SIEMENS

FS720

Fire detection system

Mounting

Installation

IP6

A6V10210390_j_en_--
2015-12-15

Building Technologies

Control Products and Systems

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1 About this document

Goal and purpose

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

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

This document contains instructions only with respect to mounting and deinstallation procedures.

Document A6V10210355, Description, contains an overview of the structure and operating principle of the fire detection system. The description also provides an overview of the structure of the documentation.

Scope

The information contained in this document is valid for introduction package IP6.

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
Installation personnel	• Assembles and installs the product components at the place of installation. • Carries out a function check following installation.	• Has received specialist training in the area of building installation technology or electrical installations.
Commissioning personnel	• Configure the product at the place of installation according to customer-specific requirements. • Check the product operability and release the product for use by the operator. • Searches for and corrects malfunctions.	• Has obtained suitable specialist training for the function and for the products. • Has attended the training courses for commissioning personnel.
Maintenance personnel	• Carries out all maintenance work. • Checks that the products are in perfect working order. • Searches for and corrects malfunctions.	• 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
A6V10210355	FS720 Fire Detection System Description
A6V10210368	FS720 Fire Detection System Characteristic Product Data
A6V10210416	FS720 Fire Detection System, Commissioning, Maintenance, Troubleshooting

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:

http://siemens.com/bt/download

- Enter the document ID in the 'Find by keyword' input box.

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

1.3 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
j	2015-12-15	**Edition: Introduction Package IP6** **New:** • Chapter 'Installing an Ethernet switch (modular) FN2012' • Pin assignment for power supply (70 W) FP2015 inserted **Corrections and additions** • Chapter 'Installing mounting kits' adapted for FN2008 and FN2009 • Referenced documents updated • Chapter 'Insert license key' updated • Chapter 'Components on operating unit' legend corrected • Chapter 'Event printer' – 'Connection on printer side' product version 02 integrated • Chapter 'RS232/RS485 module'; cable gland on operating unit removed. All corresponding graphics revised
i	2014-02-10	Information on voltage ranges revised in relation to supply outputs for fire terminal board
h	2013-11-14	**Edition: Introduction Package IP5** Change to date format according to ISO 8601 **New** Integrating fire control panel FC723: • Arrangement of components in the Comfort housing • Installation of card cage (2 slots) Installation and wiring of module bus cards for AlgoRex migration: • Line card (SynoLOOP) FCL7201-Z3 **Corrections and additions:** • Note on Ethernet loop FN2008 added. • RS485 module: Slot address assignment Various minor corrections and adaptations

Version	Edition date	Brief description
g	2012-05	Edition: Introduction Package IP4 • I/O card (horn/monitored) FCI2009-A1 • I/O card (RT) FCI2007-A1 • Fiber optic cable network module (SM/MM) FN2006-A1/FN2007-A1 • Power supply unit (150 W) Version A5 • Power supply unit (150 W) Version A4 changed
f	2010-06	• Revision history redefined and standardized • Integration of PMI & mainboard FCM2027 • Modification of the Scalance modules to class B • Installation of FN2008 and FN2009 revised (symmetry element removed) • Integration of the remote EVAC-NL indicator and EVAC-NL mimic display driver • Pin assignment for event printer FTO2001-A1 changed
e	2010-03	Second edition MP3.0 XS for VdS: • Assignment of manufacturer designation "Scalance" to BT designation
d	2009-10	First edition MP3.0 XS for VdS Installation of: • Card cage (5 slots) FCA2008-A1 • Connection module (card cage) FCA2006-A1 • Module bus cards • Scalance module
c	2009-03	Second revised edition MP1XS
b	2009-01	First extended edition MP1XS
a	2008-09	First edition MP1XS

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.
NOTICE	*NOTICE* identifies possible damage to property that may result from non-observance.

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 • 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 • 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

- 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 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

Noncompliance with the following safety regulations

Risk of injury to persons and damage to property

- Compliance with the following regulations is required.

- Specialist electrical engineering knowledge is required for installation.
- Only an expert is permitted to carry out installation work.

Incorrect installation can take safety devices out of operation unbeknown to a layperson.

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.

2.4 Release Notes

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

⚠ WARNING

Limited or non-existent fire detection

Personal injury and damage to property in the event of a fire.

- 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

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.

- 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 Overview

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 A6V10210355.

You will find detailed information about the individual components in document A6V10210368.

3.2.1 Rear panel in Eco housing

The fire terminal is available in the Eco housing.

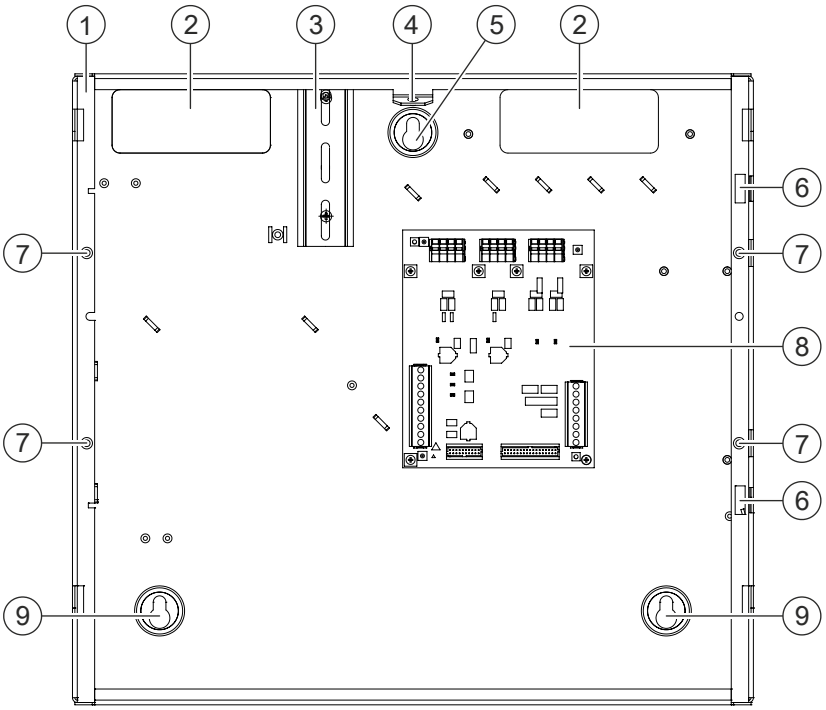


Figure 1: Fire terminal in Eco rear panel

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.

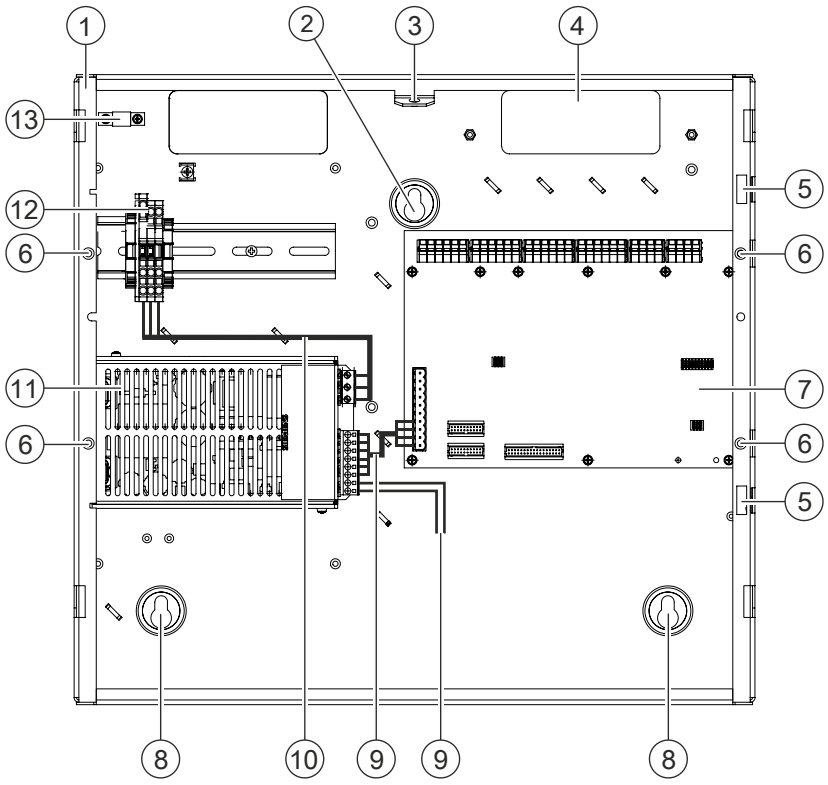


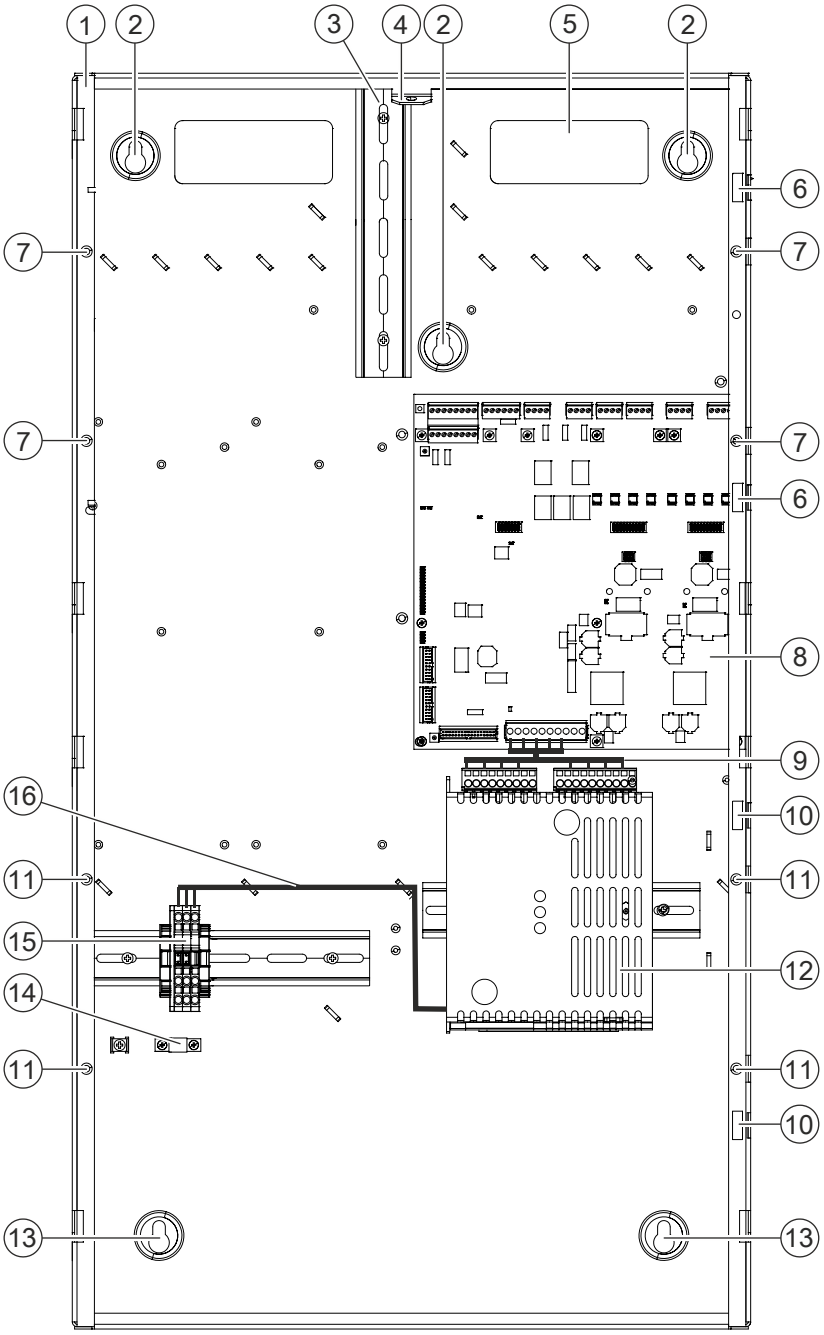
Figure 2: Fire control panel in Standard rear panel

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 FC722 and FC724 in the Comfort housing is identical.

Example of a fire control panel FC724 in Comfort rear panel:



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

3.2.4 Rear panel in Large housing

FC726 as an example of the fire control panel setup in the Large housing:

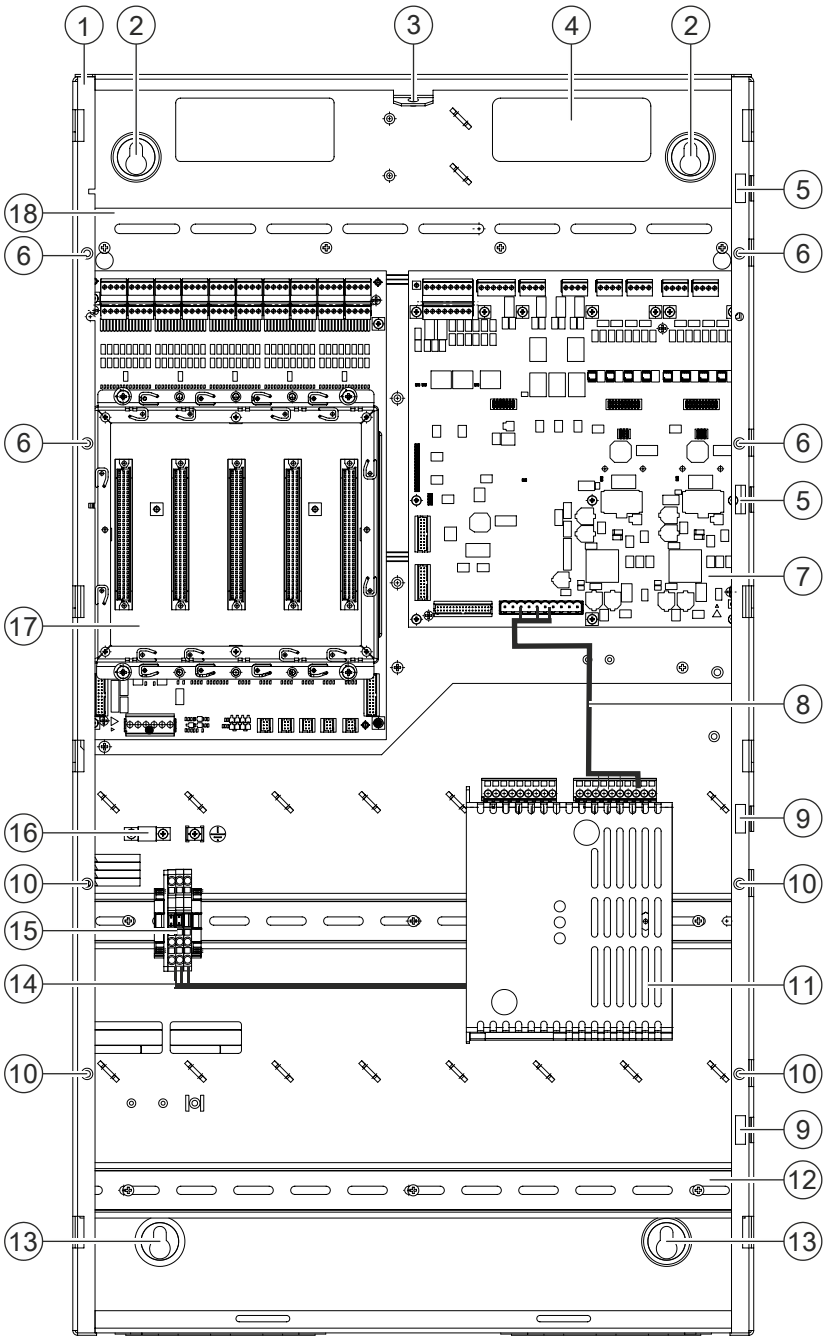


Figure 3: Fire control panel in Large rear panel

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.

3.2.5 Mounting material

The following installation material is supplied with all stations:

Number	Designation
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	Aluminium sticker for covering the wall fixtures [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).

The following documentation is also supplied with the stations:

- Letter with feedback sheet (return fax)
- Product insert for the station (installation instructions) A5Q00015754
- Product insert for the power supply

3.3 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.

3.3.1 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 A6V10210368.

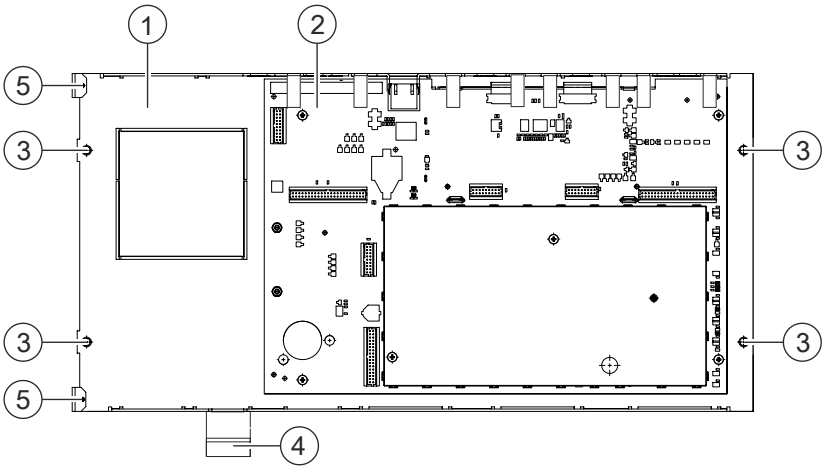


Figure 4: Rear view of operating unit (without options) with PMI & mainboard FCM2027

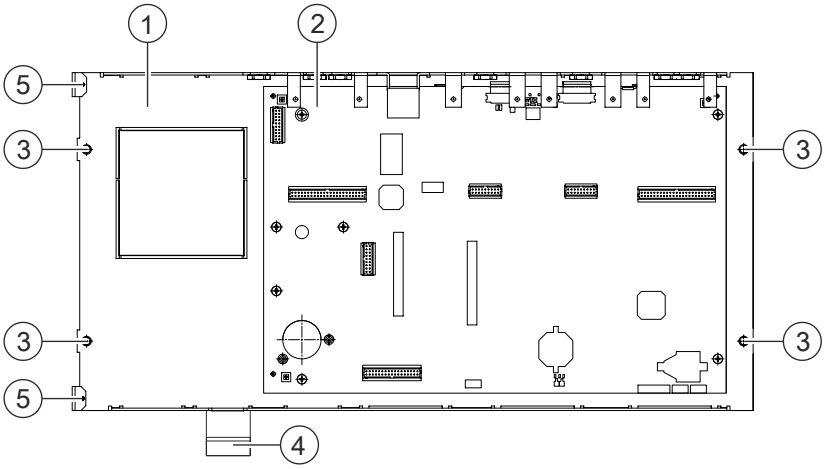


Figure 5: Rear view of operating unit (without options) with PMI & mainboard FCM2004

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 A6V10217440.

3.3.2 Cover cap

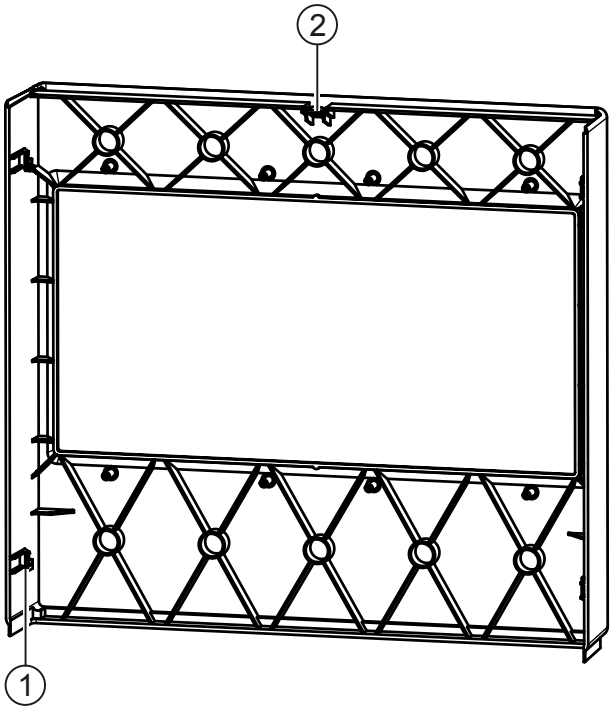


Figure 6: Rear view of cover cap

1 Distance pins

2 Fixing screw

3.4 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 A6V10210368.

3.4.1 Components in the Eco housing (fire terminal)

The fire terminal is available in the Eco housing.

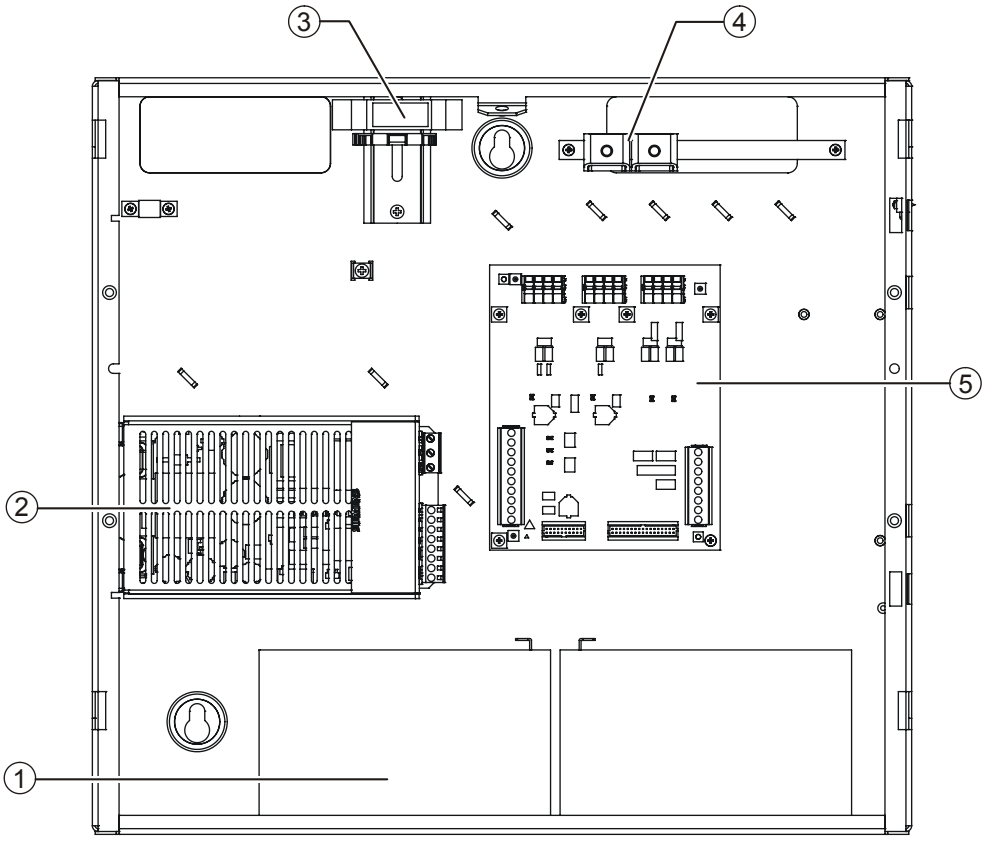


Figure 7: Components in the Eco housing (fire terminal)

1 Batteries
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

3.4.2 Components in the Standard housing (fire control panels)

The fire control panel FC722 (2-loop) is available in the Standard housing.

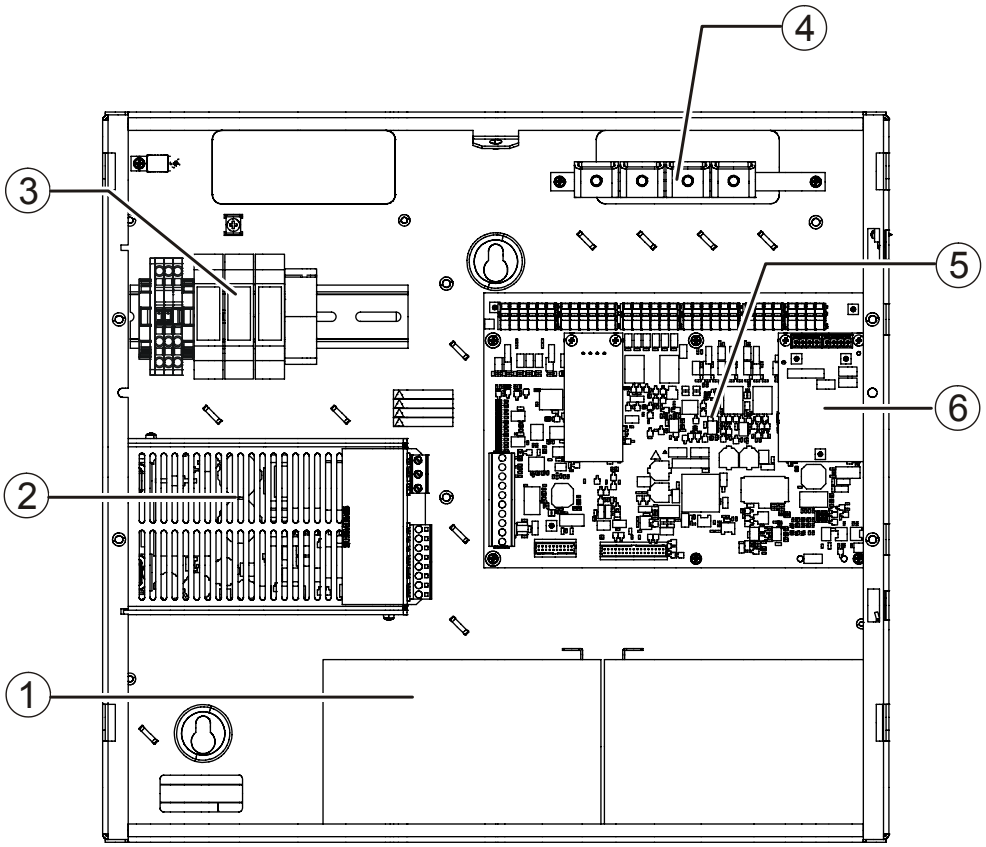


Figure 8: Components in the Standard housing (fire control panel)

1 Batteries

2 Power supply (70 W)

3 Relay (option) on DIN rail

4 Shield connection terminal blocks [DE] or cable kit (communication), (options)

5 Periphery board (2-loop)

6 Loop extension (C-NET) (option)

3.4.3 Components in the Comfort housing (fire control panels)

Fire control panels FC722, FC723 and FC724 are available in the Comfort housing. With the exception of the card cage and periphery board type, the setup is identical.

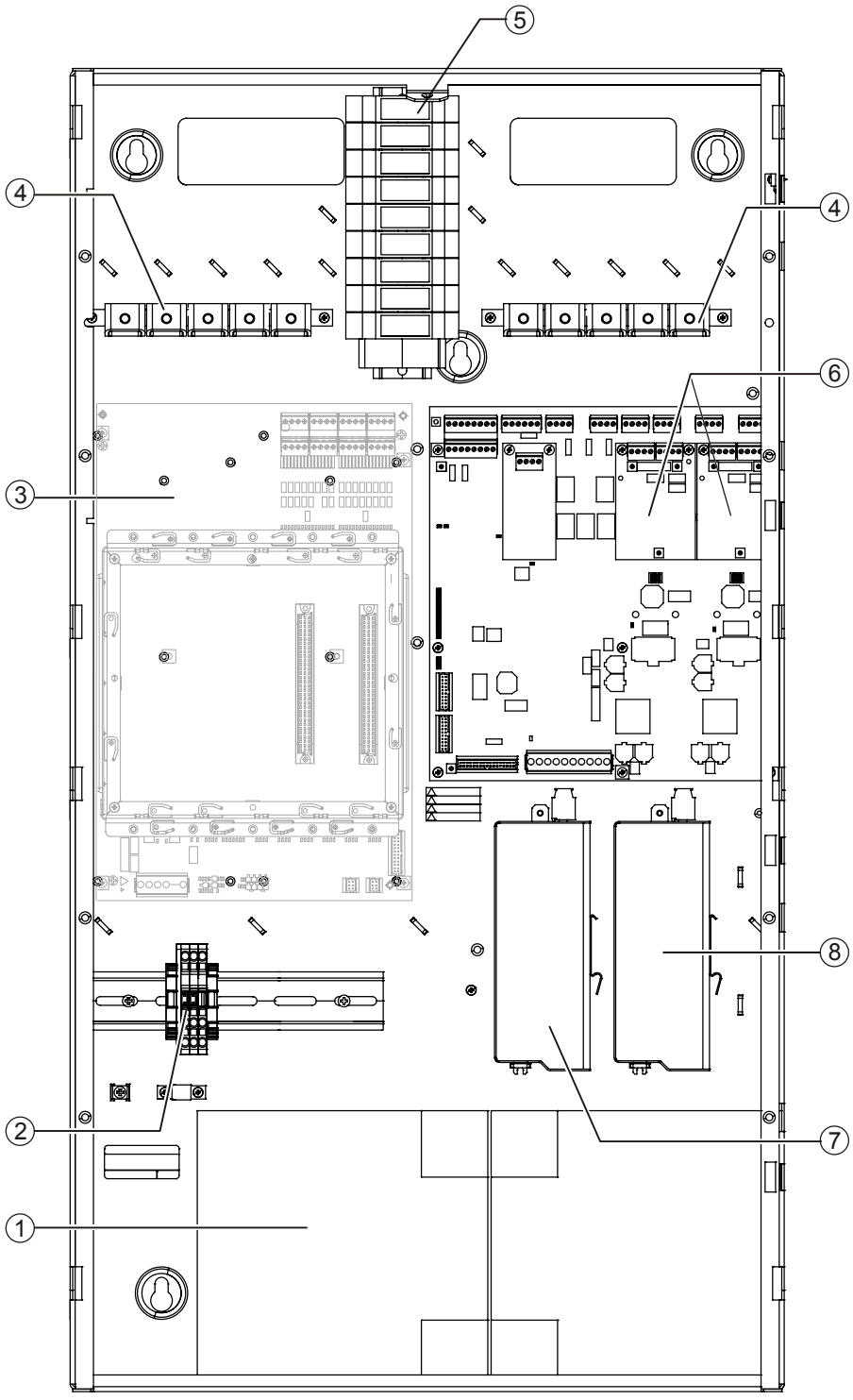


Figure 9: Components in the Comfort housing taking the example of fire control panel FC724 with a second power supply

1 Batteries

2 Mains separator terminals on DIN rail

3 FC722 and FC724: space for more options (e.g. fire brigade periphery module [DE]), or sounder module FC723: Card cage (2 slots)

4 Shield connection terminal blocks [DE] or cable kit (communication), (option)

5 Relay module (option) on DIN rail

6 Loop extensions (C-NET) (option)

7 Power supply (150 W), mounted horizontally as standard

8 Additional power supply (150 W) (option)

3.4.4 Components in the Large housing (fire control panels)

Fire control panel FC726 is installed in the Large housing as standard.

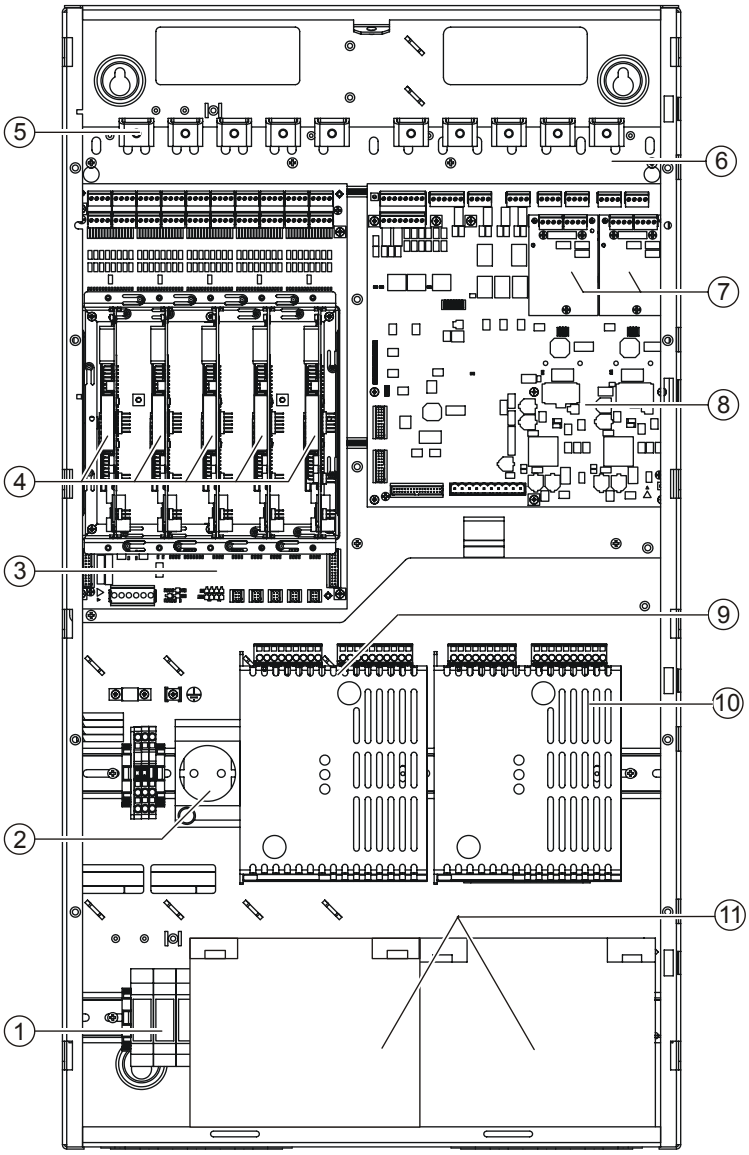


Figure 10: Example: Components in the Large housing taking the example of fire control panel FC726 with cascaded power supply

1 Relay module (option) on DIN rail
2 Socket (option) on DIN rail
3 Card cage (5 plug-in cards)
4 Module bus cards (max. 5) in card cage
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 (C-NET) (option)
8 Periphery board (4 loops)
9 Additional power supply (150 W) (option)
10 Power supply (150 W)
11 Batteries

3.4.5 Components on operating unit

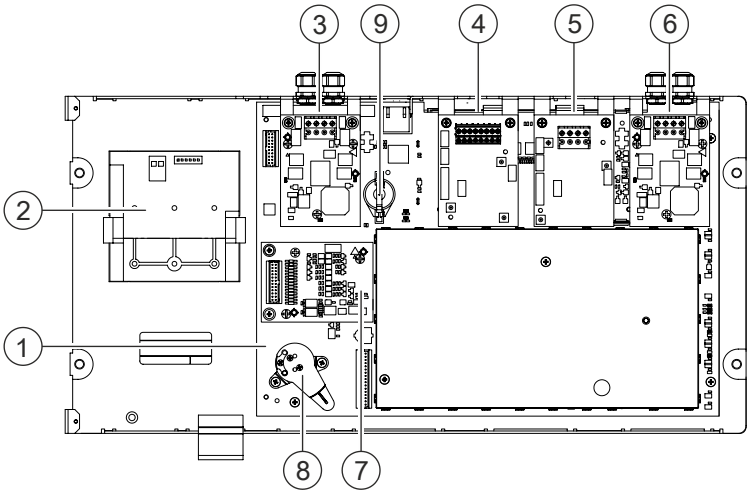


Figure 11: Components on the operating unit with PMI & mainboard FCM2027

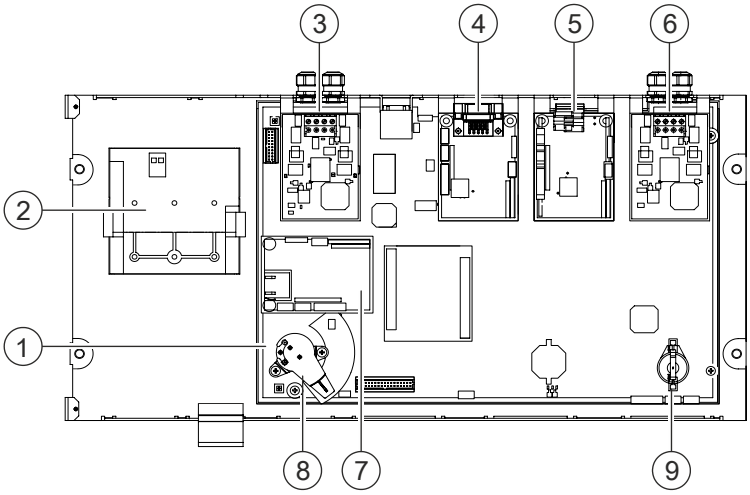


Figure 12: Components on the operating unit with PMI & mainboard FCM2004

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 on X14 (for event printer or UFP 'universal fire protocol') (option)

5 Slot 2 [SER_OPT2] for the second serial module on X19 (for UFP or EVAC-NL) (option)

6 Degraded mode network module (SAFEDLINK) on X12 (option)

7 Connection module (card cage) on X11 (standard with FC723 and FC726)

8 Key switch (Kaba or Nordic), (option)

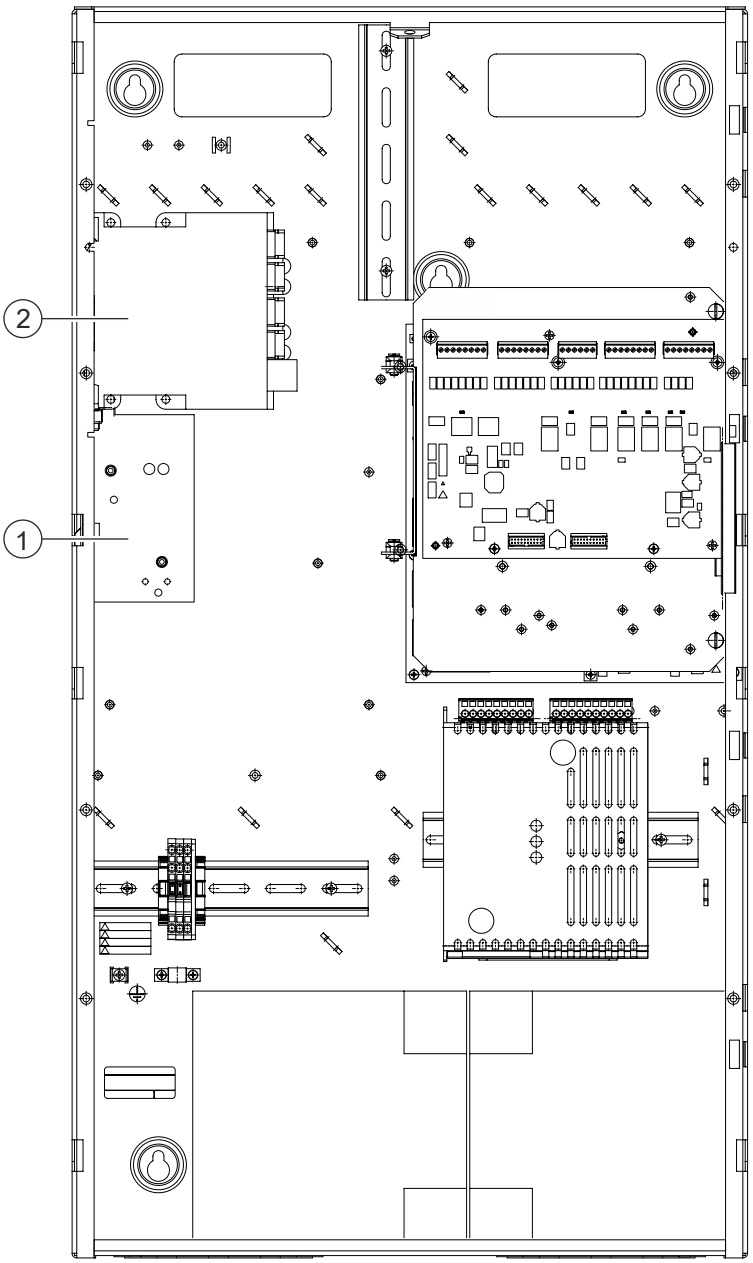
9 License key (option)

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

3.4.6 Position of modules for extended networking

3.4.6.1 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 FC724-ZA with fire brigade periphery module FCI2001-D1.



1 Mounting kit (switch, Comf.), installation bracket with two DIN rails

2 FN2008-A1 or FN2009-A1

3.4.6.2 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 FC722. An additional empty housing (Eco or Standard) is needed for this application and is fitted under the fire terminal.

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

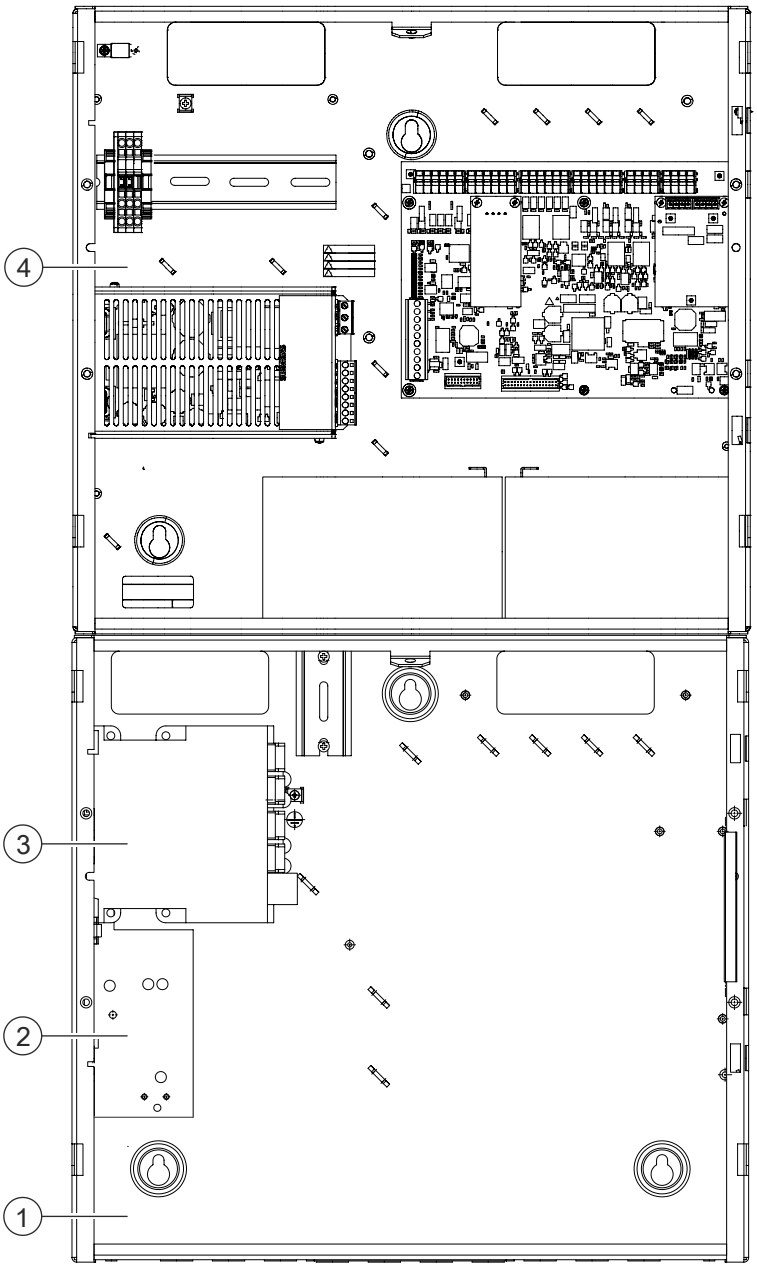


Figure 13: Example of module arrangement with fire control panel in the Standard housing with an additional empty housing (Eco)

1 Housing (Eco) FH7201-Z3, empty
2 Mounting kit (switch, Comf.), mounting bracket with two DIN rails
3 FN2008-A1 or FN2009-A1
4 Fire control panel FC722 in the housing (Standard)

3.4.6.3 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 FT724. An additional empty housing (Eco) is needed for this application and is fitted under the fire terminal.

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

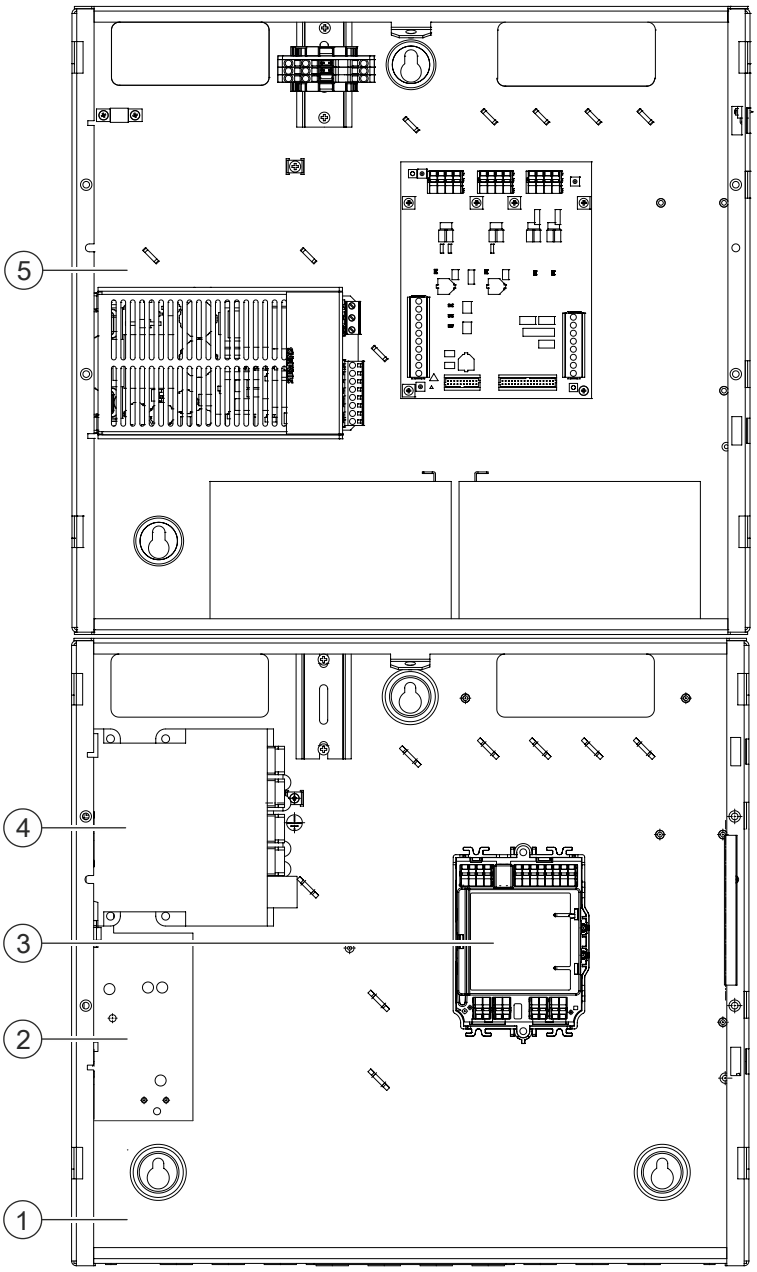


Figure 14: Sample structure of fire terminal with FN2008-A1 or FN2009-A1 in additional housing

1 Housing (Eco) FH7201-Z3, empty
2 Installation kit (switch, comf.)
3 I/O module for alarming the detector contact
4 FN2008-A1 or FN2009-A1
5 FT724 fire terminal with optional power supply and batteries

4 Mounting procedure

The following mounting processes are described in the following chapters:

- 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.
- Mains connection is current-free

Mounting steps

The mounting procedure described is basically an ideal procedure but does not have to be adhered to exactly.

