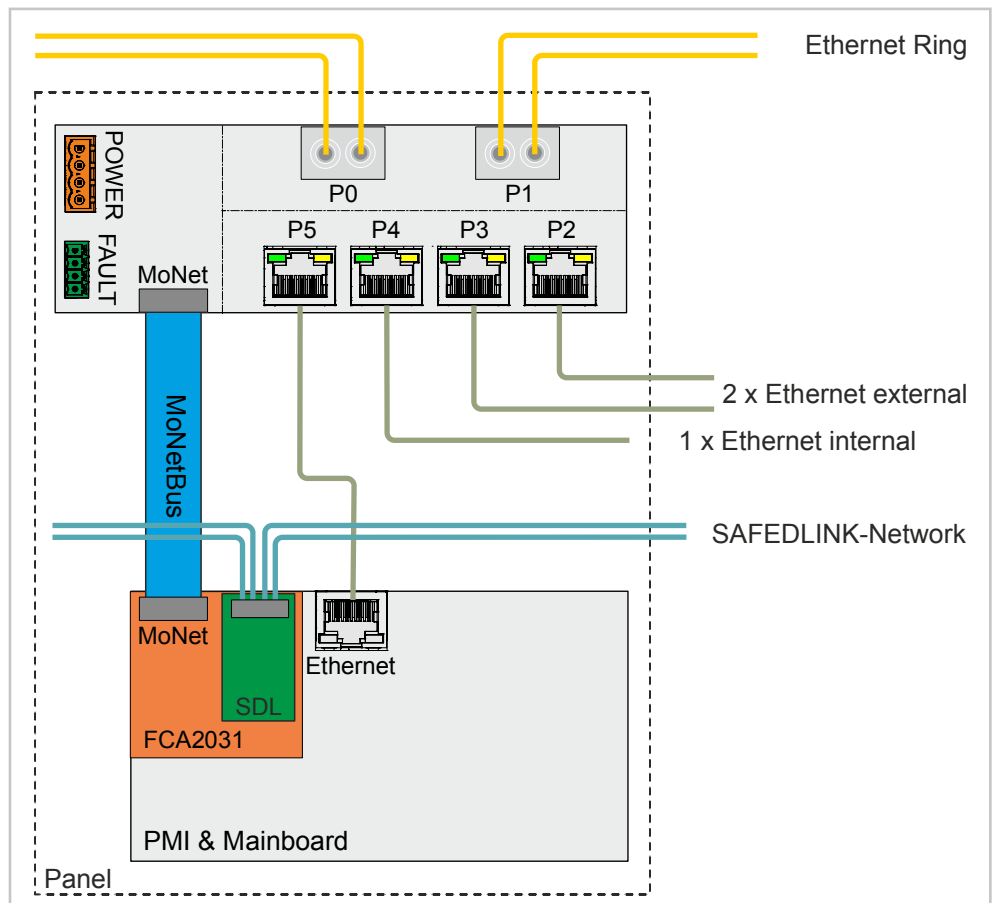


Figure 80: Overview of wiring for Ethernet switch (modular) FN2012

Connector/designation	Description
P0, P1	For FS20/FS720 applications: Optional modules for Ethernet ring connections for optical wiring (SM, MM)
P4, P5	Internal Ethernet connections in stations
P2, P3	External Ethernet connections for SintesoWorks, MMS, SintesoView, etc.
MoNet	Connection from PMI & mainboard to Ethernet switch (modular) for the supply and transmission of degraded mode and system signals (MoNet bus)
FCA2031	Connection module (MoNet) in the SAFEDLINK main module slot. Makes the MoNet bus available.
Panel	Approved Siemens station in which the FN2012 is installed

Configuration of the Ethernet switch (modular) is described in detail in document 009078.

5.16.5.2 MoNet bus connection

Preparing the FN2012 for the MoNet bus connection

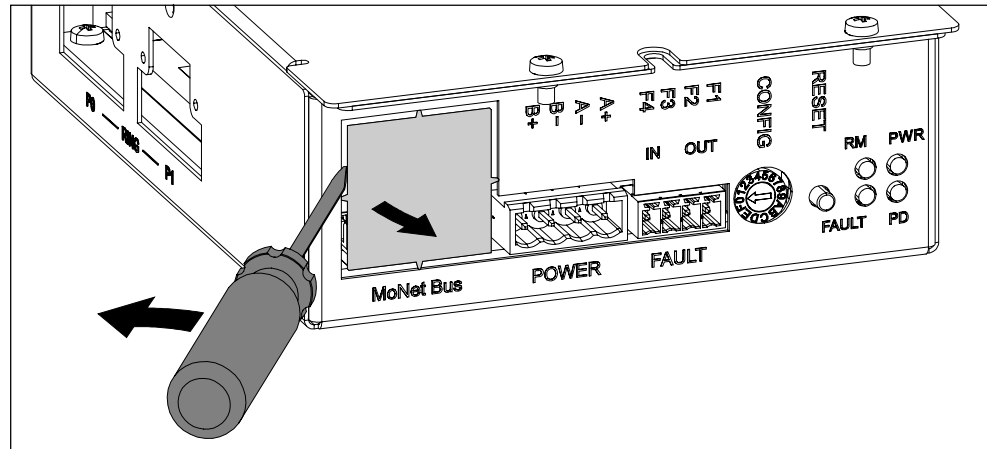


Figure 81: Breaking out the MoNet bus cover plate

- Use a screwdriver to carefully remove the cover plate from the MoNet connector, as shown in the figure.
- ⇒ By moving the screwdriver as a lever in the direction of the arrow, you will release the cover plate at the four intended breakout points.

Connection for MoNet bus flat cable

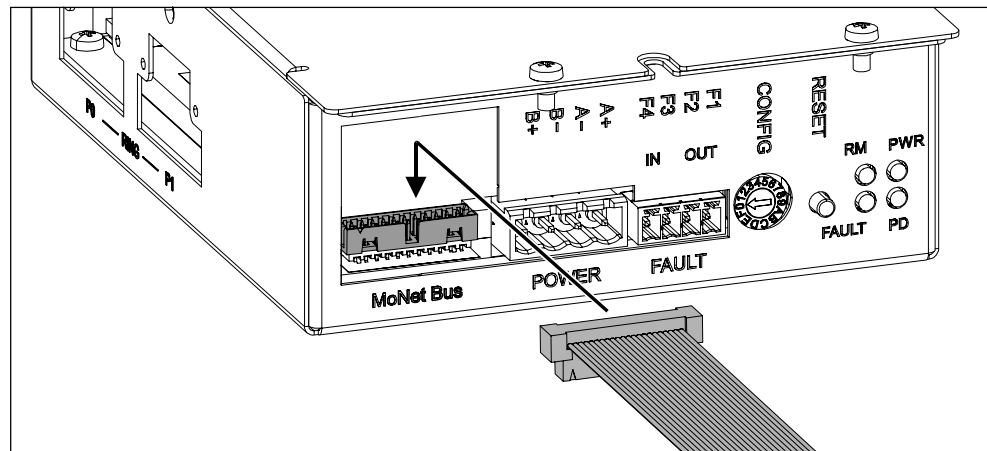


Figure 82: Connecting the MoNet bus flat cable

- Connect the 1.35 m-long flat cable for the MoNet bus to the FN2012, as shown.

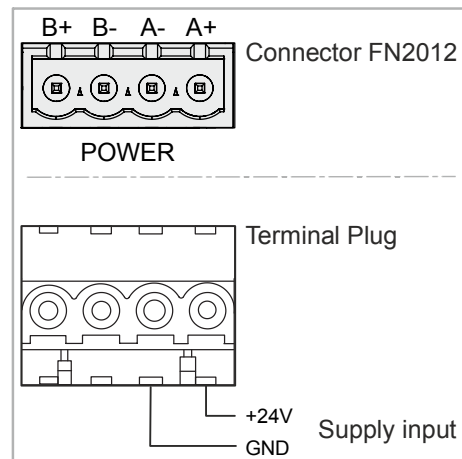
5.16.6 Pin assignments

5.16.6.1 'POWER' connector strip

The 'POWER' connector is only used if power cannot be supplied via the MoNet bus or PoE. Generally, this is only the case if the Ethernet switch (modular) is installed remotely in another device. Power must be supplied via a DC 24 V power supply unit with a regulated and power-limited output that has been listed for signaling fire.

Designation	Description
A+	Supply input 1 (+DC 24 V)
A-	Common supply input 1 (DC 0 V)
B-	Not connected
B+	Not connected

Admissible cable cross-section: 0.2...2.5 mm²



5.16.6.2 'FAULT' connector strip

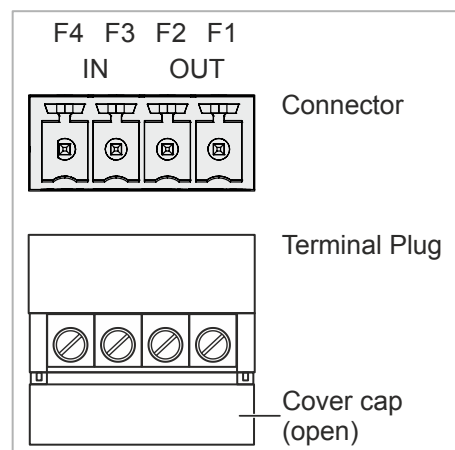
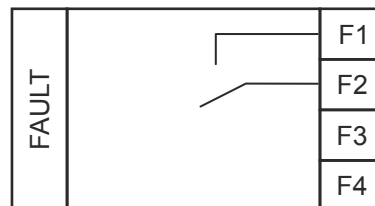
The fault output is a potential-free relay contact which, depending on the configuration, can be used to report fault conditions by interrupting the contact. If the FN2012 is switched off, the relay contact is deactivated (opened).

The following error messages can be configured by the web interface:

- 'Fatal fault': Ethernet Switch (modular) malfunction
- 'Ring fault': Ring faults are only indicated if the Ethernet switch (modular) has assumed the 'Redundancy Manager' function
- 'Ring port fault': 'Link down' state on a ring port

Pin	Designation	Description
F1	OUT	Potential-free relay contact 1 (common, normally open)
F2	OUT	Potential-free relay contact 2 (common, normally open)
F3	IN	Not connected
F4	IN	Not connected

Admissible cable cross-section: 0.2...2.5 mm²



5.17 Connection module (card cage)

5.17.1 Installation



This component is installed in exactly the same way as for the operating units with the PMI & mainboard FCM2004 and the PMI & mainboard FCM2027.

The connection module (card cage) FCA2006-A1 is always needed in conjunction with the card cage (2 slots) or card cage (5 slots). It is fitted in the corresponding fire control panels the factory and only has to be replaced in the event of a repair.

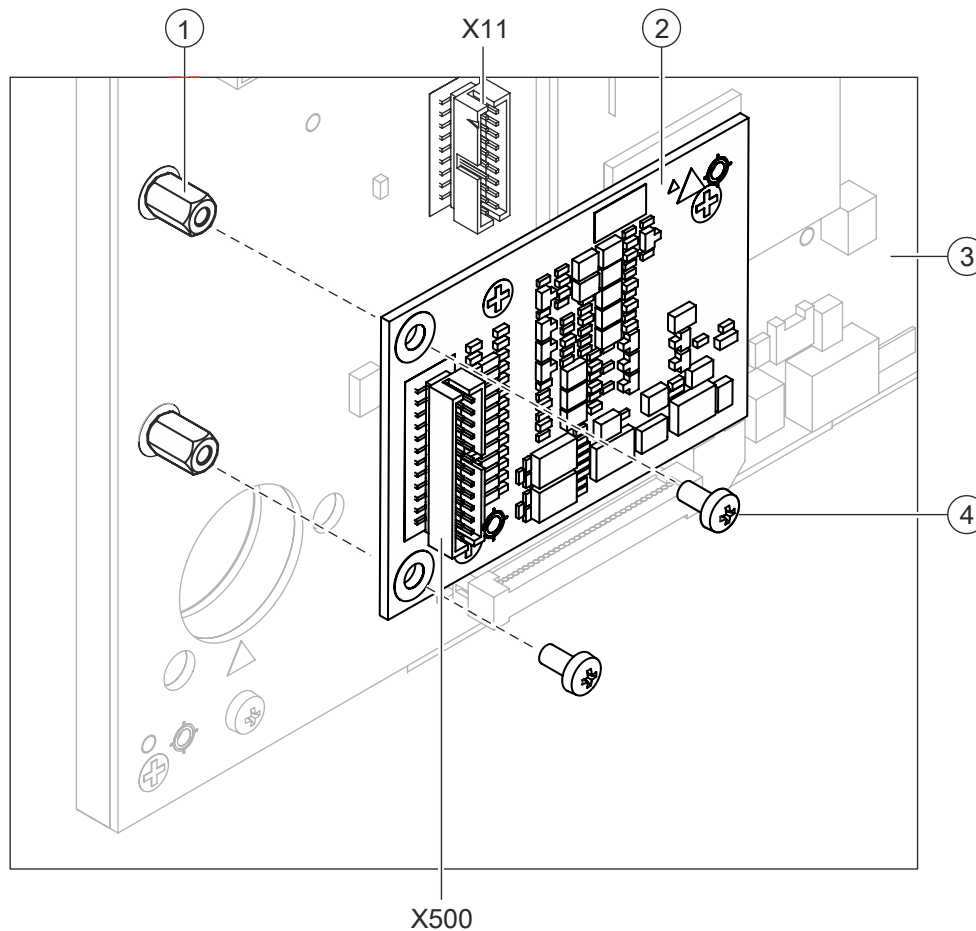


Figure 83: Installation of connection module (card cage)

- 1 Spacers (2 pieces)
- 2 Connection module (card cage)
- 3 Operating unit
- 4 Fixing screws (2 pieces)
- X11 Connector for connection module (card cage)
- X500 Module bus cable connection

1. Attach the connection module (card cage) (2) to the connector intended for it (X11) on the operating unit (3) as shown.
2. Fasten the module to the spacers (1) using the two screws (4).
3. Connect the flat cable for the module bus of X500 connection module with X501 on card cage.

5.18 Card cage

5.18.1 Installation

The card cage is used to hold module bus cards and is fitted in fire control panels FC2030 and FC2060 in the factory:

- Card cage (2 slots) FCA2007-A1 in fire control panel FC2030
- Card cage (5 slots) FCA2008-A1 in fire control panel FC2060

The card cages only have to be replaced in the event of a repair. Along with the card cage, the connection module (card cage) FCA2006-A1 is already fitted on the PMI & mainboard.

Installation of card cage (2 slots) FCA2007-A1 in FC2030

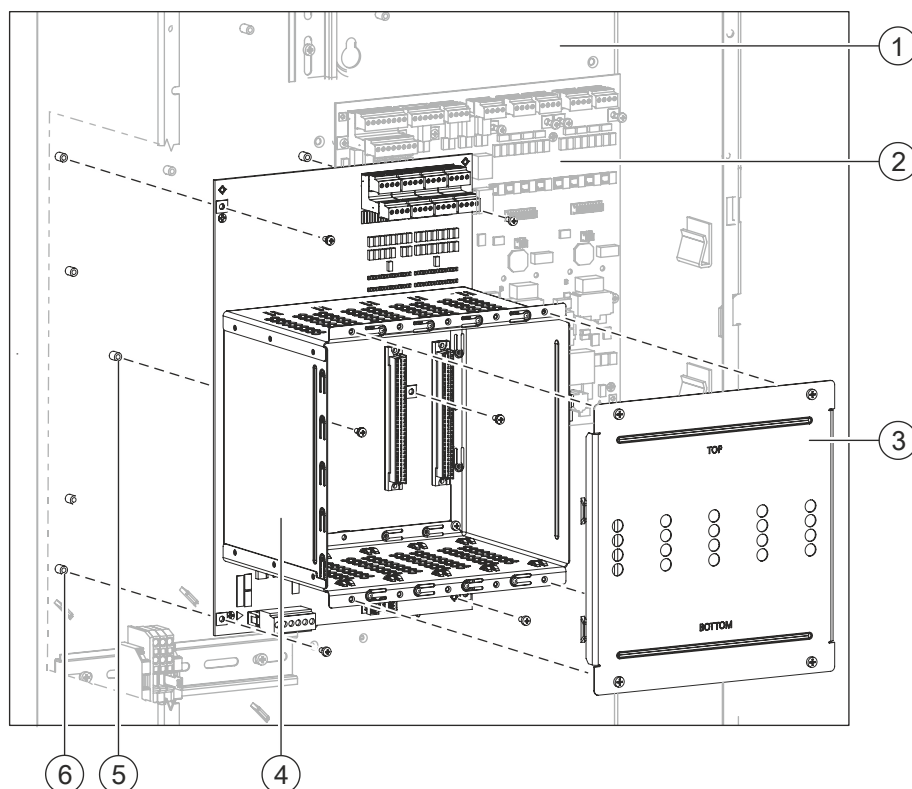


Figure 84: Installation of card cage (2 slots)

Installation of card cage (5 slots) FCA2008-A1 in FC2060

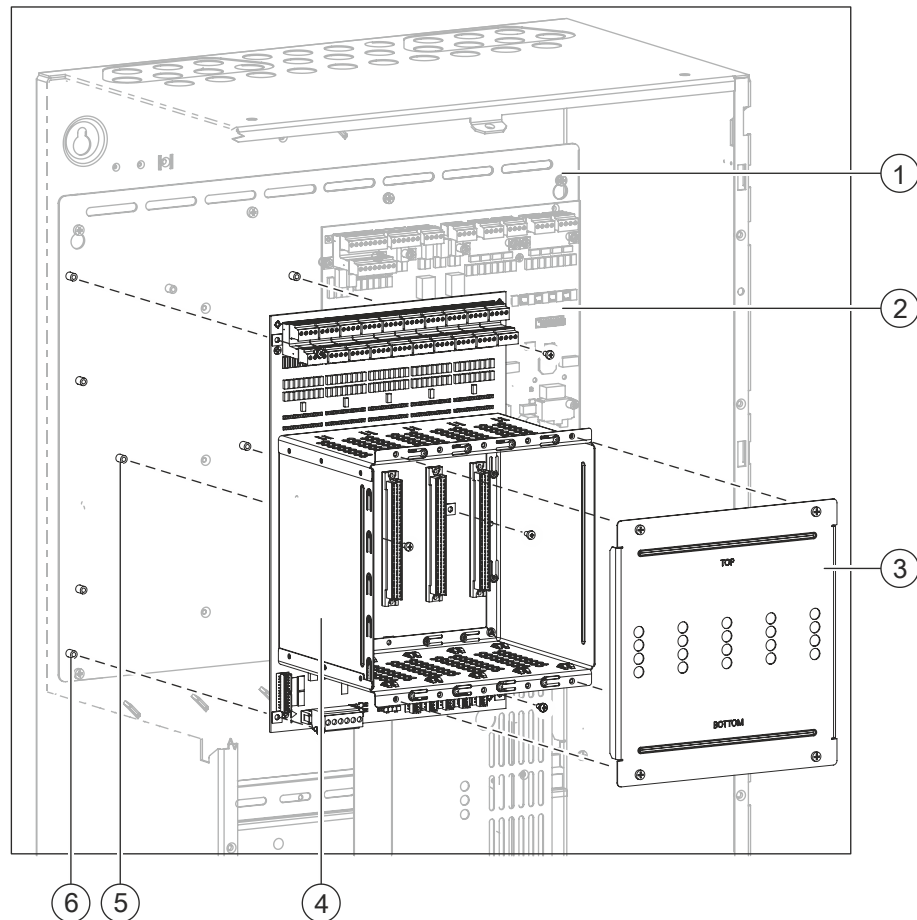


Figure 85: Installation of card cage (5 slots)

- 1 Rear panel (FC2030) or mounting plate (FC2060)
- 2 Periphery board
- 3 Card cage housing cover (EMC protection)
- 4 Card cage
- 5 Mounting holes for screws (2) in card cage housing
- 6 Mounting holes for screws (4 pieces) in printed circuit board

1. Tighten the 4 fixing screws of the printed circuit board (6) as follows:
 - For the FC2030 on the rear panel (1, top figure)
 - For the FC2060 on the mounting plate (1, bottom figure)
2. Tighten the 2 fixing screws in the card cage housing (5) as follows:
 - For the FC2030 on the rear panel (1, top figure)
 - For the FC2060 on the mounting plate (1, bottom figure)
3. Insert the desired module bus cards in the card cage (see chapter 'Module bus cards [→ 170]').
4. Mount the housing cover (3) of card cage and secure with the four screws.
5. Connect the card cage according to the following pin assignment.

5.18.2 Pin assignment of the card cage (2 slots)

5.18.2.1 Views of card cage (2 slots)

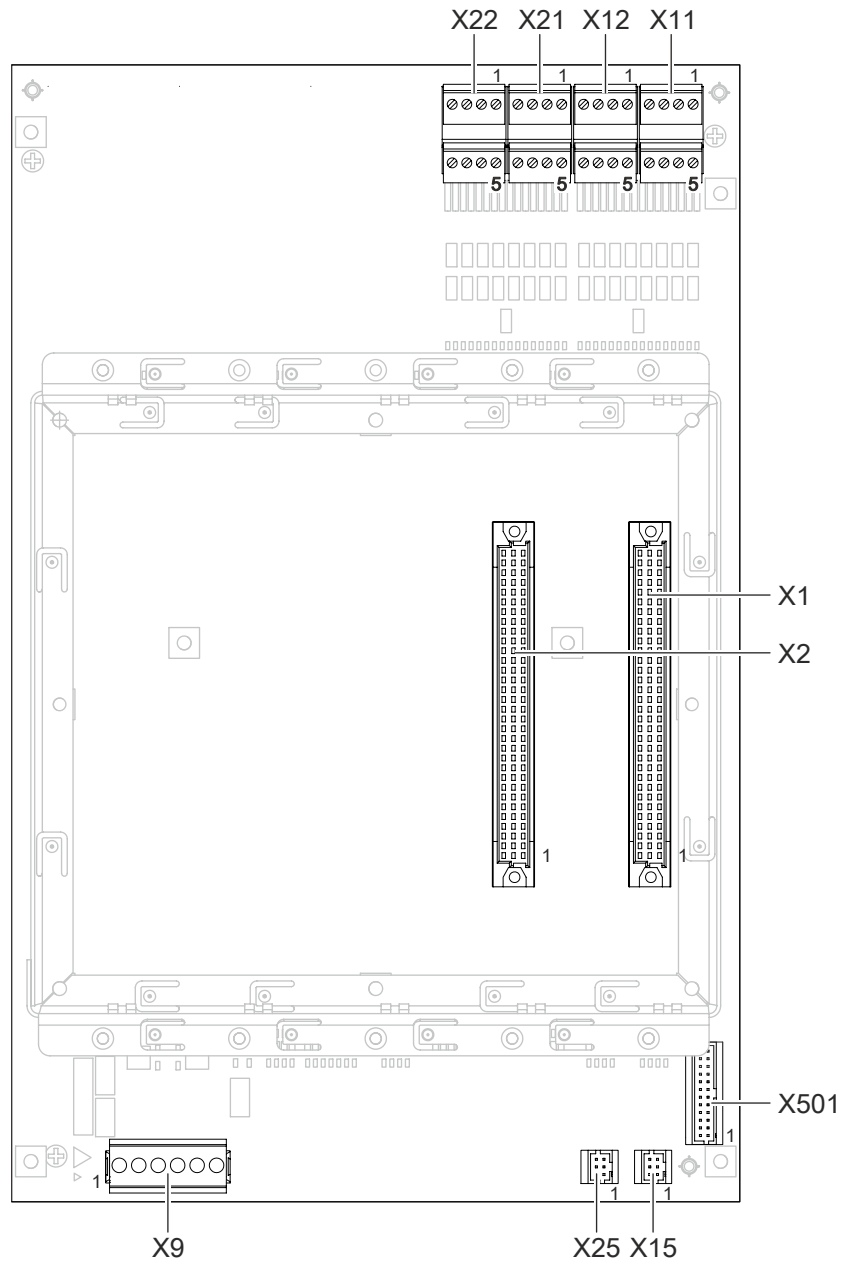


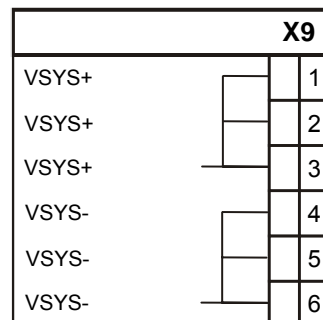
Figure 86: PCB view of card cage (2 slots) FCA2007-A1

Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
Connection terminals	X9	System supply connection
	X11	Connection terminals for module bus card 1
	X12	Connection terminals for module bus card 1
	X21	Connection terminals for module bus card 2
	X22	Connection terminals for module bus card 2
Connector Degraded mode	X15	Connector for degraded mode indicator [AT] of module bus card 1
	X25	Connector for degraded mode indicator [AT] of module bus card 2
Internal bus	X501	Connector for module bus input

5.18.2.2 X9 supply

Pin	Designation	Description
1	VSYS+	System supply (+)
2	VSYS+	System supply (+)
3	VSYS+	System supply (+)
4	VSYS-	System supply (-)
5	VSYS-	System supply (-)
6	VSYS-	System supply (-)

Admissible cable cross-section: 0.2...2.5 mm²



5.18.2.3 X11...X22 connection terminals for the module bus cards

The module bus card determines the PIN assignment of the four connectors. You will find the pin assignments in the description of the corresponding module card.

The assignment of the connector is:

- Connections of module bus card 1 are on connectors X11 and X12
- Connections of module bus card 2 are on connectors X21 and X22

5.18.3 Pin assignment of the card cage (5 slots)

5.18.3.1 Views of card cage (5 slots)

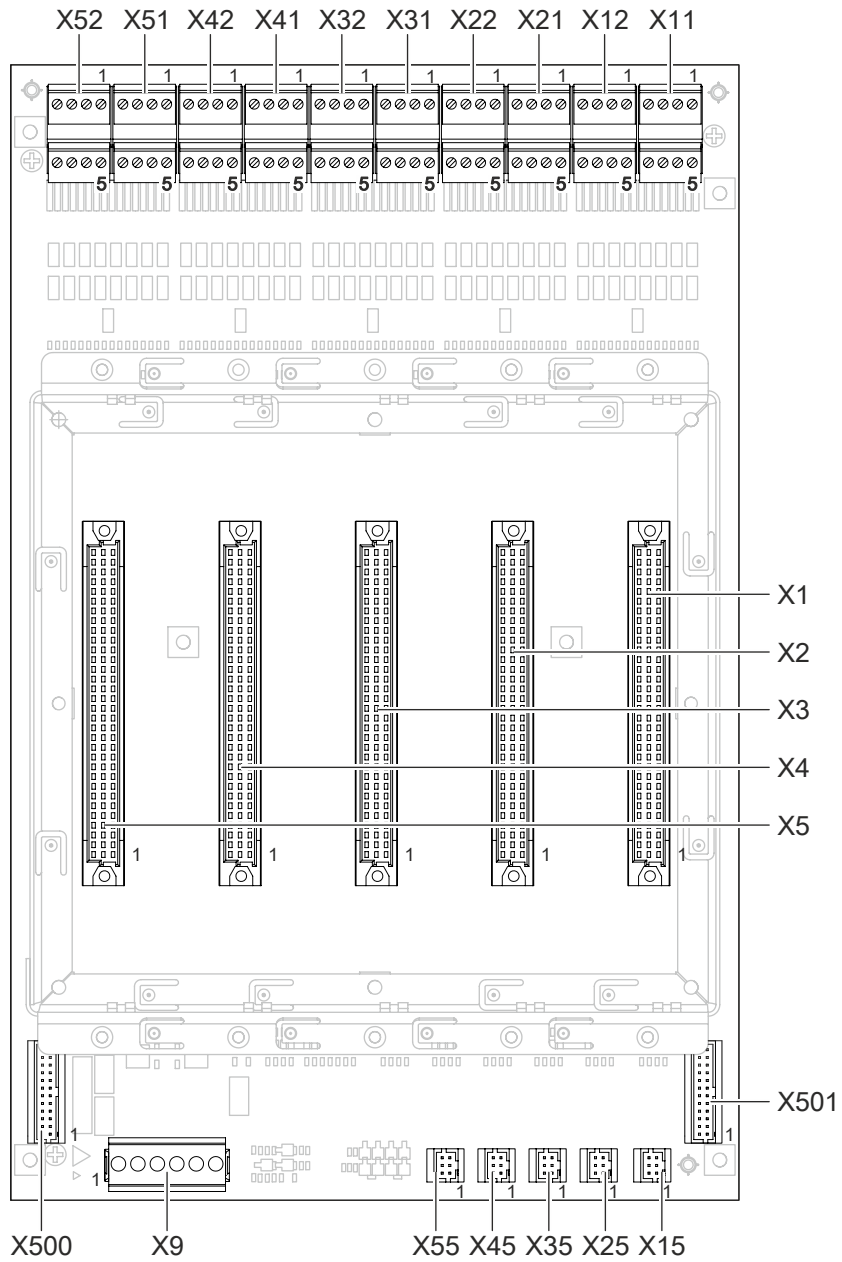


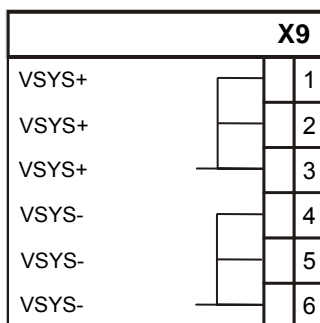
Figure 87: PCB view of card cage (5 slots) FCA2008-A1

Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
	X3	Connector strip for module bus card 3
	X4	Connector strip for module bus card 4
	X5	Connector strip for module bus card 5
Connection terminals	X9	System supply connection
	X11	Connection terminals for module bus card 1
	X12	Connection terminals for module bus card 1
	X21	Connection terminals for module bus card 2
	X22	Connection terminals for module bus card 2
	X31	Connection terminals for module bus card 3
	X32	Connection terminals for module bus card 3
	X41	Connection terminals for module bus card 4
	X42	Connection terminals for module bus card 4
	X51	Connection terminals for module bus card 5
X52	Connection terminals for module bus card 5	
Connector Degraded mode	X15	Connector for degraded mode indicator [AT] of module bus card 1
	X25	Connector for degraded mode indicator [AT] of module bus card 2
	X35	Connector for degraded mode indicator [AT] of module bus card 3
	X45	Connector for degraded mode indicator [AT] of module bus card 4
	X55	Connector for degraded mode indicator [AT] of module bus card 5
Internal bus	X500	Connector for module bus output to other card cages
	X501	Connector for module bus input

5.18.3.2 X9 supply

Pin	Designation	Description
1	VSYS+	System supply (DC 24 V)
2	VSYS+	System supply (DC 24 V)
3	VSYS+	System supply (DC 24 V)
4	VSYS-	System supply (0 V)
5	VSYS-	System supply (0 V)
6	VSYS-	System supply (0 V)

Admissible cable cross-section: 0.5...2.5 mm²



5.18.3.3 X11...X52 connection terminals for the module bus card

The module bus card determines the PIN assignment of the four connectors. You will find the pin assignments in the description of the corresponding module card.

The assignment of the connector is:

- Connections of module bus card 1 are on connectors X11 and X12
- Connections of module bus card 2 are on connectors X21 and X22
- Connections of module bus card 3 are on connectors X31 and X32
- Connections of module bus card 4 are on connectors X41 and X42
- Connections of module bus card 5 are on connectors X51 and X52

5.19 Module bus cards

5.19.1 Installation

The module bus cards are installed in the card cages of fire control panels FC2030, FC2060, FC2080 or gateway (SIGMANET) FG2020. The following module bus cards are available:

- Line card (FDnet/C-NET) FCL2001-A1
- Line card (collective) FCL2002-A1
- Line card (MS9i) FCL2003-A1
- Line card (AnalogPLUS) FCL2005-A1
- Line card (interactive) FCL2006-A1
- Line card (interactive Ex) FCL2007-A1
- I/O card (RT) FCI2007-A1
- I/O card (programmable) FCI2008-A1
- I/O card (horn, monitored) FCI2009-A1

All module bus cards are installed in the same way in all card cages and slots.

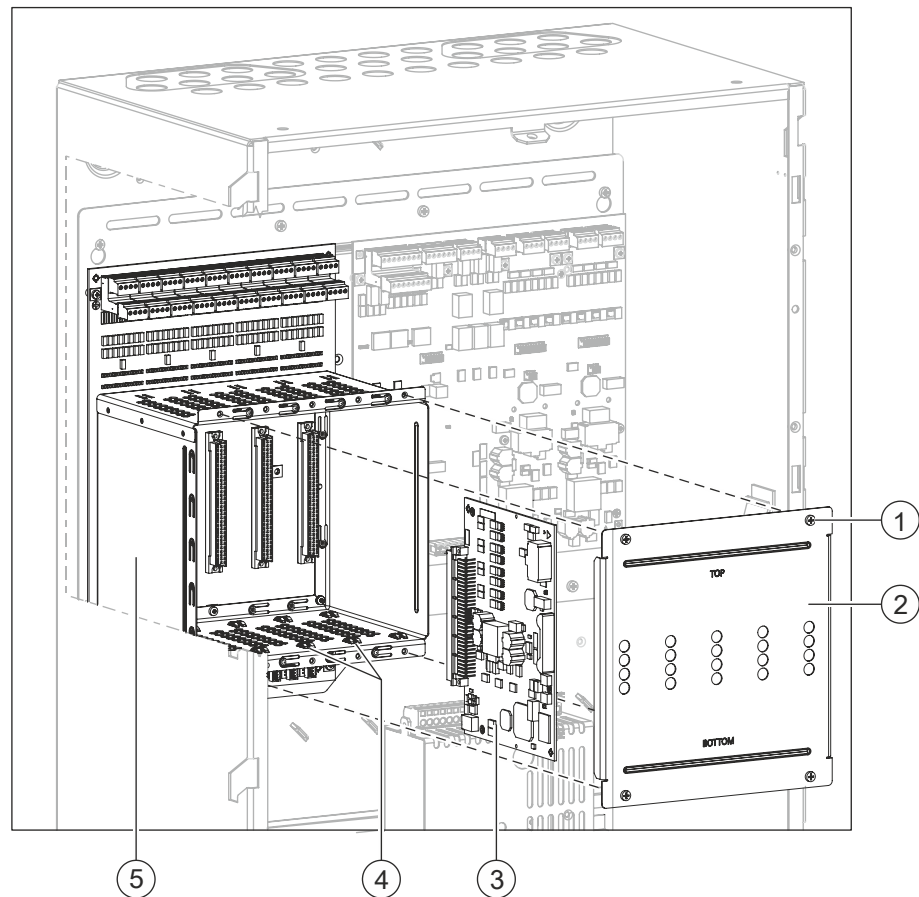


Figure 88: Installation of a module bus card taking the card cage (5 slots) in the FC2060 as an example

- 1 4 fixing screws for housing cover
- 2 Housing cover for card cage (EMC protection)
- 3 Any module bus card
- 4 Guides for module bus cards
- 5 Card cage housing

1. Remove the housing cover of the card cage (2) by loosening the four fixing screws (1).
2. Insert the module bus card required (3) into the slot required as shown in the figure.
3. Ensure that the module bus cards are held correctly in the guides (4).
4. Once all the module bus cards required have been installed, fit the housing cover (2) of the card cage (5) by fastening the four screws (1).
5. Wire the module bus cards according to the pin assignment below.

5.19.2 Pin assignments

5.19.2.1 Views of card cage (2 slots)

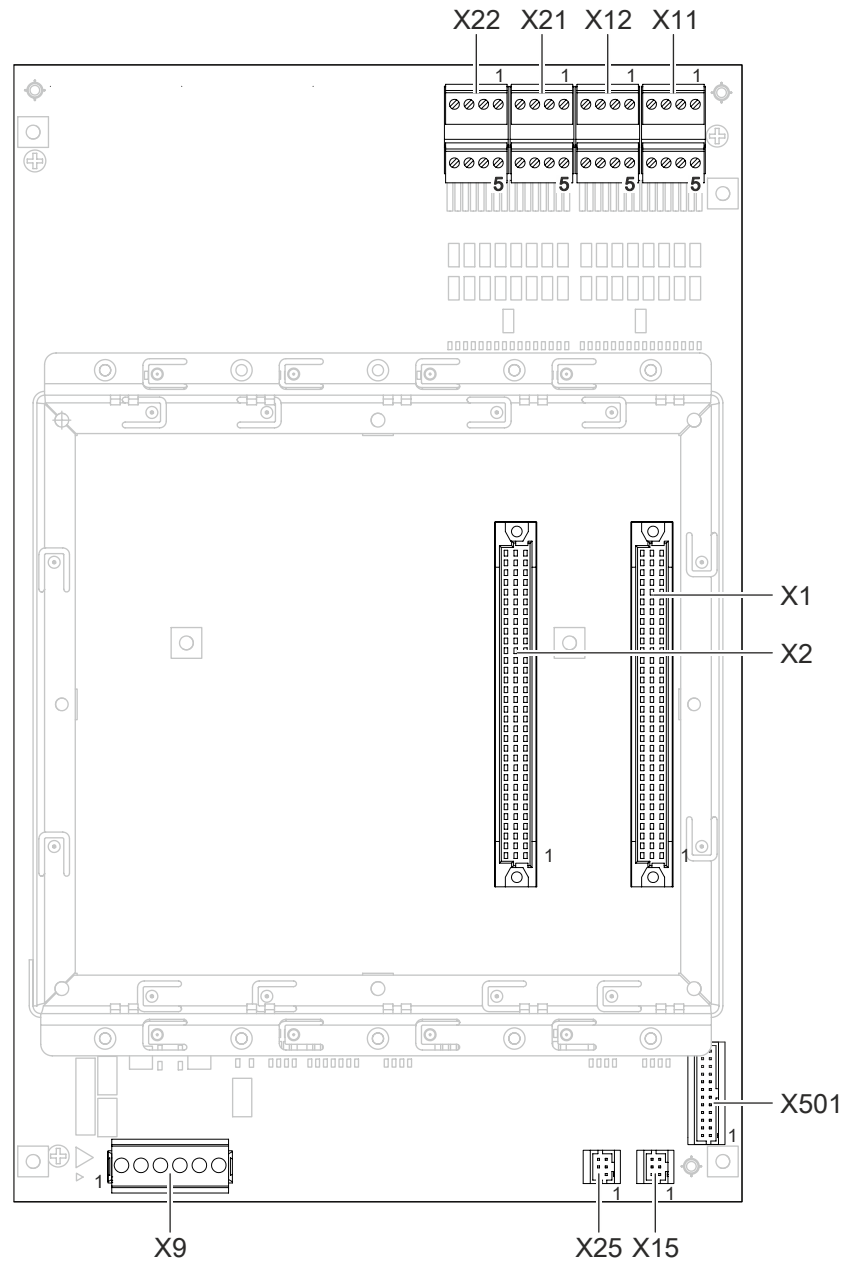


Figure 89: PCB view of card cage (2 slots) FCA2007-A1

Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
Connection terminals	X9	System supply connection
	X11	Connection terminals for module bus card 1
	X12	Connection terminals for module bus card 1
	X21	Connection terminals for module bus card 2
	X22	Connection terminals for module bus card 2
Connector Degraded mode	X15	Connector for degraded mode indicator [AT] of module bus card 1
	X25	Connector for degraded mode indicator [AT] of module bus card 2
Internal bus	X501	Connector for module bus input

5.19.2.2 Views of card cage (5 slots)

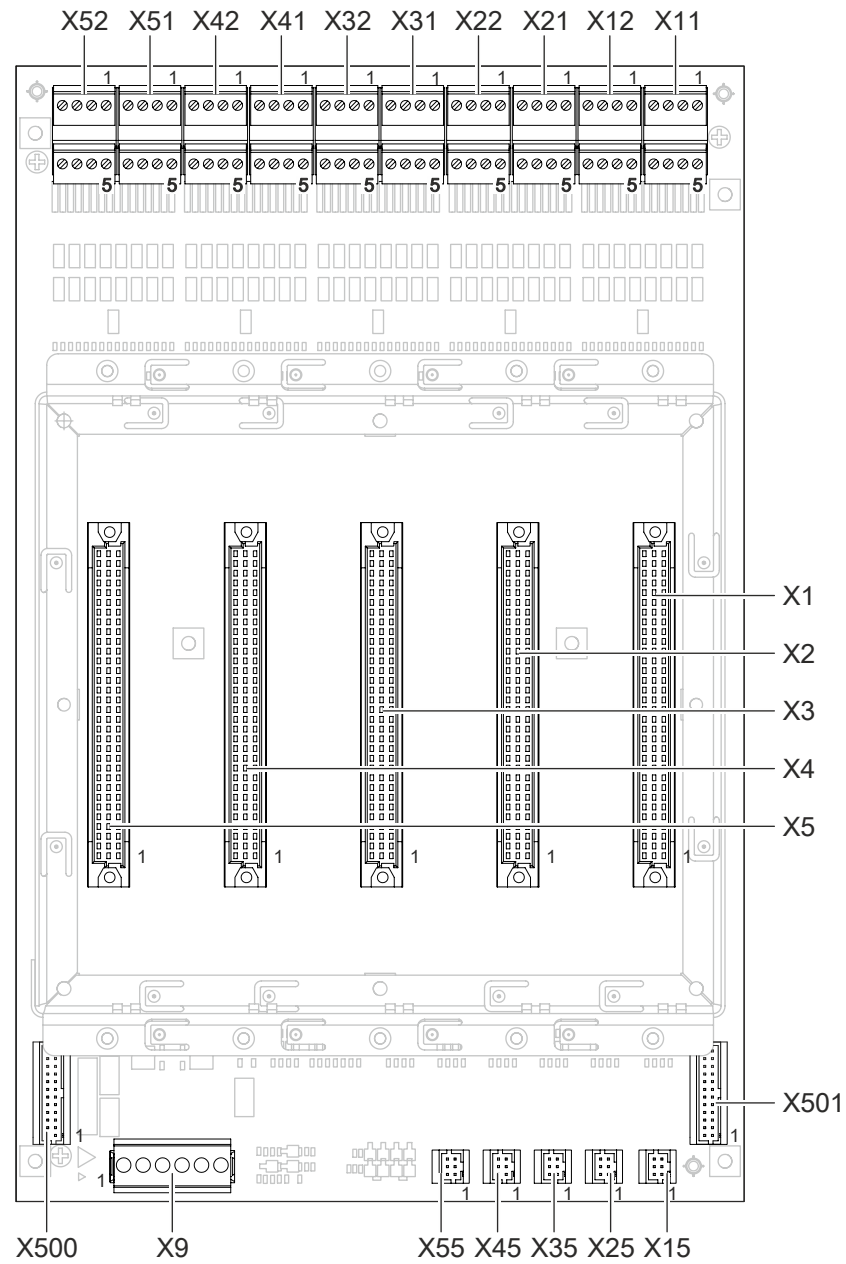


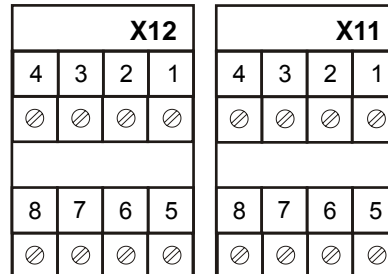
Figure 90: PCB view of card cage (5 slots) FCA2008-A1

Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
	X3	Connector strip for module bus card 3
	X4	Connector strip for module bus card 4
	X5	Connector strip for module bus card 5
Connection terminals	X9	System supply connection
	X11	Connection terminals for module bus card 1
	X12	Connection terminals for module bus card 1
	X21	Connection terminals for module bus card 2
	X22	Connection terminals for module bus card 2
	X31	Connection terminals for module bus card 3
	X32	Connection terminals for module bus card 3
	X41	Connection terminals for module bus card 4
	X42	Connection terminals for module bus card 4
	X51	Connection terminals for module bus card 5
	X52	Connection terminals for module bus card 5
Connector Degraded mode	X15	Connector for degraded mode indicator [AT] of module bus card 1
	X25	Connector for degraded mode indicator [AT] of module bus card 2
	X35	Connector for degraded mode indicator [AT] of module bus card 3
	X45	Connector for degraded mode indicator [AT] of module bus card 4
	X55	Connector for degraded mode indicator [AT] of module bus card 5
Internal bus	X500	Connector for module bus output to other card cages
	X501	Connector for module bus input

5.19.2.3 Connection terminals of line card (FDnet/C-NET) in card cage

The ↑ line card (FDnet / C-NET) FCL2001-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:



- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Signal	Connection	↑ Loop	↑ Stub
X11	1	IO_1	Loop1_1+	Loop 1	Stub 1
	2	IO_2	Loop1_1-		
	3	IO_3	Loop1_2+		Stub 2
	4	IO_4	Loop1_2-		
X12	1	IO_5	Loop2_1+	Loop 2	Stub 3
	2	IO_6	Loop2_1-		
	3	IO_7	Loop2_2+		Stub 4
	4	IO_8	Loop2_2-		
X11	5	IO_9	Loop3_1+	Loop 3	Stub 5
	6	IO_10	Loop3_1-		
	7	IO_11	Loop3_2+		Stub 6
	8	IO_12	Loop3_2-		
X12	5	IO_13	Loop4_1+	Loop 4	Stub 7
	6	IO_14	Loop4_1-		
	7	IO_15	Loop4_2+		Stub 8
	8	IO_16	Loop4_2-		

Admissible cable cross-section: 0.2...1.5 mm²

5.19.2.4 Connection terminals of line card (collective) in card cage

The ↑ line card (collective) FCL2002-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:

X12				X11			
4	3	2	1	4	3	2	1
⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
8	7	6	5	8	7	6	5
⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘

- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Signal	Connection	↑ Stub
X11	1	IO_1	Stub_1+	Stub 1
	2	IO_2	Stub_1-	
	3	IO_3	Stub_2+	Stub 2
	4	IO_4	Stub_2-	
X12	1	IO_5	Stub_3+	Stub 3
	2	IO_6	Stub_3-	
	3	IO_7	Stub_4+	Stub 4
	4	IO_8	Stub_4-	
X11	5	IO_9	Stub_5+	Stub 5
	6	IO_10	Stub_5-	
	7	IO_11	Stub_6+	Stub 6
	8	IO_12	Stub_6-	
X12	5	IO_13	Stub_7+	Stub 7
	6	IO_14	Stub_7-	
	7	IO_15	Stub_8+	Stub 8
	8	IO_16	Stub_8-	

Admissible cable cross-section: 0.2...1.5 mm²

5.19.2.5 Connection terminals of line card (MS9i) in card cage

The ↑ line card (MS9i) FCL2003-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:

X12				X11			
4	3	2	1	4	3	2	1
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
8	7	6	5	8	7	6	5
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Signal	Connection	↑ Loop / signal	↑ Stub / connection
X11	1	IO_1	+ 27.5 V		Connection for MS9i devices
	2	IO_2	GND		
	3	IO_3			Not used
	4	IO_4			
X12	1	IO_5			Not used
	2	IO_6			
	3	IO_7			Not used
	4	IO_8			
X11	5	IO_9	Loop1_1+	Loop 1	Stub 1
	6	IO_10	Loop1_1-		
	7	IO_11	Loop1_2+		Not used
	8	IO_12	Loop1_2-		
X12	5	IO_13	Loop2_1+	Loop 2	Stub 2
	6	IO_14	Loop2_1-		
	7	IO_15	Loop2_2+		Not used
	8	IO_16	Loop2_2-		

Admissible cable cross-section: 0.2...1.5 mm²

5.19.2.6 Connection terminals of line card (AnalogPLUS) in card cage

The ↑ line card (AnalogPLUS) FCL2005-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:

X12				X11			
4	3	2	1	4	3	2	1
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
8	7	6	5	8	7	6	5
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Signal	Connection	↑ Loop	↑ Stub
X11	1	IO_1	C11_POS	Loop 1	Stub 1
	2	IO_2	C11_NEG		(Stub 1) ¹
	3	IO_3	C12_POS		
	4	IO_4	C12_NEG		
X12	1	IO_5	C21_POS	Loop 2	Stub 2
	2	IO_6	C21_NEG		(Stub 2) ¹
	3	IO_7	C22_POS		
	4	IO_8	C22_NEG		
X11	5	IO_9	C31_POS	Loop 3	Stub 3
	6	IO_10	C31_NEG		(Stub 3) ¹
	7	IO_11	C32_POS		
	8	IO_12	C32_NEG		
X12	5	IO_13	C41_POS	Loop 4	Stub 4
	6	IO_14	C41_NEG		(Stub 4) ¹
	7	IO_15	C42_POS		
	8	IO_16	C42_NEG		

Admissible cable cross-section: 0.2...1.5 mm²

¹ Only one stub may be connected to each of the connections C1x to C4x.

5.19.2.7 Connection terminals of line card (interactive) in card cage

The ↑ line card (interactive) FCL2006-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:

X12				X11			
4	3	2	1	4	3	2	1
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
8	7	6	5	8	7	6	5
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Signal	Connection	↑ Loop	↑ Stub
X11	1	IO_1	C11_POS	Loop 1	Stub 1 ¹
	2	IO_2	C11_NEG		(Stub 1 ¹)
	3	IO_3	C12_POS		
	4	IO_4	C12_NEG		
X12	1	IO_5	--		
	2	IO_6	--		
	3	IO_7	--		
	4	IO_8	--		
X11	5	IO_9	--		
	6	IO_10	--		
	7	IO_11	--		
	8	IO_12	--		
X12	5	IO_13	--		
	6	IO_14	--		
	7	IO_15	AUX_POS		
	8	IO_16	AUX_NEG		DC 24 V auxiliary voltage output

Admissible cable cross-section: 0.2...1.5 mm².

¹ Only one stub may be connected for each ↑ line card. At either connection C11 or C12.

5.19.2.8 Connection terminals of line card (interactive, Ex) in card cage

The ↑ line card (interactive, Ex) FCL2007-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:

X12				X11			
4	3	2	1	4	3	2	1
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
8	7	6	5	8	7	6	5
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Signal	Connection	↑ Loop	↑ Stub	
X11	1	IO_1	C11_POS	--	Stub 1 ¹	
	2	IO_2	C11_NEG			
	3	IO_3	C12_POS		(Stub 1 ¹)	
	4	IO_4	C12_NEG			
X12	1	IO_5	--			
	2	IO_6	--			
	3	IO_7	--			
	4	IO_8	--			
X11	5	IO_9	--			
	6	IO_10	--			
	7	IO_11	--			
	8	IO_12	--			
X12	5	IO_13	--			
	6	IO_14	--			
	7	IO_15	AUX_POS			DC 24 V auxiliary voltage output
	8	IO_16	AUX_NEG			

Admissible cable cross-section: 0.2...1.5 mm².

¹ Only one stub may be connected for each line card. At either connection C11 or C12.

5.19.2.9 Connection terminals for the I/O card (programmable) in the card cage

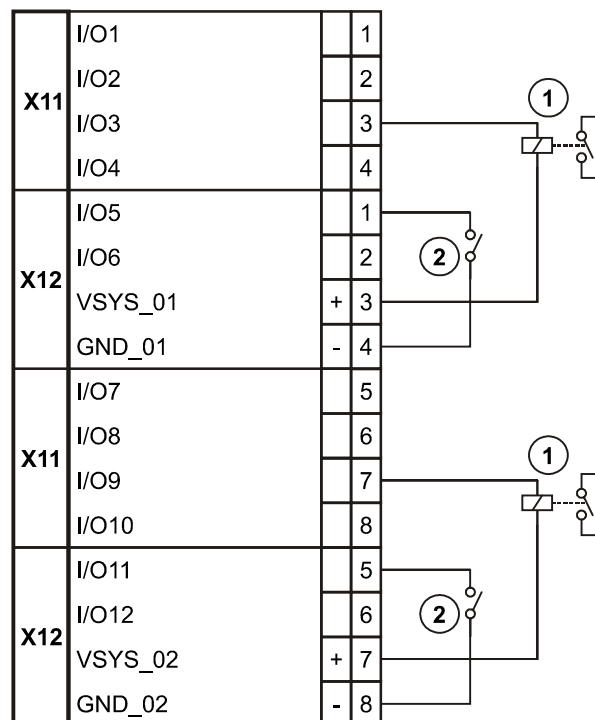
The I/O card (programmable) FCI2008-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:

X12				X11			
4	3	2	1	4	3	2	1
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
8	7	6	5	8	7	6	5
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.



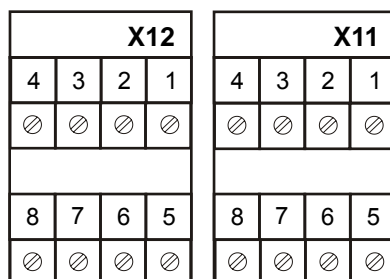
Connector	Pin	Designation	Description
X11	1	IO_1	Configurable input/output 1
	2	IO_2	Configurable input/output 2
	3	IO_3	Configurable input/output 3
	4	IO_4	Configurable input/output 4
X12	1	IO_5	Configurable input/output 5
	2	IO_6	Configurable input/output 6
	3	VSYS_01	Supply output 1 (+)
	4	GND_01	Supply output 1 (-)
X11	5	IO_7	Configurable input/output 7
	6	IO_8	Configurable input/output 8
	7	IO_9	Configurable input/output 9
	8	IO_10	Configurable input/output 10
X12	5	IO_11	Configurable input/output 11
	6	IO_12	Configurable input/output 12
	7	VSYS_02	Supply output 2 (+)
	8	GND_02	Supply output 2 (-)

Admissible cable cross-section: 0.2...1.5 mm²

5.19.2.10 Connection terminals for the I/O card (horn/monitored) in the card cage

The I/O card (horn/monitored) FCI2009-A1 determines the PIN assignment of the connection terminals for the module bus cards in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:



- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Example for pin assignment at slot 1

Connector	Pin	Designation	Description
X11	1	FIRE_OUT_1+	Horn/alarm monitored
	2	FIRE_OUT_1-	
	3	FIRE_OUT_2+	Horn/alarm monitored
	4	FIRE_OUT_2-	
X12	1	FIRE_OUT_3+	Horn/alarm monitored
	2	FIRE_OUT_3-	
	3	FIRE_OUT_4+	Horn/alarm monitored
	4	FIRE_OUT_4-	
X11	5	FIRE_OUT_5+	Horn/alarm monitored
	6	FIRE_OUT_5-	
	7	FIRE_OUT_6+	Horn/alarm monitored
	8	FIRE_OUT_6-	
X12	5	FIRE_OUT_7+	Horn/alarm monitored
	6	FIRE_OUT_7-	
	7	FIRE_OUT_8+	Horn/alarm monitored
	8	FIRE_OUT_8-	

Admissible cable cross-section: 0.14...1.5 mm²

Xn2				Xn1			
4	3	2	1	4	3	2	1
-	+	-	+	-	+	-	+
Out 4		Out 3		Out 2		Out 1	
8	7	6	5	8	7	6	5
-	+	-	+	-	+	-	+
Out 8		Out 7		Out 6		Out 5	

n = Slot no.

Switching variants for monitored alarm and horn outputs with decoupled load (EN 54)

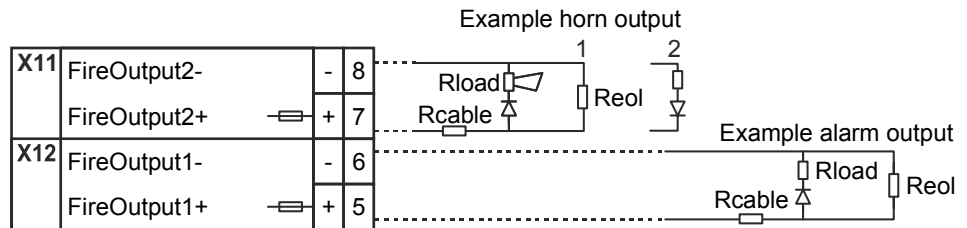


Figure 91: Switching examples for monitored alarm and horn outputs with decoupled load (EN 54)

- Rload Load resistance
- Rcable Line resistance
- Reol Termination resistor
- 1 Standard EOL
- 2 EOL with decoupled load

Switching variants for monitored alarm and horn outputs with load resistance monitoring (VdS)

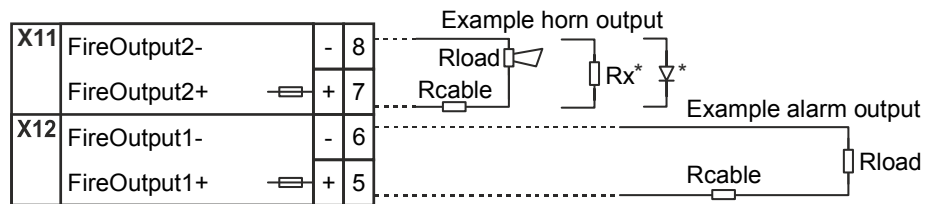


Figure 92: Switching examples for monitored alarm and horn outputs with load resistance monitoring (VdS)

- Rload Load resistance
- Rcable Line resistance
- Rx Additional load resistance
- * If necessary

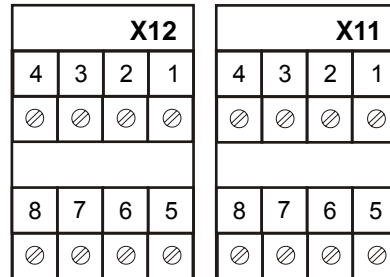
* Adaptation of the load resistance.

You will find detailed information regarding the determination of the resistances for the monitored outputs in the document Planning 008843.

5.19.2.11 Connection terminals for the I/O card (RT) in the card cage

The I/O card (↑ RT) FCI2007-A1 determines the PIN assignment of the four connection terminals in the card cage.

External connections on the card cage using the example of module bus card 1 with the associated connection terminals X11 and X12:



- The external connections of module bus card 2 are on connection terminals X21 and X22
- The external connections of module bus card 3 are on connection terminals X31 and X32
- The external connections of module bus card 4 are on connection terminals X41 and X42
- The external connections of module bus card 5 are on connection terminals X51 and X52

Depending on the card cage, not all slots may be available for module bus cards and connection terminals. However, the numbering and assignment of the connection terminals are identical on all card cages.

Connector	Pin	Designation	Description
X11	1	AL-NO	Alarm relay normally open contact (normally open)
	2	AL_COM	Alarm relay center tap (common)
	3	AL_NC	Alarm relay ↑ normally closed contact
	4	27V2	Supply output (+Vsys)
X12	1	0 V	Supply output (-Vsys)
	2	FAU_NO	Fault relay ↑ normally open contact
	3	FAU_COM	Fault relay center tap (common)
	4	FAU_NC	Fault relay normally closed contact (normally closed)
X11	5	RT_Fault+	Output 3 (+) fault output
	6	RT_Fault-	Output 3 (-) fault output
	7	FireOutput 2+	Output 2 (+) can be configured as alarm output or horn output
	8	FireOutput 2-	Output 2 (-) can be configured as alarm output or horn output
X12	5	FireOutput 1+	Output 1 (+) can be configured as alarm output or horn output
	6	FireOutput 1-	Output 1 (-) can be configured as alarm output or horn output
	7	RE_Response/GPIO1	Programmable input/output / RE response in accordance with ↑ VdS
	8	GPIO2	Input/output programmable

Admissible cable cross-section: 0.14...1.5 mm²

Switching for RE response in accordance with \uparrow VdS

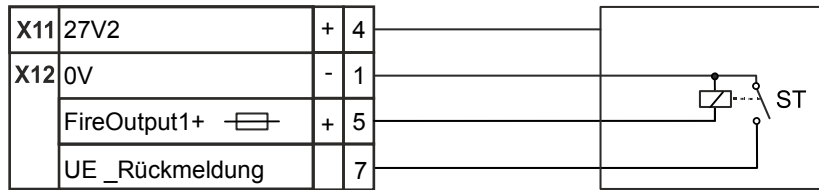


Figure 93: Switching for RE response in accordance with VdS

ST Fault contact of the transmission device

Switching for monitored remote transmission

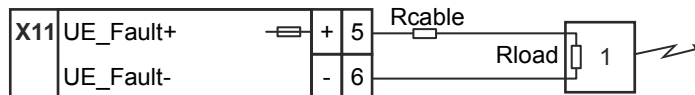


Figure 94: Switching for monitored remote transmission

Rload Load resistance
Rcable Line resistance
1 Remote transmission

Switching variants for monitored alarm and horn outputs with decoupled load (EN 54)

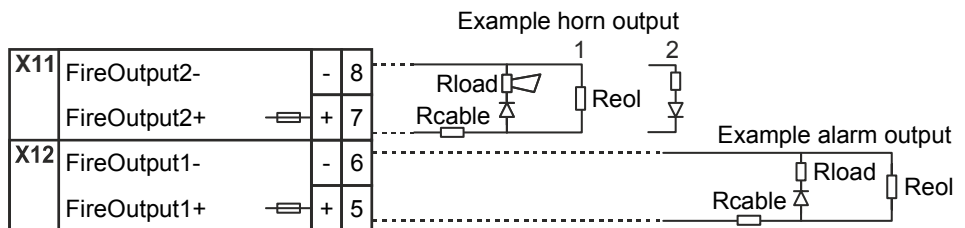


Figure 95: Switching examples for monitored alarm and horn outputs with decoupled load (EN 54)

Rload Load resistance
Rcable Line resistance
Reol Termination resistor
1 Standard EOL
2 EOL with decoupled load

Switching variants for monitored alarm and horn outputs with load resistance monitoring (VdS)

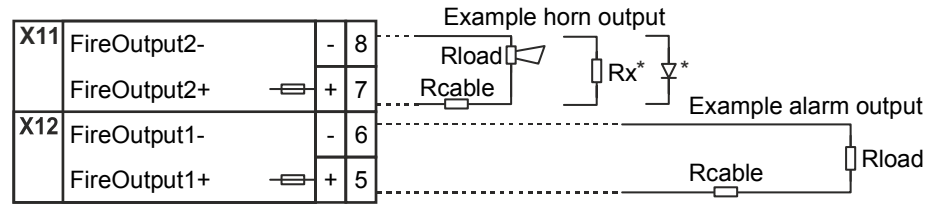


Figure 96: Switching examples for monitored alarm and horn outputs with load resistance monitoring (VdS)

Rload Load resistance

Rx Additional load resistance

R cable Line resistance

* If necessary

* Adaptation of the load resistance.

You will find detailed information regarding the determination of the resistances for the monitored outputs in the document Planning 008843.

Switching for configurable inputs/outputs

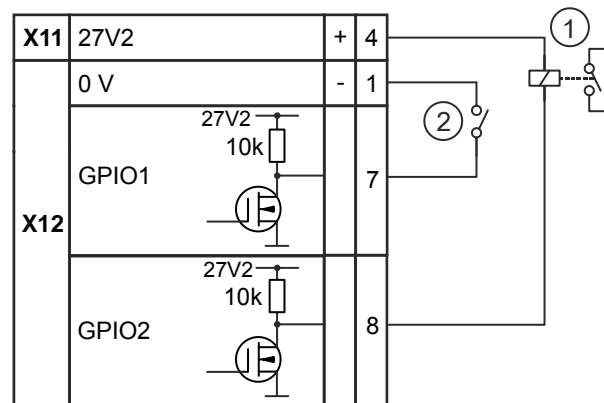


Figure 97: Switching for relays

1 Configured as output

2 Configured as input

Switching for relays ↑ RT alarm and RT fault

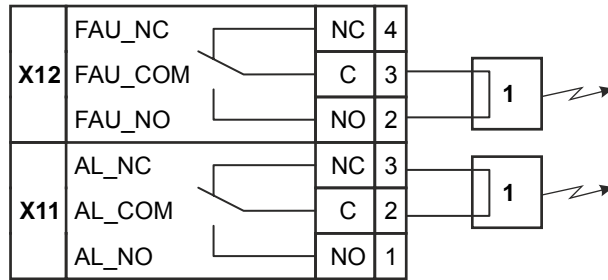


Figure 98: Switching for relays RT Alarm and RT Fault

- 1 Remote transmission
- FAU_... Configured as RT fault relay output
 - ↑ Normal operation (no fault) = contact 2/3 closed
- Configured as universal relay output
 - Normal operation (no fault) = contact 3/4 closed
- AL_... Configured as RT alarm or universal relay output
 - Normal operation (no alarms) = contact 2/3 closed

5.20 RS232 / RS485 module

5.20.1 Installation



This component is installed in exactly the same way as for the operating units with the PMI & mainboard FCM2004 and the PMI & mainboard FCM2027.

The serial modules include:

- RS232 module (isolated) FCA2001-A1
- RS485 module (isolated) FCA2002-A1

The various serial modules can be installed on slots X14 and X19. Installing two identical modules is permitted. One single module must be installed at slot X14. The mounting procedure of the two serial modules is the same for all modules.



If the RS485 module is being pre-configured in SintesoWorks, the address must be assigned according to the slot.

Slot	Address
X14	6
X19	7

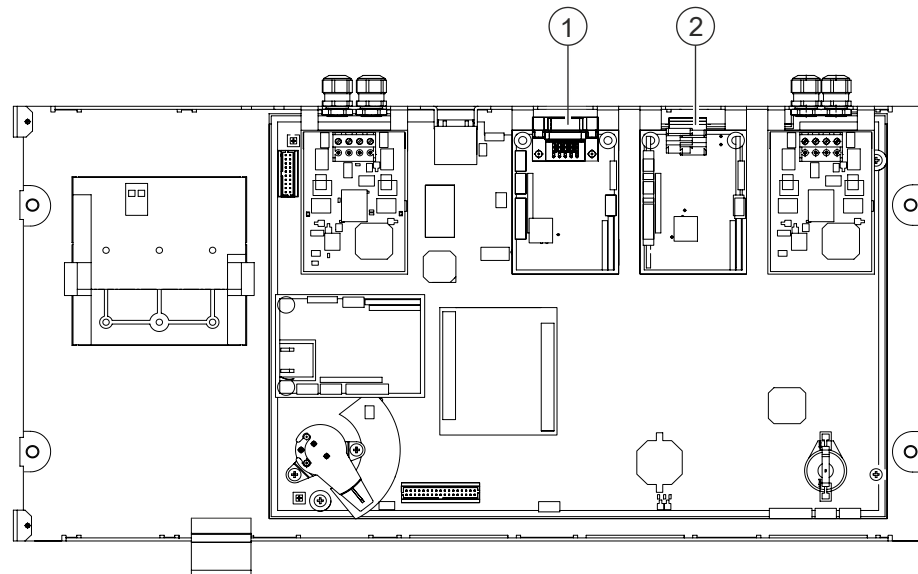


Figure 99: Installation location of the serial modules

- 1 X14, slot 1 [SER_OPT1] for the first series module (figure: RS232 module)
- 2 X19, slot 2 [SER_OPT2] for the second series module (figure: RS485 module)

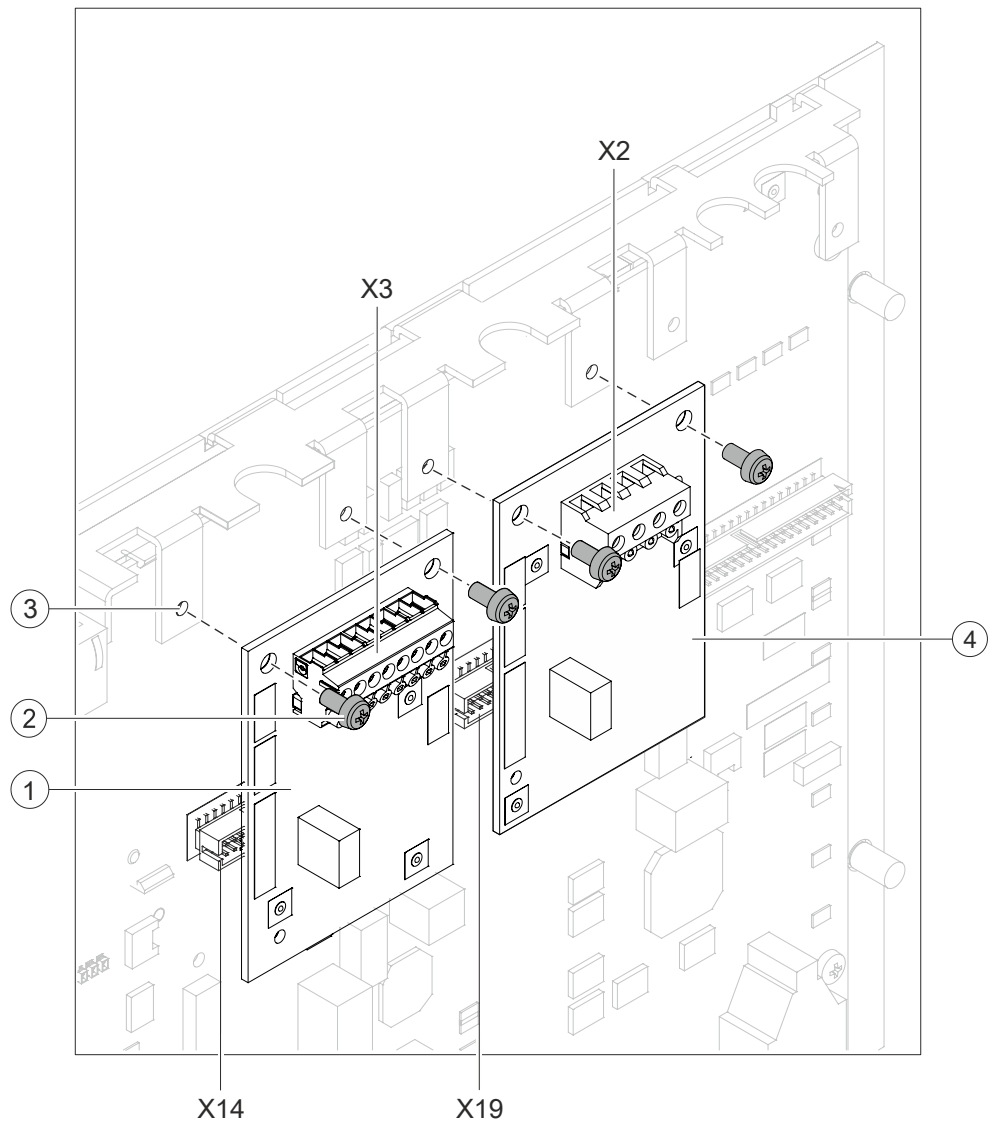


Figure 100: Sample installation of the serial modules

- 1 RS232 module in slot X14
- 2 Fixing screw (2 pieces)
- 3 Mounting links on support plate
- 4 RS485 module in slot X19
- X14 Slot 1 on the operating unit with RS232 module
- X19 Slot 2 on the operating unit with RS485 module
- X3 Connection terminal on RS232 module
- X2 Connection terminal on RS485 module

1. Plug the serial module (1 or 4) into the corresponding connector (X14 or X19).
2. Secure the serial module to the fastening tabs (3) using the two screws (2).
3. Wire up the serial module with the intended components according to the pin assignment.



