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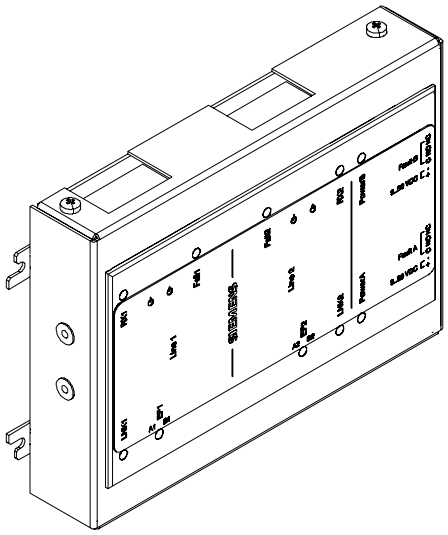

FN2006-U1, FN2007-U1

Fiber network module (SM) FN2006-U1, Fiber network module (MM) FN2007-U1

Mounting

Installation

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Legal notice

Technical specifications and availability subject to change without notice.

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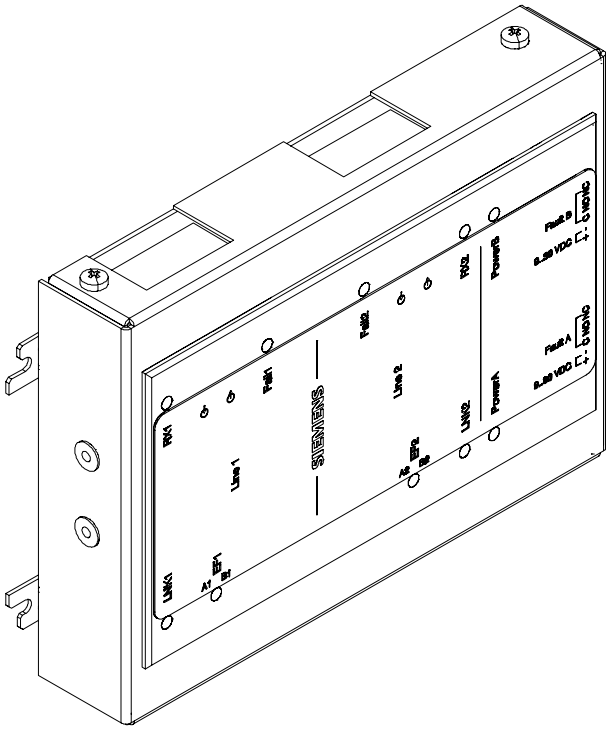

1.1 Description

The fiber network module multi-mode (MM) and the fiber network module single-mode (SM) can be used for the exclusive purpose of networking fire detection panels to the FCnet/SAFEDLINK or C-WEB/SAFEDLINK, or XNET/SAFEDLINK system bus over large distances using glass fiber optic cable.

The fiber network modules have the following features:

- Fiber network module (SM) FN2006: Single-mode transmission up to 131,000 ft / 39,930 m
- Fiber network module (MM) FN2007: Multi-mode transmission up to 13,100 ft / 3993 m
- Two independent, electrically isolated channels
- SC connections for fiber optic cable
- Ground fault detection
- Trouble signaling via LED and dry contact relay
- Mounting in panel

1.2 Installation in Desigo/Cerberus PRO

The fiber network module is installed on the far left of the back box of the housing (2HU), beside the power supply. Installation is identical for the following modules:

- Fiber network module (SM) FN2006
- Fiber network module (MM) FN2007

Each fiber network module is supplied with a set of plugs.

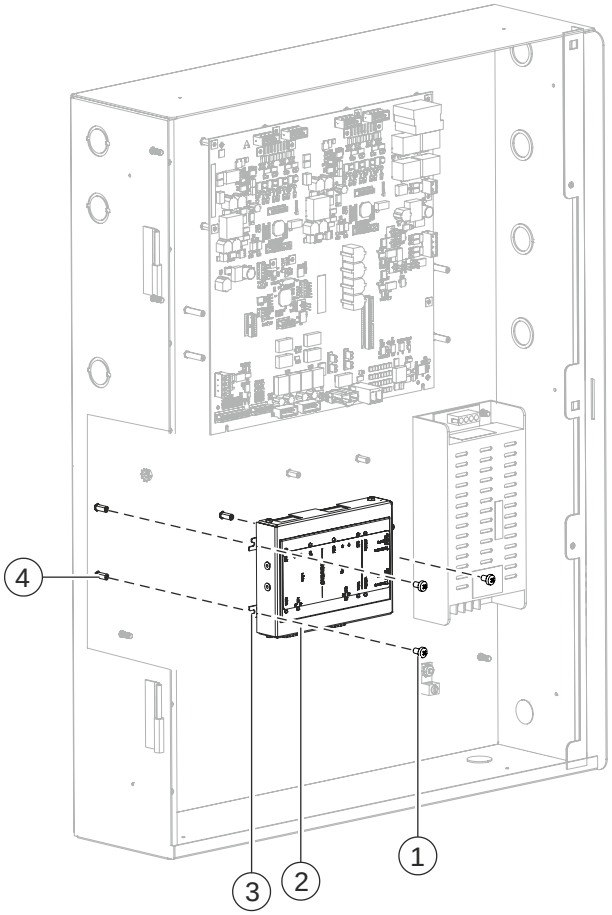

Figure 1: Installing the fiber network module FN2006 or FN2007 in the housing (2HU)