⚠ WARNING

Electrical voltage

Mortal danger due to electric shock

- Before working on the station check that the cable is disconnected from the mains supply.
- Check to make sure that the mains is secured against inadvertently being switched on.
- The components must be installed by an expert.

!

NOTICE

Damage to hardware

- Undertake all mechanical work before installing the station and fitting the components.
- 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 operating add-on (if available) on the hinge of the rear panel and wire this 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(s) and screw into place.
9. Finally the type plate must be mounted on the outside of the control panel housing so that it is clearly visible (provision EN 54-2). The installation number (No.:) and the date of commissioning (Date:) must be completed upon commissioning.

⇨ The station is then ready for commissioning.

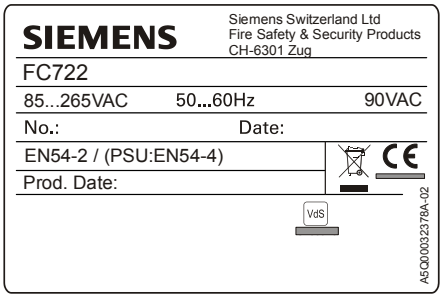


Figure 15: Example of a type plate

5 Mounting and assembling a station

5.1 Install rear panel

5.1.1 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

⚠ WARNING

Electrical voltage

Electric shock

- The mains supply may only be connected by an expert.

⚠ WARNING

Heat bridge between the station and mounting surface caused e.g. by overheating of the batteries

Danger of fire

- 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 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

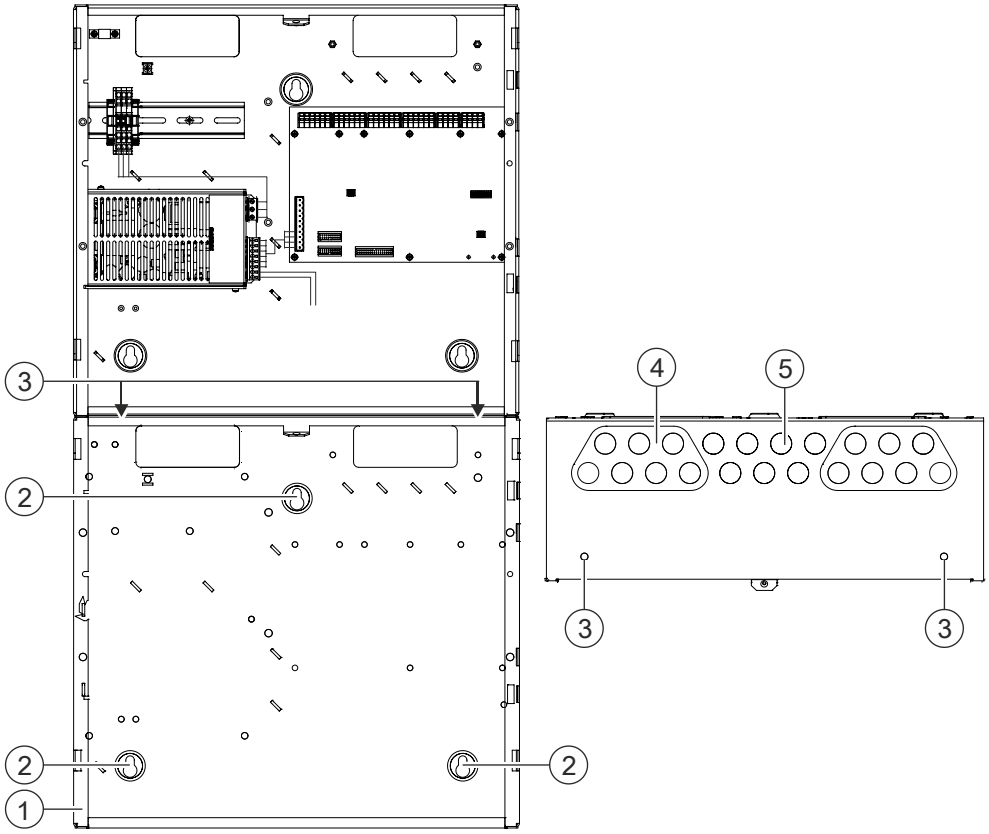


Figure 16: Mounting additional housing (example: Standard housing), view from the front and view of the additional housing from above

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

- 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

- If you assemble two housings one on top of the other, you fit the batteries in the lower housing.

5.3 Connect the mains cable

5.3.1 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.

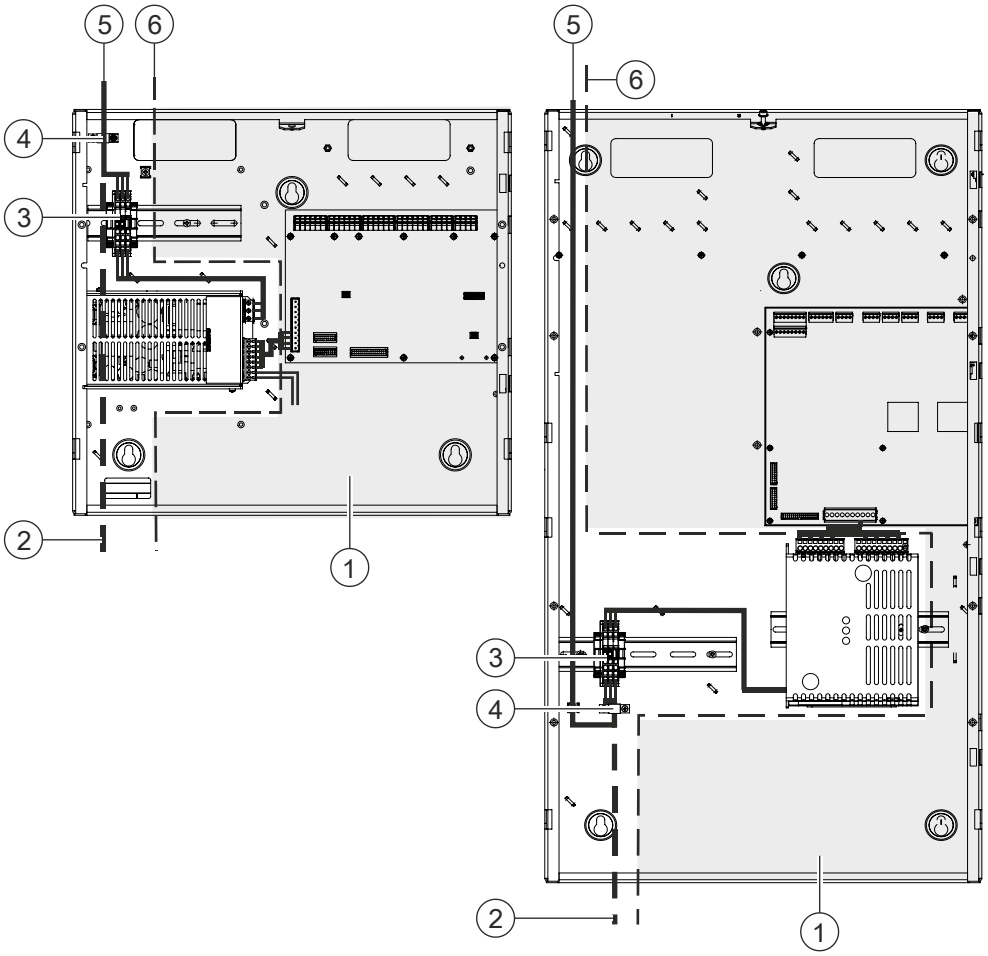


Figure 17: Laying the mains cable for the Standard housing (left) and the Comfort housing (right)

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

- 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.

5.3.2 Standard connection

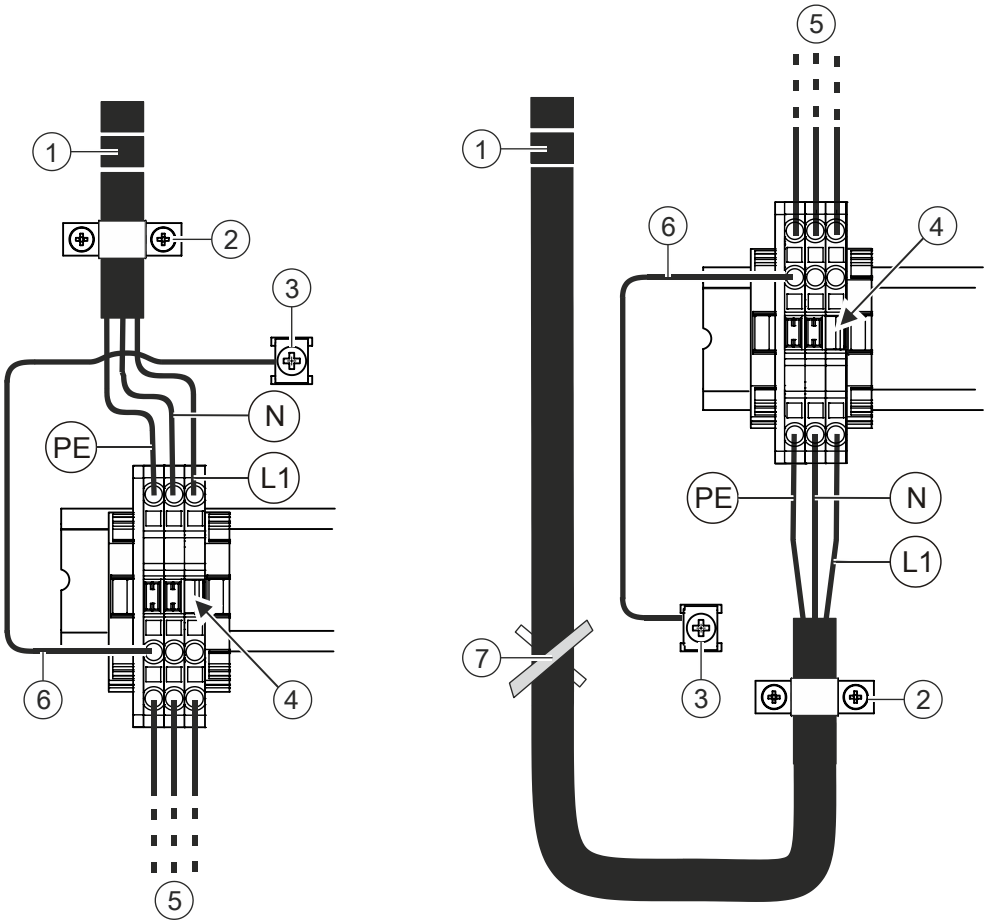


Figure 18: Mains connection in the Standard housing (left) and the Comfort housing (right)

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 disconnector)

5.4 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.

5.4.1 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 A6V10210368 and in the planning document A6V10210362.

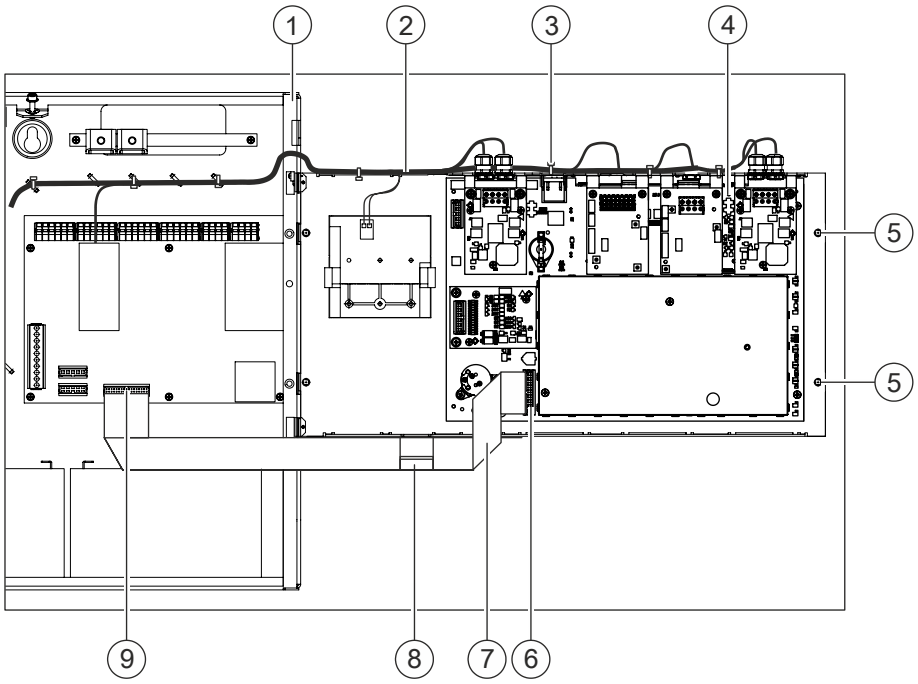


Figure 19: Mounting of the operating unit with PMI & mainboard FCM2027

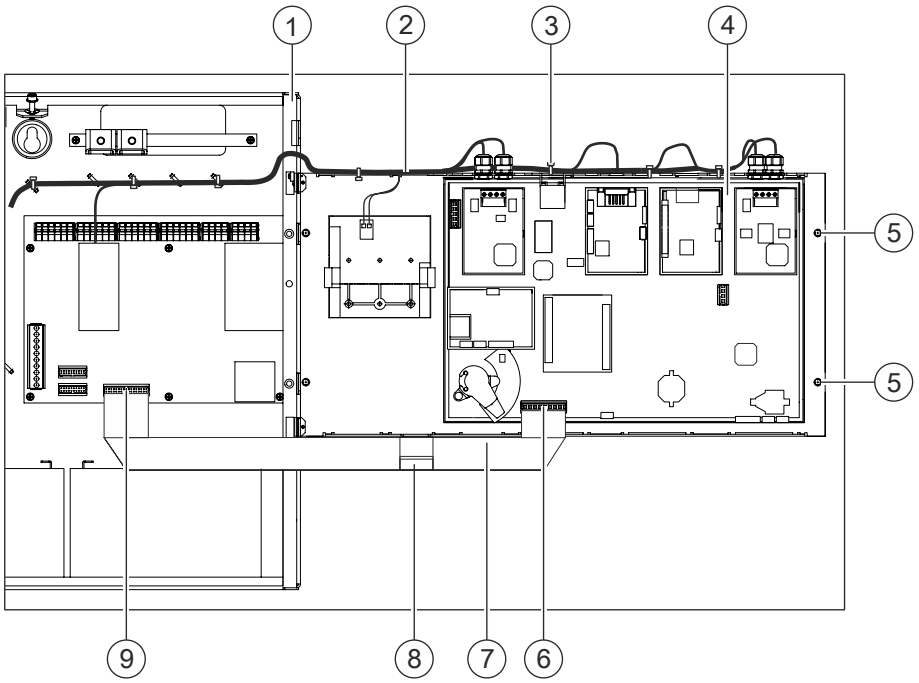


Figure 20: Mounting of operating unit with PMI & mainboard FCM2004

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

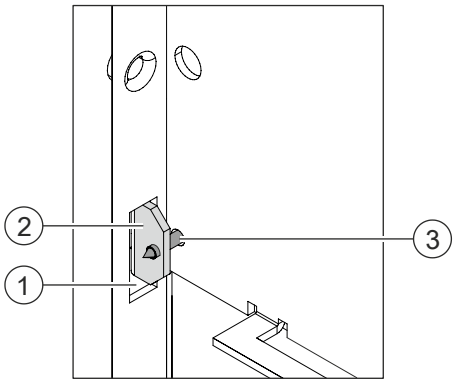


Figure 21: Detail view of the hinge of the operating unit

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.

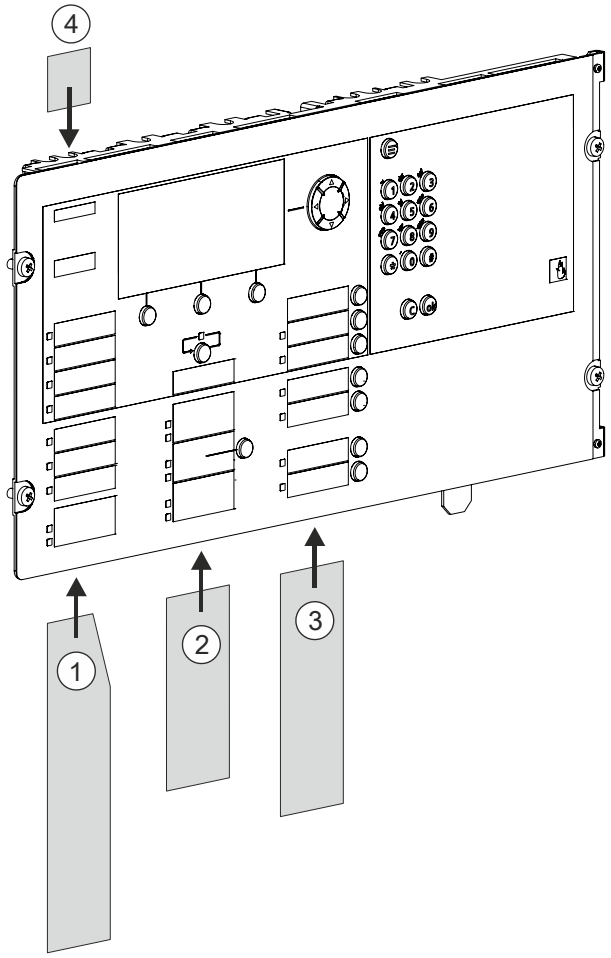


Figure 22: Inserting the inscription strips into the operating unit

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

5.4.2 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.

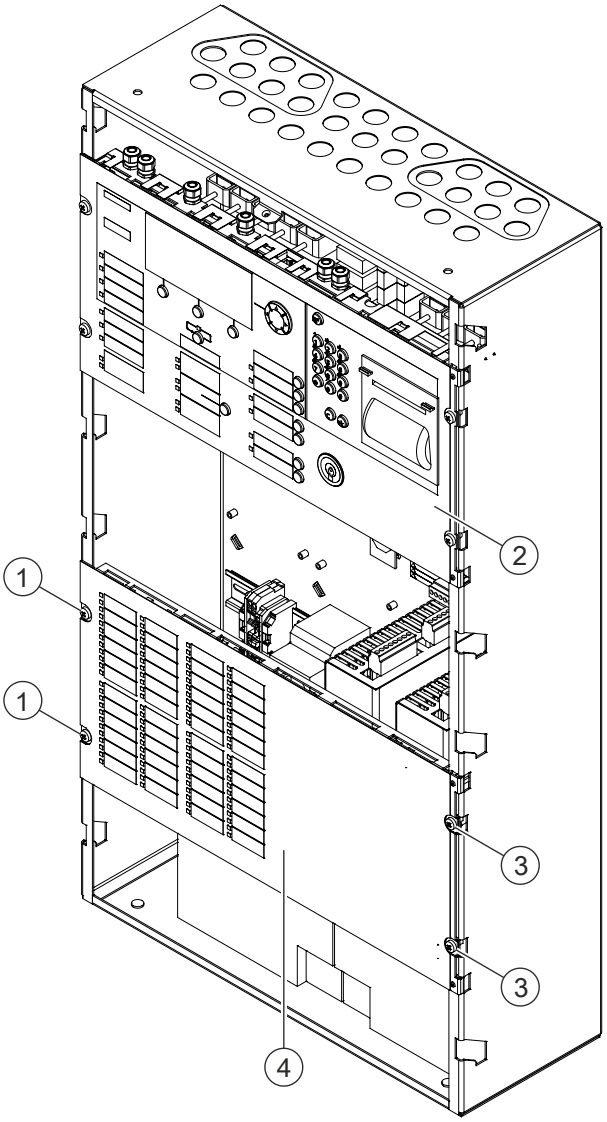


Figure 23: Example view of Comfort housing with operating add-on

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

5.5 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.

6 Installing, exchanging and connecting modules

This chapter describes how to install and connect modules in stations. This is relevant for the installation of options and replacement of components for service purposes.

The components are dismantled in reverse sequence of installation.

Prerequisites

- The housing has been installed.
- The openings for passing through cables have been broken out.
- The mains cable has been connected and is current-free.
- The batteries are not installed or connected.

6.1 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 A6V10210416, Commissioning, maintenance, troubleshooting.

If you return the operating unit for repairs, you have to remove all options, incl. the license key.

6.2 Periphery board (2-loop)

6.2.1 Installation

The periphery board (2-loop) FCI2002-A1 is mounted in the fire control panels in the factory and only has to be replaced in the event of a repair.

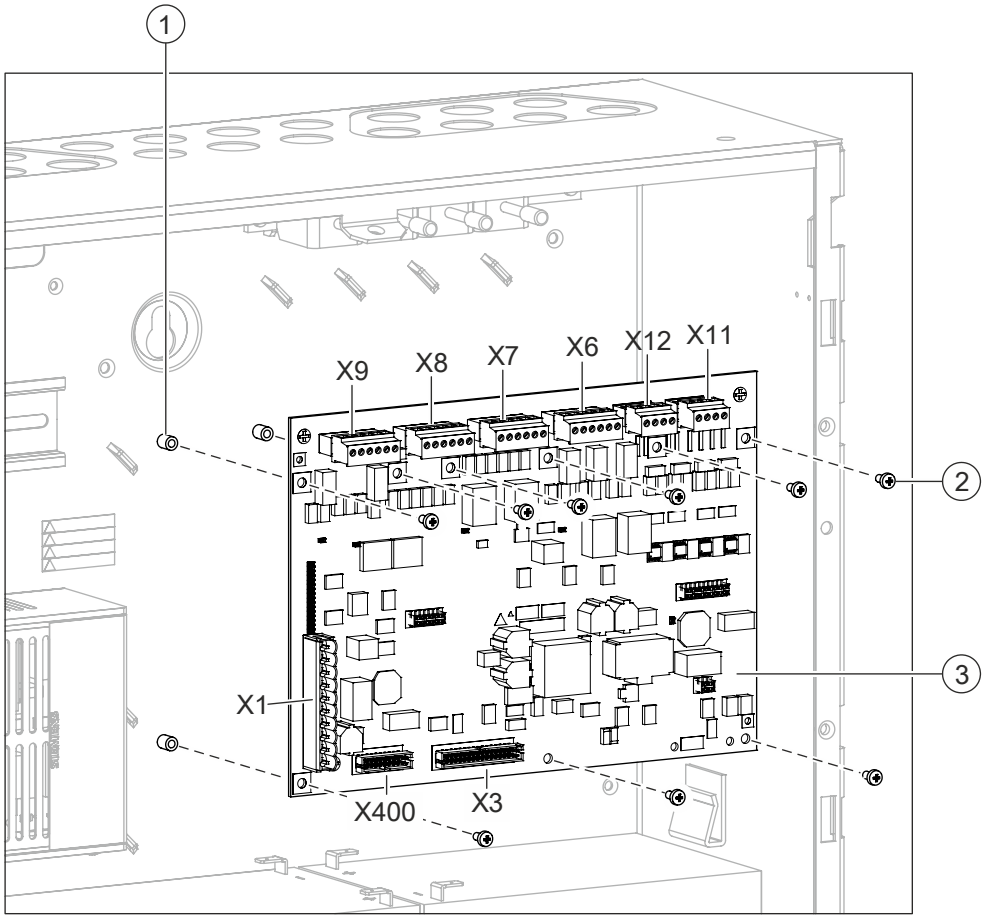


Figure 24: Mounting of periphery board (2-loop)

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.

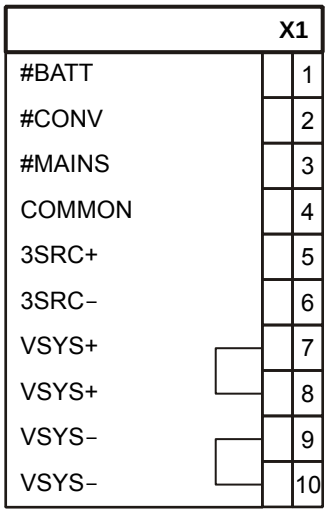
6.2.2 Pin assignments

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

6.2.2.1 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 (–)

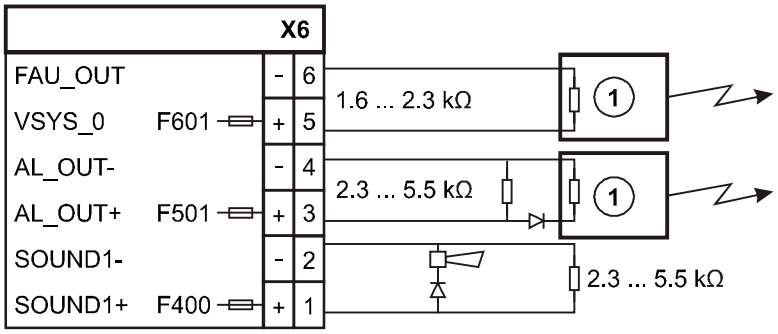
Admissible cable cross-section: 0.2…2.5 mm²



6.2.2.2 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

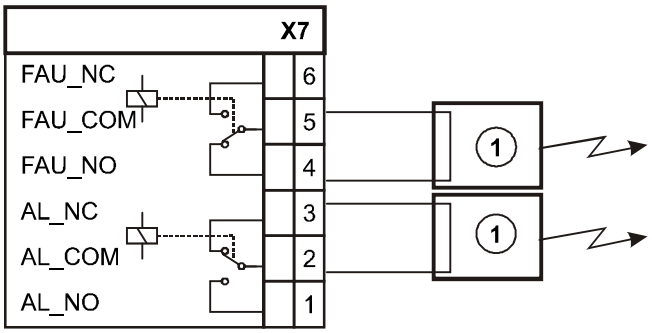


1 Remote transmission

6.2.2.3 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

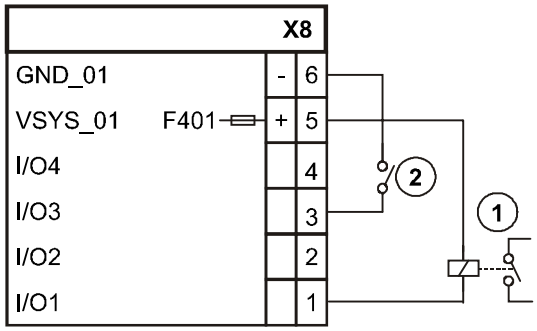


1	Remote transmission
FAU_…	Diagram of relay in ↑ normal operation = contact 5/4 closed
AL_…	Diagram of relay in normal operation = contact 2/3 closed

6.2.2.4 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:

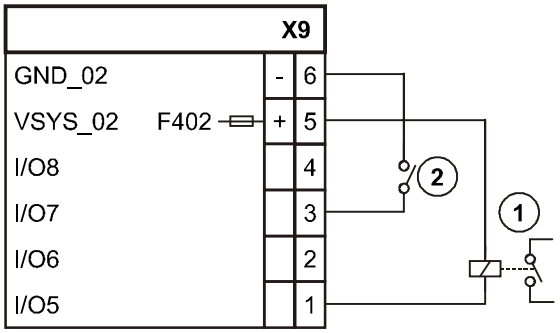
1 Configured as output

2 Configured as input

6.2.2.5 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:

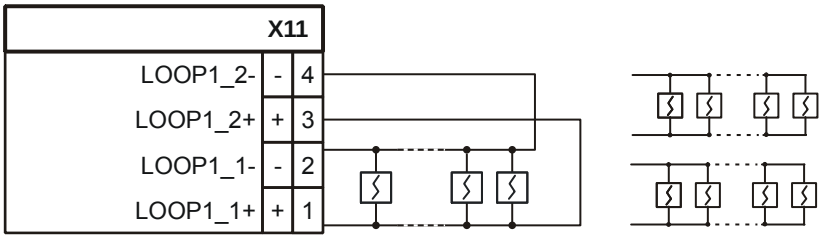
1 Configured as output

2 Configured as input

6.2.2.6 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

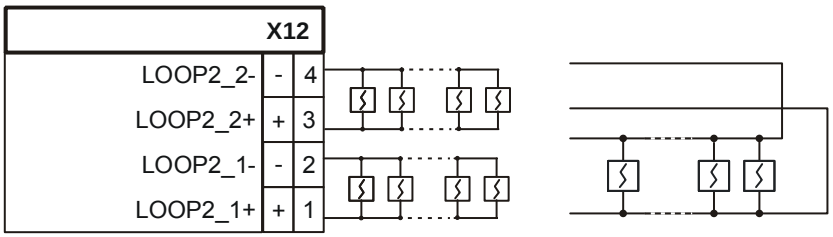


One ↑ loop or two ↑ stubs can be connected.

6.2.2.7 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.

6.3 Periphery board (4 loops)

6.3.1 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.

Prerequisites

- Components that make access to the periphery board difficult are removed (e.g. mounting plate).
- All connections and plug connectors are disconnected (label cables before disconnecting them).
- The periphery board is removed.

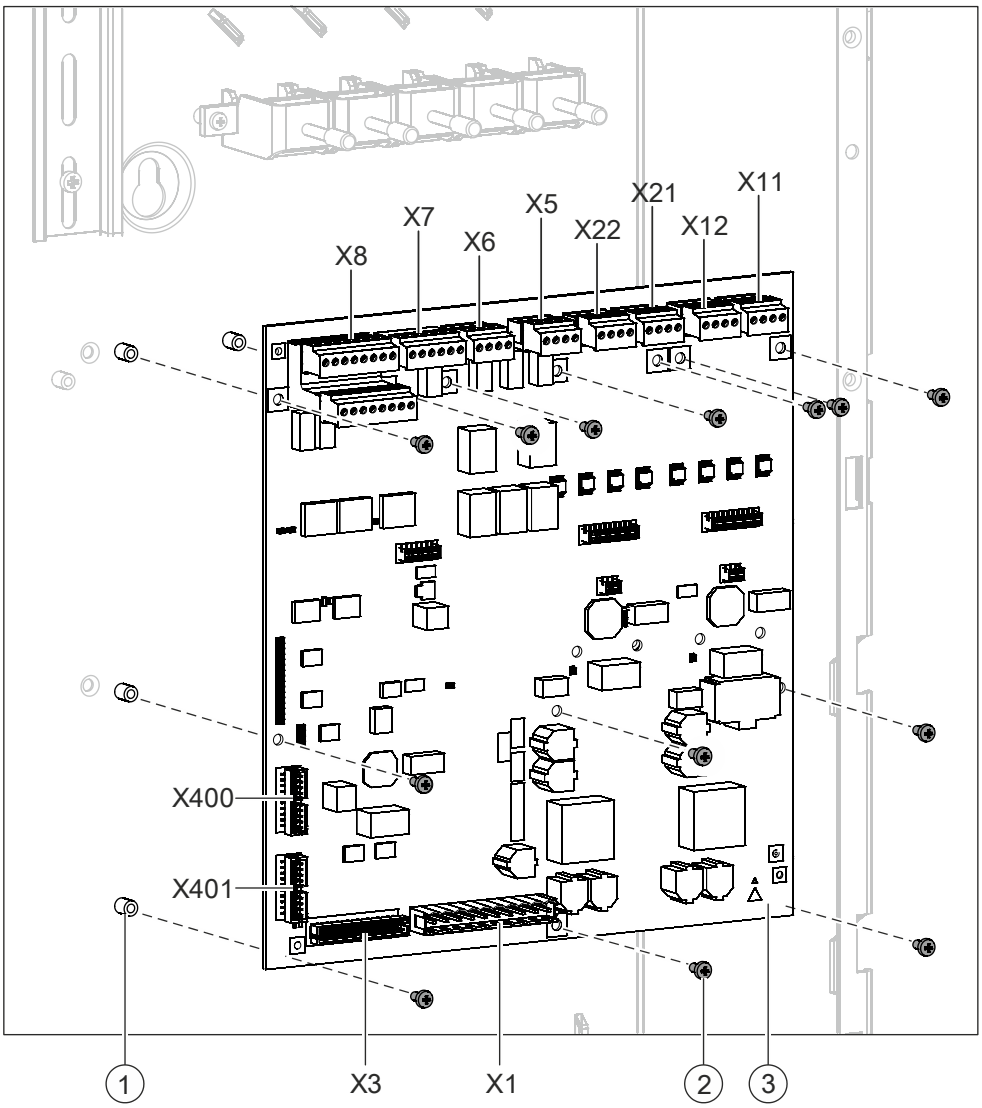


Figure 25: Mounting of the periphery board (4 loops)

1	Threaded bolts on rear panel
2	13 fixing screws
3	Periphery board (4 loops)
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

Mounting steps

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.
2. Wire up the periphery board (4-loop) according to the pin assignments below.
3. Re-install any modules that you may have had to remove.

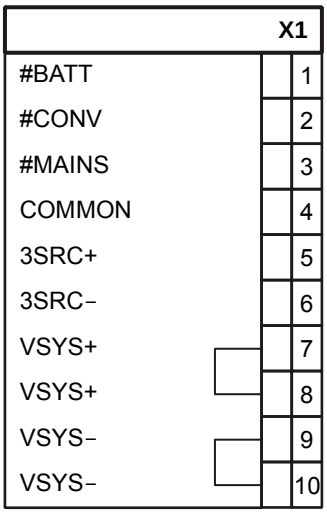
6.3.2 Pin assignments

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

6.3.2.1 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+	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 (–)

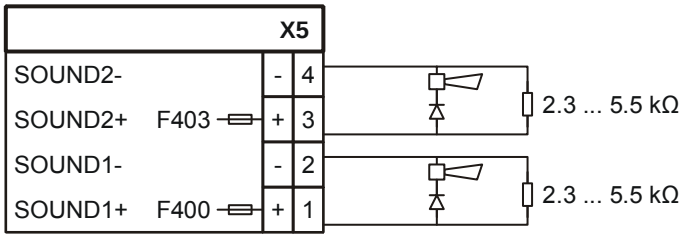
Admissible cable cross-section: 0.2…2.5 mm²



6.3.2.2 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 (+)

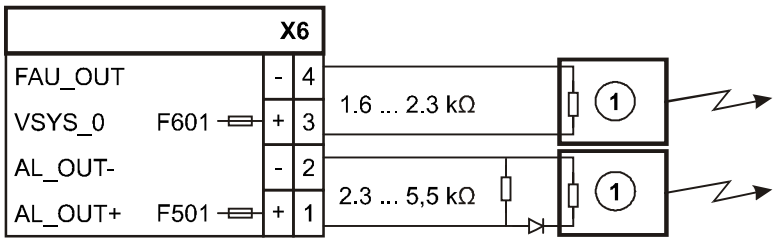
Admissible cable cross-section: 0.2…1.5 mm²



6.3.2.3 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

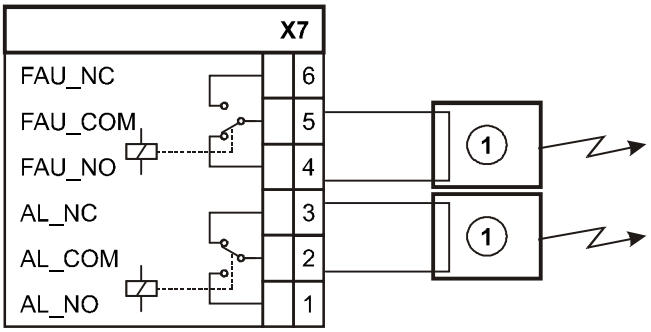


1 Remote transmission

6.3.2.4 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

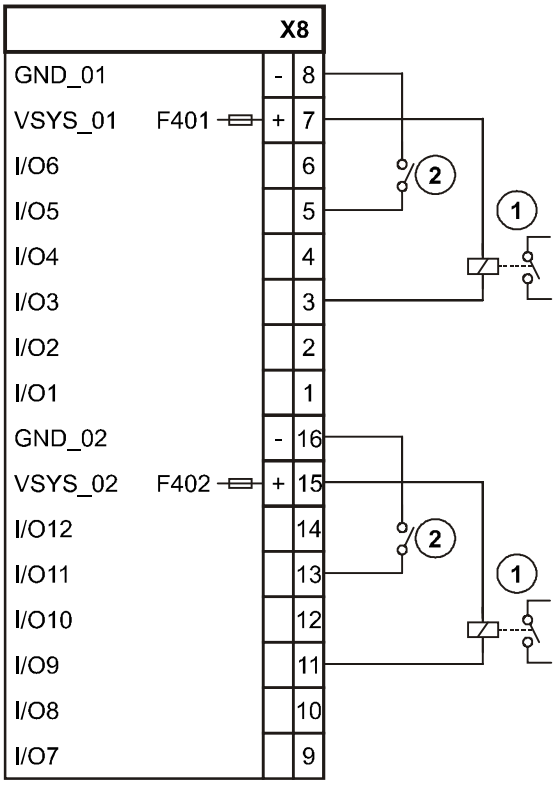


1	Remote transmission
FAU_…	Diagram of relay in ↑ normal operation = contact 5/4 closed
AL_…	Diagram of relay in normal operation = contact 2/3 closed

6.3.2.5 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

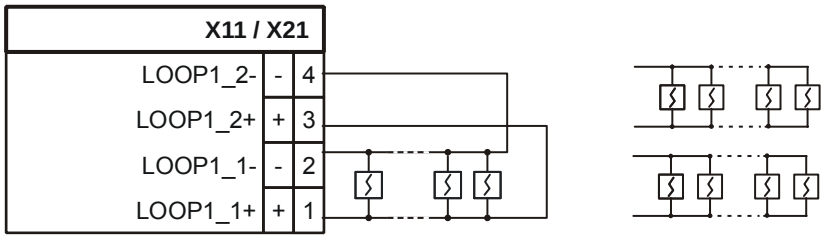
2 Configured as input

6.3.2.6 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



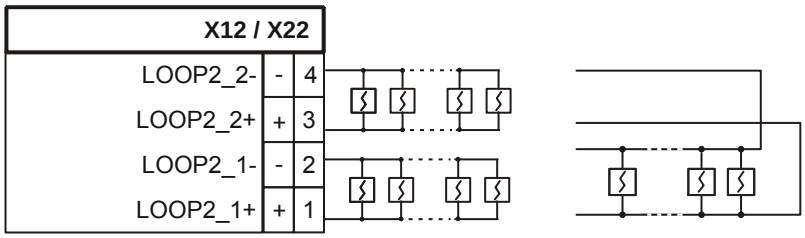
- The technical term LOOP 1 applies to both loops on connectors X11 and X21.
- One loop or two stubs can be connected.

6.3.2.7 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.

6.4 Fire terminal board

6.4.1 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.

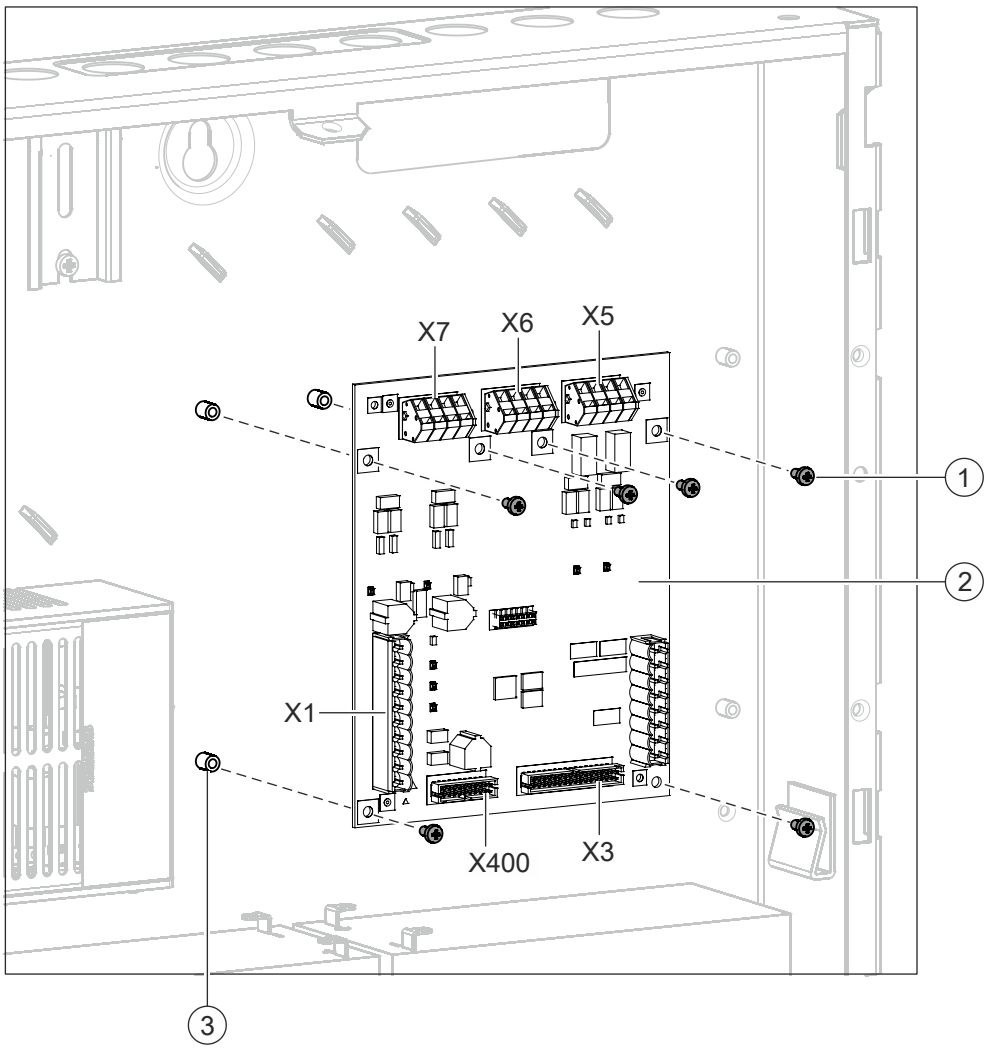


Figure 26: Mounting of fire terminal board

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.

6.4.2 Pin assignments

6.4.2.1 X1 supply

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

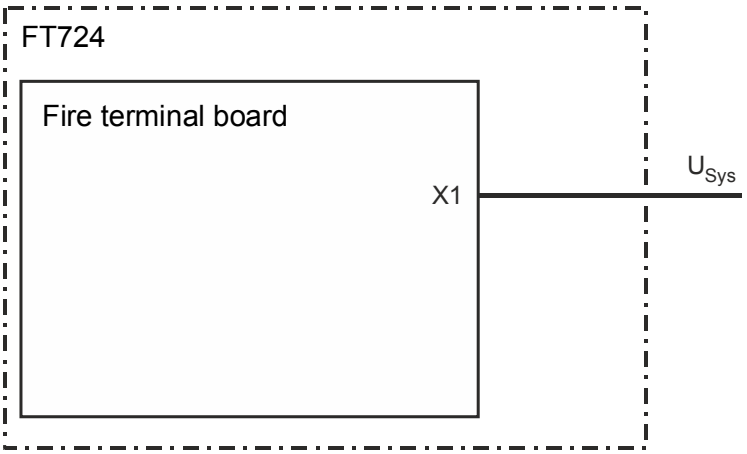
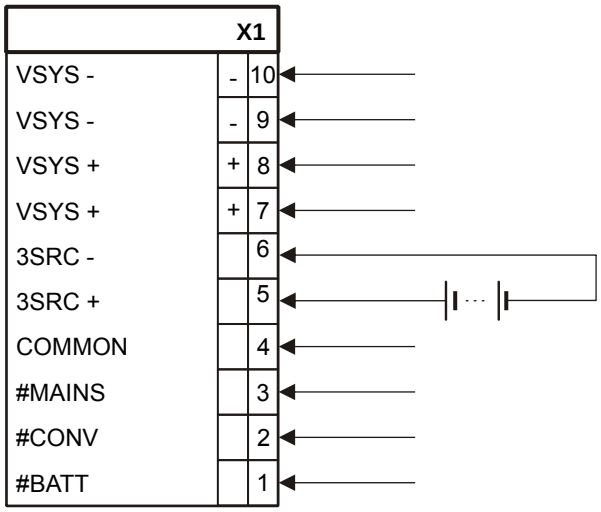


Figure 27: FTI2001-A1, supply input for external supply or fitted power supply (optional)

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

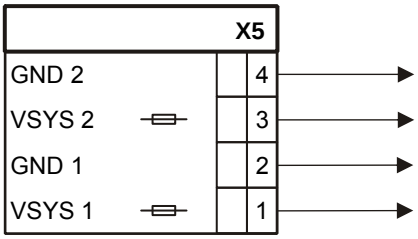
Admissible cable cross-section: 0.2…2.5 mm²



6.4.2.2 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



6.4.2.3 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.