When using a shielded cable, we recommend installing a cable kit (communication) FCA2014 in order to connect the shielding.

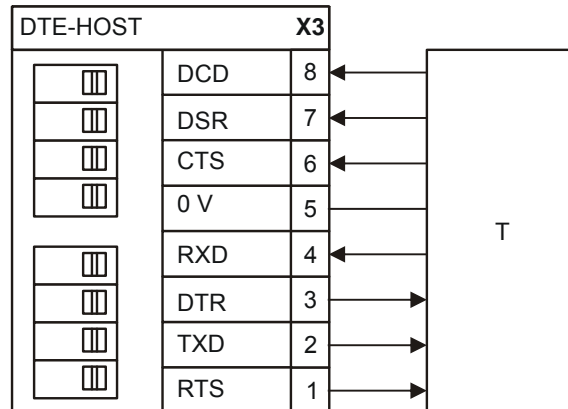
5.20.2 Pin assignments

You will find information on connecting the event printer in the chapter 'Event printer'.

5.20.2.1 X3 DTE HOST on RS282 module

Pin	Designation	Description
8	← DCD	Data Carrier Detected
7	← DSR	Data Set Ready
6	← CTS	Clear To Send
5	0 V	Ground
4	← RXD	Received Data
3	DTR →	Data Terminal Ready
2	TXD →	Transmitted Data
1	RTS →	Ready To Send

Admissible cable cross-section: 0.2...1.5 mm²

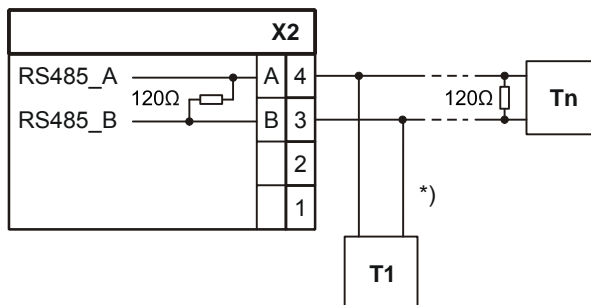


T Participant with RS232 interface

5.20.2.2 X2 on RS485 module

Pin	Designation	Description
4	RS485_A	Line A
3	RS485_B	Line B
2		Not connected
1		Not connected

Admissible cable cross-section: 0.2...1.5 mm²



T1 First participant

Tn Last participant

*) Stub lines must not exceed 20 m!

- Consider the polarity A, B!
- Terminate the line after the last participant (Tn) with 120 Ω!

5.21 Event printer

5.21.1 Installation



This component is installed in exactly the same way as for the operating units with the PMI & mainboard FCM2004 and the PMI & mainboard FCM2027.

The event printer FTO2001-A1 is an option and can be installed either in the operating unit or in the operating add-on, depending on the station design. Depending on the operating add-on, the printer can be installed either on the left or on the right.

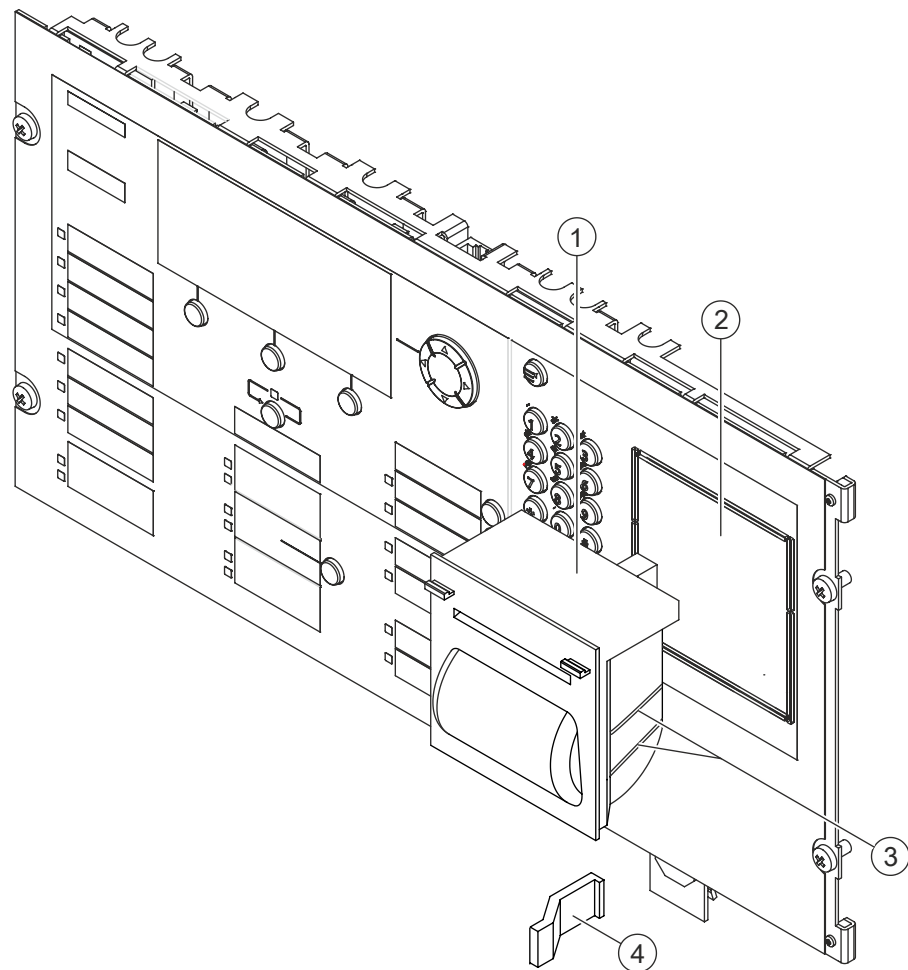


Figure 101: Installation of the printer in the operating unit

- 1 Event printer
- 2 Mounting space for the event printer
- 3 Guide for the fastening clamp
- 4 Fastening clamp (for both sides)

Prerequisite

Note that the serial RS232 module FCA2001-A1 is not included in the printer set and has to be mounted unless it is already installed. Only one printer can be connected per RS232 module.

Mounting steps



Check the installation site carefully

Depending on the station type it is possible that the depth is insufficient for the event printer. This must be checked especially if operating add-ons are used, as the batteries are installed immediately behind the event printer.

If it is installed in the wrong place, this cannot be corrected and may under certain circumstances affect the subsequent assembly of the station.

1. Using a knife, cut out the cover foil along the pre-cut opening.
2. Carefully loosen the pre-cut opening.
3. From the front side, insert the printer (1) into the opening (2) of the operating unit.
4. Holding on to the printer, slide the fastening clamps (4) on both sides of the printer from the rear into the guide slots (3) of the printer.
5. Press the clamps against the operating unit until you can hear them snap in place and they hold the printer sufficiently well.
6. Connect the printer with the supplied cable kit according to the pin assignment.

5.21.2 Pin assignments

5.21.2.1 Connection on printer side

Product version (ES) 01

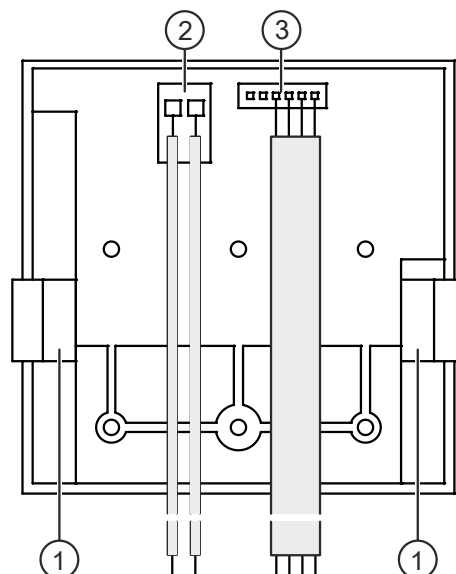
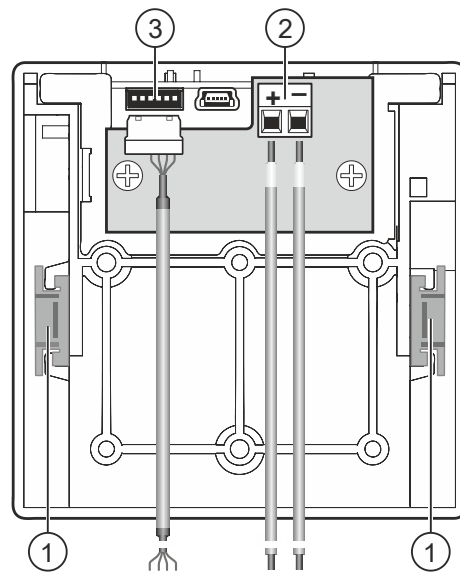


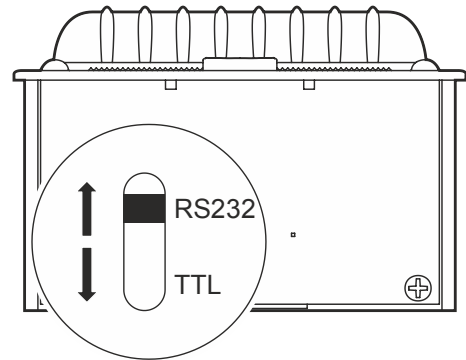
Figure 102: Rear view ES01

Product version (ES) 02



Rear view ES02

ES02: Serial interface settings



Top view

- 1 Fastening clamps
- 2 Supply connection
- 3 Data line connection

5.21.2.2 Connection on station side

The event printer must be directly connected to the power supply.

Connecting the event printer to the power supply (70 W)

Connector	From printer	To	Power supply terminal X2
2	Positive supply (red)	=>	X2, PIN 4 (U _{sys} +)
	Negative supply (blue)	=>	X2, PIN 3 (U _{sys} -)

Table 2: Pin assignment for power supply (70 W)

Connecting the event printer to the power supply (150 W)

Connector	From printer	To	Power supply terminal X8
2	Positive supply (red)	=>	X8, PIN 4, 5, 6, 7, or 8 (+24 V)
	Negative supply (blue)	=>	X8, PIN 1, 2, or 3 (0 V)

Table 3: Pin assignment for power supply (150 W)

Connection of event printer to RS232 module

Connector	From printer	To	Terminal X3 of RS232 module
3	Data (white)	=>	(X3) PIN 6 (CTS)
	Data (brown)	=>	(X3) PIN 4 (RXD)
	Data (green)	=>	(X3) PIN 2 (TXD)
	Data (yellow)	=>	(X3) PIN 5 (0 V)

Table 4: Pin assignment for RS232 module

5.22 Key switch (Kaba) FTO2005-C1



This component is installed in exactly the same way as for the operating units with the PMI & mainboard FCM2004 and the PMI & mainboard FCM2027.

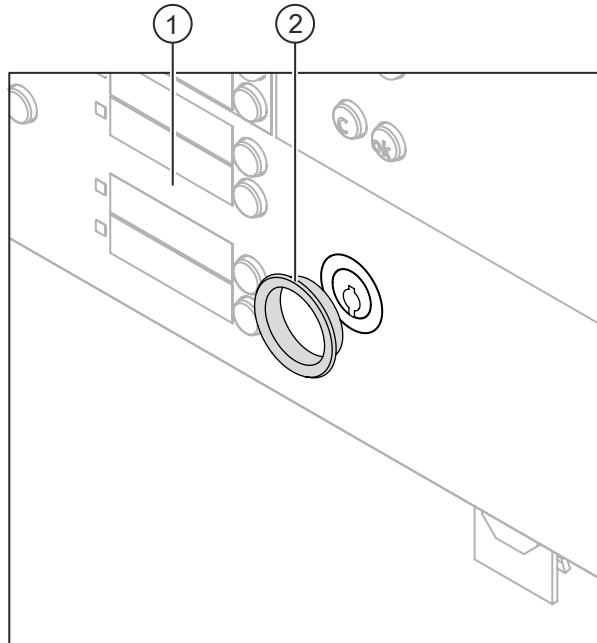


Figure 103: Installing the guard ring for the key switch on the foil side

- 1 Foil side of the operating unit
- 2 Guard ring for the key switch

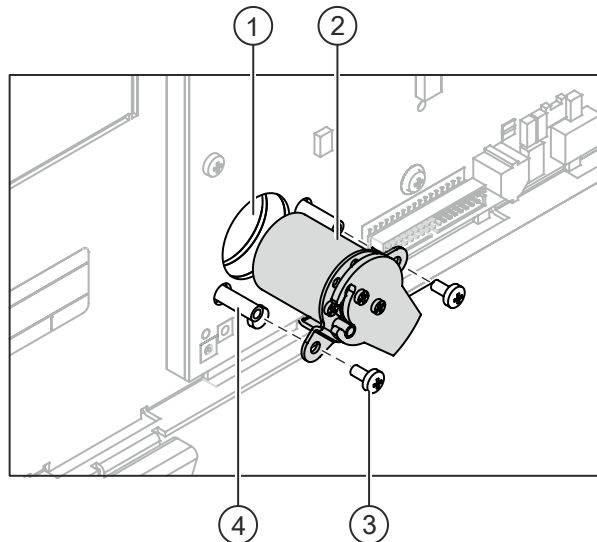


Figure 104: Installing the key switch on the PMI & mainboard

- 1 Opening in the operating unit for the key switch
- 2 Lock cylinder (key switch)
- 3 Fixing screws (2 pieces)
- 4 Spacer bolts (2 pieces)

1. Using a knife, cut out the cover foil along the opening for the key switch (1) (working from the front if possible).
2. Place the cylinder of the key switch (2) on the spacer bolts (4) and screw it tightly in place using the two screws (3).
3. From the front, press the guard ring for the key switch onto the lock cylinder (2) until it snaps into place, as shown in the figure above.

5.23 Redux module [DE]

5.23.1 Installation

The Redux module RGQ:FAT-Redux-FS20 is an option for redundantly activating the fire brigade indication panel (FAT) [DE]. It is fitted on the DIN rail in the fire control panel.

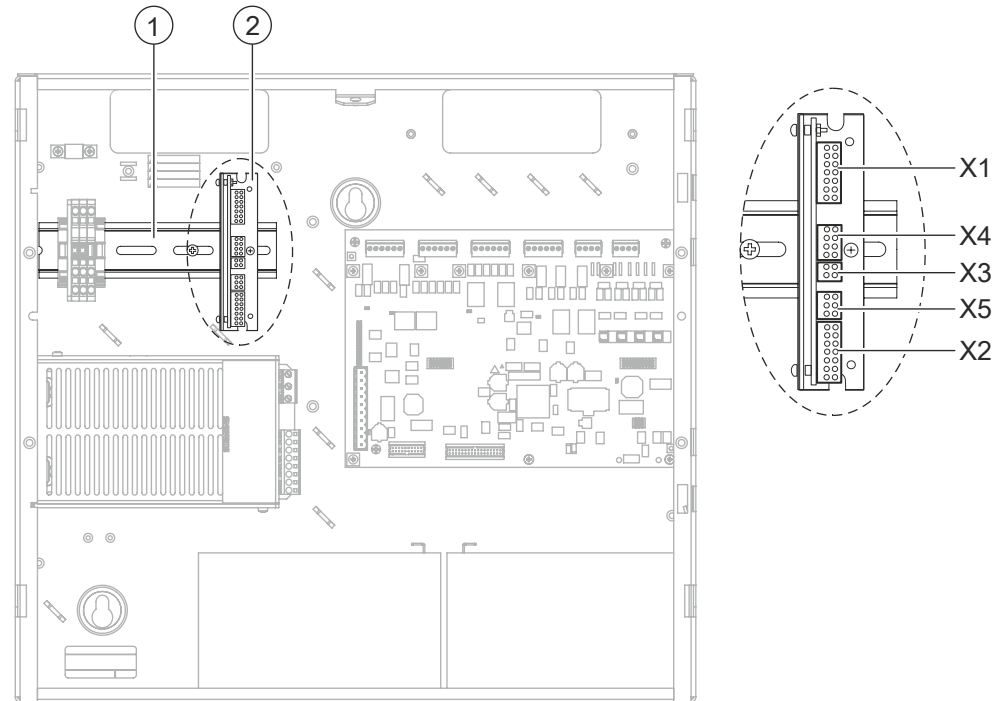


Figure 105: Installation position of the Redux module

- 1 DIN rail
- 2 Redux module
- X1 Connection terminal for line 1 and 2 to the FAT / VAREX
- X2 Connection terminal for signals to the fire control panel
- X3 Input for system voltage
- X4 Output for power supply of the FAT
- X5 Connection terminal fault relay

1. Place the Redux module (2) on the DIN rail (1) with the clamp.
2. Connect the Redux module according to the pin assignment.

5.23.2 Pin assignments

The pin assignment of the Redux module is listed in the manual of the Redux module.

During connection please observe the following:

- The data cables of the Redux module are connected to the RS485 interface.
- The supply of the Redux module is connected to the periphery board.
 - Periphery board (2 loops) FCI2002-A1: Supply output 2 on plug X9
 - Periphery board (4 loops) FCI2004-A1: Supply output 1 on plug X8
- The fault output of the Redux module can be connected to any I/O on the periphery board. The I/O must be configured accordingly.

5.24 Input/output module FDCIO224 [DE]

5.24.1 Installation

The input/output module FDCIO224 has four potential-free contact inputs and four control outputs for VdS-compliant connection of the VdS extinguishing interface. For this application it must be installed in the fire control panel. The input/output module is mounted onto the DIN rail.

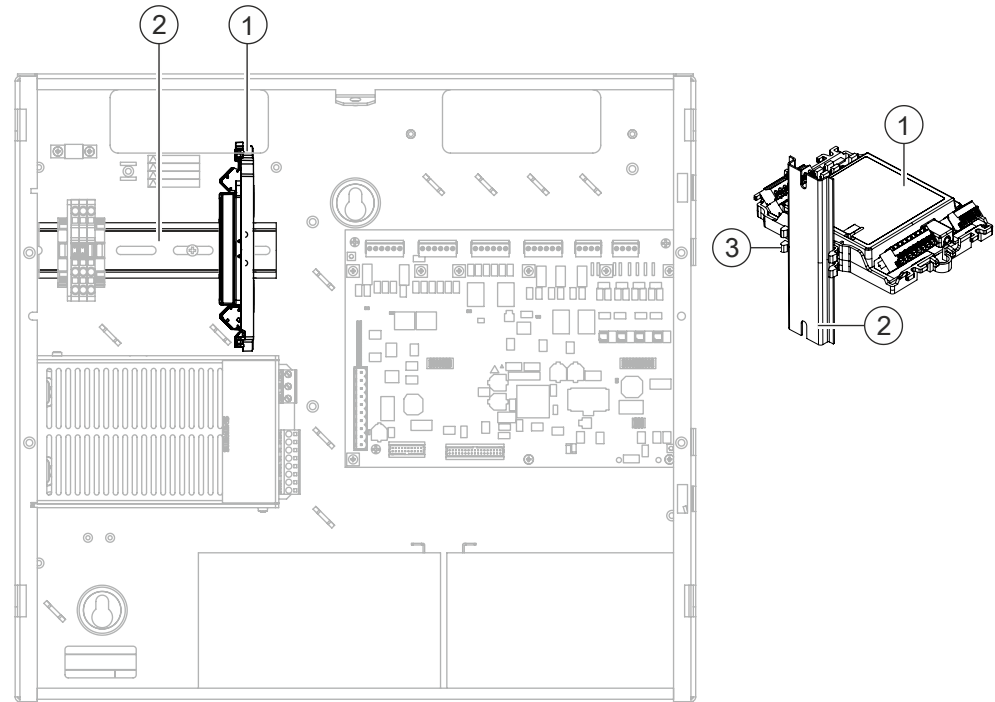


Figure 106: Installing the input/output module FDCIO224 in the fire control panel

- 1 Input/output module FDCIO224
- 2 DIN rail
- 3 Mounting feet

1. Insert the two mounting feet (3) at the sides of the input/output module.
2. Push the input/output module (1) with the mounting feet (3) against the DIN rail (2) until the mounting feet snap into place.
3. Connect the input/output module according to the pin assignment. You will find the pin assignment in document 007023, Technical Manual.

5.25 Sounder module

5.25.1 Installation

The sounder module FCA2005 is intended for installation in FS20 fire control panels and can be installed as follows:

- Screwed, flat on the rear panel or on the mounting plate
- With the mounting feet FDCM291 from the scope of delivery on a U-rail TS35

The following figure shows the installation situation of the sounder module with a U-rail.

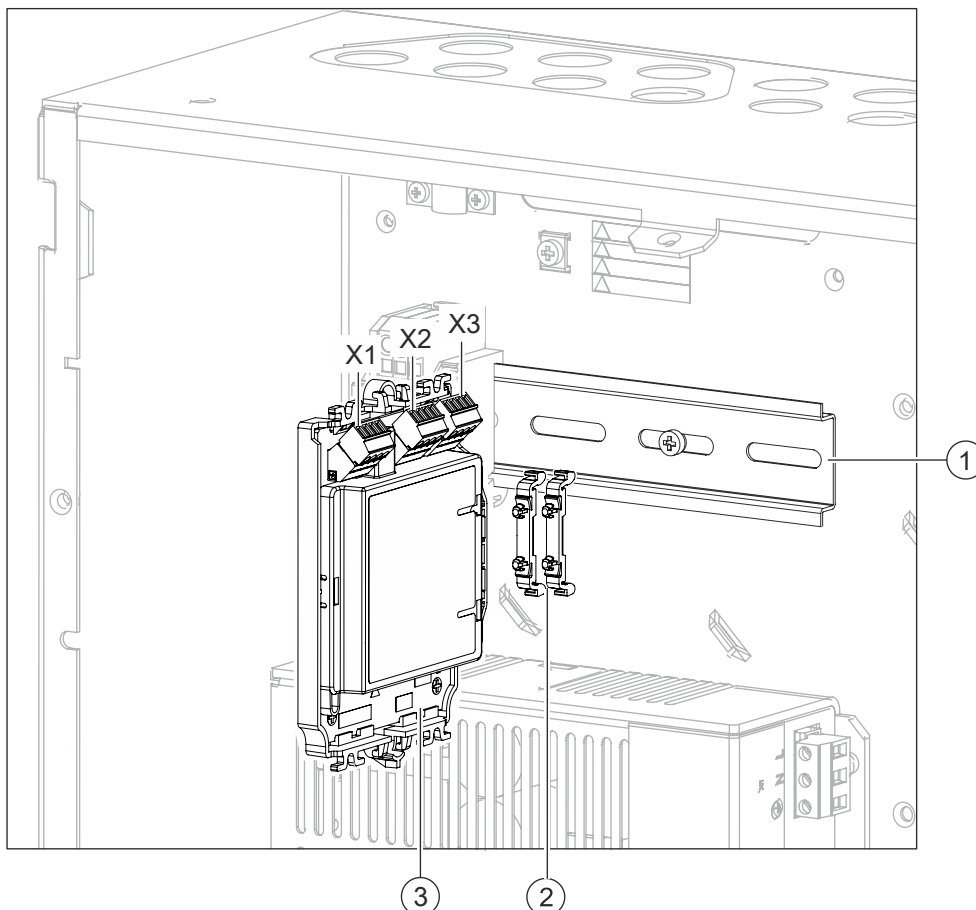


Figure 107: Example installation of the sounder module on a U-rail

- 1 U-rail TS35
- 2 Mounting feet FDCM291
- 3 Sounder module FCA2005

1. Insert the two mounting feet (2) laterally in the sounder module (3). Both mounting feet must be mounted.
2. Push the sounder module (3) with the mounting feet (2) against the U-rail (1) until the mounting feet snap into place.
3. Wire up the sounder module according to the pin assignment.

5.25.2 Pin assignments

5.25.2.1 X1 supply input and sounder input from the periphery board

X1 sounder module			Periphery board 2 loops		Periphery board 4 loops	
Pin	Designation	Description	Pin	Designation	Pin	Designation
1	+Vsys	Supply input from the periphery board (+)	X8-5	VSYS_01 (+)	X8-7	VSYS_01 (+)
2	Ground	Supply input from the periphery board (-)	X8-6	GND_01 (-)	X8-8	GND_01 (-)
3	Sound In +	Sounder input from the periphery board (+)	X6-1	SOUND1+	X5-1	SOUND1+
4	Sound In -	Sounder input from the periphery board (-)	X6-2	SOUND1-	X5-2	SOUND1-

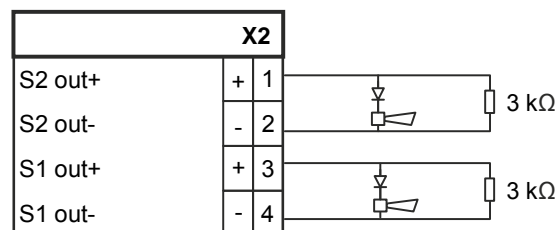
Permissible conductor cross-section: 0.2...1.5 mm²

X1		
Vsys		1
Ground		2
Sound In+	+	3
Sound In-	-	4

5.25.2.2 X2 sounder 1 and 2 outputs

Pin	Designation	Description
1	S2 out+	Sounder output 2 (+)
2	S2 out-	Sounder output 2 (-)
3	S1 out+	Sounder output 1 (+)
4	S1 out-	Sounder output 1 (-)

Permissible conductor cross-section: 0.2...1.5 mm²

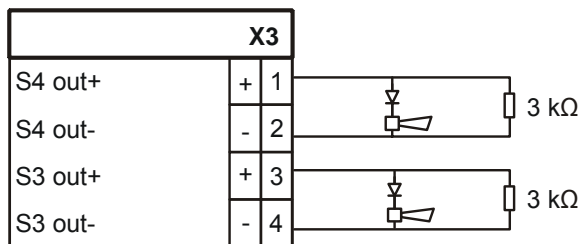


The terminating resistor of 3 kΩ has to be connected even when the output is not in use.

5.25.2.3 X3 sounder 3 and 4 outputs

Pin	Designation	Description
1	S4 out+	Sounder output 4 (+)
2	S4 out-	Sounder output 4 (-)
3	S3 out+	Sounder output 3 (+)
4	S3 out-	Sounder output 3 (-)

Permissible conductor cross-section: 0.2...1.5 mm²



The terminating resistor of 3 kΩ has to be connected even when the output is not in use.

5.25.2.4 Connecting two sounder modules

A maximum of two sounder modules may be connected.

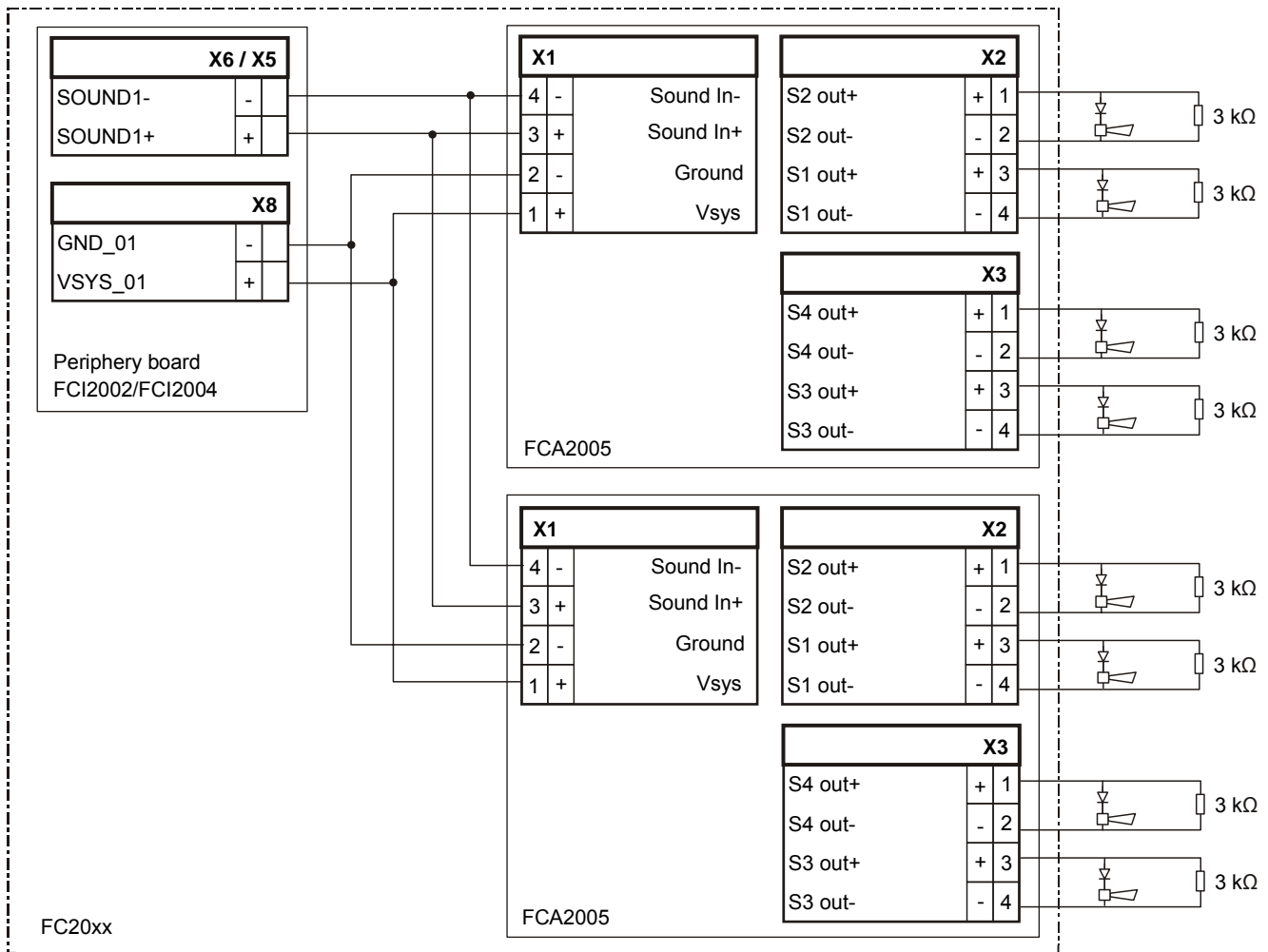


Figure 108: Connecting two sounder modules FCA2005-A1

5.26 Modes of mounting for modules

Modules like the input/output module (transponder) or the sounder module can be fitted in different ways. The following modes of mounting are possible:

- Installation on DIN rail
- Installation on a mounting plate
- Installation in separate housing FDCH291, FDCH292 or FDCH221

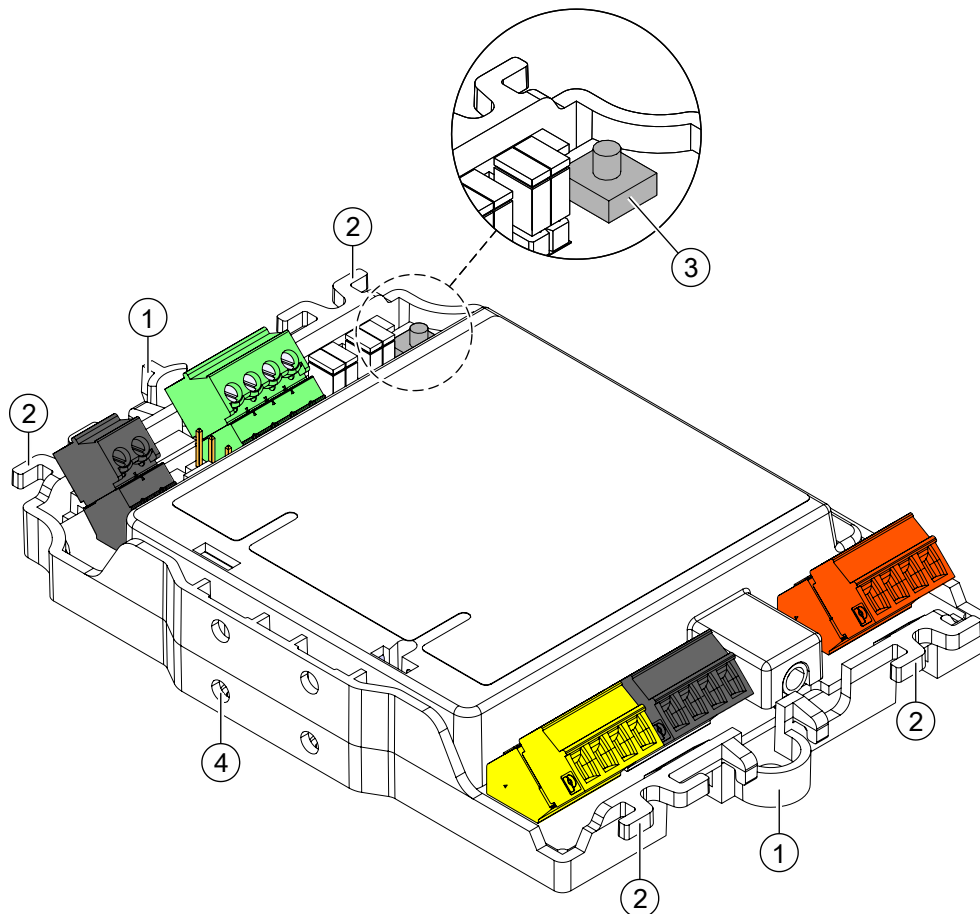


Figure 109: View of module

- 1 Cable tie holder
- 2 Holes for mounting on a mounting plate
- 3 Module to be installed
- 4 Holes for mounting feet FDCM291 for mounting on a DIN rail

5.26.1 Mounting on DIN rail or mounting plate

!	NOTICE
	<p>Short mounting distance Module overheating</p> <ul style="list-style-type: none"> • There must be an air gap of at least 1 cm above the cover cap of the module. • There must be a minimum distance of 1 cm between two modules or any other object.

If you are installing the module without the housing, proceed as follows:

1. Use two screws to mount the module on a flat surface or use two mounting feet FDCM291 to mount on a DIN rail.
 The cover cap must be transparent to allow the LEDs to be seen at all times.
 Pick a suitable mounting position, ensuring that the LEDs will remain visible at all times during operation.
2. Connect the cables to the corresponding terminals. Only connect one wire per terminal.
3. Fix the cables to the module by means of cable ties.

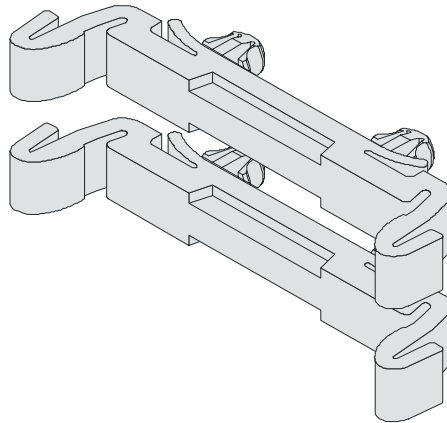


Figure 110: Mounting feet FDCM291

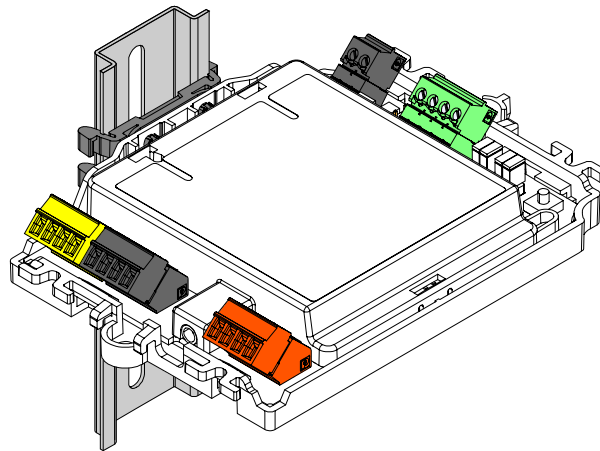


Figure 111: Mounting on DIN rail or mounting plate

5.26.2 Mounting in housing FDCH221

When installing the module in the housing FDCH221, proceed as follows:

1. Break out the cable entries.
2. Mount the housing on a flat surface.
The housing cover is transparent so the LEDs can be seen at all times. Pick a suitable mounting position, ensuring that the LEDs will remain visible at all times during operation.
3. Insert cables. If necessary, secure cables with the M20 cable glands or use a different cable entry.
4. If necessary, press the auxiliary grounding terminals into the back box. Then connect the shielding. The shielding must not touch any extrinsic potentials to ground or metal parts in the device.
5. Install the module in the housing.
6. Connect the cables to the corresponding terminals. Only connect one wire per terminal.
7. Close the housing by snapping the housing cover into place.
The screws supplied must always be used for the housing with seal.



If the cable diameters on the inputs/outputs are greater than 1.5 mm², auxiliary terminals must be used:

In the case of cables with a diameter of 1.5...2.5 mm², the connection terminal DBZ1190-AB can be used.

For larger diameters, the customer should procure a suitable terminal.

The terminal can be positioned inside the housing.

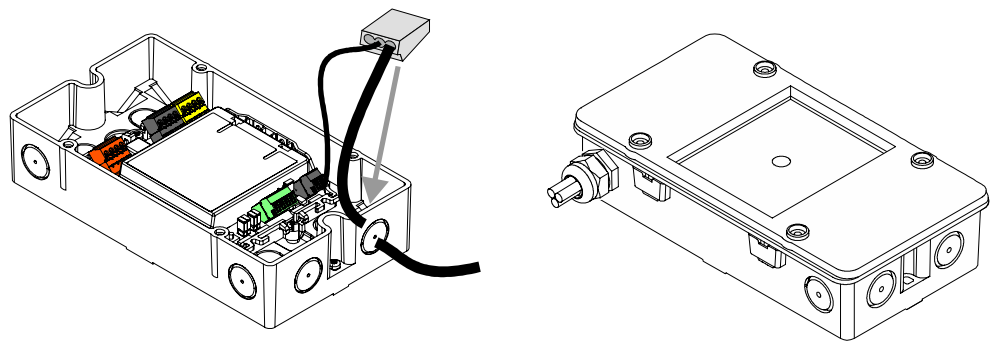


Figure 112: Mounting with housing FDCH221

5.27 RT interface [NL]

5.27.1 Installation

The RT interface FCI2005-A1 can be mounted at different positions depending on the station type and equipment:

- In the Comfort housing to the left of the periphery board, if there is sufficient space
- In the Comfort, Standard and Large housings on the mounting plate above the periphery board

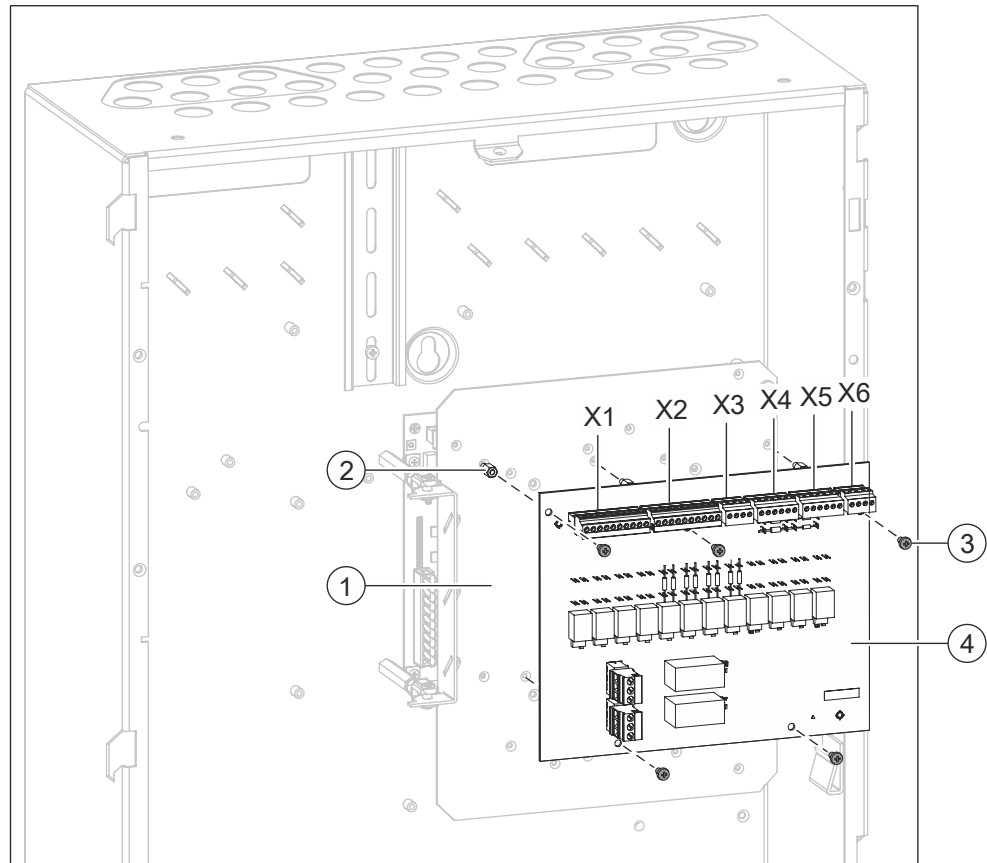


Figure 113: Mounting the RT interface into the mounting plate

- 1 Mounting plate
- 2 Spacer bolts (5 pieces)
- 3 Fixing screws (5 pieces)
- 4 RT interface
- X1 Switching contacts relays 1 ... 5
- X2 Relay 6...10 switching contacts
- X3 Relay 11 + 12 switching contacts
- X4 Relay supply V_{sys+} and relay coils 1 ... 5
- X5 Relay supply V_{sys+} and relay coils 6...10
- X6 Relay coils 11 ... 14
- X7 Relay 13 switching contacts
- X8 Relay 14 switching contacts

1. Mount the RT interface (4) to the mounting plate (2) or the rear panel (observe correct installation position) as shown using the five fixing screws (3). The five spacer bolts (1) must be used when installing on the mounting plate.
2. Wire up the RT interface according to the pin assignment.
3. Fix the cables with the enclosed, self-adhesive Panduit bases and the cable ties. One means of fixation may be e.g. for the mounting plate and the other for the rear panel of the station.

5.27.2 Pin assignments

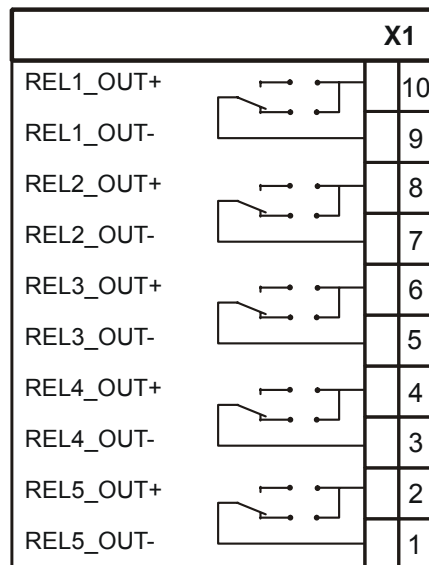
5.27.2.1 X1 switching contacts relays 1...5

Pin	Designation	Description
10	REL1_OUT+	Relay 1 switching contact (configurable as NO or NC)
9	REL1_OUT-	Relay 1 switching contact
8	REL2_OUT+	Relay 2 switching contact (configurable as NO or NC)
7	REL2_OUT-	Relay 2 switching contact
6	REL3_OUT+	Relay 3 switching contact (configurable as NO or NC)
5	REL3_OUT-	Relay 3 switching contact
4	REL4_OUT+	Relay 4 switching contact (configurable as NO or NC)
3	REL4_OUT-	Relay 4 switching contact
2	REL5_OUT+	Relay 5 switching contact (configurable as NO or NC)
1	REL5_OUT-	Relay 5 switching contact

NO = Normally open

NC = Normally closed

Admissible cable cross-section: 0.14...1.5 mm²



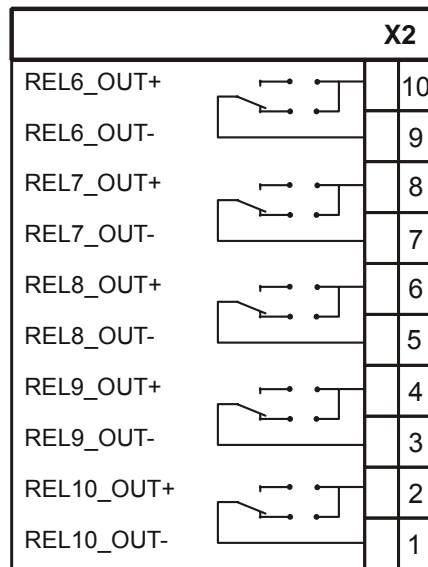
5.27.2.2 X2 switching contacts relays 6...10

Pin	Designation	Description
10	REL6_OUT+	Relay 6 switching contact (configurable as NO or NC)
9	REL6_OUT-	Relay 6 switching contact
8	REL7_OUT+	Relay 7 switching contact (configurable as NO or NC)
7	REL7_OUT-	Relay 7 switching contact
6	REL8_OUT+	Relay 8 switching contact (configurable as NO or NC)
5	REL8_OUT-	Relay 8 switching contact
4	REL9_OUT+	Relay 9 switching contact (configurable as NO or NC)
3	REL9_OUT-	Relay 9 switching contact
2	REL10_OUT+	Relay 10 switching contact (configurable as NO or NC)
1	REL10_OUT-	Relay 10 switching contact

NO = Normally open

NC = Normally closed

Admissible cable cross-section: 0.14...1.5 mm²



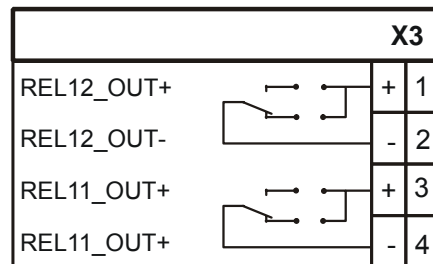
5.27.2.3 X3 relay 11 + 12 switching contacts

PIN	Designation	Description
1	REL12_OUT+	Relay 12 switching contact (configurable as NO or NC)
2	REL12_OUT-	Relay 12 switching contact
3	REL11_OUT+	Relay 11 switching contact (configurable as NO or NC)
4	REL11_OUT-	Relay 11 switching contact

NO = Normally open

NC = Normally closed

Admissible cable cross-section: 0.14...1.5 mm²



5.27.2.4 X4 relay supply V_{sys}+ and relay coils 1...5

Pin	Designation	Description
6	20V-30V/V _{SYS} +	Supply V _{sys} + (connected to X5, PIN 6)
5	REL1_IN-	Relay coil 1, active low
4	REL2_IN-	Relay coil 2, active low
3	REL3_IN-	Relay coil 3, active low
2	REL4_IN-	Relay coil 4, active low
1	REL5_IN-	Relay coil 5, active low

Admissible cable cross-section: 0.14...1.5 mm²

5.27.2.5 X5 relay supply V_{sys}+ and relay coils 6...10

Pin	Designation	Description
6	20V-30V/V _{SYS} +	Supply V _{sys} + (connected to X4, PIN 6)
5	REL6_IN-	Relay coil 6, active low
4	REL7_IN-	Relay coil 7, active low
3	REL8_IN-	Relay coil 8, active low
2	REL9_IN-	Relay coil 9, active low
1	REL10_IN-	Relay coil 10, active low

Admissible cable cross-section: 0.14...1.5 mm²

5.27.2.6 X6 relay coils 11...14

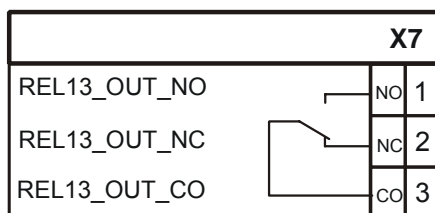
Pin	Designation	Description
4	REL11_IN-	Relay coil 11, active low
3	REL12_IN-	Relay coil 12, active low
2	REL13_IN-	Relay coil 13, active low
1	REL14_IN-	Relay coil 14, active low

Admissible cable cross-section: 0.14... 1.5 mm²

5.27.2.7 X7 relay 13 switching contacts

Pin	Designation	Description
1	REL13_OUT_NO	Relay 13 switching contact, normally open
2	REL13_OUT_NC	Relay 13 switching contact, normally closed
3	REL13_OUT_CO	Relay 13 switching contact, common

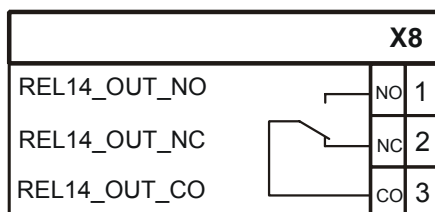
Admissible cable cross-section: 0.2...2.5 mm²



5.27.2.8 X8 relay 14 switching contacts

Pin	Designation	Description
1	REL14_OUT_NO	Relay 14 switching contact, normally open
2	REL14_OUT_NC	Relay 14 switching contact, normally closed
3	REL14_OUT_CO	Relay 14 switching contact, common

Admissible cable cross-section: 0.2...2.5 mm²



5.27.2.9 Connection of cable tree to periphery board

RT interface		Cable tree		Periphery board 4 loops		Periphery board 2 loops	
Pin	Designation	Cable color	Signal	Pin	Designation	Pin	Designation
X4-6	20V- 30V/VSYS+	White-green	Supply (+)	X8-7	VSYS_01	X8-5	VSYS_01
X4-5	REL1_IN-	Blue/red	Manual	X7-1	AL_NO	X7-1	AL_NO
X4-4	REL2_IN-	Gray/pink	Auto	X8-1	I/O1	X8-1	I/O1
X4-3	REL3_IN-	--	Alarm 2	--	--	--	--
X4-2	REL4_IN-	Violet	Fault	X7-6	FAU_NC	X7-6	FAU_NC
X4-1	REL5_IN-	Black	Alarm 1	X8-2	I/O2	X8-2	I/O2
X5-6	20V- 30V/VSYS+	--	Supply (+)	X8-15	VSYS_02	X9-5	VSYS_02
X5-5	REL6_IN-	--	Alarm 2	--	--	--	--
X5-4	REL7_IN-	Red	Fault	X8-3	I/O3	X8-3	I/O3
X5-3	REL8_IN-	Blue	Isolation	X8-4	I/O4	X8-4	I/O4
X5-2	REL9_IN-	Pink	Technical sprinkler	X8-5	I/O5	X9-1	I/O5
X5-1	REL10_IN-	Gray	Supervision sprinkler	X8-6	I/O6	X9-2	I/O6
X6-4	REL11_IN-	Yellow	Fire alarm sprinkler	X8-9	I/O7	X9-3	I/O7
X6-3	REL12_IN-	Green	--	X8-10	I/O8	X9-4	I/O8
X6-2	REL13_IN-	Brown	--	X8-11	I/O9	--	--
X6-1	REL14_IN-	White	--	X8-12	I/O10	--	--

5.28 RT interface [CH]

5.28.1 Installation

The RT interface FCI2006-C1 [CH] is delivered as a complete set incl. connection cables. The RT interface is already inserted onto the mounting plate in the card cage. The cables are connected and pre-assembled.

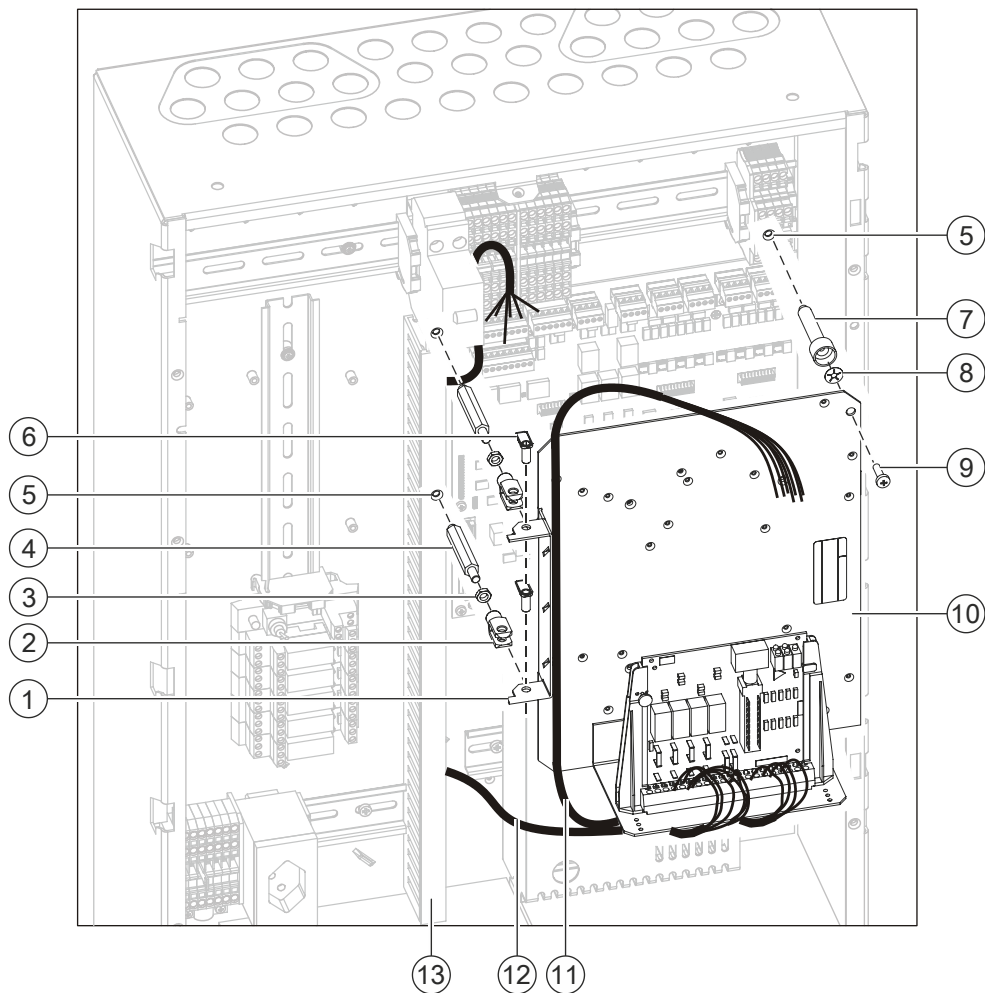


Figure 114: Installation example of the RT interface FCI2006-C1

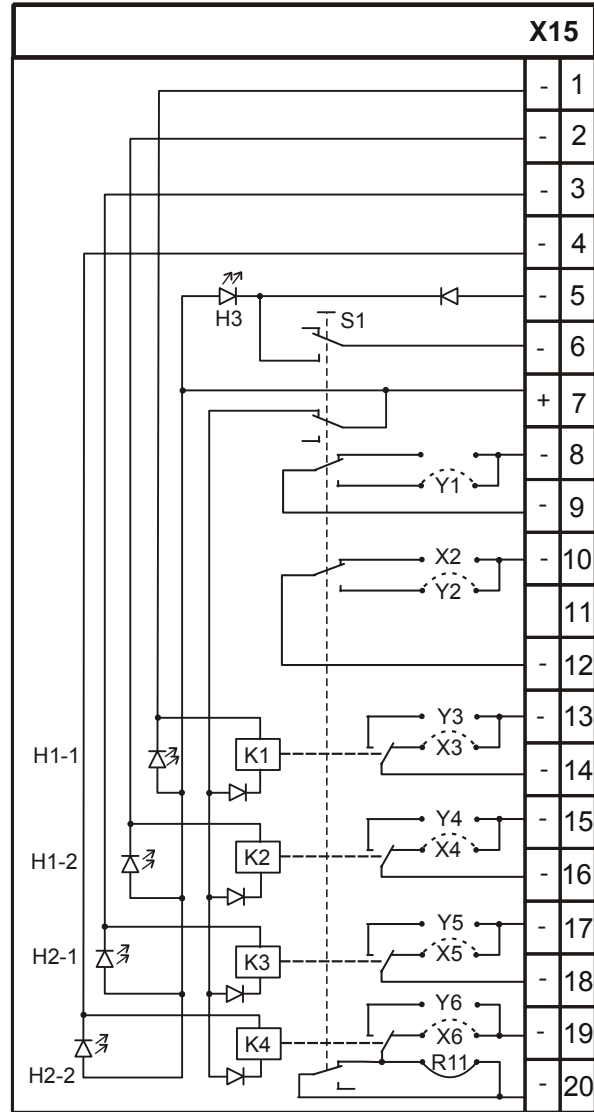
- 1 Hinge angle on mounting plate
- 2 Fork head (2 pieces)
- 3 M5 x 5 hexagon nut (2 pieces)
- 4 M5 hex spacers (2 pieces)
- 5 Mounting holes in housing rear panel
- 6 Fastening clamp (2 pieces)
- 7 Distance piece, circular
- 8 Safety washer (pre-mounted)
- 9 M4 x 14 fixing screw (pre-mounted)
- 10 Mounting plate set with RT interface FCI2006-C1, incl. pre-mounted cables
- 11 Connection cable for the RT device (fixed with cable tie)
- 12 Connection cable to the periphery board (guided through the cable duct)
- 13 Cable duct

1. Screw the round spacer (7) onto the rear panel to right of the periphery board.
2. Screw the two spacers (4) onto the rear panel to the left of the periphery board.
3. Screw one counternut (3) onto each spacer (4).
4. Screw the fork heads (2) onto the spacers (4) and fix them in a horizontal position (in accordance with the figure) using the counternut (3).
5. Insert the mounting plate (10) with the hinge brackets (1) into the fork heads (2) so that the fastening clamps (6) can be inserted into the fork heads from above.
6. Swivel the fastening clamps (6) backwards so that they snap into place behind the fork heads (2).
7. Guide the pre-assembled connection cable (12) to the periphery board through the cable duct (13) and wire up the RT interface in accordance with the pin assignment.
8. Wire up the RT device (if present) with the pre-assembled connection cable (11) according to the pin assignment.
9. Swivel the mounting plate (10) over the periphery board and fix it with the pre-mounted fixing screws (8, 9) in the round spacer (7).

5.28.2 Pin assignments

5.28.2.1 X15 terminal strip

Pin	Description
1	Relay 1, input -
2	Relay 2, input -
3	Relay 3, input -
4	Relay 4, input -
5	Test output
6	0 V supply
7	Relay 4 switching contact (configurable as NO or NC)
8	Relay 4 switching contact
9	Alarm test switching contact
10	Fault test switching contact (configurable as NO or NC)
11	Not used
12	Fault test switching contact
13	Relay 1 switching contact (configurable as NO or NC)
14	Relay 1 switching contact
15	Relay 2 switching contact (configurable as NO or NC)
16	Relay 2 switching contact
17	Relay 3 switching contact (configurable as NO or NC)
18	Relay 3 switching contact
19	Relay 4 switching contact (configurable as NO or NC)
20	Relay 4 switching contact



5.28.2.2 Connection of cable tree to periphery board

RT interface		Cable tree		4 loop periphery board		2 loops periphery board	
Pin	Designation	Cable color	Cable no.	Pin	Designation	Pin	Designation
1	Relay 1	Black	1	X8-1	I/O1	X8-1	I/O1
2	Relay 2	Brown	1	X8-2	I/O2	X8-2	I/O2
3	Relay 3	Green	1	X8-3	I/O3	X8-3	I/O3
4	Relay 4	--	--	--	--	--	--
5	Test	Gray/pink	1	X8-6	I/O6	X8-4	I/O4
6	0 V supply	Blue	1 (+ 2)	X8-8	GND_01	X8-6	GND_01
7	+ 24 V supply	Red	1 (+ 2)	X8-7	VSYS_01	X8-5	VSYS_01
8	Alarm	Gray	1 (+ 2)	X7-3	AL_NC	X7-3	AL_NC
9	Alarm	Pink	1 (+ 2)	X7-2	AL_COM	X7-2	AL_COM
10	Fault	Violet	1 (+ 2)	X7-4	FAU_NO	X7-4	FAU_NO
11	--	Yellow	1 (+ 2)	X8-5	I/O5	X9-4	I/O8
12	Fault	White	1 (+ 2)	X7-5	FAU_COM	X7-5	FAU_COM
13	K1	Black	2	--	--	--	--
14	K1	Brown	2	--	--	--	--
15	K2	Green	2	--	--	--	--
16	K2	Blue-red	2	--	--	--	--
17	K3	Gray/pink	2	--	--	--	--
18	K3	White-green	2	--	--	--	--
19	K4	Brown-green	2	--	--	--	--
20	K4	White-yellow	2	--	--	--	--

Cable no.:

- Cable 1 to periphery board, control cable VDE LI-CY 0.34 mm², 16-pin, length 560 mm, included in cable kit.
- Cable 2 to ↑ RT device, control cable 16-pin VDE LI-CY 0.34 mm², length 700 mm, included in cable kit.

5.29 Cable kit (communication)

The cable kit (communication) FCA2014-A1 is used as an intermediate piece for wiring the external lines to the modules on the operating unit. The connecting cables supplied are fully assembled and have a length of 1110 mm. The cable kit is mounted in the top right of the housing instead of the shield connection terminal blocks.

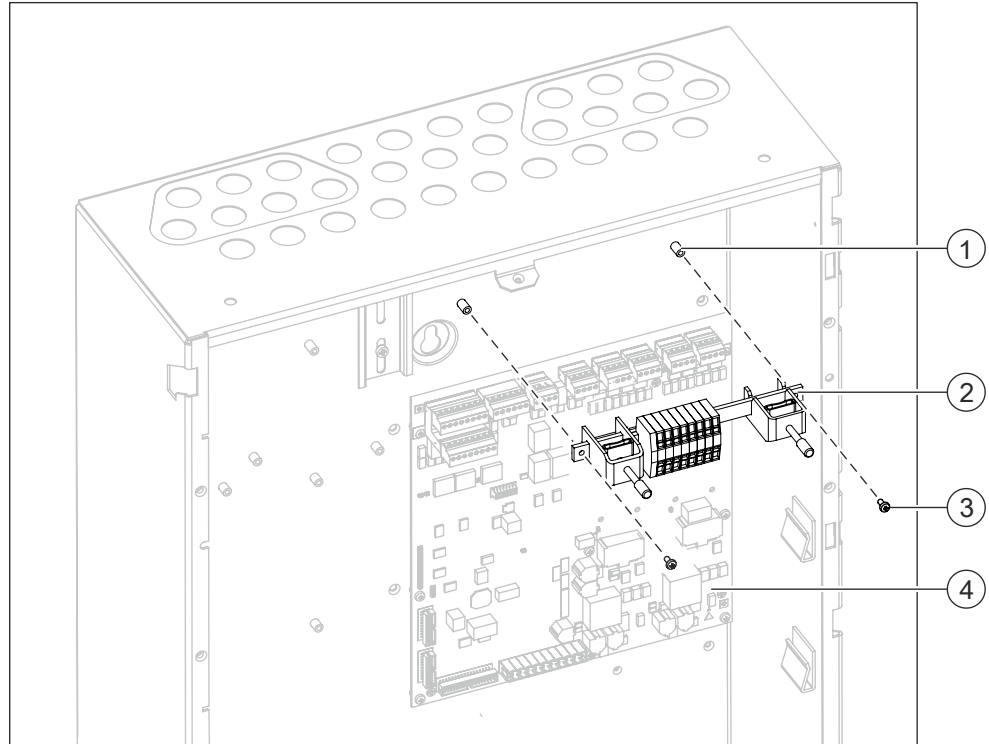


Figure 115: Installation of the cable kit (communication) on the rear panel (example, Standard housing)

- 1 Screw bushings in rear panel for terminal strip
- 2 Terminal strip with 2 shield connection terminal blocks and connection terminals
- 3 2x fixing screws
- 4 Periphery board

Mounting steps

1. First remove the shield connection terminal blocks if present.
2. Screw the mounting rail (2) to the screw bushings in the rear panel (1) using the two fixing screws (3).
3. Now wire the existing module to the operating unit using the cables provided according to the allocation plan of the respective module.
4. Guide the cable to the operating unit along the rear panel and fasten using cable ties.

5.30 Insert license key

The license key is inserted in the designated holder on the rear of the operating unit.

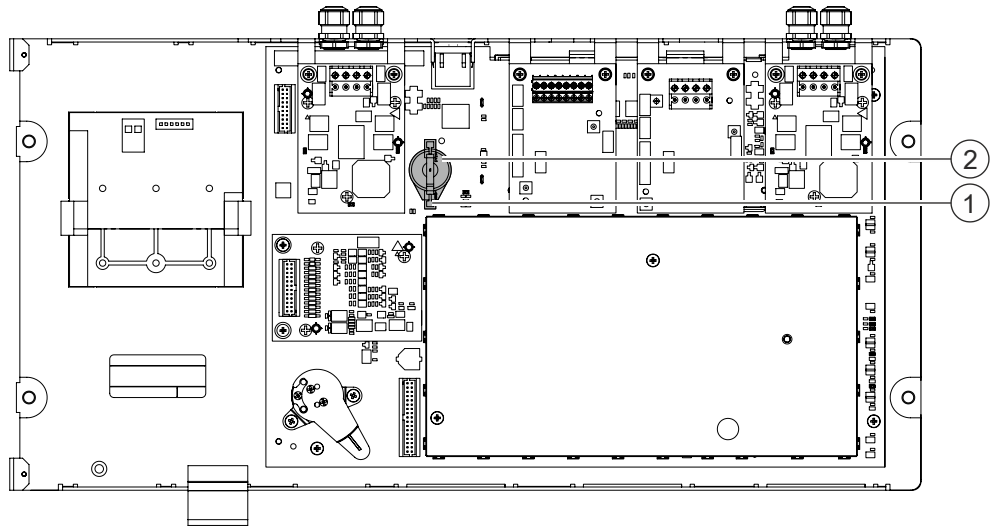


Figure 116: Using the license key on the operating unit with PMI & mainboard FCM2027

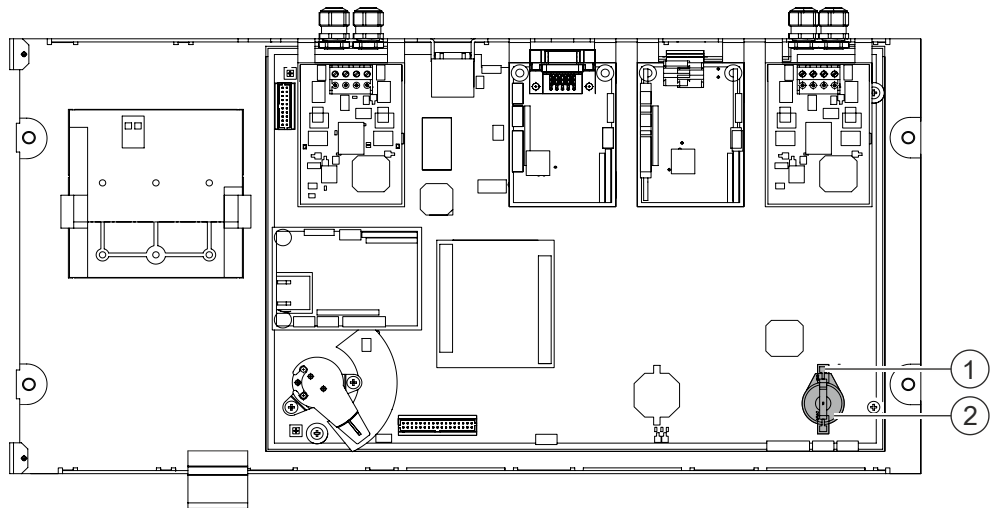


Figure 117: Using the license key on the operating unit with PMI & mainboard FCM2004

- 1 Holder for the license key
- 2 License keys



Disconnect the station from the power supply

If the station is not disconnected from the power supply or if the license key is inserted when the station is switched on, the license key functions will not be enabled.

You will find a detailed description of how to disconnect the station from the power supply in document 009052.

License key installation position: The wider side points toward the clamp, the narrower side toward the printed circuit board.

- ▷ The station is current-free, i.e., it has been disconnected from the power supply and the batteries have been disconnected too.
- Raise the clamp of the retainer (1) and push the license key (2) underneath the clamp.
- ⇒ After a restart, the new functions will be enabled.

5.31 19" mounting kit

The 19" mounting kit FHA2016-A1 serves as a retainer for installing a station into a 19" rack or into a 19" cabinet. To fix a station, the two retainers enclosed with the kit must be mounted.

The mounting instructions described below apply to all housing types.