1 3x fixing screw
2 Fiber network module
3 3x fastening tab on housing underside of fiber network module
4 3x threaded sleeve in back box

1. Position the fiber network module (2) on the back box of the housing as shown.
2. Screw the fiber network module (2) on the three fastening tabs (3) by attaching three fastening screws (1) to the threaded standoffs (4) in the back box.
3. Wire up the fiber network module according to the following pin assignment.

1.3 Installation in XLS

In the XLS system, the fiber network module is installed on a COM-BRK bracket that can be mounted to the CAB-1, CAB-2 or CAB-3 back box or to the optional CAB-MP.

The COM-BRK takes up the same space as a CC-2 card cage. The fiber network module should first be secured to the COM-BRK using the three screws provided with the module, then installed in the back box or mounting plate using the four screws provided with the bracket.

Once the bracket and module are secured to the cabinet, wire the module and connect the optical fiber cable as described later in this document.

!	*NOTICE*
	The fiber network module and bracket cannot be installed behind a PMI, PMI-2, LVM or FMT.

1.4 Views

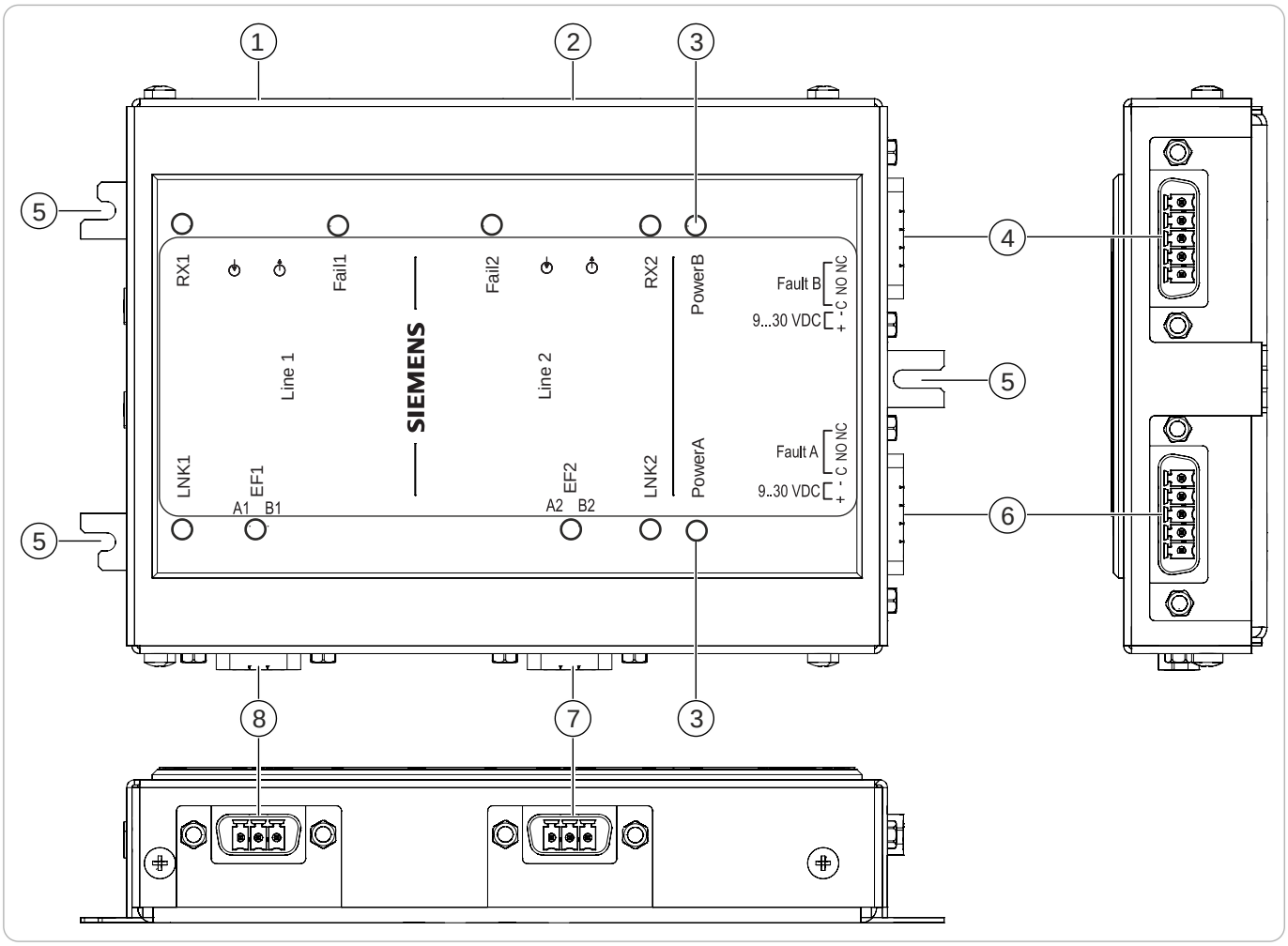

Figure 2: Views of the fiber network module from above and the side

1 Fiber optic SC connection for circuit 1

2 Fiber optic SC connection for circuit 2

3 10 LED indicators for data transmission, errors and power supply for both channels