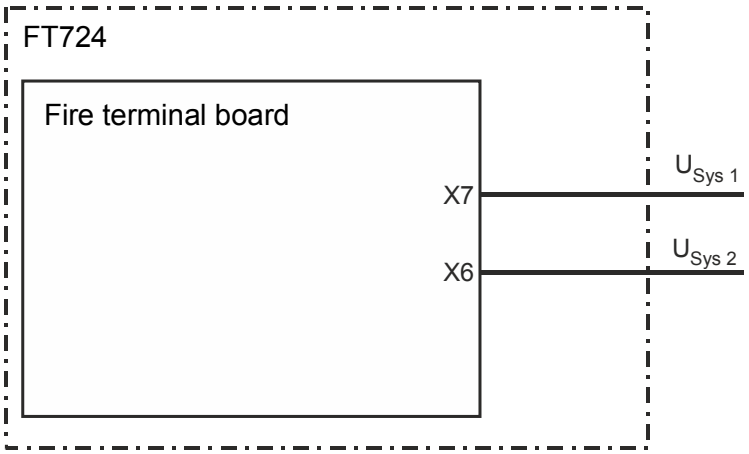
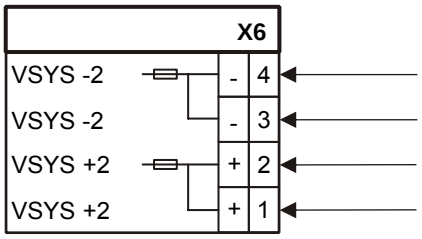


Figure 28: FTI2001-A1, supply via a fire control panel

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 (+)

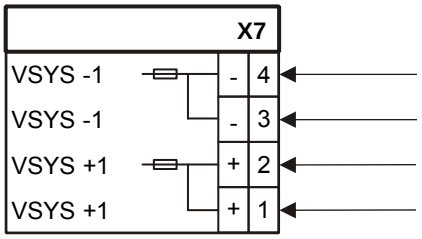
Admissible cable cross-section: 0.2…2.5 mm²



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



6.5 Power supply (70W)

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

- 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

- Before removing or fitting the power supply, remove the jumper wire between the two batteries.

⇨ This ensures that the secondary side is current-free and that no components can be damaged due to a short circuit.

6.5.1 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.

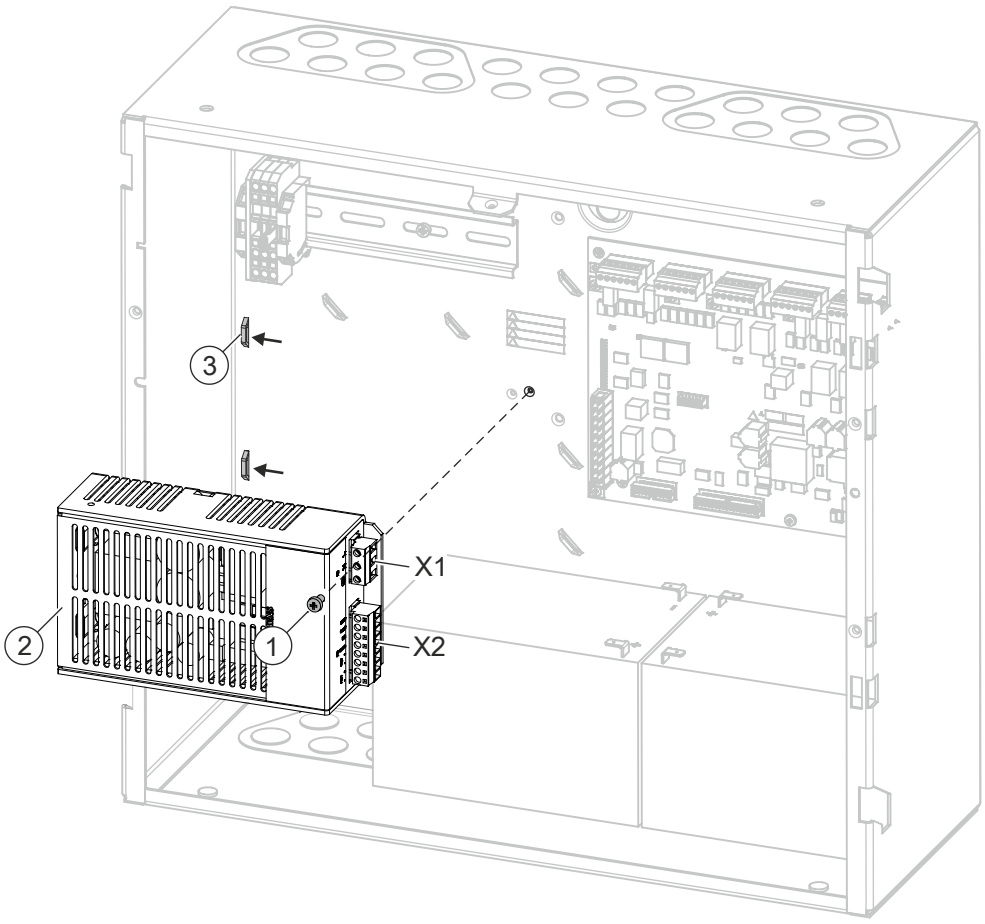


Figure 29: Example: Installation of the power supply (70 W) in the Standard housing

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.

6.5.2 Pin assignments

6.5.2.1 X1 mains connection

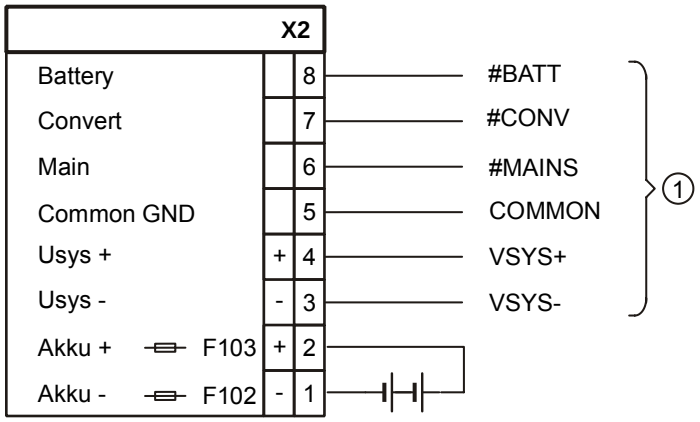
Pin	Designation	Description
1	⏚	Ground (protective conductor PE)
2	N	Neutral conductor
3	L	External conductor (L1)

Admissible cable cross-section: 0.2…2.5 mm²

6.5.2.2 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	Usys +	System supply (VSYS+)
3	Usys –	System supply (VSYS-)
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

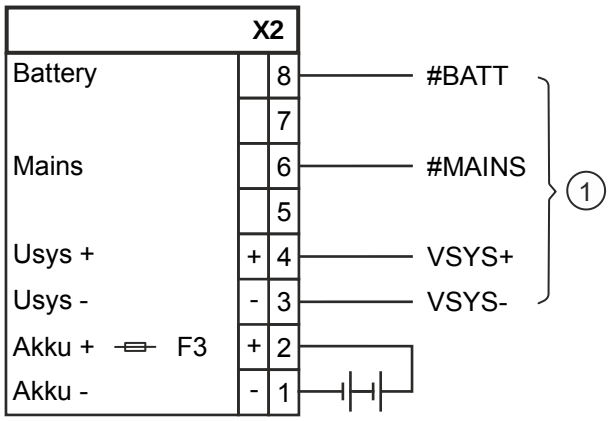
See also

- X1 supply [→ 49]
- X1 supply [→ 56]
- X1 supply [→ 64]

6.5.2.3 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	Usys +	System supply (VSYS+)
3	Usys –	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

6.6 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

- 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

- Before removing or fitting the power supply, remove the jumper wire between the two batteries.

⇨ This ensures that the secondary side is current-free and that no components can be damaged due to a short circuit.

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.

6.6.1 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

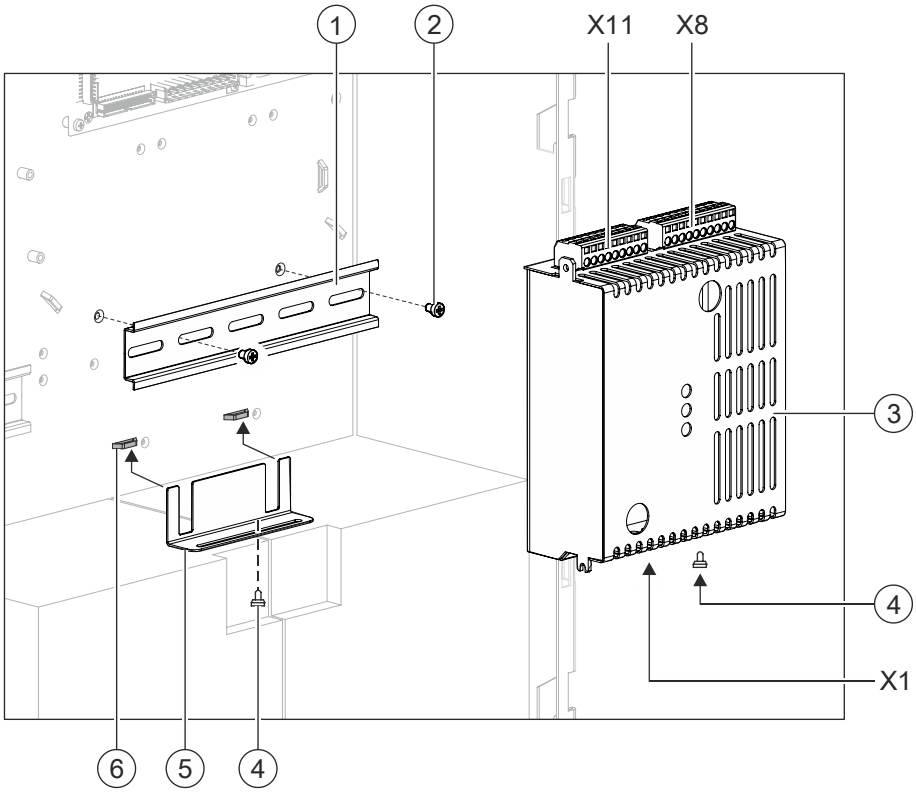


Figure 30: Installation of the 150 W power supply in the Comfort housing

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

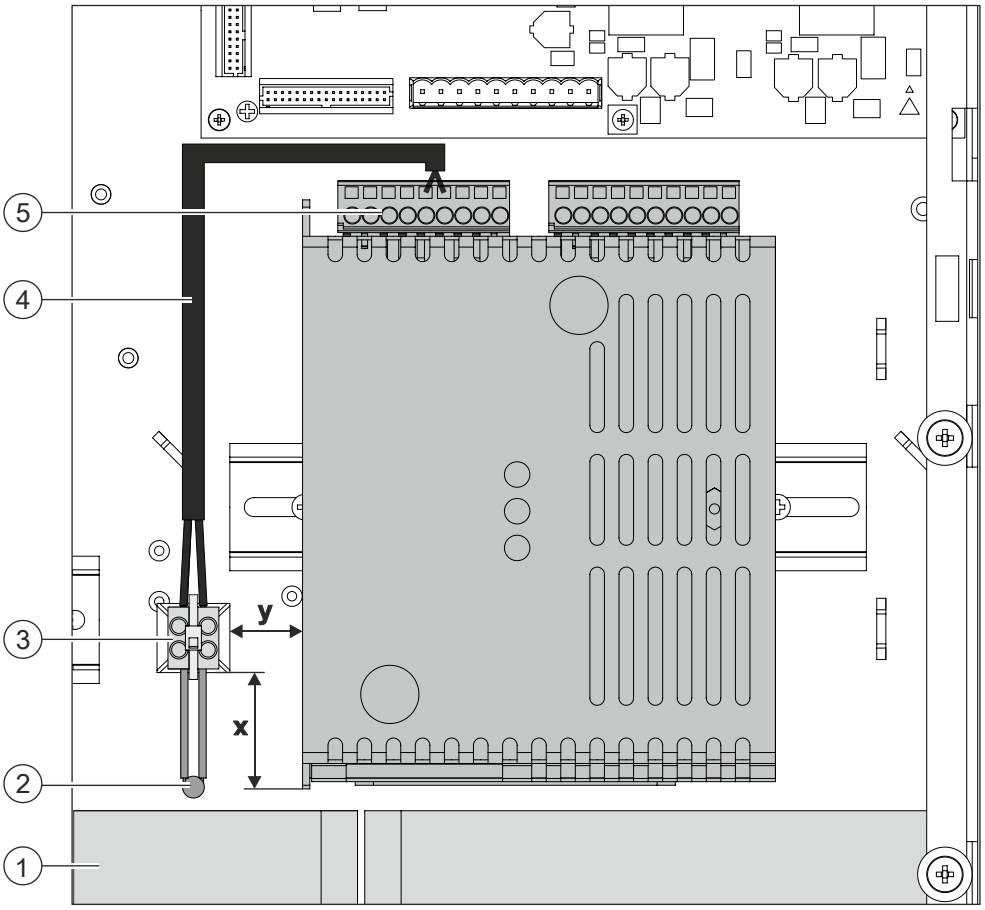


Figure 31: Position of temperature sensor in housing

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.

6.6.2 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

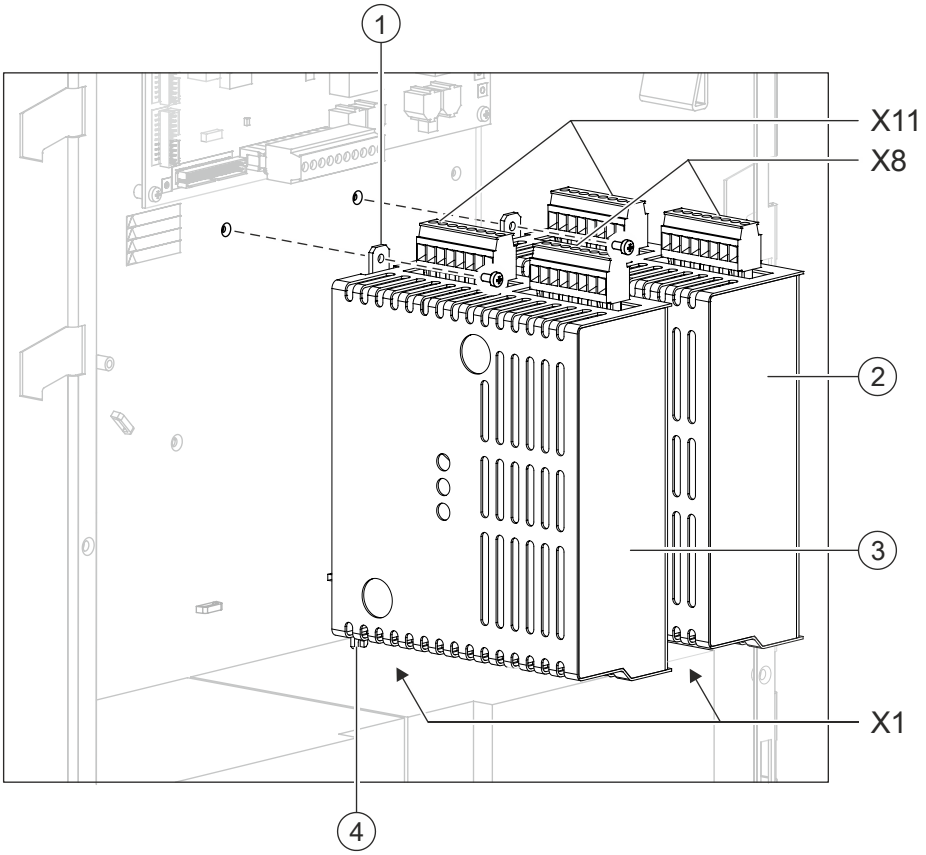


Figure 32: Installation of an additional power supply (150 W) in the Comfort housing

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

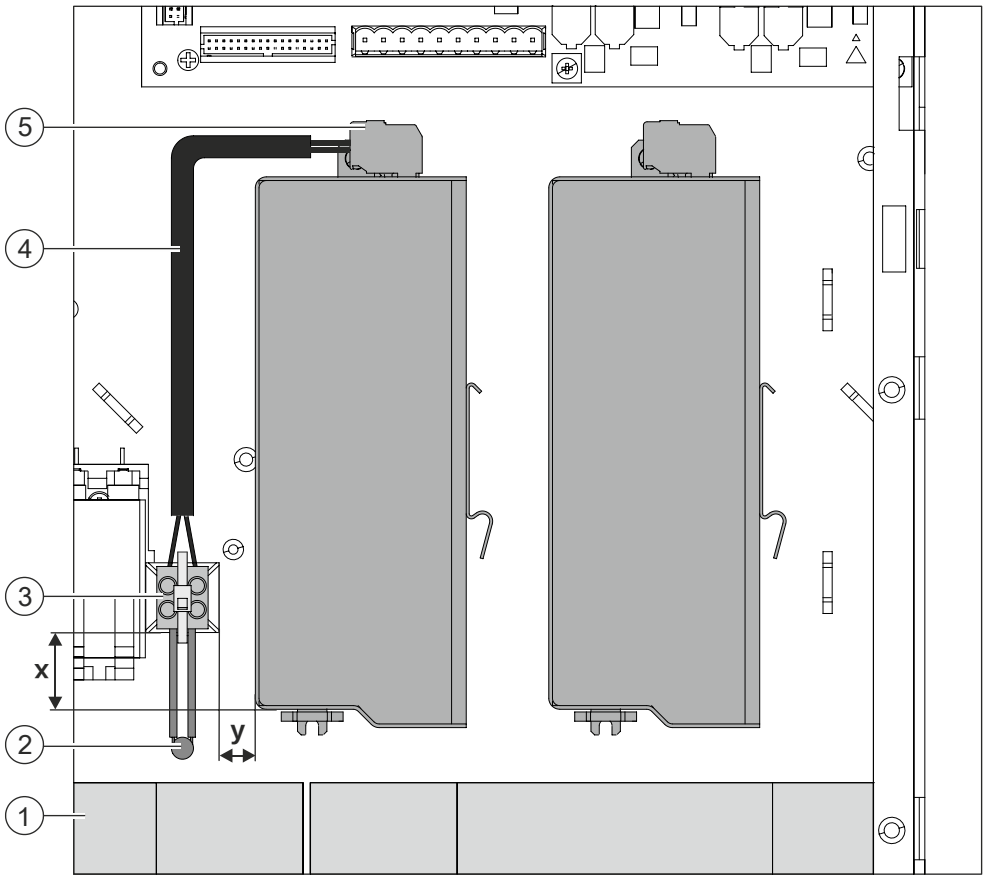


Figure 33: Installation of the temperature sensor

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.

6.6.3 Pin assignments version A4

6.6.3.1 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

6.6.3.2 X8 output voltage

Pin	Designation	Description
10	$+B_{I\text{-}begr.}$	Connection for battery, current limited via internal battery fuse F2 (without parallel switching)
9	$+B_{I\text{-}unbegr.}$	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.

6.6.3.3 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

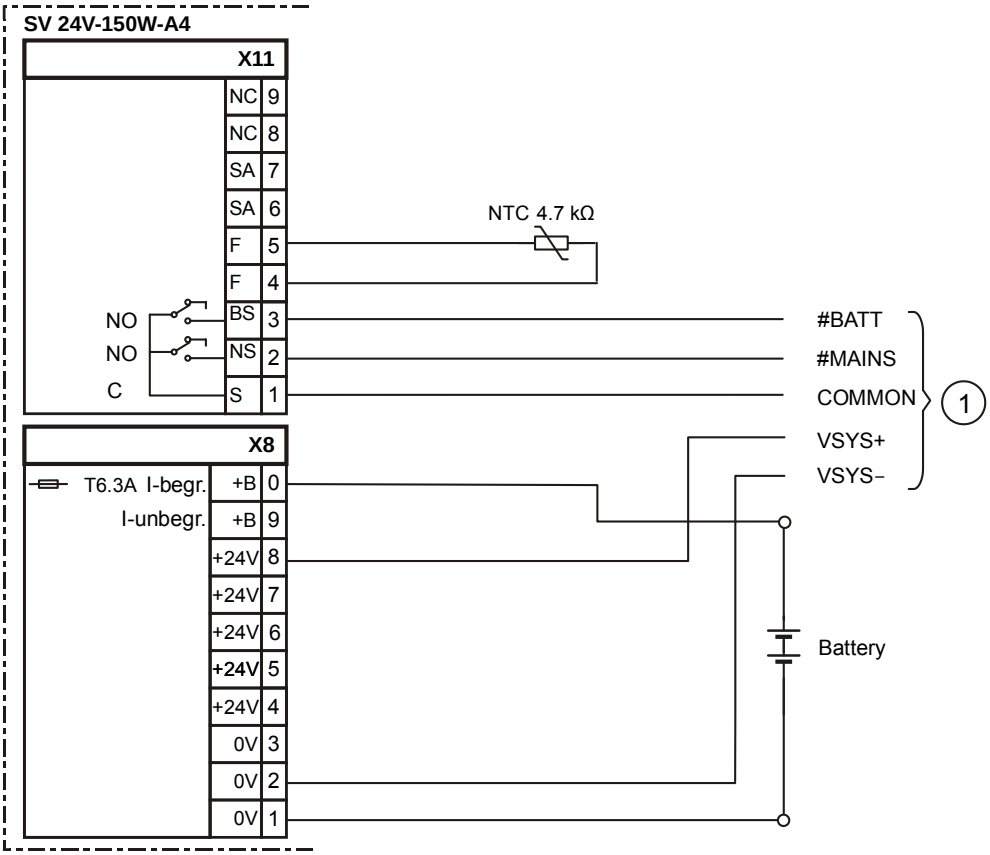


Figure 34: Wiring of the single power supply SV 24V-150W-A4

1 Cable tree to periphery board or fire terminal board

6.6.3.4 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.

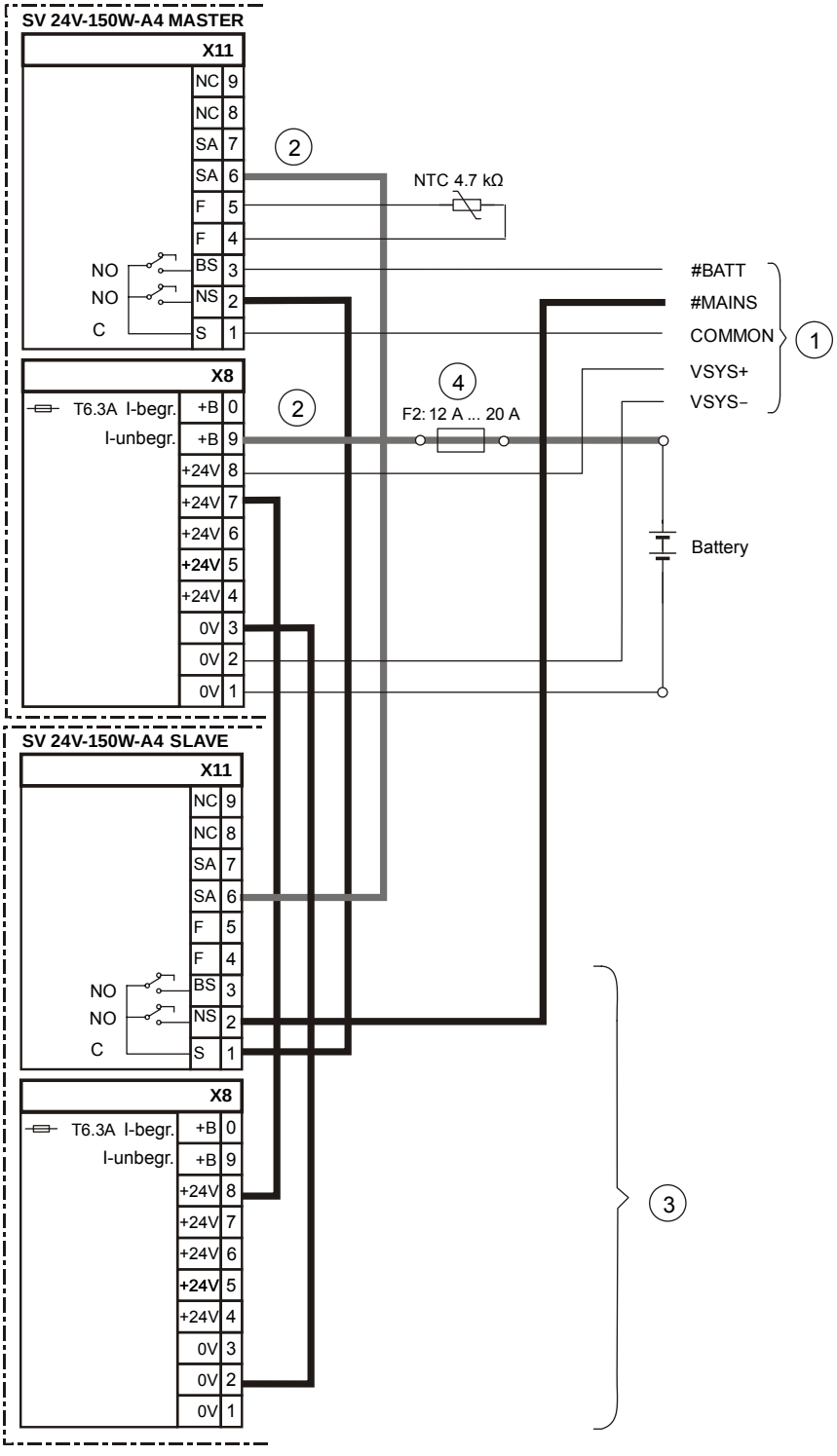


Figure 35: Parallel connection of two power supplies (150 W)-A4

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 A6V10210390).

6.6.4 Pin assignments version A5

6.6.4.1 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.

6.6.4.2 X8 output voltage

Pin	Designation	Description
10	$+B_{l\text{-begr.}}$	Connection for battery, current limited via internal battery fuse F2 (without parallel switching)
9	$+B_{l\text{-unbegr.}}$	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.

6.6.4.3 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

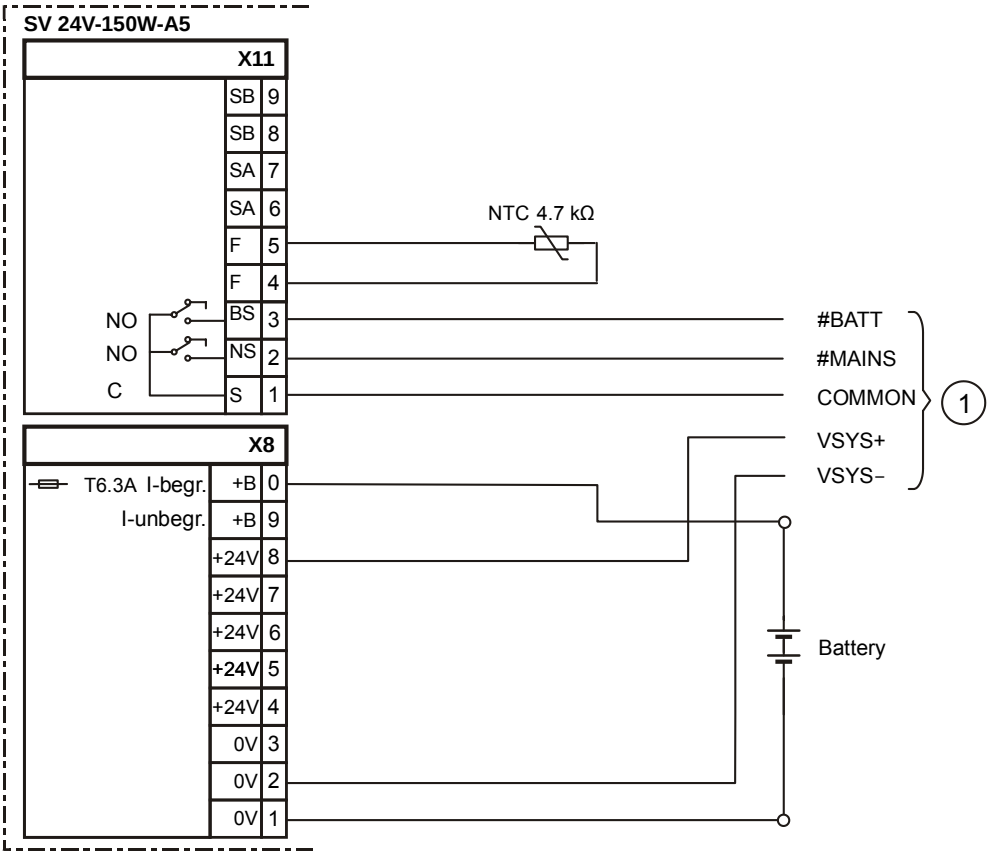


Figure 36: Wiring of the single power supply SV 24V-150W-A5

1 Cable tree to periphery board or fire terminal board

6.6.4.4 Parallel switching of two supply units

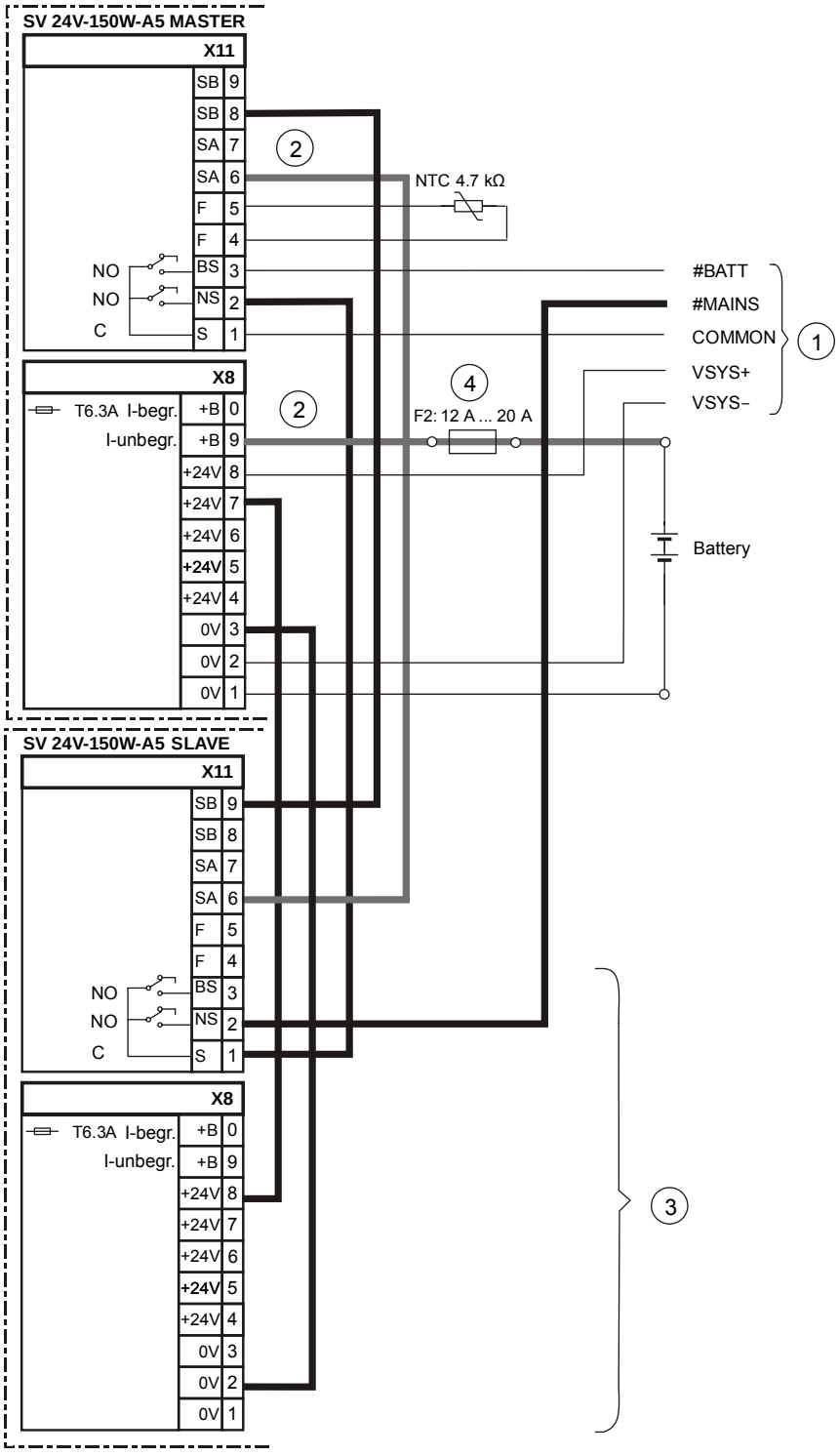


Figure 37: Parallel connection of two power supply units (150 W)-A5

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 A6V10210390).

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

6.6.4.5 Parallel switching of three supply units

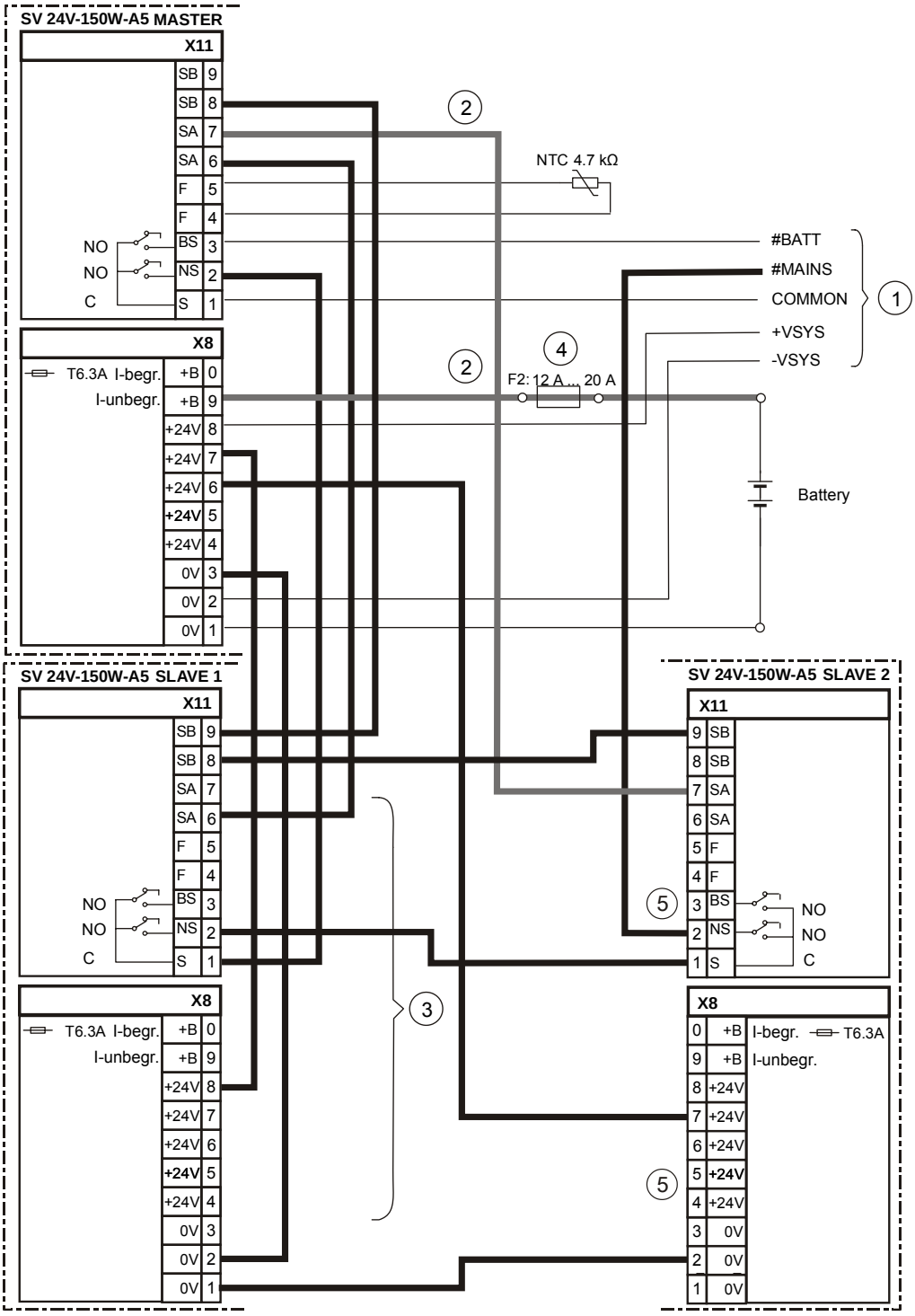


Figure 38: Parallel switching of three power supply units (150 W)-A5

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 A6V10210390).

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

6.7 Shield connection terminal blocks [DE]

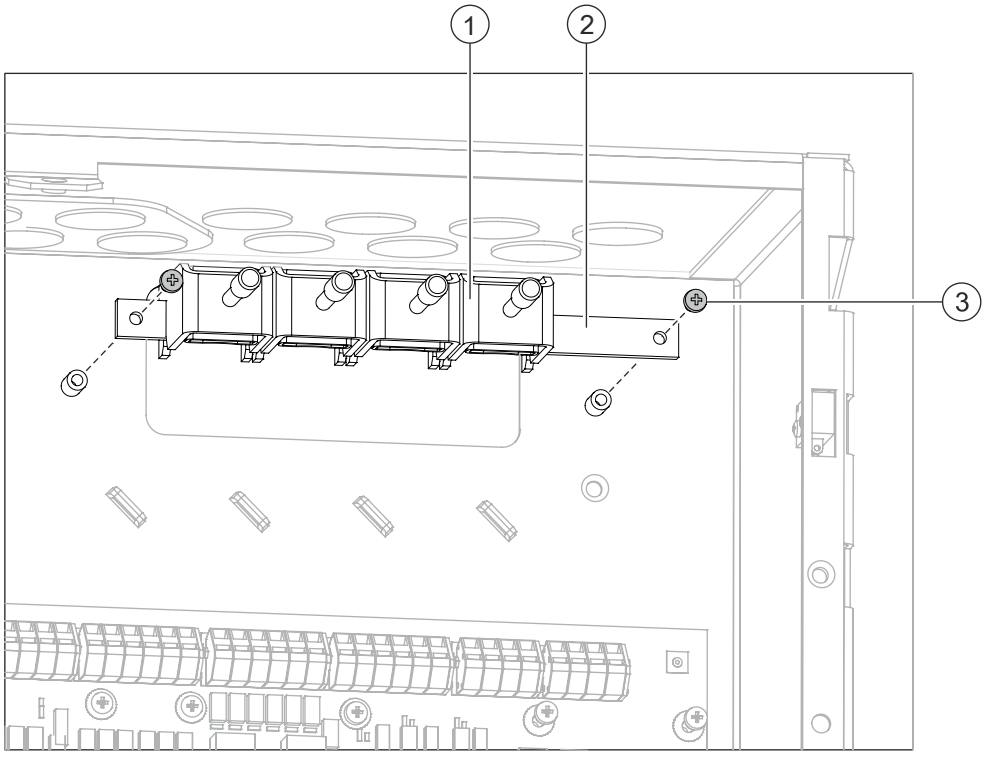


Figure 39: Mounting of the shield connection terminal blocks

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.

6.8 Loop extension

6.8.1 Installation

The loop extensions (C-NET) 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)

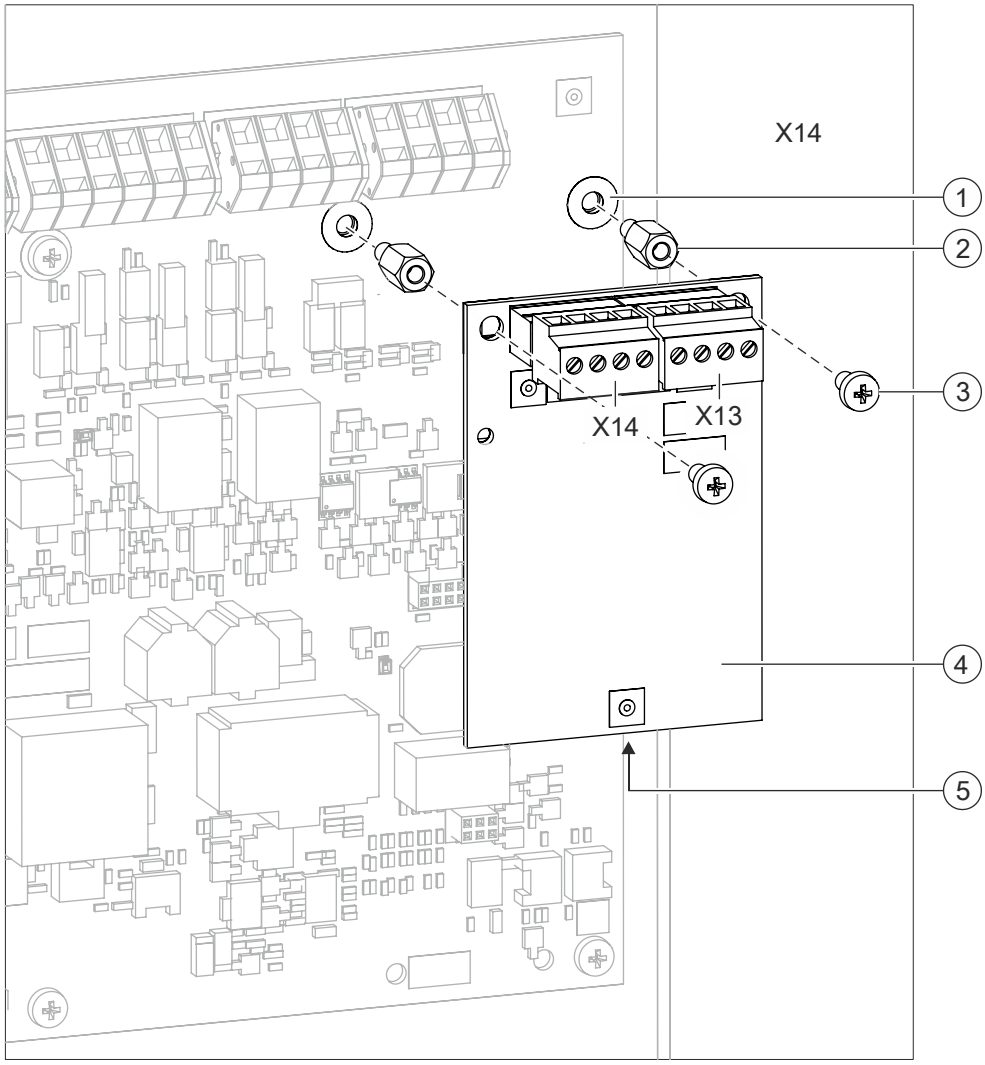


Figure 40: Installing a loop extension with the example of the periphery board (2-loop)

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

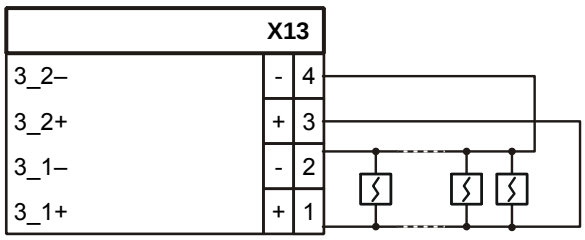
1. First, remove the relevant fixing screws (3) from the periphery board.
2. Screw the two spacer bolts (2) into the mounting holes (1) on the periphery board.
3. Mount the loop extension (C-NET) onto the connector (5) on the periphery board.
4. Screw the loop extension (C-NET) in place using the two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

6.8.2 Pin assignments

6.8.2.1 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

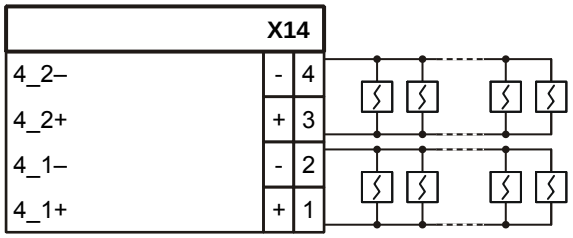


- One loop or two stubs can be connected to the ↑ loop extension (C-NET).
- The plug for the loop extension (C-NET) is always located at the corresponding ↑ detector line connection.

6.8.2.2 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 (C-NET).
- The plug for the loop extension (C-NET) is always located at the corresponding ↑ detector line connection.

6.9 Relay module

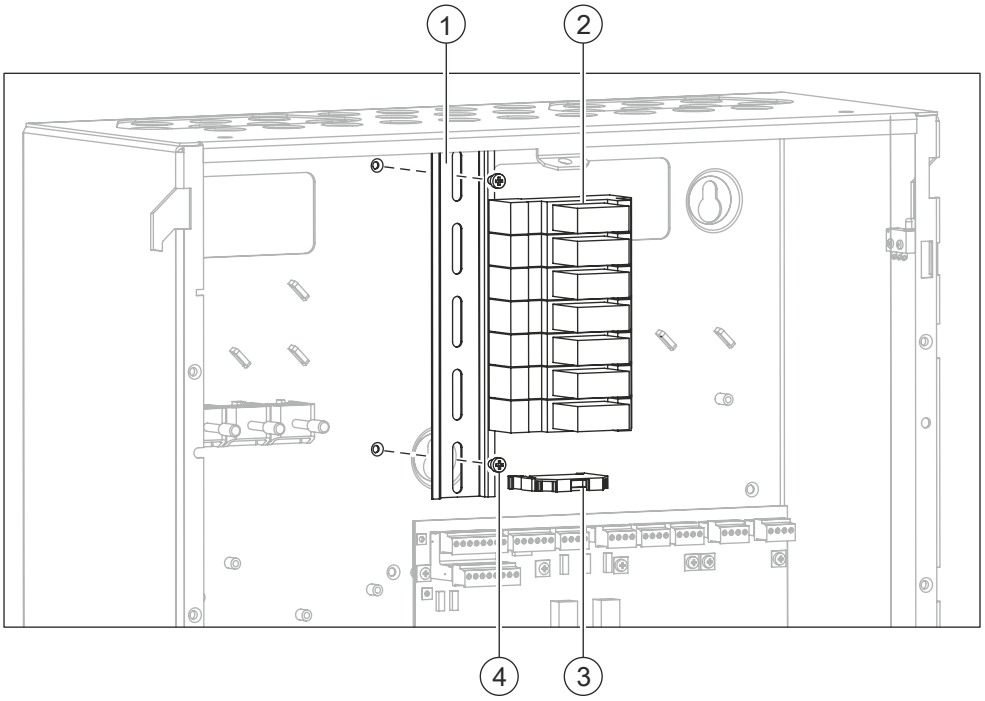


Figure 41: Mounting of relay module

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.

6.10 Install mounting plate

The mounting plate FHA2008-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.

6.10.1 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.