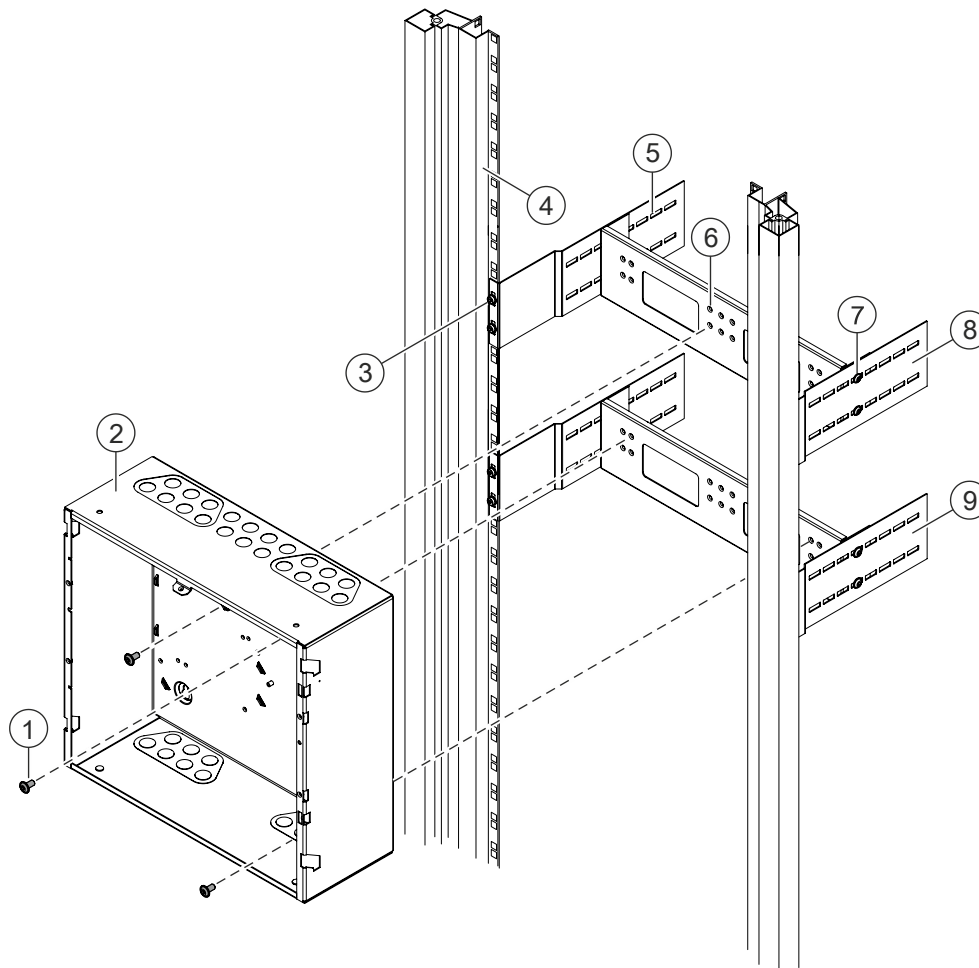


Figure 118: Installing the 19" mounting kit, taking the example of the Standard housing

- 1 Fixing screws for the station (3x or 5x), M5 x 10 pan head screws
- 2 Rear panel of the station
- 3 Fixing of the crossbars on the 19" housing or rack (2 screws each) with M5 x 10 pan head screws
- 4 19" housing or rack
- 5 19" cross bars (4x per kit)
- 6 19" housing brackets (2x per kit)
- 7 Hexagonal fixing screws M6 x 12 for housing brackets (2x per side) and washers M6
- 8 Top 19" retainer
- 9 Bottom 19" retainer

1. Screw the 19" crossbars to the housing bracket. Consider the installation depth of the station.
2. Secure 19" retainers to 19" rack or in 19" cabinet. Consider the mounting height of the station.
3. Fix the station on the housing brackets.

5.32 FM blind

The FM blind is required to achieve a level covering of the station in the event of recess mounting.

There is one FM blind each for the 1HU and 2HU housing heights:

- FM blind (1HU) FHA2017-A1 for the Eco, Standard and Large Extension housings
- FM blind (2HU) FHA2015-A1 for the Comfort and Large housings

The FM blind is installed in an identical way for both variants.

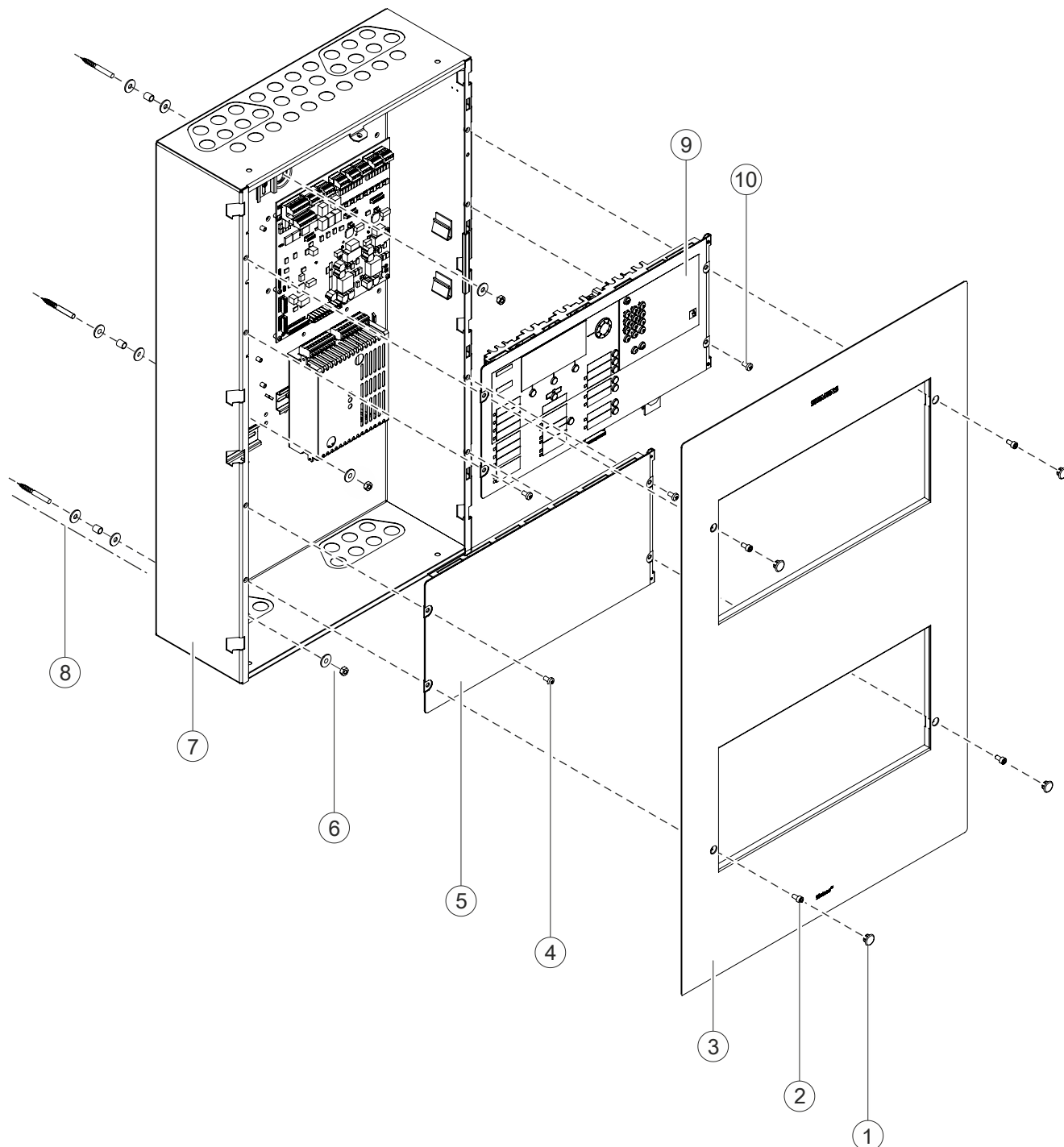


Figure 119: Installing the FM blind, taking the example of the Comfort housing

- 1 Plastic stopper \varnothing 12 mm
- 2 4 hexagon fixing screws M5 x 10 mm for recess-mounted cover cap
- 3 FM blind (2 HU)
- 4 2 fixing screws used for operating add-on (only with Comfort housing)
- 5 Operating add-on (only with Comfort housing)
- 6 Rear panel fixation
- 7 Rear panel
- 8 Fixation for wall mounting
- 9 Operating unit
- 10 2 fixing screws for the operating unit

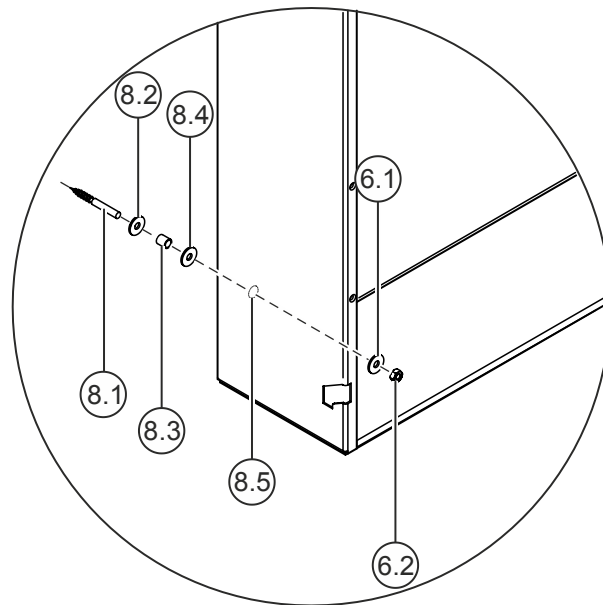


Figure 120: Detailed view of rear panel fixation

- 6.1 M6 x 60 hanger bolts with nylon dowel \varnothing 6 - 8 mm (3 pieces)
- 6.2 Washer \varnothing 6.4/16/0.8 (3 pieces)
- 6.3 Pressure spring d=2 mm / Dd=10 mm / Lo=18 mm / Ln=12.11 mm / Fn=140.44 (3 pieces)
- 6.4 Washer \varnothing 6.4/16/0.8 (3 pieces)
- 6.5 Rear panel mounting hole
- 6.6 Washer \varnothing 6.4/16/0.8 (3 pieces)
- 6.7 Hexagon nut M6 x 0.8 mm (3 pieces)

Recess sizes (W x H x D)

- Housing (Eco) 456 x 424 x 97.5 mm
- Housing (Standard) 456 x 424 x 177.5 mm
- Housing (Large Extension) 456 x 424 x 277.5 mm
- Housing (Comfort) 456 x 822 x 177.5 mm
- Housing (Large) 456 x 822 x 277.5 mm

These dimensions have been measured from the plastering or casing.

You will find information about formwork boxes in document 008843, Planning.




For fixing the station in the niche of the wall, the station must be placed on the floor of the niche and screwed in this position.

This guarantees a simple mounting and that the base of the station and the wall mountings are not burdened by the weight of the batteries.

1. Place the station on the niche floor and mark the holes for the dowels (only 3 pieces per station).
2. Remove the station, drill the holes for the dowels and insert the dowels.
3. Screw the hanger bolts (6.1) into the wall. Use the supplied nuts (6.7) for this purpose and screw the hanger bolts into the wall using a spanner or ratchet. Then remove the nuts again.
4. Now place the washer (6.2), the pressure spring (6.3) and another washer (6.4) onto the hanger bolts (6.1) one after another.
5. Now place the rear panel (7 / 6.5) onto the hanger bolts that have been prepared.
6. Place a washer (6.6) and hexagon nut (6.7) onto the hanger bolts one after another. The pressure springs press the rear panel forwards, thereby allowing for accurate depth alignment.
7. Align the housing by tightening or loosening the hexagon nuts (6.7) so that the surface of the operating unit is level with the plaster. This is to ensure that the FM blind is level with the wall.
8. Fix the operating unit (9) to the wall with the two bottom screws (10).
9. If available, screw down the operating add-on (5) using the two top screws (4).
10. Place the FM blind (3) onto the rear panel so that the upper bracket is placed on the housing (7).
11. Screw down the FM blind with the four fixing screws (2).
12. Plug the plastic stoppers (1) into the four fixing screws (2).


5.33 Batteries

Guidelines

	<p>⚠ WARNING</p>
	<p>Connecting batteries in parallel Risk of explosion and fire</p> <ul style="list-style-type: none"> • Never switch batteries in parallel. • If you need more power, you must use batteries with a higher capacity.

- The batteries must meet the predefined specifications. You will find further information in document 008843.
- Batteries must be installed so that they cannot leak. The openings for cables in the back box must not be broken out (EN 60950-1).
- If two housings are installed and attached one under another, the batteries must be installed in the bottom housing.
- The batteries need to be fixed in the housing using the mounting kit (batteries) FHA2061-A1. You will find information on this in document 'A6V11502888'.

Mounting steps

	<p>NOTICE</p>
	<p>Danger of short circuit Potential damage to hardware</p> <ul style="list-style-type: none"> • The supplied jumper wire must not be connected until the time of commissioning. • Note the polarity of the supply: Red cable = positive pole; blue cable = negative pole

1. Place the batteries on base of the rear panel.
 2. Connect the unconnected cable ends of the secondary cabling of the power supply to the poles of the batteries:
 3. Red cable on positive pole of the left battery
 4. Blue cable on negative pole of the right battery
 5. Fix the batteries using the mounting kit (batteries) FHA2061-A1. You will find detailed information on correctly fixing the batteries depending on the housing used and the battery capacity in document 'A6V11502888'.
- ⇒ The station is then ready for commissioning. You will find information about commissioning in document 009052.

5.34 Operating add-on with 20 zones EVAC-NL [NL]

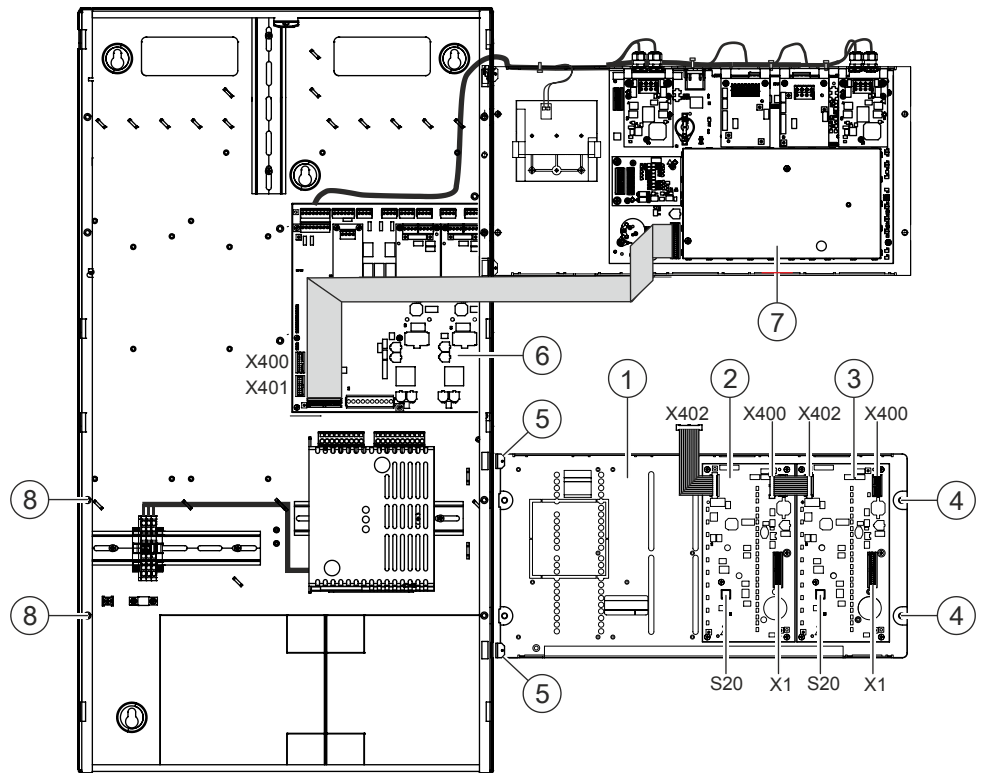


Figure 121: Example: Installation of the operating add-on with 20 zones EVAC-NL

- 1 Operating add-on FCM2008-N1 [NL]
- 2 EVAC-NL operation FTO2007 (slave)
- 3 EVAC-NL operation FTO2007 (master)
- 4 Holes for operating add-on fixing screws
- 5 Hinges of operating add-on
- 6 Periphery board (2-loop or 4-loop depending on type of station)
- 7 Existing operating unit
- 8 Mounting holes for the operating add-on

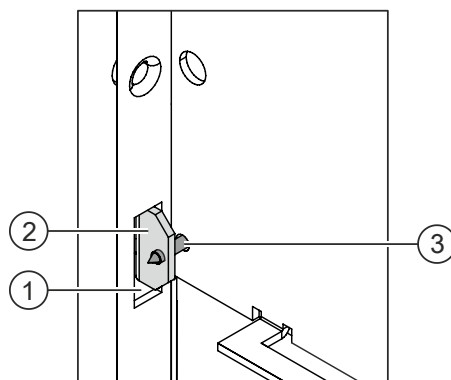


Figure 122: Detail view of the hinge of the operating add-on

- 1 Cut-out section on the rear panel for the hinge
- 2 Hinge
- 3 Screw for securing the hinge

1. Remove cover from fire control panel.
2. Remove empty operating add-on.
3. From the rear, hang the new operating add-on FCM2008-N1 into the openings in the rear panel of the housing (1) with the hinges (2).
4. Hold the operating add-on in place and secure the hinge (2) with the screws (3).
5. Connect ribbon cable (X402) for peripheral data bus with periphery board (X400 or X401).
6. Use the following tables to check the address setting.
7. Swivel the operating add-on towards the station and secure it using the four screws.

5.34.1 Adjustment elements

The EVAC-NL indicator is configured with the switch S20.

Setting for one or the first EVAC-NL

Switch S20						Meaning
1	2	3	4	5	6	
S0	S1	S2	Master	Syn	(Empty)	
			ON	OFF		Device address 1 ¹
ON			ON	OFF		Device address 2
	ON		ON	OFF		Device address 3
ON	ON		ON	OFF		Device address 4
		ON	ON	OFF		Device address 5
X	X	X	ON	ON		Mimic display outputs are actuated and polled (LED, keys and key switch)

Blank fields = Switch in 'OFF' position

X = Switch position according to addresses 1 to 5

¹ If working with a **single** EVAC-NL indicator (10 zones) and if working with the **first** EVAC-NL indicator, S20/4 (Master) must always be set to **ON**. If used in the EVAC-NL mimic display driver, the S20/5 (Syn) switch must also be **ON**.



Each address can be assigned only once per ↑ station.

The factory setting is always made for the application in question.

Setting for the second and/or any subsequent EVAC-NL indicator

Switch S20						Meaning
1	2	3	4	5	6	
S0	S1	S2	Master	Syn	(Empty)	
			OFF	OFF		Device address 1
ON			OFF	OFF		Device address 2 ¹
	ON		OFF	OFF		Device address 3
ON	ON		OFF	OFF		Device address 4
		ON	OFF	OFF		Device address 5
X	X	X	OFF	ON		Mimic display outputs are actuated and polled (LED, keys and key switch)

Blank fields = Switch in 'OFF' position

X = Switch position according to addresses 1 to 5

¹ 2 EVAC-NL indicators must not be operated on the same address (per station).

On the second or any subsequent indicator, the address must always be set 1 higher (slave). If used in the EVAC-NL mimic display driver, the S20/5 (Syn) switch must also be **ON**.



Each address can be assigned only once per station.

The factory setting is always made for the application in question.

5.35 Remote EVAC-NL and EVAC-NL mimic display driver

5.35.1 Remote 20-zone EVAC-NL indicator

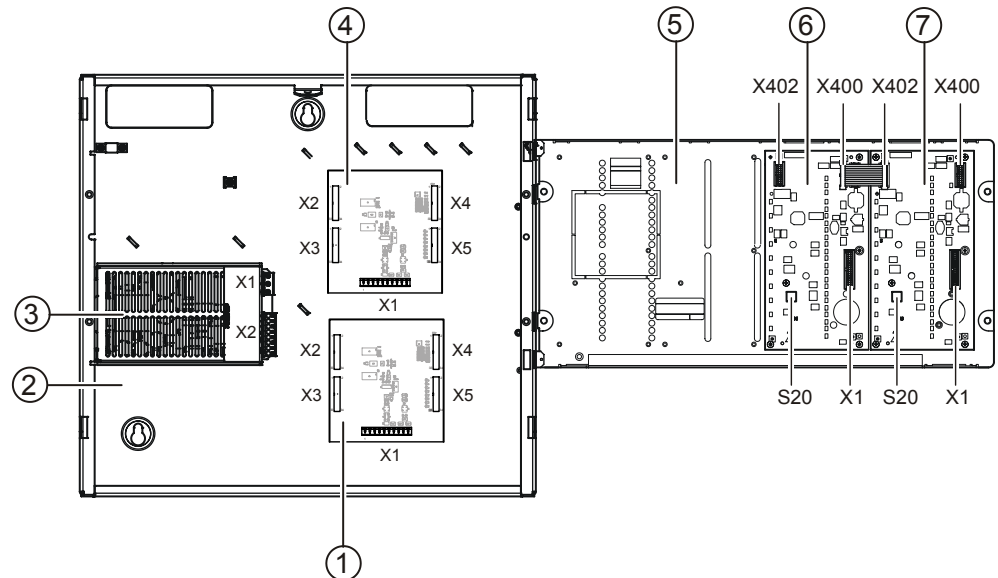


Figure 123: Example of remote mounting of the 20-zone EVAC-NL indicator in an Eco housing

- 1 EVAC-NL connector board FTI2002-N1
- 2 Eco housing (example)
- 3 Power supply (70 W) (example)
- 4 EVAC-NL connector board FTI2002-N1
- 5 Operating add-on FCM2008-N1
- 6 EVAC-NL operating unit FTO2007-N1
- 7 EVAC-NL operating unit FTO2007-N1

Preparation

The 20-zone EVAC-NL indicator is available as a component in the operating add-on FCM2008-N1. It can be installed in a station as an operating add-on or remotely operated in any housing. In this instance it is also supplied using any separate power supply, which can be installed in the housing, or via an external power supply.

The following components are also needed to operate the remote operating add-on FCM2008-N1:

- Any housing or Eco housing FH2001-A1
 - Any DC 24 V power supply or power supply (70 W) FP2015-A1
 - 1 or 2 EVAC-NL connector boards FTI2002-N1 (1 each per 10 zones)
 - 34 pin x 1 mm ribbon cable for connecting to the EVAC-NL connector board FTI2002-N1
 - RS485 module FCA2001-A1 for installation in the associated control panel
1. Mount the operating add-on FCM2008-N1 (5) on the Eco housing (2) or on any housing.
 2. If the power supply is integrated, install power supply (3) in the Eco housing (2).
 3. Depending on the number of zones, mount 1 or 2 EVAC-NL connector boards FTI2002-N1 (1, 4) with spacer bolts in the housing (2).
 4. Wire up the power supply, connector boards and the operating add-on according to the following pin assignments.
 5. Check the address settings on the EVAC-NL operating units FTO2007-N1 with the following address setting.
 6. Swivel the operating add-on (5) on to the housing (2), secure it, and fit the cover cap (for Eco housing).

5.35.2 Fitting the EVAC-NL mimic display driver FT2003-N1

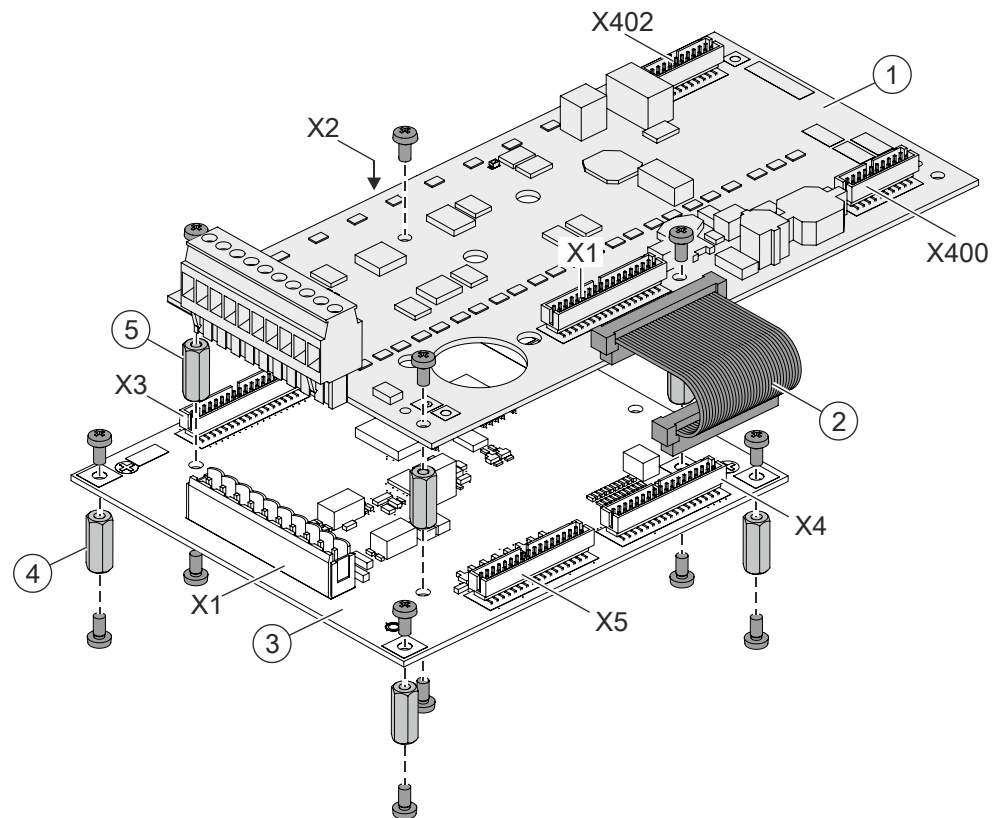


Figure 124: Assembly of EVAC-NL mimic display driver FT2003-N1

- | | |
|----------------|---|
| 1 | EVAC-NL operating unit FTO2007-N1 |
| 2 | Ribbon cable between EVAC-NL connector board and EVAC-NL operating unit |
| 3 | EVAC-NL connector board FTI2002-N1 |
| 4 | 4 spacer bolts (15 mm) and fixing screws for securing housing |
| 5 | 4 spacer bolts (15 mm) and fixing screws for fixing printed circuit board |
| X1/
FTI2002 | Connection strip for supply, monitoring signals and RS485 connection |
| X2 | Connections of LED mimic display indicator 1...17 |
| X3 | Connections of LED mimic display indicator 18...34 |
| X4 | Ribbon cable connection to EVAC-NL FTO2007 |
| X5 | Connections for mimic display operation |
| X400 | Connection peripheral data bus, input |
| X402 | Connection for peripheral data bus, output |

Preparation

The EVAC-NL mimic display driver FT2003-N1 is supplied as a component which is fitted by operators in their own housings. It is also supplied by the operators using a separate power supply, which can be fitted in the housing, or via an external power supply.

The following components are therefore also needed to operate the EVAC-NL mimic display driver FT2003-N1:

- Any housing or Eco housing FH2001-A1
 - Front plate, LED indicators and operation keys for the mimic display panel
 - Any DC 24 V power supply or power supply (70 W) FP2015-A1
 - Molex 87586-3493 spring strips (Siemens no. A5Q 00005805) for mimic display connections
 - 34 pin x 1 m ribbon cable for mimic display connections
 - RS485 module FCA2001-A1 for installation in the control panel
 - If using several cascaded EVAC-NL mimic display drivers FT2003-N1, one ribbon cable each for the peripheral data bus.
1. Fit the EVAC-NL mimic display driver FT2003-N1 with 4 spacer bolts and fixing screws (4) in the housing.
 2. Install the power supply and mimic display elements according to the following pin assignments.
 3. If working with cascaded mimic display drivers, observe the address settings and connect the EVAC-NL operating units FTO2007-N1 with a ribbon cable using the X400/X402 plugs.

5.35.3 Pin assignments

The EVAC-NL connector board FTI2002-N1 is used as an interface from the EVAC-NL operating unit FTO2007-N1 to the RS485 card in the control panel.

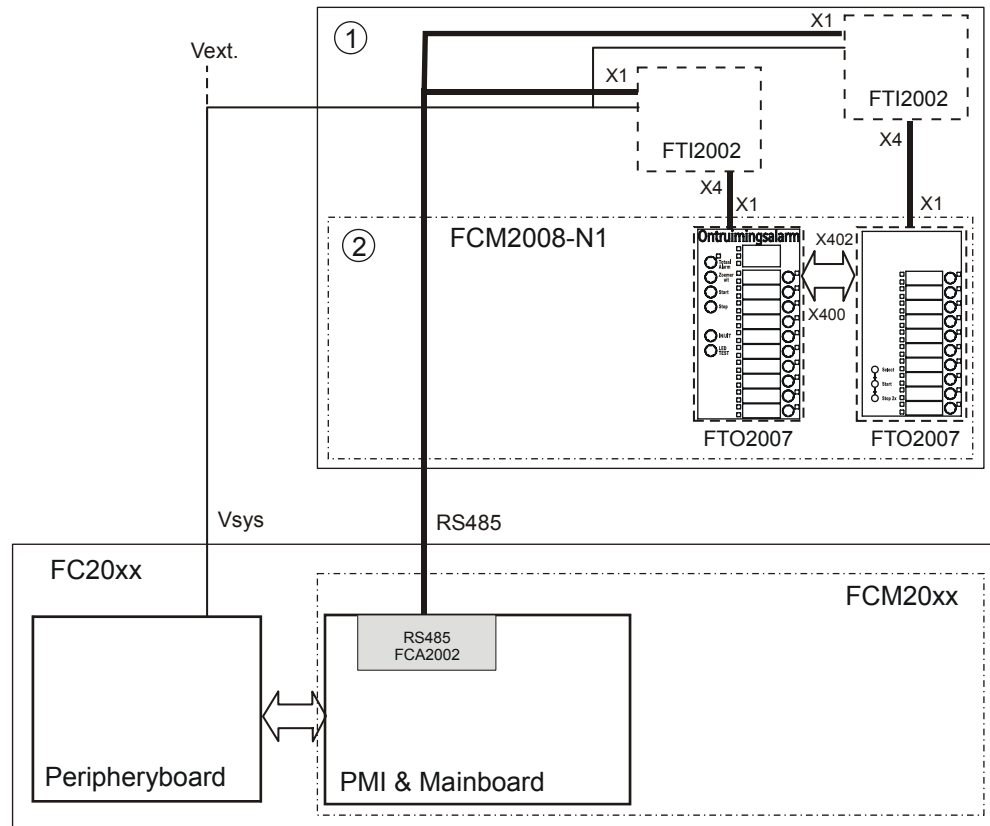


Figure 125: Wiring of the EVAC-NL connector board FTI2002-N1 in a remote EVAC 20-zone indicator

- | | |
|---------|--------------------------------|
| 1 | Any housing (e.g. ECO housing) |
| 2 | Operating add-on FCM2008-N1 |
| FTI2002 | EVAC-NL connector board |
| FTO2007 | EVAC-NL operating unit |

The two EVAC-NL operating units FTO2007-NL must be linked to each other for synchronization via the peripheral data bus (X400 –X402). If the LED indicators on the two components do not flash in synch, this indicates that they are not connected to one another.

In the EVAC mimic display FT2003-N1, the EVAC-NL connector board FTI2002-N1 is supplied together with the EVAC-NL operating unit FTO2007-N1.

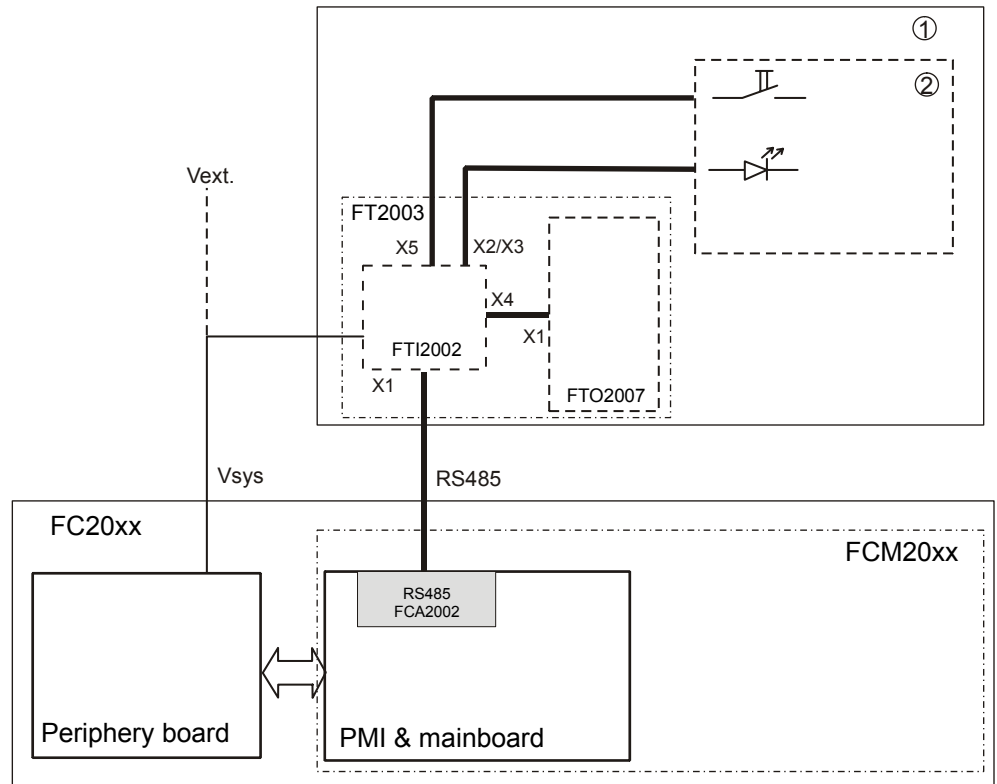


Figure 126: Wiring for EVAC-NL mimic display FT2003-N1

- 1 Any housing IP30 (e.g. ECO housing)
- 2 Any mimic display indicator and operation
- FT2003 EVAC-NL mimic display
- FTO2007 EVAC-NL operating unit
- FTI2002 EVAC-NL connector board

5.35.4 Cable length and cable resistance

If using a remote EVAC-NL indicator and the EVAC mimic display driver, the length of the power supply cable is limited if the component is supplied internally via the periphery board.

The diagram below can be used to determine the maximum cable lengths for both cases.

The following cable is specified for the power supply:

- No shielding
- Twisted pair cable
- With at least 10 twists.

Please refer to the data for the corresponding component for the maximum RS485 interface cable length.

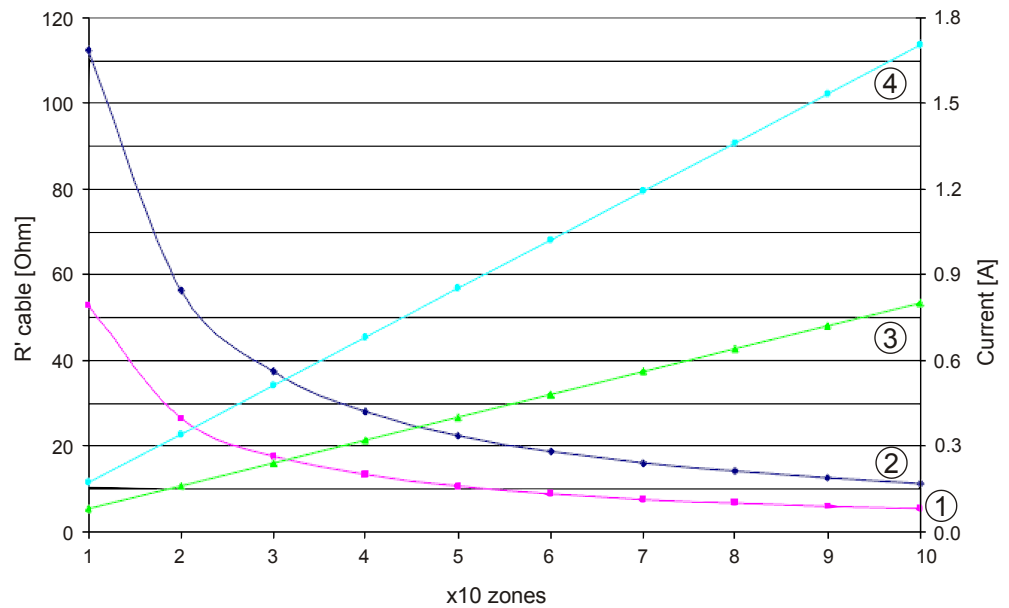


Figure 127: Diagram for calculating the max. cable resistance

- 1 Max. cable resistance R' for EVAC-NL mimic display driver
- 2 Max. cable resistance R' for remote EVAC-NL indicator
- 3 Max. current for remote EVAC-NL indicator
- 4 Max. current for EVAC-NL mimic display driver

Example of using the diagram

Two remote EVAC indicators, one with 20 zones, the other with 30 zones, are supplied by the periphery board of the same ↑ station.

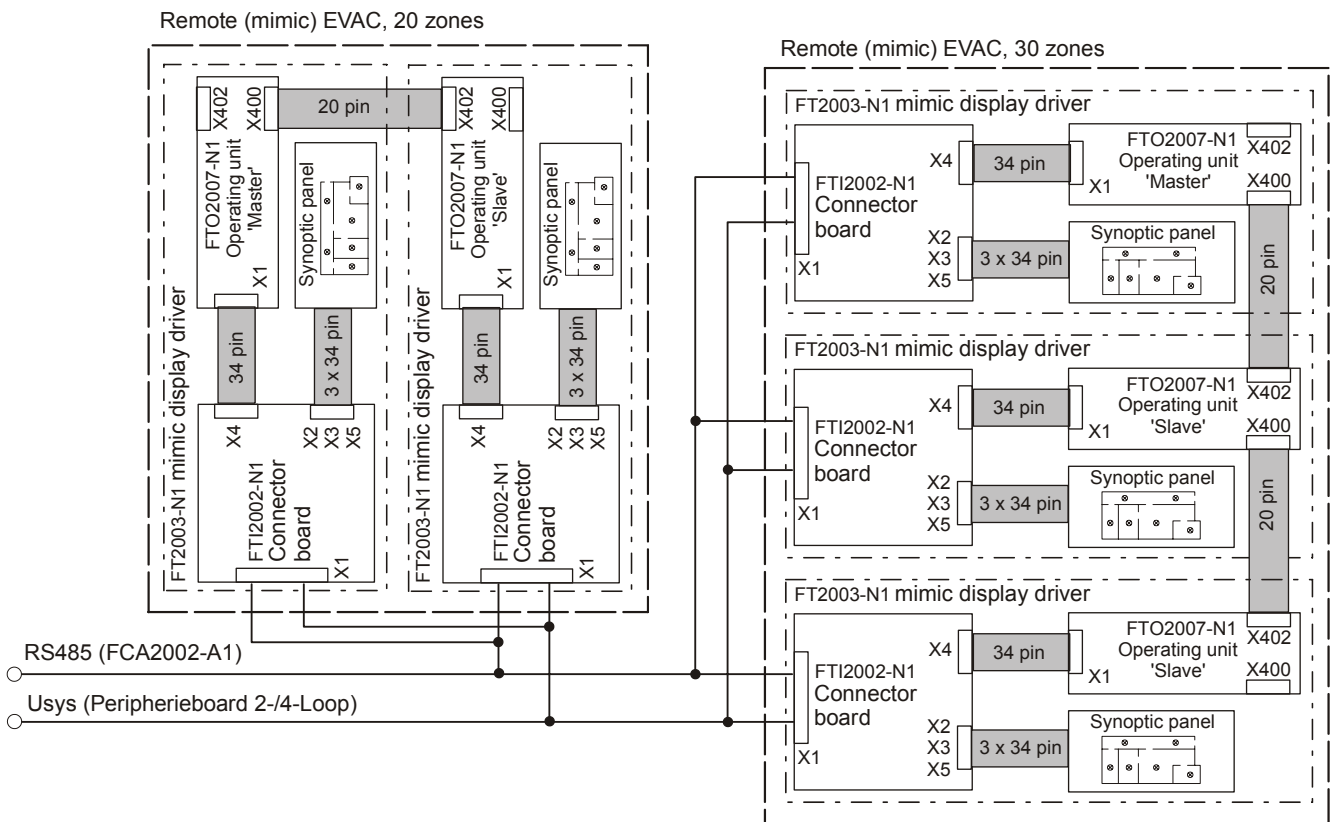


Figure 128: Wiring example for calculating the cable resistance

Number of zones via the same supply cable: 50 (20 from panel 1 and 30 from panel 2)

According to the diagram, this results in the following values for the EVAC-NL mimic display driver:

- Maximum cable resistance R' is 10 Ω (curve 1)
- Maximum current is 0.85 A (curve 4)

In the same way, this would result in the following for a remote EVAC-NL indicator:

- Maximum cable resistance R' is 22 Ω (curve 2)
- Maximum current is 0.4 A (curve 3)

5.35.5 Indicators

Indication and operating elements for EVAC-NL operating unit FTO2007-N1

In the case of the EVAC mimic display driver, all display and operating elements are wired to the mimic display panel via three 34-pin ribbon cables.

Display and operating elements on the front panel

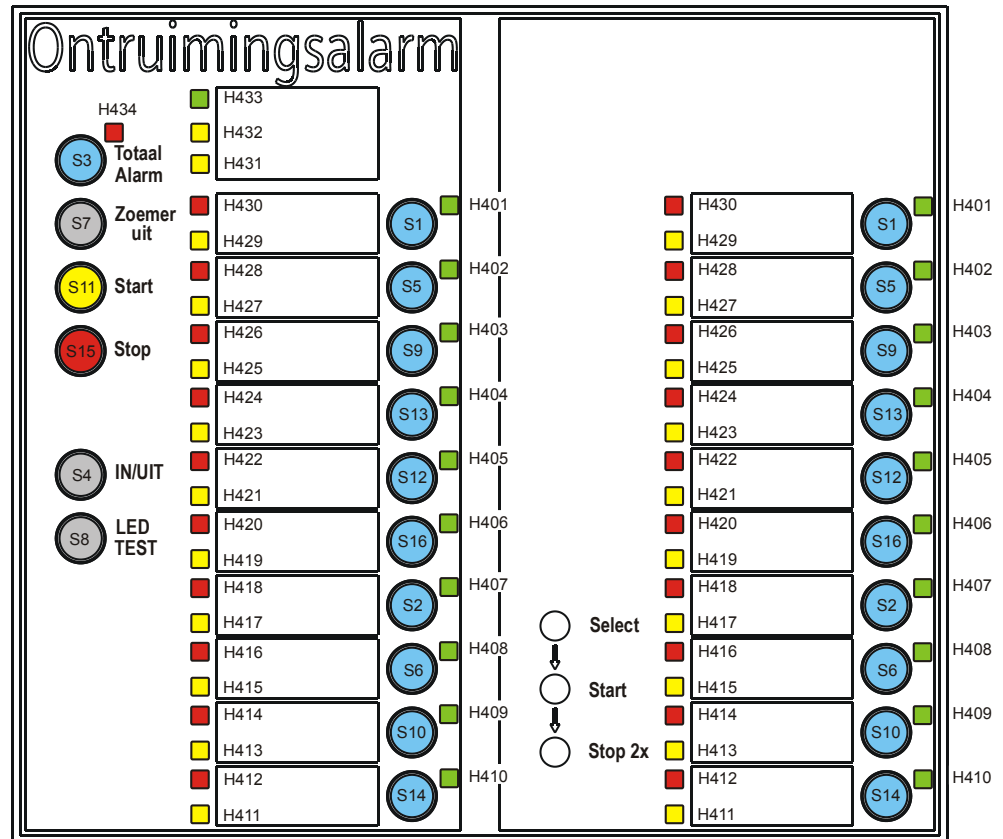


Figure 129: EVAC master unit (left), EVAC slave unit (right)

Indicators on the print plate

LED	Color	Function	State	Meaning
H205	Yellow	Watchdog	Off	Normal condition
			On	Function failure of the processor

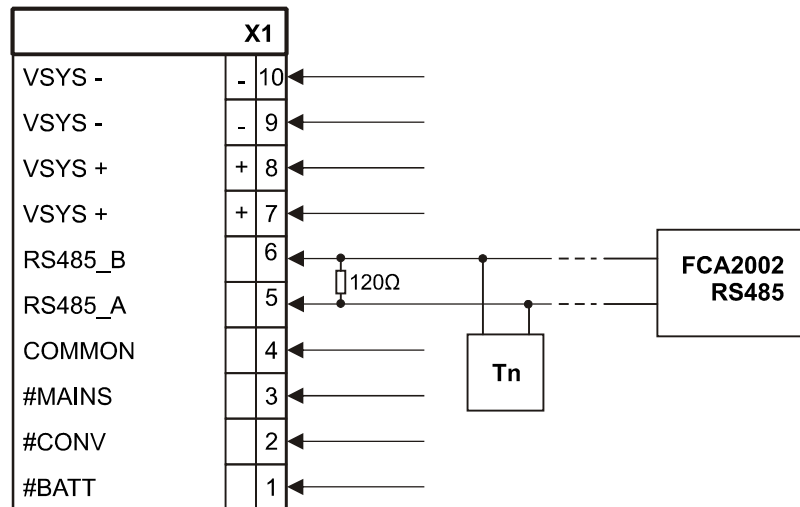
5.35.6 Connection FTI2002-N1

See also

- 📖 Power supply (70 W) [→ 96]
- 📖 RS232 / RS485 module [→ 190]

5.35.6.1 X1 supply

Pin	Designation	Description
10	VSYS-	Supply input from the power supply (-)
9	VSYS-	Supply input from the power supply (-)
8	VSYS+	Supply input from the power supply (+)
7	VSYS+	Supply input from the power supply (+)
6	RS485_B	Input connection B ¹
5	RS485_A	Input connection A ¹
4	COMMON	Ground
3	#MAINS	Message input from the power supply: Mains failure
2	#CONV	Message input from the power supply: Converter fault
1	#BATT	Message input from the power supply: Battery fault

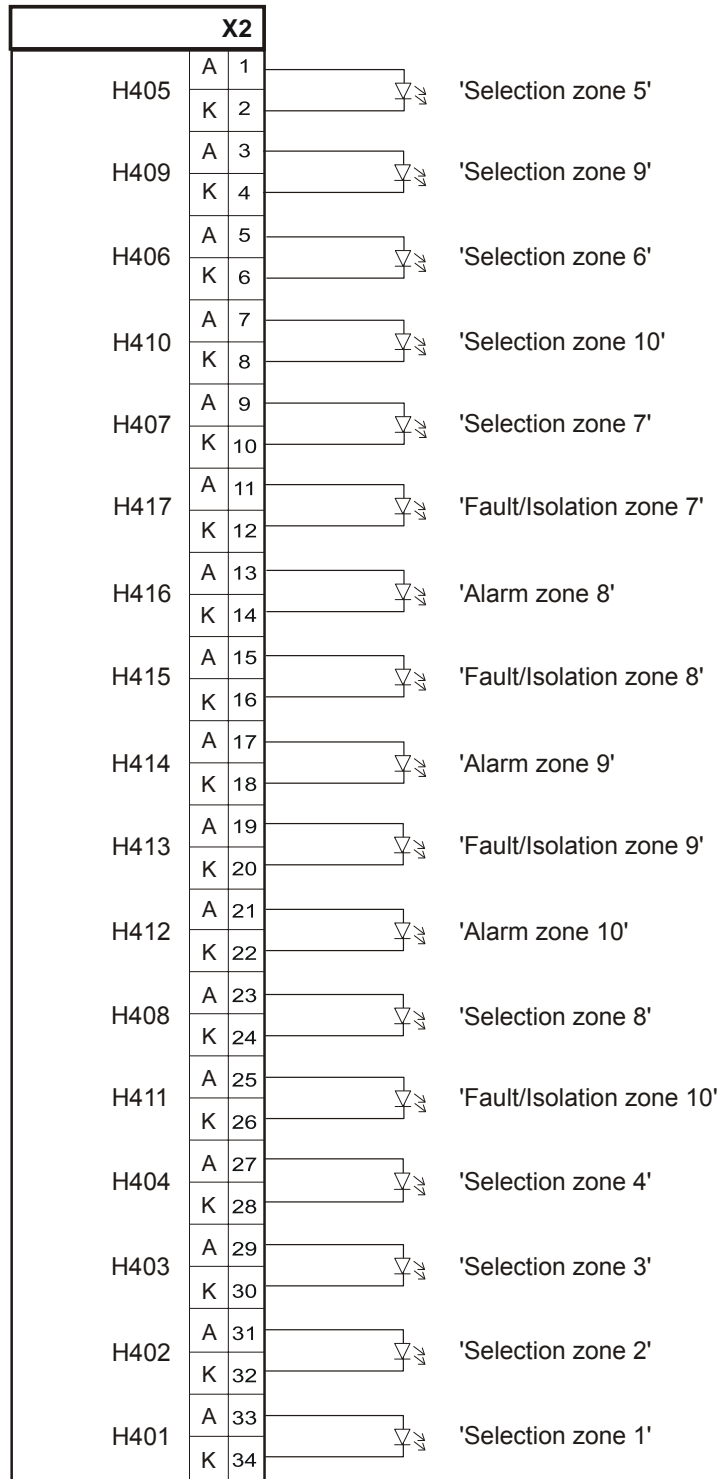


Tn = Last participant

!	NOTICE
	<p>¹ Note the polarity of connections A and B. The last participant connection must have a resistance of 120 Ω.</p>

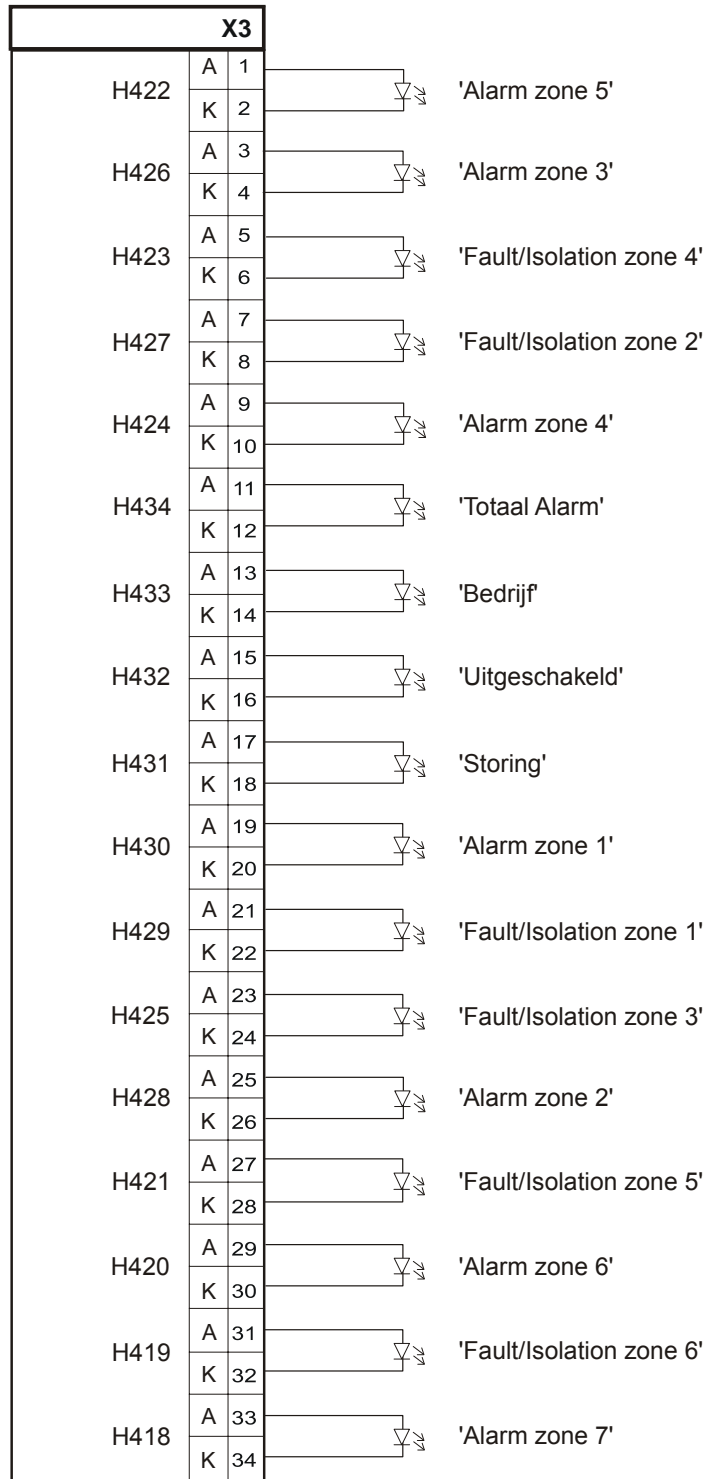
5.35.6.2 X2 LED mimic display

Pin	Connection for LED	Master description	Slave description
1, 2	H405 (green)	Selection zone 5	Selection zone 5
3, 4	H409 (green)	Selection zone 9	Selection zone 9
5, 6	H406 (green)	Selection zone 6	Selection zone 6
7, 8	H410 (green)	Selection zone 10	Selection zone 10
9, 10	H407 (green)	Selection zone 7	Selection zone 7
11, 12	H417 (yellow)	Fault/Isolation zone 7	Fault/Isolation zone 7
13, 14	H416 (red)	Alarm zone 8	Alarm zone 8
15, 16	H415 (yellow)	Fault/isolation zone 8	Fault/isolation zone 8
17, 18	H414 (red)	Alarm zone 9	Alarm zone 9
19, 20	H413 (yellow)	Fault/isolation zone 9	Fault/isolation zone 9
21, 22	H412 (red)	Alarm zone 10	Alarm zone 10
23, 24	H408 (green)	Selection zone 8	Selection zone 8
25, 26	H411 (yellow)	Fault/isolation zone 10	Fault/isolation zone 10
27, 28	H404 (green)	Selection zone 4	Selection zone 4
29, 30	H403 (green)	Selection zone 3	Selection zone 3
31, 32	H402 (green)	Selection zone 2	Selection zone 2
33, 34	H401 (green)	Selection zone 1	Selection zone 1



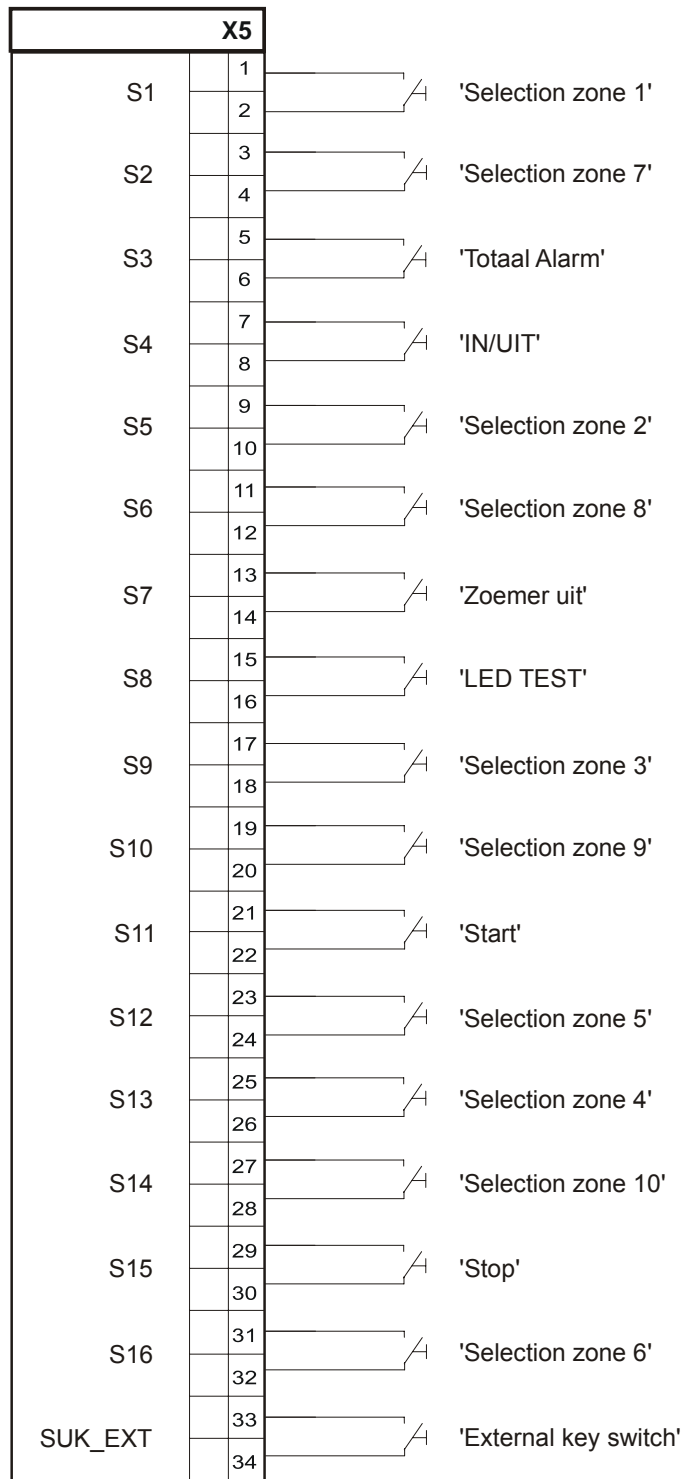
5.35.6.3 X3 LED mimic display

Pin	LED connection	Master description	Slave description
1, 2	H422 (red)	Alarm zone 5	Alarm zone 5
3, 4	H426 (red)	Alarm zone 3	Alarm zone 3
5, 6	H423 (yellow)	Fault/isolation zone 4	Fault/isolation zone 4
7, 8	H427 (yellow)	Fault/isolation zone 2	Fault/isolation zone 2
9, 10	H424 (red)	Alarm zone 4	Alarm zone 4
11, 12	H434 (red)	Totaal alarm	--
13, 14	H433 (green)	Bedrijf	--
15, 16	H432 (yellow)	Uitgeschakeld	--
17, 18	H431 (yellow)	Storing	--
19, 20	H430 (red)	Alarm zone 1	Alarm zone 1
21, 22	H429 (yellow)	Fault/isolation zone 1	Fault/isolation zone 1
23, 24	H425 (yellow)	Fault/isolation zone 3	Fault/isolation zone 3
25, 26	H428 (red)	Alarm zone 2	Alarm zone 2
27, 28	H421 (yellow)	Fault/isolation zone 5	Fault/isolation zone 5
29, 30	H420 (red)	Alarm zone 6	Alarm zone 6
31, 32	H419 (yellow)	Fault/isolation zone 6	Fault/isolation zone 6
33, 34	H418 (red)	Alarm zone 7	Alarm zone 7



5.35.6.4 X5 mimic display operation

Pin	LED connection	Master description	Slave description
1, 2	S1	Selection zone 1	Selection zone 1
3, 4	S2	Selection zone 7	Selection zone 7
5, 6	S3	Totaal alarm	--
7, 8	S4	IN/UIT	--
9, 10	S5	Selection zone 2	Selection zone 2
11, 12	S6	Selection zone 8	Selection zone 8
13, 14	S7	Zoemer uit	--
15, 16	S8	LED TEST	--
17, 18	S9	Selection zone 3	Selection zone 3
19, 20	S10	Selection zone 9	Selection zone 9
21, 22	S11	Start	--
23, 24	S12	Selection zone 5	Selection zone 5
25, 26	S13	Selection zone 4	Selection zone 4
27, 28	S14	Selection zone 10	Selection zone 10
29, 30	S15	Stop	--
31, 32	S16	Selection zone 6	Selection zone 6
33	SUK_EXT	Key switch (external)	Key switch (external)
34	(GND)	(GND for key switch)	(GND for key switch)



5.35.7 Connection FTO2007-N1

5.35.7.1 Adjustment elements

The EVAC-NL indicator is configured with the switch S20.

Setting for one or the first EVAC-NL

Switch S20						Meaning
1	2	3	4	5	6	
S0	S1	S2	Master	Syn	(Empty)	
			ON	OFF		Device address 1 ¹
ON			ON	OFF		Device address 2
	ON		ON	OFF		Device address 3
ON	ON		ON	OFF		Device address 4
		ON	ON	OFF		Device address 5
X	X	X	ON	ON		Mimic display outputs are actuated and polled (LED, keys and key switch)

Blank fields = Switch in 'OFF' position

X = Switch position according to addresses 1 to 5

¹ If working with a **single** EVAC-NL indicator (10 zones) and if working with the **first** EVAC-NL indicator, S20/4 (Master) must always be set to **ON**. If used in the EVAC-NL mimic display driver, the S20/5 (Syn) switch must also be **ON**.



Each address can be assigned only once per ↑ station.

The factory setting is always made for the application in question.

Setting for the second and/or any subsequent EVAC-NL indicator

Switch S20						Meaning
1	2	3	4	5	6	
S0	S1	S2	Master	Syn	(Empty)	
			OFF	OFF		Device address 1
ON			OFF	OFF		Device address 2 ¹
	ON		OFF	OFF		Device address 3
ON	ON		OFF	OFF		Device address 4
		ON	OFF	OFF		Device address 5
X	X	X	OFF	ON		Mimic display outputs are actuated and polled (LED, keys and key switch)

Blank fields = Switch in 'OFF' position

X = Switch position according to addresses 1 to 5

¹ 2 EVAC-NL indicators must not be operated on the same address (per station).

On the second or any subsequent indicator, the address must always be set 1 higher (slave). If used in the EVAC-NL mimic display driver, the S20/5 (Syn) switch must also be **ON**.



Each address can be assigned only once per station.

The factory setting is always made for the application in question.

5.36 Door contact kit [DE]

5.36.1 Installation

The door contact kit FCA2009-A1 is needed for a class 3 key depot [DE] and must not be used for other applications. The door contact is fitted on the housing such that it is triggered when the cover cap is removed.

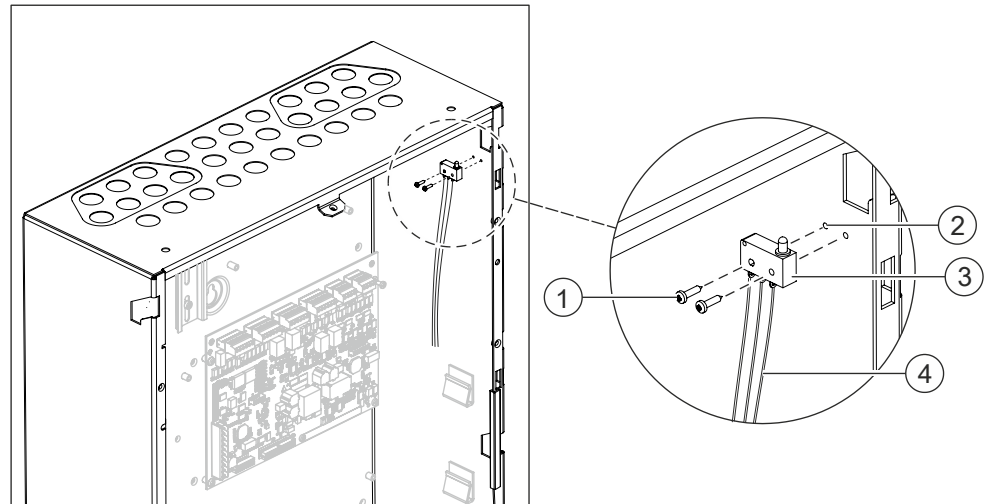


Figure 130: Installing door contact kit FCA2009-A1

- 1 Crossed recess sheet-metal screws for fixation
- 2 Mounting holes in housing
- 3 Door contact switch
- 4 Pre-assembled pigtails

1. Use the two sheet-metal screws (1) to screw the door contact switch (3) in the position shown (contact towards front) using the two holes on the housing (2).
2. Wire up the door contact with pre-assembled strands (4) in accordance with the pin assignment on fire brigade periphery module FCI2001-D1 on FSD tamper connection. You can also connect the door contact to a free I/O contact on the periphery board.
3. If necessary, secure the strands to the self-adhesive mounting plate supplied on the housing.

5.36.2 Pin assignments

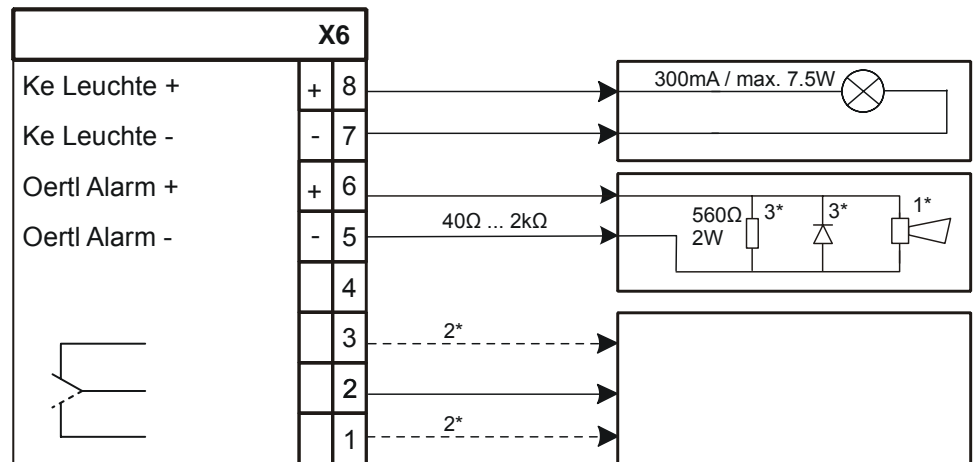


Inputs and outputs which are not used do not require termination.

5.36.2.1 X6 intrusion detection system / local alarm / identification lamp

Pin	Designation	Description
8	Ke Leuchte +	Identification lamp (+)
7	Ke Leuchte -	Identification lamp (-)
6	Oertl Alarm +	Local alarm (+)
5	Oertl Alarm -	Local alarm (-)
4	-	Not used
3		FSD sabotage, closer (normally open)
2		FSD sabotage, common
1		FSD sabotage, opener (normally open)

Admissible cable cross-section: 0.2...1.5 mm²



- 1* Horn or beacon
- 2* FSD sabotage, connection for "Transmission intrusion detection system" (can be connected as NO or NC)
- 3* If necessary

5.37 Ethernet switch FN2008 and safety module FN2009

The installation description for these modules for extended networking relates to the following modules, which are identical in construction:

- Ethernet switch (MM) FN2008-A1
- Security module (firewall) FN2009-A1

You will find detailed technical information on the corresponding data sheet or in the technical description provided by the manufacturer.

5.37.1 Installing the mounting kit

The mounting kit is needed to install the modules for extended networking laterally.

Mounting kit FHA2029-A1

- For all empty housings for wall mounting
- For stations in Comfort housings

The modules have to be mounted horizontally or laterally in these housings as there is insufficient installation depth.

The mounting kit FHA2029 consists of the following components:

- Angle plate for installing in the housings
- Two U-rails TS35, L 65 mm
- Two retaining brackets for fixing on the side
- Various mounting material
- Cable kit and connection cable RJ45

A maximum of two modules can be installed on the angle plate.

Mounting kit FHA2030-A1

- For stations in Large housings with enough free space
- For the FC2080 in the housing (19", pedestal cabinet)

The modules can be installed standing on the DIN rails in the Large and Large Extension housings, as well as in the 19" pedestal cabinets, and do not require an angle plate.

The mounting kit FHA2030 consists of the following components:

- Various mounting material
- Cable kit and connection cable RJ45

View and installation of mounting kit FHA2029

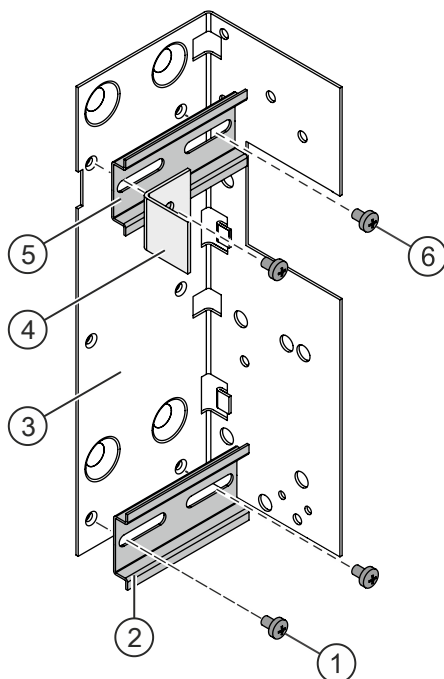


Figure 131: Mounting kit FHA2029-A1 for installation on the DIN rail

- 1 2 fixing screws for the bottom DIN rail
- 2 Bottom DIN rail
- 3 Angle plate for the Ethernet switch
- 4 Retaining bracket for lateral fixing
- 5 Upper DIN rail
- 6 2 fixing screws for the top DIN rail

The mounting kit FHA2029 can be installed on both sides of the housing (installation on left or right side wall). The angle plate must be rotated 180 degrees to fit it on the right-hand side wall.

The process for installing stations and empty housings is identical. In stations there must be sufficient space for the modules.

1. Firstly use the screws (6) to install the DIN rails (2, 5) and the retaining bracket (4) on the angle plate.
2. Fit the angle plate (3) on the left-hand side of the housing as shown (or rotated 180 degrees for the right-hand side of the housing) and screw it firmly in place. In the Eco and Standard housings, ensure that the two lugs go into the recesses for the power supply (70 W).
3. Fit the modules as described below.
4. Wire the modules as described below.

5.37.1.1 View of installation in housing (Eco)

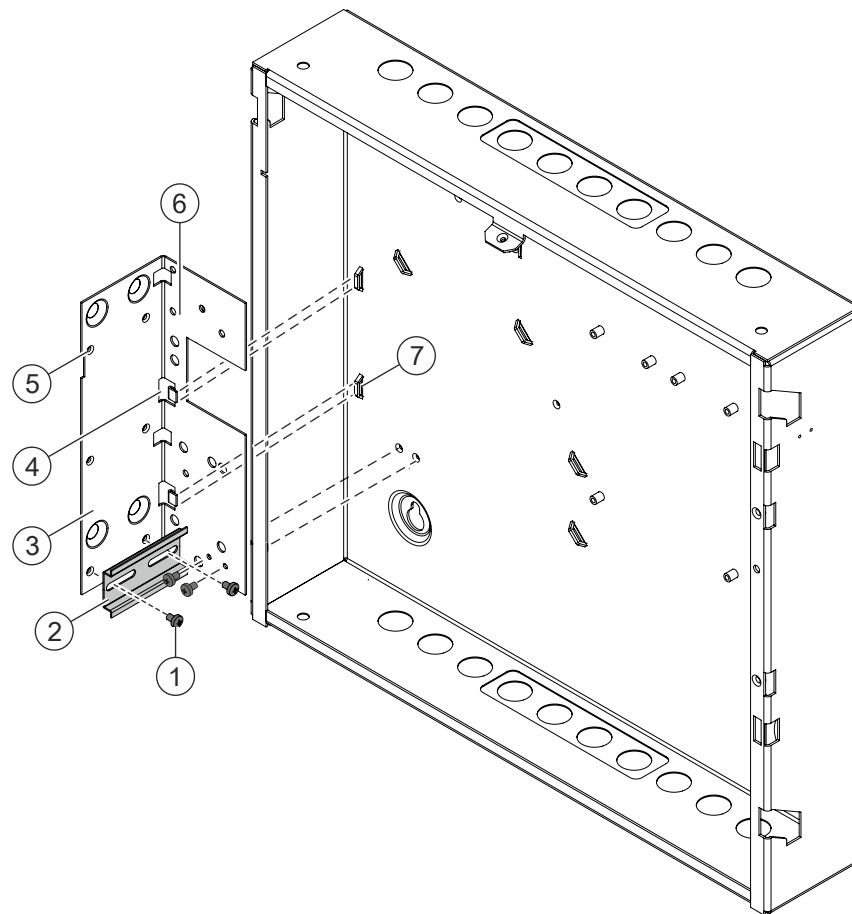


Figure 132: Installation of mounting kit in the housing (Eco)

- 1 2 screws each for DIN rails
- 2 Bottom DIN rail
- 3 Lugs for the housing recesses (top and bottom lug)
- 4 Angle plate
- 5 2 screw holes for top DIN rail
- 6 2 screws for fixing bracket
- 7 2 housing recesses (provided to fasten the 70 W power supply)

5.37.1.2 View of installation in housing (Standard)

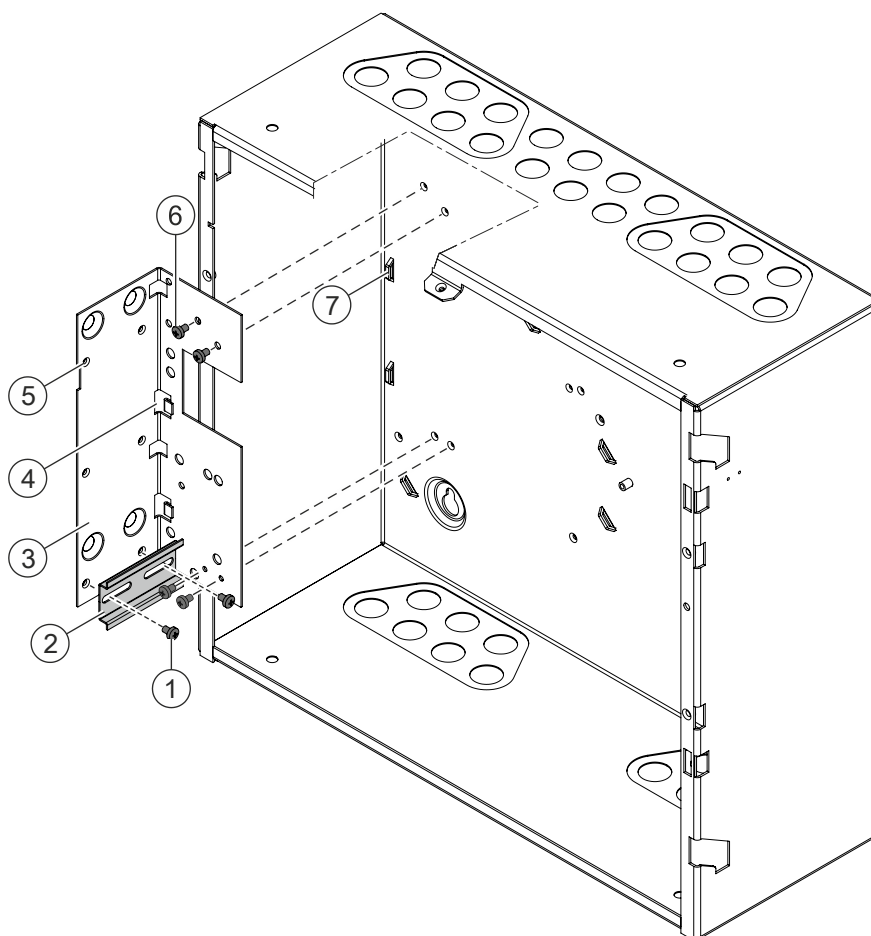


Figure 133: Installation of mounting kit in the housing (Standard)

- 1 2 screws each for DIN rails
- 2 Bottom DIN rail
- 3 Angle plate
- 4 Lug for the housing recesses (top and bottom lug)
- 5 2 screw holes for top DIN rail
- 6 4 screws for fixing bracket
- 7 2 housing recesses (provided to fasten the 70 W power supply)

5.37.1.3 View of installation in housing (Comfort)

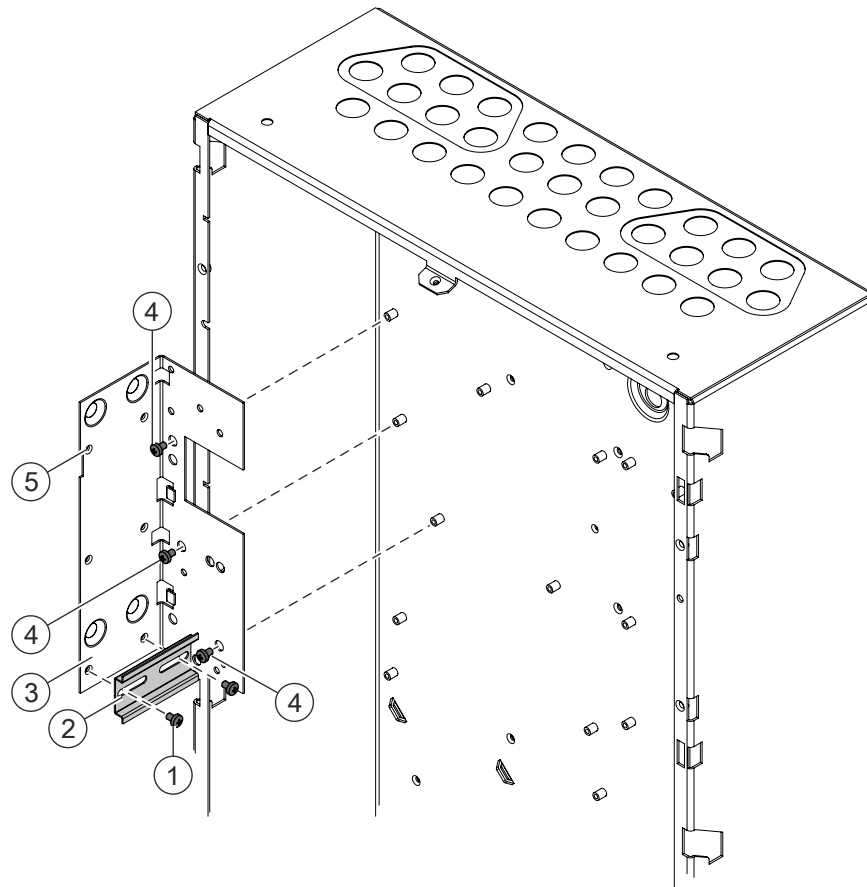


Figure 134: Installation of mounting kit FHA2029-A1 in the housing (Comfort)

- 1 2 screws for each DIN rail
- 2 Bottom DIN rail
- 3 Angle plate
- 4 3 screws for fixing bracket
- 5 2 screw holes for top DIN rail

5.37.2 Installing the modules

The process of installation using the mounting kit is identical for all housing variants and applies to the following modules:

- Ethernet switch (MM) FN2008-A1
- Security module (firewall) FN2009-A1

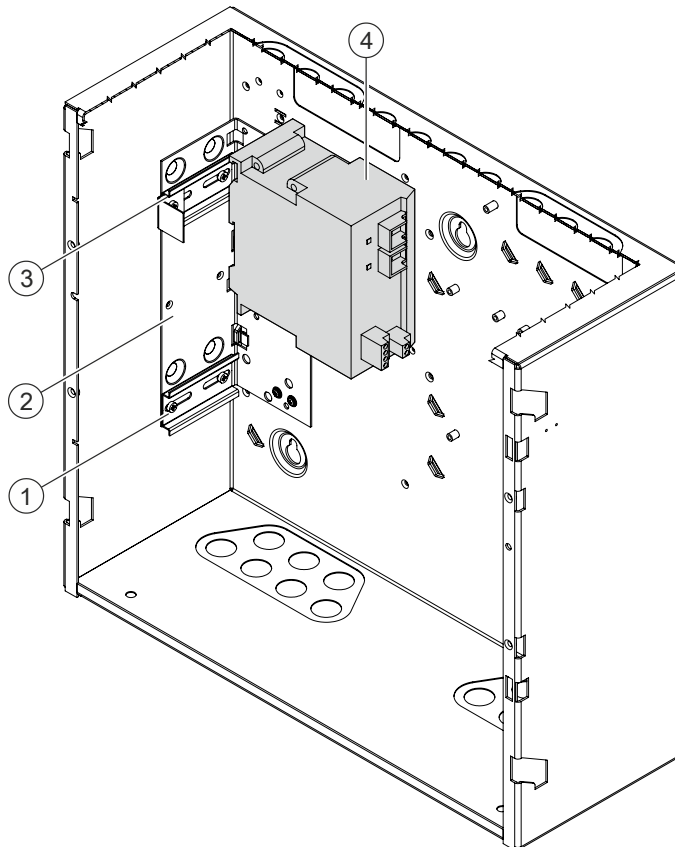


Figure 135: Example: Installation in the Standard empty housing

- 1 Bottom DIN rail (for optional second module)
- 2 Angle plate
- 3 Top DIN rail with retaining bracket for FN2008-A1 or FN2009-A1
- 4 FN2008-A1 or FN2009-A1

1. Attach the module's top snap-in guide (4) onto the top DIN rail (3) at an angle from above and gently press down until it snaps into place.
2. If necessary, install a second module on the lower DIN rail (1).
 - Install a retaining bracket for a second module.
3. Wire the module as described below.

See also

- 📄 Modifications to the modules for class B [→ 266]

5.37.3 Wiring of FN2008 with fire terminal

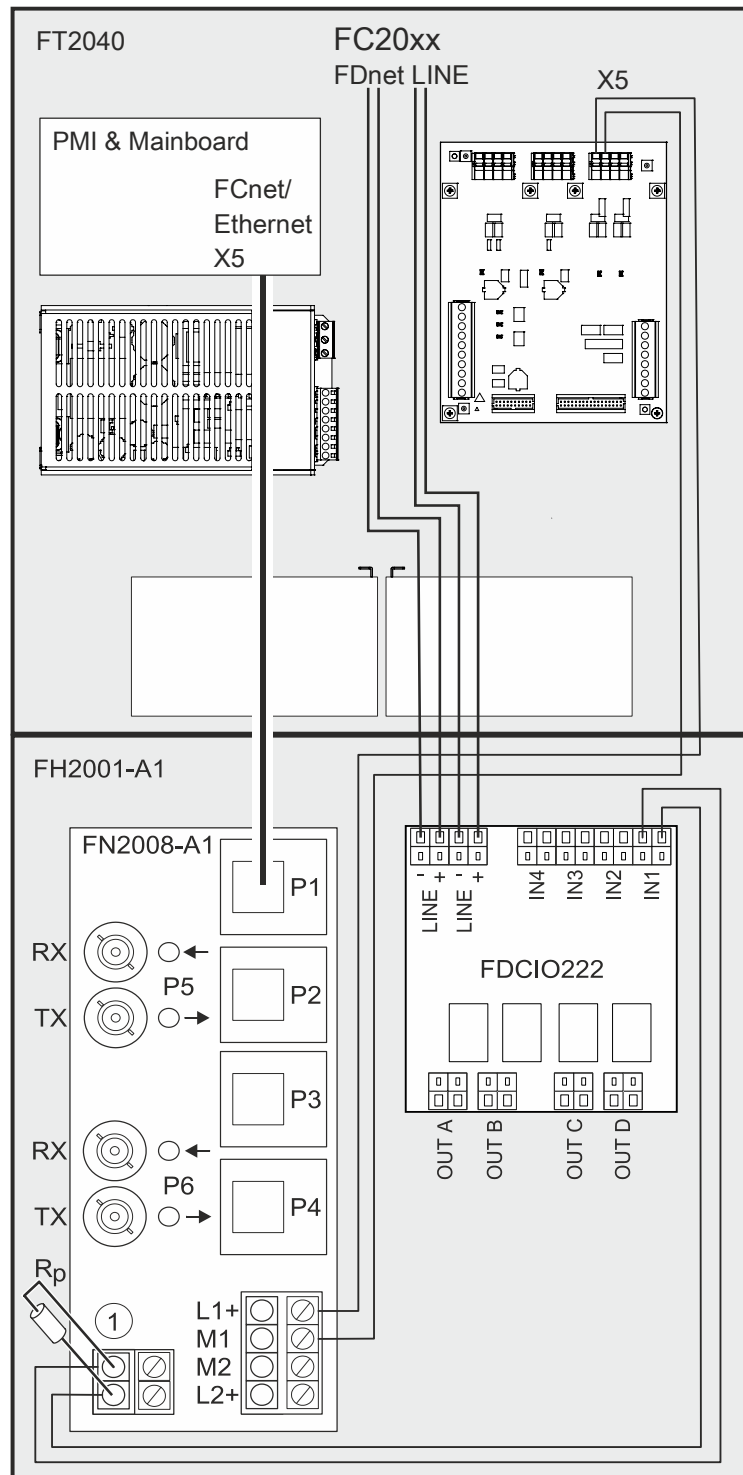


Figure 136: Wiring the FN2008-A1 with I/O module in a separate empty housing with the fire terminal

If cabling is being carried out using multiple PMI & mainboards and the FN2008, a loop can be created accidentally. Please observe the following information.

!	NOTICE
	<p>Loop with Ethernet cable Impairment of system function</p> <ul style="list-style-type: none"> • Pay attention to the Ethernet cable connection if you are connecting more than one PMI & mainboard. • Never connect a port P1...P4 to a port P1...P4.

FT2040 Fire terminal with optional power supply and batteries

FH2001-A1 Empty Eco housing

FDCIO222 I/O module (any I/O module possible)

LINE+ FDnet loop connection

LINE-

IN 1 Control input on separate I/O module (e.g. FDCIO222)

1 Connection for detector contact (F1, F2) ¹

R_p Parallel resistor for I/O module ²

P1...P4 Electric Ethernet connections

L1+, (L2+) V_{sys} + system supply from fire terminal board ³

M1, (M2) V_{sys} - system supply from fire terminal board ³

¹ The detector contact is normally wired on a free I/O connection of the periphery board. If all connections are occupied or if using the FT2040 fire terminal, the detector contact must be connected via an I/O module (e.g. an FDCIO222). In this instance, the signal of the I/O module must not be configured as 'Degraded alarm relevant'.

If a station is located very close to the FT2040 fire terminal, the detector contact can also be wired directly to this station.

² The parallel resistor for the detector contact depends on the I/O module used. Refer to the documentation provided with the I/O module used for more details.

³ Use of the redundant L2+/M2 supply inputs is optional and not necessary for EN-54 compatibility.

Wiring table

The wiring table below summarizes the plug assignments from the corresponding product data.

Connection from			To		
Connector	Pin	Designation	Connector	Pin	Designation
FN2008-A1	L1+	Supply+ input	Fire terminal board X5	1/3	Vsys+ supply output
	M1	Supply- input		2/4	Vsys-- supply output
	F1	Detector contact	FDCIO222 ¹	IN1	Control contact input
	F2	Detector contact		IN1	Control contact input
	P1	Electrical Ethernet 1	PMI & mainboard	X5	Electric Ethernet
FDCIO222 ¹	LINE+ LINE-	FDnet connection 1	FC20xx Periphery board X11 or X12	1 2	LOOP1_1 (+/-)
	LINE+ LINE-	FDnet connection 2		3 4	LOOP1_2 (+/-)

¹ Any I/O module can be used in place of the FDCIO222.

5.37.4 Connecting the Ethernet switch

5.37.4.1 Connecting optical Ethernet

Wiring a loop network with four network nodes

To set up a redundant loop topology with the Ethernet switch (MM) FN2008-A1, both free ends of the optical Ethernet must be joined to form a loop.

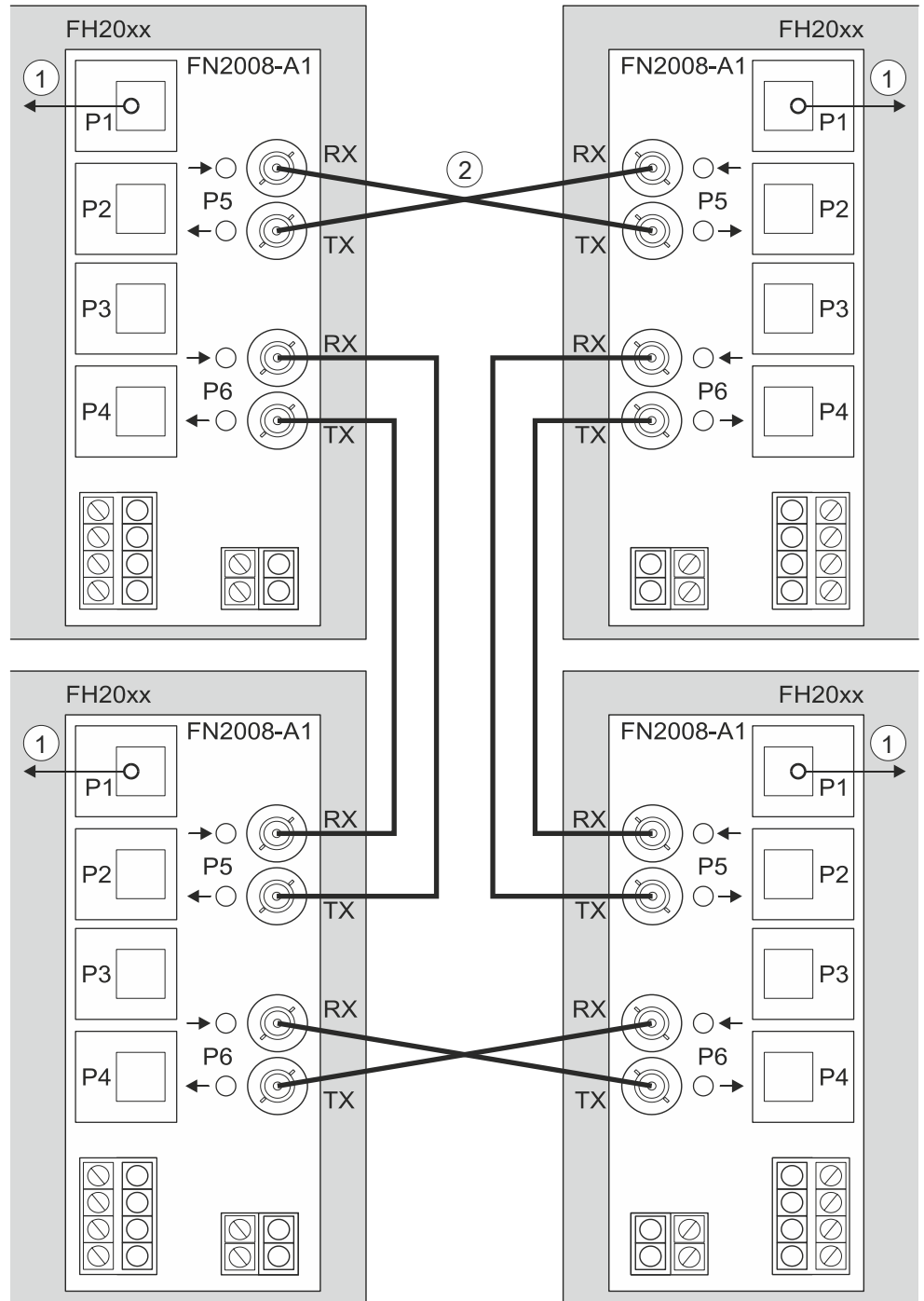




Figure 137: Connecting a fiber optic cable for optical Ethernet with FN2008-A1

1	Ethernet connection to PMI & mainboard
2	Optical Ethernet (loop network)
P1...P4	Electrical Ethernet ports
P5, P6	Optical Ethernet ports
RX	Optical receiver channel
TX	Optical transmission channel

Wiring

	⚠ WARNING
	Heavily concentrated light Eye damage <ul style="list-style-type: none"> Do not look into the red light of the transmitter (TX).

- The fiber optic cable is wired cross-wise:
The optical transmitter (TX) of one port must always be connected to the other switch with the optical receiver (RX) of the other port.
 - The bending radius of the fiber optic cable must not be less than 20 mm.
- If cabling is being carried out using multiple PMI & mainboards and the FN2008, a loop can be created accidentally. Please observe the following information.

	NOTICE
	Loop with Ethernet cable Impairment of system function <ul style="list-style-type: none"> Pay attention to the Ethernet cable connection if you are connecting more than one PMI & mainboard. Never connect a port P1...P4 to a port P1...P4.

5.37.4.2 Connector strip for supply

Pin	Designation	Description
1	L1+	Supply input 1 (+DC 24 V)
2	M1	Supply input 1 (DC 0 V)
3	M2	Redundant supply input 2 (DC 0 V), optional
4	L2+	Redundant supply input 2 (+DC 24 V), optional

The L1+/M1 and L2+/M2 connections are designed for redundant supply and are not plated-through. Use of the redundant L2+/M2 supply inputs is optional and not necessary for EN-54 compatibility.

5.37.4.3 Connector strip for detector contact

The detector contact is a potential-free relay contact which can be used to report error states by interrupting contact.

The following errors can be signaled by the detector contact:

- Loss of a link on a monitored port
- Failure of a redundant source of voltage
- Incompatible C-plug inserted

The detector contact remains activated until the error is rectified or until the current status is adopted by the button as the new nominal status.

The detector contact is always activated (opened) by switching off the FN2008-A1.

Pin	Designation	Description
1	F1	Detector contact 1
2	F2	Detector contact 2

5.37.5 Connecting the safety module FN2009

5.37.5.1 Connector strip for supply

Pin	Designation	Description
1	L1+	Supply input 1 (+DC 24 V)
2	M1	Supply input 1 (DC 0 V)
3	M2	Redundant supply input 2 (DC 0 V), optional
4	L2+	Redundant supply input 2 (+DC 24 V), optional

The L1+/M1 and L2+/M2 connections are designed for redundant supply and are not plated-through. Use of the redundant L2+/M2 supply inputs is optional and not necessary for EN-54 compatibility.

5.37.5.2 Connector strip for detector contact

The detector contact is a potential-free relay contact which can be used to report error states by interrupting contact.

The following errors can be signaled by the detector contact:

- Error in voltage supply
- Internal error

The detector contact remains activated until the error is rectified.

The detector contact is always activated (opened) by switching off the FN2009-A1.

Pin	Designation	Description
1	F1	Detector contact 1
2	F2	Detector contact 2

5.37.6 Modifications to the modules for class B

For the 'Ethernet switch (MM)' and 'Security module (firewall)' modules, the following modifications are required to the wiring to reduce fault transmission from limit value class A to class B:

- For each electrical Ethernet connection, one ferrite core, type Würth Elektronik, 742 701 51
- For each supply connection, one ferrite core, type Würth Elektronik, 742 715 4

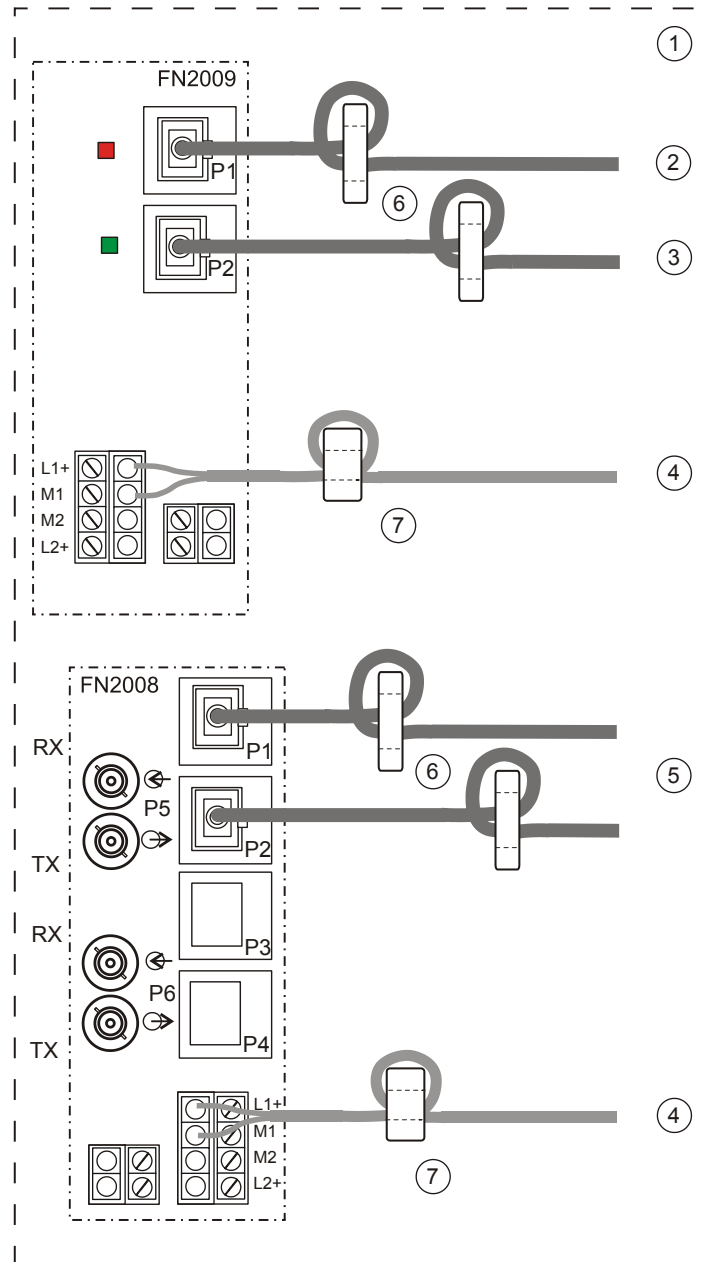


Figure 138: Modifications to the wiring for class B

- 1 Station or empty housing
- 2 FN2009-A1 Ethernet connection, internal
- 3 FN2009-A1 Ethernet connection, external
- 4 Supply connection
- 5 Ethernet connections switch FN2008-A1
- 6 Ferrite core for LAN cable
- 7 Ferrite core for supply cable

Mounting

1. Install the ferrite cores on each supply terminal connection and each LAN cable plug connection.
2. Loop each connection cable to the plug or connection end with one wind around the ferrite core.

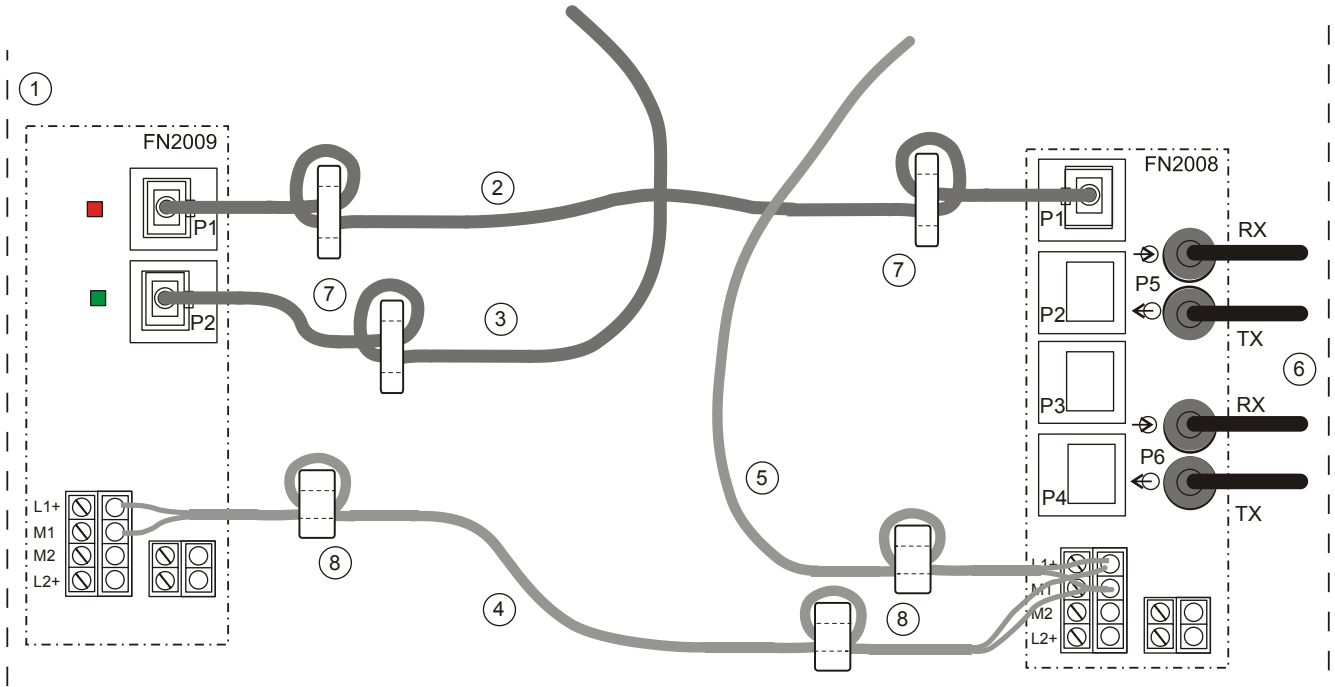


Figure 139: Example of the mounting of two modules in the same housing

- 1 Station or empty housing
- 2 Ethernet connection between two modules
- 3 Ethernet connection, external
- 4 Supply connection between two modules
- 5 Supply connection
- 6 Wiring of optical Ethernet
- 7 Ferrite core for LAN cable
- 8 Ferrite core for supply cable

5.38 Installation checklist

The following list serves as a checklist or task list for the installation personnel. It includes all components available as options. It can be copied and handed out to the installation personnel with the installation instructions.

Position	Type	Component/task	Comment	Complete
1	–	Install rear panel	–	
2	–	Install housing extensions	Additional empty housing for further components (e.g. batteries)	
3	–	Connect the mains cable	Note country-specific terminal allocation	
4	–	Install operating unit	Standard	
5	–	Install operating add-on	In bottom half of housing or in additional housing	
6	–	Mounting the cover cap	–	
7	–	Install periphery board	Only after a disassembly	
8	–	Install fire terminal board	Only after a disassembly	
9	FP2003-A1	Install a power supply (70 W)	Option for fire terminal	
10	FP2004-A1	Install a power supply (150 W)	Option of extra power supply for Comfort and Large Extension housings	
11	FCA2010-F1	Install a 9 V battery set [FR]	Only for France	
12	–	Install shield connection terminal blocks	Included in country kit [DE] FA2001	
13	FCI2003-A1	Integrate a loop extension (FDnet)	Max. 2 modules depending on the periphery board	
14	Z3B171	Install relay module	–	
15	FHA2007-A1	Install mounting plate	Mounting above the periphery board	
16	FCI2001-D1	Install fire brigade periphery module [DE]	Only for Germany. Note different mounting possibilities	
17	FN2001-A1	Install network module (SAFEDLINK)	Max. 2 modules Ensure correct installation site	
18	FCA2006-A1	Connection module (card cage)	Only if replaced	
19	FCA2007-A1 FCA2008-A1	Card cage (2 slots) Card cage (5 slots)	Only if replaced	
20	FCI2008-A1 FCL2001-A1 FCL2002-A1 FCL2003-A1	Module bus cards: I/O card (programmable) Line card (FDnet/C-NET) Line card (collective) Line card (MS9i)	Mounting in card cage: Only possible in FC2060 Only possible in FC2060	
21	FCA2001-A1	Install RS232 module	Ensure correct installation site (depending on use)	
22	FCA2002-A1	Install RS485 module	–	

Position	Type	Component/task	Comment	Complete
23	FTO2001-A1	Install event printer	An RS232 module must also be fitted to slot 1	
24	FTO2005-A1	Install a key switch (Kaba)	–	
25	–	Install a Redux module [DE]	Only for Germany	
26	FDCIO224	Install input / output module [DE]	–	
27	FCA2005-A1	Install sounder module	Max. 2 depending on the periphery board	
28	FCI2005-N1	Install RT Interface [NL]	Only for Netherlands	
29	FCI2006-C1	Install RT interface [CH]	Only for Switzerland	
30	FCA2014-A1	Install cable kit (communication)	–	
31		Insert license key	Only 1 license key per station	
32	FHA2019-A1	Install the 19" mounting kit	–	
33	FHA2015-A1 FHA2017-A1	Fitting FM blind	Also refer to document 008843, Installing formwork boxes	
34	–	Install batteries	Only connect during commissioning	
35	FCM2008-N1	Install operating add-on with EVAC	Only for Netherlands	
36	Remote EVAC-NL	<ul style="list-style-type: none"> Operating add-on FCM2008-N1 EVAC-NL mimic display driver FT2003-N1 	Only for Netherlands	
37	FCA2009-A1	Install door contact kit	Only for Germany	

Table 5: Installation checklist

Due date:	Ordering unit:	Date

Table 6: Ordering unit for installation work

6 Mounting and installation FC2080

6.1 Mounting procedure

The following mounting processes are described in the following chapters:


- Assembling the housing (19", pedestal cabinet) FH2080-AA
- Installing the carrier components
- Installing all other components


Prerequisites

- All parts have been checked to make sure they are complete and intact.
- Mains connection is current-free

Mounting procedure

The installation procedure described below is an overview and is largely an optimized procedure but does not have to be adhered to exactly.

	<p>⚠ WARNING</p>
	<p>Electrical voltage Mortal danger due to electric shock</p> <ul style="list-style-type: none"> • Before working on the station check that the mains supply cable is disconnected from the power supply. • Check to make sure that the mains is secured against inadvertently being switched on. • Always connect the grounding (PE) to the mains supply cable first. • The components must be installed by a qualified electrician or a trained person.

	<p>NOTICE</p>
	<p>Damage to hardware</p> <ul style="list-style-type: none"> • Perform all mechanical work before installing the components. • Insert possible plug-in cards only after installing all the card cages. • Do not connect up the batteries after installation but wait until commissioning.

1. Position the base such that the cable can be routed from the right-hand side of the housing interior.
2. Fit the base securely to the substructure with 4 screws and dowels.
3. Remove the cover plates at the bottom of the cabinet to gain easy access to the mounting points.
4. Place the cabinet on the base and connect it with 4 screws.
5. If the planned installations impair the accessibility of the grounding bar, move it. It must be possible to install the cable insulation and strain relief.
6. After inserting the cable, seal the base by screwing down the plates again to ensure EMC protection.

7. Mount the individual components:
 - Processor unit (19", FC2080) at the highest position in the housing
 - Desired number of card cages on the carrier (19", card cage) FHA2023-A1
 - Switch and socket on carrier (19", power supply) FHA2022A1
 - Carrier (19", card cage) FHA2023-A1 and carrier (19", optional) FHA2023-A1 on the rear panel
 - Carrier FHA2022A1 (19", power supply) on the left-hand side
 - Battery holder and batteries
 - Operating unit and the operating add-on (if present) in the openings of the door
 - Establish the ground connection with the door.
8. Mount the cable duct at the right-hand side wall and the required C rails for special components.
9. Use the cable ducts to lay the cable.
10. Mount options on the operating unit.
11. Fit the batteries (main switch to OFF).
12. If installed, insert the inscription strips for FT2040 into the operating unit or the operating add-on.
13. Install removed side walls and ground them at the ground point using the ground cable.
14. Finally, fit the plate with the company logo and the installation plate on the outside of the control panel housing such that it is clearly legible (EN 54-2 specification). The installation number (No.:.) and the date of commissioning (Date:.) must be completed upon commissioning. The installation plate is placed together with the processor unit.

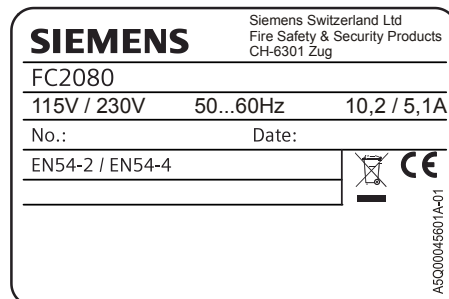


Figure 140: FC2080 installation plate

⇒ The station is ready for commissioning.

6.2 Processor unit (19", FC2080)

!	NOTICE
	Damage to hardware <ul style="list-style-type: none">• Remove the plug-in cards from the card cage first of all before installing the processor unit (19", FC2080).

The following accessories are delivered along with the processor unit:

- CPU card (FC2080) equipped with the network module (SAFEDLINK,CC)
- Communication card (FC2080) equipped with the network module (SAFEDLINK,CC)
- 3 metal cover plates for module bus card slots
- Adapter and 1.4 m flat cable for the power supply of the optional operating unit
- LAN cable, 30 cm
- Flat cable, 10 cm, for the module bus
- 2 supply cables red and blue, 1.6 m
- One 4-pole signaling cable, 1.4 m
- Self-adhesive plastic fasteners for the flat cable
- 2 shield connection terminal blocks
- 4 cage nuts with screws
- Installation plate

6.2.1 Installation

The processor unit (19", FC2080) FCC2002-A1 forms part of the FC2080's basic setup and is installed in the top of the cabinet.

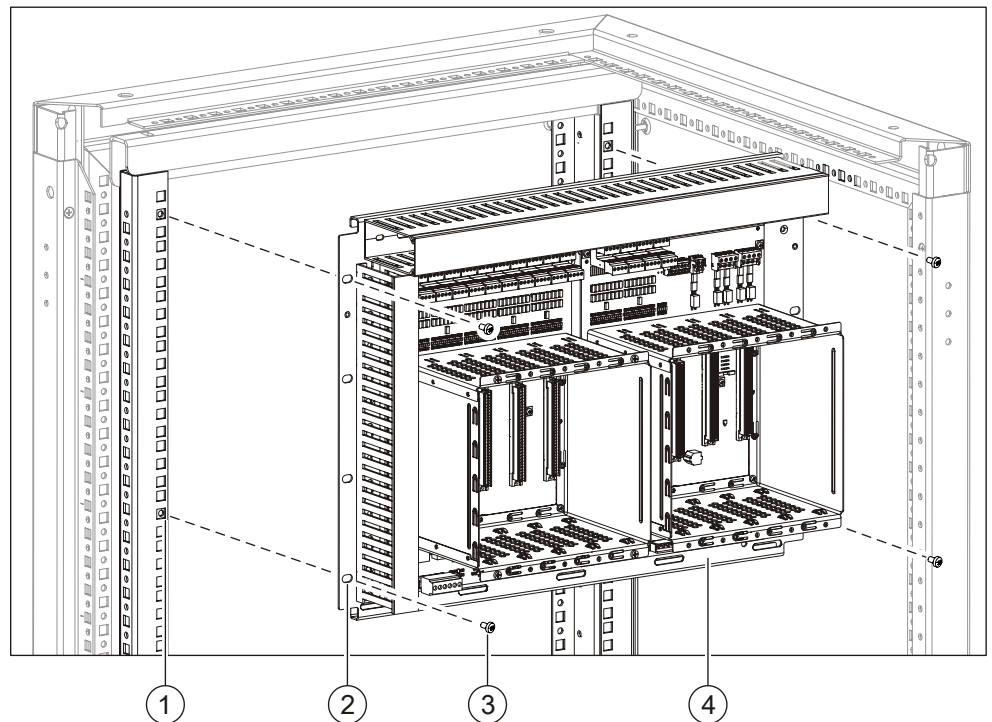


Figure 141: Installing the processor unit (19", FC2080)

- 1 Mounting holes in rear frame
- 2 Mounting holes in the processor unit (height distance 266.7 mm)
- 3 4 fixing screws M6 x 12 with cage nuts
- 4 Processor unit (19", FC2080)

▷ The plug-in cards must not be installed.

1. Install the processor unit (19", FC2080) (4) as shown with four fixing screws (3) and cage nuts in the mounting holes (1) of the rear frame.
2. Wire up the processor unit (19", FC2080) according to the following card cage (CPU) pin assignment.
3. Wire up the card cage (5 slots) according to chapter 'Views of card cage (5 slots) [→ 282]'.

See also

- 📄 Views of card cage (5 slots) [→ 282]

6.2.2 View of card cage (CPU) FCC2003-A1

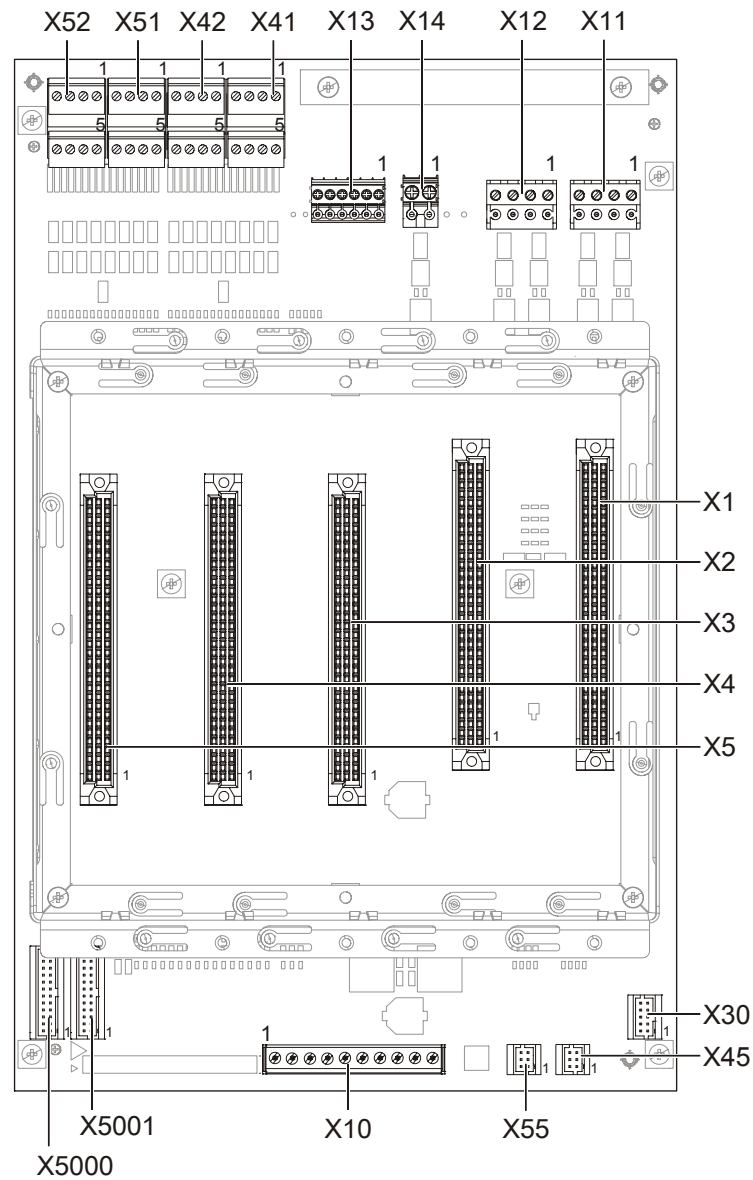


Figure 142: Printed circuit board view of card cage (CPU) FCC2003-A1

Element	Des.	Function
Slots	X1	Connector strip for plugging in the first ↑ CPU card
	X2	Connector strip for plugging in the second CPU card (redundant CPU card)
	X3	Connector strip for plugging in the communication card
	X4	Connector strip for plugging the module bus card into slot 4
	X5	Connector strip for plugging the module bus card into slot 5
Connection terminals	X10	Connector terminal for system supply
	X11	'SDL1', connection terminal for network module (SAFEDLINK, CC) of the first CPU card
	X12	'SDL2', connection terminal for network module (SAFEDLINK, CC): <ul style="list-style-type: none"> Degraded mode module on the communication card with Single CPU operation Network module for second CPU card with Dual CPU operation
Connector	X13	'SER_OPT2', connection terminal for RS232 interface
	X14	SER_OPT1, connection terminal for RS485 interface
Connector Degraded mode	X45	'DegradeAT', connector strip for degraded mode indicator [AT] of module bus card on slot 4
	X55	'DegradeAT', connector strip for degraded mode indicator [AT] of module bus card on slot 5
Connection terminals Module bus cards	X41	Connection terminals 1 for the module bus card on slot 4
	X42	Connection terminals 2 for the module bus card on slot 4
	X51	Connection terminals 1 for the module bus card on slot 5
	X52	Connection terminals 2 for the module bus card on slot 5
Internal bus	X5000	'Module bus1', connector strip for module bus 1
	X5001	'Module bus2', connector strip for module bus 2
	X30	'PMI', connection between supply and optional operating unit

6.2.3 Pin assignments

6.2.3.1 X11/X12 connection terminals for SDL1/SDL2

The ↑ FCnet is connected to the following connection terminals:

- X11 'SDL1'. FCnet connection for network module (SAFEDLINK, CC) of the ↑ CPU card (FC2080)
- X12 'SDL2' FCnet connection for network module (SAFEDLINK, CC) of the communication card (FC2080) or the redundant CPU card (FC2080)
- X3 FCnet connection for ↑ network module (SAFEDLINK) on connector X13 (main module) on the optional operating unit

Pin	Designation	Description
4	A1	Line 1 (+)
3	B1	Line 1 (-)
2	A2	Line 2 (+)
1	B2	Line 2 (-)

Admissible cable cross-section: 0.2...2.5 mm²

The ↑ FCnet networking of the FC2080 or the FG2020 is always connected via two network modules irrespective of the number of ↑ CPU cards. The network module on the communication card is used with a CPU card.

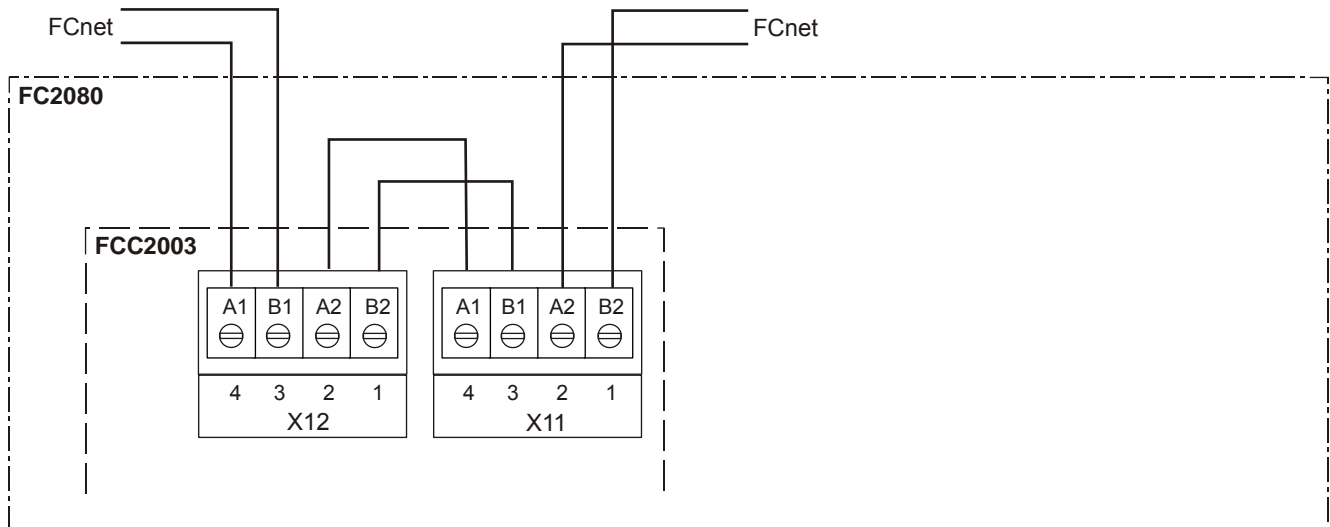


Figure 143: ↑ FCnet networking of FG2020 without operating unit

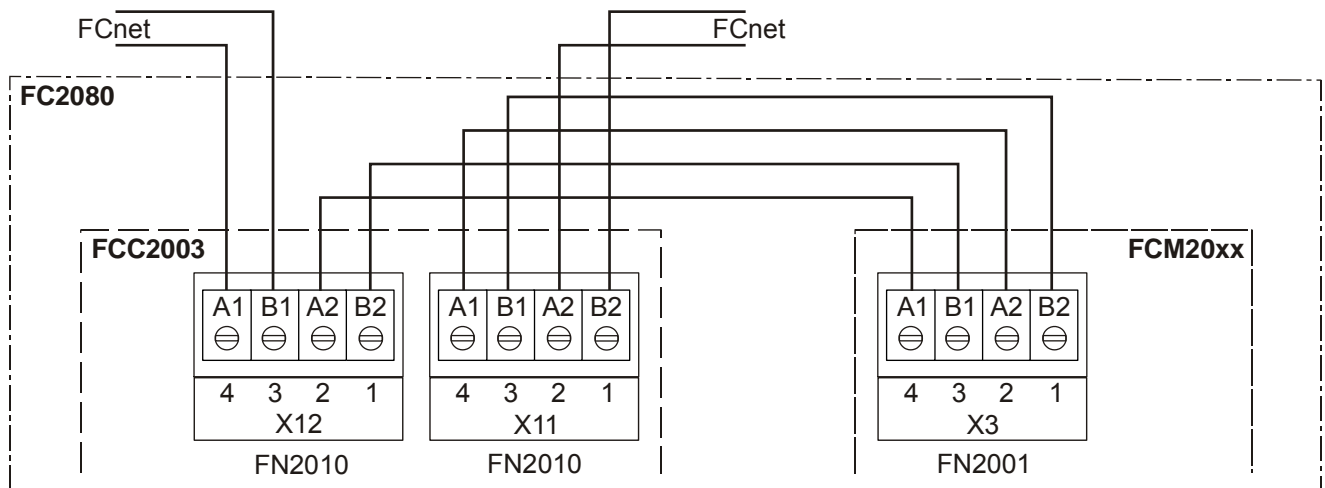


Figure 144: ↑ FCnet networking of FG2020 with optional operating unit

6.2.3.2 X10 connector terminal for supply

Pin	Designation	Description
1	#BATT	Battery signal monitoring (normally open)
2	COMMON	GND for # BATT (normally open)
3	#MAINS	Signal monitoring power supply system
4	COMMON	GND for # MAINS
5	3SRC+	3 rd source (DC 7...30 V) [FR]
6	3SRC-	3 rd source (0 V) [FR]
7	VSYS+	System supply (DC 24 V)
8	VSYS+	System supply (DC 24 V)
9	VSYS-	System supply (0 V)
10	VSYS-	System supply (0 V)


Admissible cable cross-section: 0.5...2.5 mm²

You will find details about signal monitoring and wiring diagrams in the product data of the power supply (150 W).

X10

#BATT	1
COMMON	2
#MAINS	3
COMMON	4
3SRC+	5
3SRC-	6
VSYS+	7
VSYS+	8
VSYS-	9
VSYS-	10

See also

 Installing the power supply kit (150 W, B) [[→ 290](#)]

6.2.3.3 X41 / X42 / X51 / X52 connection terminals for module bus cards

The module bus card determines the PIN assignment of the connectors. You will find the pin assignments in the description of the corresponding module card.

The assignment of the connector is:

- Connections of module bus card 4 are on connectors X41 and X42
- Connections of module bus card 5 are on connectors X51 and X52

See also

 Pin assignments [[→ 172](#)]

6.3 Assembling the carrier (19", card cage)

The carrier (19" card cage) FHA2023-A1 is supplied with two installed cable ducts but no card cage.

Enclosed accessories

- 2 ribbon cables, 24-pin, 750 mm long
- 4 fixing screws M 6 x 12 with cage nuts
- 2 DIN rails, 180 mm long
- 4 spacer pipes, DM9/6, 6.5 mm long
- 4 screws M 3 x 6

The carrier (19" card cage) can be assembled as follows:

- 2 card cages (5 slots) FCA2008-A1

or

- 1 card cage (5 slots) FCA2008-A1 and
- 2 DIN rails

6.3.1 Installing the card cage (5 slots) on the carrier (19", card cage)

The carrier (19", card cage) FHA2023-A1 is supplied without a card cage (5 slots) FCA2008-A1. A maximum of two card cages (5 slots) can be installed.

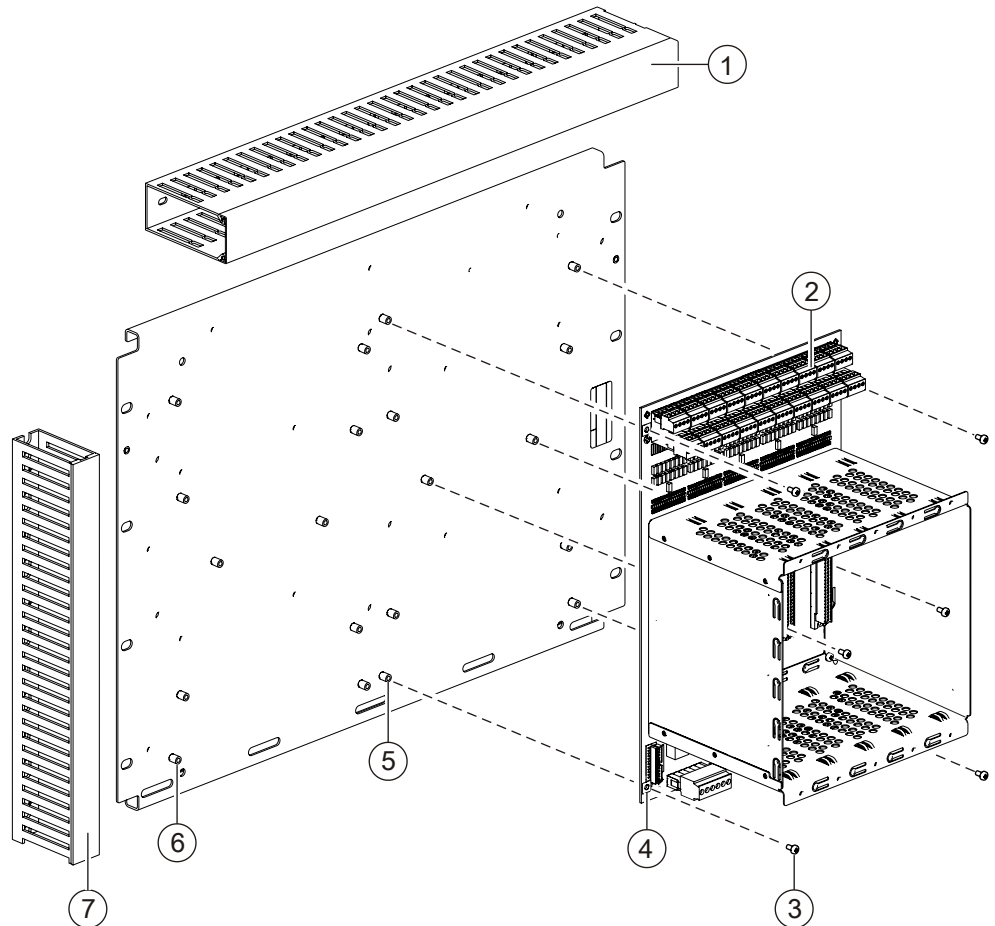


Figure 145: Installing the card cage (5 slots) on the carrier (19", card cage)

- 1 Top cable duct (shown removed)
- 2 Card cage (5 slots)
- 3 6 fixing screws M3 x 6
- 4 Mounting holes in the card cage
- 5 Threaded press-in sleeves for securing the card cage on the right-hand side
- 6 Threaded press-in sleeves for securing the card cage on the left-hand side
- 7 Lateral cable duct (shown removed)

1. Install the card cage (5 slots) (2) with six fixing screws (3) on the pressed-in threaded sleeves (5) in the carrier (19", card cage).
2. The installation process for the second card cage (5 slots) is identical to that of the first card cage.

6.3.2 Installing DIN rails on the carrier (19", card cage)

The carrier (19", card cage) FHA2023-A1 is supplied with two 180 mm long DIN rails as accessories. These DIN rails can be used to install devices when e.g. only one card cage (5 slots) FCA2008-A1 is installed.

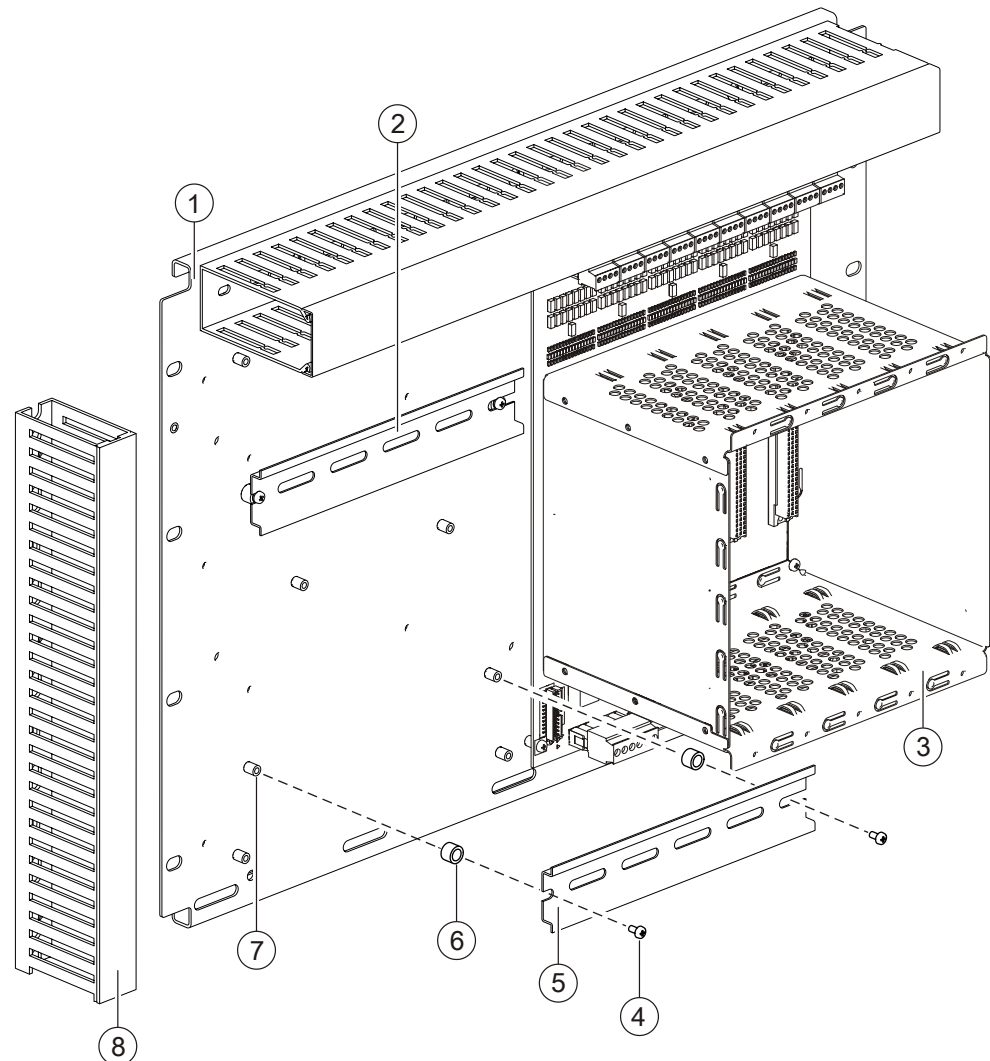


Figure 146: Installing the DIN rails on the carrier (19", card cage) FHA2023-A1

- 1 Carrier (19", card cage) FHA2023-A1
- 2 Top DIN rail installed
- 3 Card cage (5 slots) FCA2008-A1 installed
- 4 2 fixing screws M6 x 12 per DIN rail
- 5 Bottom DIN rail
- 6 2 spacer pipes DM6/12 x 6.5 mm per DIN rail
- 7 Press-in threaded sleeves for securing DIN rails
- 8 Lateral cable duct (shown removed)

1. Screw the DIN rail (5) into the pressed-in threaded sleeves (7) on the carrier (19", card cage) with 2 fixing screws (4) and 2 spacer pipes (6) as shown.
2. Install the second DIN rail (2) in the same way as the first.

6.4 Installing the carrier (19", card cage)

6.4.1 Installation

The carrier (19", card cage) FHA2023-A1 with the installed card cages (5 slots) or the DIN rails is an extension for additional module bus cards and I/O cards and also serves as a carrier for small modules or relays. A maximum of three carriers (19", card cage) can be installed in the FC2080.

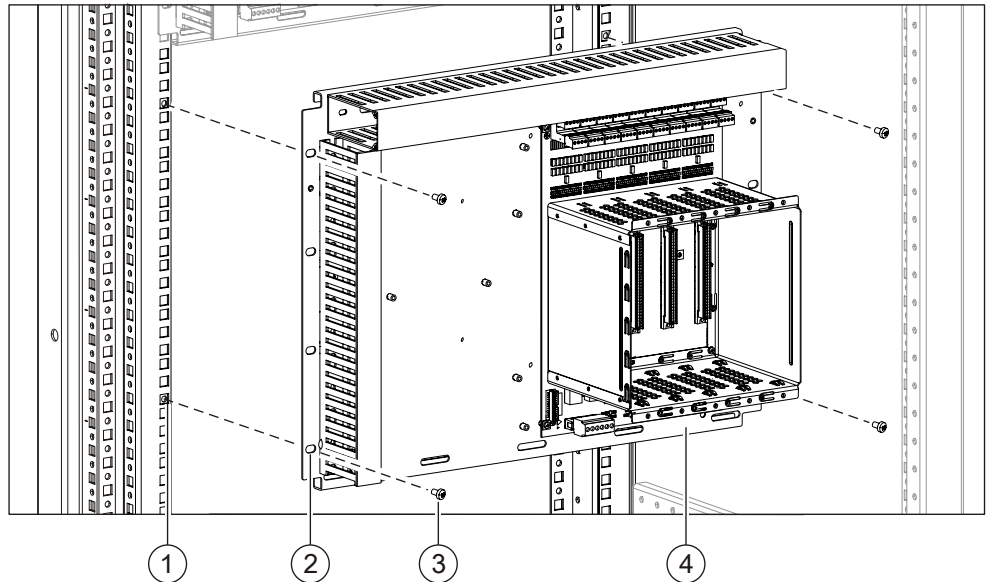


Figure 147: Installing the carrier (19", card cage) FHA2023-A1

- 1 Mounting holes for cage nuts in rear frame
- 2 Mounting holes in the carrier (19", card cage), height distance 266.7 mm
- 3 4 fixing screws M6 x 12 with cage nuts
- 4 Carrier (19", card cage) with installed card cage (5 slots)

1. Insert the 4 cage nuts in the correct position in the rear frame (1).
2. Install the prepared carrier (19", card cage) (4) on the rear frame (1) with four fixing screws (3) in the cage nuts as shown.
3. Wire up the card cages (5 slots) according to the allocation plan of the respective module bus cards.

6.4.2 Views of card cage (5 slots)

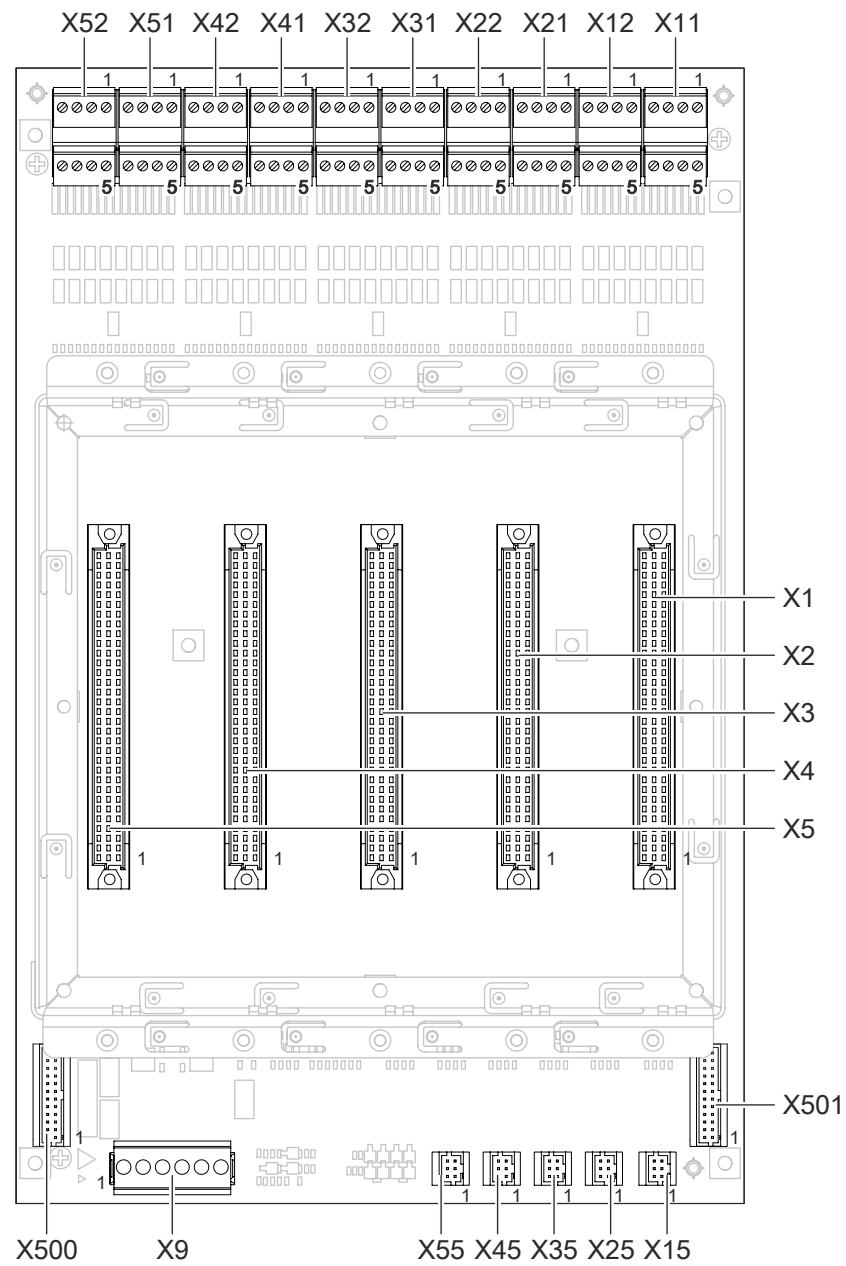


Figure 148: PCB view of card cage (5 slots) FCA2008-A1

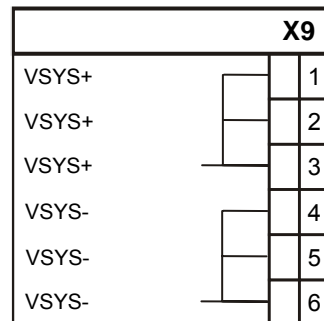
Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
	X3	Connector strip for module bus card 3
	X4	Connector strip for module bus card 4
	X5	Connector strip for module bus card 5
Connection terminals	X9	System supply connection
	X11	Connection terminals for module bus card 1
	X12	Connection terminals for module bus card 1
	X21	Connection terminals for module bus card 2
	X22	Connection terminals for module bus card 2
	X31	Connection terminals for module bus card 3
	X32	Connection terminals for module bus card 3
	X41	Connection terminals for module bus card 4
	X42	Connection terminals for module bus card 4
	X51	Connection terminals for module bus card 5
	X52	Connection terminals for module bus card 5
Connector Degraded mode	X15	Connector for degraded mode indicator [AT] of module bus card 1
	X25	Connector for degraded mode indicator [AT] of module bus card 2
	X35	Connector for degraded mode indicator [AT] of module bus card 3
	X45	Connector for degraded mode indicator [AT] of module bus card 4
	X55	Connector for degraded mode indicator [AT] of module bus card 5
Internal bus	X500	Connector for module bus output to other card cages
	X501	Connector for module bus input

6.4.3 Pin assignments

6.4.3.1 X9 supply

Pin	Designation	Description
1	VSYS+	System supply (DC 24 V)
2	VSYS+	System supply (DC 24 V)
3	VSYS+	System supply (DC 24 V)
4	VSYS-	System supply (0 V)
5	VSYS-	System supply (0 V)
6	VSYS-	System supply (0 V)

Admissible cable cross-section: 0.5...2.5 mm²



6.4.3.2 X11...X52 connection terminals for the module bus card

The module bus card determines the PIN assignment of the four connectors. You will find the pin assignments in the description of the corresponding module card.

The assignment of the connector is:

- Connections of module bus card 1 are on connectors X11 and X12
- Connections of module bus card 2 are on connectors X21 and X22
- Connections of module bus card 3 are on connectors X31 and X32
- Connections of module bus card 4 are on connectors X41 and X42
- Connections of module bus card 5 are on connectors X51 and X52

6.5 Installing the carrier (19", option)

The carrier (19", option) FHA2024-A1 is intended for the installation of smaller modules and relays. To this end, it is equipped with two DIN rails that are fitted one above the other.

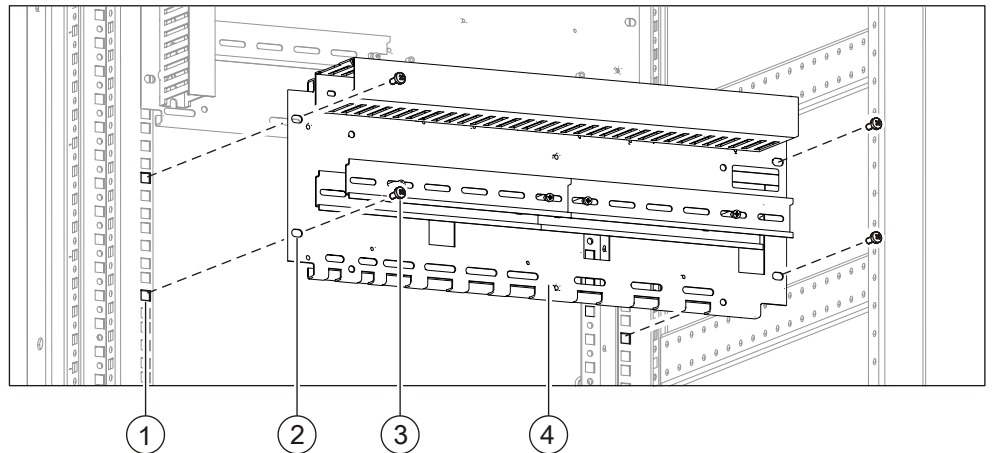


Figure 149: Installing the carrier (19", option)

- 1 Mounting holes in rear frame
- 2 Mounting holes in carrier (19", option)
- 3 4 fixing screws M6 x 12 with cage nuts
- 4 Carrier (19", option)

1. Install the carrier (19", option) (4) on the rear frame (1) with four fastening screws (3) and cage nuts.
2. Equip the carrier (19", option) with the intended modules.
3. Wire up the modules used according to the separate installation sheets.