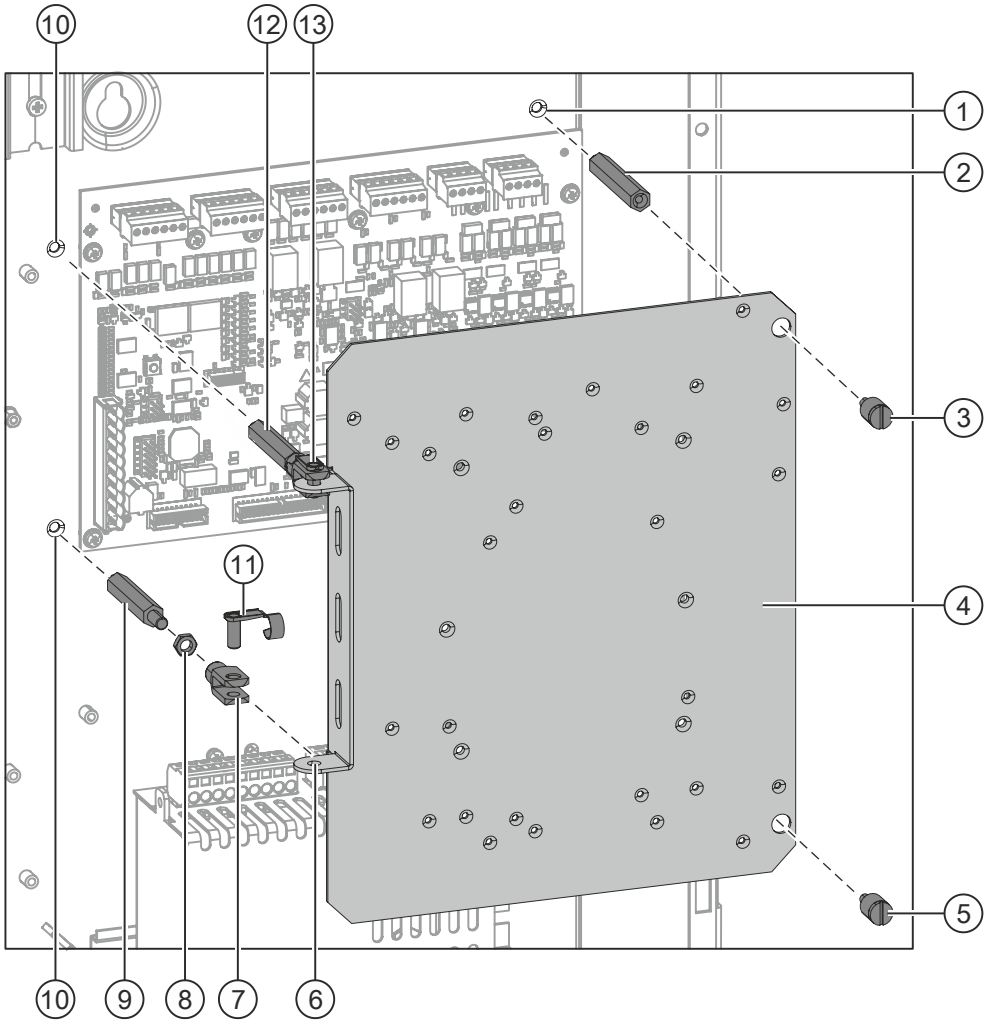


Figure 42: Example of installation of mounting plate FHA2007-A1 in housing (Comfort)

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).

6.11 Fire brigade periphery module [DE]

6.11.1 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 and Standard housings on the mounting plate above the periphery board

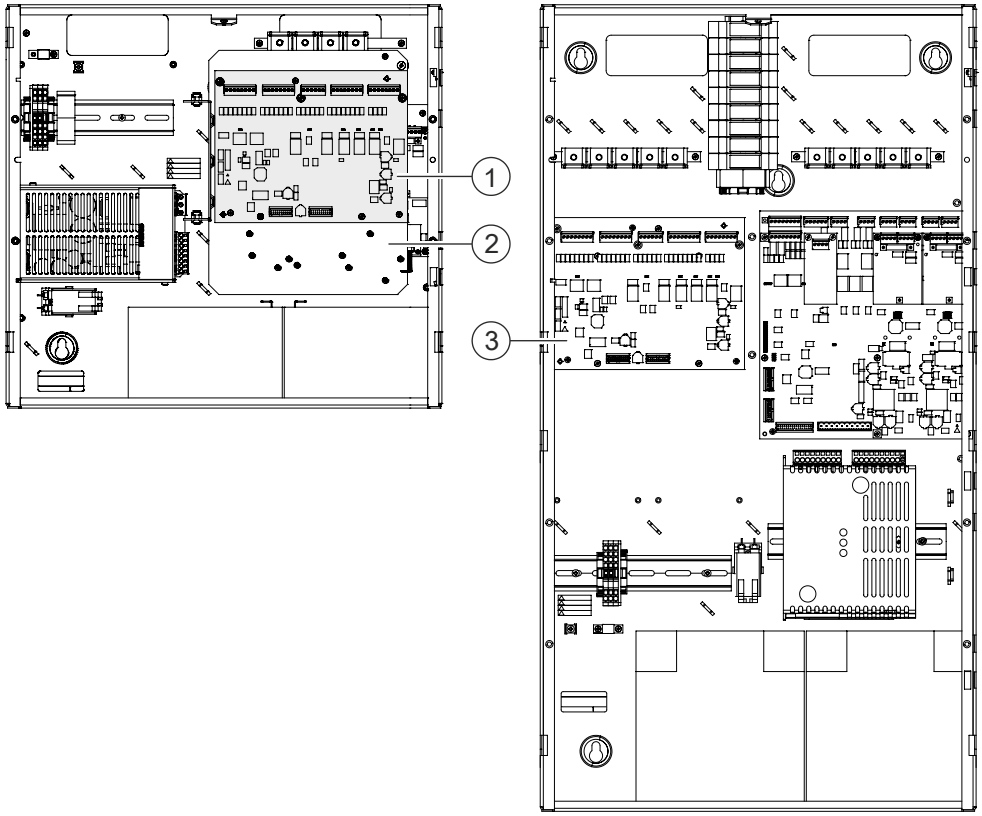


Figure 43: Examples of modes of mounting for fire brigade periphery module in Standard and Comfort housing

1 Mounting plate above the periphery board

2 Fire brigade periphery module mounted on the mounting plate

3 Fire brigade periphery module mounted on the rear panel

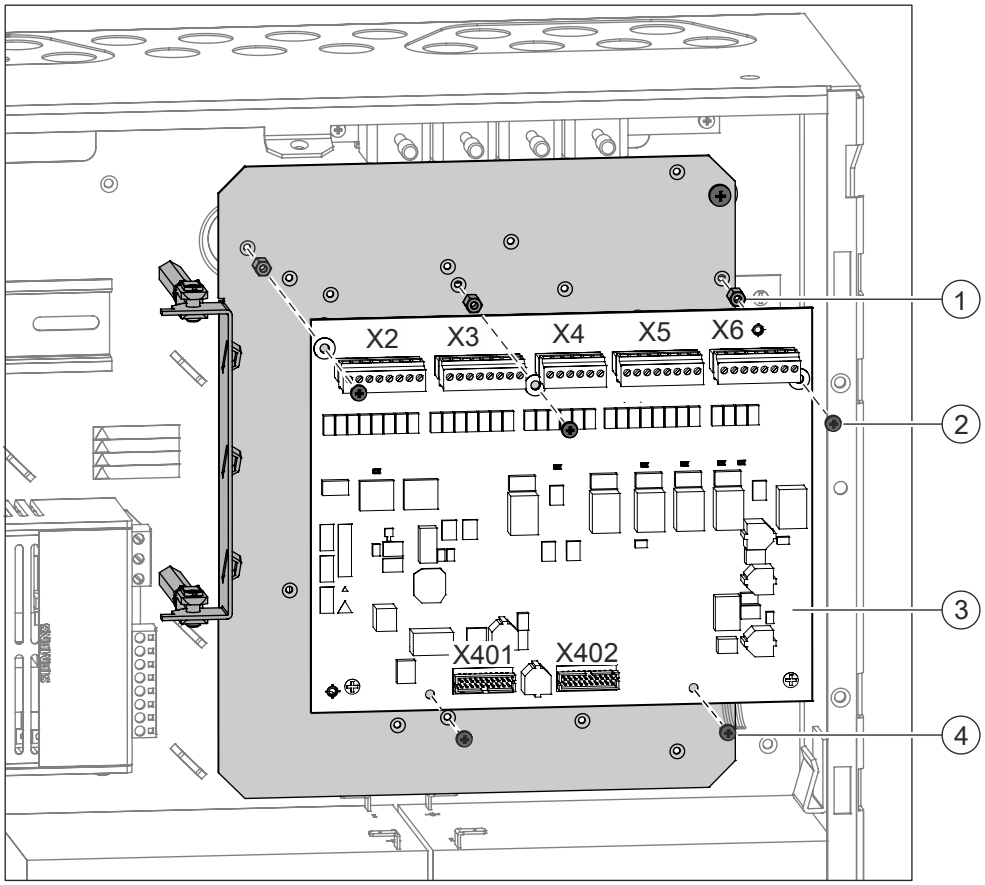


Figure 44: Mounting of the fire brigade periphery module

1	Spacer sleeves (5 pieces) (only required for mounting on the mounting plate)
2	3 fixing screws at top
3	Fire brigade periphery module
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

Mounting steps

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.

6.11.2 Pin assignments

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

6.11.2.1 X2 fire brigade operating panel / X3 fire brigade operating panel

X2 fire brigade operating panel

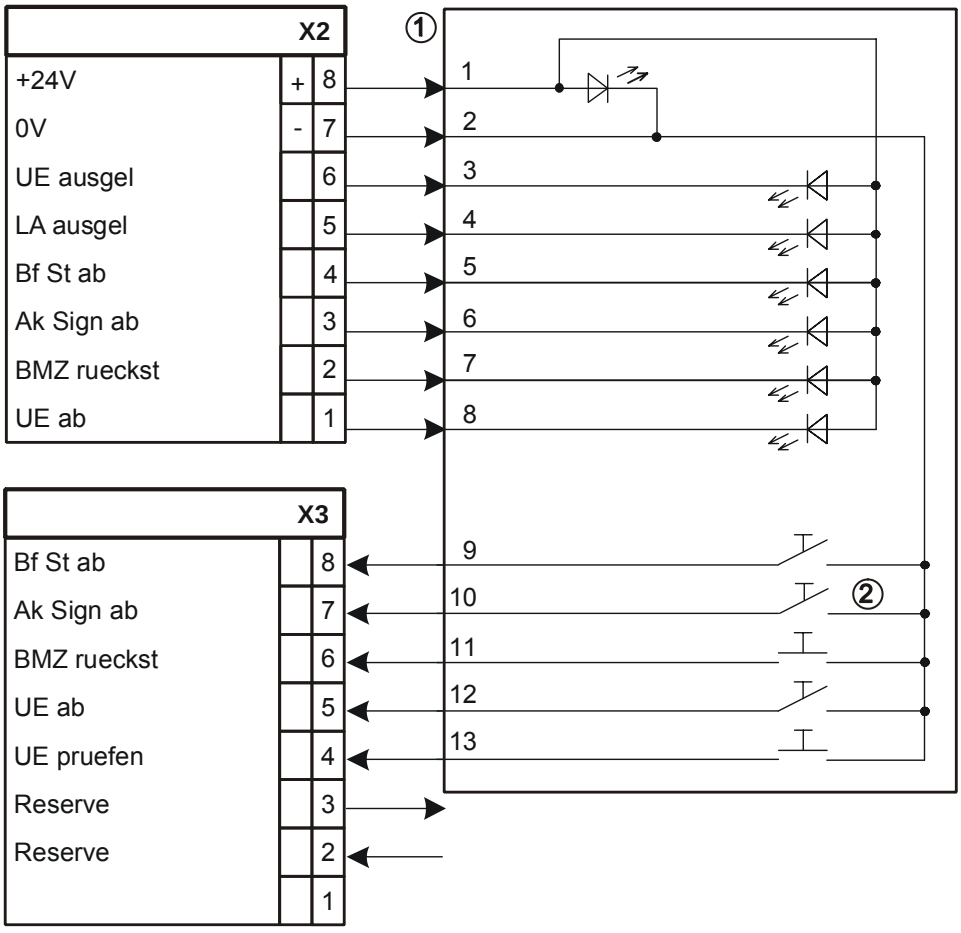
Pin	Designation	Description
8	+24V	Operating voltage (+24 V)
7	0 V	Operating voltage (-)
6	↑ UE ausgel	↑ Remote transmission triggered
5	LA ausgel	Extinguishing system triggered
4	Bf St ab	Fire controls off
3	Ak Sign ab	Acoustic signals off
2	BMZ rueckst	Reset fire control panel
1	UE ab	Remote transmission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



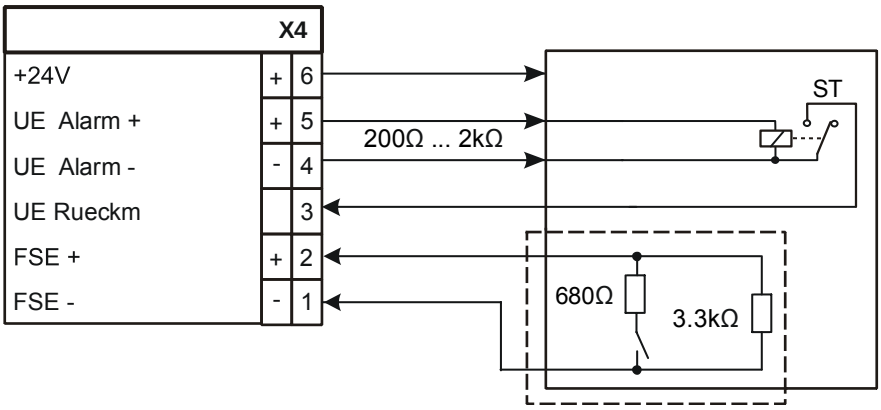
1 The connection details correspond to the FBF Type Wiesmeier FBF0770

2 Only switch possible

6.11.2.2 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

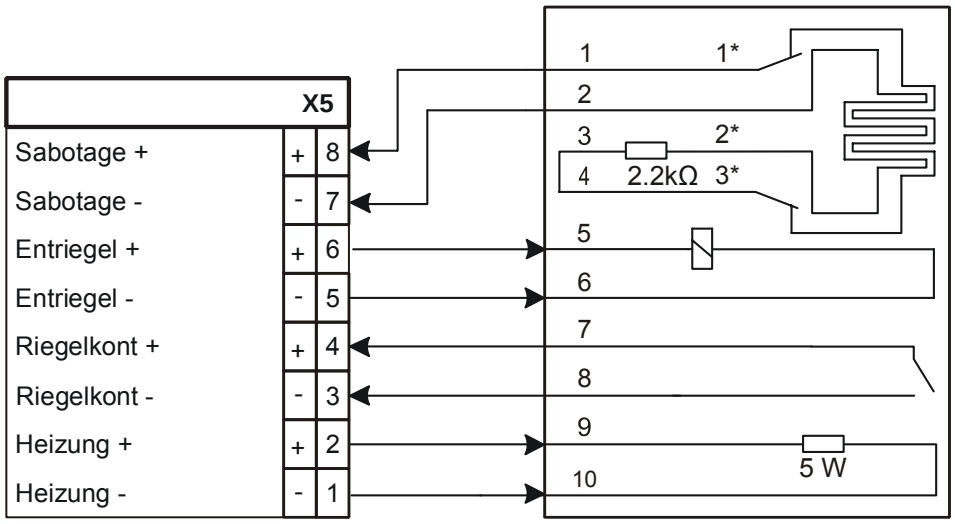


ST Fault contact of the transmission device

6.11.2.3 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

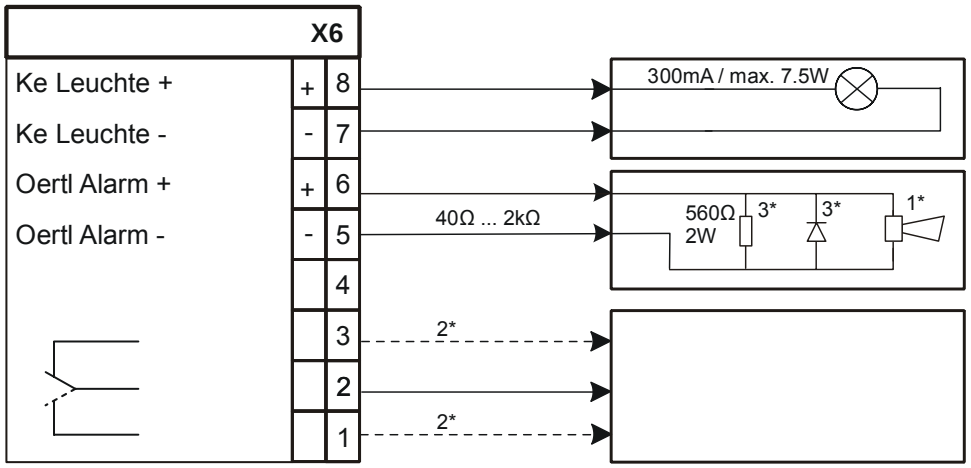


1* Door contact
2* Drill protection
3* Key contact

6.11.2.4 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

6.12 Network module (SAFEDLINK)

6.12.1 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.

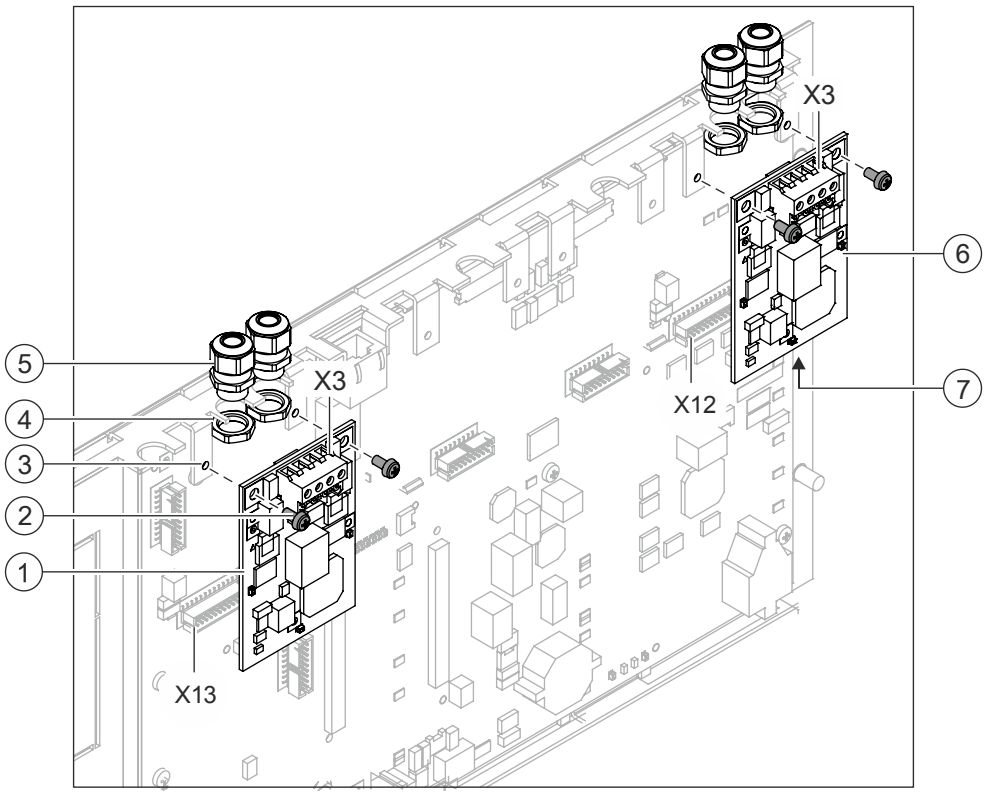


Figure 45: Installation of both network modules (SAFEDLINK)

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 C-WEB
X13	Plug-type connection for main module
X12	Plug-type connection for degraded mode module

[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

2. 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).
2. 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.
2. Wire up the system bus according to the pin assignment at X3.

6.12.2 Pin assignments

6.12.2.1 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

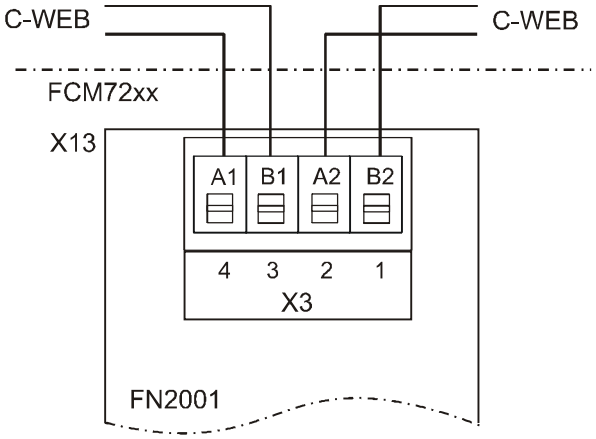


Figure 46: Wiring of 1 network module

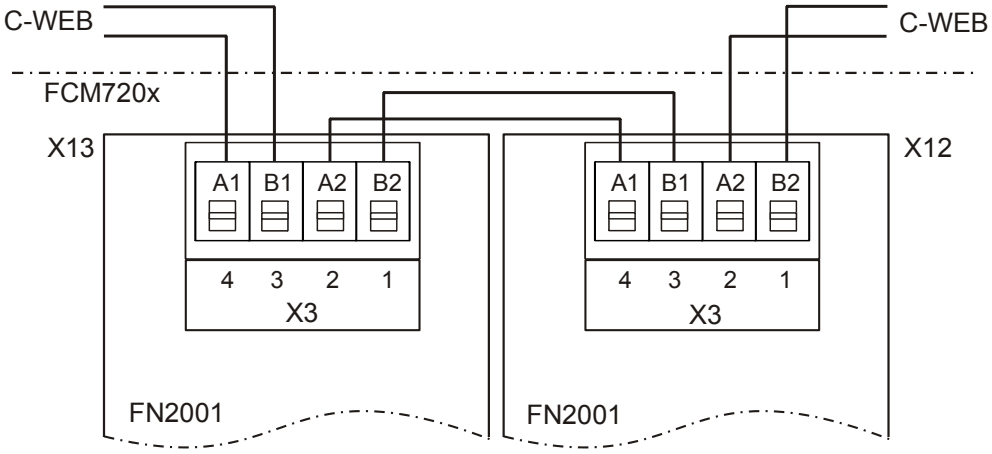


Figure 47: Wiring of 2 network modules

The main module must always be plugged in slot X13 of the operating unit FCM72xx.

When two network modules are used, the degraded mode module must be plugged in slot X12 of the FCM72xx operating unit.

6.13 Installing the fiber optic cable network module

6.13.1 Replacing the DIN rail clip

The identical fiber optic cable network modules FN2006-A1 and FN2007-A1 can be installed on a DIN 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.

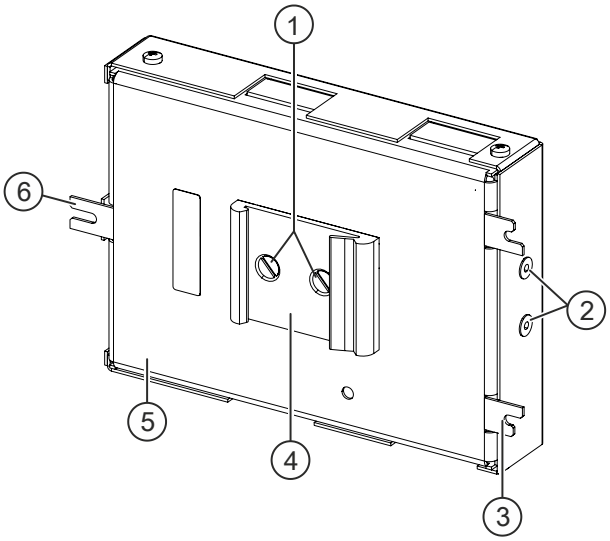


Figure 48: View of the DIN rail clip installation variants

1 Fixing screws for DIN rail clip
2 Mounting holes for DIN rail clip on the front side
3 Lower flanges 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 90º, at the threaded holes (2) using both countersunk screws (1).

6.13.2 Installation variants

The fiber optic cable network module can only be mounted horizontally on a DIN rail. 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 FS720 control panels, because there is no suitable method of fastening it in the rear panels or on the mounting plate.
- Horizontal installation with a DIN rail on a mounting plate is not possible because there are no installation parts (the DIN 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

Example of horizontal installation on a DIN rail

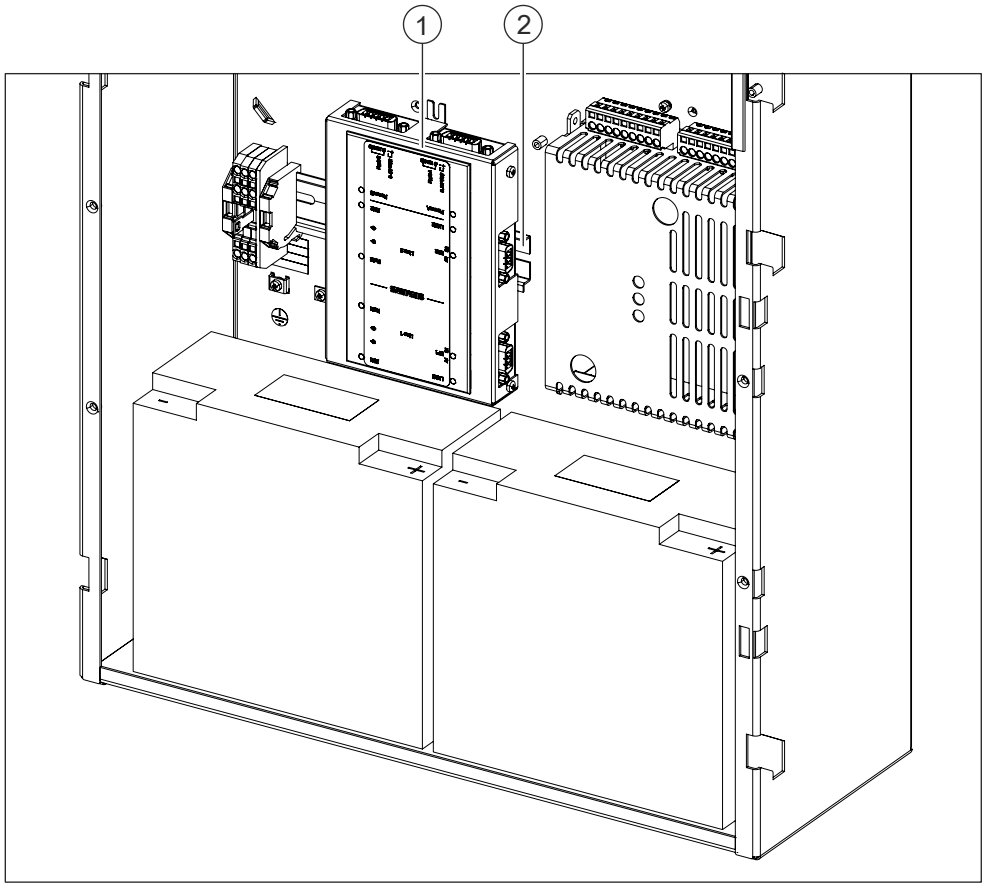


Figure 49: Example of installing a fiber optic network module horizontally on the DIN rail

1 Fiber optic network module installed horizontally

2 DIN rail

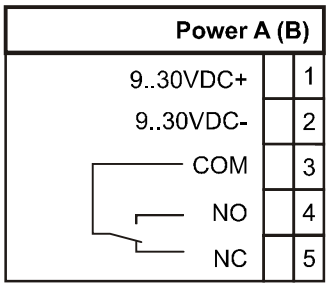
6.13.3 Pin assignments

6.13.3.1 Power A and B sockets, fault 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
4	NO	Fault relay: Normally open
5	NC	Fault relay: Normally closed

Admissible cable cross-section: 0.14…1.5 mm²



- The power supply need not be monitored and made redundant when installing in the fire control panel.
- The supply line must be shielded with remote network module.
- Relay contact opens in the event of an error. The display indicates the error (COM and NC are connected).

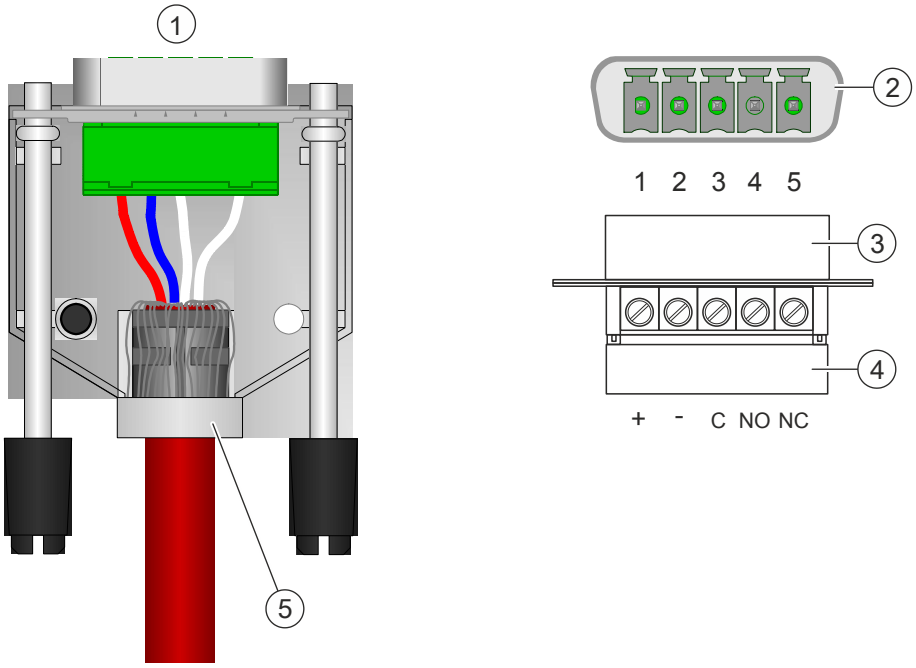


Figure 50: Connector for Power A and Power B sockets

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

6.13.3.2 EF1/EF2 sockets for SAFEDLINK wiring

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

EF1 socket, C-WEB A1/B1

Pin	Designation	Description
3	B1	C-WEB line 1 (-)
2	–	–
1	A1	C-WEB line 1 (+)

Admissible cable cross-section: 0.14…1.5 mm²

EF2 socket, C-WEB A2/B2

Pin	Designation	Description
3	B2	C-WEB line 2 (-)
2	–	–
1	A2	C-WEB line 2 (+)

Admissible cable cross-section: 0.14…1.5 mm²

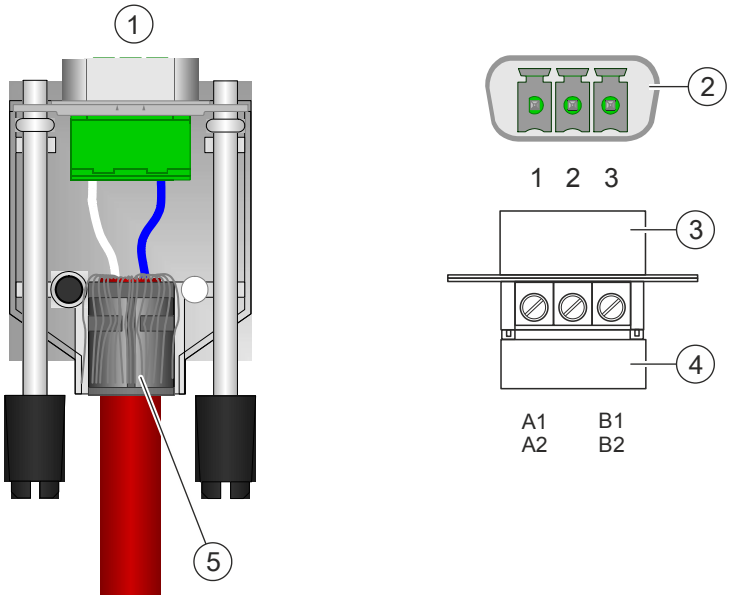


Figure 51: Connector for EF1/EF2 socket, for SAFEDLINK networking

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 C-WEB 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.

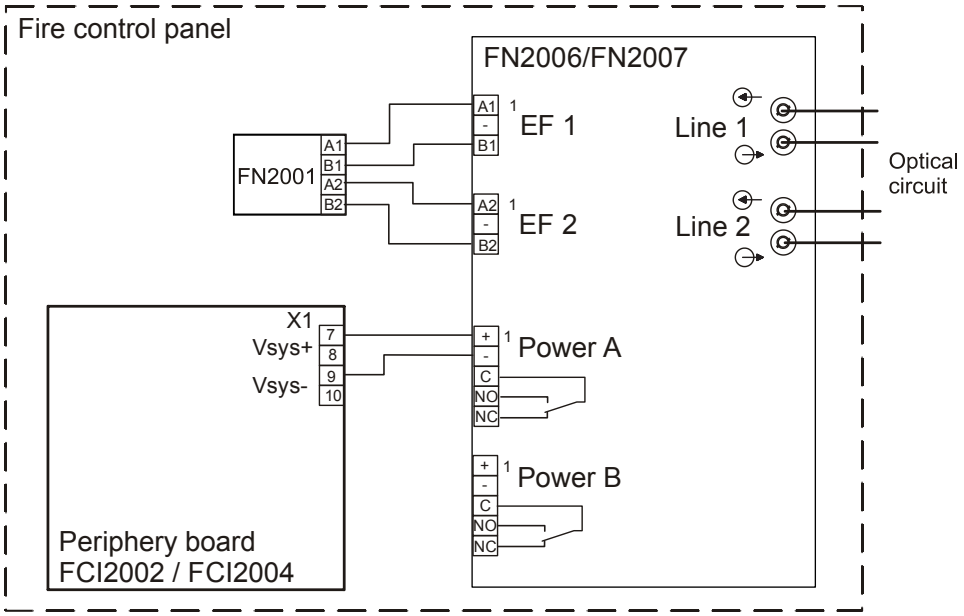


Figure 52: Example of wiring the FN2006 / FN2007 to the FN2001 for internal installation

The total cable lengths of the electric C-WEB connections (copper cable) in the optical network may not be longer than 1000 m.

!	***NOTICE***
	Wiring cross-wise in the electrical C-WEB 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).

6.13.3.3 Fiber optic cable connection

- If the fiber optic cable network module is mounted in the ↑ station, then only one supply must be connected.
- In the case of remote installation, the supply must be shielded and made redundant in accordance with EN 54.

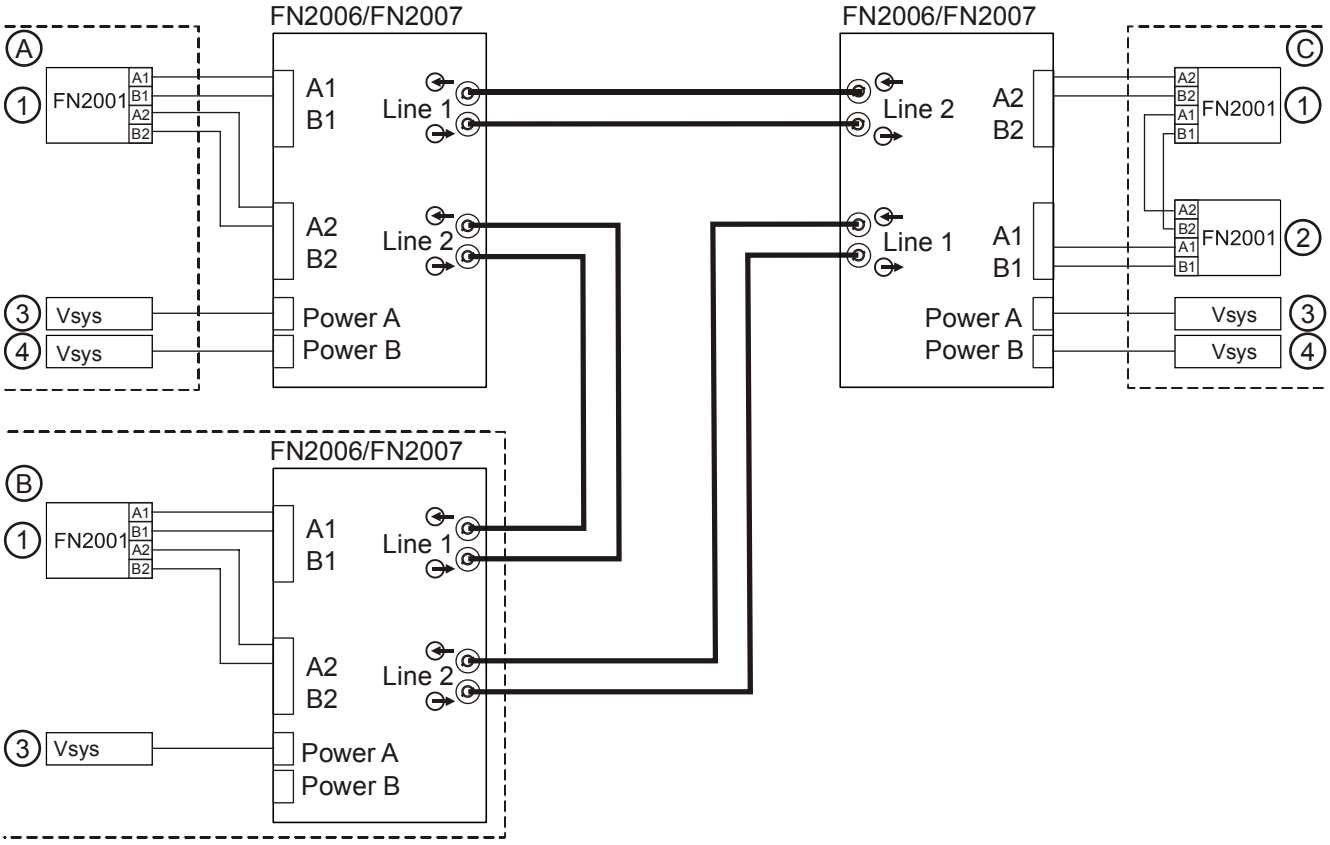


Figure 53: Example of different wirings of the fiber optic cable network module

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', supply input B to fiber optic cable network module (redundant supply) [1]
A1/B1	C-WEB connection for line '1'
A2/B2	C-WEB 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.

6.14 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.

6.14.1 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

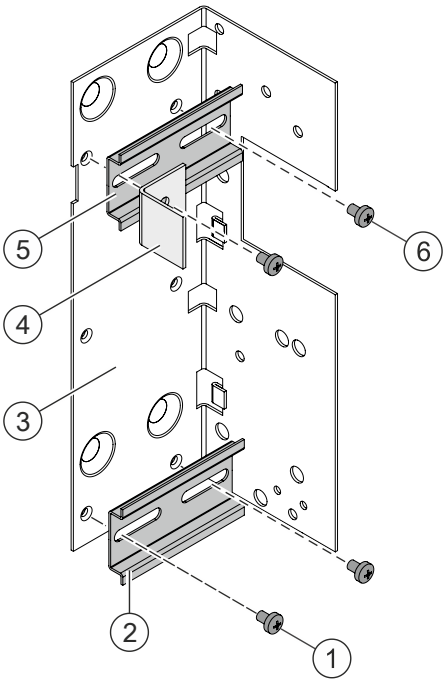


Figure 54: Mounting kit FHA2029-A1 for installation on the DIN rail

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.

6.14.1.1 View of installation in housing (Eco)

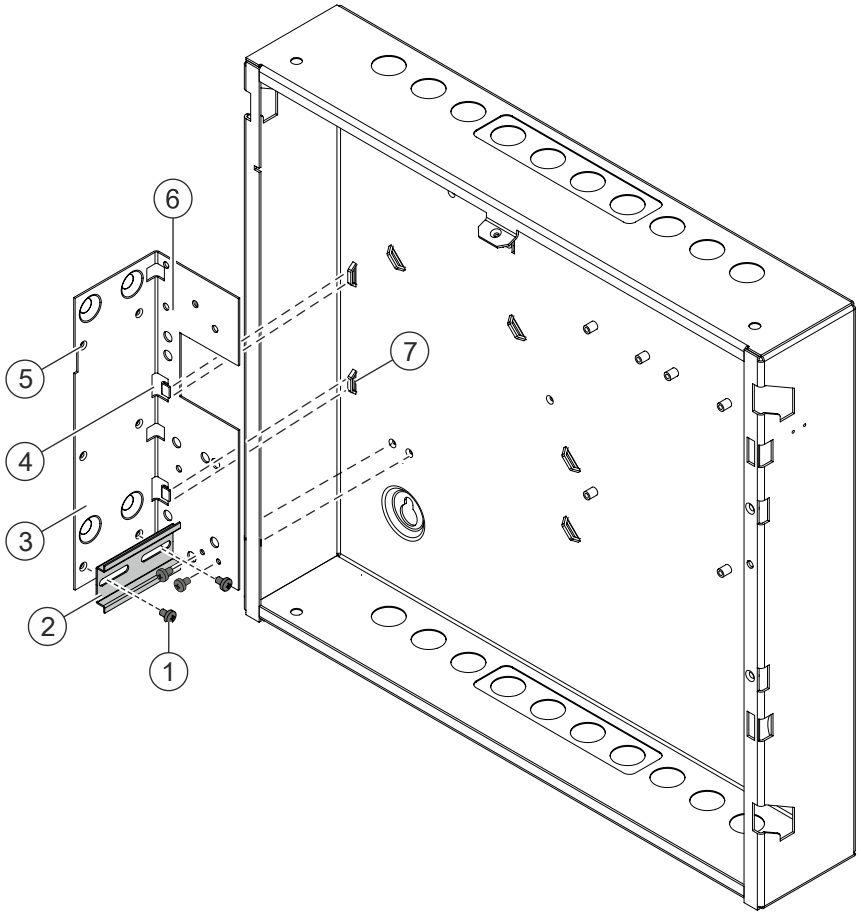


Figure 55: Installation of mounting kit in the housing (Eco)

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)

6.14.1.2 View of installation in housing (Standard)

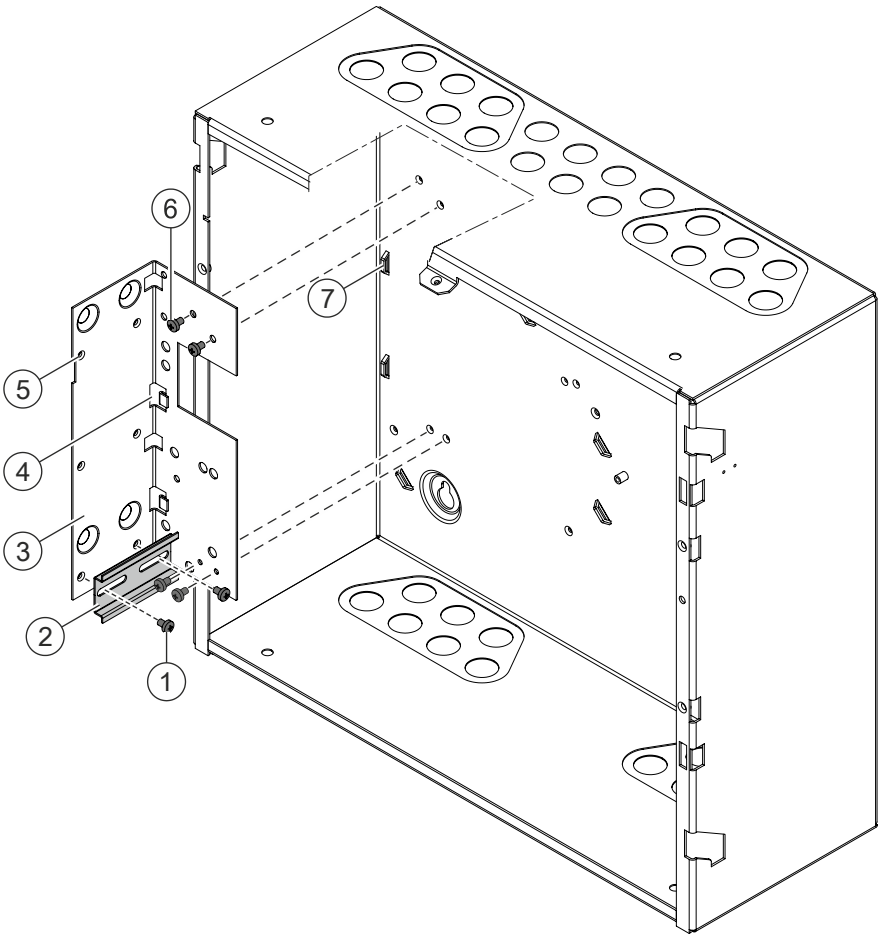


Figure 56: Installation of mounting kit in the housing (Standard)

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)

6.14.1.3 View of installation in housing (Comfort)

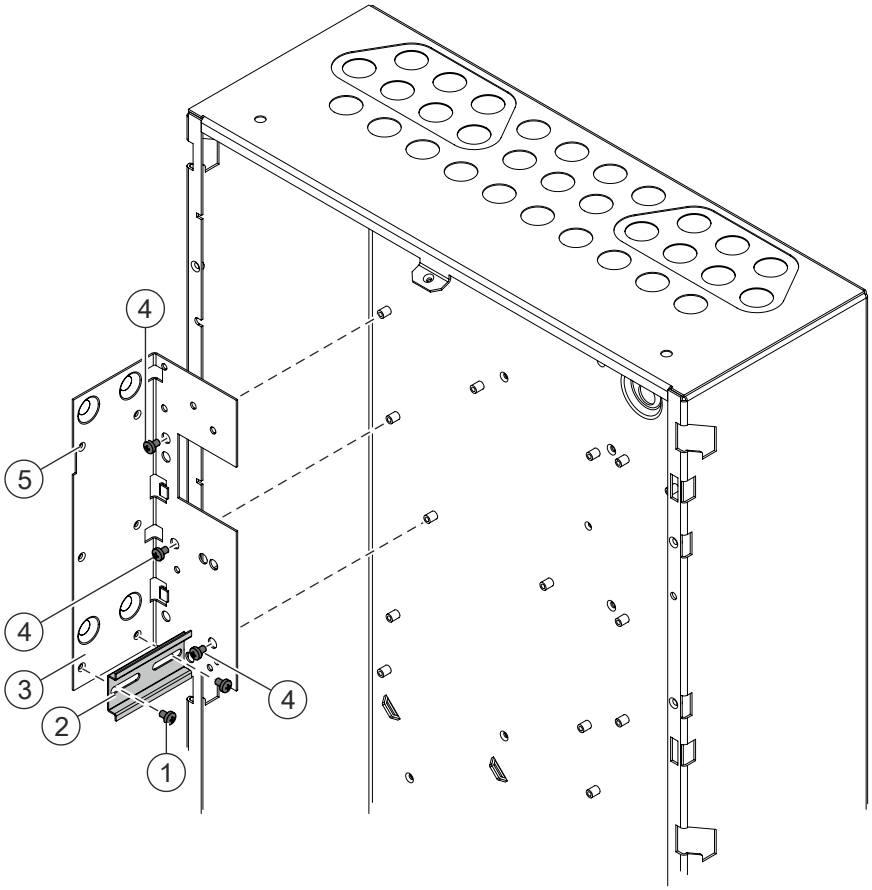


Figure 57: Installation of mounting kit FHA2029-A1 in the housing (Comfort)

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

6.14.2 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

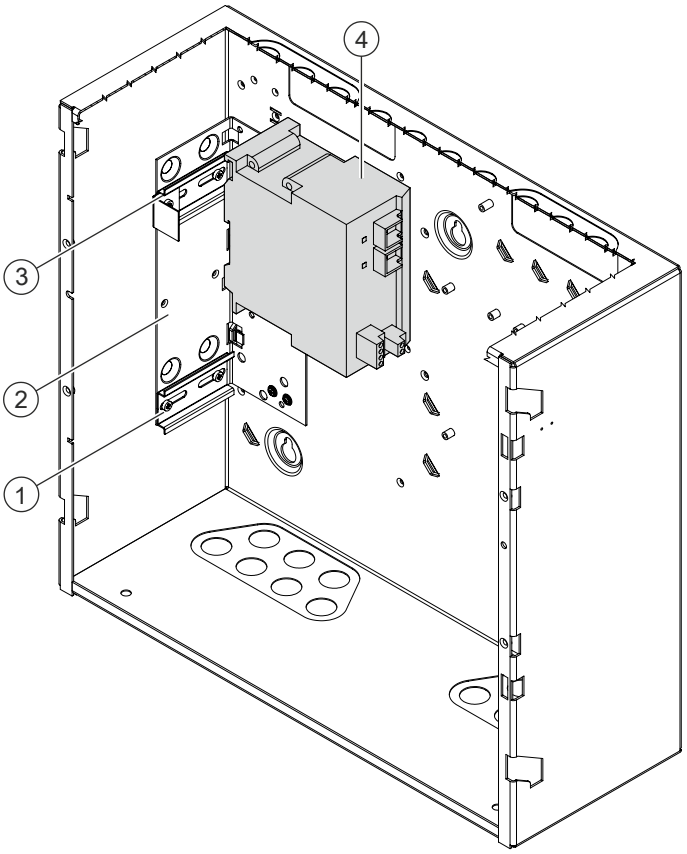


Figure 58: Example: Installation in the Standard empty housing

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.