6.6 Installing the battery tray (19")

The battery tray (19") FHA2021-A1 contains two batteries and serves as leakage protection and a holder for fixing batteries with tension belts. The battery tray (19") is supplied with three tension belts for fixing the batteries.

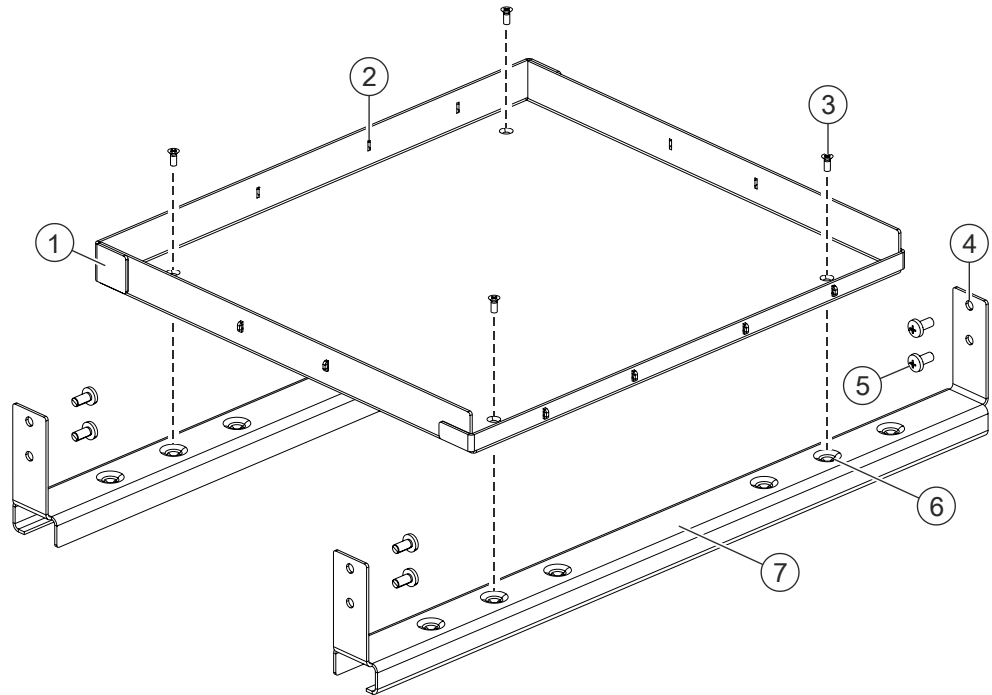


Figure 150: Assembly of battery tray FHA2021-A1

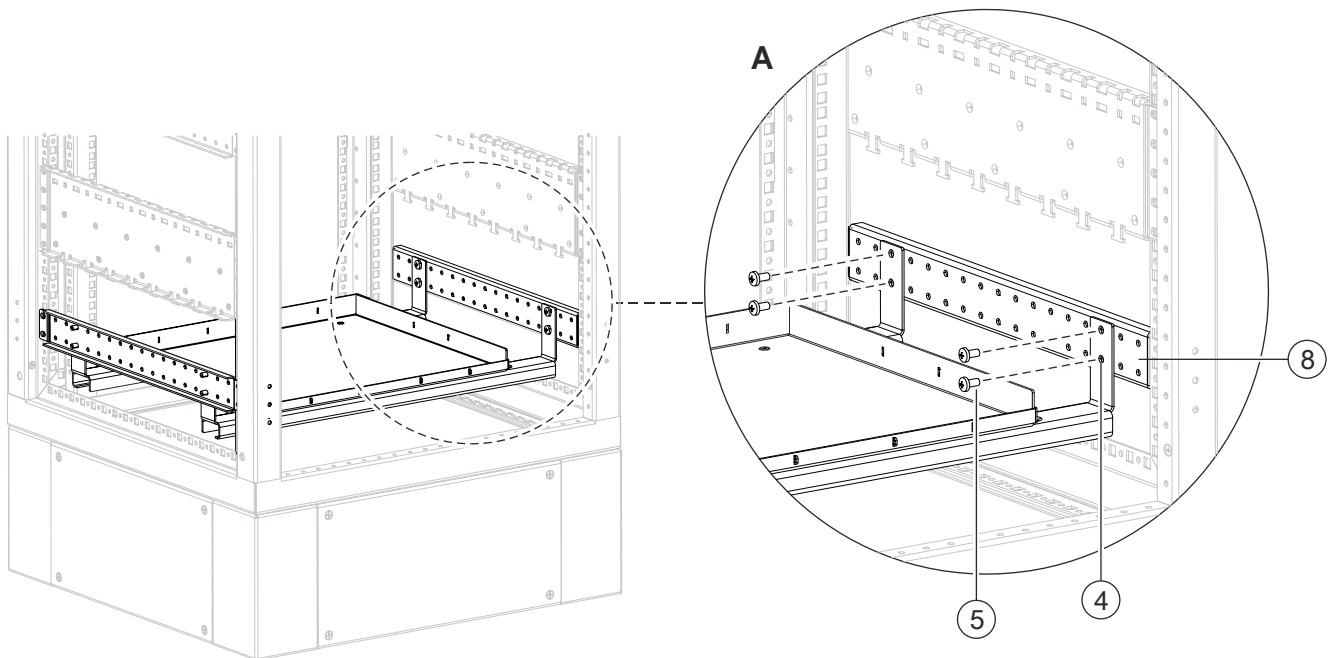


Figure 151: Installing the battery tray in the 19" pedestal cabinet with detailed view A

- 1 Battery tray
 - 2 Bridges for fixing the retaining belt
 - 3 4 countersunk screws M4 x 10 for securing the compartment
 - 4 Mounting holes in the crossbeam
 - 5 8 threaded screws M6 x 12 for securing the crossbeam
 - 6 Threaded holes for securing the compartment
 - 7 2 crossbeams for the battery tray
 - 8 Lateral crossbars with mounting holes
-
1. Install the battery tray (1) on the two crossbeams (7) with four countersunk screws (3). Depending on the lateral cable guide, you can install the battery tray in the three mounting holes (6) offset to the side.
 2. Secure the entire battery tray (19") at the height you want on the lateral crossbars (7) by inserting eight screws and nuts (5) through the mounting holes in the crossbeams (4).
 3. The installation process for the second battery tray (19") is identical to that of the first. Ensure that you keep it a sufficient distance from the bottom battery tray (note the height of the batteries).

6.7 Installing the switch and socket on the carrier (19", power supply)

The carrier (19", power supply) FHA2022-A1 is supplied without a main switch and socket. A single carrier or the first carrier (19", power supply) must be equipped with the main switch supplied with the housing FH2080-AA. Mounting of the socket is optional.

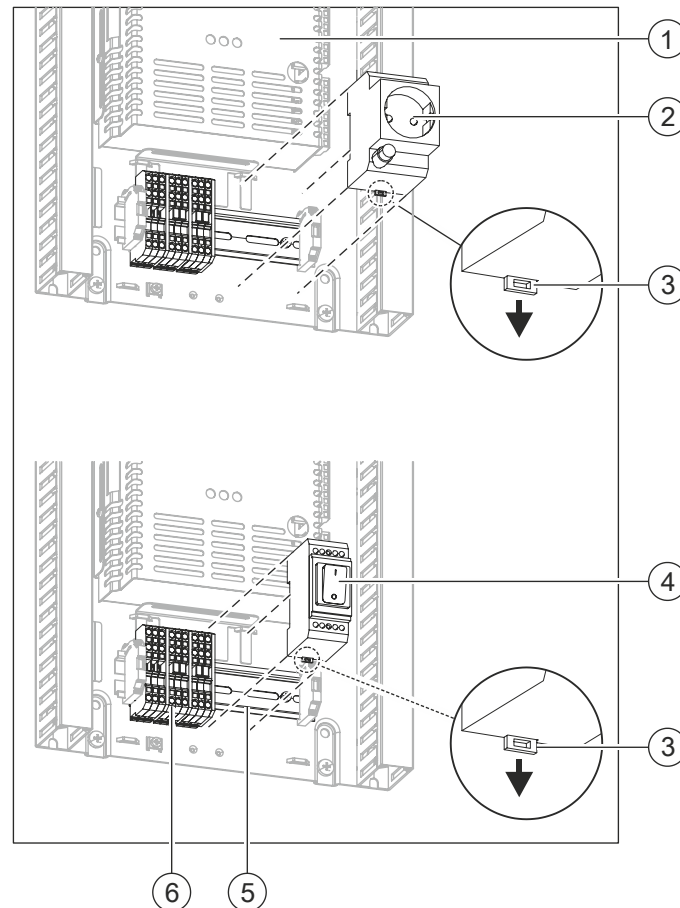


Figure 152: Installing the main switch and socket

- 1 Carrier (19", power supply) with two power supplies
- 2 Euro socket (option)
- 3 Fixing cam for installation on the DIN rail
- 4 Main switch (cabinet accessory)
- 5 DIN rail
- 6 Primary connection terminals with fixing clamp on the left and right

- ▷ The fixing clamp on the right of the terminal block (6) must be removed or offset to the right (as shown).

 1. First install the main switch (4) on the DIN rail (5) of the first carrier (19", power supply) (1) by sliding the main switch sideways along the DIN rail (5) as far as the primary connection terminals (6).
 2. Then install the socket (2) on the DIN rail (5) by hanging the socket on the DIN rail (5) at an angle from above and pressing down until the cam (3) snaps into place.
 3. Slide the installed parts to the left as far as the terminal block and fix the parts again with the right fixing clamp.

6.8 Installing the power supply kit (150 W, B)

6.8.1 Installation

The carrier (19", power supply) FHA2022-A1 is supplied with two power supplies (150 W) connected in parallel. For more power, a third power supply can be installed with the power supply kit (150 W, B) FP2005-A1.

A power supply (150 W) of the type SV 24V-150W-A5 is part of the power supply kit (150 W, B).



Only the power supply (150 W) of type SV 24V-150W-A5 may be connected in parallel as a third power supply. Power supplies of type –A4 and –A5 must not be combined with each other.

Accessories supplied with the power supply kit (150 W, B)

- 1 cable kit for FP2004-A1 (is not required)
- 1 cable kit for FHA2022-A1 for parallel connection
- 1 fused terminal for the DIN rail
- 1 fine fuse T 12.5 A as a spare fuse

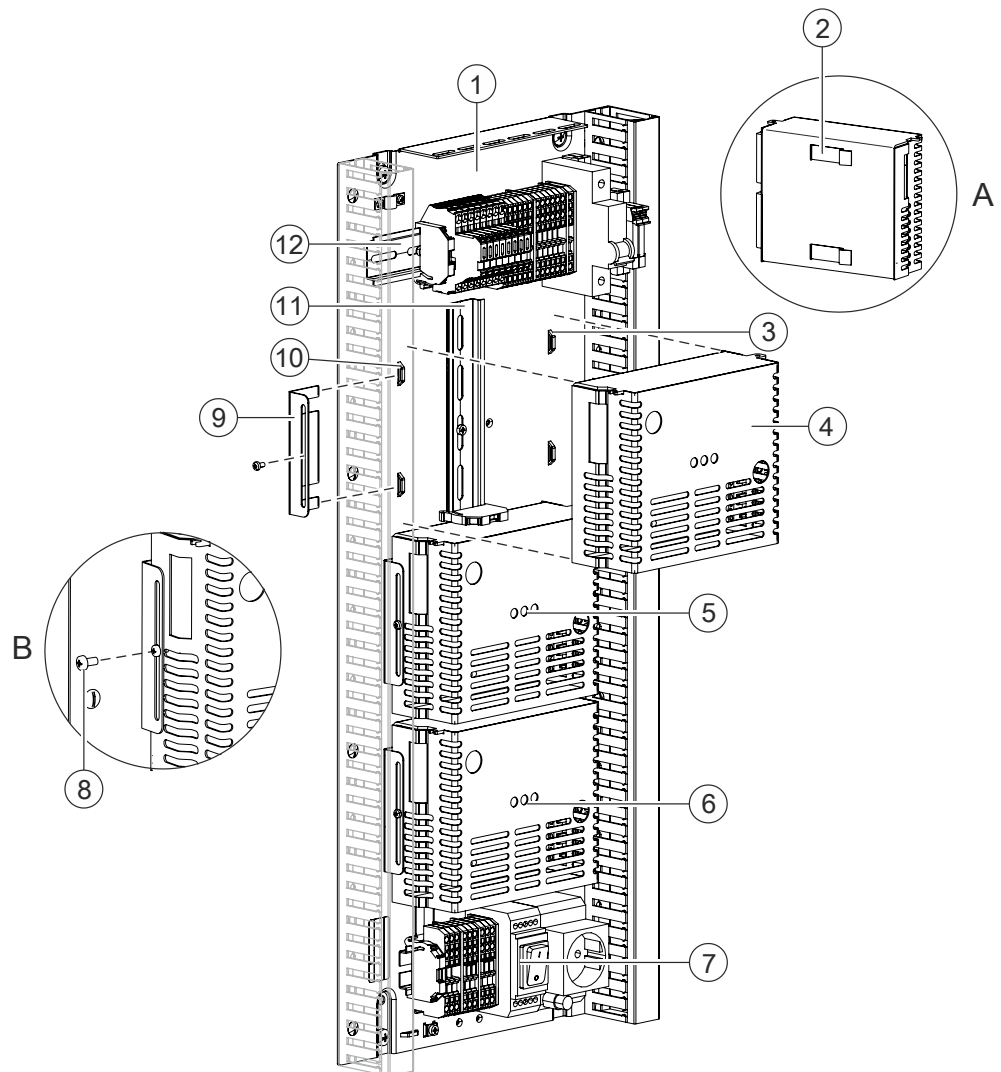


Figure 153: Installing the third power supply (150 W)

- 1 Carrier (19", power supply)
- 2 Clamps for securing to the DIN rail
- 3 Mounting slots for right-hand retaining bracket
- 4 Additional third power supply (150 W), slave
- 5 Power supply (150 W), slave
- 6 Power supply (150 W), master
- 7 Primary terminals with main switch
- 8 Clamping screw M3 x 6 for third power supply (150 W)
- 9 Retaining bracket for power supply
- 10 Mounting slots for left-hand retaining bracket
- 11 DIN rail for power supplies
- 12 Secondary terminals
- A Detailed view of rear power supply
- B Detailed view of fixing retaining bracket

1. Install the power supply (150 W) (4) in the topmost position by hanging the power supply on the DIN rail (11) at an angle from the side.
2. Push the power supply (4) back until the two clamps (2, detail A) snap onto the DIN rail.
3. Slide the retaining bracket (9) into the front mounting slots (10). Note the cable duct. If the carrier (19", power supply) is installed on the right-hand side of the housing, slide the retaining bracket (9) into the front mounting slots (3).
4. Screw the clamping screw (8, detail B) into the retaining bracket (9) and lock the power supply.
5. Wire up the third power supply according to the following chapter.

6.8.2 Parallel connection of three power supplies (150 W)

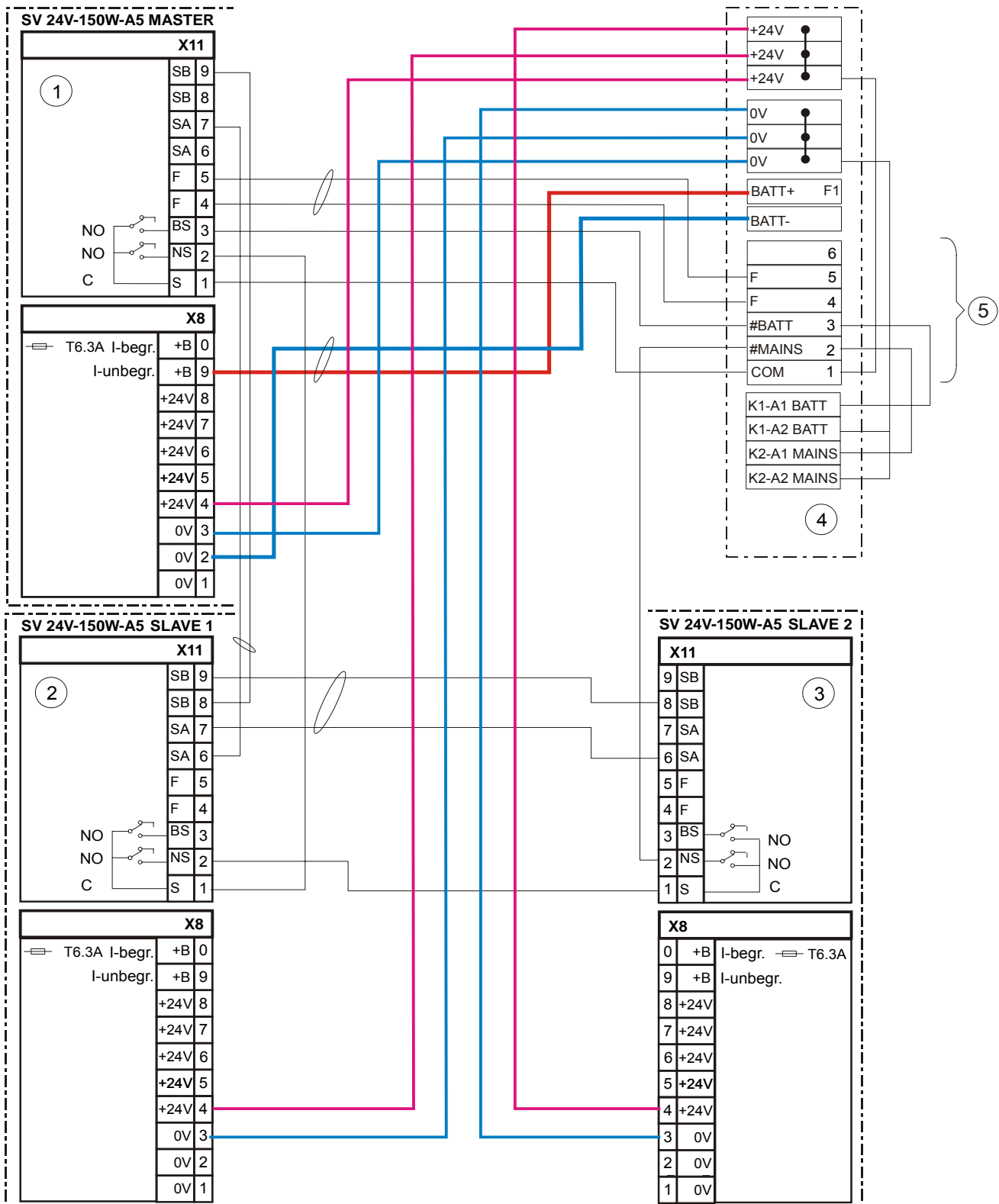


Figure 154: Diagram for parallel connection of three power supplies (150 W) A5 for the FC2080

- 1 Master power supply (150 W)
 - 2 Slave 1 power supply (150 W)
 - 3 Slave 2, additional power supply (150 W, B)
 - 4 Terminal strip of the secondary connections
 - 5 Terminal block 1...6 for signal lines
- In order to avoid operating temperature differences, all three power supply units must be mounted next to each other in the same housing.
 - The batteries must be connected to the master power supply.
 - Only one temperature sensor must be connected to the master power supply unit.
 - The temperature sensor must be fitted close to the batteries.

!	NOTICE
	<p>Damage to the power supply Different versions (A4/A5) of the power supply (150 W) may not be switched in parallel.</p>

6.8.3 Wiring

Wire up the additional third power supply (150 W) using the cable tree supplied according to the following wiring diagram.

!	NOTICE
	<p>Damage to the power supply Different power supplies (150 W) of type A4 and A5 must not be combined. Only the power supply (150 W) of type A5 may be used as the third power supply connected in parallel.</p>



Note that the sliding switch (S) on the third power supply is set to 'Slave'.

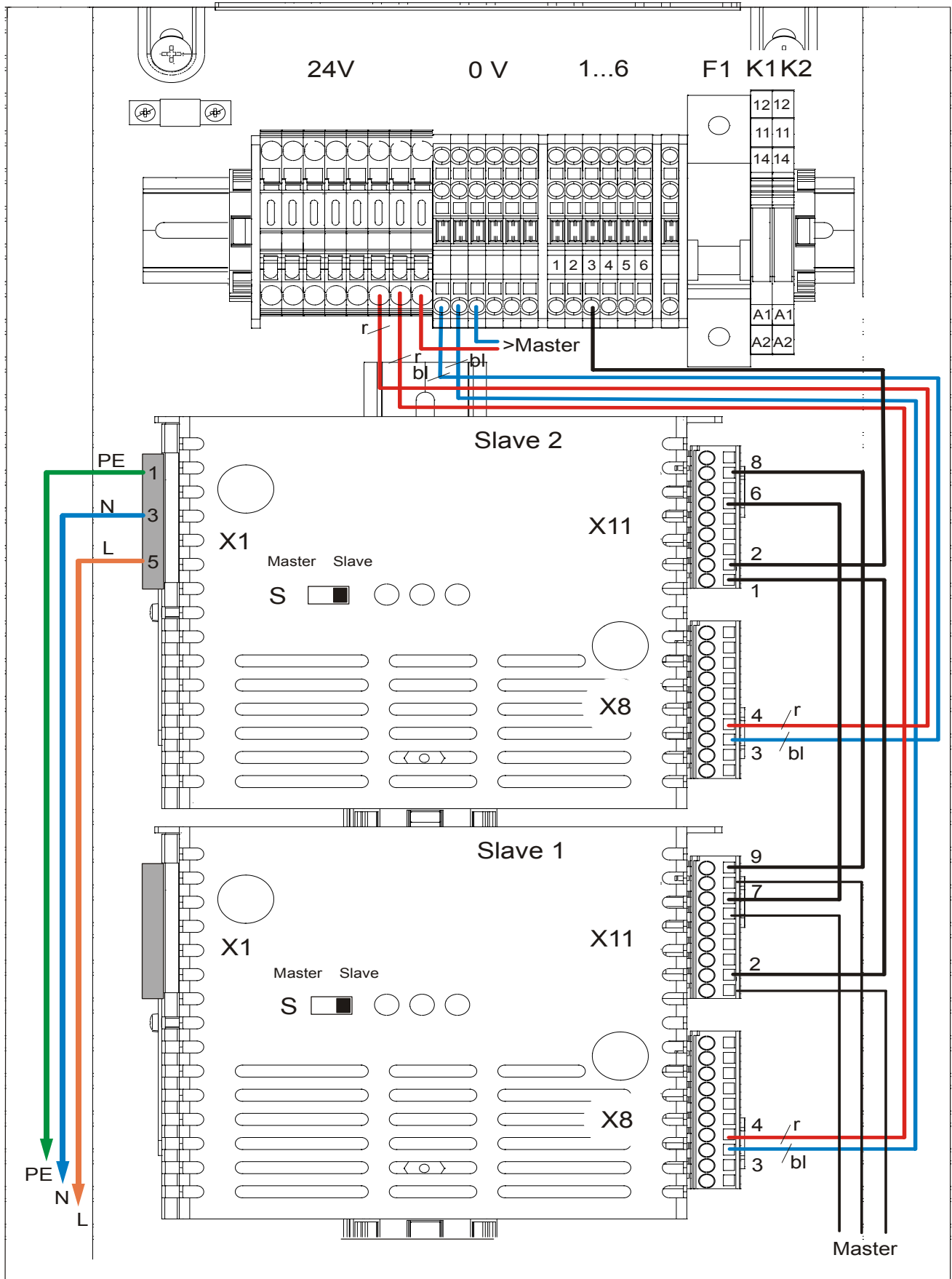


Figure 155: View of cable tree wiring for the third additional power supply

Slave 1	Second existing power supply (150 W)
Slave 2	Third additional power supply (150 W)
S	'Master/Slave' sliding switch
X1	Mains connection terminal (pin assignment according to type A5)
X8	Output voltage terminal
X11	Monitoring signal terminal
24 V	Vsys +24 V terminal block
0 V	Vsys 0 V terminal block
F1	Circuit breaker for charging current (20 A)
K1	Monitoring relay 1
K2	Monitoring relay 1

Wiring table for signal and system voltage connections of the 3rd power supply (slave 2)

Connector Slave 2	Pin	Wire up according to	Information
X11	9	X11/9 – slave 1	Strand 0.5 mm ² / black / 350 mm
X11	7	X11/7 – slave 1	Strand 0.5 mm ² / black / 350 mm
X11	2	Relay K1/A1	Strand 0.5 mm ² / black / 350 mm
X11	1	X11/2 – slave 1	Strand 0.5 mm ² , not included in the cable tree
X8	4	Terminal strip +24 V	Strand 1.5 mm ² / red / 550 mm
X8	1	0 V terminal strip	Strand 1.5 mm ² / blue / 550 mm

Wiring table for power cable of the 3rd power supply (slave 2)

Connector Slave 2	Pin	Wire up according to	Information
X1	1	Primary terminal block [PE]	Strand 1.0 mm ² / yellow-green / 600 mm
	3	Primary terminal block [N]	Strand 1.0 mm ² / blue / 600 mm
	5	Primary terminal block [L]	Strand 1.0 mm ² / brown / 600 mm

6.9 Installing the carrier (19", power supply)

The carrier (19", power supply) FHA2022-A1 is installed on the side of the cabinet. The installation position can be determined depending on the arrangement of the other components and the battery tray. When installing two carriers (19", power supply), note that the installation position of the top carrier is as high as possible.

Enclosed accessories

- 4 threaded screws M 6 x 12

Prerequisites

- Main switch installed
- Socket installed, if required
- Third power supply (150 W) installed, if required



Note the installation position of the carrier (19", power supply). When installing two carriers (19", power supply), the top carrier must be installed as high as possible. If the carrier is installed too low, there will not be enough room to install a second carrier (19", power supply).



Only one main switch (accessory for housing FH2080-AA) need be installed per fire control panel FC2080. When installing two carriers (19", power supply), install the main switch preferably on the bottom carrier (mains supply cable).

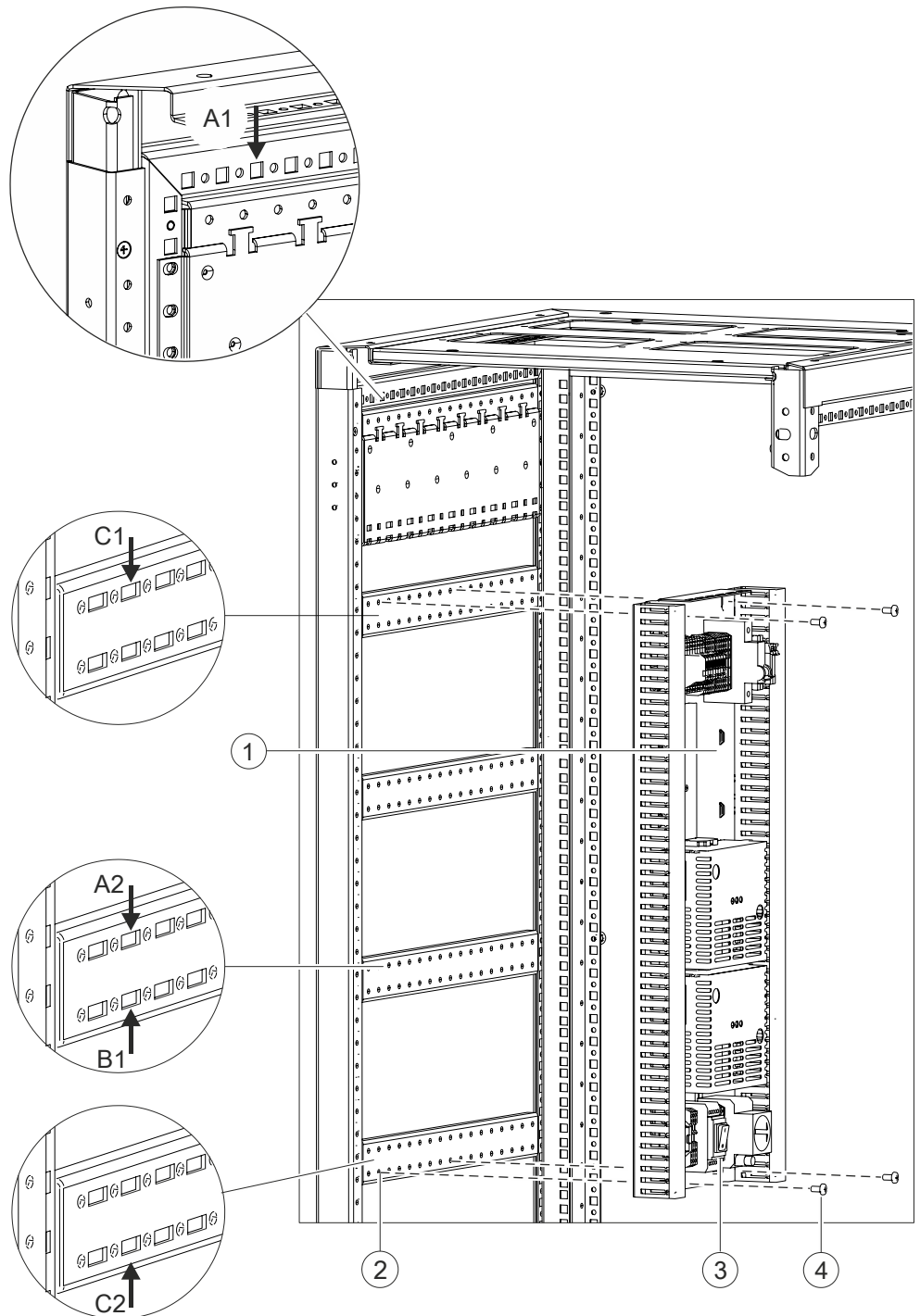


Figure 156: Installing the carrier (19", power supply) with details of the mounting points

- 1 Carrier (19", power supply)
- 2 Crossbars on the sides of the housing
- 3 Main switch for mains supply cable
- 4 4 fixing screws with nuts
- A Mounting points for top carrier
- B Mounting points for bottom carrier
- C Mounting points for single carrier

Installation positions for two carriers (19", power supply)

When installing two carriers (19", power supply), the carriers should be installed as high as possible to keep sufficient space for the battery trays.

- A 1 Top mounting point for first carrier
- 2 Bottom mounting point for first carrier
- B 1 Top mounting point for second carrier
- 2 Bottom mounting point for second carrier

Installation positions for one carrier (19", power supply)

When using just one carrier (19", power supply), it can basically be positioned anywhere. The mounting points (C) serve only as an example.

- C 1 Top mounting point
- 2 Bottom mounting point

1. Install the prepared carrier (19", power supply) (1) on the lateral crossbars (2) with four fastening screws (4) and cage nuts.
2. Wire up the carrier (19", power supply) according to the following pin assignments.

6.9.1 Wiring the mains supply cable

The primary wiring supplies and outlets must be secured with cable ties.

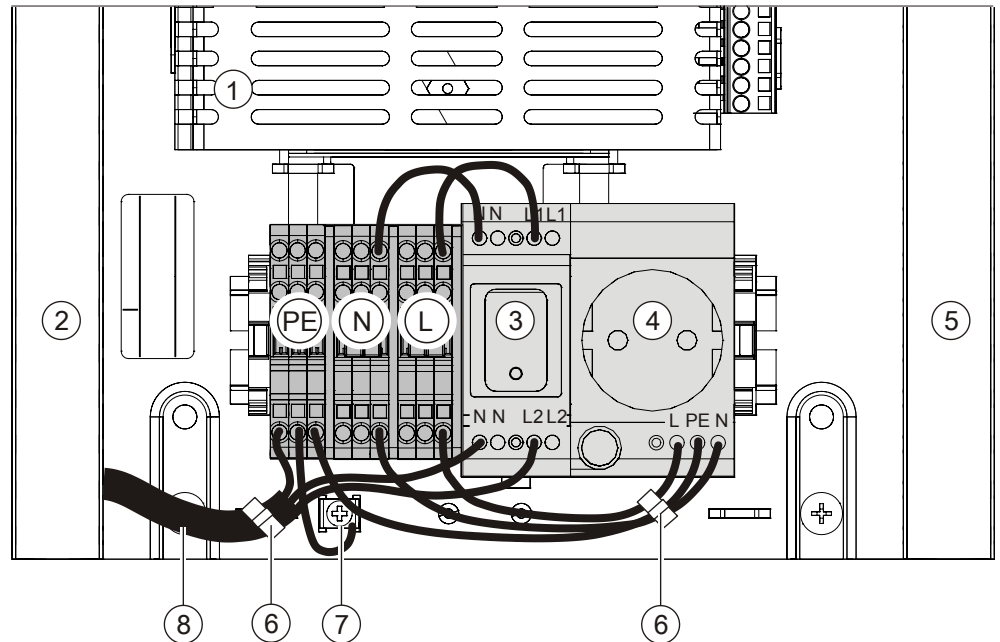


Figure 157: Cable guide of the mains supply cable on carrier (19", power supply)

- 1 Integrated power supply (150 W), PS1...PS3
- 2 Mains cable duct
- 3 Install the main switch, only for the first carrier (19", power supply)
- 4 Euro socket
- 5 Secondary circuit and signal cable duct
- 6 Cable tie (strain relief)
- 7 Support plate ground terminal
- 8 Mains connection cable ¹
- PE Protective conductor terminals
- N Neutral conductor terminals
- L External conductor terminals
- L1 External conductor for mains switch input
- L2 External conductor for mains switch output

¹ The mains connection of a second carrier (19", power supply) must be connected from terminals 'N', 'L' and 'PE' of the first carrier (19", power supply).

Wiring of the mains cable on the bottom terminal block

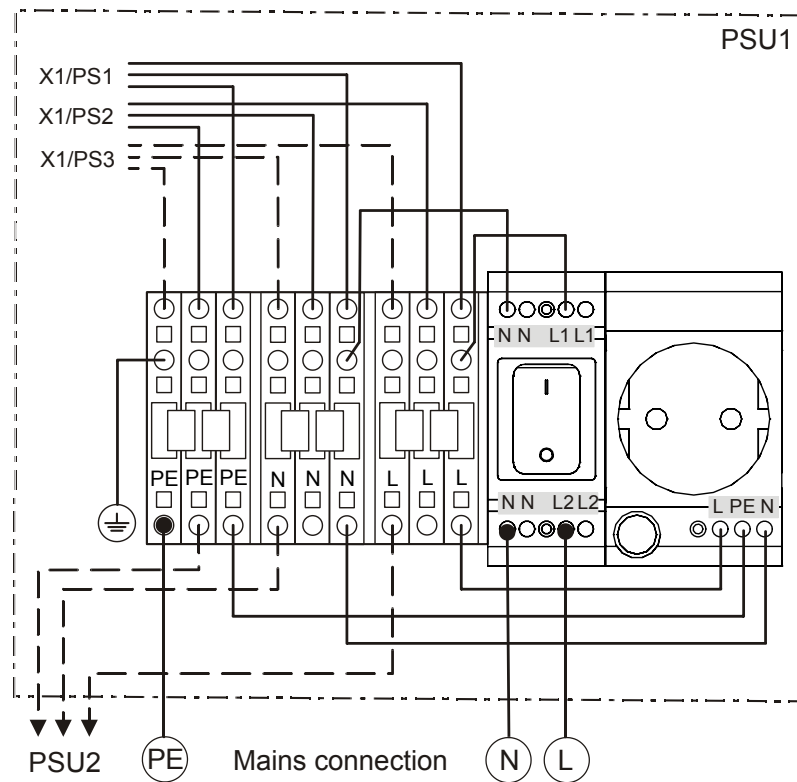


Figure 158: Wiring diagram of the complete bottom terminal block on carrier (19", power supply)

Connection	From	To
Mains supply cable	External conductor (L)	Main switch L2 (bottom)
	Neutral conductor (N)	Main switch N (bottom)
	Protective conductor (PE)	Terminal PE (bottom)
Earth connection	Terminal PE (top)	Ground connection terminal
Primary terminals (L, N)	Main switch L1 (top)	Terminal L (top)
	Main switch N (top)	Terminal N (top)
Socket	Terminal L (bottom)	Connection L
	Terminal N (bottom)	Connection N
	Terminal PE	Connection PE
Mains supply cable to second carrier (19", power supply) PSU2	Terminal L (bottom)	PSU2 / terminal L (bottom)
	Terminal N (bottom)	PSU2 / terminal N (bottom)
	Terminal PE (bottom)	PSU2 / terminal PE (bottom)
Mains supply cable to the individual power supplies (150 W) on PSU1 or PSU2	Terminal PE (top)	X1/PS1-1 X1/PS2-1 (X1/PS3-1)
	Terminal N (top)	X1/PS1-3 X1/PS2-3 (X1/PS3-3)
	Terminal L (top)	X1/PS1-5 X1/PS2-5 (X1/PS3-5)

6.9.2 Installing the temperature sensor

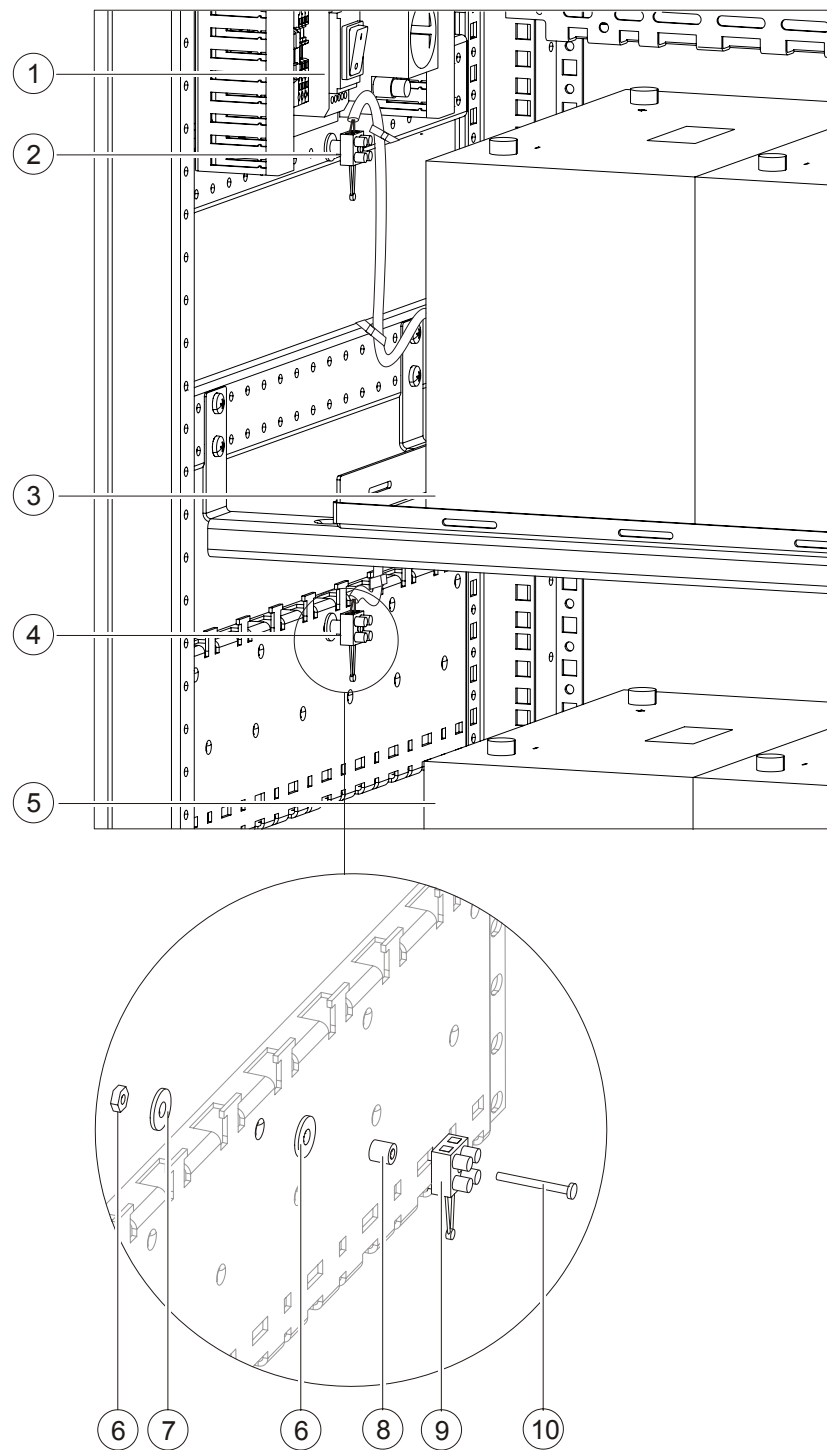


Figure 159: Installing the temperature sensor for batteries


- 1 Carrier (19", power supply)
- 2 Mounting location of temperature sensor for second, top battery kit
- 3 Second, top battery kit
- 4 Mounting location of temperature sensor for first, bottom battery kit
- 5 First, bottom battery kit
- 6 Nut M3
- 7 Washer M3
- 8 Spacer sleeve M3
- 9 2-pin luster terminal
- 10 Screw M3

1. Position the luster terminal (9) as close as possible to the top of the batteries (3) or (5) on the crossbar according to the diagram.
2. Secure the luster terminal (9) to the crossbar using a spacer sleeve (8), a screw M3 (10), two washers (7) and a nut M3 (6).
3. Connect the assembled cable to the luster terminal and the secondary terminal block, connection 4 and 5, on the corresponding carrier (19", power supply).
4. Mount the temperature sensor (NTC resistor) as shown (2 / 4) directly next to the batteries.

6.10 Wiring up the system supply and module bus

The following guidelines must be observed when wiring the module bus and system supply.

Guidelines

	<p>⚠ WARNING</p>
	<p>Connecting batteries in parallel Risk of explosion and fire</p> <ul style="list-style-type: none"> • Never switch batteries in parallel. • If you need more power, you must use batteries with a higher capacity.

- The maximum current of the system supply per card cage is 8 A. The power supply must be distributed accordingly.
- The system supply to the card cages must be wired in a star configuration from the secondary terminals.
- A maximum of 4 card cages may be connected per module bus.
- The supplied cables must be used to wire up the module bus. Extending the module bus cable is not allowed.
- Module bus wiring up of the card cage must be carried out as shown in the drawing:
 - Card cages 1 to 4 on module bus 1 (X5000)
 - Card cages 5 to 7 and 8 on module bus 2 (X5001)
- To guarantee ground fault monitoring in all card cages via the communication card FCC2005, the 0 V connection must be inserted between the two carriers (19", power supply).

The following diagram shows an example of the wiring principle for the module bus and supply connections. The setup shown with 2 battery kits and 8 card cages serves as an example only and is not feasible in a cabinet in practice.

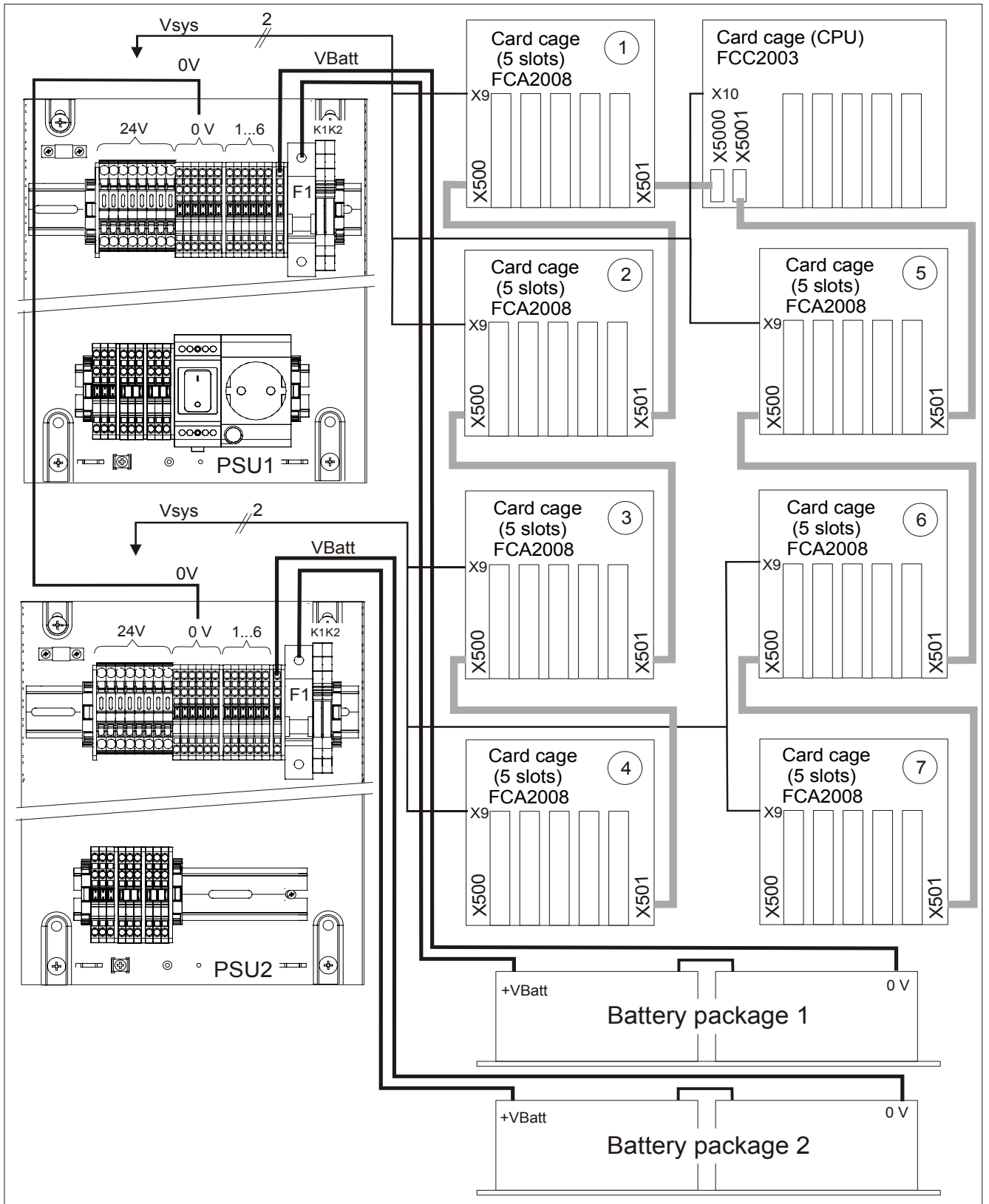


Figure 160: Wiring principle for the system supply and the module bus

PSU1	Carrier (19", power supply) 1
PSU2	Carrier (19", power supply) 2
Battery package 1	Battery kit 1
Battery package 2	Battery kit 2
Vsys	System supply +24 V/0 V
0 V	0 V connection between two carriers (19", power supply)
VBatt	Battery supply +24 V/0 V
1...6	Terminal block for signal connections
F1	15 A circuit breaker for +24 V battery supply
K1	Monitoring signal optocoupler #BATT
K2	Monitoring signal optocoupler #MAINS
X5000	Module bus output 1, card cage (CPU)
X5001	Module bus output 2, card cage (CPU)
X500	Module bus card cage output
X501	Module bus card cage input
X9	Card cage supply input
X10	Card cage (CPU) supply input

Wiring

- Wire up module bus 1 from terminal X5000 to the card cage (CPU) serial to the connections of the first four card cages (5 slots).
 - X500 is the module bus output.
 - X501 is the module bus input.
- Wire up the other card cages (5 slots) from terminal X5001 to the card cage (CPU).
- Wire up the monitoring signals and the supply input (X10) of the card cage (CPU) from the terminal block (PSU1) of the first carrier (19", power supply) on which the main switch is also installed.
- Wire up the system supply from the terminal blocks [24 V] and [0 V] of the carriers (19", power supply) to the connectors (X9) of the card cages (5 slots) and additional installed modules, if necessary. **In doing this, comply with the planner's specifications.**
- Connect the batteries to the pre-assembled cables on the terminal block (VBatt - connection F1 and 0 V) of the corresponding carrier (19", power supply).
 - Only one battery kit may be connected per carrier (19", power supply).
 - The positive pole must be connected to the circuit breaker F1.
 - The negative pole must be connected to the 0 V terminal to the left of the circuit breaker.

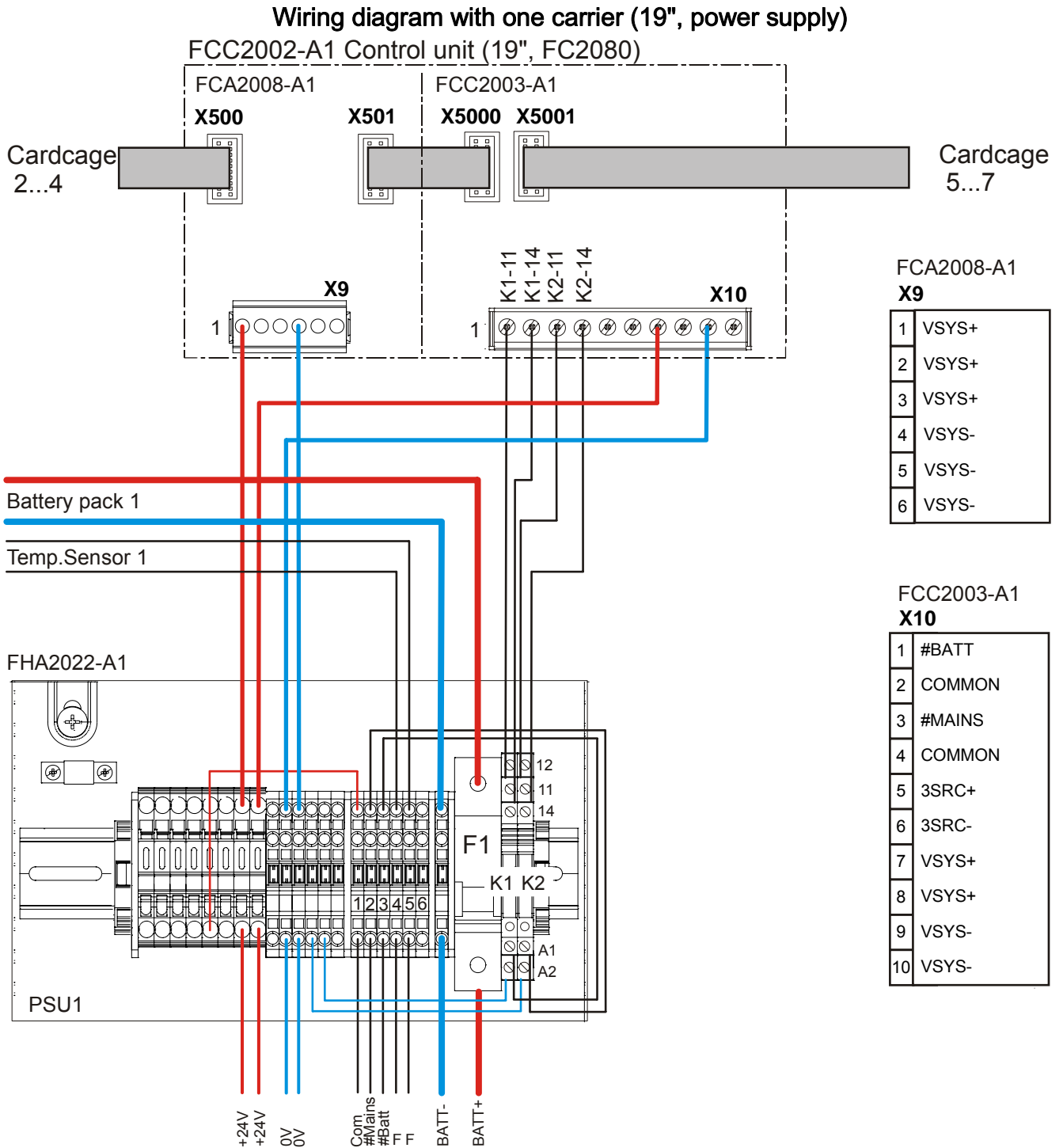


Figure 161: Wiring diagram for one carrier (19", power supply)

Wiring diagram with two carriers (19", power supply)

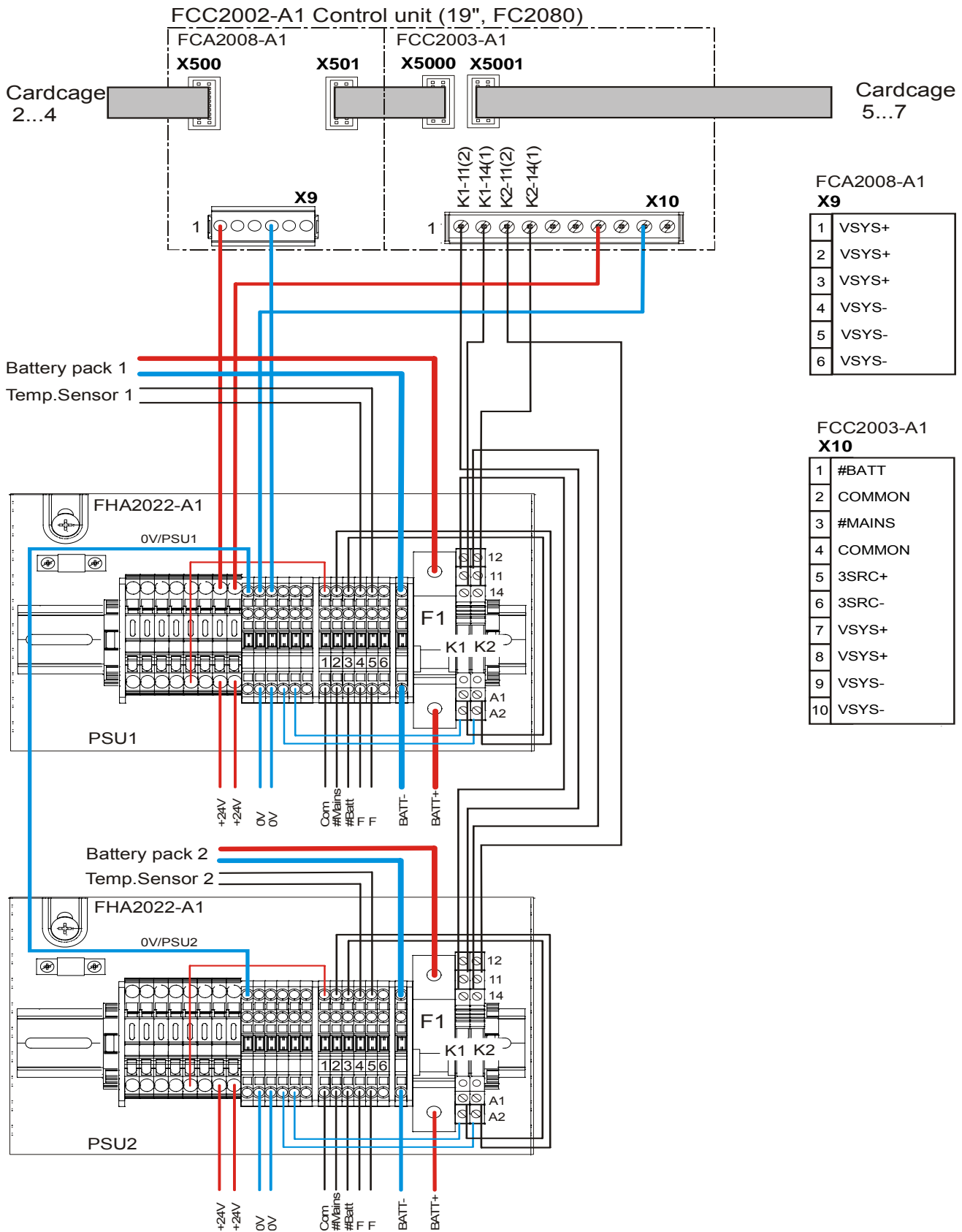


Figure 162: Wiring diagram for two carriers (19", power supply)

Wiring monitoring signals

The following diagrams and pin assignments show the wiring of the monitoring signals from the power supplies to the optocouplers.

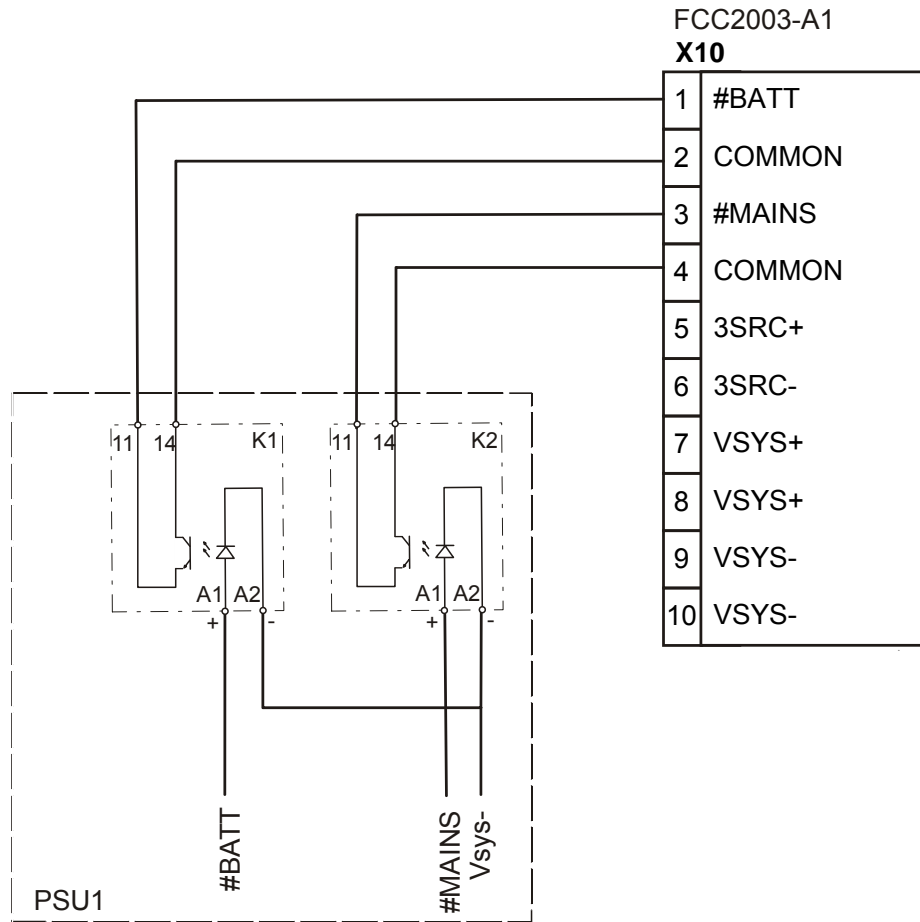


Figure 163: Wiring of monitoring signals with one carrier (19", power supply)

Pin assignment for one carrier (19", power supply):

Signal	From optocoupler connection	To terminal X10
Battery	K1-11	X10-1 (#BATT)
	K1-14	X10-2 (COM)
Mains	K2-11	X10-3 (#MAINS)
	K2-14	X10-4 (COM)

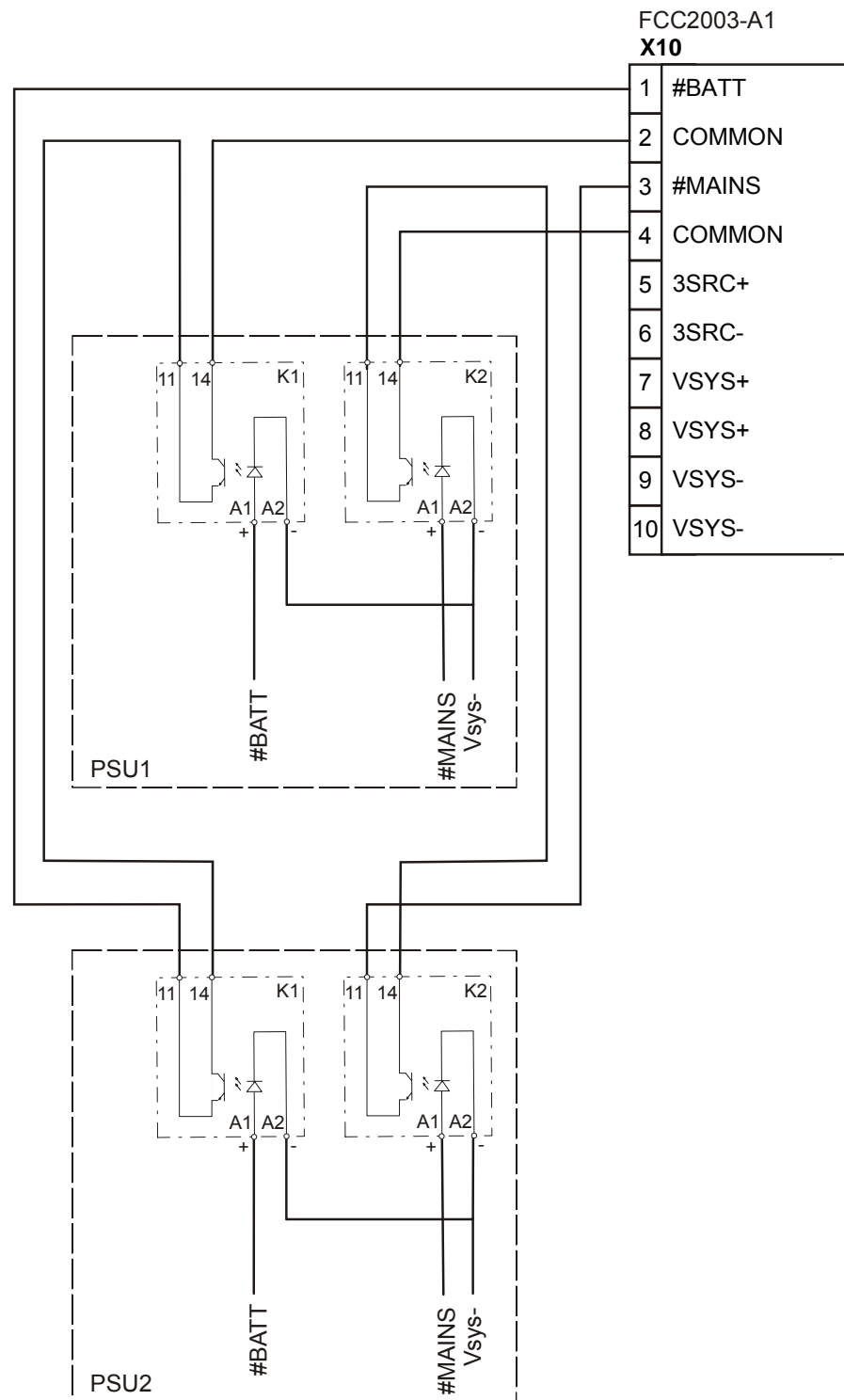


Figure 164: Wiring of monitoring signals with two carriers (19", power supply)

Pin assignment for two carriers (19", power supply):

Signal	From optocoupler	To optocoupler	To terminal X10
Battery	PSU2/K1-11	--	X10-1 (#BATT)
	PSU2/K1-14	PSU1/K1-11	--
	PSU1/K1-14	--	X10-2 (COM)
Mains	PSU2/K2-11	--	X10-3 (#MAINS)
	PSU2/K2-14	PSU1/K2-11	--
	PSU1/K2-14	--	X10-4 (COM)

6.11 Installing the CPU card and communication card

6.11.1 Installation in card cage

Installing the cards

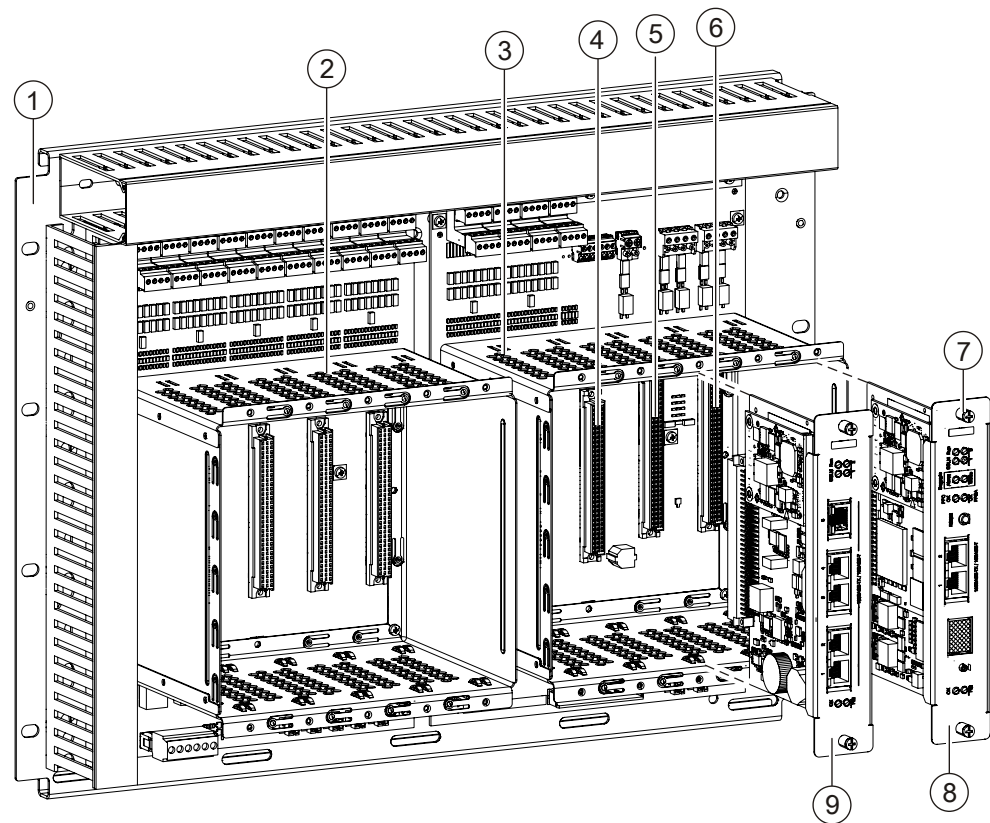


Figure 165: Installing the plug-in cards in the processor unit (19", FC2080)

- 1 Processor unit (19", FC2080)
- 2 Card cage (5 slots)
- 3 Card cage (CPU)
- 4 Connector strip for communication card (FC2080)
- 5 Connector strip for redundant CPU card (FC2080)
- 6 Connector strip for CPU card (FC2080)
- 7 Fixing screws for plug-in cards in the card cage
- 8 Plug-in card, CPU card (FC2080)
- 9 Plug-in card, communication card (FC2080)

Arranging the cards

The slots 1 to 3 in the card cage (CPU) of the processor unit (19", FC2080) are reserved for the following plug-in cards:

- CPU card (FC2080) FCC2004-A1
- Redundant CPU card (FC2080) FCC2004-A1
- Communication card (FC2080) FCC2005-A1

The cards must not be swapped over.

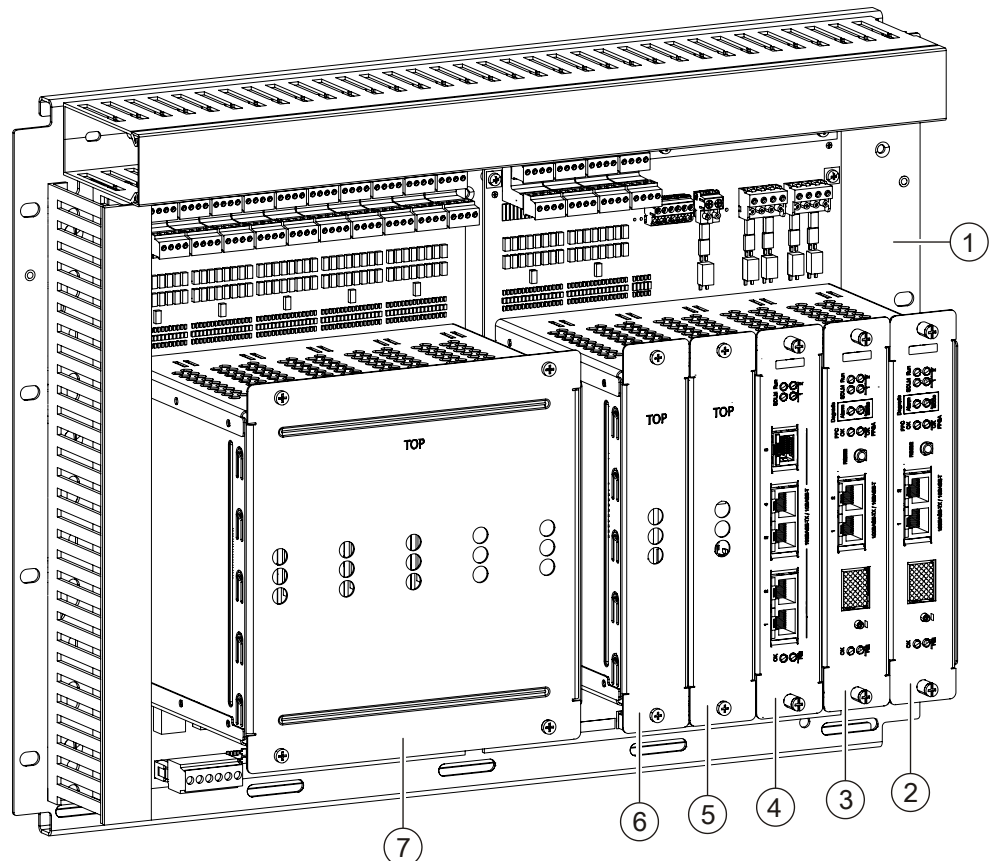


Figure 166: Arrangement of the plug-in cards in the processor unit (19", FC2080)

- 1 Processor unit (19", FC2080)
- 2 CPU card (FC2080) in slot 1
- 3 Redundant CPU card (FC2080) in slot 2
- 4 Communication card (FC2080) in slot 3
- 5 Slot 4 for module bus cards or I/O cards, e.g. I/O card (RT)
- 6 Slot 5 for module bus cards or I/O cards, e.g. I/O card (horn/monitored)
- 7 5 slots for module bus cards or I/O cards

6.11.2 Switching the network module with dual CPU operation

If a second CPU card is installed for redundant CPU operation, the network module must be removed from the communication card and plugged into the second CPU card, before it is installed, as shown.

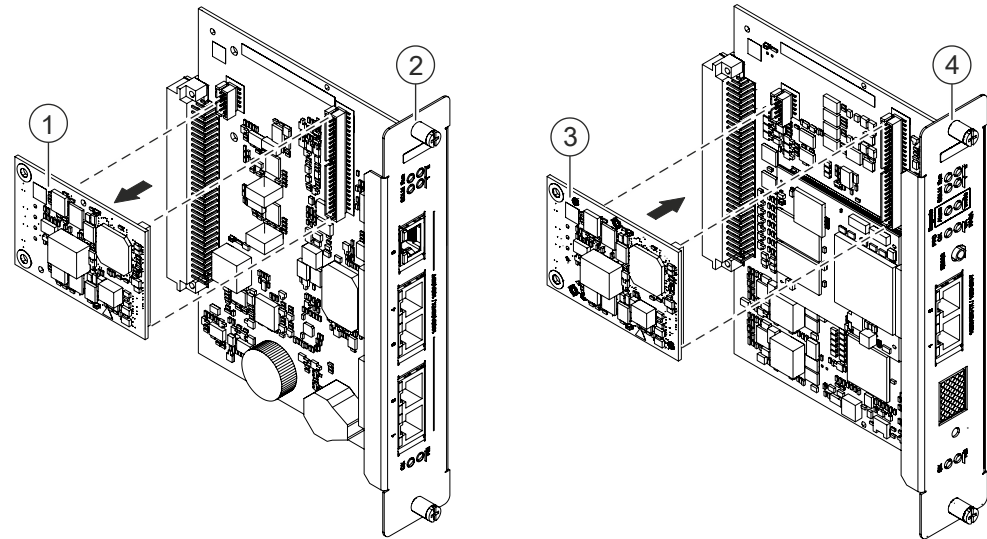


Figure 167: Switching the network module from the communication card to the CPU card

- 1 Remove the network module from the communication card
- 2 Communication card
- 3 Plug the network module into the second CPU card
- 4 Second CPU card (optional)

6.11.3 Ethernet connection

The CPU card and communication card are connected via the Ethernet connections of the corresponding cards. Both the CPU cards and the communication card must be connected to each other to ensure redundancy.



When operating with two CPU cards, the network module (SAFEDLINK, CC) must be removed from the communication card and fitted on the CPU card!

Wiring with a CPU card

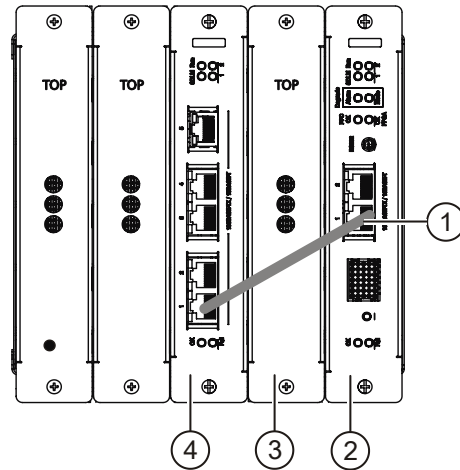


Figure 168: Ethernet wiring for a CPU card

Wiring with two CPU cards

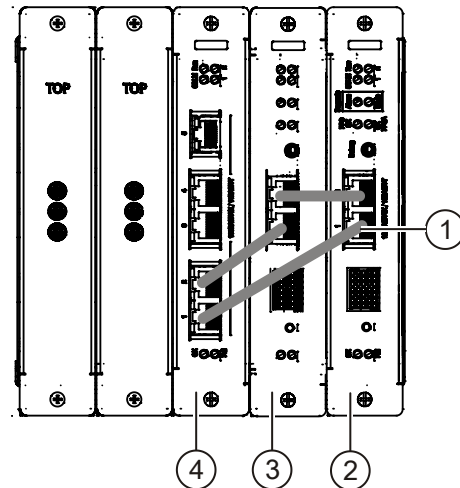


Figure 169: Ethernet wiring for two CPU cards

- 1 Ethernet connections
- 2 First CPU card
- 3 Second CPU card for dual CPU operation
- 4 Communication card

6.12 Insert license key

The license key is inserted in the communication card (FC2080/FG2020) in the holder intended for it.

Prerequisites

Note the wiring of the Ethernet cable before you remove the card for the installation of the license key.

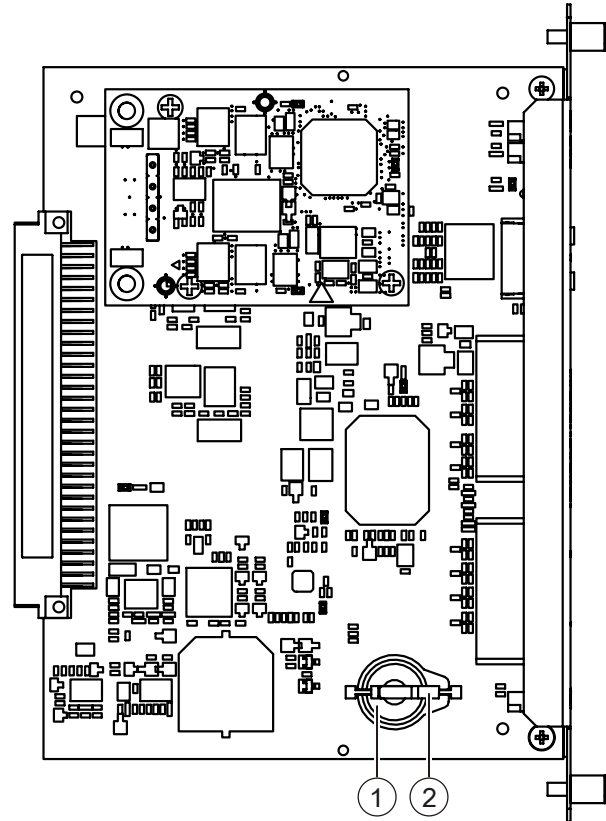


Figure 170: Inserting the license key into the communication card.

- 1 Holder for the license key
- 2 License keys

1. Raise clamp of retainer (1) slightly and push the license key (2) underneath the clamp with the engraving pointing downwards (broader, flat side to the top).
2. Re-insert the communication card and re-insert the Ethernet cable correctly.
3. Restart the system.

6.13 Installing the operating unit and operating add-on

The fire control panel FC2080 has no integrated operating unit. The operating unit and a maximum of two operating add-ons form a station of their own within the FC2080. The communication takes place via FCnet. The current load of the optional operating unit must be incorporated into the current balance of the FC2080.

!	NOTICE
	<p>Product version of the network module is ES <12</p> <p>Communication error</p> <ul style="list-style-type: none"> • If an operating unit is installed in the FC2080, then the operating unit must be equipped with a network module (SAFEDLINK) FN2001-A1 with a product version ES ≥12.

!	NOTICE
	<p>Information</p> <p>If one or more operating units, within or outside the stations, are connected to the same power supply as the FC2080 or FG2020, ground fault monitoring must be deactivated on the operating units by setting switch 'S38' to the 'OFF' position. Otherwise, ground fault monitoring will always be active.</p>

6.13.1 Installation

Before an operating terminal is installed, the following components must first be mounted on the operating unit.

- Network module (SAFEDLINK) FN2001-A1 with ES ≥ 12, for connecting to the FC2080
- Adapter and connection cable for the power supply
 - Supplied with processor unit (19", FC2080) FCC2002-A1

Preparing the operating unit

The network module (SAFEDLINK) FN2001-A1 must be installed on connector X13 of the operating unit (main module slot).

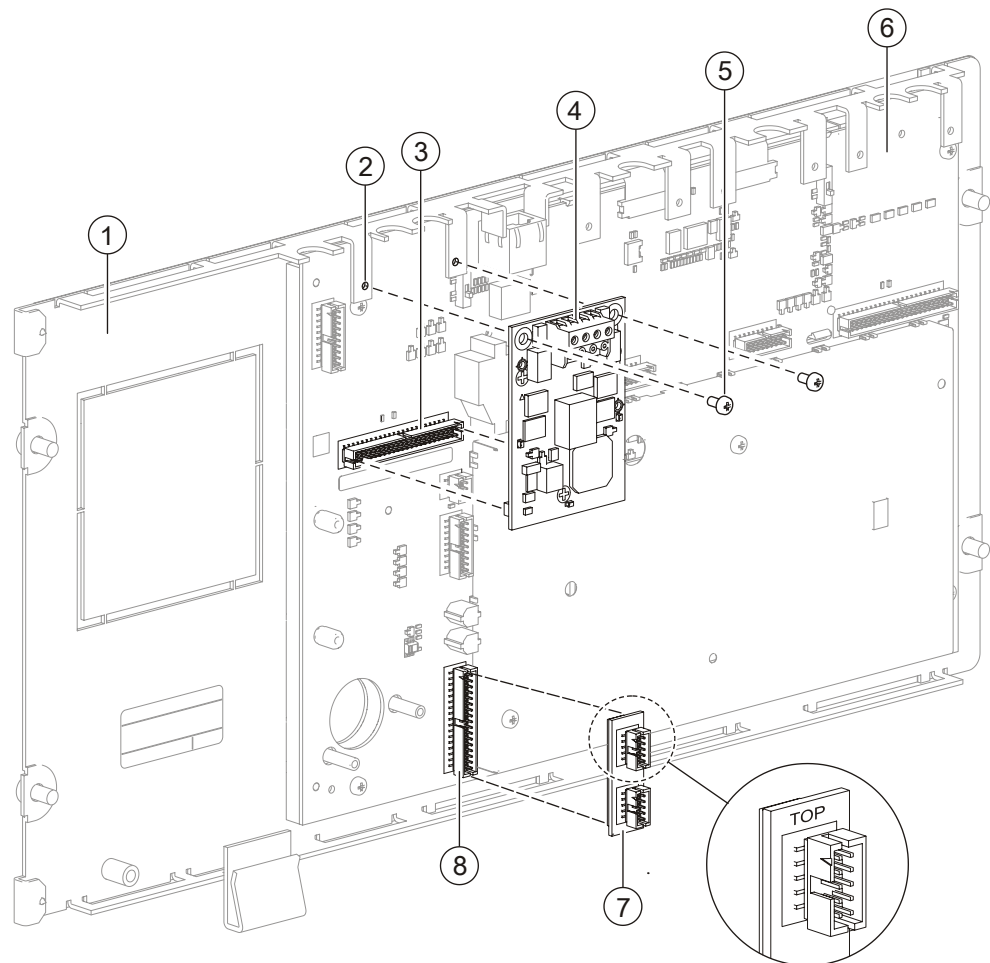


Figure 171: Installing the required components, taking operating unit FCM2028-A1 as an example

- 1 Operating unit
- 2 Flange with threaded holes for securing the module
- 3 Connector strip X13 for network module
- 4 Network module (SAFEDLINK) FN2001-A1 with ES \geq 12
- 5 2x fixing screw
- 6 PMI & mainboard FCM2027
- 7 Adapter for power supply (including ribbon cable)
- 8 Connector strip X3 peripheral data bus connection

1. Plug the network module (SAFEDLINK) (4) into connector X13 (3) of the operating unit (1).
2. Secure the module to mounting flange (2) with both screws (5). Ensure that it is secured correctly to avoid interrupts.
3. Plug the adapter (7) into connector X3 (8) of the PMI & mainboard (6) so inscription 'TOP' is at the top.

Installing operating unit

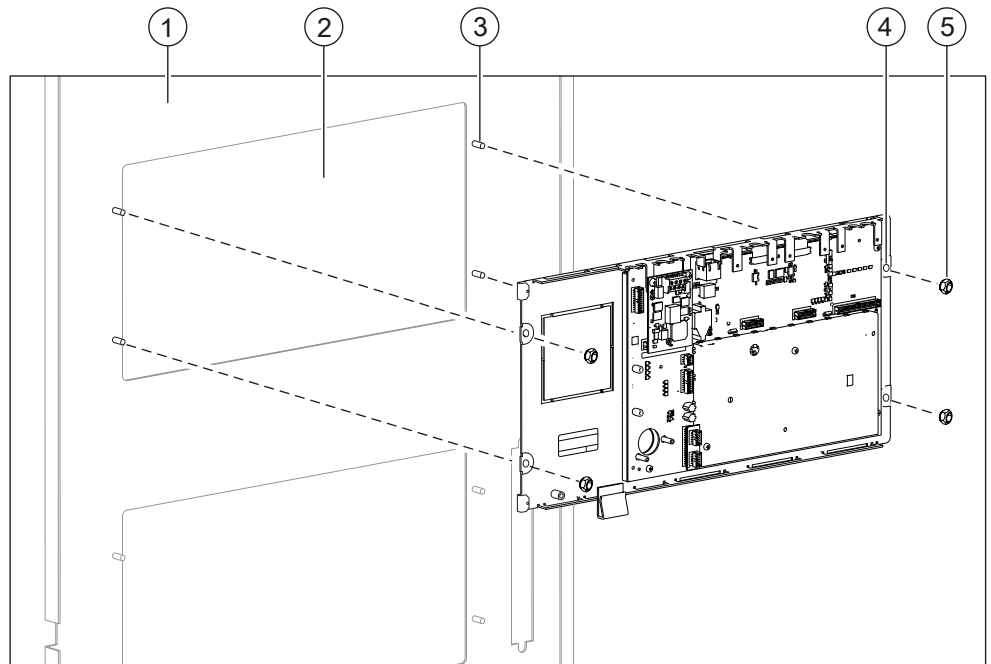


Figure 172: Mounting operating terminal in door, taking operating unit FCM2028-A1 as an example

- 1 Inside of door
- 2 Opening for operating unit
- 3 4x welded threaded bolts
- 4 4x mounting holes in the operating unit
- 5 4x fixing screws

1. Remove the cover plate (2) by removing the four nuts (5).
2. Place the mounting holes (4) of the operating unit on the four threaded bolts (3) and screw the operating unit down with the four nuts (5).
3. The operating add-ons in the bottom window openings are installed in the same way.
4. Wire up the operating unit and operating add-ons according to the following wiring instructions.

6.13.2 Wiring

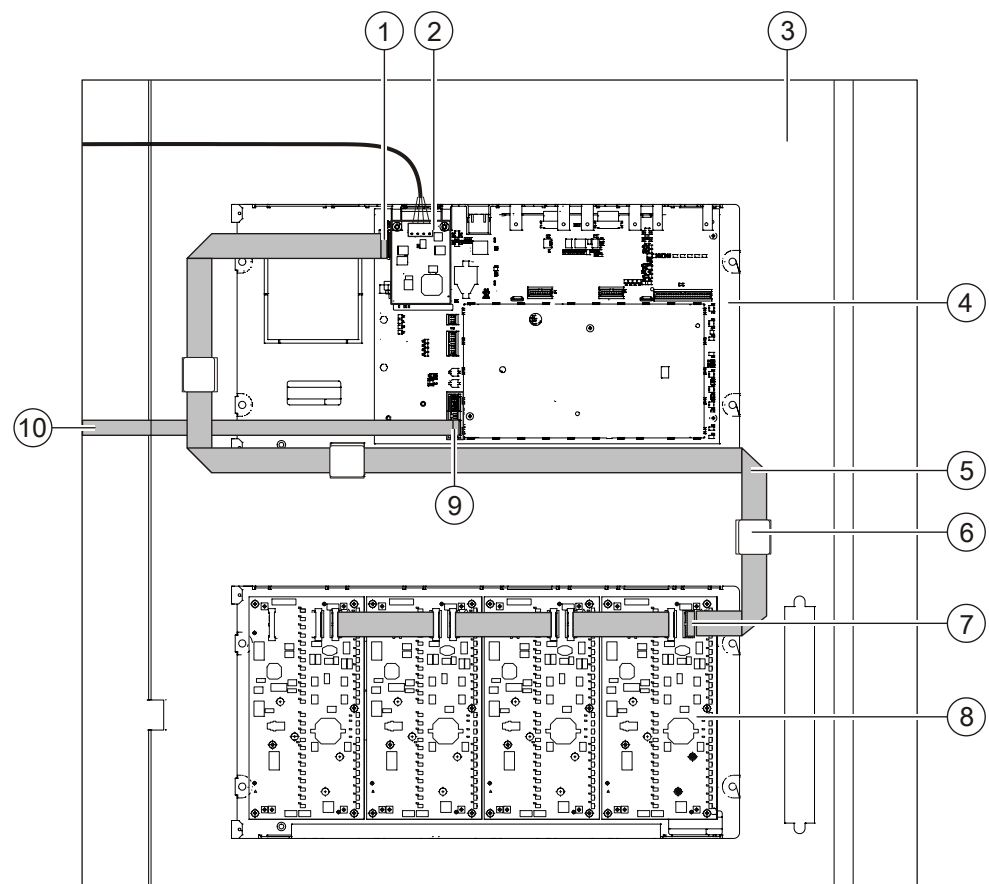


Figure 173: Wiring up the operating unit and the operating add-on

- 1 Peripheral data bus connection on operating unit for options
- 2 FCnet connection terminal on network module (SAFEDLINK)
- 3 Inside of door
- 4 Operating unit
- 5 Ribbon cable for peripheral data bus
- 6 Cable clamp
- 7 Connector for peripheral data bus options
- 8 Operating add-on with LED indicator (example)
- 9 Adapter for flat cable of the supply
- 10 Flat cable for system supply FC2080 (FCC2002, connector X30)

6.14 Installing the key safe adapter [DE]

The key safe adapter SDA3000 [DE] is used to connect the fire brigade key depot [DE] to the fire control panel FC2080. The following options for controlling the key safe adapter are available and are described using examples for the wiring:

- Via an I/O module and controlled via the FDnet
- Via an I/O module, e.g., the FDCIO222, with heating isolation
- Via I/O card (programmable) FC12008-A1

You will find detailed information on the key safe adapter in the manufacturer's original document 'SDA3000 installation instructions', which comes with the key safe adapter.

6.14.1 Installation on the carrier (19", option)

Key safe adapter SDA3000 is installed as standard on a carrier (19", option). The carrier (19", option) has 3 prepared installation positions for the key safe adapter, each with one rectangular cable entry and 3 mounting holes.



In this type of installation, the cable duct may have to be removed and the right half cut away to make enough space for the key safe adapter.

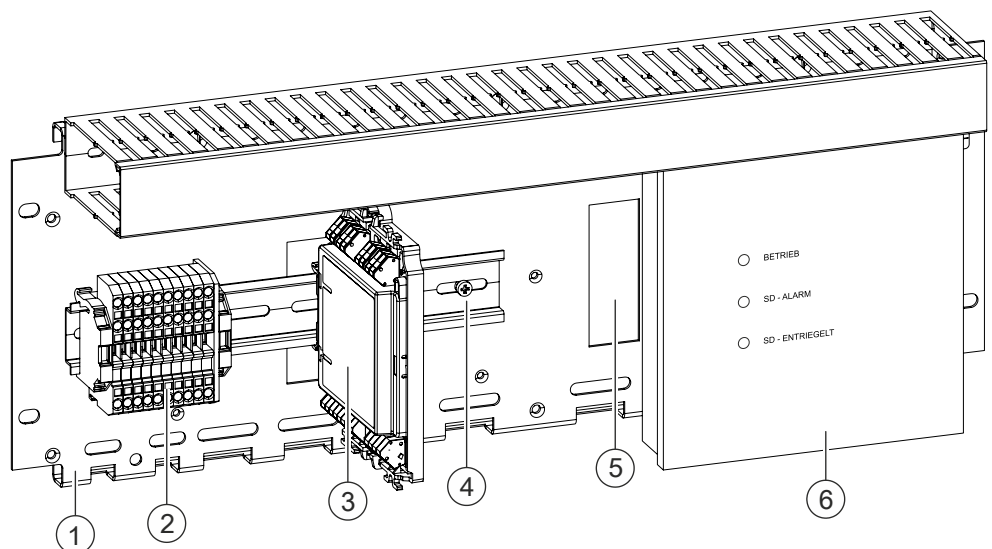


Figure 174: Standard installation of the key safe adapter on the carrier (19", option)

- 1 Carrier (19", option)
- 2 Additional terminal block, if required
- 3 I/O module FDCIO224 (example)
- 4 DIN rail
- 5 Openings for cable entry to key safe adapter (3)
- 6 Key safe adapter in right-hand position

Example of installation

1. Prepare the carrier (19", option) (1) for the installation of the key safe adapter (6) by mounting or removing the DIN rails as appropriate.
2. Install the key safe adapter (6) on one of the three positions provided on the carrier (19", option) (1). The breakout openings on the rear panel of the key safe adapter come to be positioned over the rectangular cable entry (5) on the carrier (19", option).
3. If you use an I/O module FDCIO224 (3), install it on the DIN rail together with an additional terminal block (2) for the cable connections of the components to each other and to the FC2080.
If you use an I/O card, this point does not apply.
4. Wire the components according to their individual wiring diagram or as per the following wiring examples.

6.14.2 Installation on the side wall

If key safe adapter SDA3000 cannot be installed on a carrier (19", option) due to space issues, it should be installed on the right-hand side wall instead. The DIN rail required for this is not included in the scope of supply for the standard cabinet.

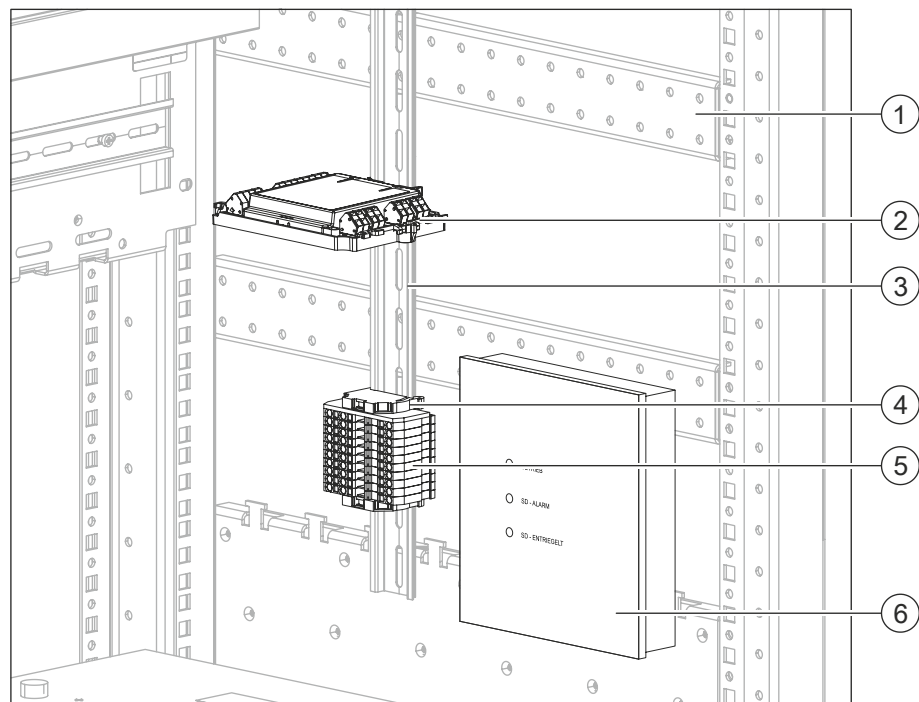


Figure 175: Installation example of the key safe adapter

- 1 Right-hand side wall of the FC2080
- 2 I/O module FDCIO224 (example)
- 3 Additional DIN rail
- 4 Locking clamps for terminal block
- 5 Additional terminal block
- 6 Key safe adapter

Example of installation

1. Mount the key safe adapter (6) on the carriers of the right-hand side wall (1).
2. Mount an additional DIN rail (3) on the right-hand side wall as shown in the example.
3. If you use an I/O module FDCIO224 (2), install it on the DIN rail together with an additional terminal block (5) using standard locking clamps (4).
If you use an I/O card, this point does not apply.
4. Wire the components according to their individual wiring diagram or as per the following wiring examples.

6.14.3 SDA wiring via I/O module and FDnet control

Control via the I/O module FDCIO224 with control via the FDnet as an example of in-principle wiring is shown below. Use of FDCIO224 is obligatory for extinguishing applications. The FDCIO222 can be used in all other cases.

Control via the FDnet and the FDCIO224

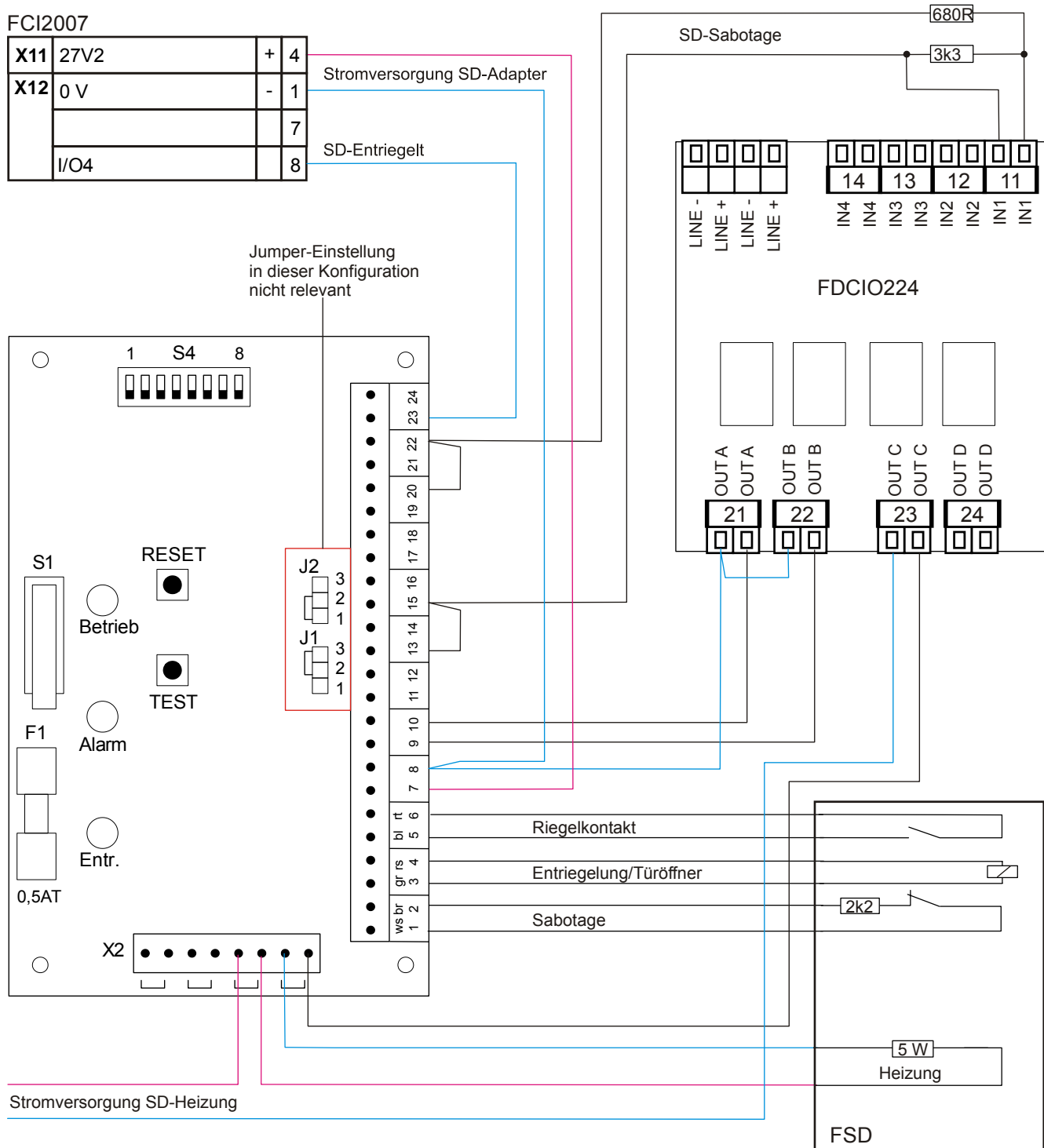


Figure 176: In-principle wiring of the SDA3000 via I/O module FDCIO224

FCI2007-A1	I/O card (RT)
FCL2001-A1	Line card (FDnet/C-NET)
FDCIO224	I/O module
SDA3000	Key safe adapter SDA3000 [DE]
FSD	Fire brigade key depot [DE]

6.14.4 SDA wiring via I/O module FDCIO222

In the following example, with control via I/O module FDCIO222, the heating of the key safe adapter is wired so that it is isolated in the event of an alarm or a power failure.

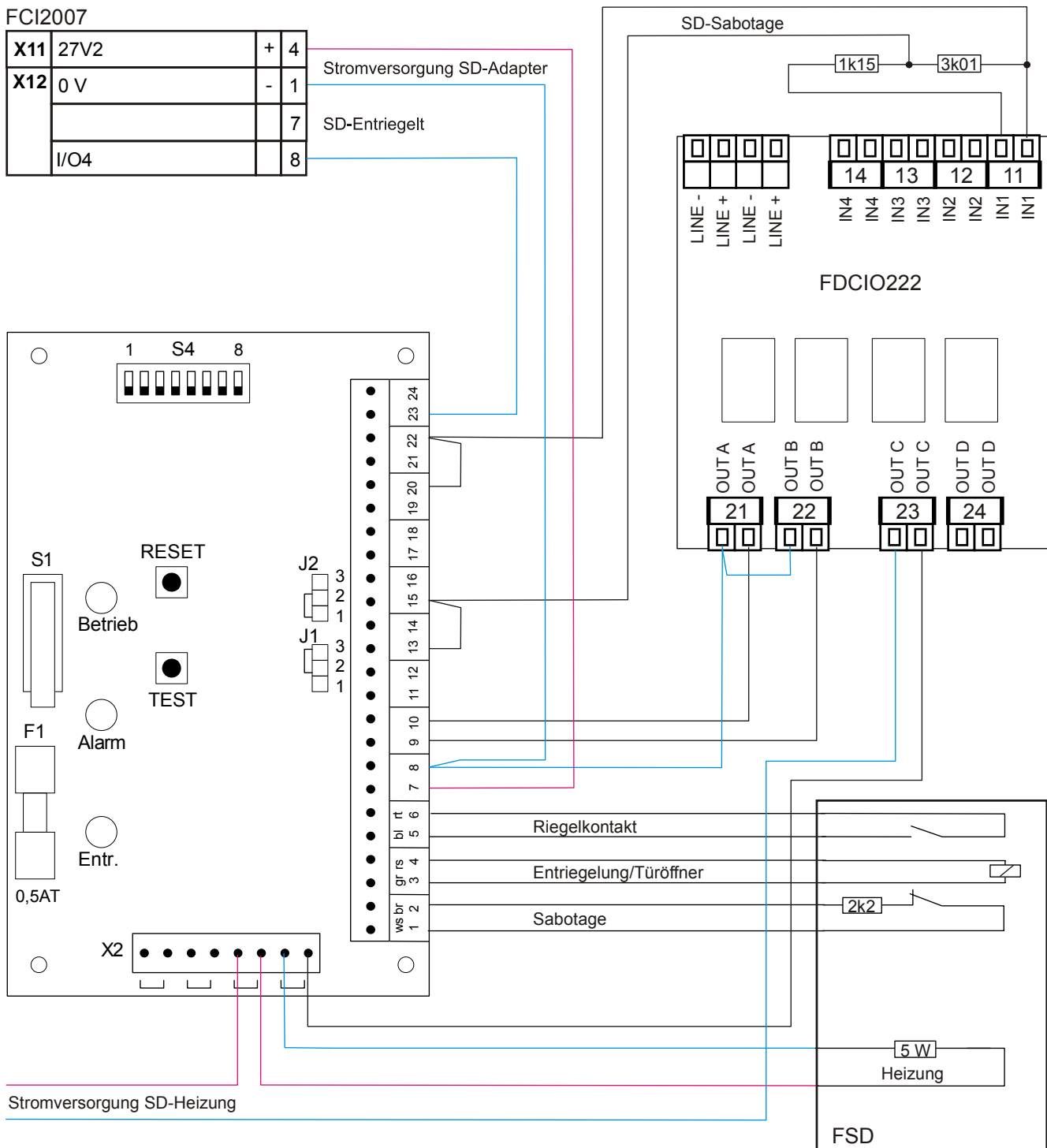
Control via an FDCIO222 with heating isolation


Figure 177: In-principle wiring of the SDA3000 via I/O module FDCIO223 with heating which can be isolated

FDCIO222 I/O module
 SDA3000 Key safe adapter SDA3000 [DE]
 FSD Fire brigade key depot [DE]

Wiring the FDCIO222 with 1.15 k Ω and 3.01 k Ω resistors applies for monitoring for short-circuits and open circuits.

6.14.5 SDA wiring via an I/O card

An example of in-principle wiring with control via a (programmable) FCI2008-A1 I/O card is shown below.

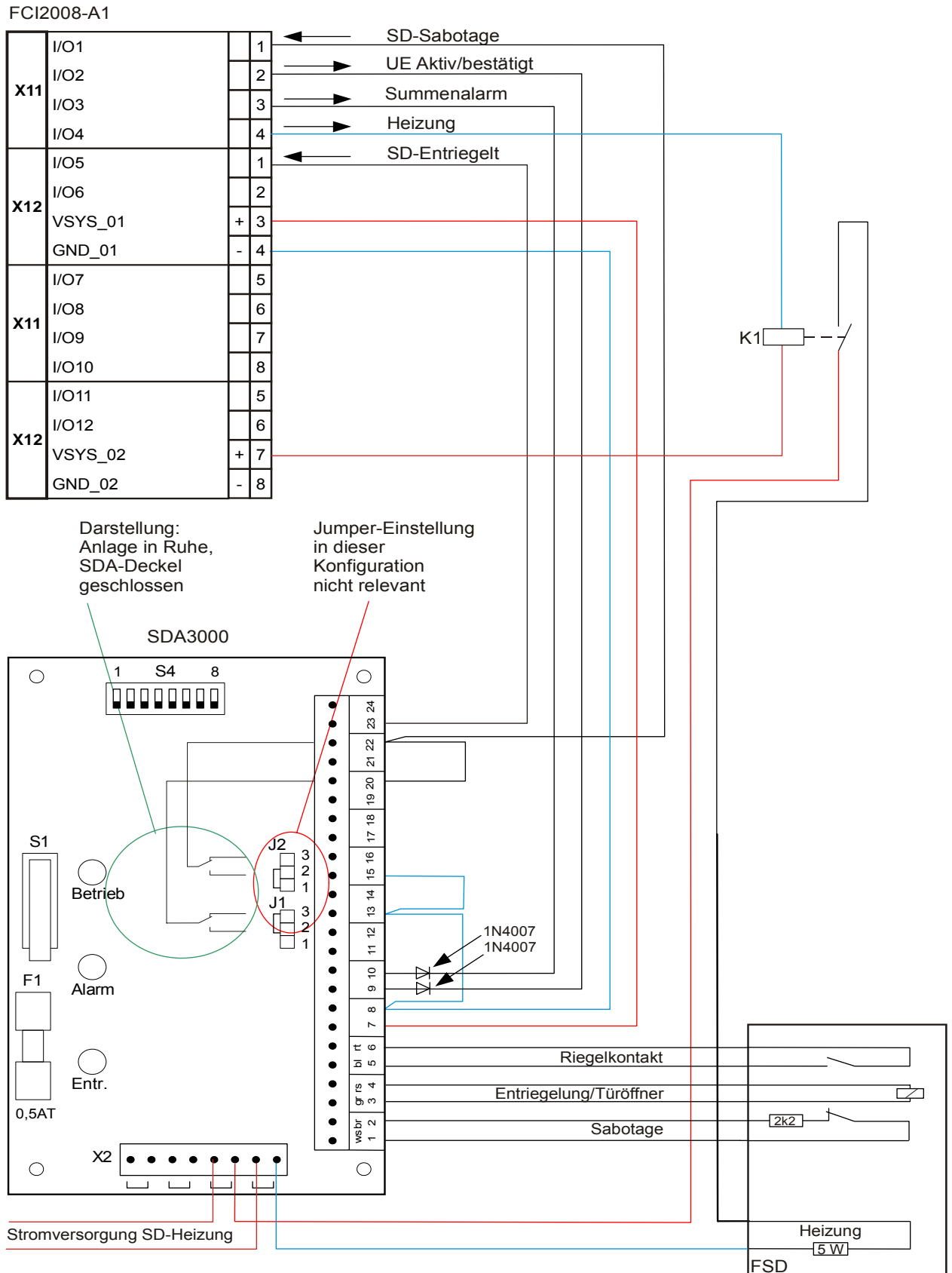


Figure 178: In-principle wiring of the SDA3000 via an I/O card (programmable) FCI2008-A1

FCI2008-A1	I/O card (programmable)
FCL2001-A1	Line card (FDnet/C-NET)
SDA	Key safe adapter SDA3000 [DE]
FSD	Fire brigade key depot [DE]



The supply and the inputs/outputs must be connected to the same I/O card.

6.15 Installing the fiber optic cable network module

6.15.1 Installing in the FC2080

The identical fiber optic cable network modules FN2006-A1 and FN2007-A1 can be installed on a DIN rail either horizontally or vertically. To do this, the DIN rail clips must be changed from the rear side to the rear face. When the clips are removed, installation on a plate is also possible. The following example shows the horizontal installation on a DIN rail.

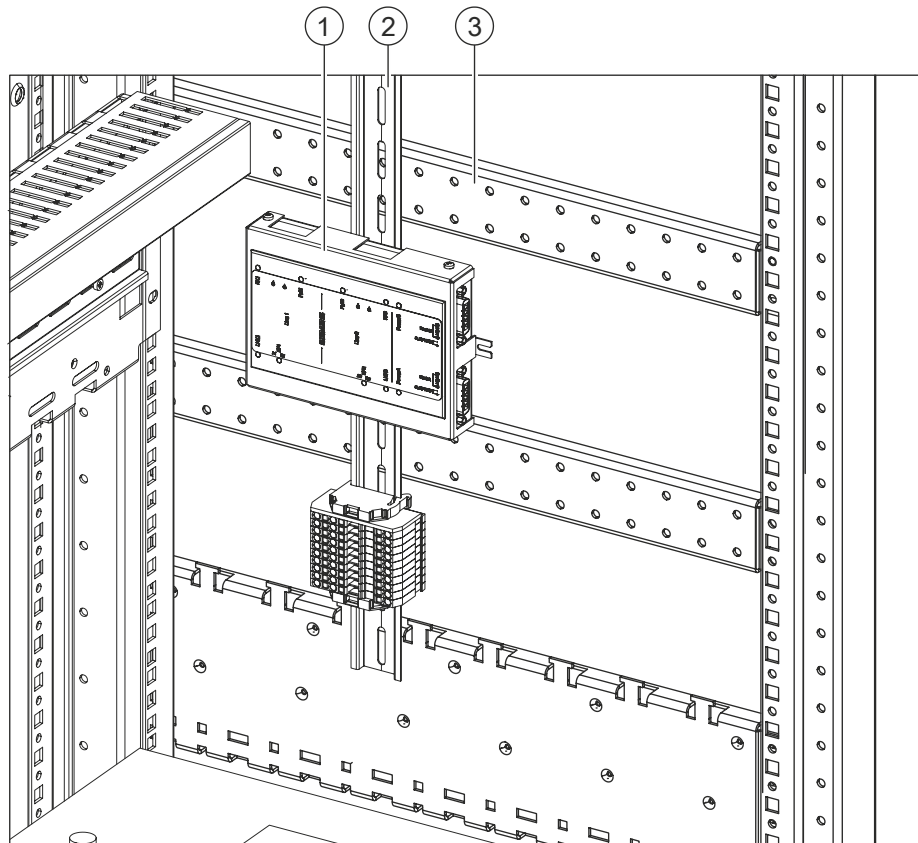


Figure 179: Installation example of the fiber optic cable network module in the FC2080

- 1 Fiber optic cable network module
- 2 Additional DIN rail with terminal block and locking clamps (if required)
- 3 Carrier on the right-hand side wall

Example of installation

1. Install an additional DIN rail (2), if required with a terminal block and locking clamps as shown in the example, on the carrier of the right-hand side wall (3).
2. Install the fiber optic cable network module (1) on the DIN rail (2).
3. Wire the fiber optic cable network module according to the planner's specifications.

You will find detailed information regarding wiring and pin assignment of the electrical and optical connections in the document 008837, Product data.

6.16 Installing an Ethernet switch (MM) FN2008

6.16.1 Installation

The Ethernet switch (MM) FN2008-A1 is installed vertically on a DIN rail. The following example shows the installation on the DIN rail on the side wall.

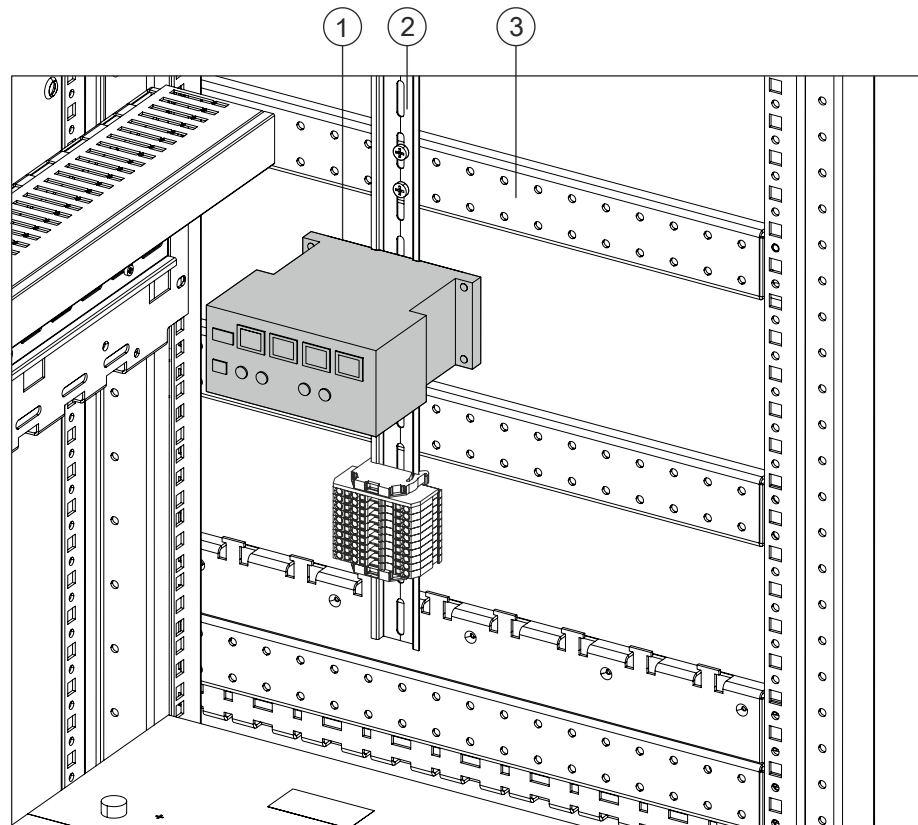


Figure 180: Example of installation of the Ethernet switch in the FC2080

- 1 Ethernet switch (MM)
- 2 Additional DIN rail with terminal block (if required) and locking clamps
- 3 Carrier on the right-hand side wall

Example of installation

1. Install an additional DIN rail (2), if required with a terminal block and locking clamps as shown in the example, on the carrier of the right-hand side wall (3).
2. Install the Ethernet switch (MM) (1) on the DIN rail (2).
3. Wire the Ethernet switch (MM) according to the planner's specifications.

The Ethernet switch wiring corresponds to the specifications of this module for the compact control panels given earlier in this document. You will also find detailed information regarding wiring and pin assignment of the electrical and optical connections in the document 008837, Product data.

See also

- 📄 Connecting the Ethernet switch [→ 263]

6.17 Installing an Ethernet switch (modular) FN2012

You will find information on the wiring and pin assignment in 'Mounting and installation of the compact control panels'.

See also

- ▣ Installing an Ethernet switch (modular) FN2012 [→ 145]

6.17.1 FHA2029 in the housing (19", pedestal housing)

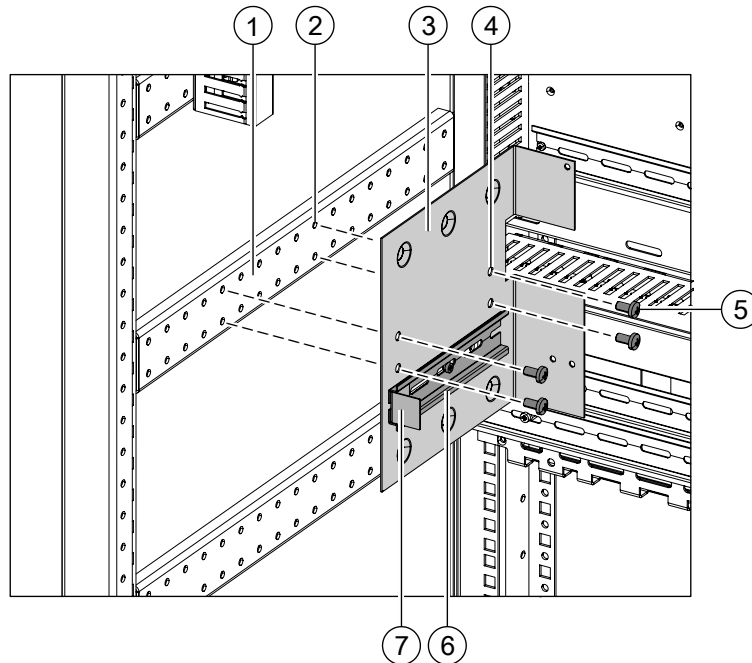


Figure 181: Installing the large mounting bracket in the 19" pedestal housing of the FC2080

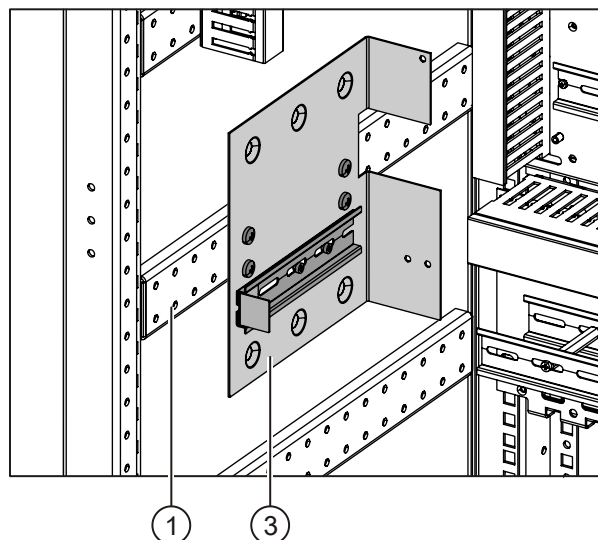


Figure 182: Large mounting bracket mounted in 19" pedestal housing

- 1 Lateral support rail in the 19" pedestal housing
 - 2 Mounting holes in lateral support rail
 - 3 Large mounting bracket from FHA2029
 - 4 4x mounting holes in mounting bracket
 - 5 4x fixing screws for mounting bracket
 - 6 U-rail installed
 - 7 Retaining bracket installed
1. Mount the large mounting bracket (3) in the position shown and screw the four screws (5) into the threaded holes (2) in the lateral support rail.
 2. Wire up the Ethernet switch according to chapter 'Wiring [→ 157]'.

6.17.2 FN2012 in station with housing (19", pedestal housing)

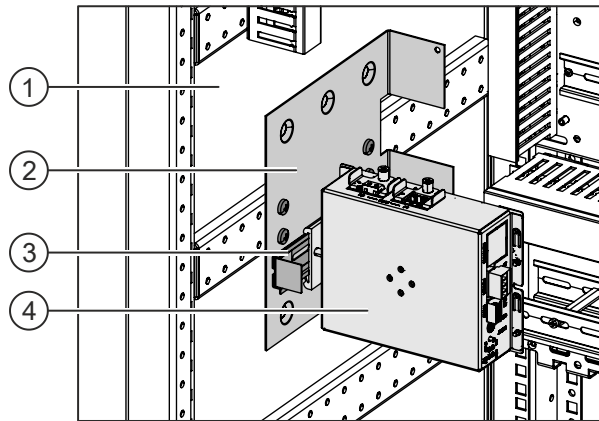


Figure 183: FN2012 in the 19" pedestal housing of the FC2080

- 1 Side wall of 19" pedestal housing
 - 2 Large mounting bracket from mounting kit FHA2029
 - 3 DIN rail with retaining bracket
 - 4 FN2012
- ▷ The DIN rail clip is mounted on the FN2012.
1. Holding it at an angle and working from below, place the FN2012 (4) against the bottom edge of the DIN rail (3) and press it up so that the retaining clamp in the flange gives way.
 2. Push the upper flange into position over the DIN rail and release the spring pressure.
 - ⇒ The DIN rail clip is now in place.
 3. Check that the DIN rail clip is fully engaged on the DIN rail.
 4. Wire up the FN2012 according to chapter 'Wiring [→ 157]'.

See also

- 📄 Wiring [→ 157]

6.18 Installing the battery kit (9 V) [FR]

6.18.1 Installation

The battery kit 9 V FCA2010-F1 [FR] is a holder for a 9 V monobloc battery and is required in France for maintaining emergency supply in the case of battery failure.

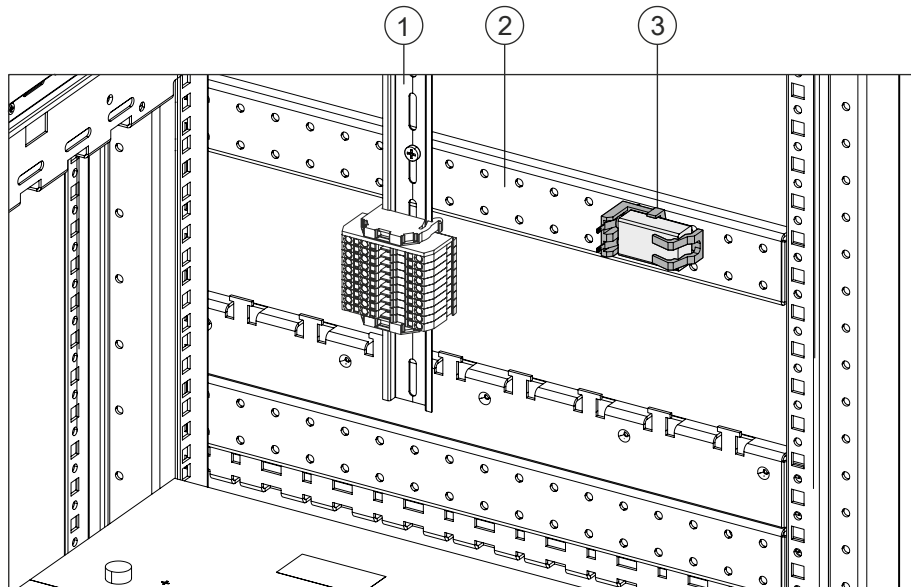


Figure 184: Installing the 9 V battery kit in the FC2080

- 1 Additional DIN rail with terminal block (if required) and locking clamps
- 2 Carrier on the right-hand side wall
- 3 Battery kit 9 V FCA2010-F1 [FR]

Example of installation

1. Install the battery kit (3) on a carrier of the right-hand side wall (2).
2. If required, install an additional DIN rail with terminal block (1) and locking clamps on the right-hand side wall as shown in the example.
3. Connect the battery holder according to the following connecting chart.

6.18.2 Wiring

Connection of the 9 V battery kit to the card holder (CPU)

X10	Des.	Connection
5	3SRC+	3rd source (DC 7...30 V), positive pole, red
6	3SRC-	3rd source (0 V), negative pole, blue

Table 7: Pin assignment of the terminal X10 on the card holder (CPU)

6.19 Install batteries

The batteries must be secured with the tensioning set belts supplied.



The tensioning belts for fixing the batteries must not be twisted. The clamping device must not be on an edge. Install the edge protector provided.

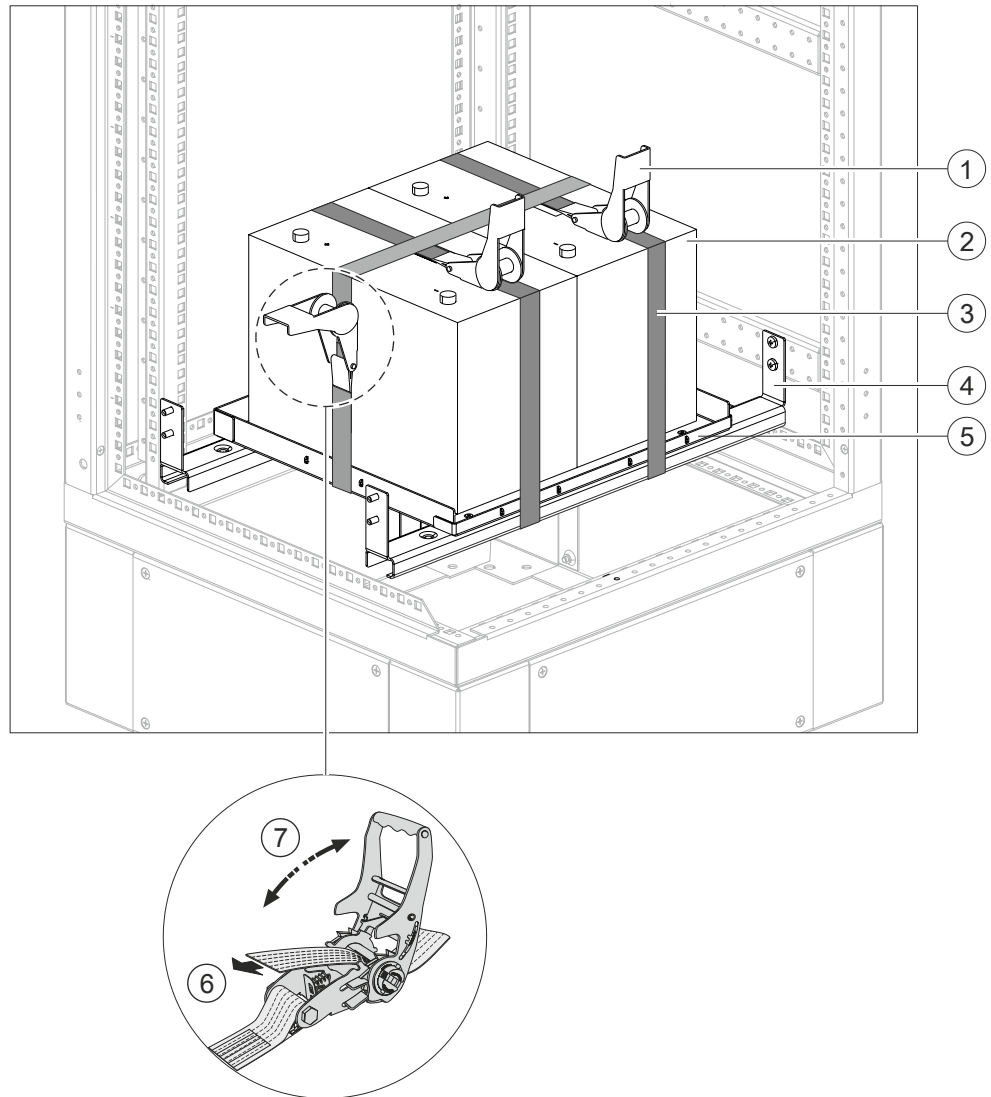


Figure 185: FC2080, installing the batteries and fixing them with tensioning belts

- 1 Clamping device (tensioning set)
- 2 3x tensioning belts
- 3 Carrier for battery tray
- 4 Battery tray
- 5 Bridges for fixing belts
- 6 2x batteries
- 7 Belt in clamping device
- 8 Clamping device ratchet

1. Place the batteries (6) as shown in the installed battery tray (4).
2. Loop the belts of the tensioning set (2) as shown under the battery tray (4) and around the batteries (6). One belt should be placed along each battery and one across both batteries.
3. Open the ratchets, thread the belts (2), as shown, into the clamping device (7) and pull the belts through the clamping device by hand.
4. Tension the belts by moving the handle of the ratchet (8). Ensure that the belts lie between two bridges (5) of the battery tray (4). The bridges fix the belts on the sides.

7 Mounting and installation of fire terminal (Touch)

7.1 Setup of fire terminal (Touch) FT2080

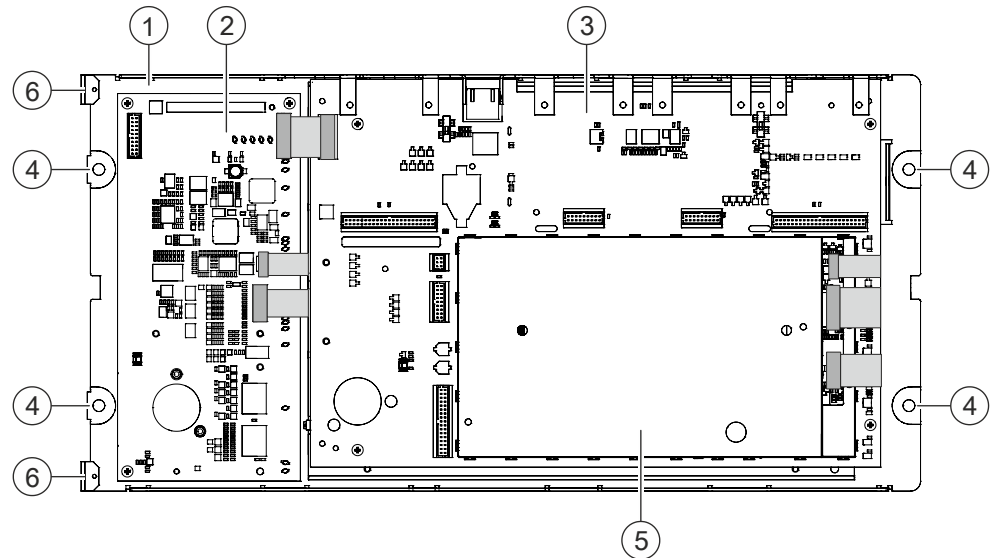


Figure 186: Rear panel fire terminal (Touch) FT2080

- 1 Support plate
- 2 Front indicator (Touch) FTO2010
- 3 PMI & mainboard FCM2027
- 4 4x mounting holes in the operating unit
- 5 Shield plate above carrier (CPU)
- 6 Hinges for wall housing

Arrangement of components

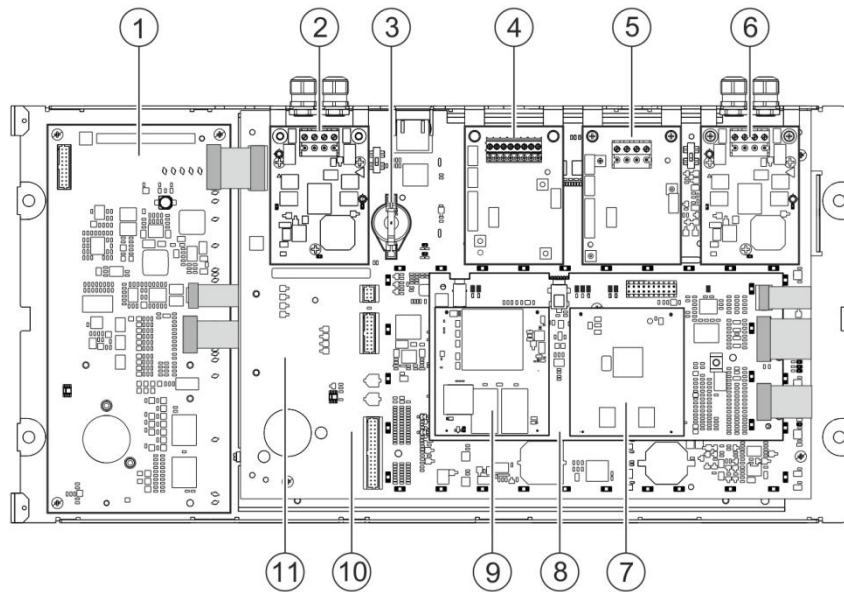


Figure 187: Components on the fire terminal (Touch) FT2080, without cover cap

- 1 Front indicator (Touch) FTO2010
- 2 Main network module (SAFEDLINK) on X13, optional
- 3 License key, optional
- 4 Slot 1 [SER_OPT1] for the first serial module at X14, optional
- 5 Slot 2 [SER_OPT2] for the second serial module at X19, optional
- 6 Degraded mode network module (SAFEDLINK) on X12, optional
- 7 CPU module (CORVUS) FCC2009
- 8 Carrier for CPU modules FTO2014
- 9 CPU module (MPC8248) FCC2006
- 10 PMI & mainboard FCM2027
- 11 Slot X11 for serial module. Not required for FT2080



Both slots X14 and X19 can hold the RS232 or RS485 serial module.

7.2 Installation in 19" pedestal housing of the FC2080



The installation instructions described below apply to all operating units.

Before an operating terminal is installed, the following components must first be mounted on the operating unit.

- Network module (SAFEDLINK) FN2001-A1 with ES \geq 12, for connecting to the FC2080
- Adapter and connection cable for the power supply
 - Supplied with processor unit (19", FC2080) FCC2002-A1

Preparing the operating unit

The network module (SAFEDLINK) FN2001-A1 must be installed on connector X13 of the operating unit (main module slot).

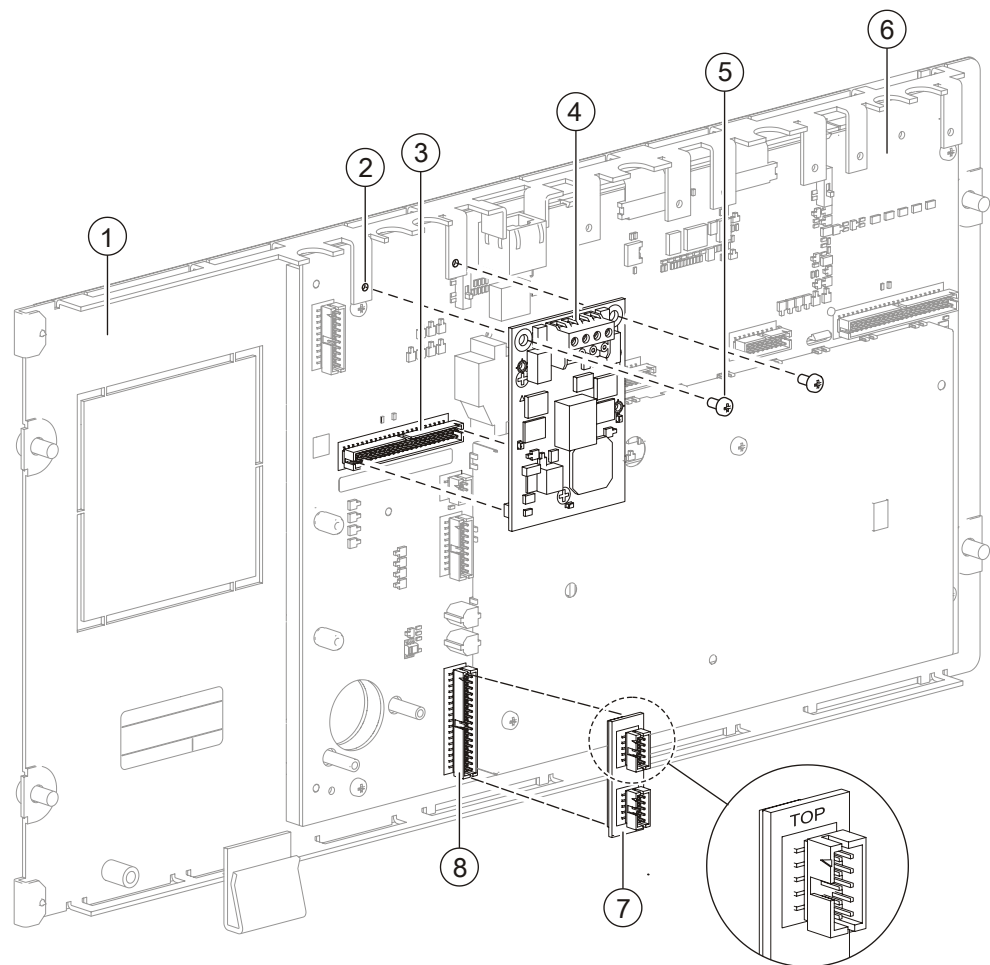


Figure 188: Installing the required components, taking operating unit FCM2028-A1 as an example

- 1 Operating unit
- 2 Flange with threaded holes for securing the module
- 3 Connector strip X13 for network module
- 4 Network module (SAFEDLINK) FN2001-A1 with ES \geq 12
- 5 2x fixing screw
- 6 PMI & mainboard FCM2027
- 7 Adapter for power supply (including ribbon cable)
- 8 Connector strip X3 peripheral data bus connection

1. Plug the network module (SAFEDLINK) (4) into connector X13 (3) of the operating unit (1).
2. Secure the module to mounting flange (2) with both screws (5). Ensure that it is secured correctly to avoid interrupts.
3. Plug the adapter (7) into connector X3 (8) of the PMI & mainboard (6) so inscription 'TOP' is at the top.

Installing operating unit

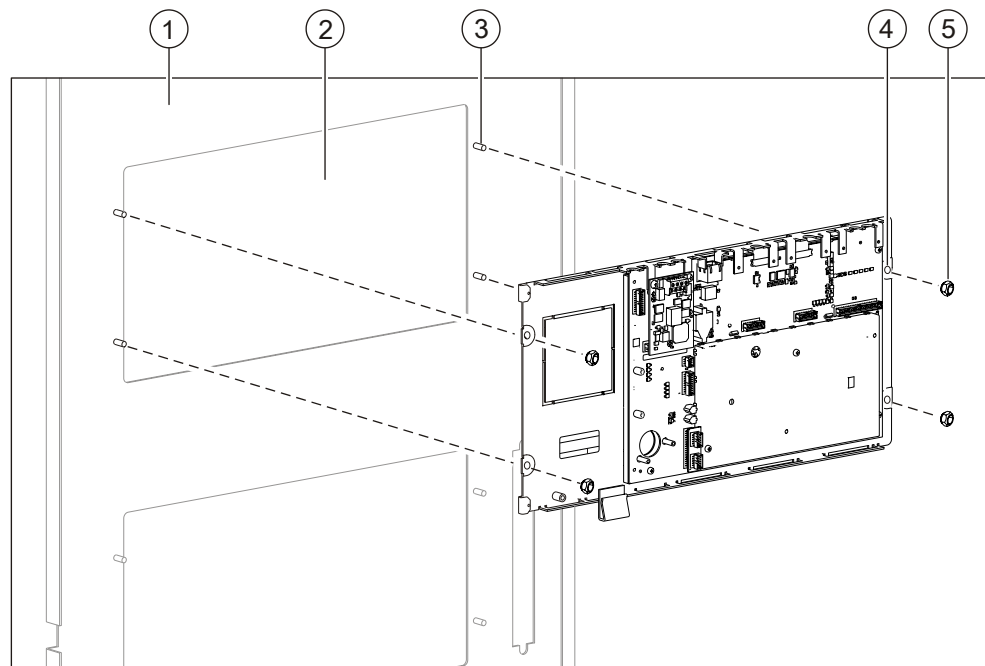


Figure 189: Mounting operating terminal in door, taking operating unit FCM2028-A1 as an example

- 1 Inside of door
- 2 Opening for operating unit
- 3 4x welded threaded bolts
- 4 4x mounting holes in the operating unit
- 5 4x fixing screws

1. Remove the cover plate (2) by removing the four nuts (5).
2. Place the mounting holes (4) of the operating unit on the four threaded bolts (3) and screw the operating unit down with the four nuts (5).
3. The operating add-ons in the bottom window openings are installed in the same way.
4. Wire up the operating unit and operating add-ons according to the following wiring instructions.