6.14.3 Wiring of FN2008 with fire terminal

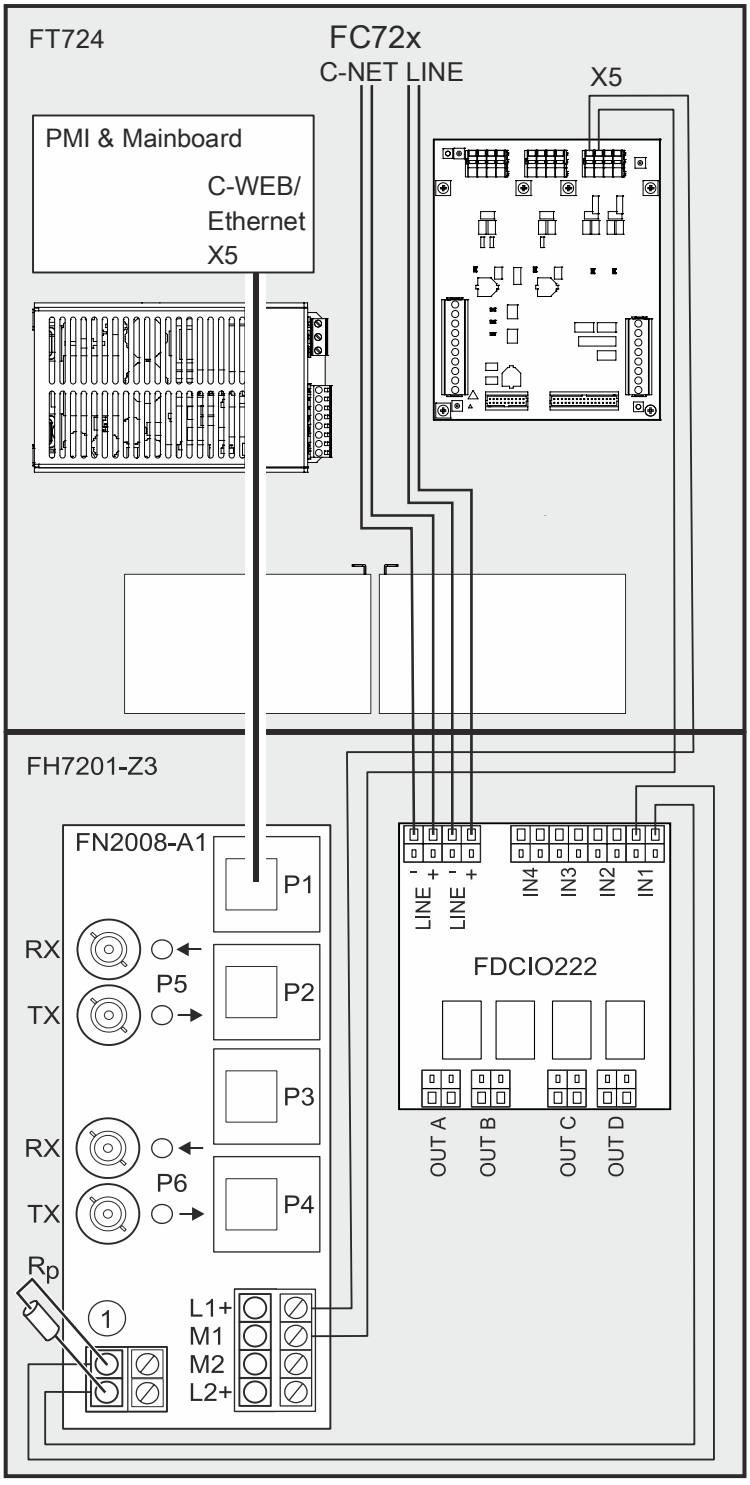


Figure 59: Wiring the FN2008-A1 with I/O module in a separate empty housing with the fire terminal

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*
	Loop with Ethernet cable Impairment of system function • 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.

FT724	Fire terminal with optional power supply and batteries
FH7201-Z3	Empty Eco housing
FDCIO222	I/O module (any I/O module possible)
LINE+ LINE-	C-NET loop connection
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+)	Vsys + system supply from fire terminal board [3]
M1, (M2)	Vsys - 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 FT724 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 FT724 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-	C-NET connection 1	FC72x Periphery board X11 or X12	1 2	LOOP1_1 (+/-)
	LINE+ LINE-	C-NET connection 2		3 4	LOOP1_2 (+/-)

[1] Any I/O module can be used in place of the FDCIO222.

6.14.4 Connecting the Ethernet switch

6.14.4.1 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.

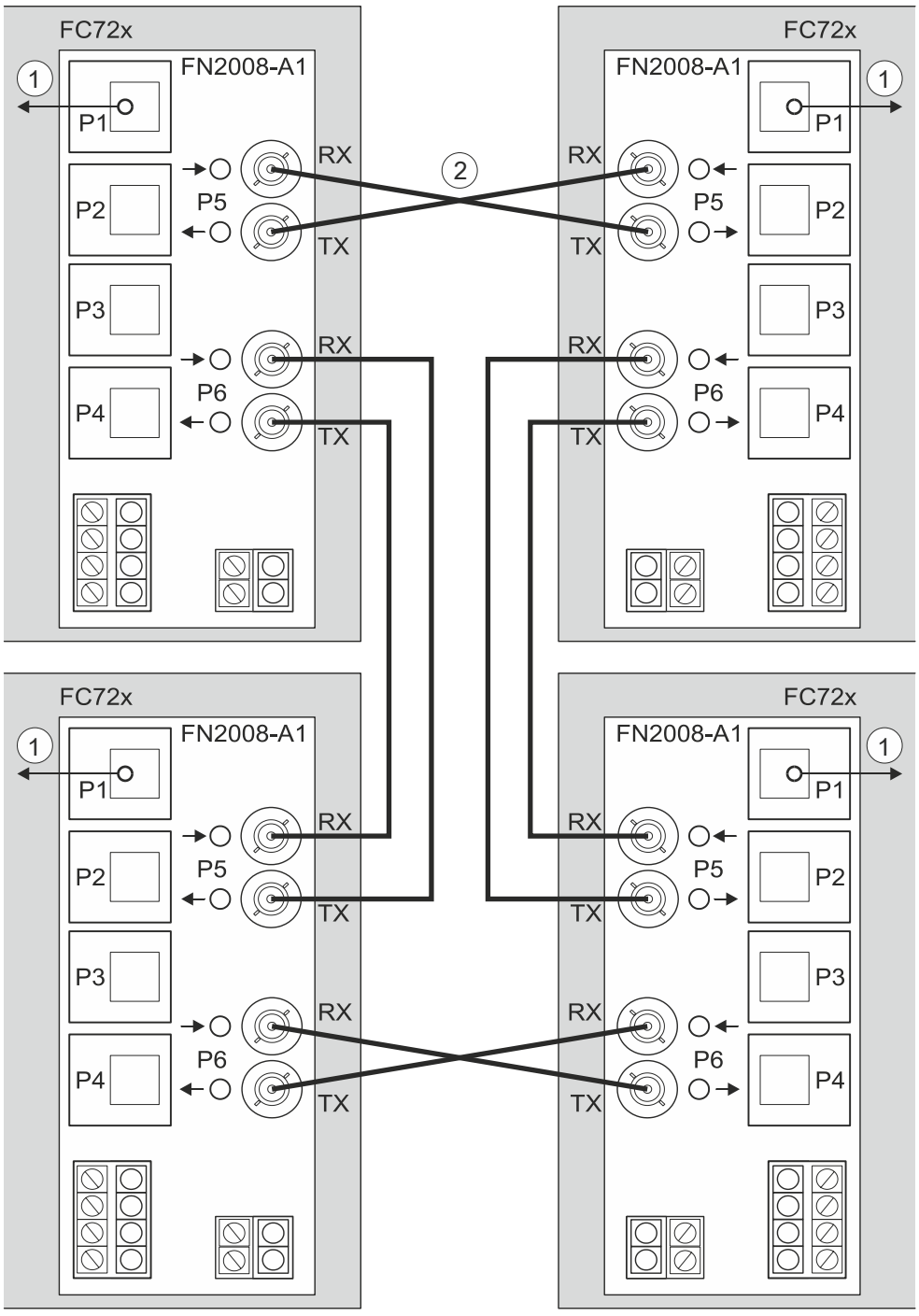


Figure 60: Connecting a fiber optic cable for optical Ethernet with FN2008-A1

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

- 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

- 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.

6.14.4.2 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.

6.14.4.3 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

6.14.5 Connecting the safety module FN2009

6.14.5.1 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.

6.14.5.2 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

6.14.6 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

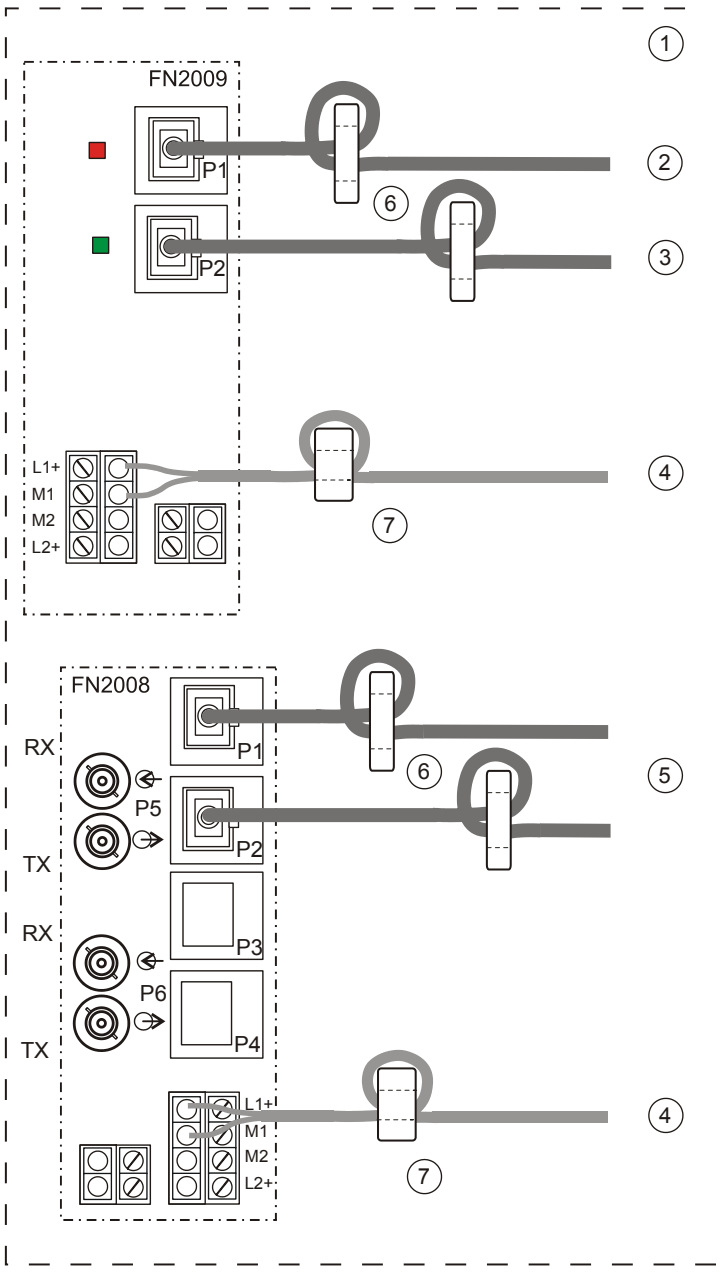


Figure 61: Modifications to the wiring for class B

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.

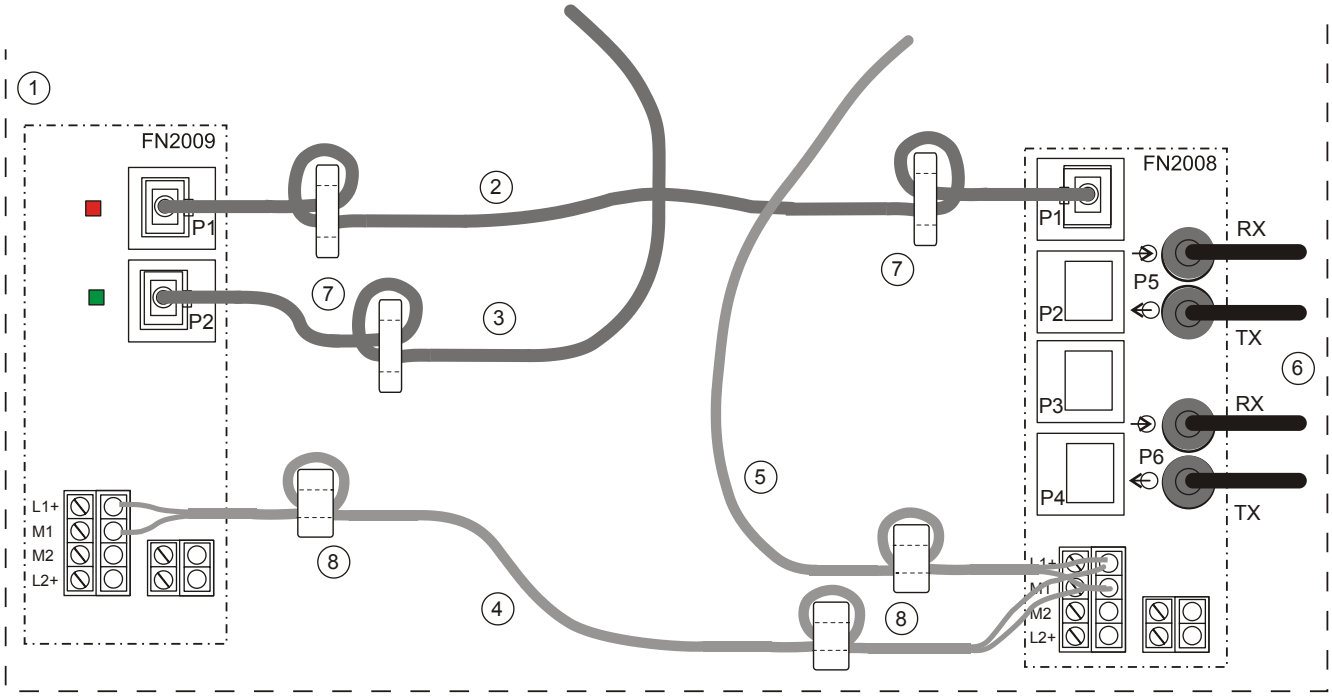


Figure 62: Example of the mounting of two modules in the same housing

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

6.15 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 ≥MP6.

6.15.1 Installation of Ethernet modules

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

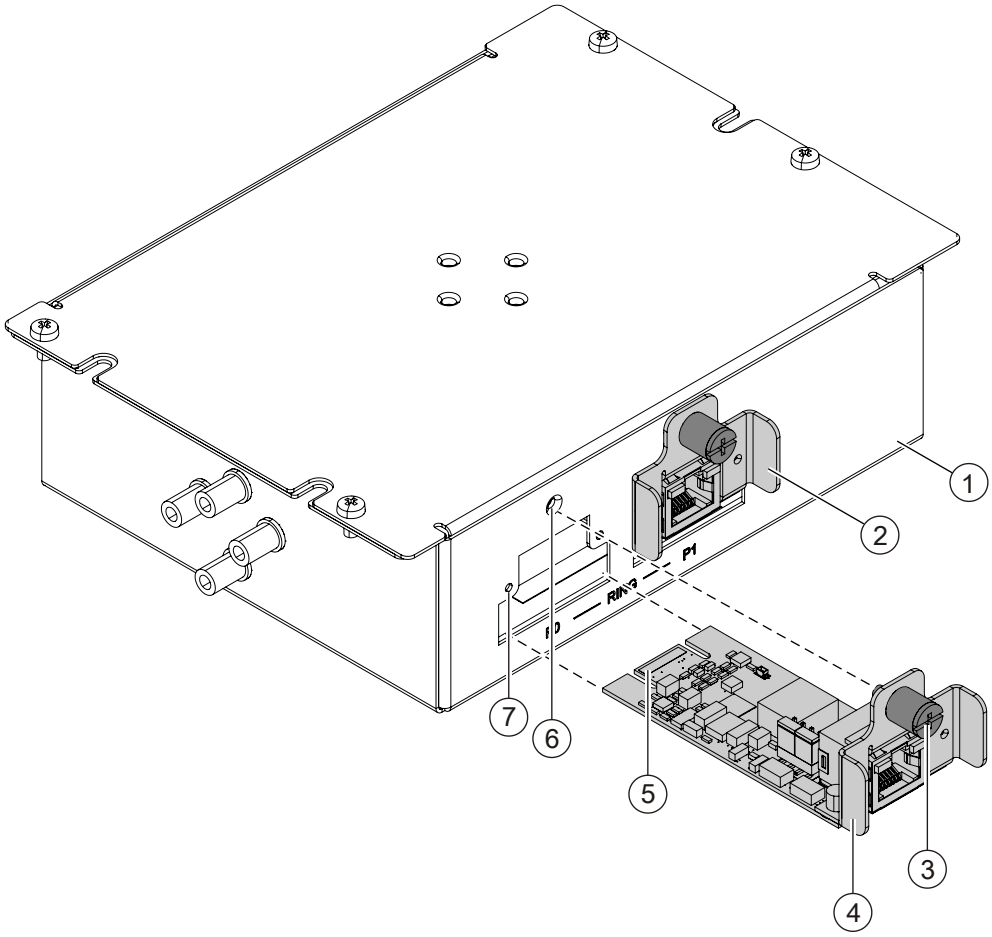


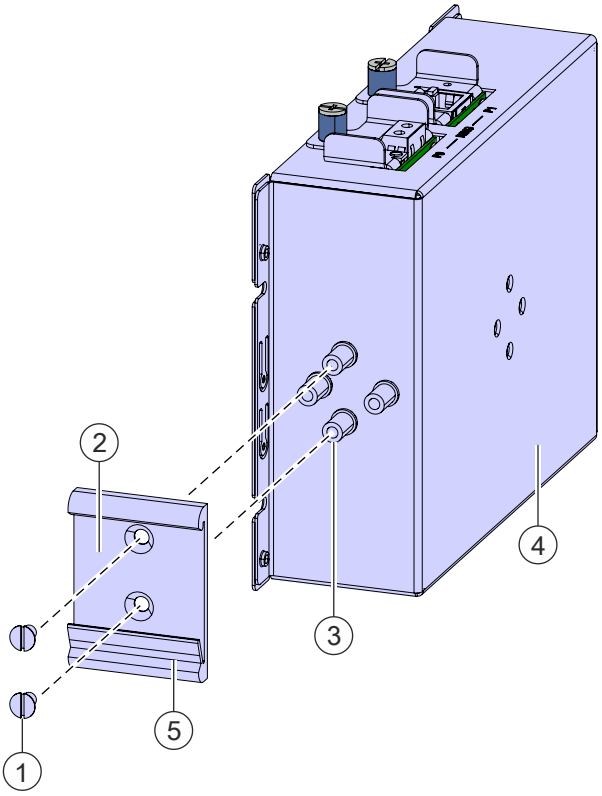
Figure 63: Installation of an Ethernet module in the Ethernet switch (modular)

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'.

6.15.2 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.

6.15.3 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

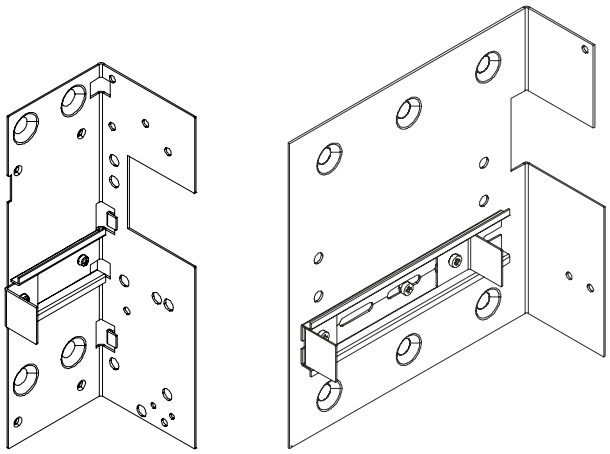


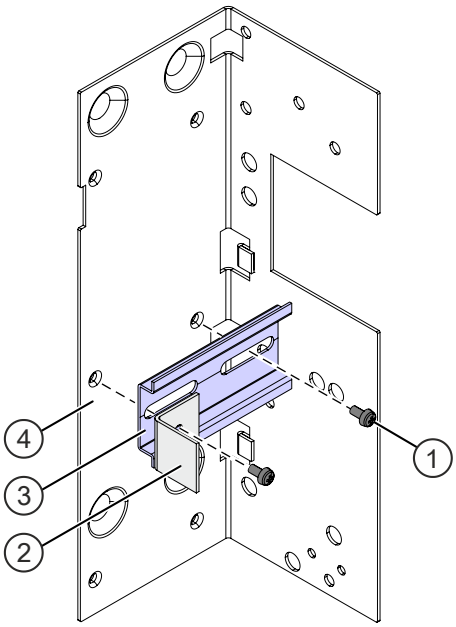
Figure 64: Mounting kit FHA2029, small and large mounting brackets

Types of installation

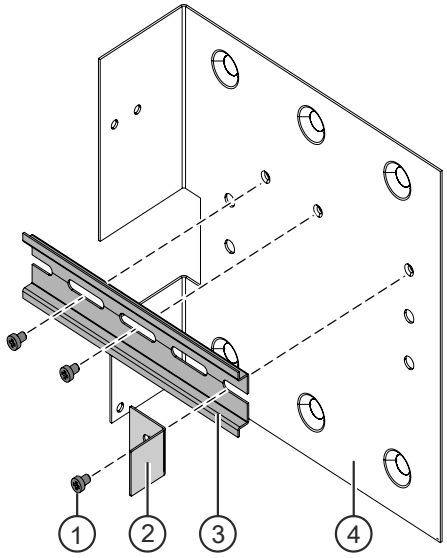
- The small mounting bracket is intended for installation in an empty housing and can be installed on both sides, i.e., in either the left or the right installation position. The bracket must be rotated 180 degrees to fit it on the right-hand side.
- The small mounting bracket must be mounted on the 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'.

6.15.3.1 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.

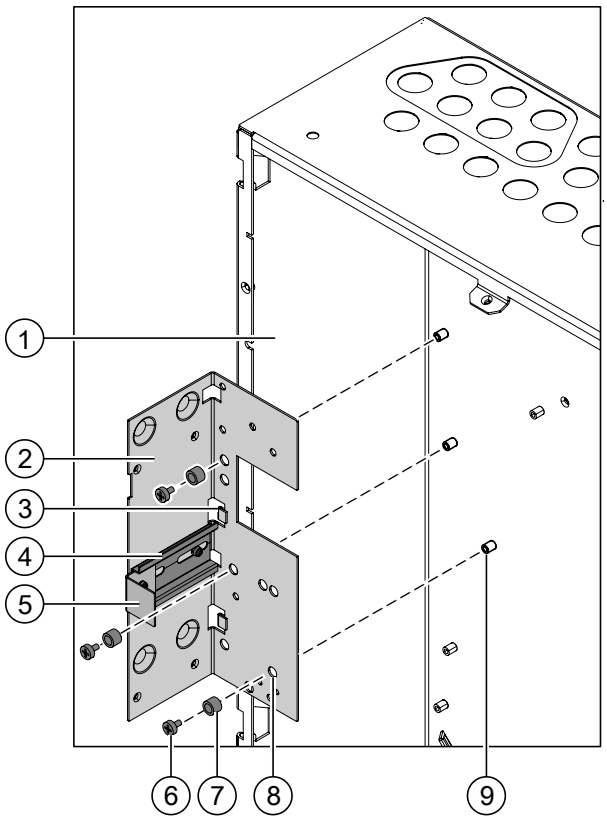


Figure 65: Installing the small mounting bracket in a Comfort housing

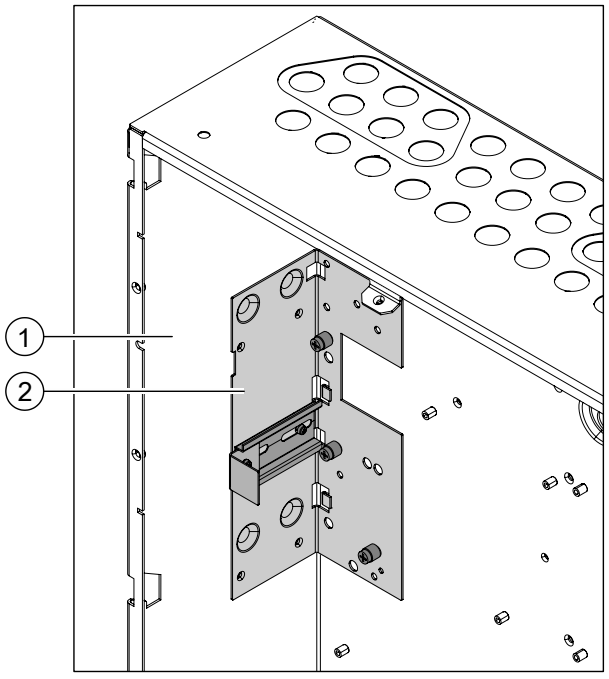


Figure 66: Small mounting bracket, installed in the Comfort housing

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.

6.15.3.2 Installation in a station with a Large housing

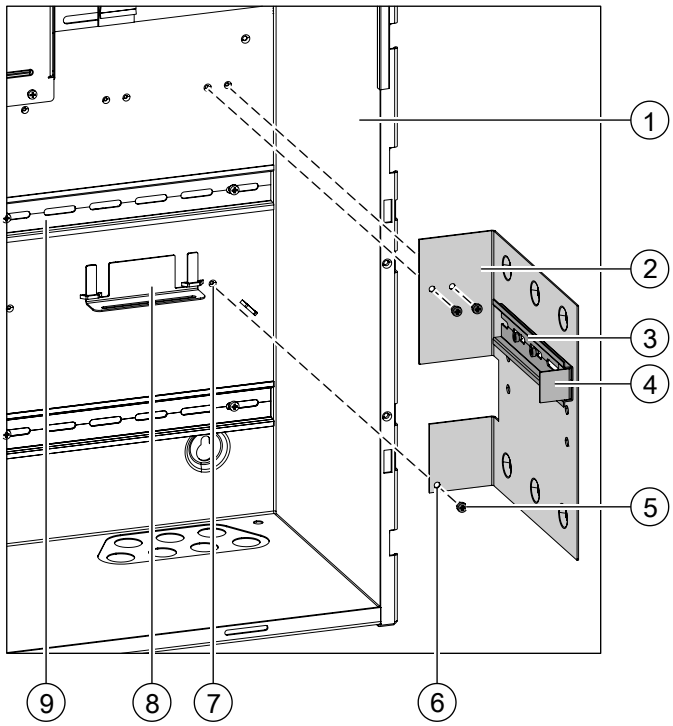


Figure 67: Screwing the large mounting bracket onto the Large rear panel

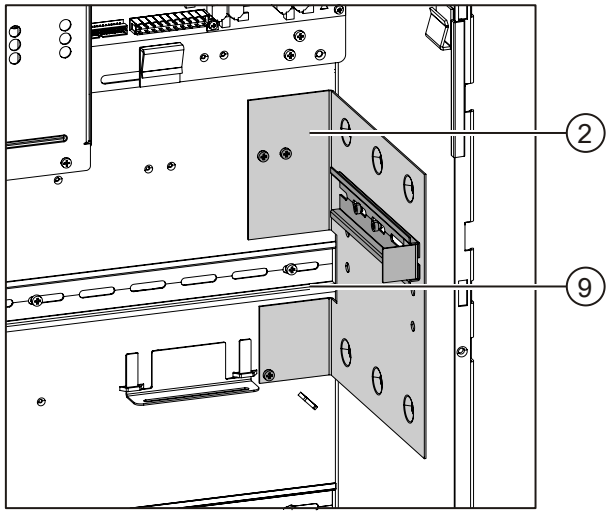


Figure 68: Large mounting bracket installed without supply

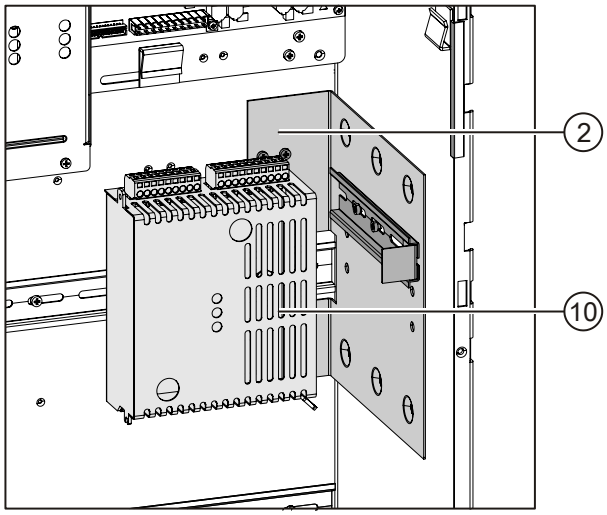


Figure 69: Supply installed on top of large mounting bracket

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'.

6.15.4 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.

6.15.4.1 FN2012 in empty housing

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

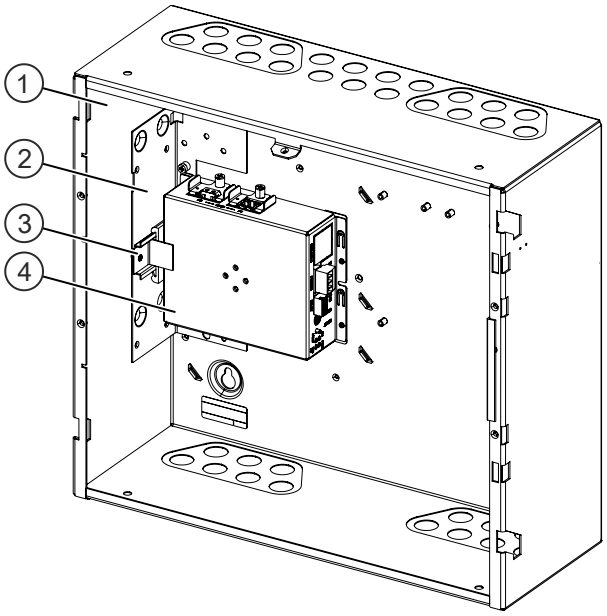


Figure 70: Example of installation in an empty Standard housing

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 [→ 136]'.

See also

Wiring [→ 136]

6.15.4.2 FN2012 in a station with a Comfort housing

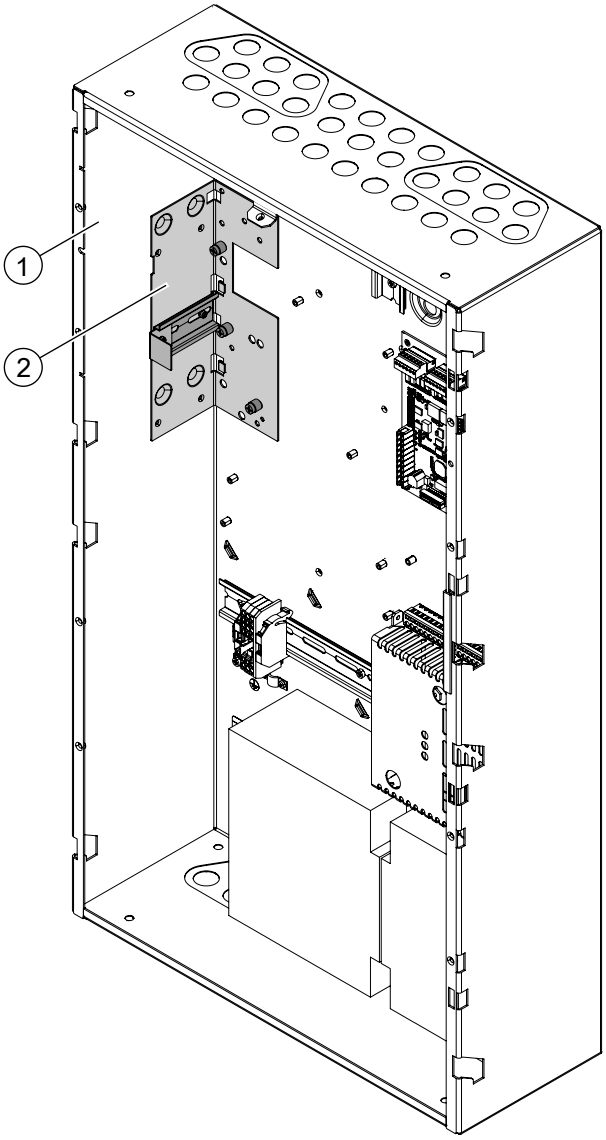


Figure 71: Small mounting bracket installed in a Comfort housing

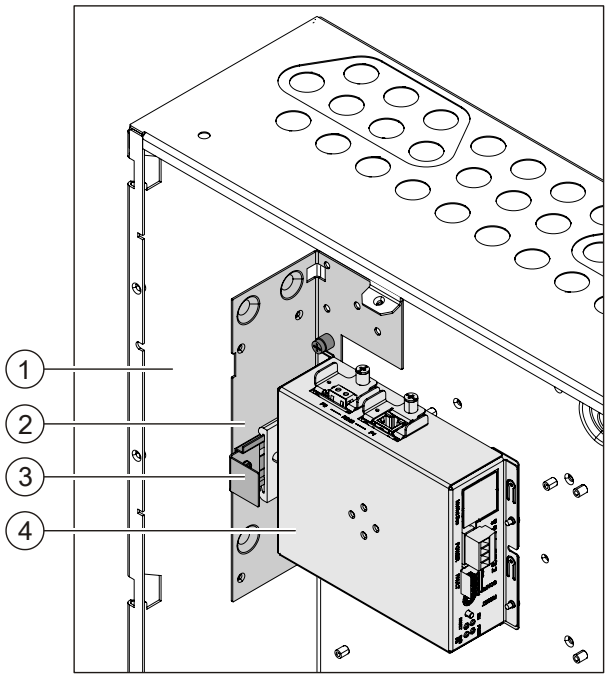


Figure 72: FN2012 in the Comfort housing

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 [→ 136]'.

See also

Wiring [→ 136]

6.15.4.3 FN2012 in a station with a Large housing

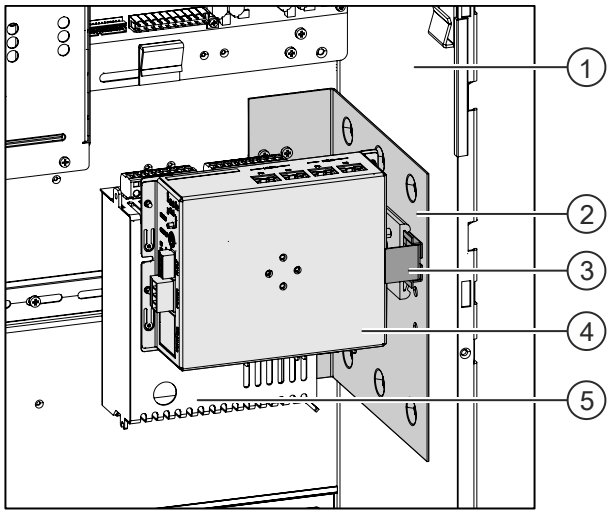


Figure 73: FN2012 mounted in the Large housing

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 [→ 136]'.

See also

Wiring [→ 136]

6.15.5 Wiring

6.15.5.1 Wiring overview

The figure shows typical usage of the Ethernet switch in an FS720 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.

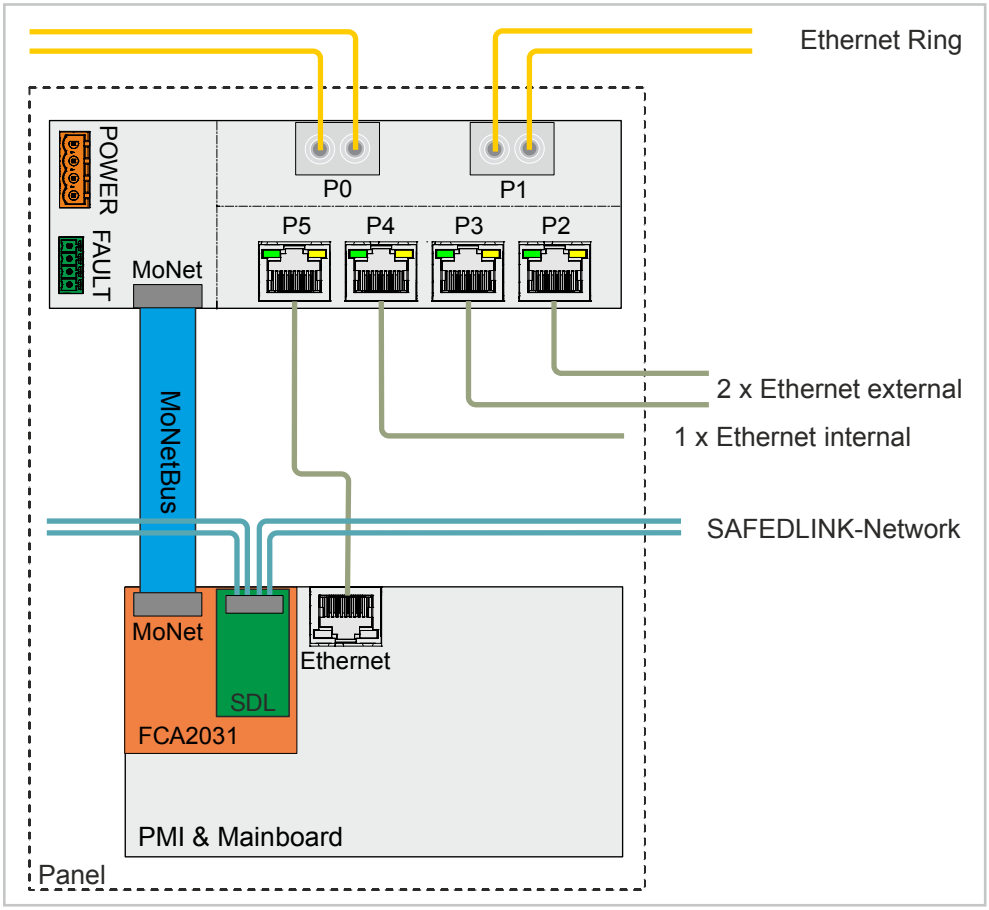


Figure 74: Overview of wiring for Ethernet switch (modular) FN2012

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 Cerberus-Engineering-Tool, MMS, Cerberus-Remote, 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 A6V10210424.

6.15.5.2 MoNet bus connection

Preparing the FN2012 for the MoNet bus connection

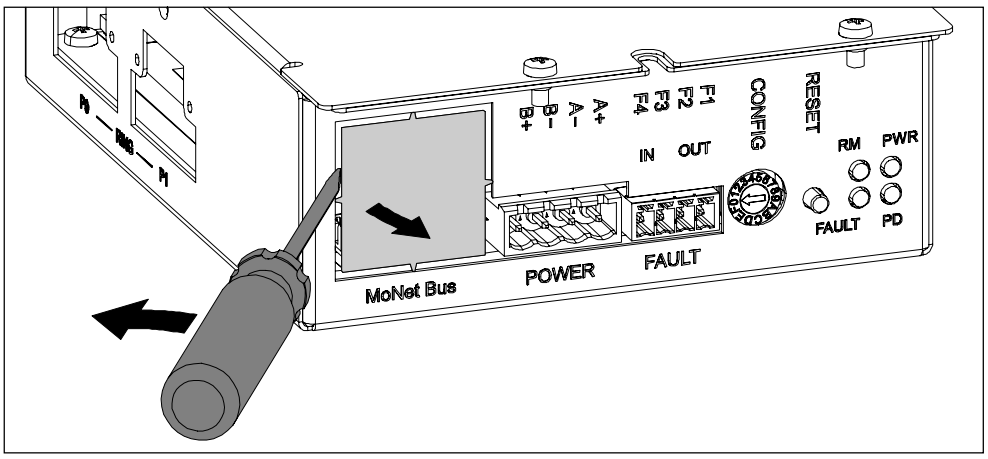


Figure 75: Breaking out the MoNet bus cover plate

- 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

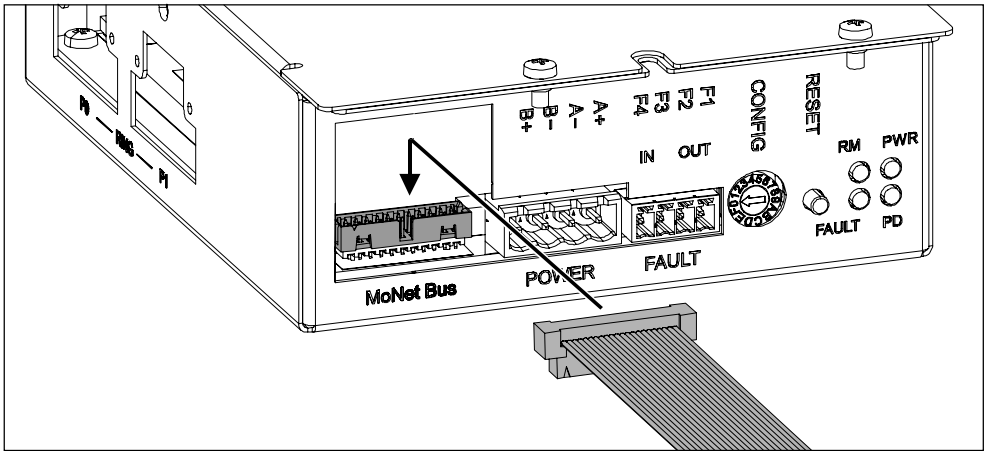


Figure 76: Connecting the MoNet bus flat cable

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

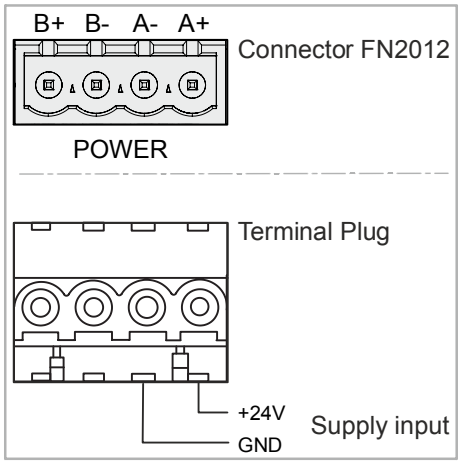
6.15.6 Pin assignments

6.15.6.1 '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



6.15.6.2 'FAULT' connector strip

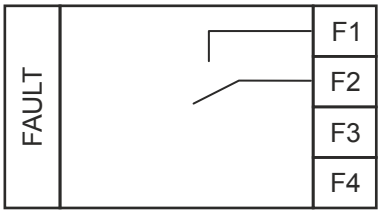
The fault output is a potential-free relay contact which, depending on the configuration, can be used to report fault conditions by interrupting the contact. If the FN2012 is switched off, the relay contact is deactivated (opened).

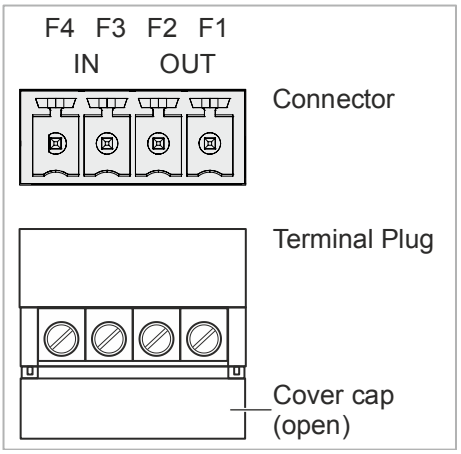
The following error messages can be configured by the web interface:

- '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





6.16 Connection module (card cage)

6.16.1 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.

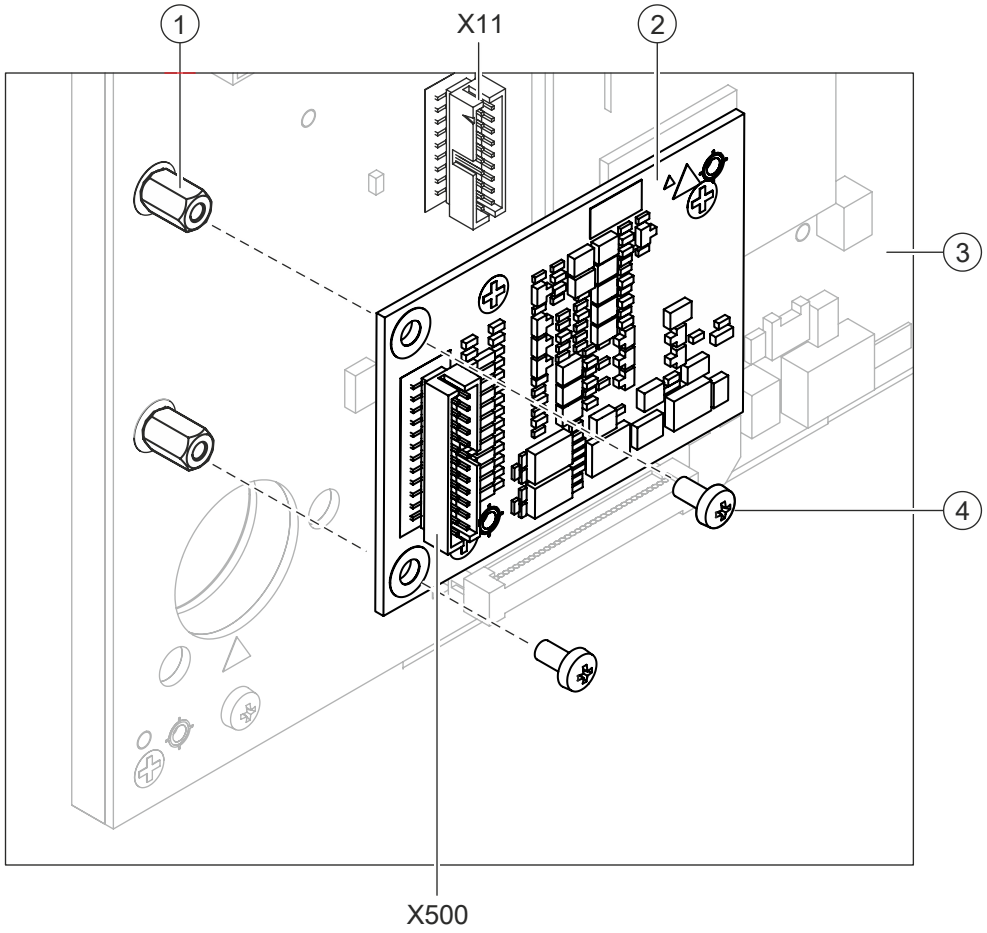


Figure 77: Installation of connection module (card cage)

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.

6.17 Card cage

6.17.1 Installation

The card cage is used to hold module bus cards and is fitted in fire control panels FC723 and FC726 in the factory:

- Card cage (2 slots) FCA2007-A1 in fire control panel FC723
- Card cage (5 slots) FCA2008-A1 in fire control panel FC726

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 FC723

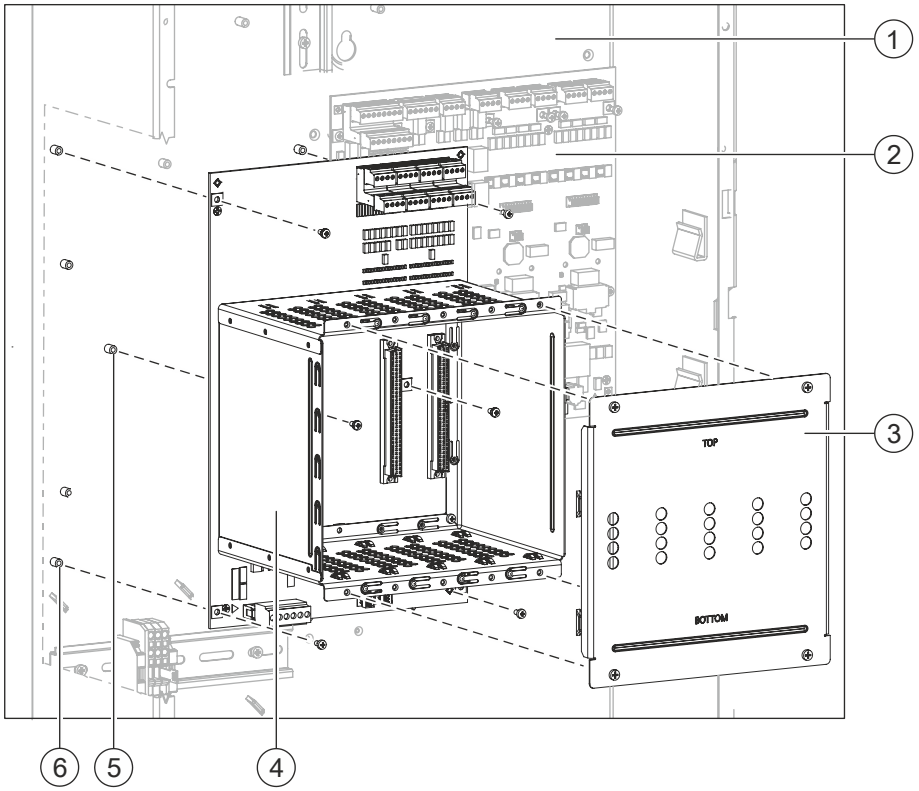


Figure 78: Installation of card cage (2 slots)

Installation of card cage (5 slots) FCA2008-A1 in FC726

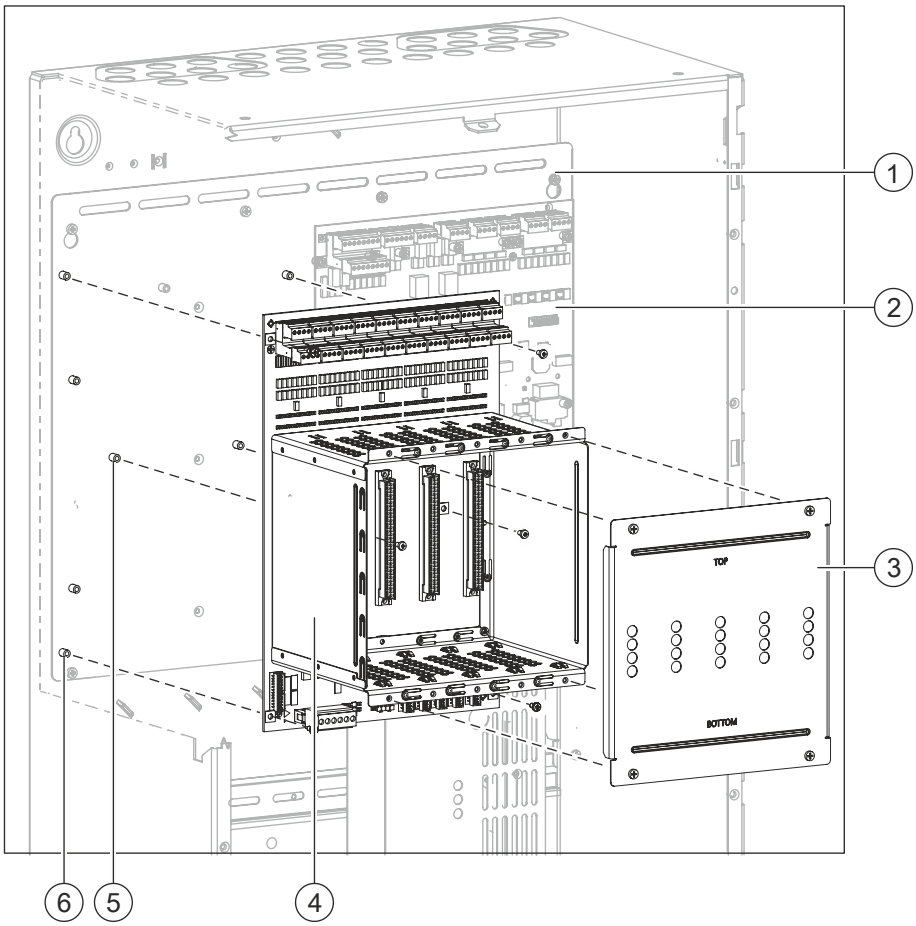


Figure 79: Installation of card cage (5 slots)

1 Rear panel (FC723) or mounting plate (FC726)
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 FC723 on the rear panel (1, top figure)
   – For the FC726 on the mounting plate (1, bottom figure)
2. Tighten the 2 fixing screws in the card cage housing (5) as follows:
   – For the FC723 on the rear panel (1, top figure)
   – For the FC726 on the mounting plate (1, bottom figure)
3. Insert the desired module bus cards in the card cage (see chapter 'Module bus cards').
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.

6.17.2 Pin assignment of the card cage (2 slots)

6.17.2.1 Views of card cage (2 slots)

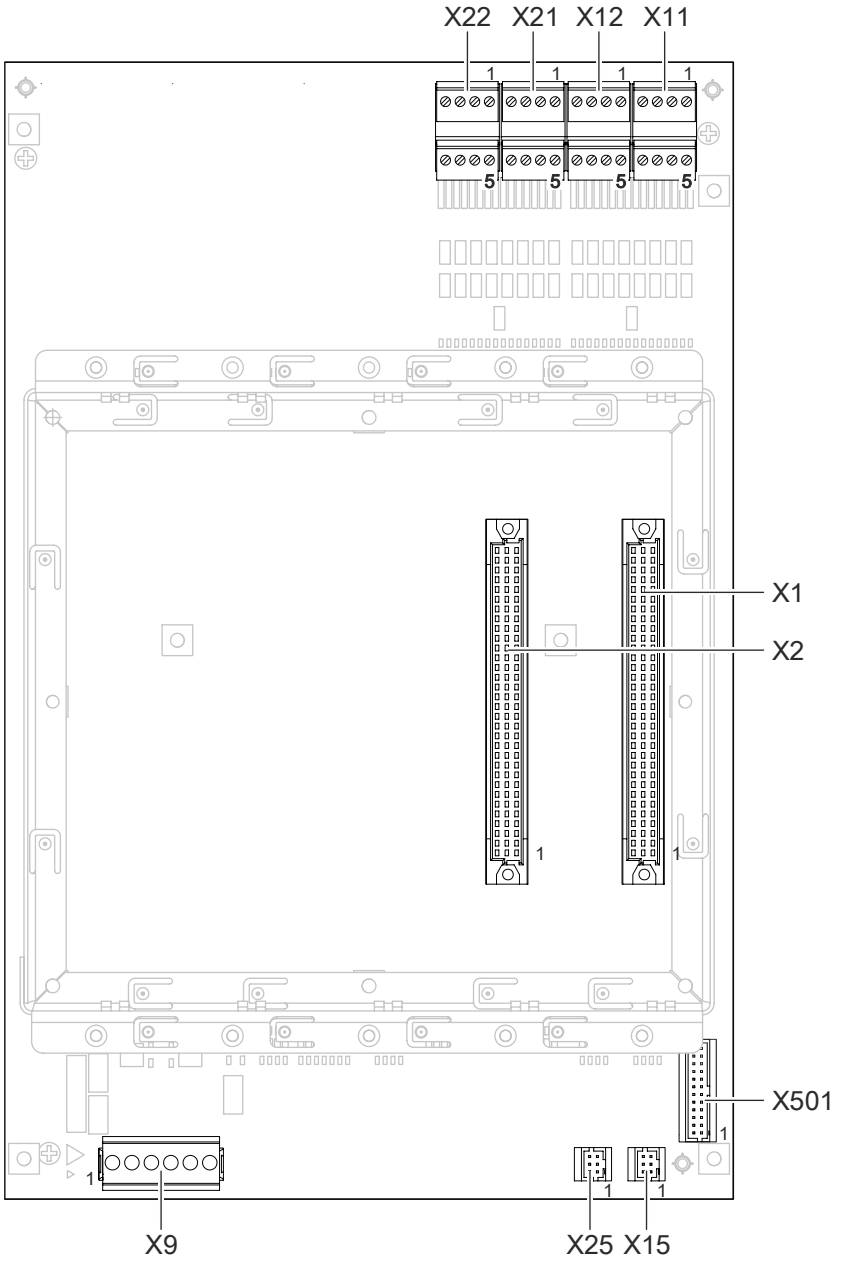


Figure 80: PCB view of card cage (2 slots) FCA2007-A1

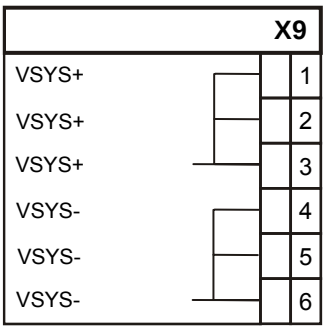
Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
Connection terminals	X9	System supply connection
	X11	Connection terminals for module bus card 1
	X12	Connection terminals for module bus card 1
	X21	Connection terminals for module bus card 2
	X22	Connection terminals for module bus card 2

Element	Des.	Function
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

6.17.2.2 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



6.17.2.3 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

6.17.3 Pin assignment of the card cage (5 slots)

6.17.3.1 Views of card cage (5 slots)

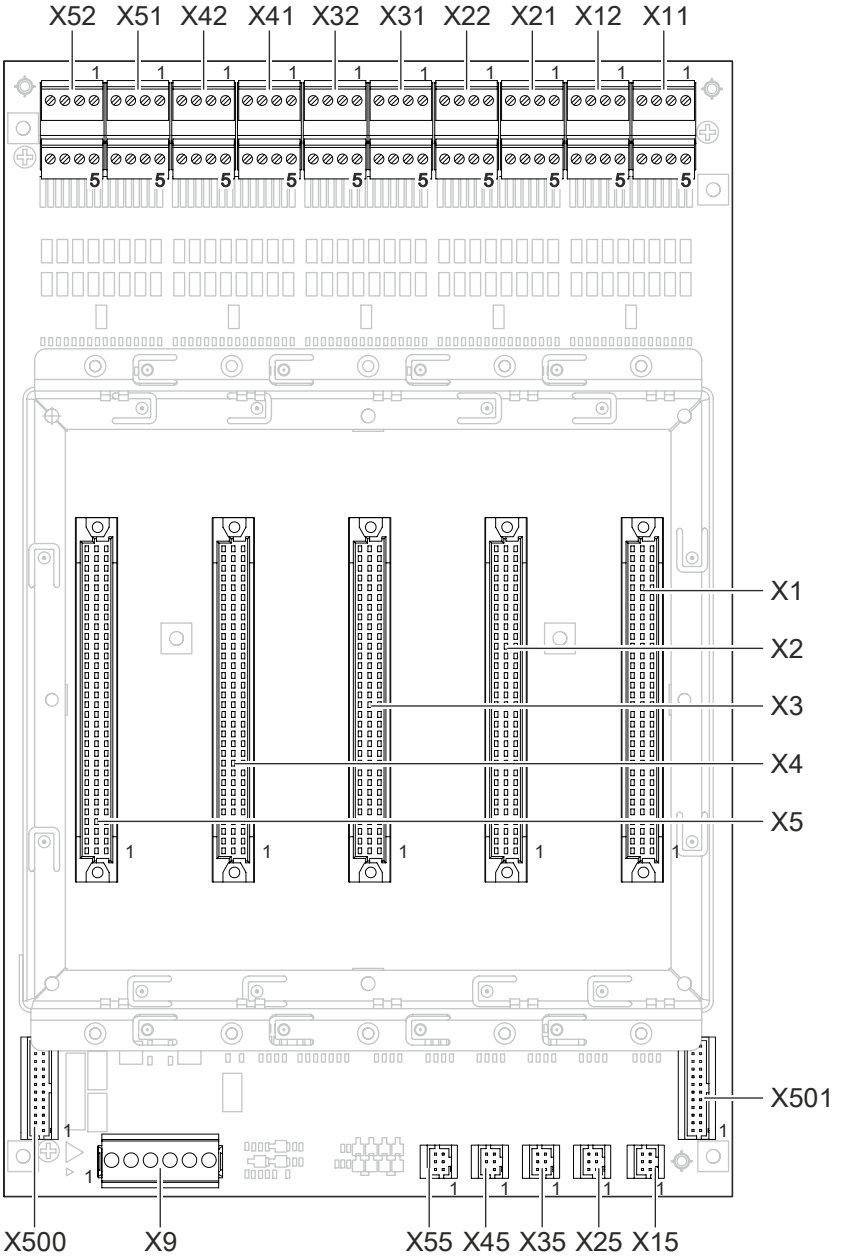


Figure 81: PCB view of card cage (5 slots) FCA2008-A1

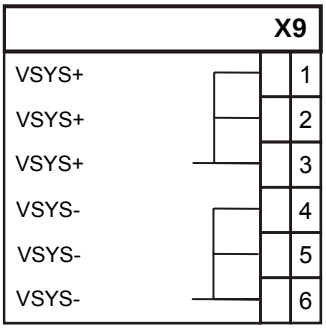
Element	Des.	Function
Slots	X1	Connector strip for module bus card 1
	X2	Connector strip for module bus card 2
	X3	Connector strip for module bus card 3
	X4	Connector strip for module bus card 4
	X5	Connector strip for module bus card 5

Element	Des.	Function
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

6.17.3.2 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



6.17.3.3 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

6.18 Module bus cards

6.18.1 Installation

The module bus cards are installed in the card cages of fire control panels FC723 and FC726. The following module bus cards are available:

- Line card (FDnet/C-NET) FCL2001-A1
- Line card (SynoLOOP) FCL7201-Z3
- I/O card (programmable) FCI2008-A1
- I/O card (horn, monitored) FCI2009-A1
- I/O card (RT) FCI2007-A1

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

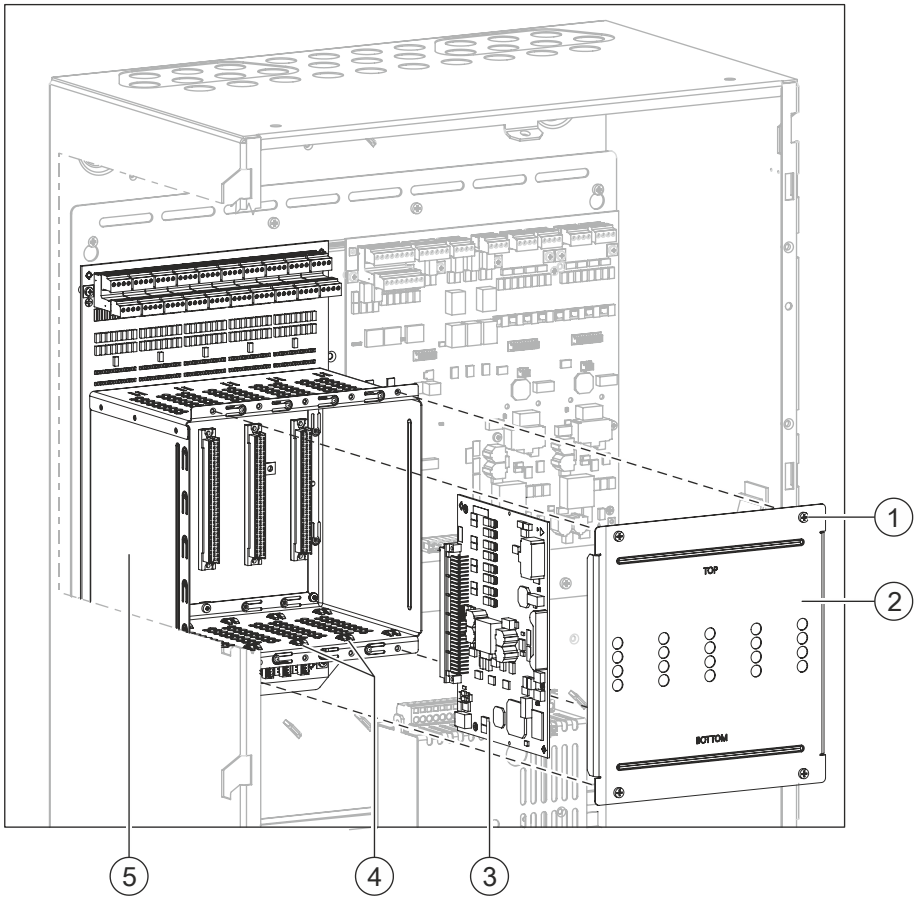


Figure 82: Installation of module bus cards taking example of card cage (5 slots)

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

Mounting steps

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.

6.18.2 Pin assignments

6.18.2.1 Views of card cage (2 slots)

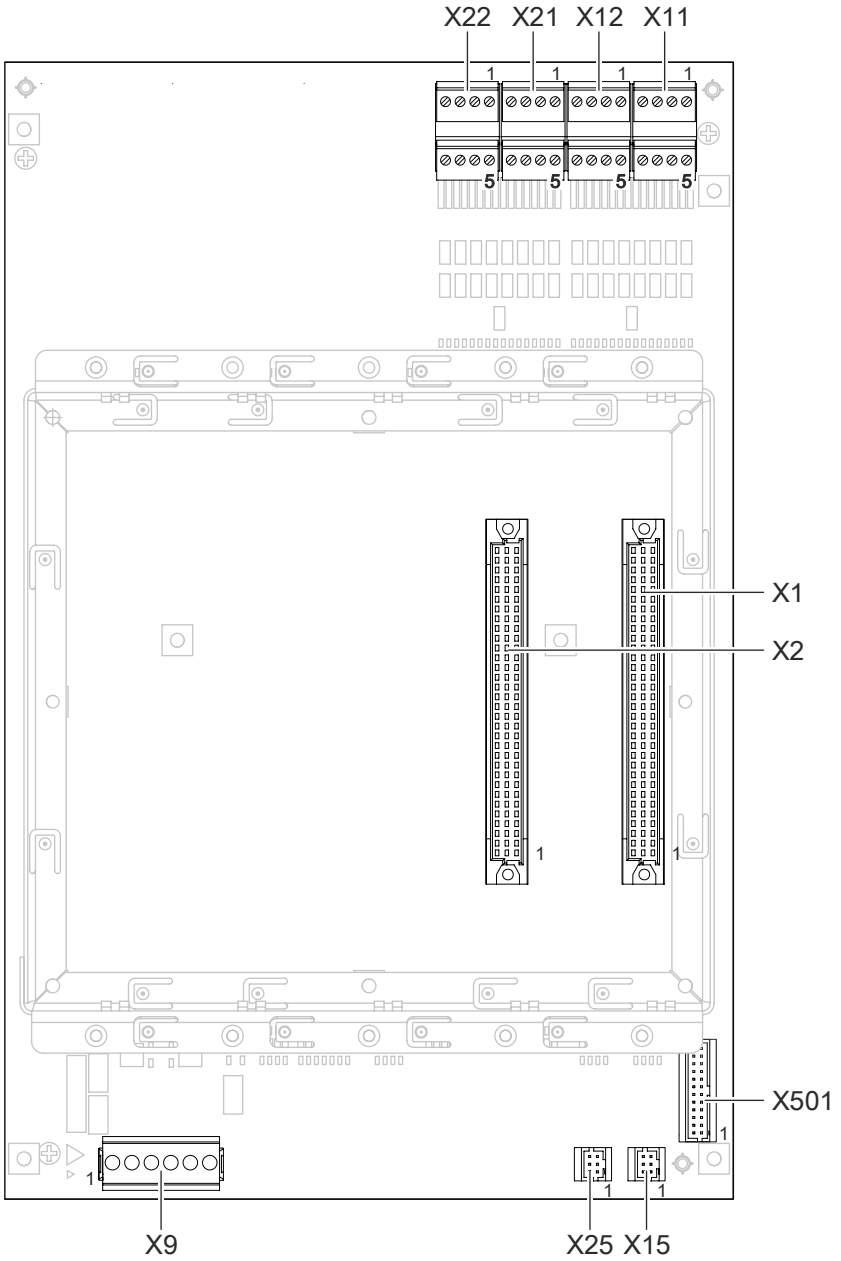


Figure 83: PCB view of card cage (2 slots) FCA2007-A1

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

Element	Des.	Function
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

6.18.2.2 Views of card cage (5 slots)

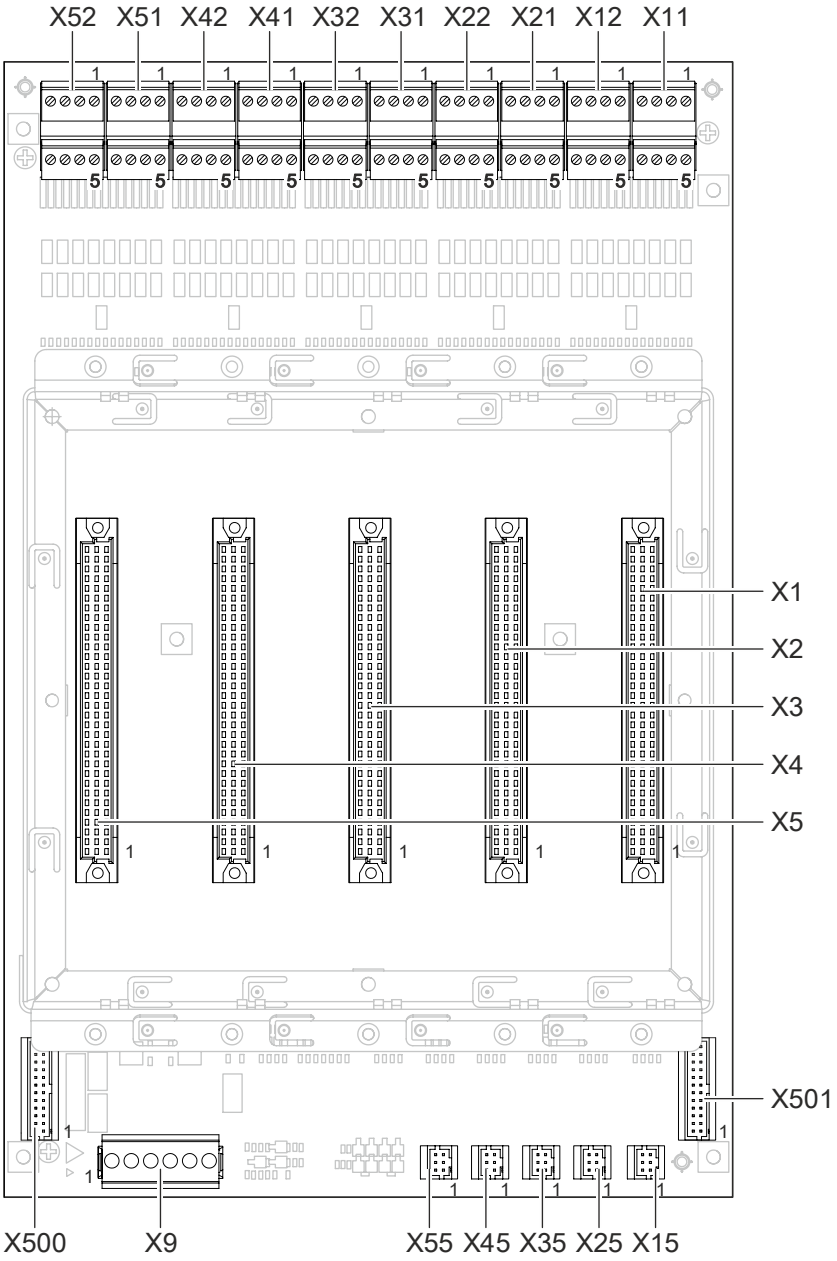


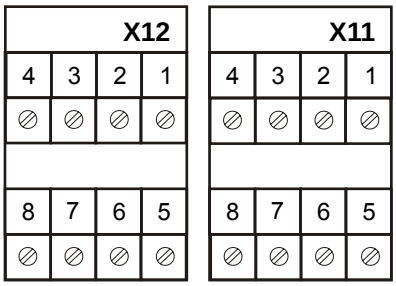
Figure 84: PCB view of card cage (5 slots) FCA2008-A1

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

6.18.2.3 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.

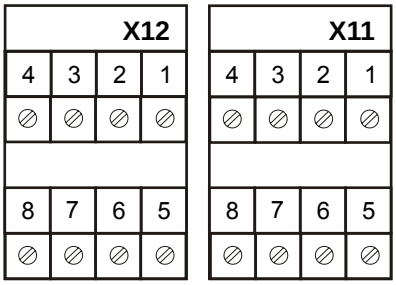
Connector	Pin	Signal	Connection	↑ Loop	↑ Stub
X11	1	IO_1	Loop1_1+	Loop 1	Stub 1
	2	IO_2	Loop1_1-		
	3	IO_3	Loop1_2+		Stub 2
	4	IO_4	Loop1_2-		
X12	1	IO_5	Loop2_1+	Loop 2	Stub 3
	2	IO_6	Loop2_1-		
	3	IO_7	Loop2_2+		Stub 4
	4	IO_8	Loop2_2-		
X11	5	IO_9	Loop3_1+	Loop 3	Stub 5
	6	IO_10	Loop3_1-		
	7	IO_11	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

6.18.2.4 Connection terminals of line card (SynoLOOP) in card cage

The line card (SynoLOOP) FCL7201-Z3 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	C11_POS	Loop 1	Stub 1
	2	IO_2	C11_NEG		
	3	IO_3	C12_POS		(Stub 1) [1]
	4	IO_4	C12_NEG		
X12	1	IO_5	C21_POS	Loop 2	Stub 2
	2	IO_6	C21_NEG		
	3	IO_7	C22_POS		(Stub 2) [1]
	4	IO_8	C22_NEG		
X11	5	IO_9	C31_POS	Loop 3	Stub 3
	6	IO_10	C31_NEG		
	7	IO_11	C32_POS		(Stub 3) [1]
	8	IO_12	C32_NEG		
X12	5	IO_13	C41_POS	Loop 4	Stub 4
	6	IO_14	C41_NEG		
	7	IO_15	C42_POS		(Stub 4) [1]
	8	IO_16	C42_NEG		

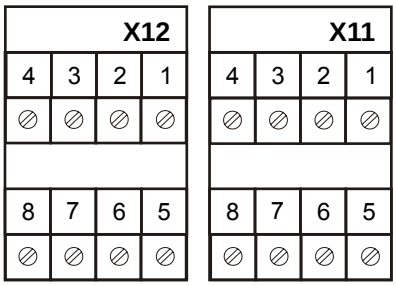
Admissible cable cross-section: 0.2…1.5 mm²

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

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

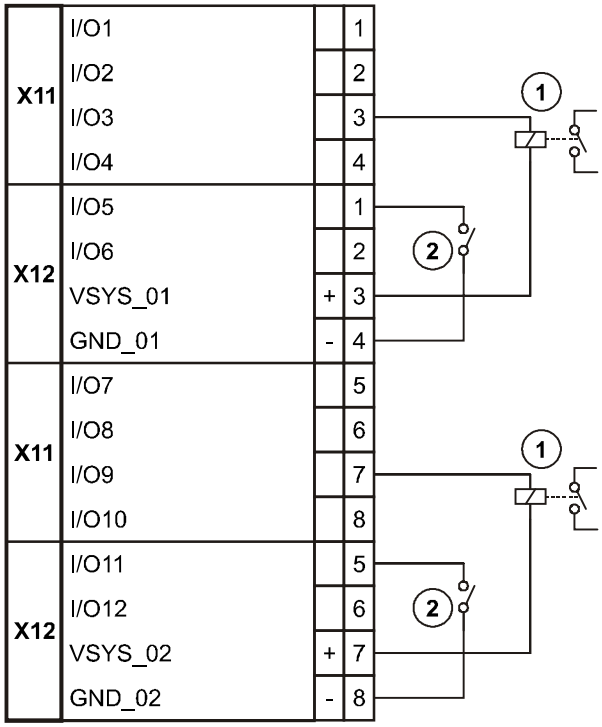
The I/O card (programmable) FCI2008-A1 determines the PIN assignment of the four connection terminals in the card cage.

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



- 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.



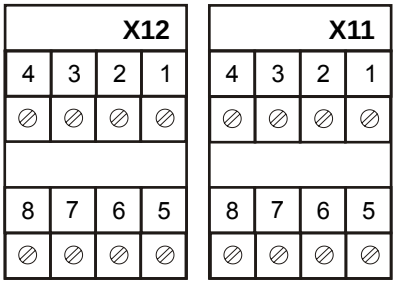
Connector	Pin	Designation	Description
X11	1	IO_1	Configurable input/output 1
	2	IO_2	Configurable input/output 2
	3	IO_3	Configurable input/output 3
	4	IO_4	Configurable input/output 4
X12	1	IO_5	Configurable input/output 5
	2	IO_6	Configurable input/output 6
	3	VSYS_01	Supply output 1 (+)
	4	GND_01	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

6.18.2.6 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			
4	3	2	1
- +		- +	
Out 4		Out 3	
8	7	6	5
- +		- +	
Out 8		Out 7	

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

n = Slot no.

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

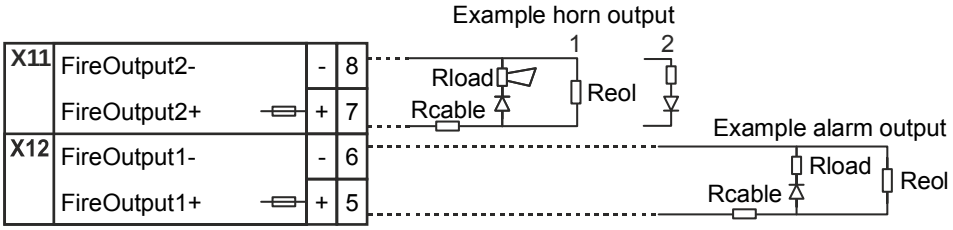


Figure 85: Switching examples for monitored alarm and horn outputs with decoupled load (EN 54)

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)

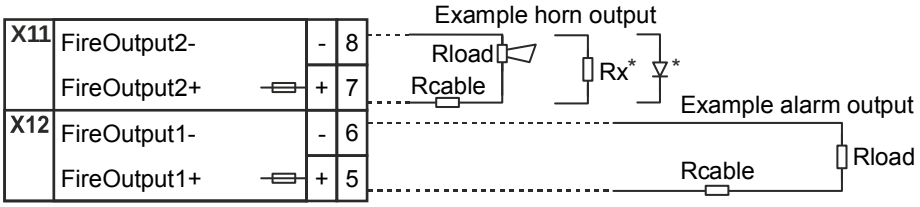


Figure 86: Switching examples for monitored alarm and horn outputs with load resistance monitoring (VdS)

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

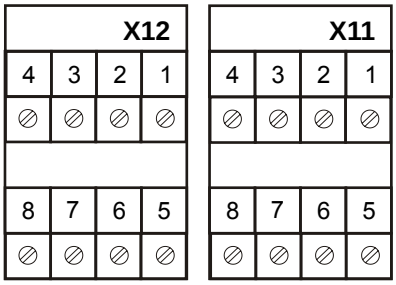
* Adaptation of the load resistance.

You will find detailed information regarding the determination of the resistances for the monitored outputs in the document Planning A6V10210362.

6.18.2.7 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 ↑ VdS

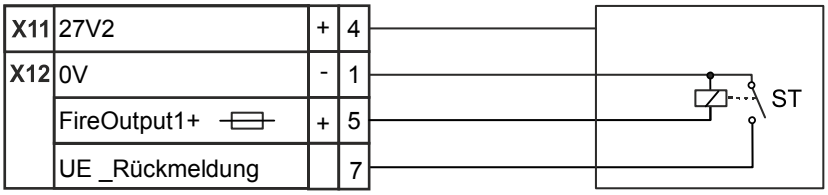


Figure 87: Switching for RE response in accordance with VdS

ST	Fault contact of the transmission device

Switching for monitored remote transmission

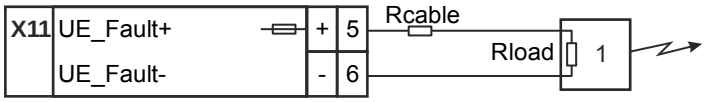


Figure 88: Switching for monitored remote transmission

Rload	Load resistance
Rcable	Line resistance
1	Remote transmission

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

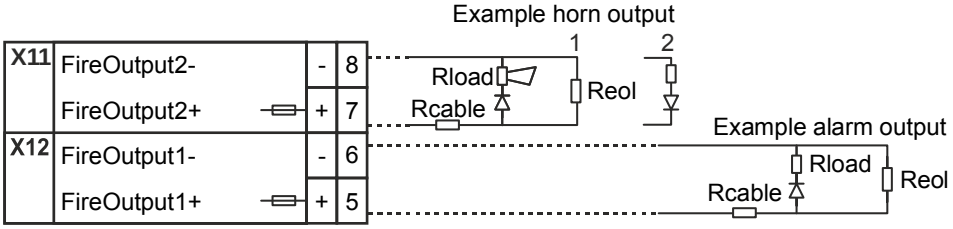


Figure 89: Switching examples for monitored alarm and horn outputs with decoupled load (EN 54)

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)

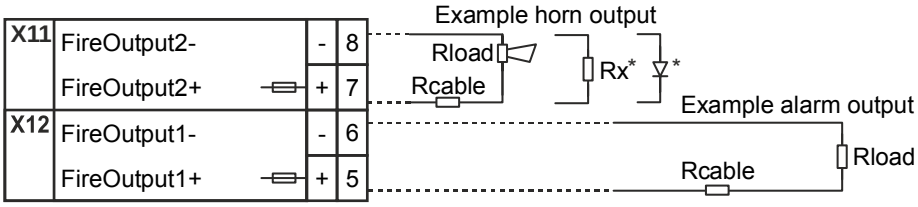


Figure 90: Switching examples for monitored alarm and horn outputs with load resistance monitoring (VdS)

Rload	Load resistance	Rx	Additional load resistance
Rcable	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 A6V10210362.

Switching for configurable inputs/outputs

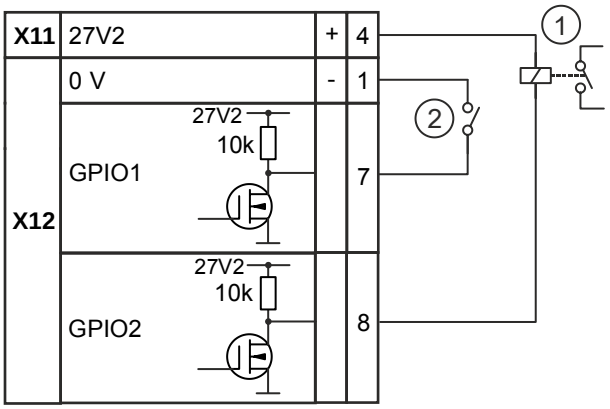


Figure 91: Switching for relays

1 Configured as output

2 Configured as input

Switching for relays ↑ RT alarm and RT fault

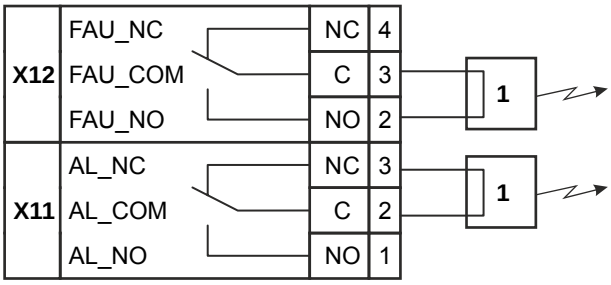


Figure 92: Switching for relays RT Alarm and RT Fault

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

6.19 RS232 / RS485 module

6.19.1 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 Cerberus-Engineering-Tool, the address must be assigned according to the slot.

Slot	Address
X14	6
X19	7

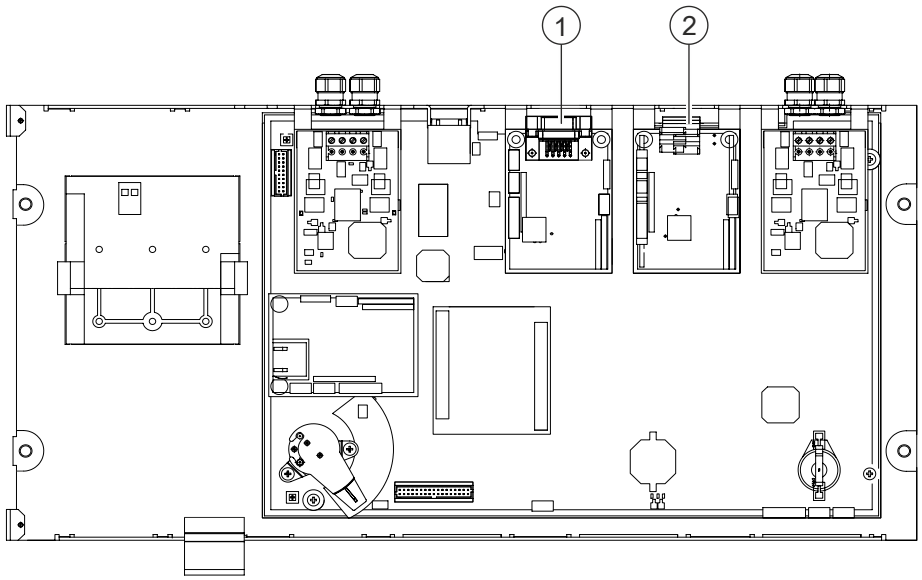


Figure 93: Installation location of the serial modules

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)

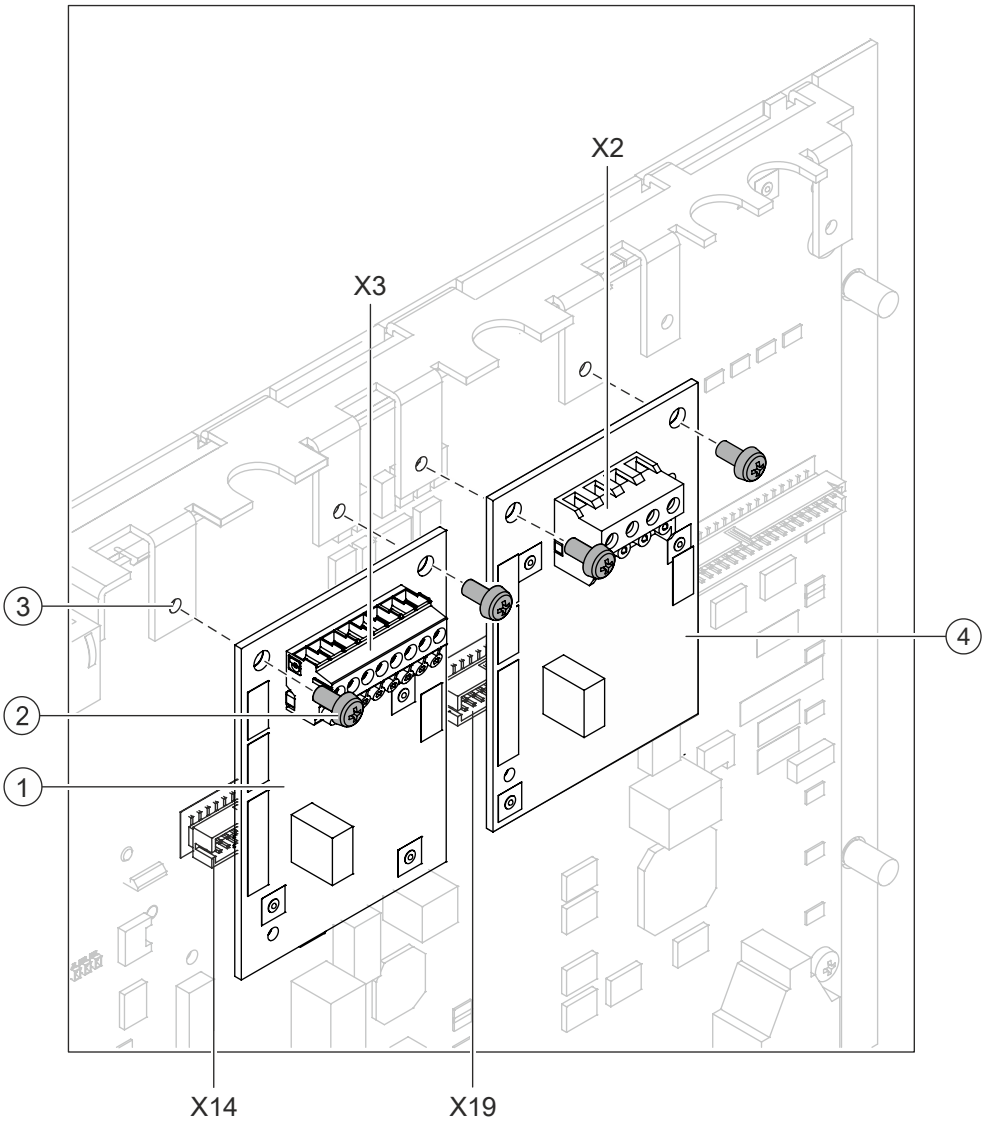


Figure 94: Sample installation of the serial modules

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.

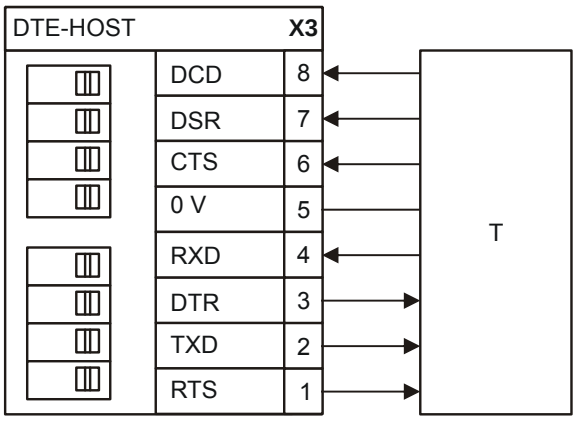
6.19.2 Pin assignments

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

6.19.2.1 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

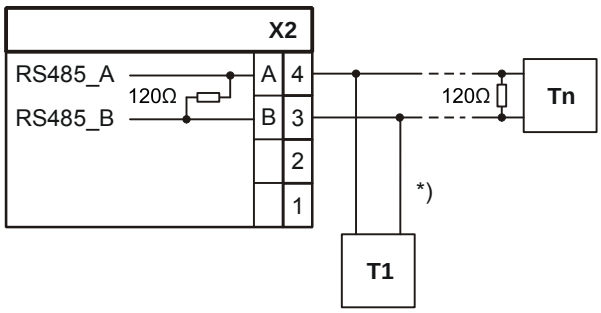


T Participant with RS232 interface

6.19.2.2 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!

6.20 Event printer

6.20.1 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 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.