Wiring the fire terminal (Touch)

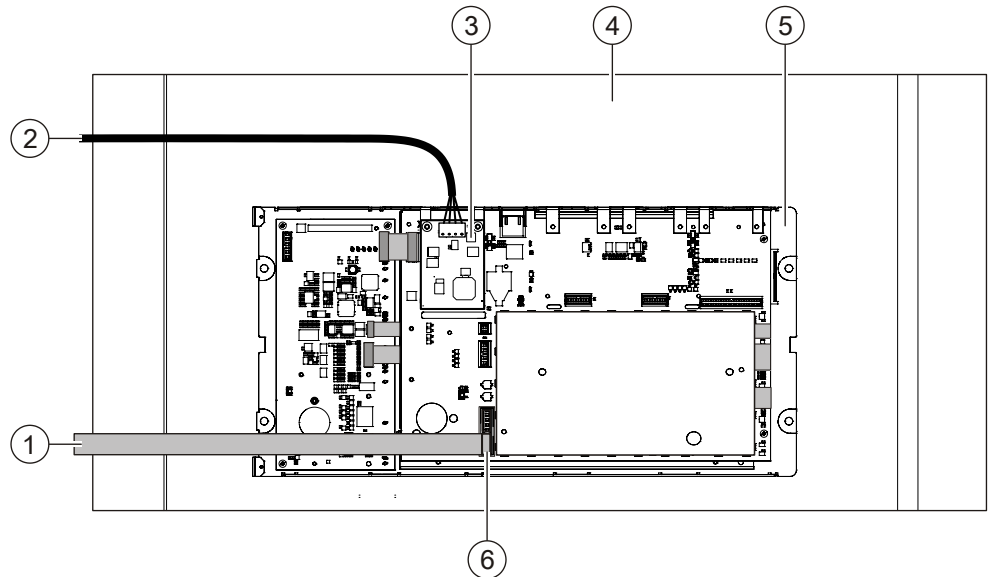


Figure 190: Wiring the fire terminal (Touch) with FC2080

- 1 Ribbon cable for FC2080 system supply to card cage (CPU) X30
- 2 FCnet connection to card cage (CPU) X11/X12
- 3 X3 connection to network module (SAFEDLINK) to PMI & mainboard FCM2027
- 4 Inside of door (section view)
- 5 Fire terminal (Touch) FT2080
- 6 Adapter for flat cable of the supply

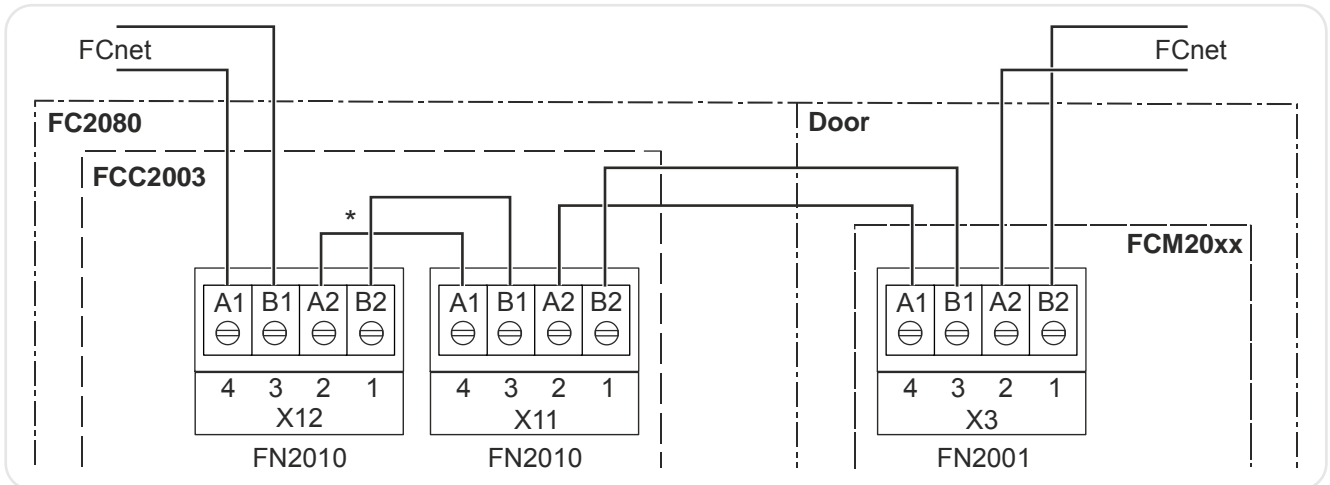


Figure 191: Example of FCnet wiring of X3 on PMI & mainboard FCM2027 of the fire terminal (Touch)

* The FCnet connection from X11 to X12 on the card cage (CPU) FCC2003 is wired up in advance at the factory.

7.3 Installation in housing (standard)

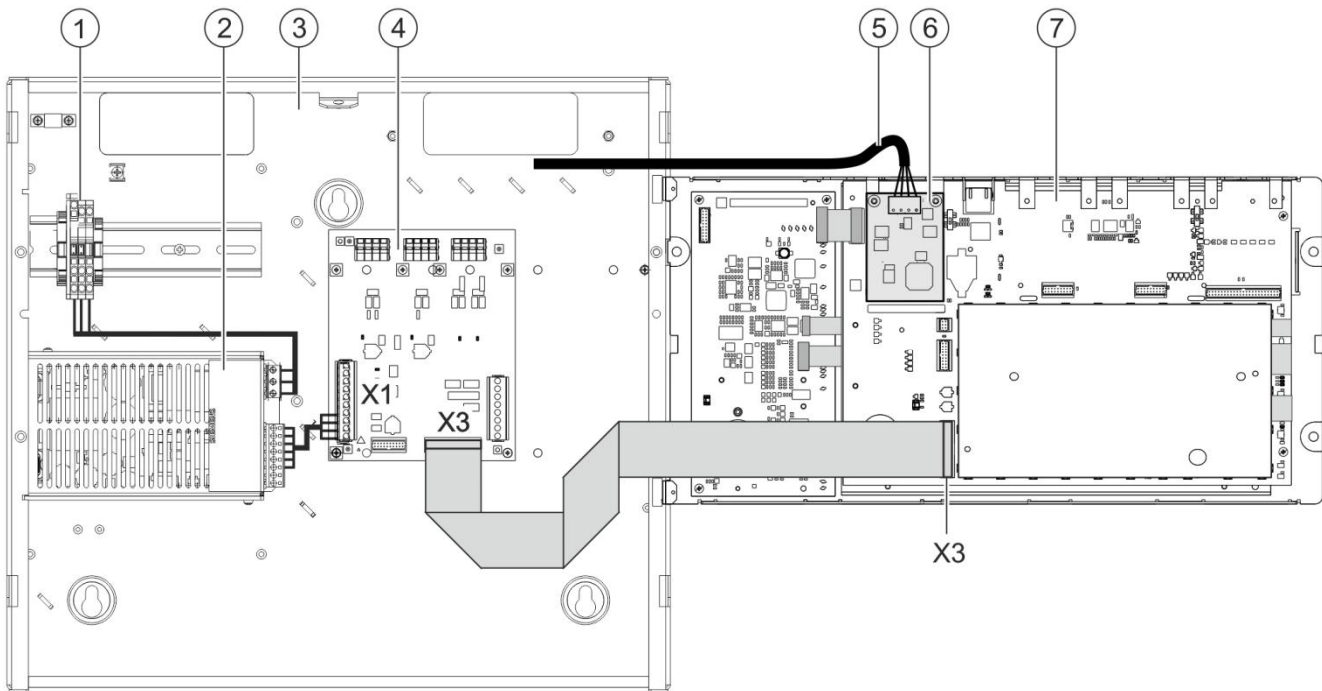


Figure 192: Installation of fire terminal in the housing (standard) FH2002

- 1 Mains connection terminals
- 2 Power supply unit (70 W) FP2015
- 3 Rear panel (standard)
- 4 Fire terminal board FTI2001
- 5 Wiring FCnet/SAFEDLINK
- 6 Network module (SAFEDLINK) FN2001
- 7 Fire terminal (Touch) FT2080
- X3 Ribbon cable connection from the fire terminal (Touch) to the fire terminal board
- X1 Supply input for fire terminal board

You will find detailed information on wiring the 'fire terminal board FTI2001' and the 'network module (SAFEDLINK) FN2001' in document Product Data 008837.

7.4 Installation in rear panel (FT2080) FHA2039

The rear panel (FT2080) can be used for installation in a desk or installation in a third-party housing. Installing the rear panel (FT2080) in a third-party housing guarantees the required EMC protection. The installation sequence is as follows, due to the restricted space:

- Installing the fire terminal board FT12001
- Wiring the fire terminal (Touch)
- Installing the fire terminal (Touch)
- Installing the rear panel (FT2080) in a desktop

View of rear panel (FT2080) FHA2039

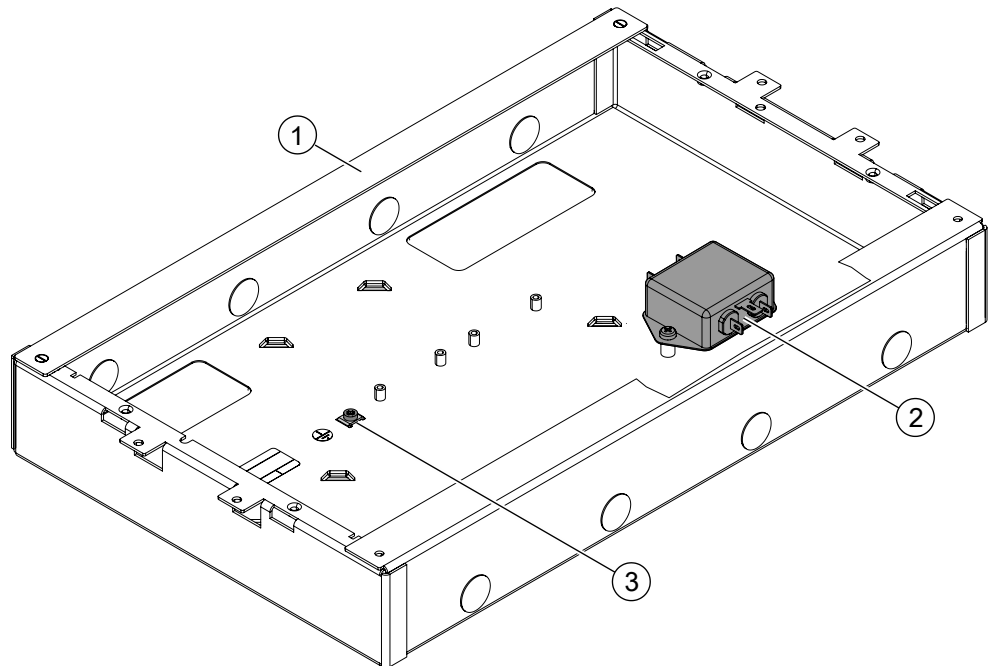


Figure 193: Rear panel (FT2080) FHA2039

- 1 Rear panel (FT2080) FHA2039
- 2 250 V EMC filter, 3 A with plug-in contacts
- 3 Clamping bracket with screw for ground connection

Installing fire terminal board FTI2001

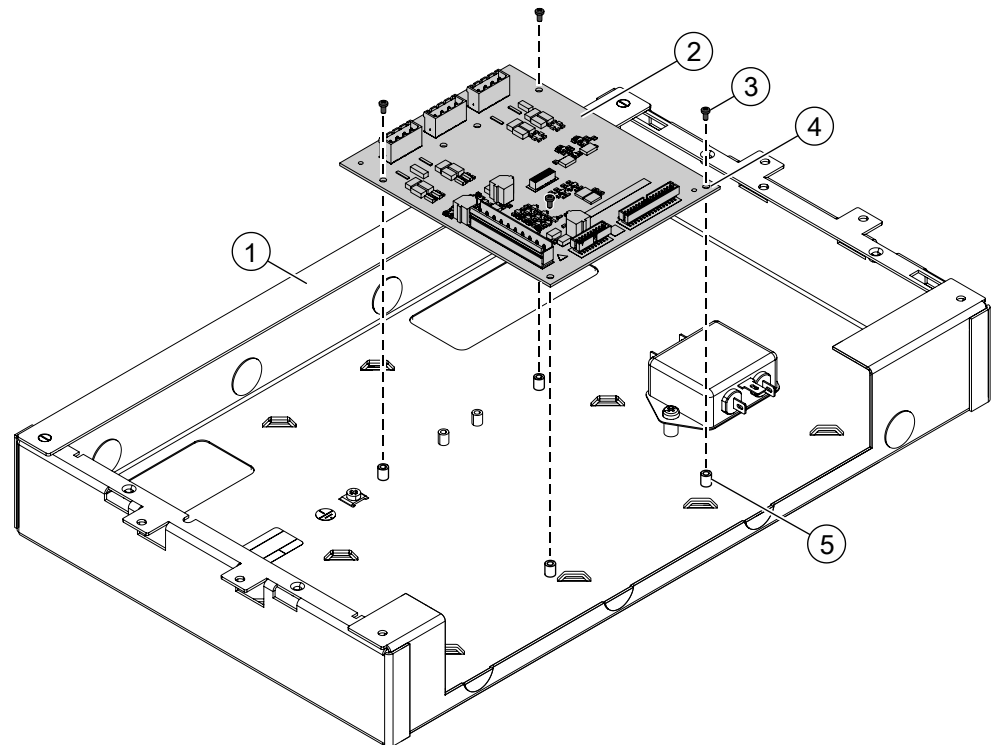


Figure 194: Installing the fire terminal board in the rear cover (FT2080)

- 1 Rear panel (FT2080) FHA2039
- 2 Fire terminal board FTI2001
- 3 4x fixing screws
- 4 4x mounting holes
- 5 Threaded press-in sleeves in rear cover (FT2080)

1. Position the fire terminal board (2) in the rear panel (1) as shown.
2. Use the four fixing screws (3) to screw the fire terminal board (2) in the rear panel (1) firmly onto the threaded press-in sleeves (5).

Wiring the fire terminal (Touch)

When installing in a desktop that is thicker than 33 mm, the cables must be routed through the rectangular openings of the rear panel (FT2080), and not through the round cable breakthroughs.

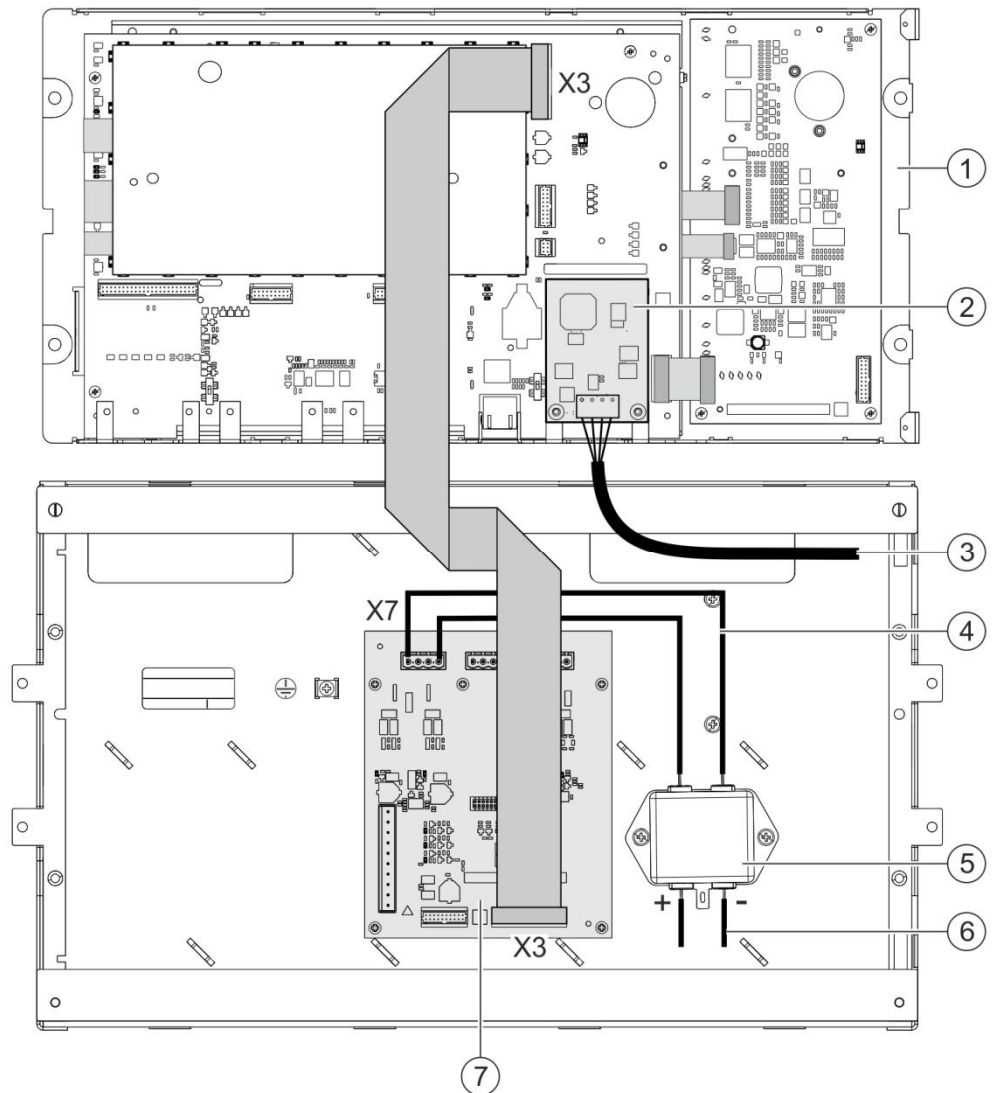


Figure 195: Wiring view of the fire terminal (Touch) in the rear cover (FT2080)

- 1 Fire terminal (Touch) FT2080
- 2 Network module (FCnet/SAFEDLINK) FN2001
- 3 FCnet connection cable
- 4 Prefabricated cable for supply connection to X7
- 5 EMC filter
- 6 Input for DC 24 V system supply to EMC filter
- 7 Fire terminal board FTI2001

1. Wire up the flat cable from the fire terminal board X3 to the PMI & mainboard X3.
2. Wire up the prefabricated cable of the supply from the EMC filter to the fire terminal board X7.
3. Wire up the external cables of the supply, the FCnet and the Ethernet cable through the cut-out in the desktop and the cable lead-throughs in the rear panel.

Installing the fire terminal (Touch)

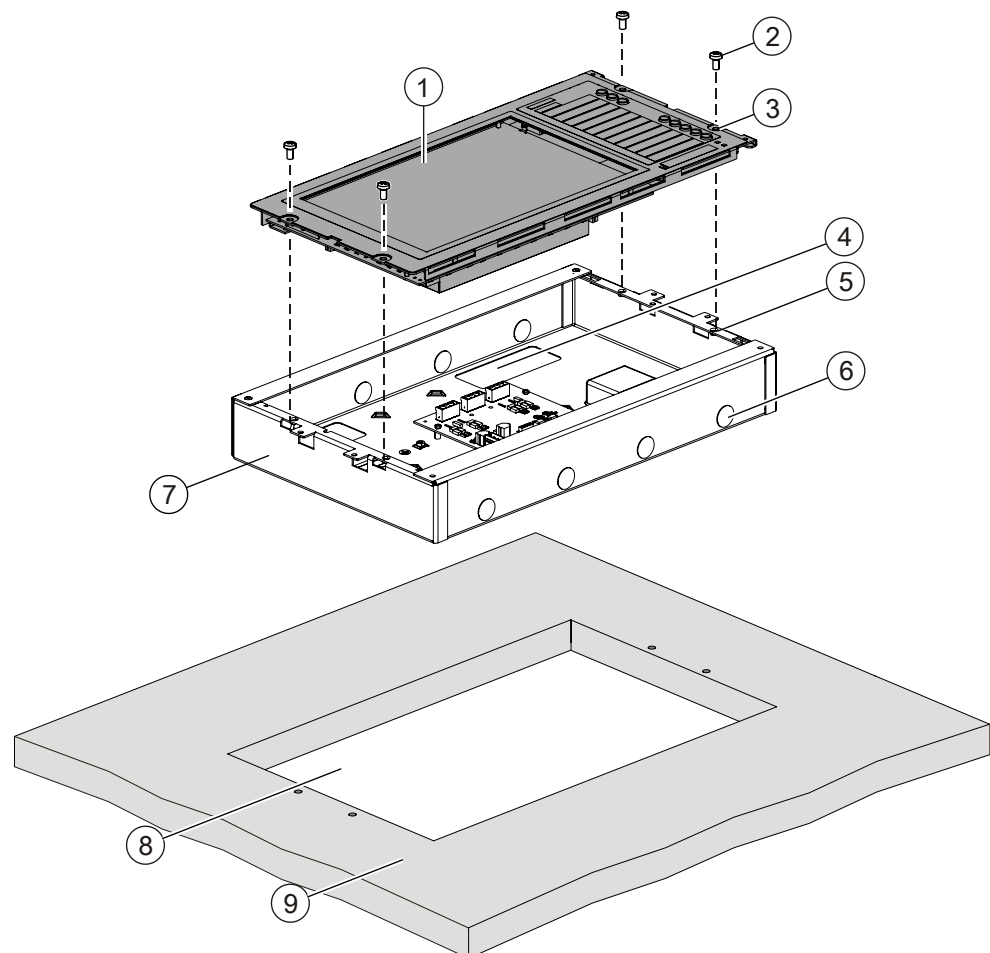


Figure 196: Installing the fire terminal (Touch) in the rear panel (Touch)

- 1 Fire terminal (Touch) FT2080
- 2 4x fixing screws
- 3 4x mounting holes in the fire terminal (Touch)
- 4 Cable lead-through in the rear panel
- 5 4x threaded holes in the rear cover (FT2080)
- 6 Lateral cable lead-throughs
- 7 Rear panel (FT2080) FHA2039
- 8 Cut-out in the desktop
- 9 Desktop

1. Position the wired-up fire terminal (Touch) (1) on the rear panel (7) as shown.
2. Screw the four fixing screws (2) through the holes (3) to secure the fire terminal (Touch) (1) into the threaded holes (5) in the rear panel.

Installing the rear cover (FT2080) in a desktop

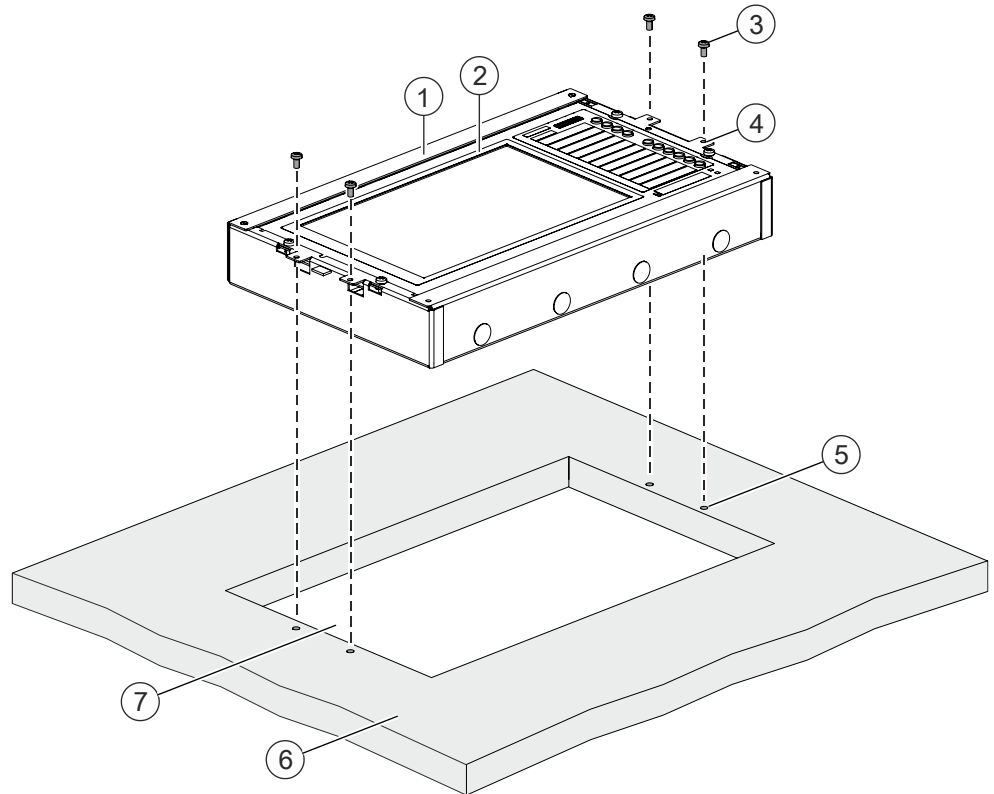


Figure 197: Installing the rear cover (FT2080) in a desktop

- 1 Rear panel (FT2080) FHA2039
- 2 Mounted fire terminal (Touch) FT2080
- 3 4x fixing screws
- 4 Mounting holes in the flanges of the rear panel (FT2080)
- 5 Bores in the desktop
- 6 Desktop
- 7 Cutout for rear panel (FT2080) min. 430 x 268 mm

1. Place the rear panel (1) in the cut-out of the desktop (6) as shown. Ensure that the cables are not pinched.
2. Use the four fixing screws (3) to screw the rear panel (1) into the bores (5) of the desktop at the flanges (4).

7.5 Installation in desktop housing (FT2080) FHA2040

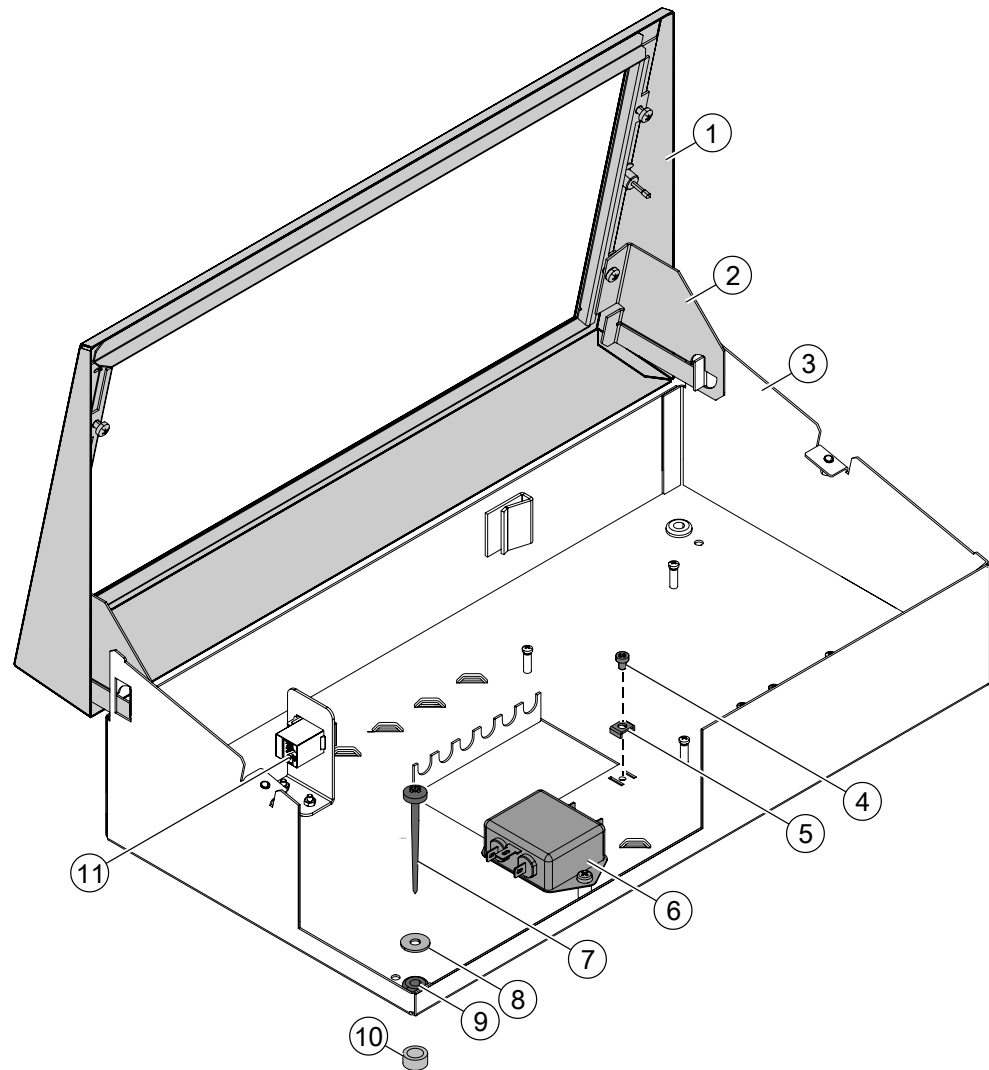


Figure 198: View of desktop housing (FT2080)

- 1 Top of desktop housing
- 2 Tilting bracket for top of housing
- 3 Base of desktop housing
- 4 M4x10 pan head screw (scope of delivery)
- 5 Clamping bracket for ground cable (scope of delivery)
- 6 250 V EMC filter, 3 A with plug-in contacts (mounted)
- 7 Fixing screw by customer
- 8 Washer 5/15 mm (scope of delivery)
- 9 4x rubber grommets (scope of delivery)
- 10 Spacer sleeves (scope of delivery)
- 11 Ethernet coupling

1. Remove the top of housing (1) by pushing the two tilting brackets (2) on the left and right inwards until you can lift off the top of housing.
2. Connect the ground connection as shown with clamping bracket (5) and M4 pan head screw (4).
3. Place the spacer sleeves (10) from below over the rubber feet (9).
4. Position the housing (3).
5. Place the washers (8) onto the rubber feet (9) inside the housing.
6. Screw the housing (3) tight with a screw (7) suitable for the substructure.

Installing fire terminal board FTI2001

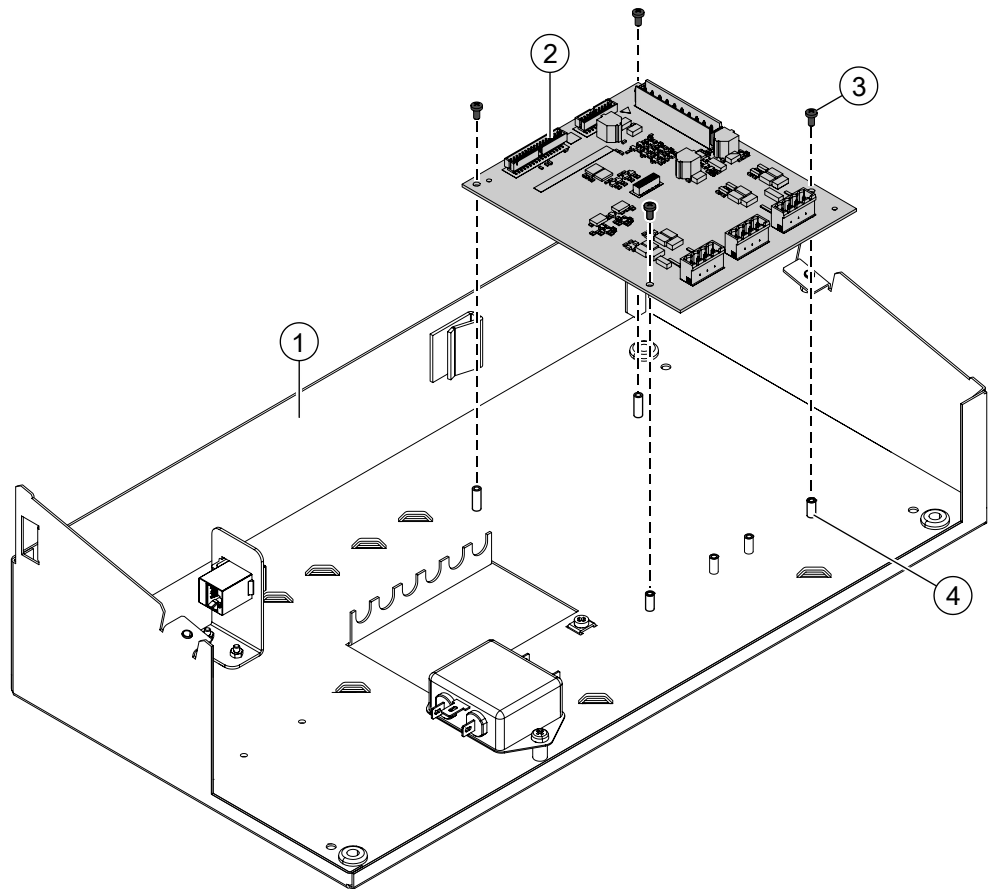


Figure 199: Installing fire terminal board in desktop housing

- 1 Base of desktop housing
- 2 Fire terminal board FTI2001
- 3 6x fixing screws (scope of delivery)
- 4 Spacer with thread in rear panel

1. Position the fire terminal board (2) in the housing (1) as shown.
2. Screw the fire terminal board (2) firmly onto the spacers (4) in the housing (1) using the four fixing screws (3).

Installing fire terminal (Touch) FT2080

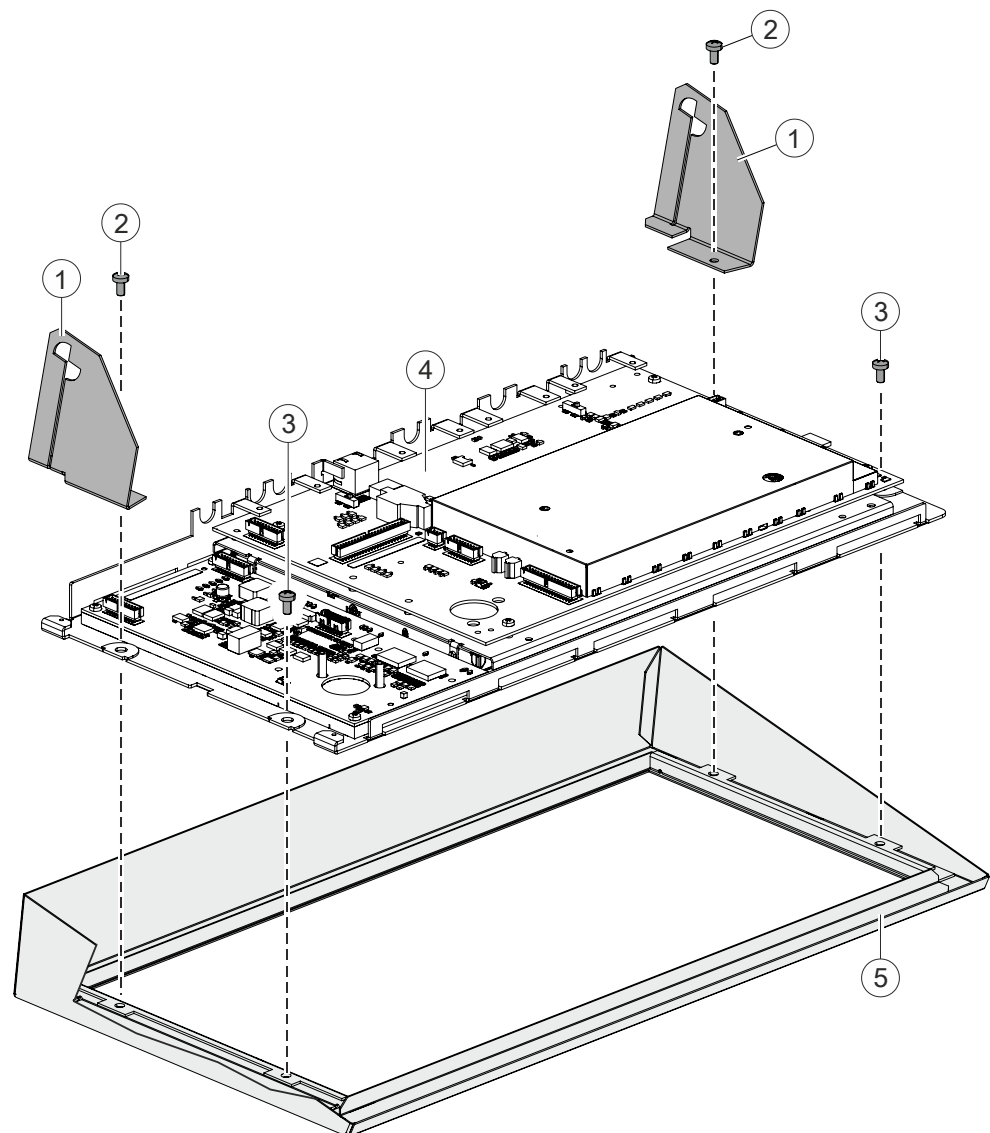


Figure 200: Mounting in top of housing

- 1 Tilting brackets on left and right for fixing the top of the housing
- 2 2x fixing screws for tilting brackets and fire terminal
- 3 2x fixing screws for fire terminal
- 4 Fire terminal (Touch) FT2080
- 5 Top of desktop housing (FT2080) FHA2040

1. Place the fire terminal (4) in the top (5) of the desktop housing as shown.
2. Screw the tilting brackets (1) into the top of the housing on the left and right as shown, through the top holes in the fire terminal (4).
3. Due to the restricted space available, connect the Ethernet cable to plug X5 before mounting the fire terminal (Touch).
4. Use the two other screws to screw the fire terminal (4) into the top of the housing through the bottom holes.

Assembly of desktop housing (FT2080)

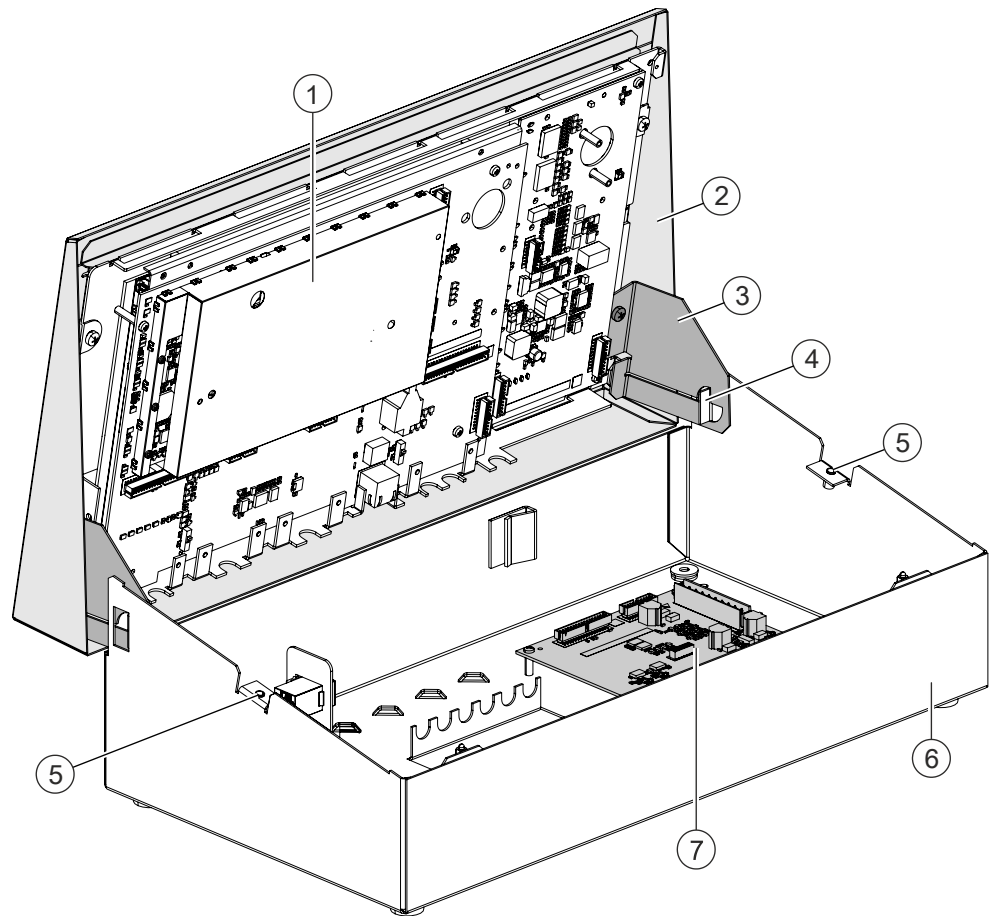


Figure 201: Assembly of desktop housing

- 1 Fire terminal (Touch) FT2080
- 2 Top of desktop housing (FT2080) FHA2040
- 3 Tilting brackets on left and right for fixing the top of the housing
- 4 Guide cams on left and right for tilting brackets
- 5 2x threaded holes for fixing the top of the housing
- 6 Base of desktop housing
- 7 Fire terminal board FTI2001

1. Move the top of the housing (2) with the installed fire terminal (1) to the position shown.
2. Gently press the two tilting brackets (3) inwards and lift the top of the housing (2) into the two guide cams (4).
⇒ The top of the housing is fixed in the open position and the tilting brackets act like hinges.

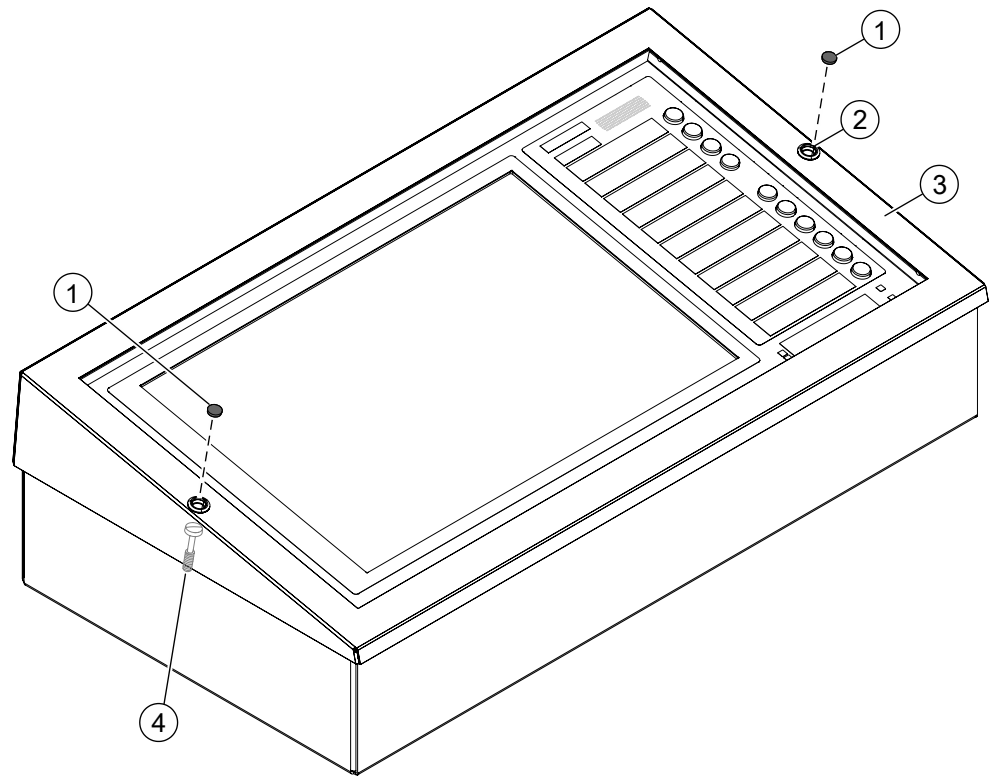


Figure 202: Securing the top of the desktop housing

- 1 Securing cap (scope of delivery)
- 2 Opening for fixing screw
- 3 Top of the desktop housing (Touch)
- 4 Fixing screw with securing device

1. To close the housing, tilt the top of the housing (3) onto the housing and secure the top to the housing using both screws (4).
2. Close the openings for the fixing screws (2) using both securing caps (1)

Fire terminal wiring

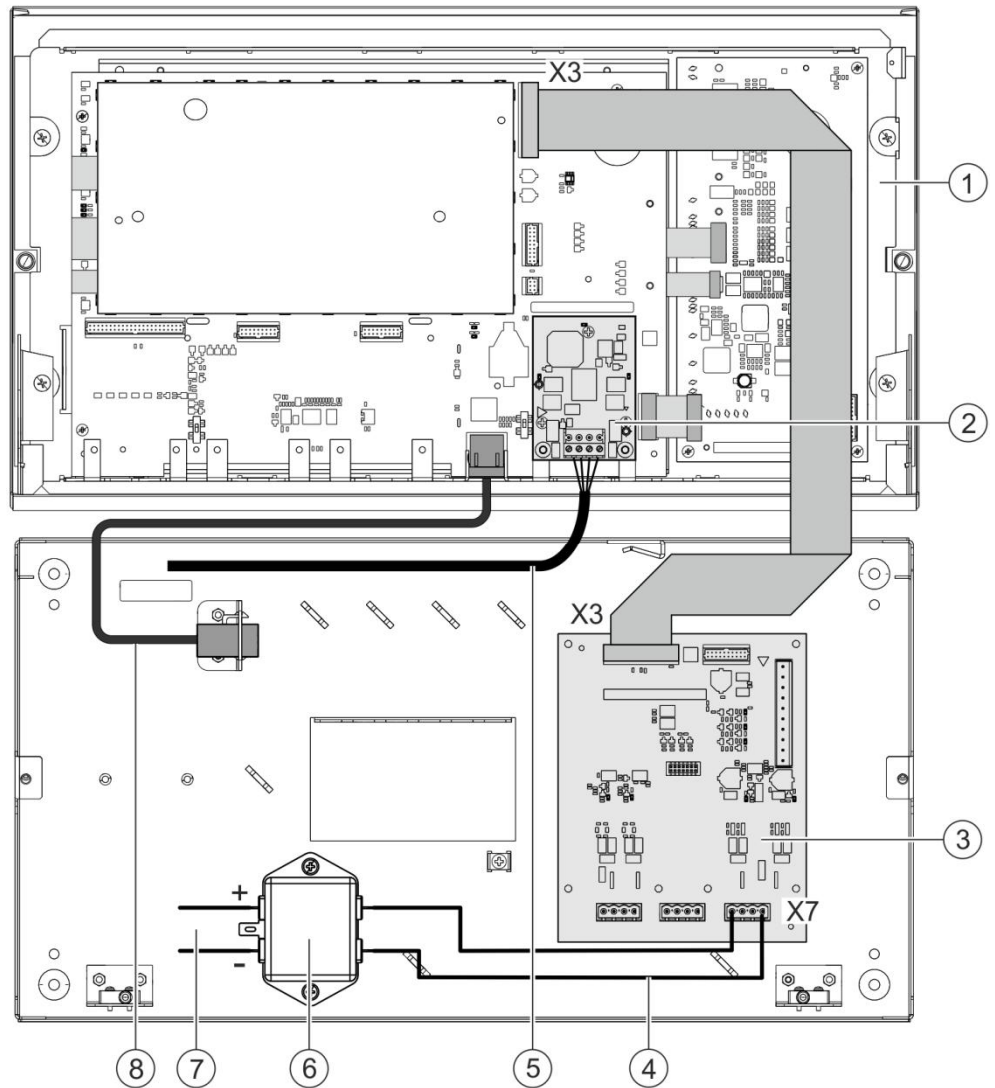


Figure 203: Wiring view of the fire terminal in the desktop housing

- 1 Fire terminal (Touch) FT2080
- 2 Network module (FCnet/SAFEDLINK) FN2001
- 3 Fire terminal board FTI2001
- 4 Prefabricated cable for supply connection to X7 fire terminal board
- 5 FCnet connection cable
- 6 EMC filter
- 7 Input for DC 24 V system supply to EMC filter
- 8 Internal cable RJ45 for Ethernet connection, L=420 mm

8 Mounting and installing extinguishing control panels

8.1 Installing single-sector extinguishing



The card cage (1 sector exting.) FCA2046 can only be installed in housing from delivery MP7 onwards. The attachments are not available for housings < MP7.

8.1.1 Card cage mounting

The card cage (1 sector exting.) FCA2046 for an extinguishing card can be installed in all FS20 fire control panels in the Comfort housing with a 150 W power supply, provided that the space for additional components next to the periphery board is free.

Scope of delivery

- Card cage (1 sector exting.)
- Mounting panel for cables
- Cable for power supply
- Mounting material
- Extinguishing system plates

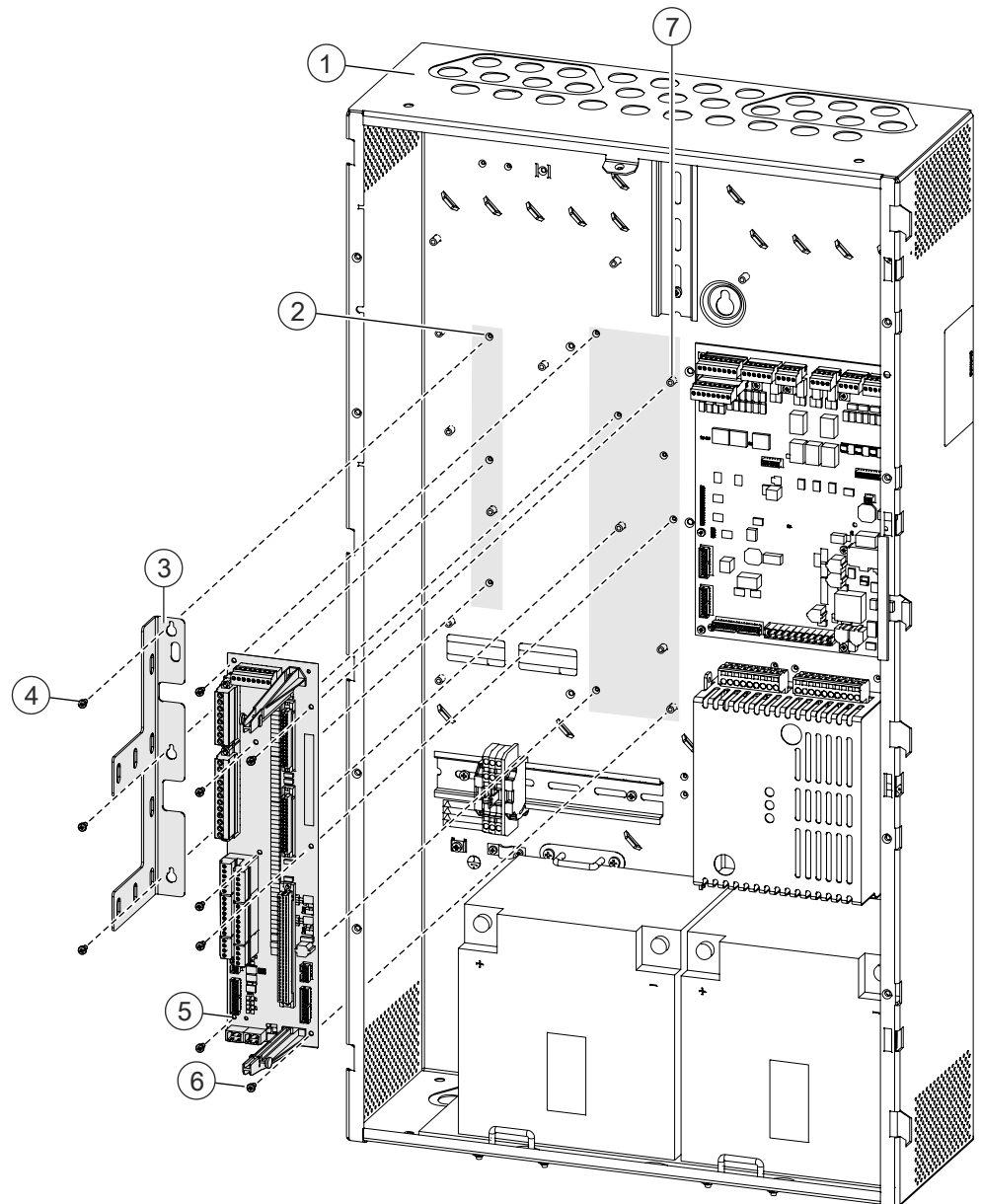


Figure 204: Installing the card cage in the control panel for 1-sector extinguishing

- 1 Housing (Comfort)
- 2 3x screw bushings on the rear panel for mounting panel
- 3 Mounting panel for cables
- 4 3x screws M3 for cable carrier
- 5 Card cage (1 sector exting.) FCA2046
- 6 7x screws M3 for card cage (1 sector exting.)
- 7 7x screw bushings on rear panel for card cage (1 sector exting.)

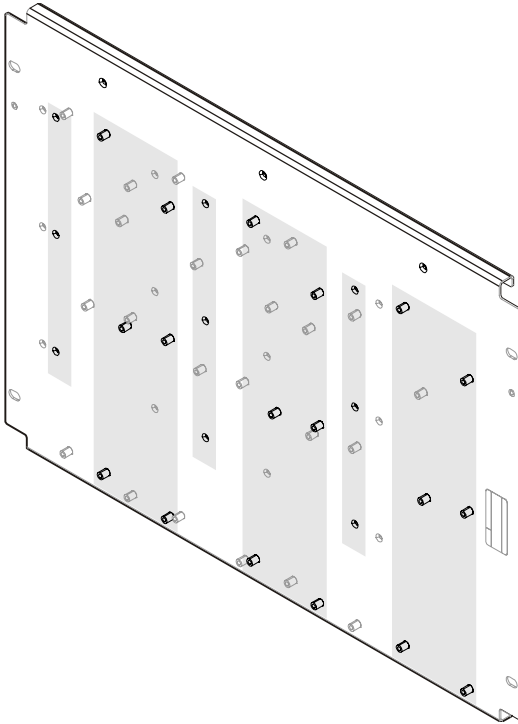
1. Position the card cage FCA2046 (5) on the rear panel (Comfort) (1) as shown.
2. Fasten the card cage (5) in the screw bushings (7) with 7 screws (6).
3. Position the mounting panel (3) on the rear panel (Comfort) (1) as shown.
4. Fasten the mounting panel (3) in the screw bushings (2) with 3 screws (4).
5. Wire the card cage in accordance with the wiring diagram and fasten the connection cables to the mounting panel (3) with cable ties.

8.2 Installing multi-sector extinguishing in 19" pedestal housing

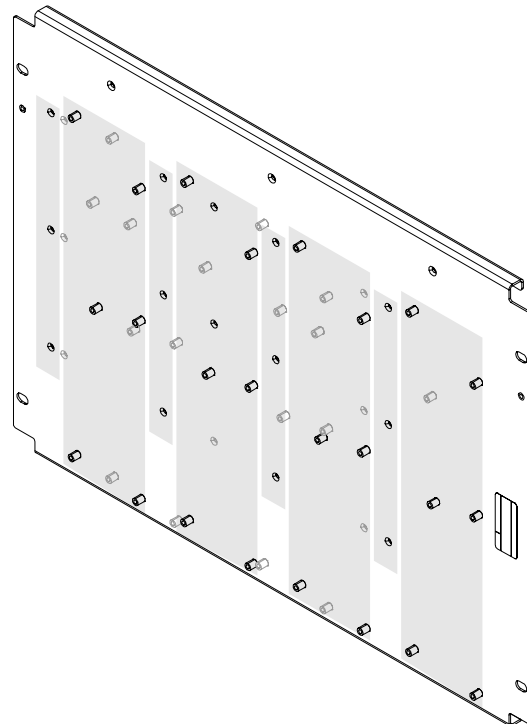
8.2.1 Installation positions of the card cages

The gray areas on the diagrams below indicate the possible installation positions for the card cages (1 sector exting.) and the associated mounting panels.

Installation positions for card cages (1 sector exting.) on carrier (19", exting.)



Installation positions for 3 card cages and mounting panels



Installation positions for 4 card cages and mounting panels

To provide a better overview, the cable duct is not shown in the drawings.

8.2.2 Installing the card cage on the carrier (19", exting.)

The figure below shows the installation of a card cage with mounting panel on the carrier (19", exting.) as an example. To provide a better overview, the cable duct is shown removed.

Scope of delivery for card cage

- Card cage (1 sector exting.) FCA2046
- Mounting bracket for cable to FCA2046
- 11x pan head screws M3x5 in bag
- Terminal resistors and diodes in bag:
 - 20x resistors 3.3 k Ω
 - 10x resistors 681 Ω
 - 10x resistors 1.21 k Ω
 - 2x resistors 121 Ω
 - 4x protective diodes P6KE18CA, 18 V/100 A
 - 2x rectifier diodes 1N5402, 200 V/3 A

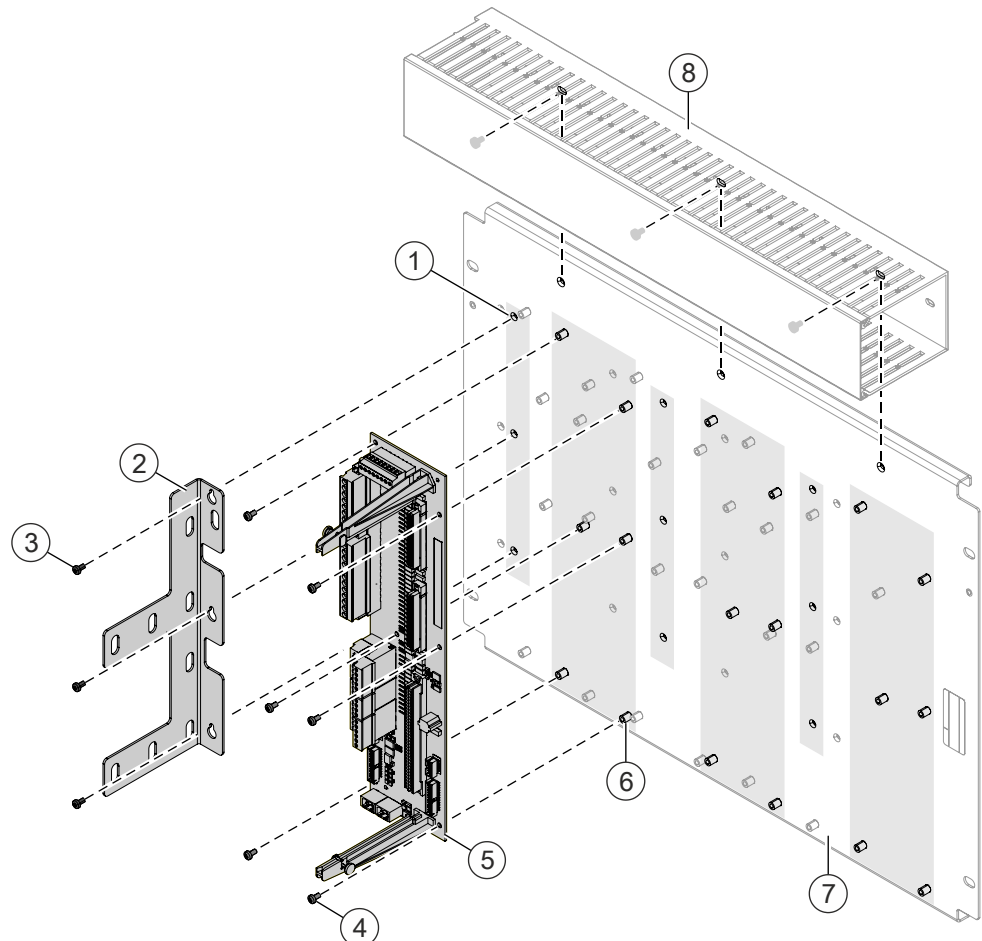


Figure 205: Installing the card cage and mounting panel on the carrier (19", exting.)

- 1 3x mounting holes for mounting panel
 - 2 Mounting panel
 - 3 3x screws M3 for mounting panel
 - 4 6x screws M3 for card cage (1 sector exting.) FCA2046
 - 5 Card cage (1 sector exting.) FCA2046
 - 6 Screw bushings for card cage (1 sector exting.)
 - 7 Carrier (19", exting.) FHA2053
 - 8 Cable duct (shown removed)
-
1. Position the card cage FCA2046 (5) correctly on the carrier (19", exting.) FHA2053 (7) as shown.
 2. Fasten the card cage (5) in the screw bushings (4) with 6 screws (6).
 3. Position the mounting panel (2) on the carrier (19", exting.) (7) as shown.
 4. Fasten the mounting panel (2) in the mounting holes (1) with 3 screws (3).
 5. Wire the card cage in accordance with the wiring diagram and fasten the connection cables to the mounting panel (2) with cable ties.

8.2.3 Installing the carrier (19", exting.)

The figure below shows the installation of the pre-mounted carrier (19", exting.) FHA2053 in the 19" pedestal cabinet of the fire control panel FC2080 as an example.

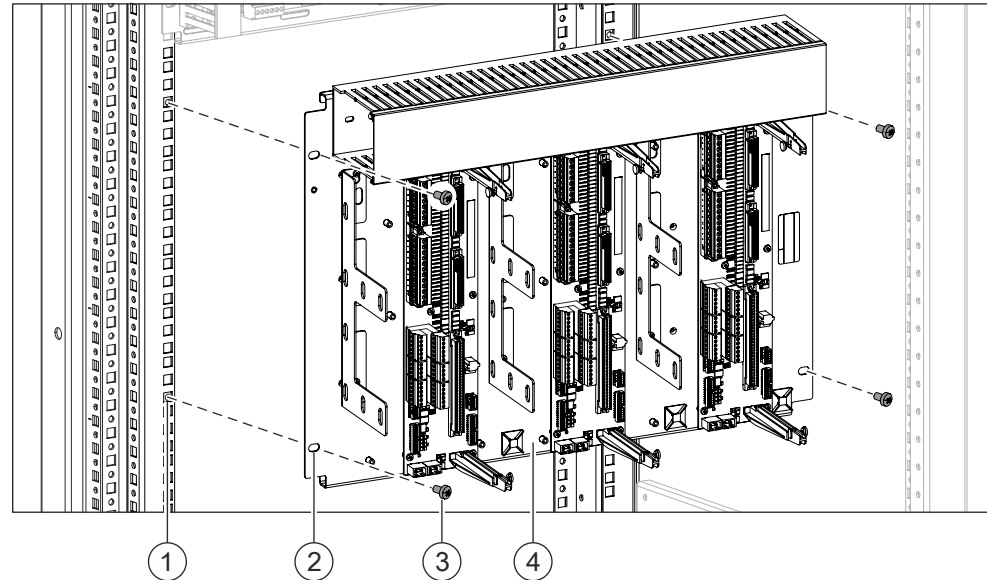


Figure 206: Installing the carrier (19", exting.) FHA2053 in the 19" pedestal cabinet

- 1 Mounting holes for cage nuts in rear frame
- 2 Mounting holes in carrier (19", exting.)
- 3 4 fixing screws M6 x 12 with cage nuts
- 4 Carrier (19", exting.) FHA2053, pre-mounted

▷ The carrier (19", exting.) is pre-mounted and wired internally.

1. Insert the 4 cage nuts in the correct position in the rear frame (1).
2. Mount the carrier (19", exting.) (4) on the rear frame (1) with four fixing screws (3) in the cage nuts as shown.
3. Wire the card cages in accordance with the wiring diagram and fasten the connection cables to the mounting panels provided with cable ties.

- 1, 3 FCA2048 cable kit (FHA2053-FHA2053) for connecting the power supply, module bus, and XBUS to the card cages on the carrier (19", pedestal cabinet)
 - 10-pin ribbon cable 770 mm for the XBUS connection X700 to the next carrier X701
 - 24-pin ribbon cable 850 mm for the module bus connection X501
 - 2x power supply cables with plug for the connection to the power supply on the first and last cable carrier
 - 2 FCA2049 cable kit (FCA2046-FCA2046) for the connection between the card cages on the carrier (19", pedestal cabinet)
 - 10-pin ribbon cable 100 mm for the XBUS X700-X701
 - 24-pin ribbon cable 100 mm for the modules X500-X501
 - 2-pin power supply cable 150 mm for X1/X2
 - 4 FCA2050 cable kit (2nd 19", FHA2053)
 - 10-pin ribbon cable 1900 mm for the XBUS connection X700 on the last cable carrier to the XBUS connection (X701) on the first cable carrier in the second 19" pedestal cabinet, for more than 8 flooding zones
 - 24-pin ribbon cable 1450 mm for module bus 2 to the second 19" pedestal cabinet (not shown)
- PSU Connection to the system supply from the power supply units

8.3 Card cage connections (1 sector exting.) FCA2046

8.3.1 Pin assignments

8.3.1.1 X1 and X2, supply

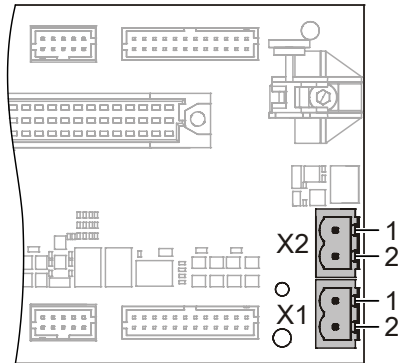
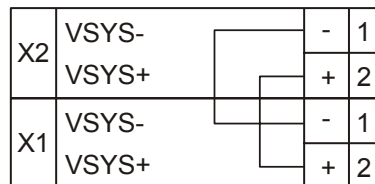


Figure 207: Detailed view of supply input, X1 and X2

PIN	Designation	Description
X2/1	VSYS-	Supply output (-) to next card cage
X2/2	VSYS+	Supply output (+) to next card cage
X1/1	VSYS-	Supply input (-)
X1/2	VSYS+	Power supply input (+)

Admissible cable cross-section: 0.2... 2.5 mm²



8.3.1.2 X10, extinguishing terminal

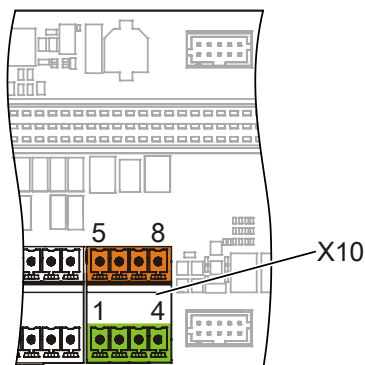
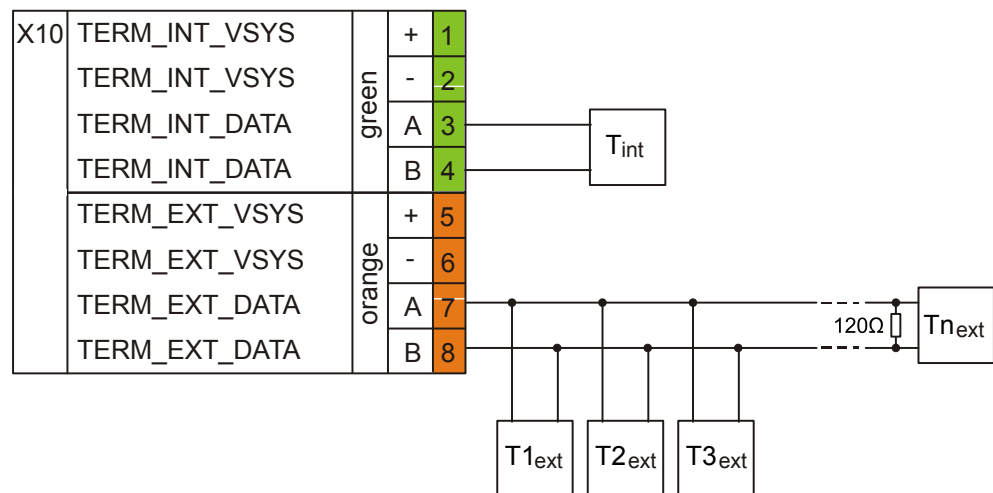


Figure 208: Detailed view of terminal X10, extinguishing terminal

PIN	Designation	Color	Description
1	TERM_INT_VSYS+	Green	Supply output (+), primary extinguishing terminal
2	TERM_INT_VSYS-	Green	Supply output (-), primary extinguishing terminal
3	TERM_INT_DATA_A	Green	Data line A, primary extinguishing terminal
4	TERM_INT_DATA_B	Green	Data line B, primary extinguishing terminal
5	TERM_EXT_VSYS+	Orange	Supply output (+), secondary extinguishing terminal
6	TERM_EXT_VSYS-	Orange	Supply output (-), secondary extinguishing terminal
7	TERM_EXT_DATA_A	Orange	Data line A, secondary extinguishing terminal
8	TERM_EXT_DATA_B	Orange	Data line B, secondary extinguishing terminal

Admissible cable cross-section: 0.2...1.5 mm²



- Observe polarity A/B
- Max. length of line A/B, internal; 10 m (no EOL)
- Max. length of line A/B, external; 1200 m (EOL 120 Ω at furthest extinguishing terminal)
- A primary (internal) extinguishing terminal ($T_{int.}$) must always be connected
- A maximum of 5 secondary (external) extinguishing terminals ($T_{ext.}$) may also be connected
- Observe address settings on the extinguishing terminal

8.3.1.3 X11, outputs

Outputs 1...8 are 'open drain' driver outputs, not monitored, short-circuit-proof, and protected against ground faults.

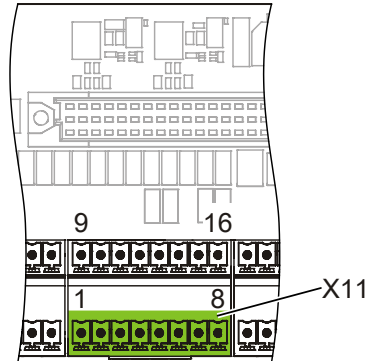


Figure 209: FCA2046 connection X11/1-8

PIN	Designation	Color	Description
1	OUTPUT_1	Green	Output 1
2	OUTPUT_2	Green	Output 2
3	OUTPUT_3	Green	Output 3
4	OUTPUT_4	Green	Output 4
5	OUTPUT_5	Green	Output 5
6	OUTPUT_6	Green	Output 6
7	SUPPLY_25V8	Green	Supply output + DC 25.8 V
8	SUPPLY_0V	Green	Supply output – 0 V

Admissible cable cross-section: 0.2... 1.5 mm²

X11	OUTPUT_1	green	1
	OUTPUT_2		2
	OUTPUT_3		3
	OUTPUT_4		4
	OUTPUT_5		5
	OUTPUT_6		6
	SUPPLY_25V8		+ 7
	SUPPLY_0V		- 8

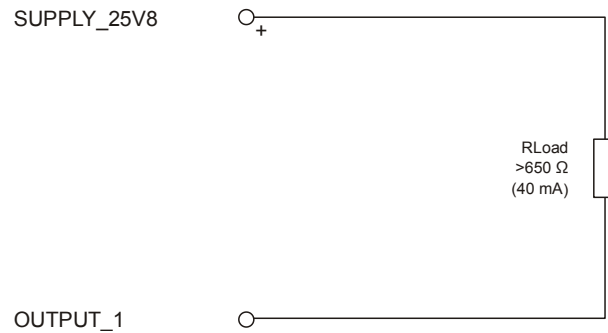


Figure 210: Output circuit for 'open drain' driver output

8.3.1.4 X11, collective monitored inputs

Collective devices ('manual release' or 'emergency hold') can be connected to inputs 1...4; a max. of 8 devices per input.

The inputs can also be used as monitored standard inputs. They can be configured to the different monitoring functions. All inputs offer 2-way monitoring.