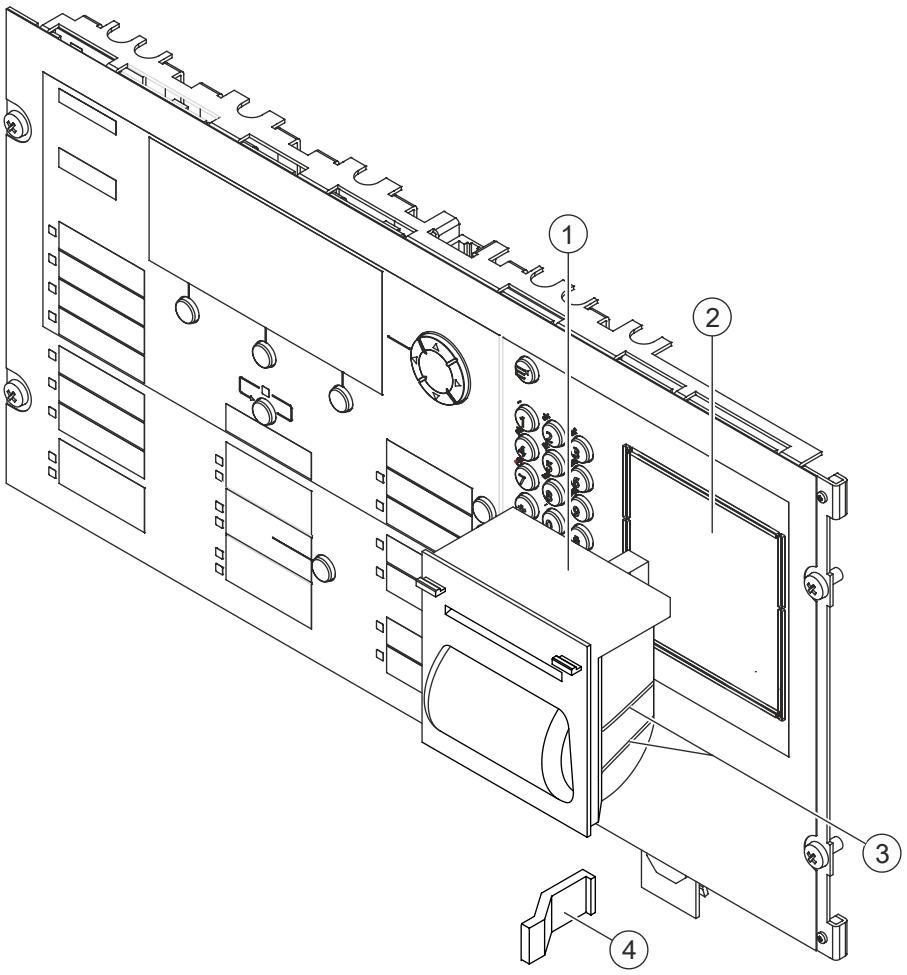


Figure 95: Installation of the printer in the operating unit

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.

6.20.2 Pin assignments

6.20.2.1 Connection on printer side

Product version (ES) 01

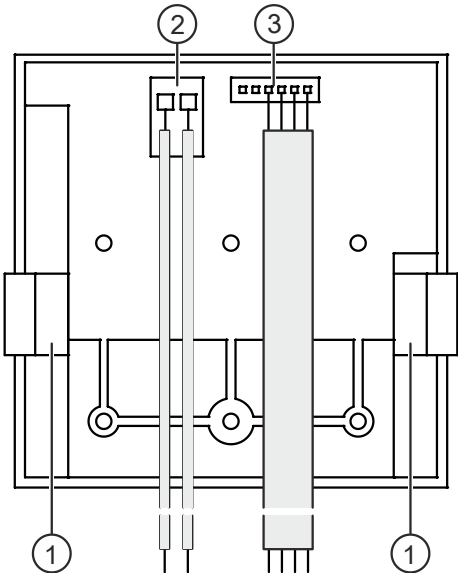
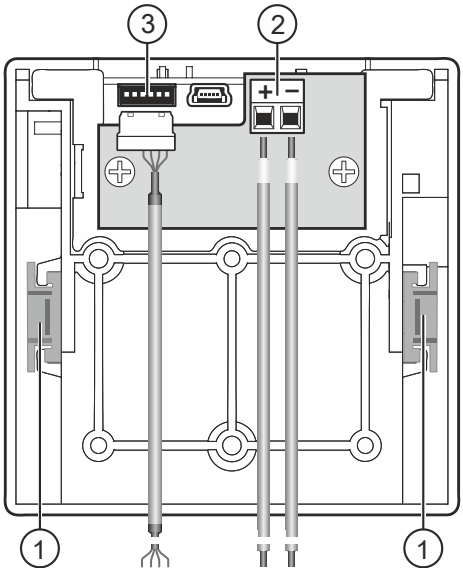


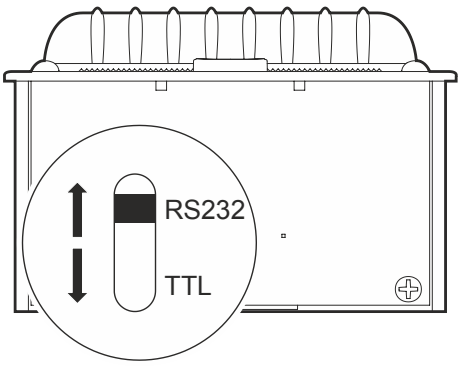
Figure 96: Rear view ES01

Product version (ES) 02



Rear view ES02

ES02: Serial interface settings



View from below

1 Fastening clamps
2 Supply connection
3 Data line connection

6.20.2.2 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 (Usys +)
	Negative supply (blue)	=>	X2, PIN 3 (Usys -)

Table 1: 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 2: 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 3: Pin assignment for RS232 module

6.21 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.

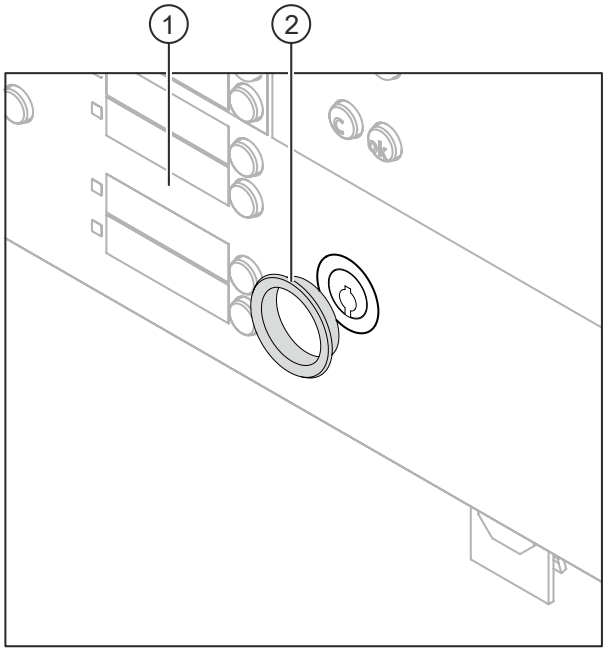


Figure 97: Installing the guard ring for the key switch on the foil side

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

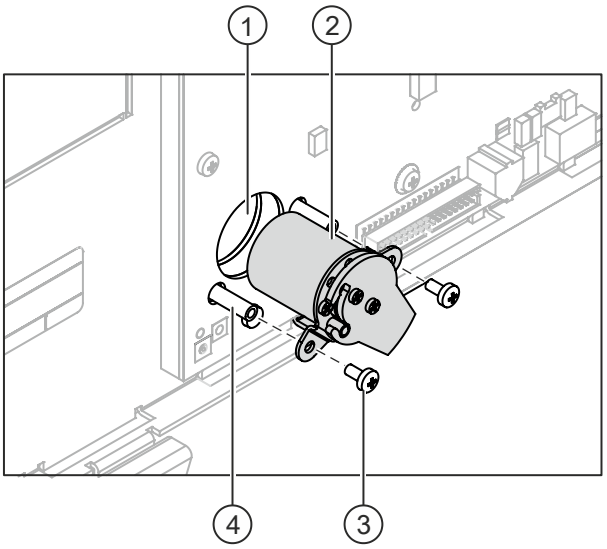


Figure 98: Installing the key switch on the PMI & mainboard

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.

6.22 Redux module [DE]

6.22.1 Installation

The Redux module RGQ:FAT-Redux-FS720 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.

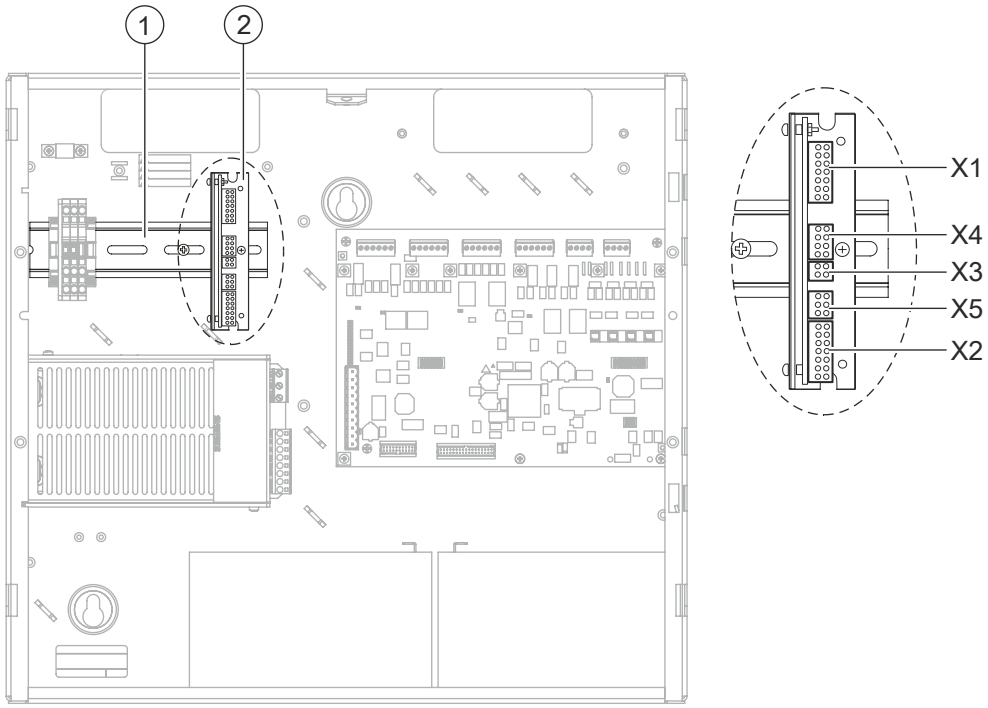


Figure 99: Installation position of the Redux module

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.

6.22.2 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.

6.23 Input/output module FDCIO224 [DE]

6.23.1 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.

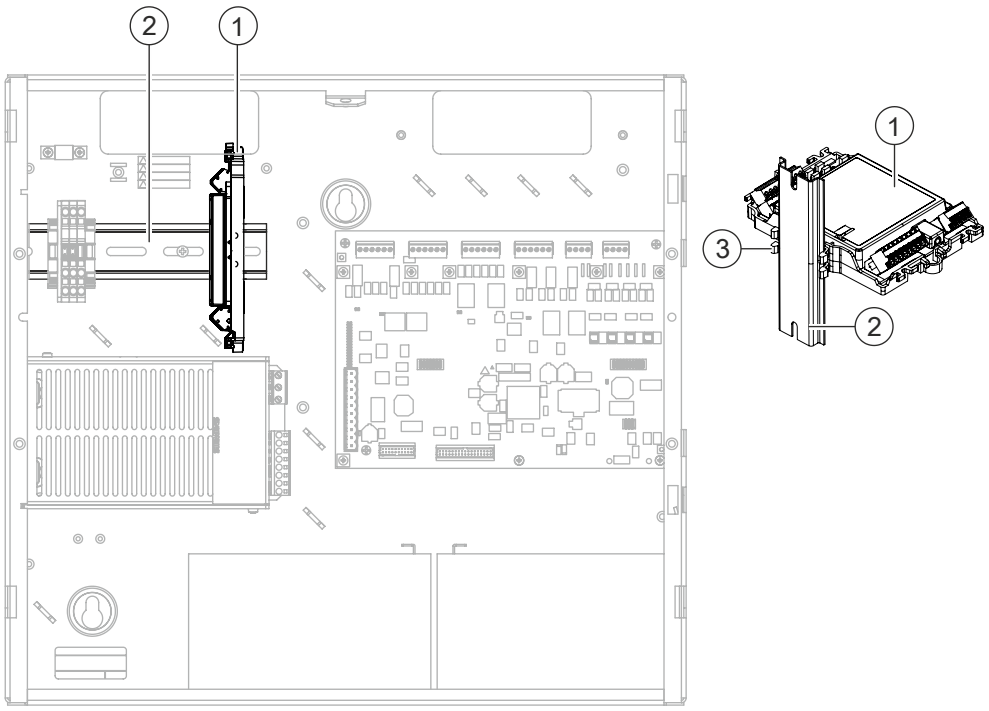


Figure 100: Installing the input/output module FDCIO224 in the fire control panel

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.

6.24 Sounder module

6.24.1 Installation

Sounder module FCI2005-A1 is fitted in the fire control panel. The sounder module can be screwed flat onto the rear panel or mounting plate or engaged on the DIN rail by means of the enclosed mounting feet FDCM291.

The following instructions show how the sounder module is mounted onto the DIN rail.

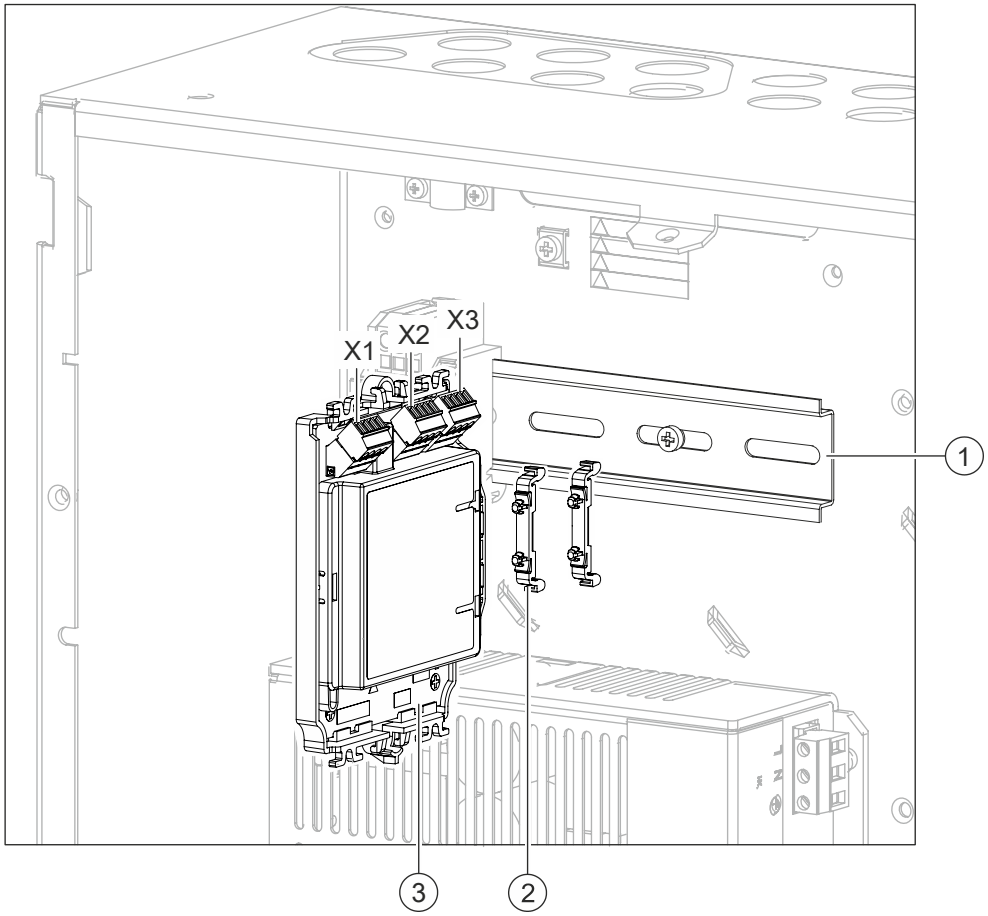


Figure 101: Installation example: sounder module FCA2005

1 DIN rail
2 Mounting feet FDCM291
3 Sounder module FCA2005-A1

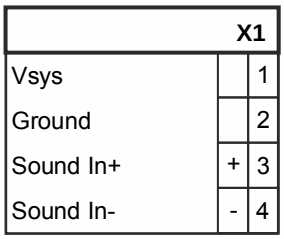
1. Insert the two mounting feet (2) laterally in the sounder module (3). Two mounting feet must always be fitted together.
2. Push the sounder module (3) with the mounting feet (2) against the DIN rail (1) until the mounting feet snap into place.
3. Wire up the sounder module according to the pin assignment.

6.24.2 Pin assignments

6.24.2.1 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-

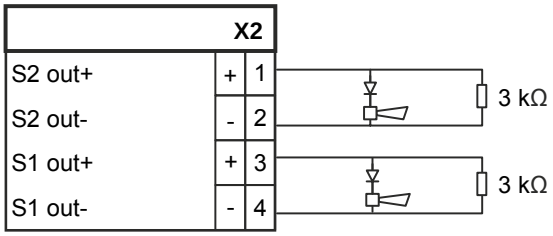
Admissible cable cross-section: 0.08…1.5 mm²



6.24.2.2 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 (-)

Admissible cable cross-section: 0.08…1.5 mm²

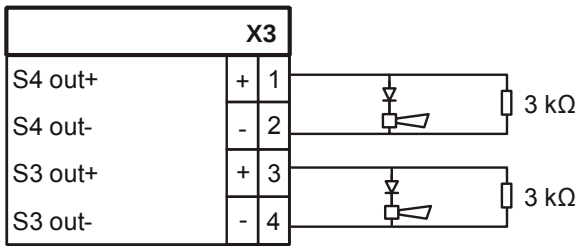


The terminating resistor of 3 kΩ has to be connected even when the output is not in use.

6.24.2.3 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 (-)

Admissible cable cross-section: 0.08…1.5 mm²



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

6.24.2.4 Cascading of two sounder modules

A maximum of two sounder modules may be cascaded.

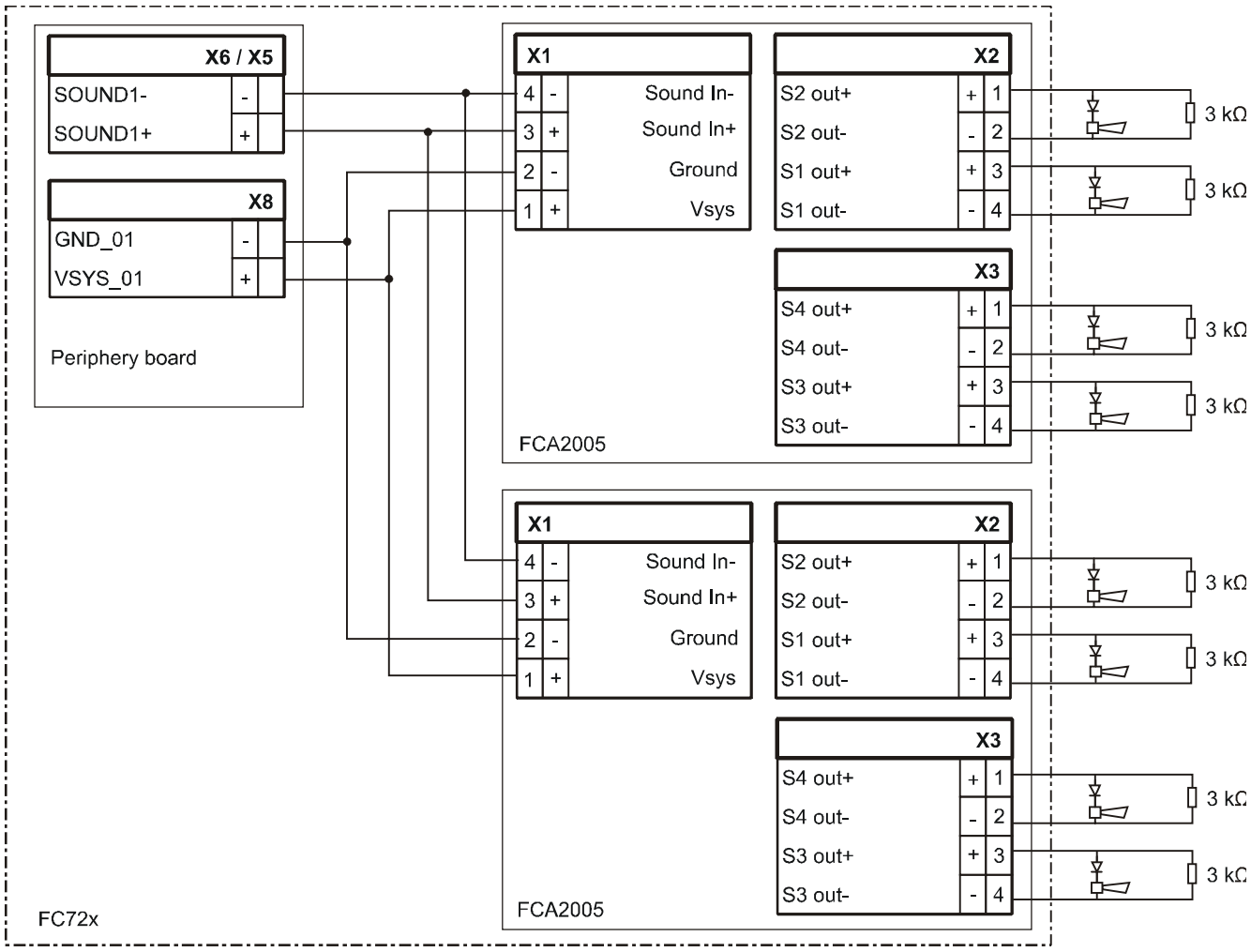


Figure 102: Cascading of two sounder modules FCA2005-A1

6.25 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

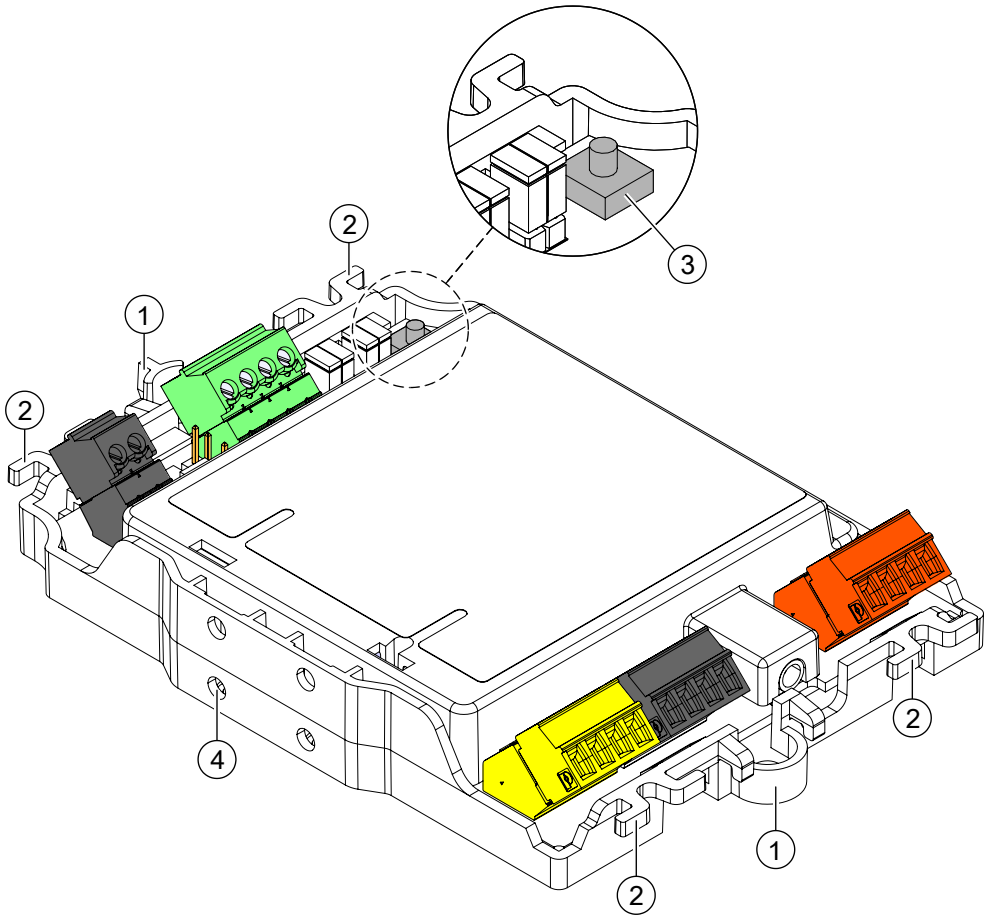


Figure 103: View of module

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

6.25.1 Mounting on DIN rail or mounting plate

!	*NOTICE*
	Short mounting distance Module overheating • 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.

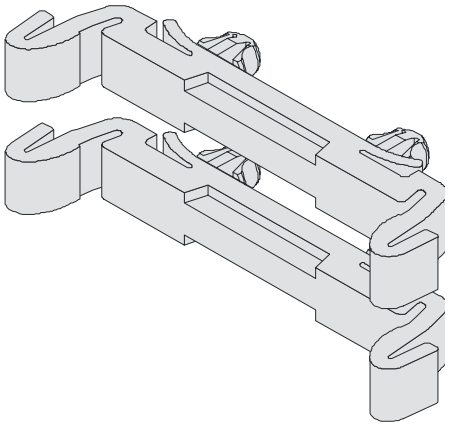


Figure 104: Mounting feet FDCM291

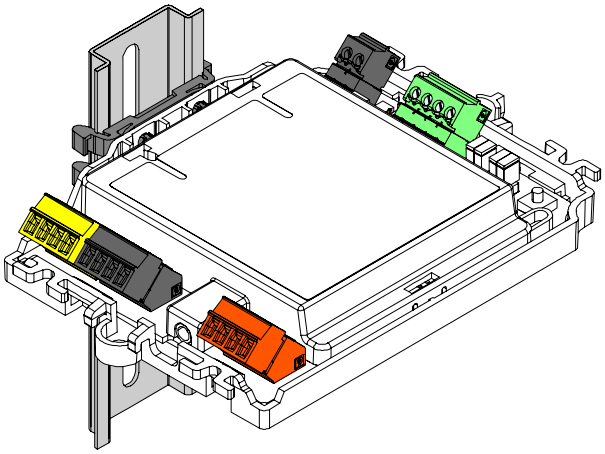


Figure 105: Mounting on DIN rail or mounting plate

6.25.2 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.

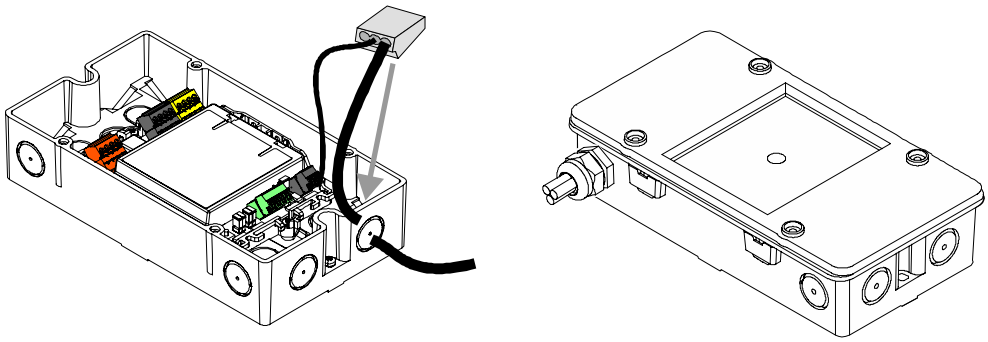


Figure 106: Mounting with housing FDCH221

6.26 RT interface [NL]

6.26.1 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 and Standard housings on the mounting plate above the periphery board

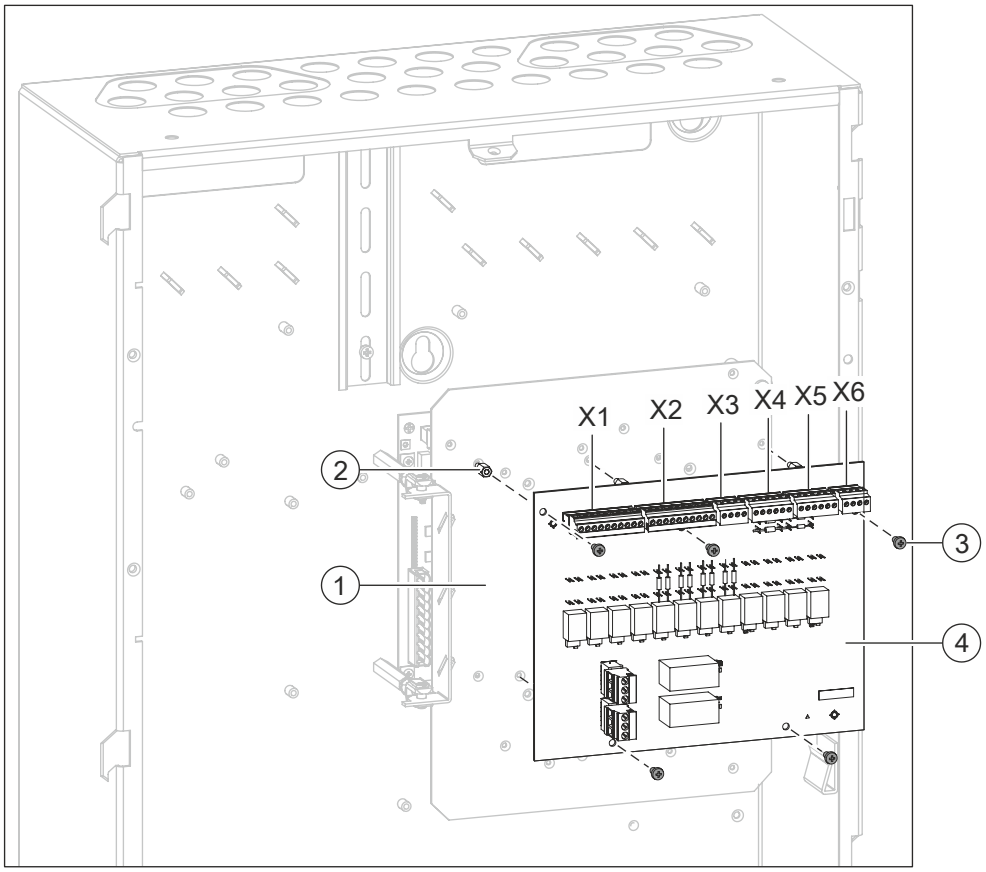


Figure 107: Mounting the RT interface into the mounting plate

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 Vsys+ and relay coils 1 … 5
X5 Relay supply Vsys+ and relay coils 6…10
X6 Relay coils 11 … 14
X7 Relay 13 switching contacts
X8 Relay 14 switching contacts

Mounting steps

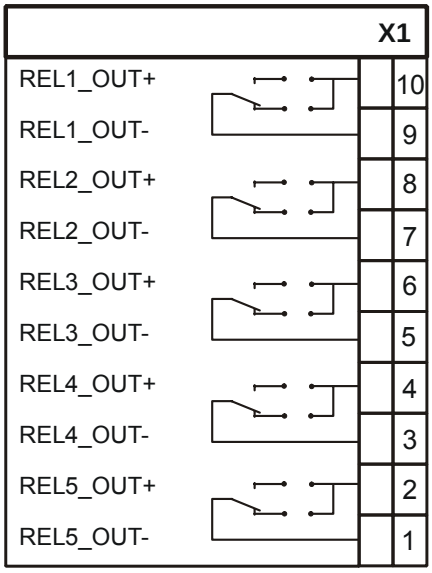
1. Mount the RT interface (4) to the mounting plate (2) or the rear panel (observe correct installation position) as shown using the five fixing screws (3). The five spacer bolts (1) must be used when installing on the mounting plate.
2. Wire up the RT interface according to the pin assignment.
3. Fix 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.

6.26.2 Pin assignments

6.26.2.1 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

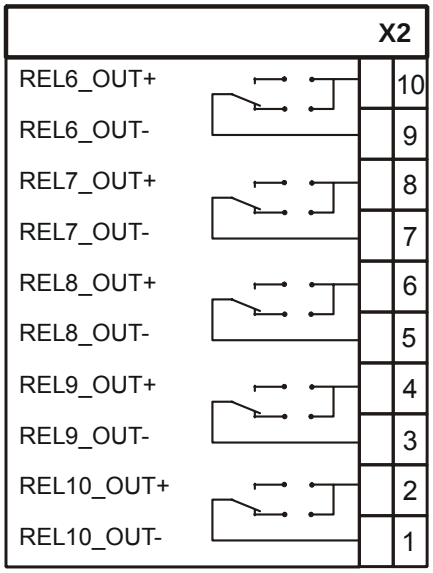
NO = Normally open
NC = Normally closed
Admissible cable cross-section: 0.14…1.5 mm²



6.26.2.2 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

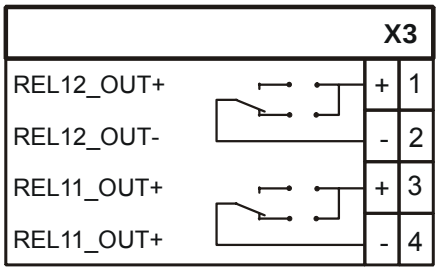
NO = Normally open
NC = Normally closed
Admissible cable cross-section: 0.14…1.5 mm²



6.26.2.3 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



6.26.2.4 X4 relay supply Vsys+ and relay coils 1…5

Pin	Designation	Description
6	20V-30V/VSYS+	Supply Vsys+ (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

6.26.2.5 X5 relay supply Vsys+ and relay coils 6…10

Pin	Designation	Description
6	20V-30V/VSYS+	Supply Vsys+ (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

6.26.2.6 X6 relay coils 11…14

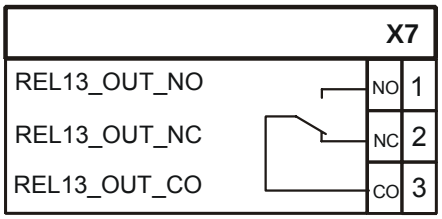
Pin	Designation	Description
4	REL11_IN-	Relay coil 11, active low
3	REL12_IN-	Relay coil 12, active low
2	REL13_IN-	Relay coil 13, active low
1	REL14_IN-	Relay coil 14, active low

Admissible cable cross-section: 0.14…1.5 mm²

6.26.2.7 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

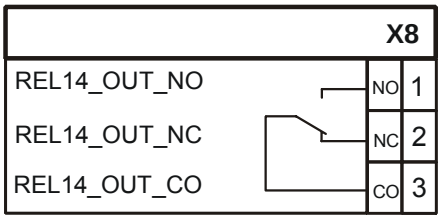
Admissible cable cross-section: 0.2…2.5 mm²



6.26.2.8 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



6.26.2.9 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	--	--

6.27 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.

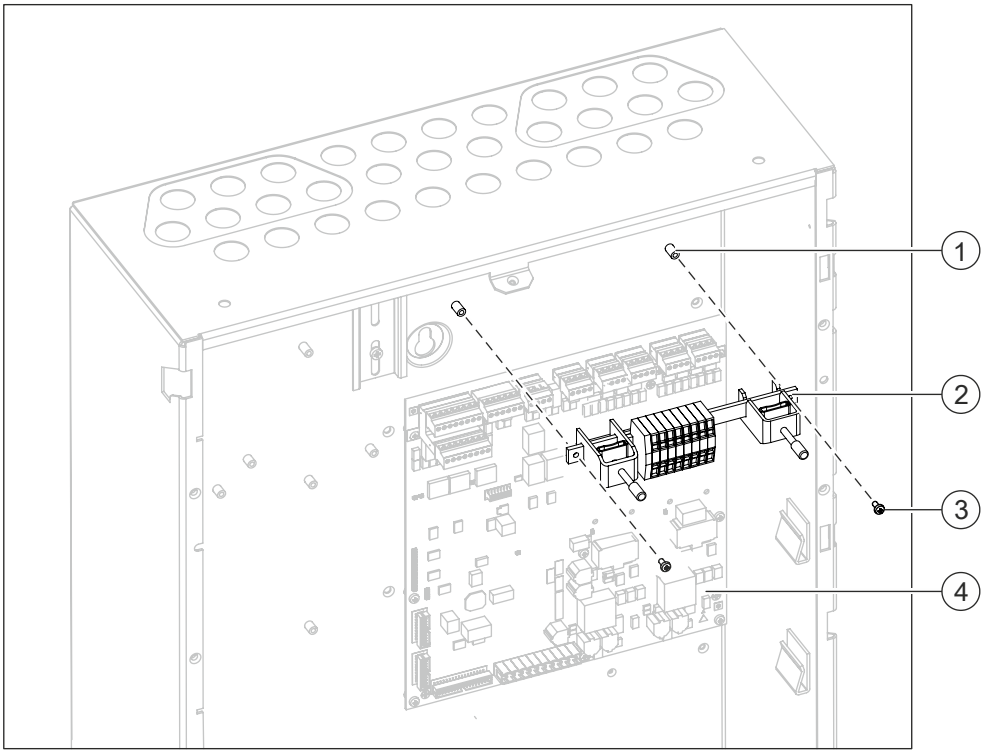


Figure 108: Installation of the cable kit (communication) on the rear panel (example, Standard housing)

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.

6.28 Insert license key

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

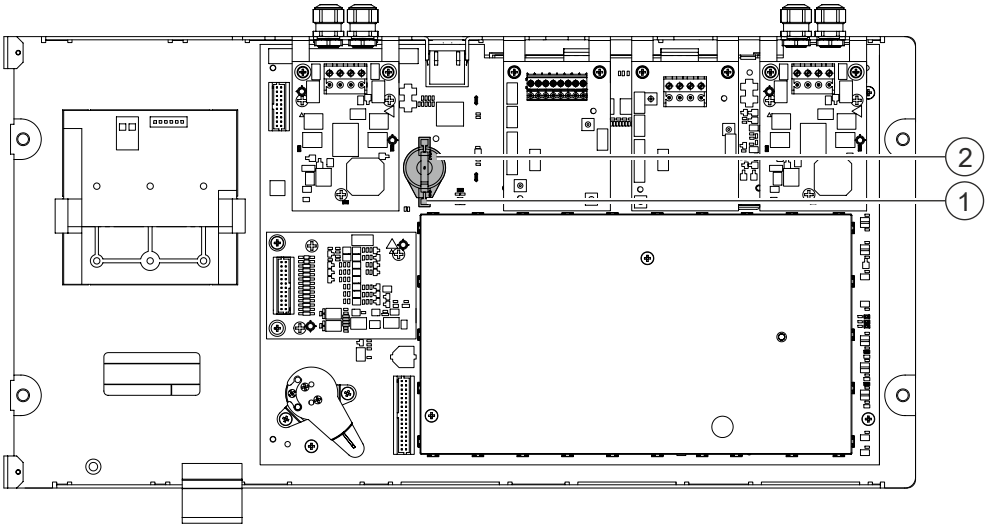


Figure 109: Using the license key on the operating unit with PMI & mainboard FCM2027

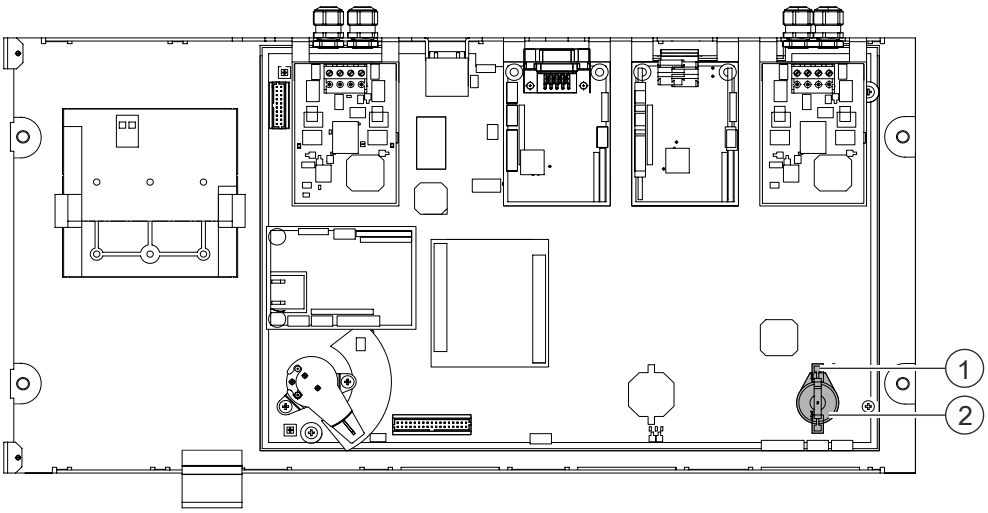


Figure 110: Using the license key on the operating unit with PMI & mainboard FCM2004

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 A6V10210416.

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.

6.29 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.

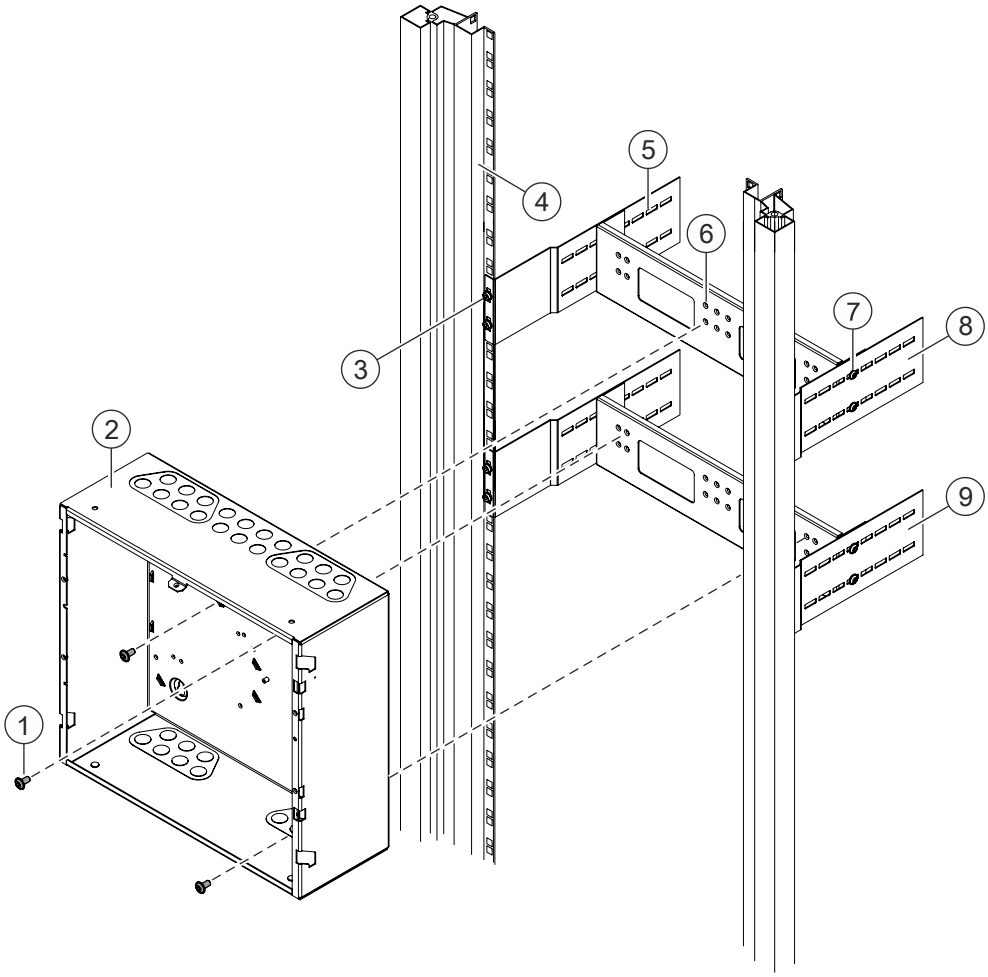


Figure 111: Installing the 19" mounting kit, taking the example of the Standard housing

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.

6.30 Batteries

Guidelines

⚠ WARNING

Switching batteries in parallel

Risk of explosion and fire

- Never connect 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 A6V10210362.
- 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.

Mounting steps

!

NOTICE

Danger of short circuit

Potential damage to hardware

- 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

⇨ The station is then ready for commissioning. You will find information about commissioning in document A6V10210416.

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

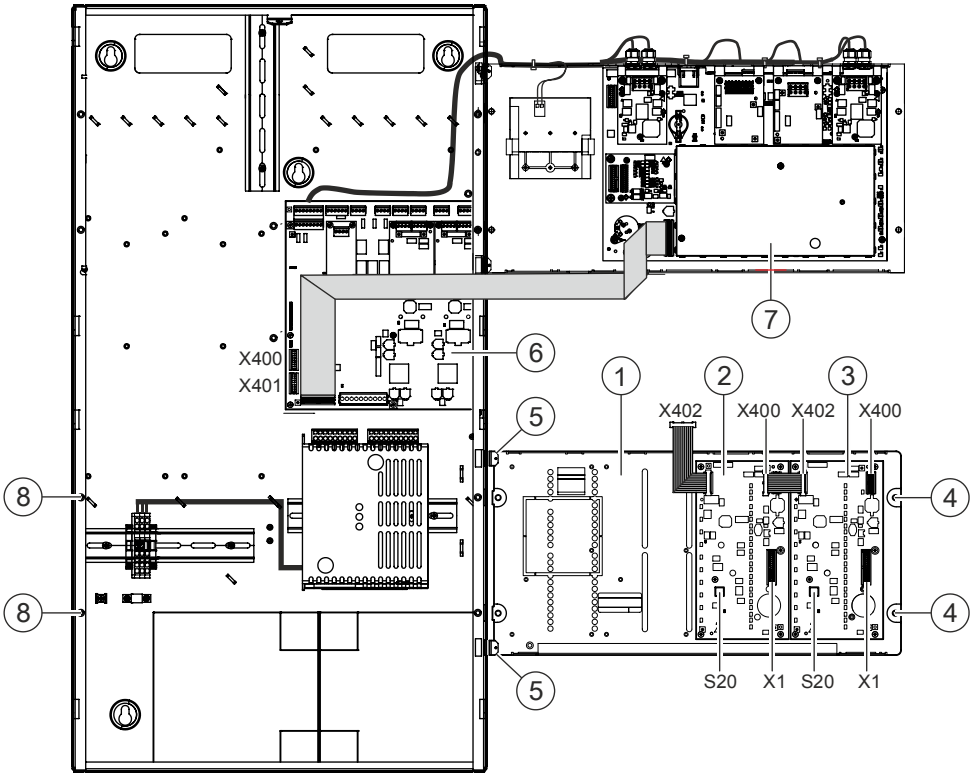


Figure 112: Example: Installation of the operating add-on with 20 zones EVAC-NL

1 Operating add-on FCM7221-H3 [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

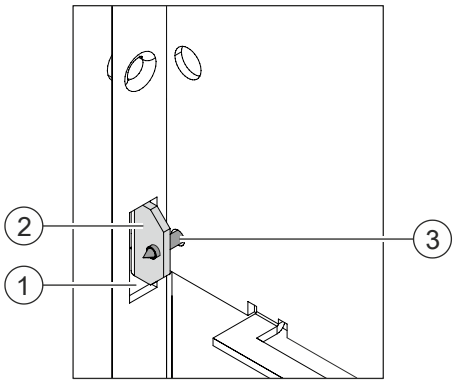


Figure 113: Detail view of the hinge of the operating add-on

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 FCM7221-H3 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.

6.31.1 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.

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

6.32.1 Remote 20-zone EVAC-NL indicator

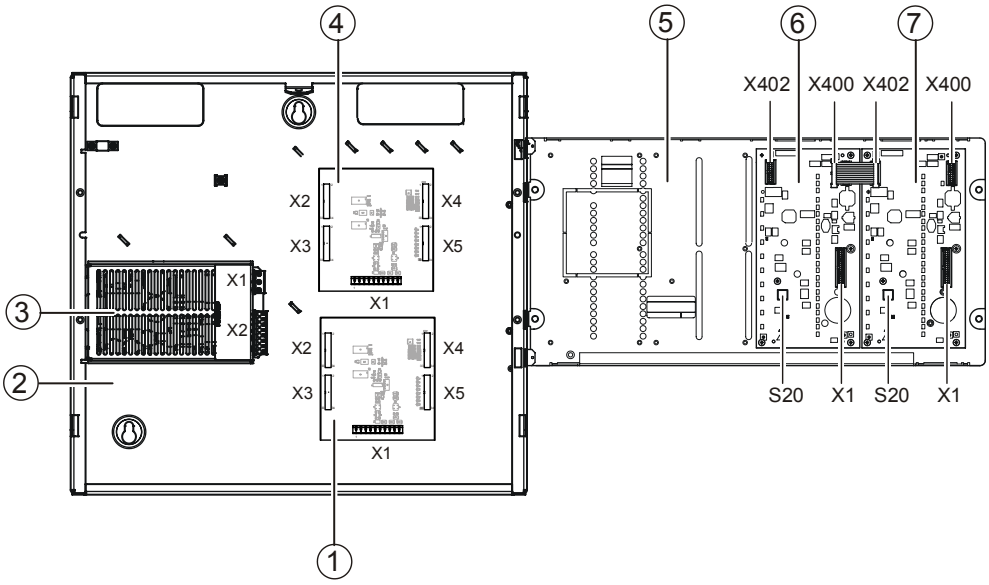


Figure 114: Example of remote mounting of the 20-zone EVAC-NL indicator in an Eco housing

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 FCM7221-H3
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 FCM7221-H3. 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 FCM7221-H3:

- Any housing or Eco housing FH7201-Z3
- 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 FCM7221-H3 (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).

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

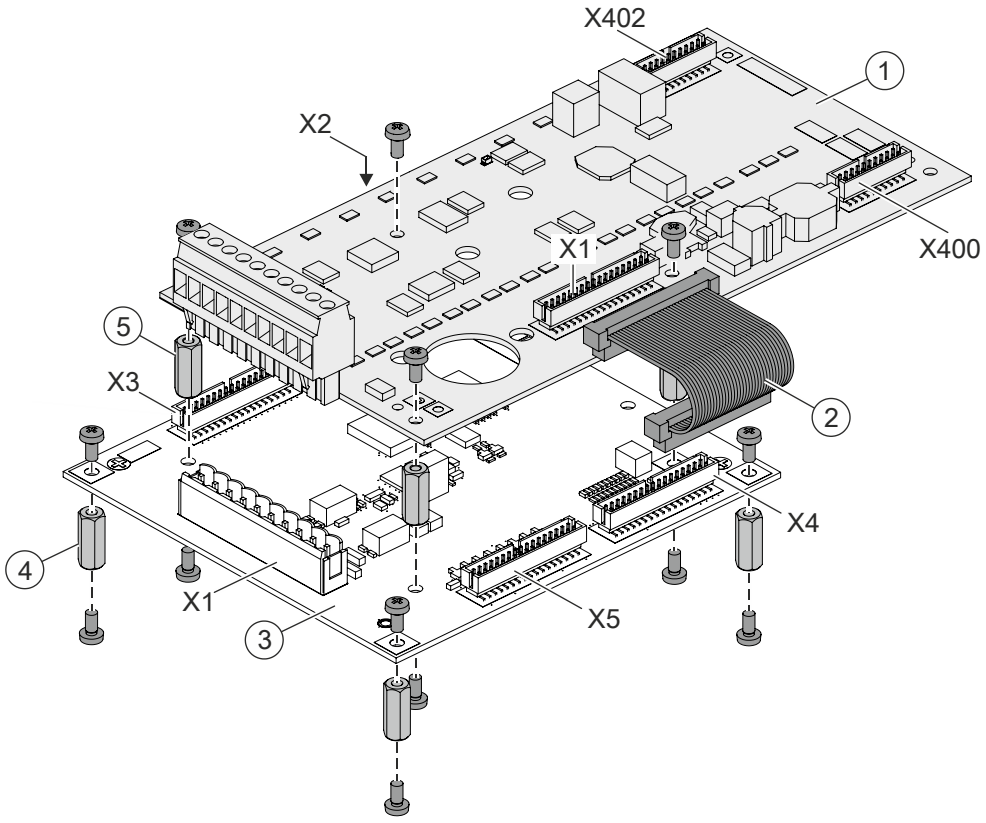


Figure 115: Assembly of EVAC-NL mimic display driver FT2003-N1

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 FH7201-Z3
- 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.

6.32.3 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.

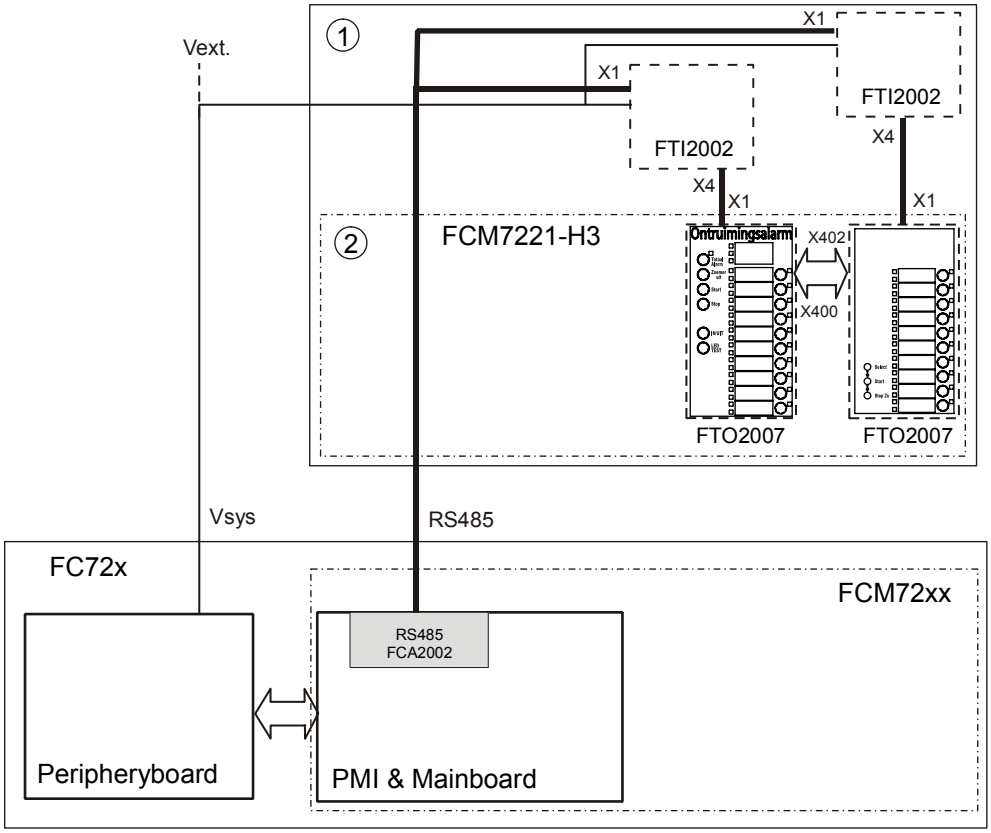


Figure 116: Wiring of the EVAC-NL connector board FTI2002-N1 in a remote EVAC 20-zone indicator

1	Any housing (e.g. ECO housing)
2	Operating add-on FCM7221-H3
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.

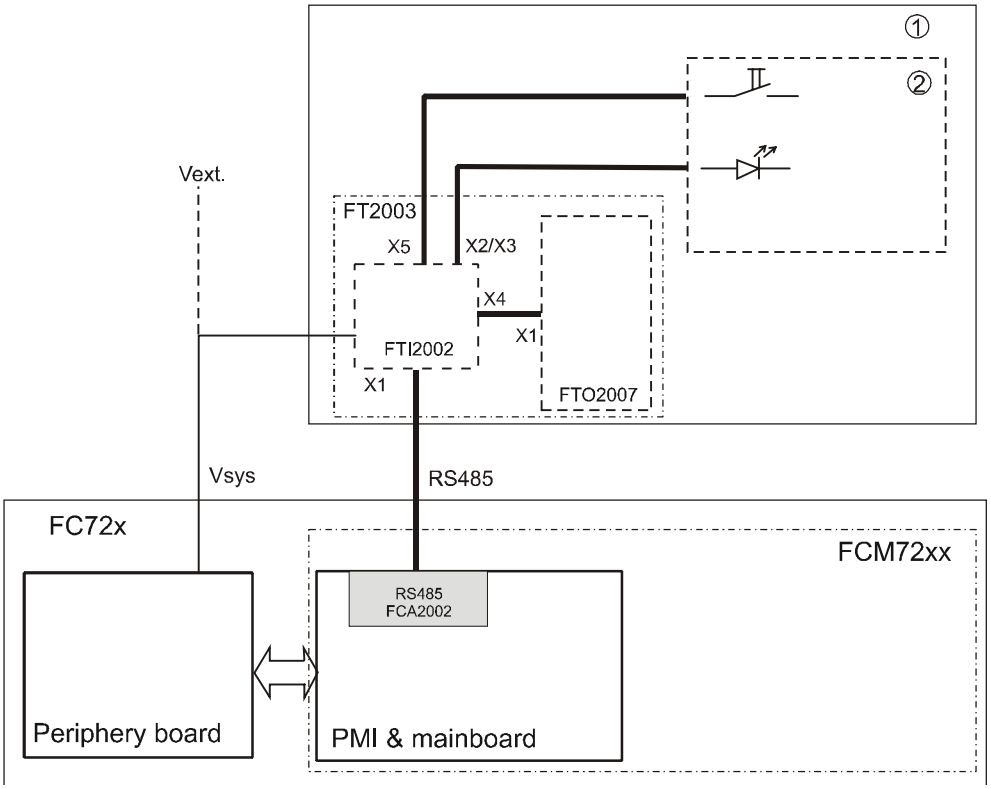


Figure 117: Wiring for EVAC-NL mimic display FT2003-N1

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

6.32.4 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.

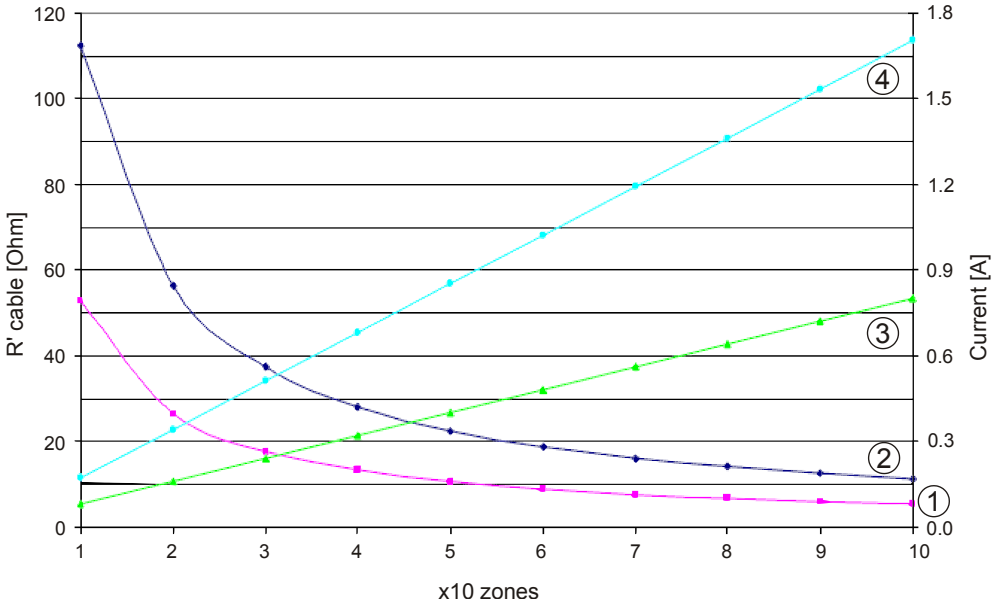


Figure 118: Diagram for calculating the max. cable resistance

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-NL indicators, one with 20 zones, the other with 30 zones, are supplied by the periphery board of the same ↑ station.

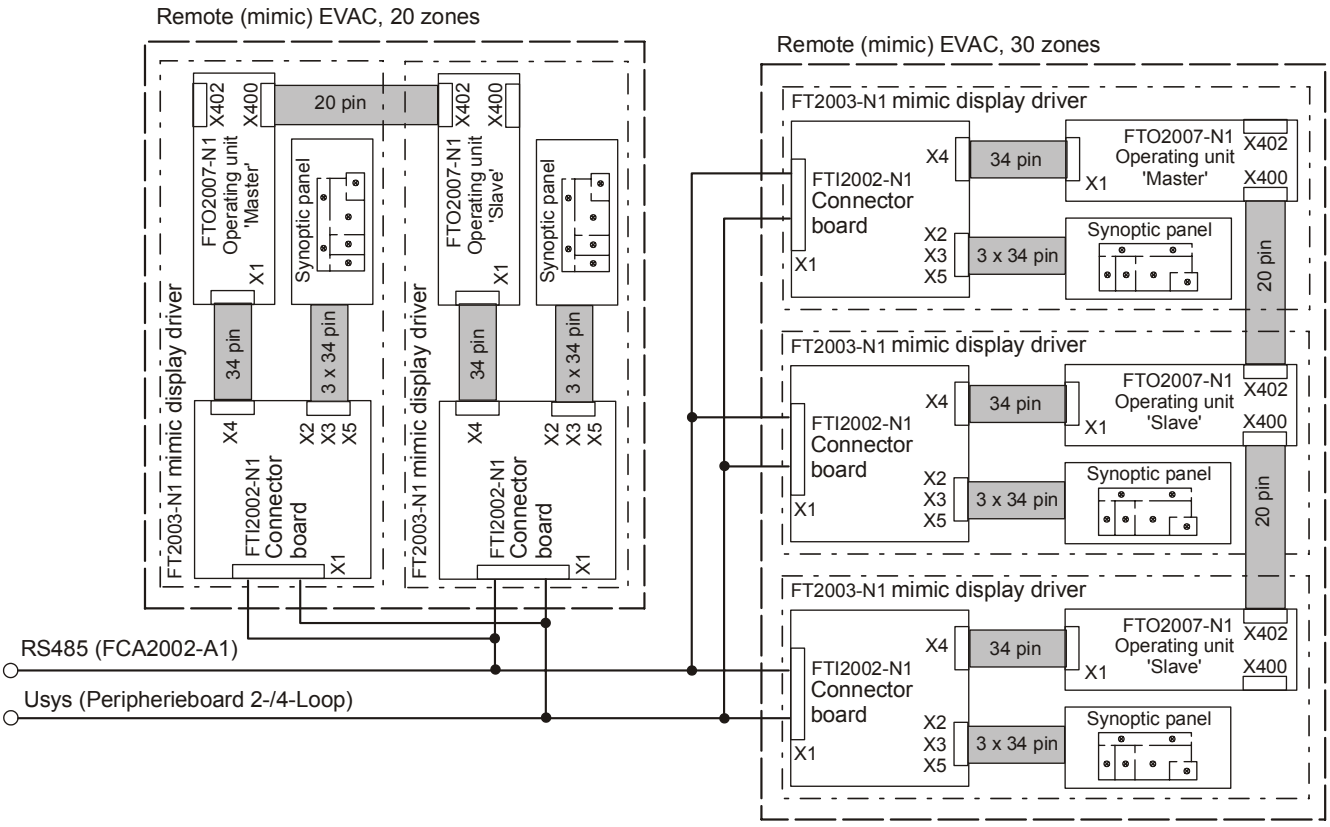


Figure 119: Wiring example for calculating the cable resistance

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)

6.32.5 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

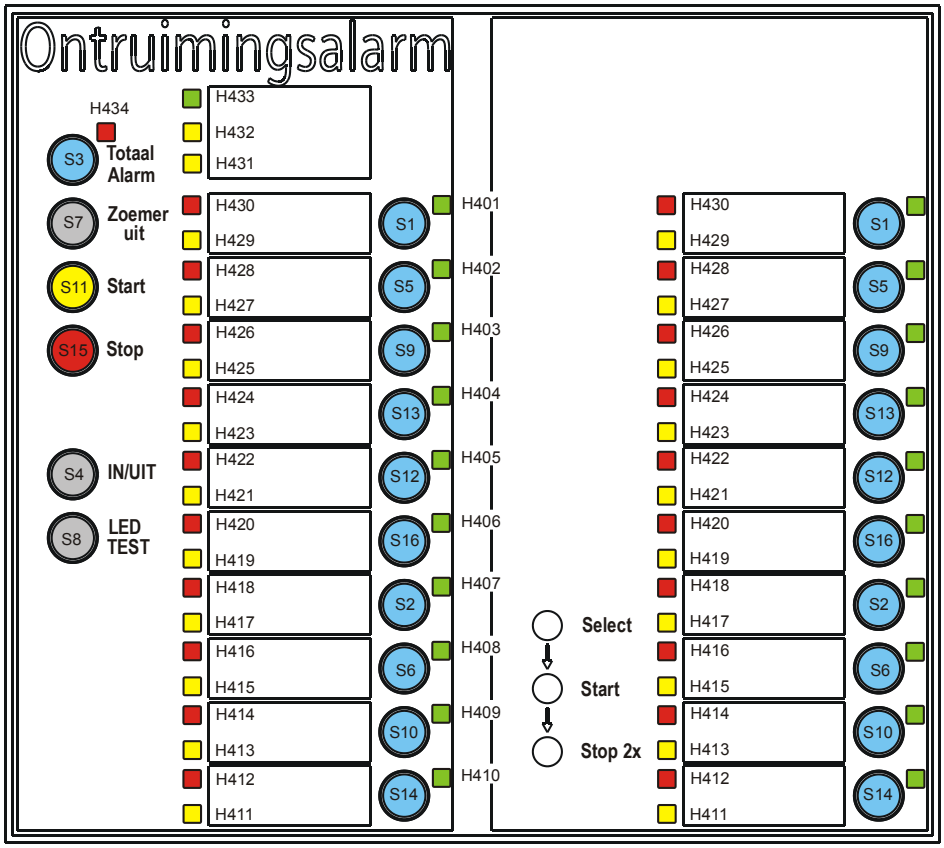


Figure 120: EVAC master unit (left), EVAC slave unit (right)

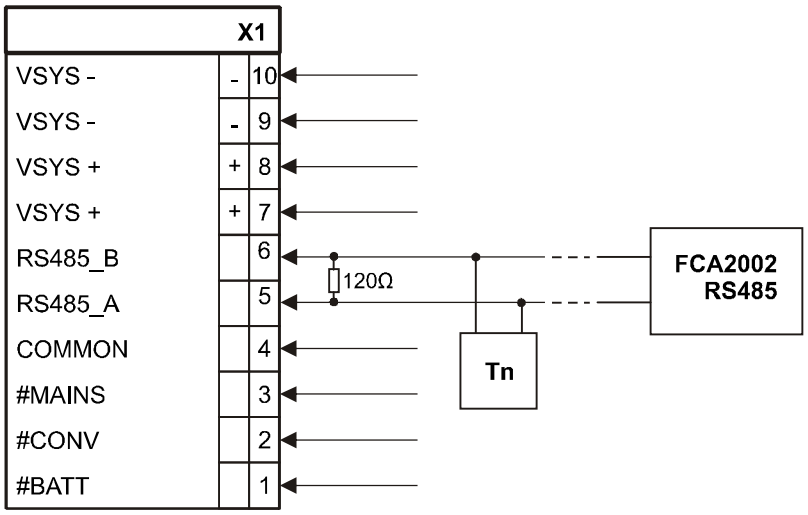
Indicators on the print plate

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

6.32.6 Connection FTI2002-N1

6.32.6.1 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

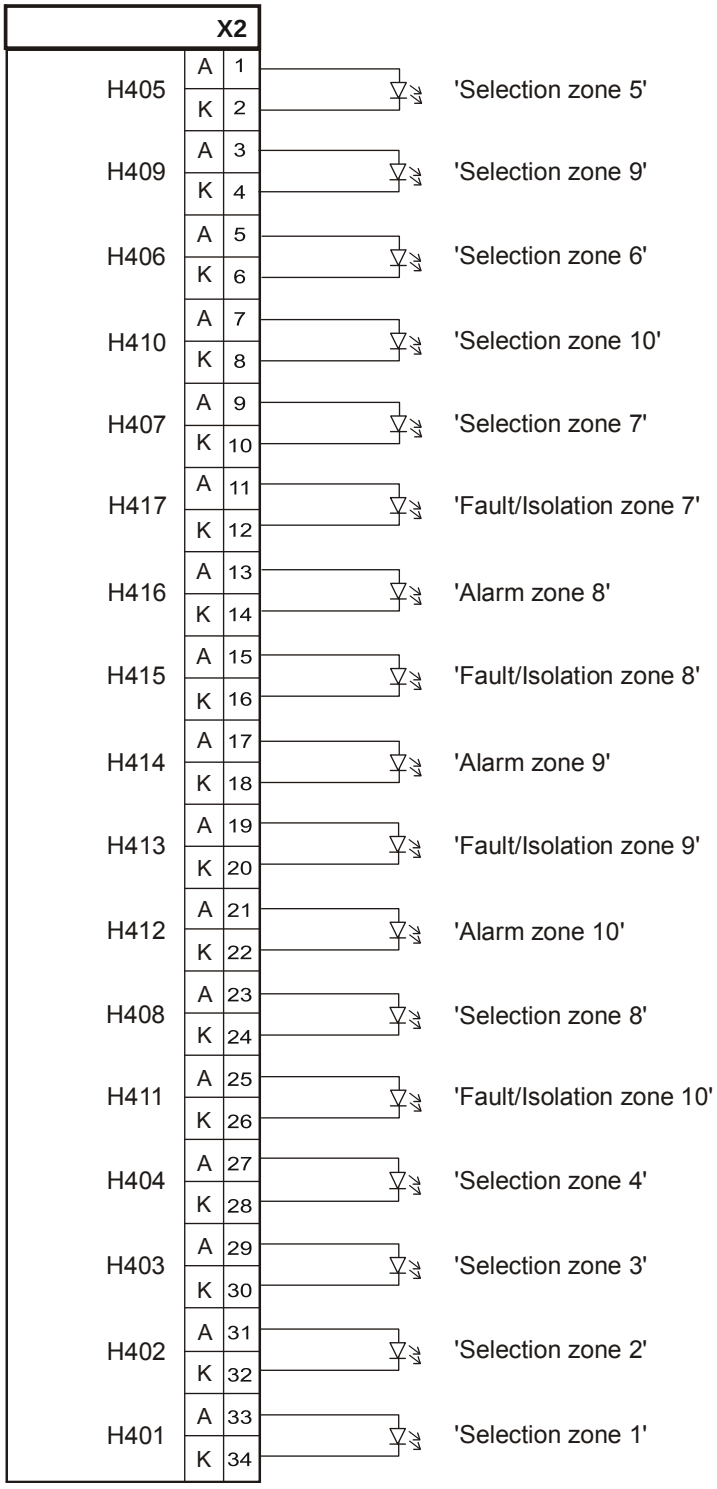


Tn = Last participant

!	*NOTICE*
	[1] **Note the polarity of connections A and B.** The last participant connection must have a resistance of 120 Ω.

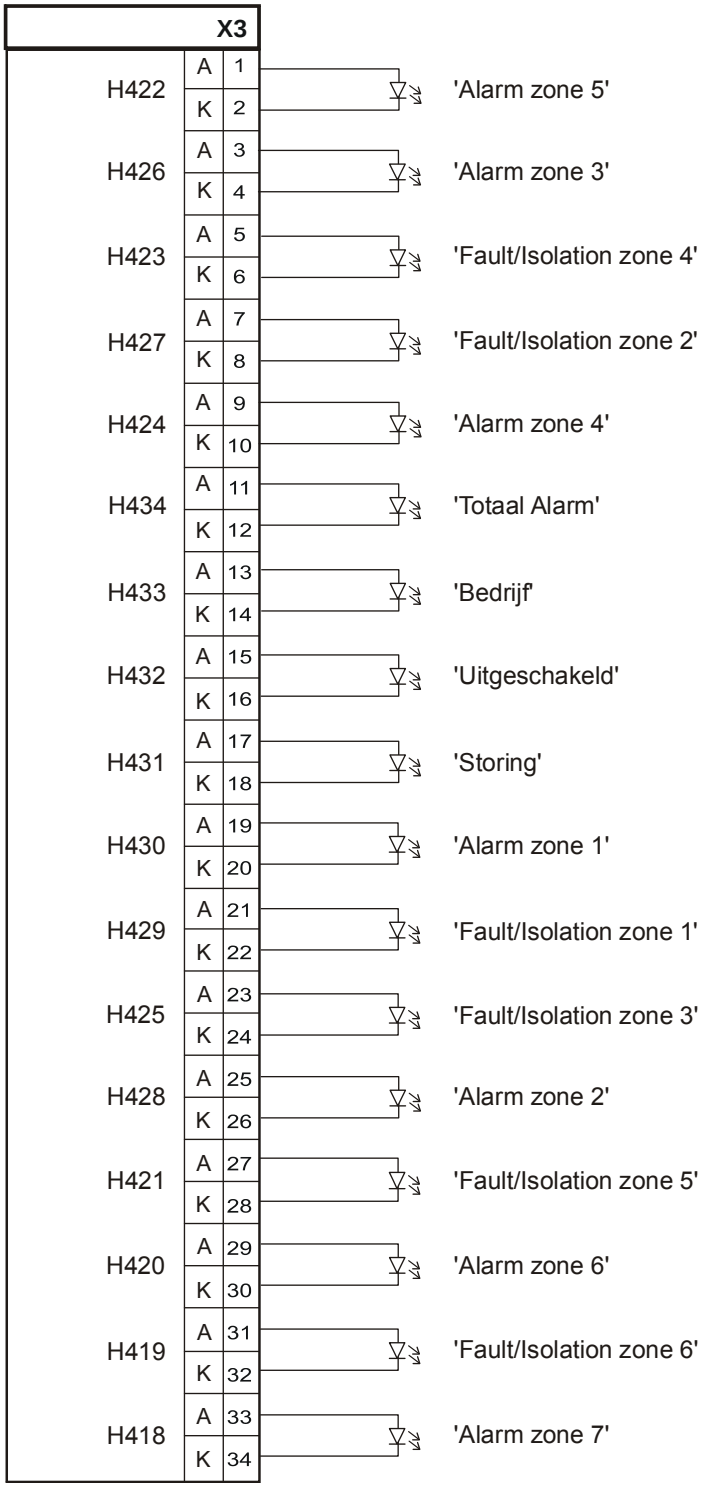
6.32.6.2 X2 LED mimic display

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


X2
H405 A 1 K 2 'Selection zone 5'
H409 A 3 K 4 'Selection zone 9'
H406 A 5 K 6 'Selection zone 6'
H410 A 7 K 8 'Selection zone 10'
H407 A 9 K 10 'Selection zone 7'
H417 A 11 K 12 'Fault/Isolation zone 7'
H416 A 13 K 14 'Alarm zone 8'
H415 A 15 K 16 'Fault/Isolation zone 8'
H414 A 17 K 18 'Alarm zone 9'
H413 A 19 K 20 'Fault/Isolation zone 9'
H412 A 21 K 22 'Alarm zone 10'
H408 A 23 K 24 'Selection zone 8'
H411 A 25 K 26 'Fault/Isolation zone 10'
H404 A 27 K 28 'Selection zone 4'
H403 A 29 K 30 'Selection zone 3'
H402 A 31 K 32 'Selection zone 2'
H401 A 33 K 34 'Selection zone 1'

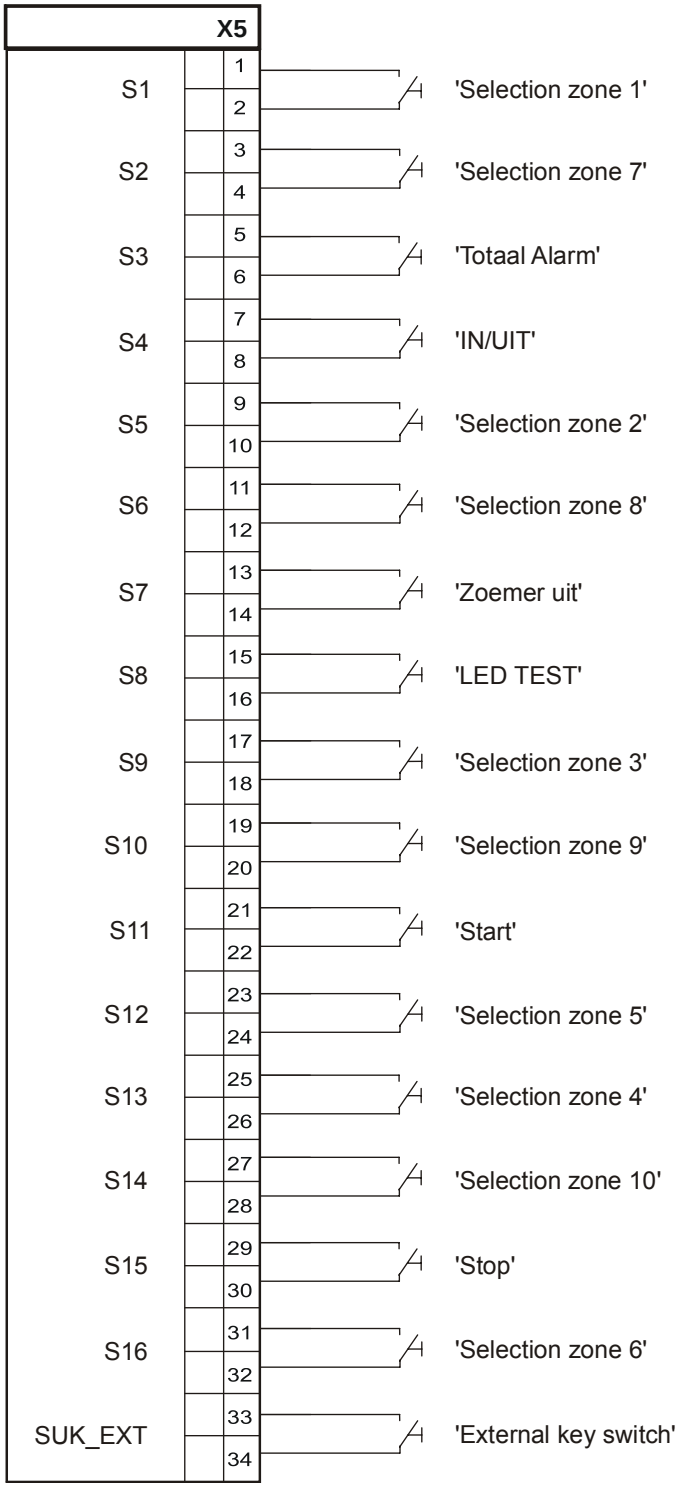
6.32.6.3 X3 LED mimic display

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


X3
H422 A 1 K 2 'Alarm zone 5'
H426 A 3 K 4 'Alarm zone 3'
H423 A 5 K 6 'Fault/Isolation zone 4'
H427 A 7 K 8 'Fault/Isolation zone 2'
H424 A 9 K 10 'Alarm zone 4'
H434 A 11 K 12 'Totaal Alarm'
H433 A 13 K 14 'Bedrijf'
H432 A 15 K 16 'Uitgeschakeld'
H431 A 17 K 18 'Storing'
H430 A 19 K 20 'Alarm zone 1'
H429 A 21 K 22 'Fault/Isolation zone 1'
H425 A 23 K 24 'Fault/Isolation zone 3'
H428 A 25 K 26 'Alarm zone 2'
H421 A 27 K 28 'Fault/Isolation zone 5'
H420 A 29 K 30 'Alarm zone 6'
H419 A 31 K 32 'Fault/Isolation zone 6'
H418 A 33 K 34 'Alarm zone 7'

6.32.6.4 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)


X5
S1
1
2
'Selection zone 1'
S2
3
4
'Selection zone 7'
S3
5
6
'Totaal Alarm'
S4
7
8
'IN/UIT'
S5
9
10
'Selection zone 2'
S6
11
12
'Selection zone 8'
S7
13
14
'Zoemer uit'
S8
15
16
'LED TEST'
S9
17
18
'Selection zone 3'
S10
19
20
'Selection zone 9'
S11
21
22
'Start'
S12
23
24
'Selection zone 5'
S13
25
26
'Selection zone 4'
S14
27
28
'Selection zone 10'
S15
29
30
'Stop'
S16
31
32
'Selection zone 6'
SUK_EXT
33
34
'External key switch'

6.32.7 Connection FTO2007-N1

6.32.7.1 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.

6.33 Door contact kit [DE]

6.33.1 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.

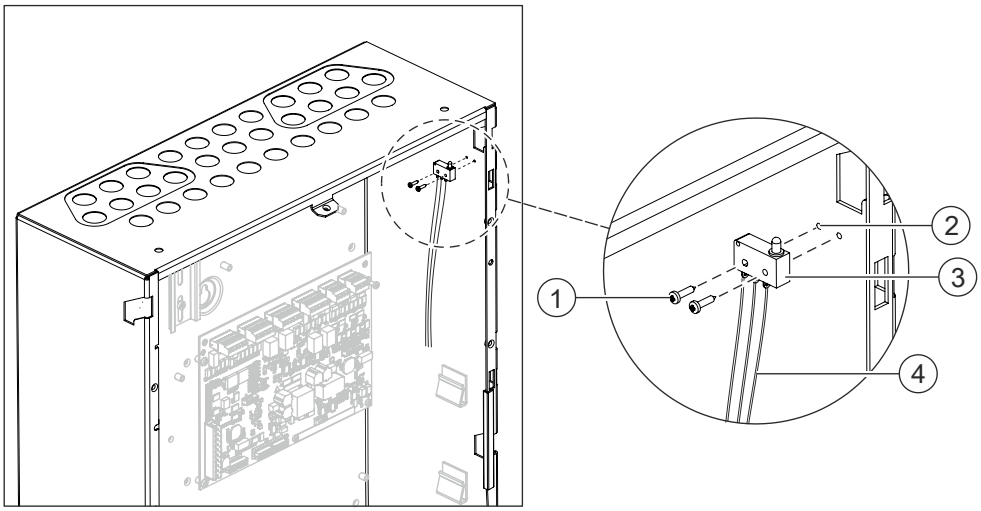


Figure 121: Installing door contact kit FCA2009-A1

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.

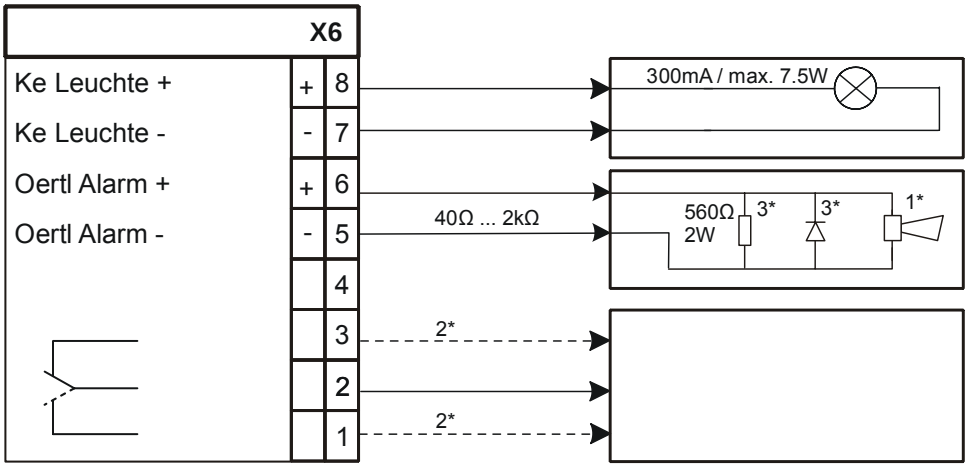
6.33.2 Pin assignments

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

6.33.2.1 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

7 Removal

!	*NOTICE*
	Damage to hardware • Correctly take the station out of operation before removing the components.

	⚠ WARNING
	Electrical voltage Electric shock • Before connecting the mains cable, make sure that the cable is current-free. • Ensure that the mains is secured against inadvertently being switched on.

Removal of components and the disassembly of stations is carried out in reverse mounting sequence. If the steps for disassembly differ from the description for installing the components, this is clearly indicated.

8 Concluding work

8.1 Insert printing paper

The printer can also be fitted the other way round, i.e. different from the position shown below.

Opening the printer

- Push the clips slightly down and open the printer as shown in the figure.

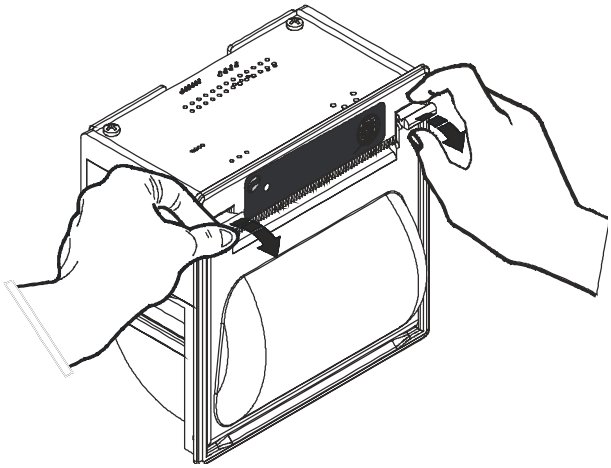


Figure 122: Opening the printer

Replacing the paper roll

1. Remove the reel of the old paper roll.
2. Insert the new paper roll as shown in the figure below.

Please make sure that the side that will be unwound is at the back of the drum, corresponding to the dashed line in the figure below.

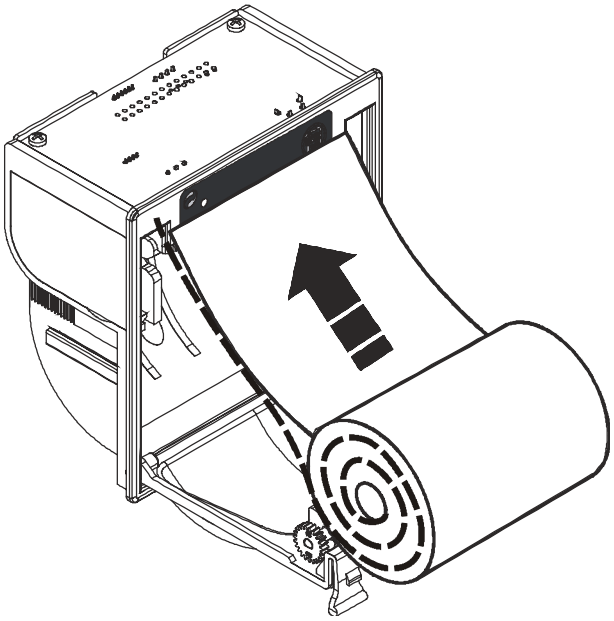


Figure 123: Inserting paper roll

Closing printer

1. Pull some of the paper out of the printer.
2. Hold the paper end upwards.
3. Close the printer by holding the bracket upwards until the clips audibly engage.

⇨ The printer is ready.

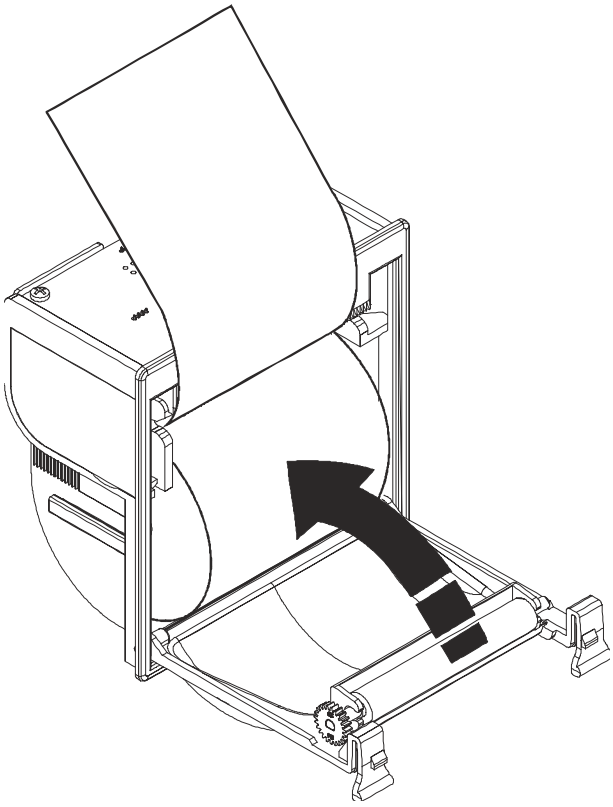


Figure 124: Closing printer

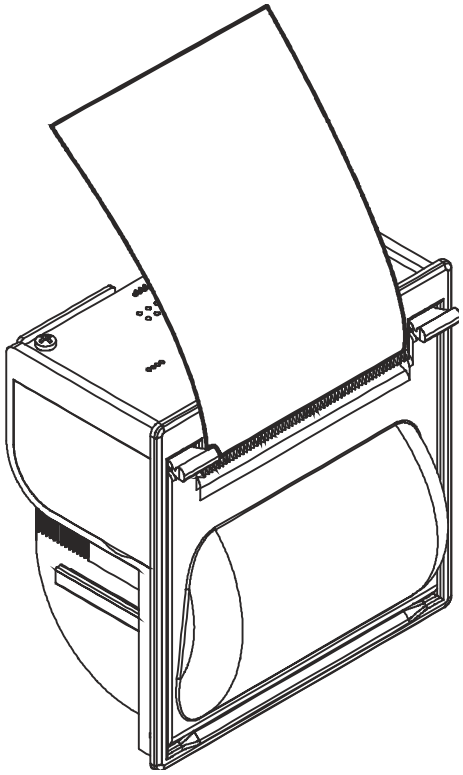


Figure 125: Printer is ready

9 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	Notes	Complete
1		Install rear panel		
2		Install housing extensions	Additional empty housing for further components (e.g. batteries)	
3		Connect 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		Install cover		
7		Install periphery board	Only after a disassembly	
8		Install fire terminal board	Only after a disassembly	
9	FP2015-A1	Install a power supply (70 W)	Option for fire terminal	
10	FP2004-A1	Install a power supply (150 W)		
11		Install shield connection terminal blocks	Included in country kit [DE] FA2001	
12	FCI2003-A1	Installing loop extension (C-NET)	Max. 2 modules depending on the periphery board	
13	Z3B171	Install relay module		
14	FHA2007-A1	Install mounting plate	Mounting above the periphery board	
15	FCI2001-D1	Install fire brigade periphery module [DE]	Only for Germany. Note different mounting possibilities	
16	FN2001-A1	Install network module (SAFEDLINK)	Max. 2 modules Ensure correct installation site	
17	FCA2006-A1	Connection module (card cage)	Only if replaced (FC723 and FC726)	
18	FCA2007-A1 FCA2008-A1	Card cage (2 slots) Card cage (5 slots)	Only if replaced (FC723) Only if replaced (FC726)	

Position	Type	Component/task	Notes	Complete
19	 FCL2001-A1 FCL7201-Z3 FCI2008-A1 FCI2009-A1 FCI2007-A1	Module bus cards: Line card (FDnet/C-NET) Line card (SynoLOOP) I/O card (programmable) I/O card (horn/monitored) I/O card (RT)	For FC723 and FC726 only	
20	FCA2001-A1	Install RS232 module	Ensure correct installation site (depending on use)	
21	FCA2002-A1	Install RS485 module		
22	FTO2001-A1	Install event printer	An RS232 module must also be fitted to slot 1	
23	FTO2005-A1	Install a key switch (Kaba)		
24		Install a Redux module [DE]	Only for Germany	
25	FDCIO224	Install input / output module [DE]		
26	FCA2005-A1	Install sounder module	Max. 2 depending on the periphery board	
27	FCI2005-N1	Install RT Interface [NL]	Only for Netherlands	
28	FCA2014-A1	Install cable kit (communication)		
29	FCA203x-A1	Insert license key	Only 1 license key per station	
30	FHA2019-A1	Install 19" kit		
31		Install batteries	Only connect upon commissioning	
32	FCM7221-H3	Install operating add-on with EVAC	Only for Netherlands	
33	FCA2009-A1	Install door contact kit	Only for Germany	

Table 4: Installation checklist

Due date:	Ordering unit:	Date

Table 5: Ordering unit for installation work

Glossary

Detector line

Electrical connection between the detectors and the fire control panel. There are collective detector lines and addressed detector lines.

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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