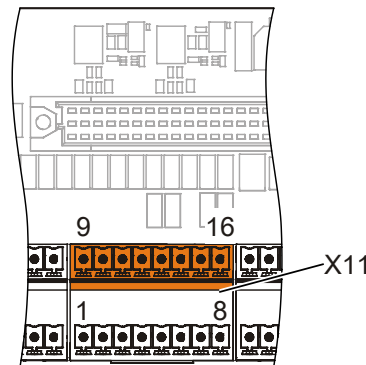


Figure 211: FCA2046 connection X11/9-16

PIN	Designation	Color	Description
9	INPUT_COL_MON_1 +	Orange	Input 1+, collective, monitored
10	INPUT_COL_MON_1 -	Orange	Input 1-, collective, monitored
11	INPUT_COL_MON_2 +	Orange	Input 2+, collective, monitored
12	INPUT_COL_MON_2 -	Orange	Input 2-, collective, monitored
13	INPUT_COL_MON_3 +	Orange	Input 3+, collective, monitored
14	INPUT_COL_MON_3 -	Orange	Input 3-, collective, monitored
15	INPUT_COL_MON_4 +	Orange	Input 4+, collective, monitored
16	INPUT_COL_MON_4 -	Orange	Input 4-, collective, monitored

Admissible cable cross-section: 0.2... 1.5 mm²

X11	INPUT_COL_MON_1	orange	+	9
	INPUT_COL_MON_1		-	10
	INPUT_COL_MON_2		+	11
	INPUT_COL_MON_2		-	12
	INPUT_COL_MON_3		+	13
	INPUT_COL_MON_3		-	14
	INPUT_COL_MON_4		+	15
	INPUT_COL_MON_4		-	16

Circuitry example

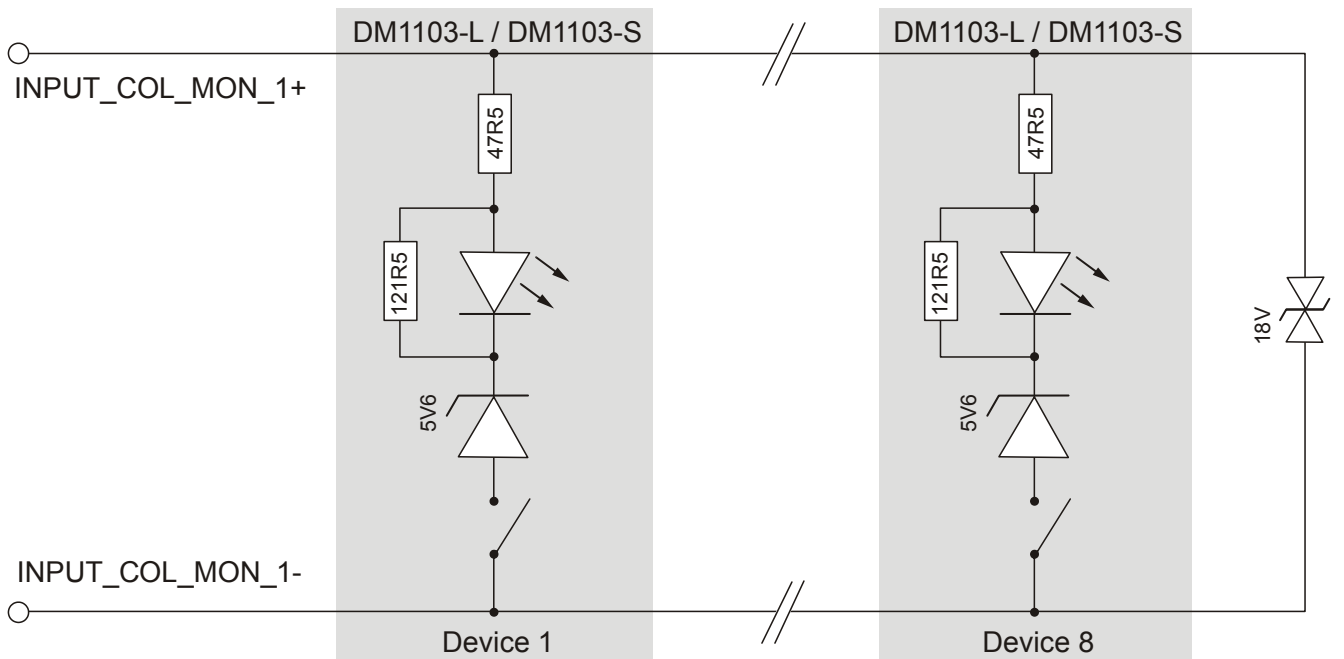


Figure 212: Collective monitored input with 'Manual release' and 'Emergency hold'

- EOL resistor: 18 V voltage reference diode / bidirectional / min. 600 W (e.g., P6KE18CA)
- Max. line resistance, both conductors: 80 Ω

8.3.1.5 X12, monitored inputs

Inputs 5...10 (X12) are monitored standard inputs without the collective function. The inputs can be configured to the different monitoring functions. All inputs offer 2-way monitoring.

Inputs 1...4 (X11) can also be used as monitored standard inputs.

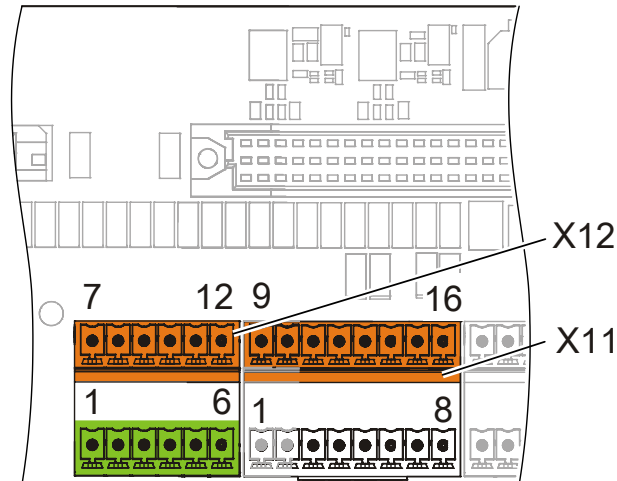


Figure 213: FCA2046 connection X12

PIN	Designation	Color	Description
1	IN_MON_5+	Green	Input 5+, monitored
2	IN_MON_5-	Green	Input 5-, monitored
3	IN_MON_6+	Green	Input 6+, monitored
4	IN_MON_6-	Green	Input 6-, monitored
5	IN_MON_7+	Green	Input 7+, monitored
6	IN_MON_7-	Green	Input 7-, monitored
7	IN_MON_8+	Orange	Input 8+, monitored
8	IN_MON_8-	Orange	Input 8-, monitored
9	IN_MON_9+	Orange	Input 9+, monitored
10	IN_MON_9-	Orange	Input 9-, monitored
11	IN_MON10+	Orange	Input 10+, monitored
12	IN_MON_10-	Orange	Input 10-, monitored

Admissible cable cross-section: 0.2...1.5 mm²

X12	IN_MON_5	green	+	1
	IN_MON_5		-	2
	IN_MON_6		+	3
	IN_MON_6		-	4
	IN_MON_7		+	5
	IN_MON_7		-	6
	IN_MON_8	orange	+	7
	IN_MON_8		-	8
	IN_MON_9		+	9
	IN_MON_9		-	10
	IN_MON_10		+	11
	IN_MON_10		-	12

- EOL resistor: 3.3 kΩ
- Max. cable resistance, both conductors: 80 Ω

Input monitoring

The resistance range of the entire line – measured at the input terminals 'IN_MON+' and 'IN_MON-' when the site is switched off – determines the defined state of the input status. The status varies depending on the input type configured.

The status ACTIVE has two values:

- ACTIVE 1 is when the 1200 Ω resistor is used
- ACTIVE 2 is when the 680 Ω resistor is used and
- ACTIVE 1 + 2 is when both resistors are used ('simple switchable' and 'complex switchable')

The circuits and the definition of the coverage areas per input type are listed below.

INPUT_MON_TYPE_1: 'Normally open'

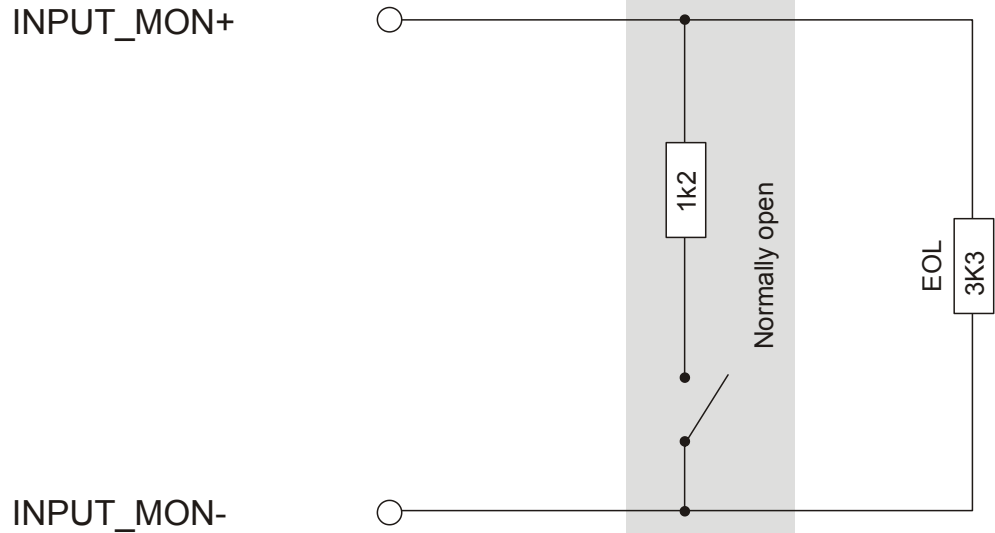


Figure 214: MON_INPUT_TYPE_1, 'Normally open'

- 'Normally open'

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	QUIET
0520...0799 Ω	QUIET
0800...1099 Ω	ACTIVE 1
1100...1499 Ω	OPEN (Fault)
1500...3999 Ω	QUIET
$\geq 4000 \Omega$	OPEN (Fault)

- 'Normally open', VdS-compliant

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	QUIET
0520...0799 Ω	ACTIVE 1
0800...1099 Ω	QUIET
1100...1499 Ω	OPEN (Fault)
1500...3999 Ω	QUIET
$\geq 4000 \Omega$	OPEN (Fault)

INPUT_MON_TYPE_2: 'Normally closed'

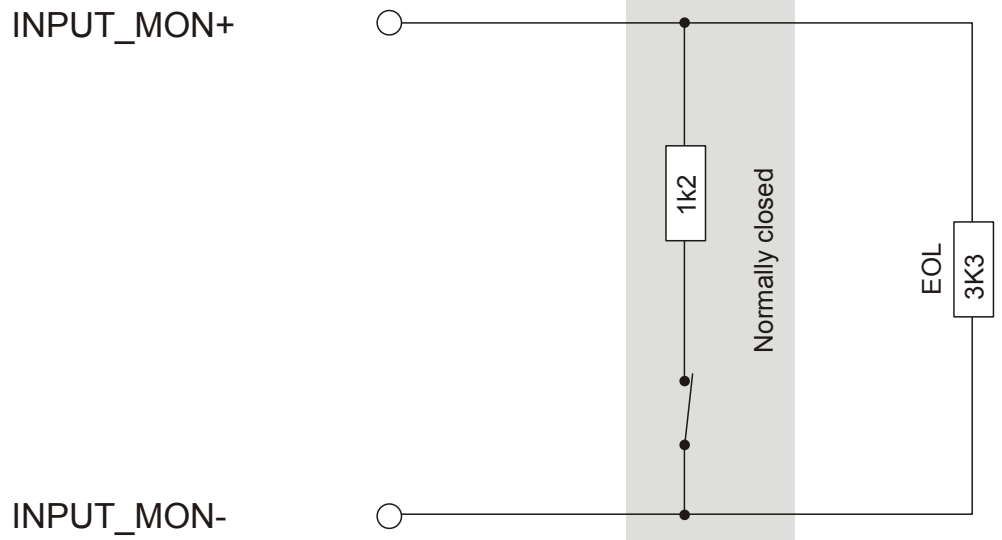


Figure 215: MON_INPUT_TYPE_2, 'Normally closed'

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	QUIET
0520...0799 Ω	QUIET
0800...1099 Ω	QUIET
1100...1499 Ω	OPEN (Fault)
1500...3999 Ω	ACTIVE 1
$\geq 4000 \Omega$	OPEN (Fault)

INPUT_MON_TYPE_2: "Loss of agent" closed during pressure'

- "Loss of agent" closed during pressure'
- Maximum line resistance 160 Ω (pressure gauge, cable, and plug)
- The maximum number of pressure gauges is calculated according to the max. line resistance

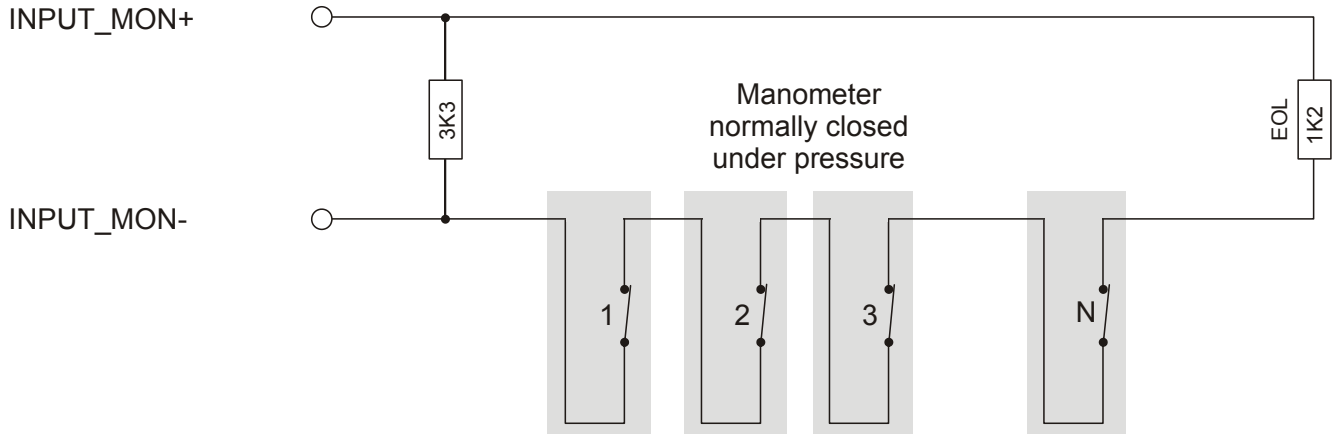


Figure 216: MON_INPUT_TYPE, "Loss of agent" closed during pressure'

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	QUIET
0520...0799 Ω	QUIET
0800...1099 Ω	QUIET
1100...1499 Ω	QUIET
1500...3999 Ω	ACTIVE 1
$\geq 4000 \Omega$	OPEN (Fault)

INPUT_MON_TYPE_3: 'Simple switchable'

- Selector valve input

INPUT_MON+

INPUT_MON-

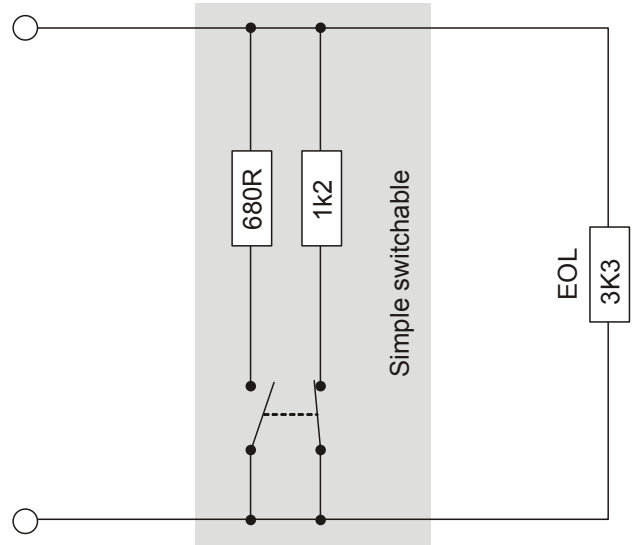


Figure 217: MON_INPUT_TYPE_3, 'Simple switchable'

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	INCORRECT STATUS
0520...0799 Ω	QUIET
0800...1099 Ω	ACTIVE 1
1100...1499 Ω	OPEN (Fault)
1500...3999 Ω	INCORRECT STATUS
$\geq 4000 \Omega$	OPEN (Fault)

INPUT_MON_TYPE_4: 'Complex switchable'

- Automatic blocking
- Manual blocking
- Automatic and manual blocking

INPUT_MON_TYPE_4 also contains type 1...3

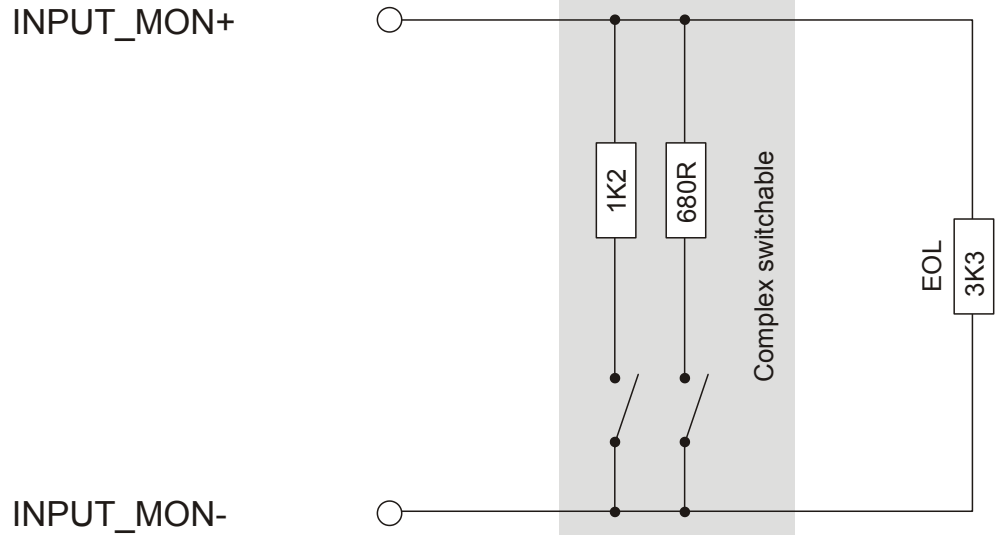


Figure 218: MON_INPUT_TYPE_4, 'Complex switchable'

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	ACTIVE 1 + 2
0520...0799 Ω	ACTIVE 2 (only 680 Ω)
0800...1099 Ω	ACTIVE 1 (only 1200 Ω)
1100...1499 Ω	OPEN (Fault)
1500...3999 Ω	QUIET
$\geq 4000 \Omega$	OPEN (Fault)

INPUT_MON_TYPE_5: "Loss of agent" open during pressure'

- Maximum line resistance 100 Ω (pressure gauge, cable, and plug)
- The maximum number of pressure gauges (n) is calculated according to the max. line resistance

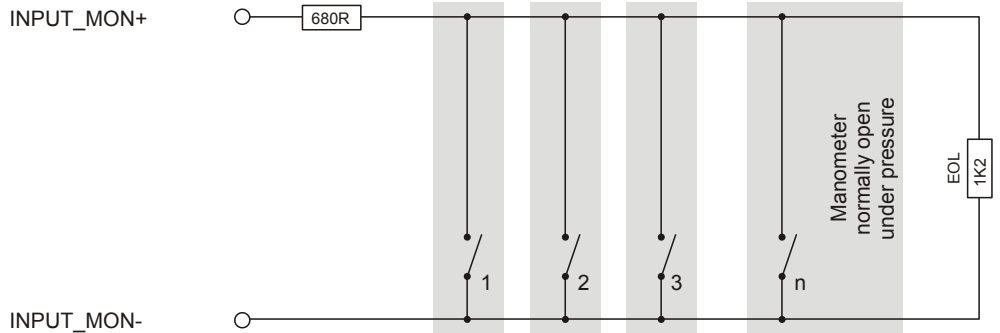
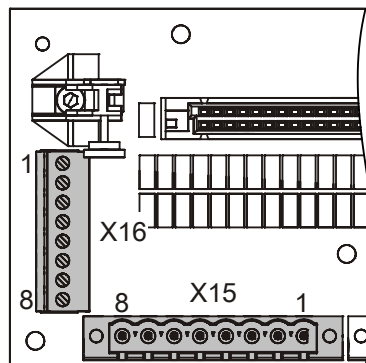


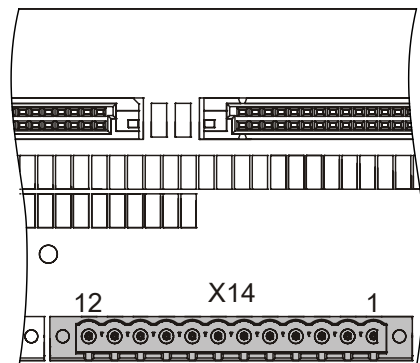
Figure 219: MON_INPUT_TYPE, "Loss of agent" open during pressure'

Resistance range	Input status
0000...0249 Ω	SHORT (Fault)
0250...0519 Ω	SHORT (Fault)
0520...0799 Ω	ACTIVE 1
0800...1099 Ω	ACTIVE 1
1100...1499 Ω	OPEN (Fault)
1500...3999 Ω	QUIET
≥4000 Ω	OPEN (Fault)

8.3.1.6 X14/X15/X16, monitored outputs



Detailed view X15, X16, outputs 1...4, monitored



Detailed view X14, outputs 5...10, monitored

PIN	Designation	Description
X15/8 X16/1	OUT_MON_1+	Output 1+, monitored
X15/7 X16/2	OUT_MON_1-	Output 1-, monitored
X15/6 X16/3	OUT_MON_2+	Output 2+, monitored
X15/5 X16/4	OUT_MON_2-	Output 2-, monitored
X15/4 X16/5	OUT_MON_3+	Output 3+, monitored
X15/3 X16/6	OUT_MON_3-	Output 3-, monitored
X15/2 X16/7	OUT_MON_4+	Output 4+, monitored
X15/1 X16/8	OUT_MON_4-	Output 4-, monitored
X14/12	OUT_MON_5+	Output 5+, monitored
X14/11	OUT_MON_5-	Output 5-, monitored
X14/10	OUT_MON_6+	Output 6+, monitored
X14/9	OUT_MON_6-	Output 6-, monitored
X14/8	OUT_MON_7+	Output 7+, monitored
X14/7	OUT_MON_7-	Output 7-, monitored
X14/6	OUT_MON_8+	Output 8+, monitored
X14/5	OUT_MON_8-	Output 8-, monitored
X14/4	OUT_MON_9+	Output 9+, monitored
X14/3	OUT_MON_9-	Output 9-, monitored
X14/2	OUT_MON_10+	Output 10+, monitored
X14/1	OUT_MON_10-	Output 10-, monitored

Admissible cable cross-section: 0.2...2.5 mm²

OUT_MON_1	X15	+	8	X16	+	1
OUT_MON_1		-	7		-	2
OUT_MON_2		+	6		+	3
OUT_MON_2		-	5		-	4
OUT_MON_3		+	4		+	5
OUT_MON_3		-	3		-	6
OUT_MON_4		+	2		+	7
OUT_MON_4		-	1		-	8

X14	OUT_MON_5	+	12
	OUT_MON_5	-	11
	OUT_MON_6	+	10
	OUT_MON_6	-	9
	OUT_MON_7	+	8
	OUT_MON_7	-	7
	OUT_MON_8	+	6
	OUT_MON_8	-	5
	OUT_MON_9	+	4
	OUT_MON_9	-	3
	OUT_MON_10	+	2
	OUT_MON_10	-	1

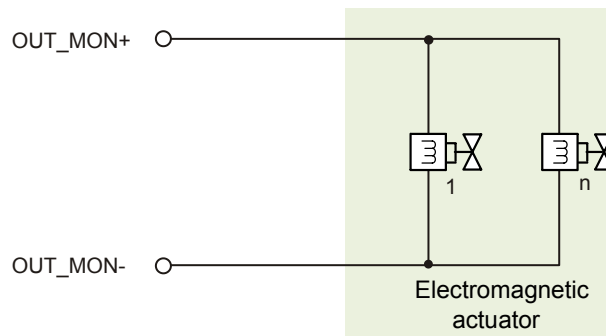
Output circuits

Three output circuits are possible

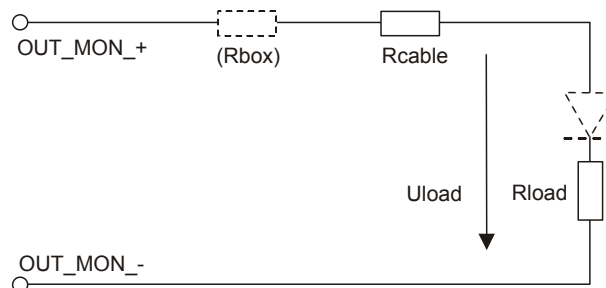
- 'TYPE_LOAD', valves (2-way monitoring with and without 2-way connection box)
- 'TYPE_EOL', visual or acoustic warning devices
- 'TYPE_LOAD_INVERS', door magnets
- 'TYPE_LOAD', pyrotechnic valves (2-way monitoring with and without 2-way connection box)
- Collective valve output in multi-sector extinguishing system

Monitored output type LOAD

Use	Valves, etc.
Monitoring polarity	Normal polarity
Monitoring	Only in inactive state
Calibration	Yes
2-way monitoring	Permitted
Total load resistance, incl. cable	<ul style="list-style-type: none"> • 14...1000 Ω, max. 2 A • 14...780 Ω with 2-way connection box
Max. cable resistance	80 Ω , both lines
Monitoring tolerance	<ul style="list-style-type: none"> • $\pm 33\%$ at $\leq 200\ \Omega$ • $\pm 16\%$ at $> 200\ \Omega$ • $\pm 2.5\%$ dynamic



A maximum of 10 electromagnetic valves can be switched in parallel.
In some applications, valves are used with blocking diodes as polarity protection.
Calculation of the cable resistance:



Step 1: calculate the critical cable resistance

$$R_{\text{cableCrit}} = (24.8\ \text{V} - U_{\text{loadMin}}) / I_{\text{loadMin}}$$

$R_{\text{cableCrit}}$ Critical cable resistance [Ω] at which a fault is still displayed and the voltage at the load is still supplied to a sufficient extent.

U_{loadMin} Minimum voltage [V] at load, as per data sheet.

I_{loadMin} Minimum current [A] due to load at min. voltage, as per data sheet.

Step 2: calculate the max. permitted cable resistance

$$R_{\text{cableNom}} = 0.97 * R_{\text{cableCrit}} - 0.029 * R_{\text{Load}}$$

R_{cableNom} Maximum nominal cable resistance [Ω] during commissioning, both conductors.

R_{Load} Load resistance at U_{loadMin} .

When using a 2-way connection box

$$R_{\text{cableNom}} = 0.97 * R_{\text{cableCrit}} - 0.029 * (R_{\text{Load}} + 220)$$

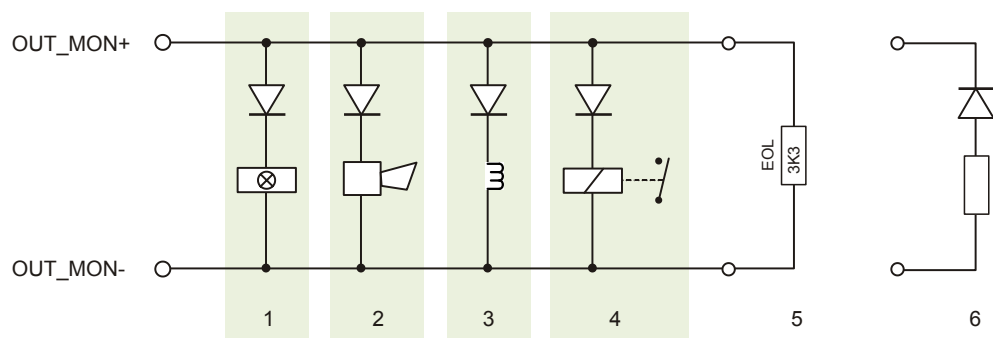
R_{box} Internal resistance [Ω] of an externally connected 2-way connection box (220 Ω).

Examples:

- B04420103 with V_{nom} 24 V \pm 10 % and 0.5 A
 $R_{\text{cableCrit}} = (24.8 \text{ V} - 24 \text{ V} * 0.9) / 0.5 \text{ A} = 6.4 \Omega$
 $R_{\text{cableNom}} = 0.97 * 6.4 \Omega - 0.029 * (24 \text{ V} * 0.9 / 0.5 \text{ A}) = 4.96 \Omega$
- FTEX 30 40 21 with V_{nom} 24 V \pm 15 % and R_{load} 60 Ω
 $R_{\text{cableCrit}} = (24.8 \text{ V} - 24 \text{ V} * 0.85) / (24 \text{ V} * 0.85 / 60 \Omega) = 12.9 \Omega$
 $R_{\text{cableNom}} = 0.97 * 12.9 \Omega - 0.029 * 60 \Omega = 10.8 \Omega$

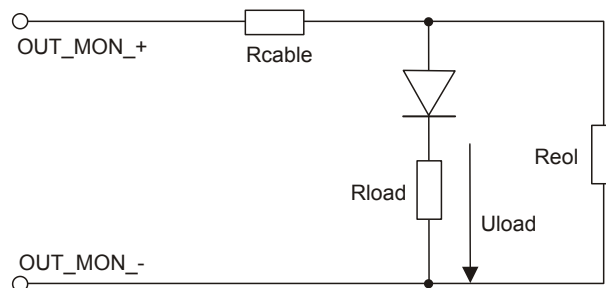
Monitored output type EOL

Use	Optical or acoustic warning devices, etc.
Monitoring polarity	Reverse polarity
Monitoring	Only in inactive state
Calibration	Yes
2-way monitoring	Not possible
Total load resistance, incl. cable	40...4000 Ω , EOL max. 3.3 k Ω
Max. cable resistance	80 Ω , both lines
Monitoring tolerance	$\pm 12.5\%$, $\pm 2.5\%$ dynamic



- 1 optical alarm device, illuminated warning panel
- 2 acoustic alarm devices, such as sounders, etc.
- 3 Fire controls
- 4 RT alarm
- 5 EOL standard value 3.3 k Ω , variable for EN 54-13
- 6 EOL for increased current loads, EN 54-13 outputs

Calculation of the cable resistance:



Step 1: calculate the critical cable resistance

$$R_{\text{cableCrit}} = (24.8 \text{ V} - U_{\text{loadMin}}) / I_{\text{loadMin}} + (U_{\text{loadMin}} / R_{\text{eol}})$$

- $R_{\text{cableCrit}}$ Critical cable resistance [Ω] at which a fault is still displayed and the load is still supplied to a sufficient extent.
- U_{loadMin} Minimum voltage [V] at load, as per data sheet.
- I_{loadMin} Minimum current [A] due to load at min. voltage, as per data sheet.

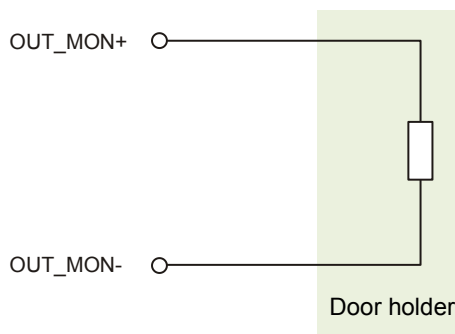
Step 2: calculate the max. permitted cable resistance

$$R_{\text{cableNom}} = 0.97 * R_{\text{cableCrit}} - 0.029 * R_{\text{eol}}$$

- R_{cableNom} Maximum nominal cable resistance [Ω], as per calibration, both conductors.
- R_{eol} Termination resistor [Ω]

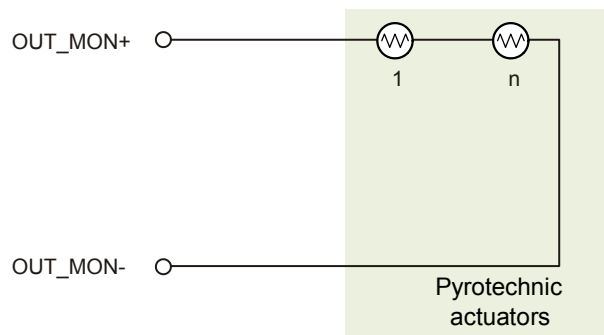
Monitored output type LOAD INVERTED

Use	Door magnets, etc.
Monitoring polarity	Not possible
Monitoring	Only in active state
Calibration	Yes
2-way monitoring	Not possible
Total load resistance, incl. cable	18...3500 Ω , load 20 mA...1.5 A
Max. cable resistance	80 Ω , both lines
Max. capacity	470 μF
Monitoring tolerance	$\pm 25\%$ of the calibrated value



Monitored output type LOAD PYRO

Use	Pyrotechnic valves
Monitoring polarity	Normal polarity
Monitoring	Only in inactive state
Calibration	Yes
2-way monitoring	Only permitted without 2-way connection box
Total load resistance, incl. cable	2...32 Ω , max. 10 pyrotechnic valves, 25.8 V / 0.8 A
Max. cable resistance	Depending on number of valves (see valve data sheet)
Monitoring tolerance	$\pm 5 \Omega$, $\pm 1.2 \Omega$



A maximum of 10 pyrotechnic valves can be switched in series.

2-way monitoring and activation

In a multi-sector site, a valve output can be monitored and activated collectively by two extinguishing cards. Ground fault supervision must be deactivated on one of the two cards.

There are two circuit options:

- Valve activation and monitoring within the same room by two extinguishing cards.
 - This makes the extinguishing cards redundant.
- Valve activation and monitoring in a multi-sector application using a 2-way connection box.
 - This makes the extinguishing cards and the wiring redundant.



The same physical outputs of two extinguishing cards must be connected to each other (example: OUT_MON_1 with OUT_MON_1).



Two extinguishing cards connected to common inputs or outputs must not be connected to any other extinguishing cards.

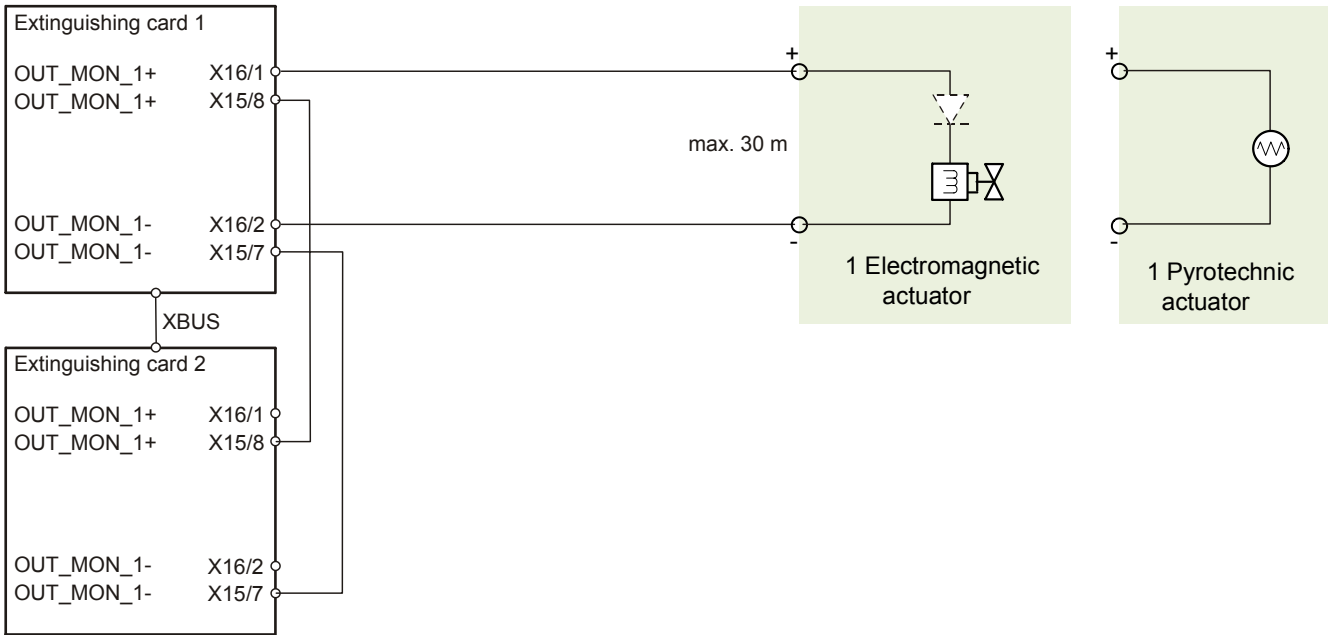


Figure 220: 2-way monitoring of a valve within the same room

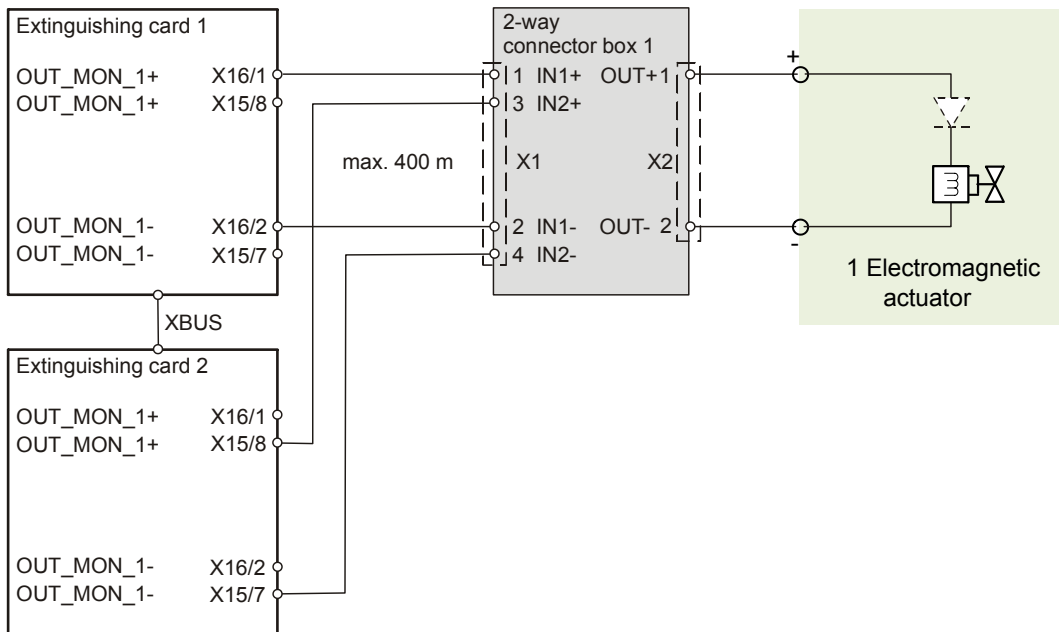


Figure 221: 2-way monitoring with a 2-way connection box in a multi-sector application

8.4 Installing the extinguishing card



The process of inserting the extinguishing card into the card cage (1 sector exting.) is identical for single-sector and multi-sector systems.

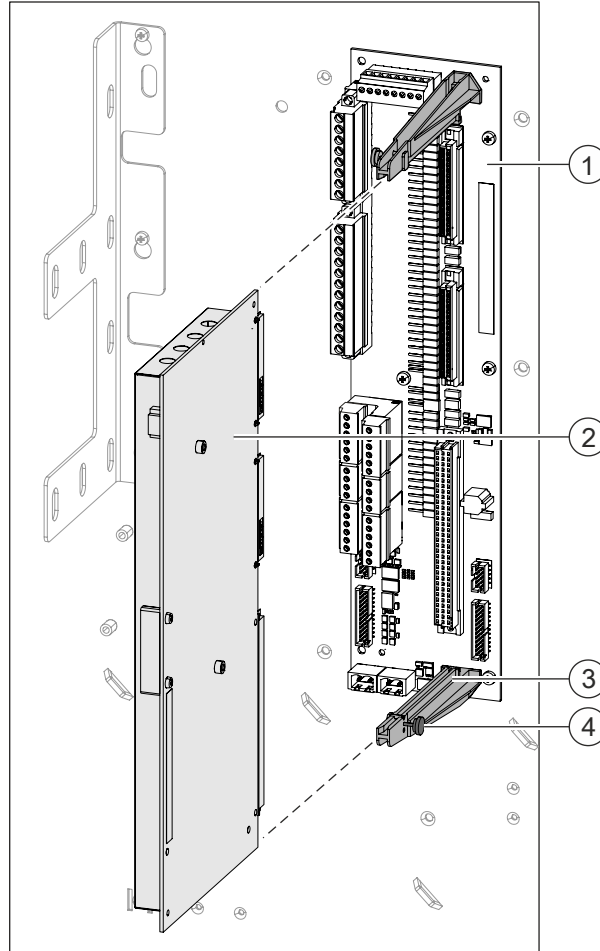


Figure 222: Inserting the extinguishing card into the card cage

- 1 Card cage (1 sector exting.) FCA2046
- 2 Extinguishing card XC12005
- 3 2x card guides
- 4 2x locking knobs

- ▷ The card cage (1 sector exting.) is pre-wired.
- 1. Unlock the card guides (3) by pulling the unlocking knobs (4) out.
- 2. Push the extinguishing card (2) into the card guides (3) as shown and apply even pressure to the card to press it into the connector strips.
- 3. Lock both card guides (3) by pushing the unlocking knobs (4) in.

8.5 Extinguishing terminal installation and wiring

8.5.1 Description

The extinguishing terminal XTO2001 is used for the indication and operating functions of the extinguishing card. It is part of the operating add-ons for extinguishing control panels and of the remote control panel. Every flooding zone has its own extinguishing terminal. The extinguishing terminal can be used as a primary Person Machine Interface installed in an extinguishing control panel or separately as a secondary Person Machine Interface in its own housing. The primary extinguishing terminal must always be present and, if possible, integrated into the control panel. The secondary extinguishing terminal is generally installed externally and is an additional terminal with full functionality.

The extinguishing terminal XTO2001 is used in the following components:

- Exting. terminal (1 sector) XCM2002-A2
- Exting. terminal (4 sectors) XCM2003-A2
- Extinguish. terminal (remote) XT2001-A2

Properties

- Supply via the extinguishing control panel
- Separate supply as secondary (remote) extinguishing terminal possible
- With a separate supply, monitoring for power loss, battery fault, and ground fault
- Connection of a 3rd source of voltage [FR] possible
- Addressable via DIP switch
- 6 freely programmable 3-color LED indicators
- 28 permanently assigned 3-color LED indicators
- 4 dot matrix displays (5 x 7) for countdown display
- 10 operating buttons, 4 of which are freely programmable
- Prepared for the installation of a key switch

8.5.2 Extinguishing terminal connection assignment and wiring

The connections described here using the printed circuit board XTO2001 and apply to all extinguishing terminals.

8.5.2.1 Primary extinguishing terminal, connections X1, X2

Connector X2, supply

PIN	Designation	Description
1	VSYS_POS	Supply input V+
2	VSYS_POS	Supply output V+ (looped through)
3	VSYS_NEG	Supply input V-
4	VSYS_NEG	Supply output V- (looped through)
5	#MAINS	Network monitoring connection
6	#BATTERY	Battery monitoring connector
7	-3SRC	Supply input V-, 3rd source of voltage
8	+3SRC	Supply input V+, 3rd source of voltage

Connector X1, RS485 connection

PIN	Designation	Description
1	DATA_A	Terminal line +
2	DATA_A	Terminal line + (looped through)
3	DATA_B	Terminal line -
4	DATA_B	Terminal line - (looped through)

Admissible cable cross-section: 1.5... 1.5 mm²

Wiring diagram

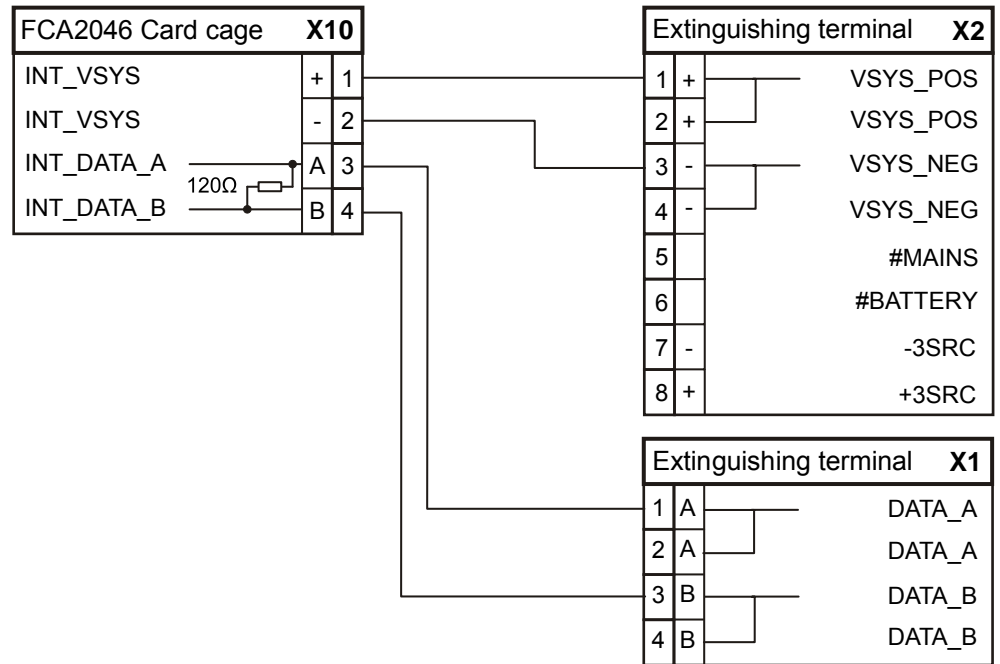


Figure 223: Wiring diagram for internal extinguishing terminal

8.5.2.2 Secondary extinguishing terminal, connections X1, X2

Connector X2, supply

PIN	Designation	Description
1	VSYS_POS	Supply input V+
2	VSYS_POS	Supply output V+ (looped through)
3	VSYS_NEG	Supply input V-
4	VSYS_NEG	Supply output V- (looped through)
5	#MAINS	Network monitoring connection
6	#BATTERY	Battery monitoring connector
7	-3SRC	Supply input V-, 3rd source of voltage
8	+3SRC	Supply input V+, 3rd source of voltage

Connector X1, RS485 connection

PIN	Designation	Description
1	DATA_A	Terminal line +
2	DATA_A	Terminal line + (looped through)
3	DATA_B	Terminal line -
4	DATA_B	Terminal line - (looped through)

Admissible cable cross-section: 1.5... 1.5 mm²

Wiring diagram

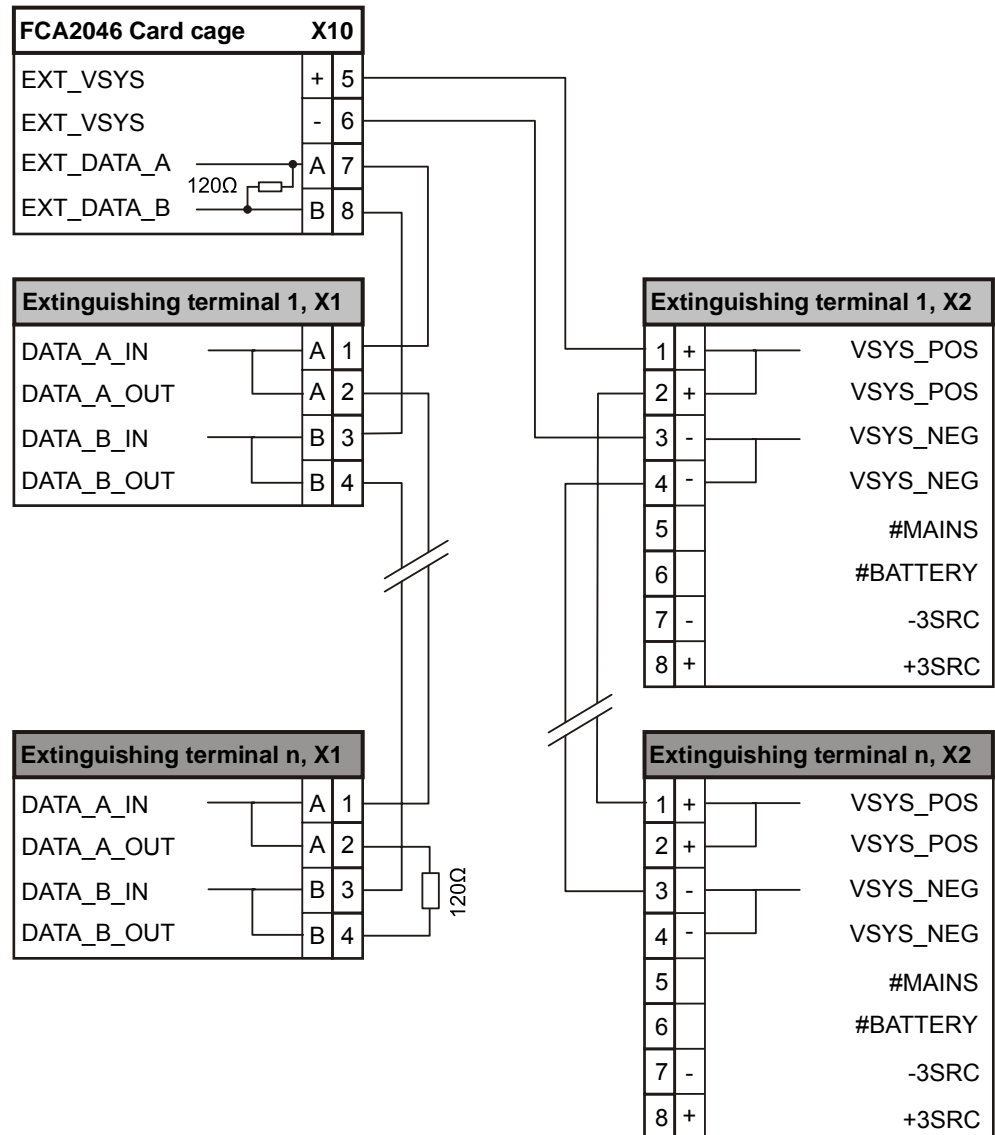


Figure 224: Wiring diagram for external extinguishing terminals

8.5.2.3 External power supply, connector X2



If the extinguishing terminal is supplied with power by an external power supply, ground fault monitoring must be switched on.

Connector X2, supply

PIN	Designation	Description
1	VSYS_POS	Supply input V+
2	VSYS_POS	Supply output V+ (looped through)
3	VSYS_NEG	Supply input V-
4	VSYS_NEG	Supply output V- (looped through)
5	#MAINS	Network monitoring connection
6	#BATTERY	Battery monitoring connector
7	-3SRC	Supply input V-, 3rd source of voltage
8	+3SRC	Supply input V+, 3rd source of voltage

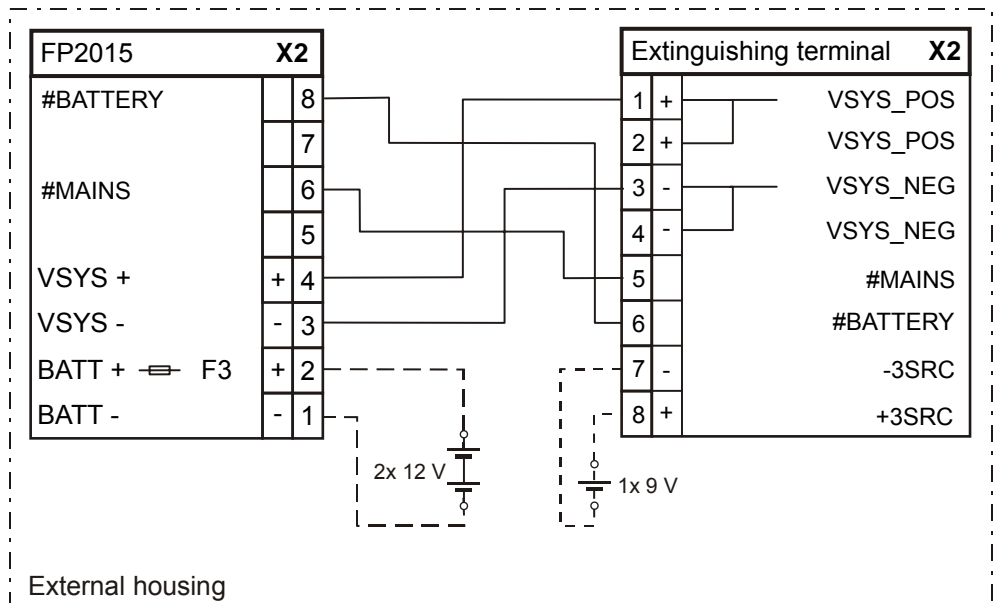


Figure 225: Wiring diagram of an external terminal with external power supply

8.5.2.4 Extinguishing terminal wiring

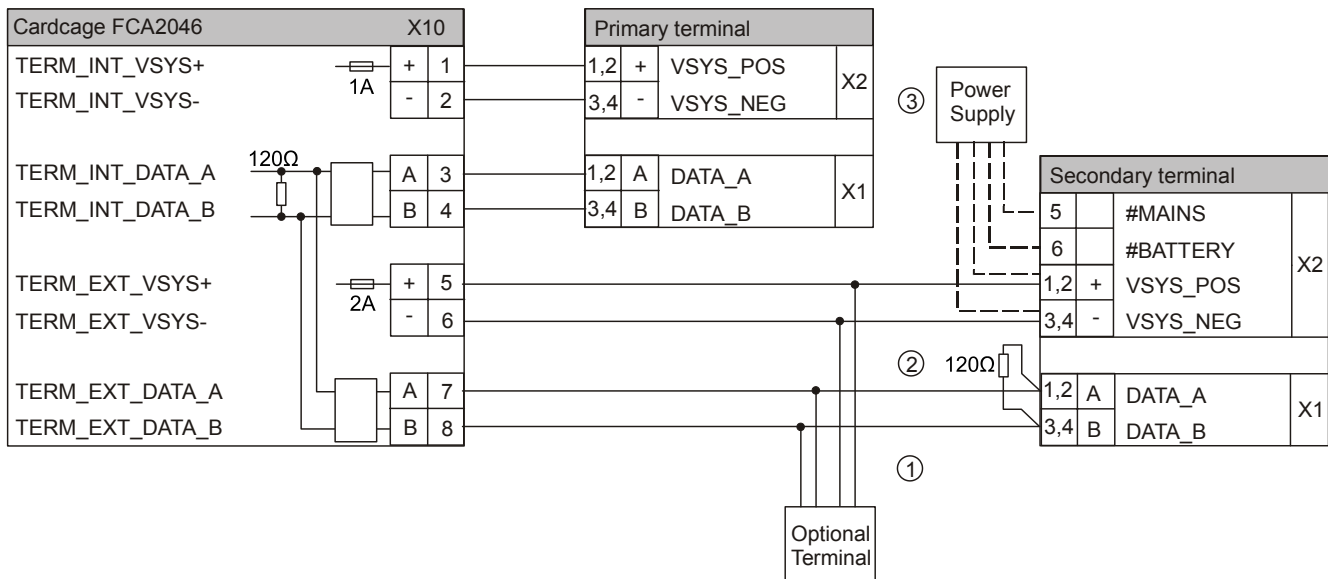


Figure 226: Wiring diagram of the primary and secondary extinguishing terminals

Primary terminal

- A maximum of 1 primary terminal may be connected; the address must always be '1'
- The maximum cable length for the primary terminal is 10 m; twisted and unshielded cable with min. 7 twists/meter.

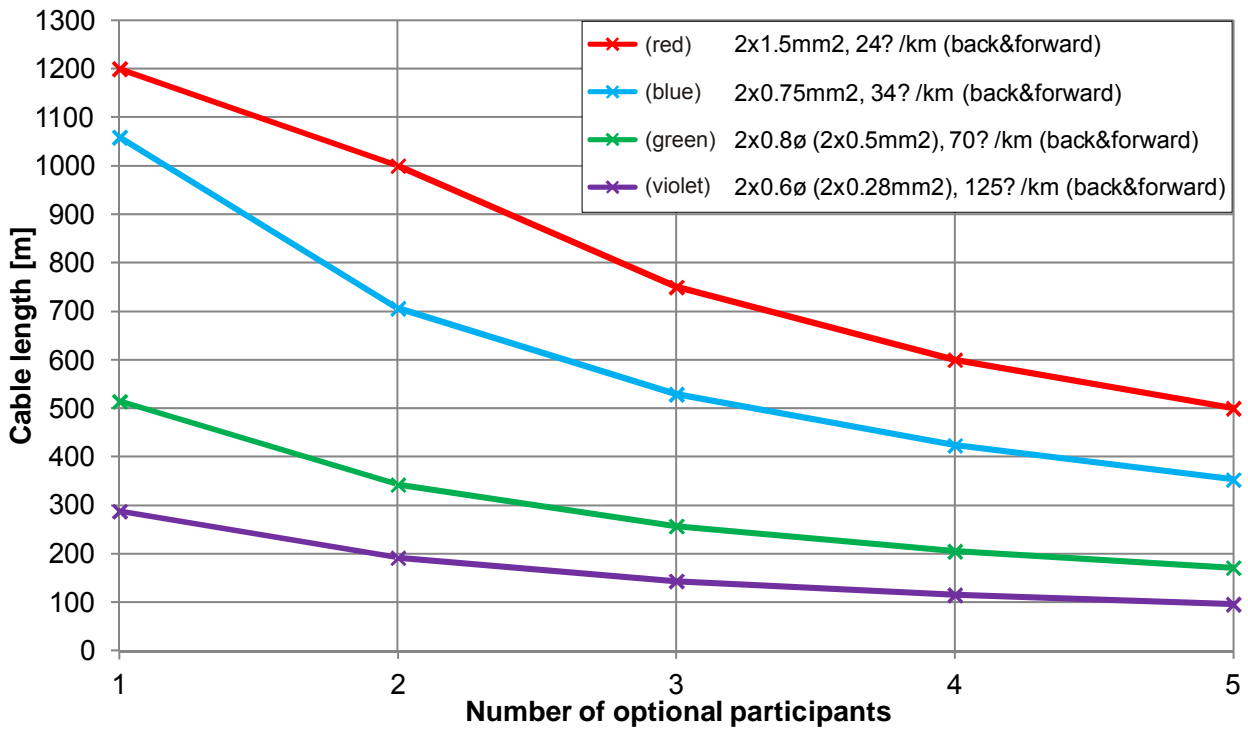


The polarity must be observed (A, B) when connecting the data cable.

Secondary terminal

- 1) The maximum length of the stubs is 20 m for the secondary terminal
- 2) The line must be terminated at the furthest terminal with 120 Ω (secondary terminals only)
- 3) An external power supply, e.g., FP120, is required for long lines or when if back-up batteries are used.
 - The address must always be ≥ 2 ; a maximum of 5 secondary terminals must be connected for each extinguishing card.
 - The maximum cable length for the secondary terminal is 1200 m; twisted and unshielded cable with min. 7 twists/meter. When using shielded cables, the shielding must be connected on the terminal side.
 - The cable resistance and the capacity is max. 80 Ω (on both sides) and max. 200 nF.

Diagram showing how to calculate the maximum cable length



8.5.3 Adjustment elements

8.5.3.1 Address switch, S201

With the address switch S201, the binary address (1...16) of the extinguishing terminal is set and the 3rd source of voltage is switched on.

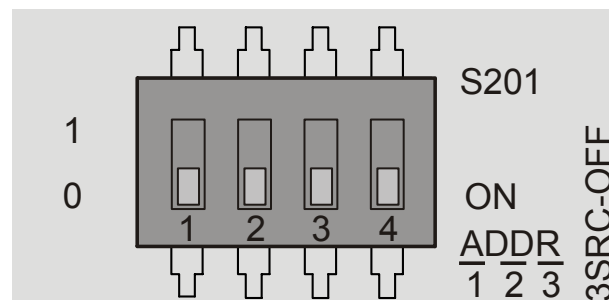
The address switches are preset as follows:

XCM2002 exting. terminal (1 sector) = address 1

XCM2003 exting. terminal (4 sectors) = each address 1

XT2001 exting. terminal (remote) = address 2

Switch pos.	Designation	Function
S201.1	ADDR1	Address bit 1
S201.2	ADDR2	Address bit 2
S201.3	ADDR3	Address bit 3
S201.4	3SRC-OFF	3rd source ON (default)



Address settings

S201.1	S201.2	S201.3	Address	Extinguishing terminal
Bit 1 [ADDR1]	Bit 2 [ADDR2]	Bit 3 [ADDR3]		
OFF	OFF	OFF	0	
ON	OFF	OFF	1	Primary
OFF	ON	OFF	2	1st secondary
ON	ON	OFF	3	2nd secondary
OFF	OFF	ON	4	3rd secondary
ON	OFF	ON	5	4th secondary
OFF	ON	ON	6	5th secondary

OFF = position 0

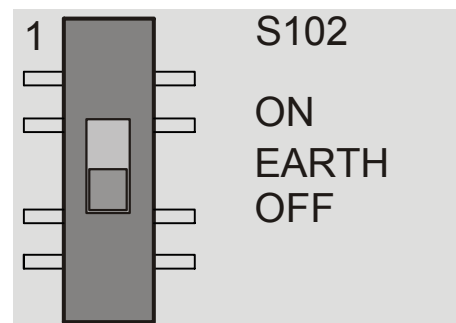
ON = position 1

8.5.3.2 Ground fault monitoring, S102

When connecting an external supply to a remote extinguishing terminal, ground fault monitoring must be switched on with the switch S102.

When ground fault monitoring is 'OFF', signal processing for monitoring the external supply is also switched off.

Switch pos.	Designation	Function
Top [1]	ON	<ul style="list-style-type: none"> • Ground fault monitoring ON, with external supply • Battery and mains monitoring supply 'ON'
Bottom	OFF	<ul style="list-style-type: none"> • Ground fault monitoring OFF (default) • Battery and mains monitoring supply 'OFF'



8.6 Installing the 2-way connection box

The 2-way connection box XCA2003 is mounted on a DIN rail or in a housing. The Spelsberg Abox 025 AB-Pot is used as an installation example.

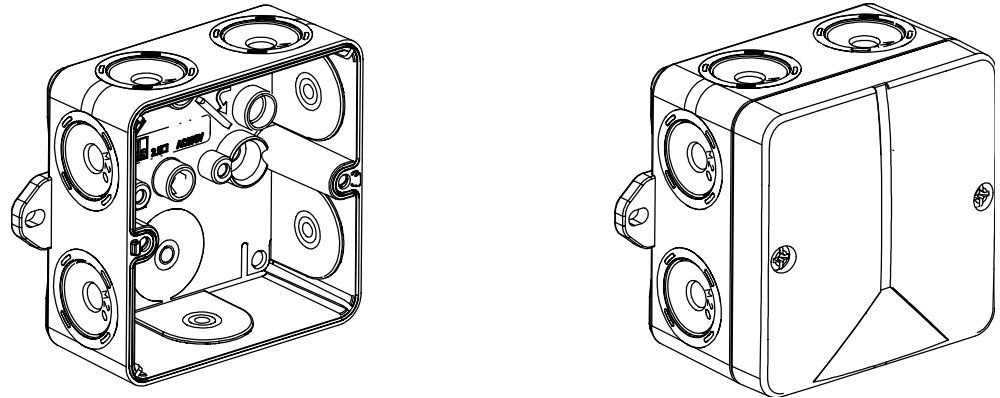


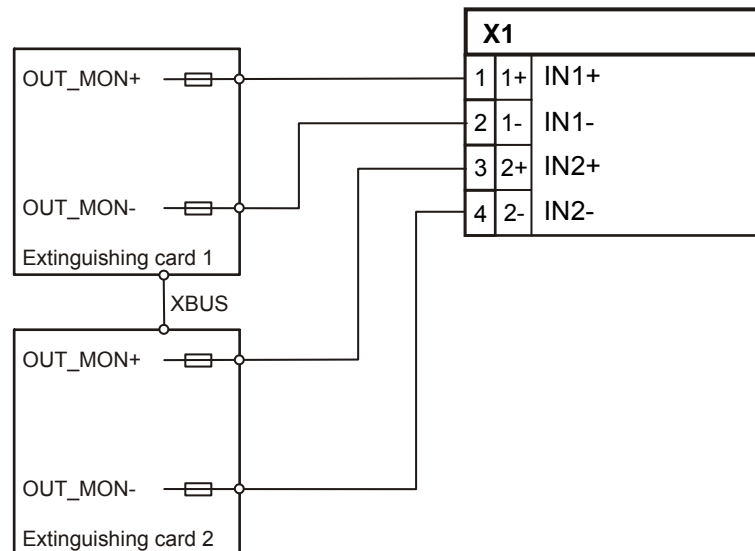
Figure 227: View of Spelsberg Abox for XCA2003

8.6.1 Pin assignments

8.6.1.1 Connector X1, inputs from extinguishing cards

PIN	Designation	Description
1	IN1+	Input from extinguishing card 1 'IN_OUT_MON_CARD1+'
2	IN1-	Input from extinguishing card 1 'IN_OUT_MON_CARD1-'
3	IN2+	Input from extinguishing card 2 'IN_OUT_MON_CARD2+'
4	IN2-	Input from extinguishing card 2 'IN_OUT_MON_CARD2-'

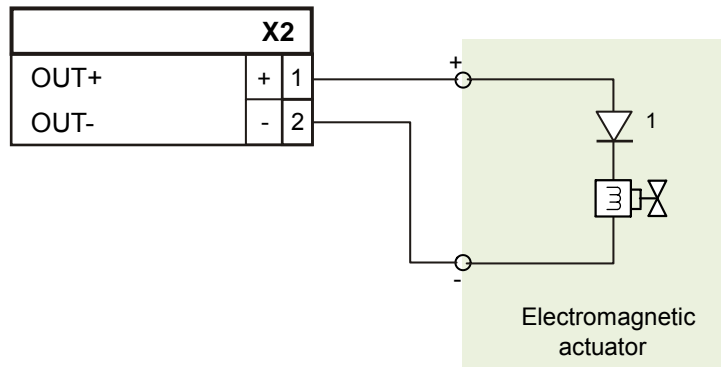
Admissible cable cross-section: 0.2... 2.5 mm²



8.6.1.2 Connector X2, valve output

PIN	Designation	Description
1	OUT+	Output + for valve
2	OUT-	Output - for valve

Admissible cable cross-section: 0.2... 2.5 mm²



¹ The diode can be installed in the solenoid valve.
A maximum of one valve may be connected for each output.

9 Replacing components

The components are dismantled in reverse sequence of installation. To replace components if repairs are necessary proceed as follows:

- Take the station out of operation.
- **⚠ WARNING! Mortal danger due to electric shock.** Before working on the station check that the mains supply cable is disconnected from the power supply.
- Ensure that the mains is secured against inadvertently being switched on.
- Replace the component.
- Start the station up again.

You will find information about taking out of service and commissioning in document 009052, Commissioning, maintenance, troubleshooting.



If you return the operating unit for repairs, you have to remove all options, incl. the license key.

10 Concluding work

10.1 Insert printing paper



The printer can also be installed rotated 180°.

Opening the printer and changing the paper roll

1. Press and hold the green button.
 2. Fold the cover down with the other hand. **NOTICE! Ensure that the two lugs at the top right and left of the cover do not break off.**
 3. Remove the reel of the old paper roll from the paper drum.
 4. Place the new paper roll into the paper drum. **Information:** Please make sure that the side that will be unwound is at the back of the drum and that the loose end of the paper is facing upwards.
 5. Pull the loose end of the paper up and out of the paper drum until it approximately covers the green button.
 6. Hold the end of the paper in position.
 7. Fold the cover up and insert it back into the housing until you hear an audible 'click' sound.
 8. Remove excess paper by tearing it along the serrated edge.
- ⇒ The printer is ready.



You will find detailed information on inserting the paper roll in the manufacturer's operating instructions. The operating instructions can be downloaded by entering the manufacturer product number '915CW180100322' at <https://www.custom4u.it/>.

11 CE marking for integrated extinguishing system

Following the successful acceptance of the integrated extinguishing system, the template for the extinguishing system's CE marking must be filled out. You will find the form for printing out and completing in document 'A6V11370439'.

On the form, cross the applicable features of the extinguishing system and enter the corresponding times. The following table shows an example for the CE marking:



Siemens Switzerland Ltd, Building Technologies
 Gubelstrasse 22
 6300 Zug, Switzerland
 18
 XXXX-XXX-XXXXX

EN 12094-1, electrical automatic control and time delay devices
 Class of the ambient conditions: A

Flooding zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Comment
High pressure gas																	
Pre-controlled sprinkler system																	
Delay of the triggering signal (4.17)																	0 to 60 s
Signal representing the flow of the extinguishing agent (4.18)																	Pressure switch
Monitoring of the state/position of components (4.19)																	
Stop key (4.20)																	
Control of the discharge time (4.21)																	Sec. / minutes
Manual-only mode (4.23)																	
Triggering signals to equipment within the fire extinguishing installation (4.24)																	
Extinguishing signals to spare cylinders (4.25)																	
Triggering of equipment outside the fire extinguishing installation (4.26)																	
Emergency abort device (4.27)																	
Control of extended discharge (4.28)																	
Release of the extinguishing agent for selected flooding zones (4.29)																	
Activation of alarm devices with different alarm signals (4.30)																	
Response time for the activation state																	≤3 s
Response time for activation of the outputs																	≤1 s

Glossary

CPU

Abbreviation for 'Central Processing Unit'. The computing unit of the fire control panel.

Detector line

Electrical connection between the detectors and the fire control panel. There are collective detector lines and addressed detector lines.

FCnet

Protocol used in SAFEDLINK.

Line card

Card for connecting peripheral devices. The card can be a plug-in card or it can be integrated into the periphery board.

Loop

Detector line topology which runs from the fire control panel via the fire detectors and back to improve operational reliability. This type of wiring allows all detectors to communicate with the control panel even in the event of an open line or short-circuit.

Network module (SAFEDLINK)

FS20/FS720 network card.

Normal operation

The fire detection installation is supplied with mains voltage.

Normally closed contact

Opens a power circuit when activated.

Normally open contact

Closes a power circuit when activated.

Remote transmission

Remote transmission.

RT

The abbreviation for remote transmission.

RT

The abbreviation for 'remote transmission'.

Station

Unit for system control. Fire control panel or fire terminal.



Stub

Detector line which is only connected to the fire control panel on one side. In the event of an open line or short-circuit, it may no longer be possible for all fire detectors to communicate with the fire control panel.

VdS

Abbreviation for 'Vertrauen durch Sicherheit', a company in the Gesamtverband der Deutschen Versicherungswirtschaft e.V. (GDV). Inspection and certification body for fire detection systems in Germany.

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