4 Power B socket, redundant power supply and error contact

5 Fastening tab for housing mounting

6 Power A socket, power supply and error contact

7 Socket A2/B2, FCnet/C-WEB/XNET SAFEDLINK line 2

8 Socket A1/B1, FCnet/C-WEB/XNET SAFEDLINK line 1

1.5 Wiring

1.5.1 Wiring for Desigo/Cerberus PRO

Power supply wiring

The following points apply if the fiber network module is installed in the panel:

- The supply must not be redundant.
- The relay contacts for supply supervision do not have to be connected because the panel's power supply is already supervised.
- 'Power A' and 'Power B' inputs can only be supplied by UL 864 approved regulated power sources.
  - Periphery board FCI2016/FCI2017, X1001 DC 24 V AUX
  - PAD-3/4

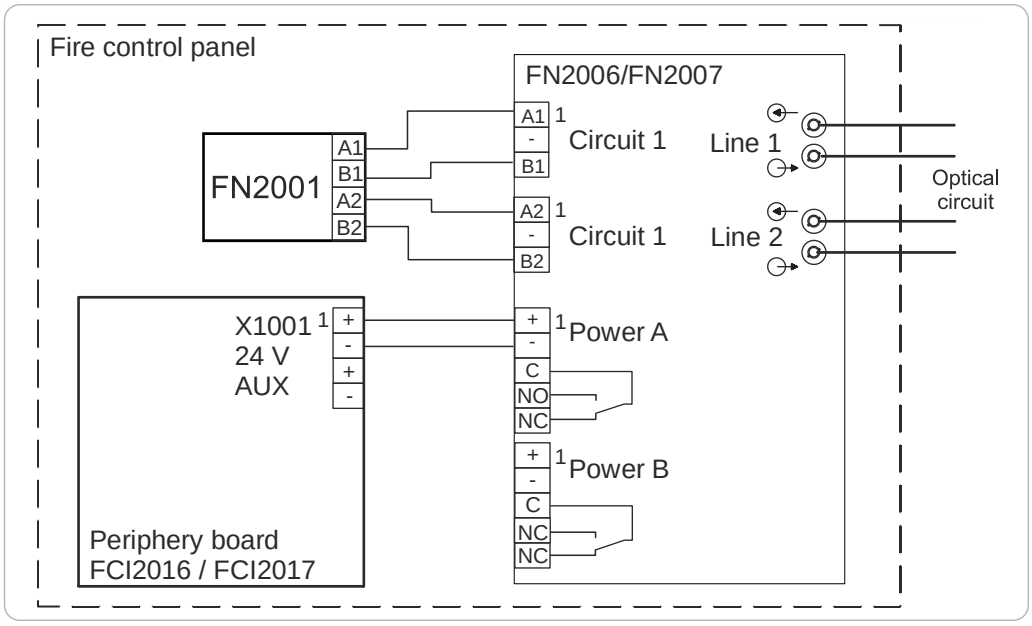

Figure 3: Wiring of fiber network module in fire control panel or fire voice control panel

FCnet/C-WEB wiring

!	*NOTICE*
	Crosswise wiring in the electrical FCnet/C-WEB There is no ground fault supervision in the crosswise wiring from FN2001 to FN2006 / FN2007. The wiring must be 1:1 as per the illustration above (A1-A1, B1-B1, A2-A2, and B2-B2).

- The supply line of the electrical FCnet/C-WEB is either shielded or unshielded.
- If the supply line is shielded, cable glands must be used for the network module (SAFEDLINK). You will find information about this in the description of the network module FN2001 (SAFEDLINK).
- Ground faults detected at <1 kΩ
- Each pair individually supervised
- Total length of electrical FCnet/C-WEB wiring: Max. 3300 ft / 1005 m

You will find detailed information about FCnet/C-WEB wiring and the network module (SAFEDLINK) FN2001 in the corresponding description.

Fiber optic cable wiring

- The accessible laser radiation is safe. It corresponds to laser class 1 in accordance with IEC 60825/ANSI Z136.
- The fiber optic cable is wired crosswise:
  - The optical transmitter (TX) ⊖→ of one device must always be connected with the optical receiver (RX) →⊖ of the other device.
  - Circuit 1 must always be connected with circuit 2.
- The bending radius of the fiber optic cable must not be less than that specified by the manufacturer, e.g., 10 x outer diameter.
- Standard (PC) is sufficient as the cable end box. '8° polish (APC)' is not necessary, but is supported too.

Class A, style 7 circuit

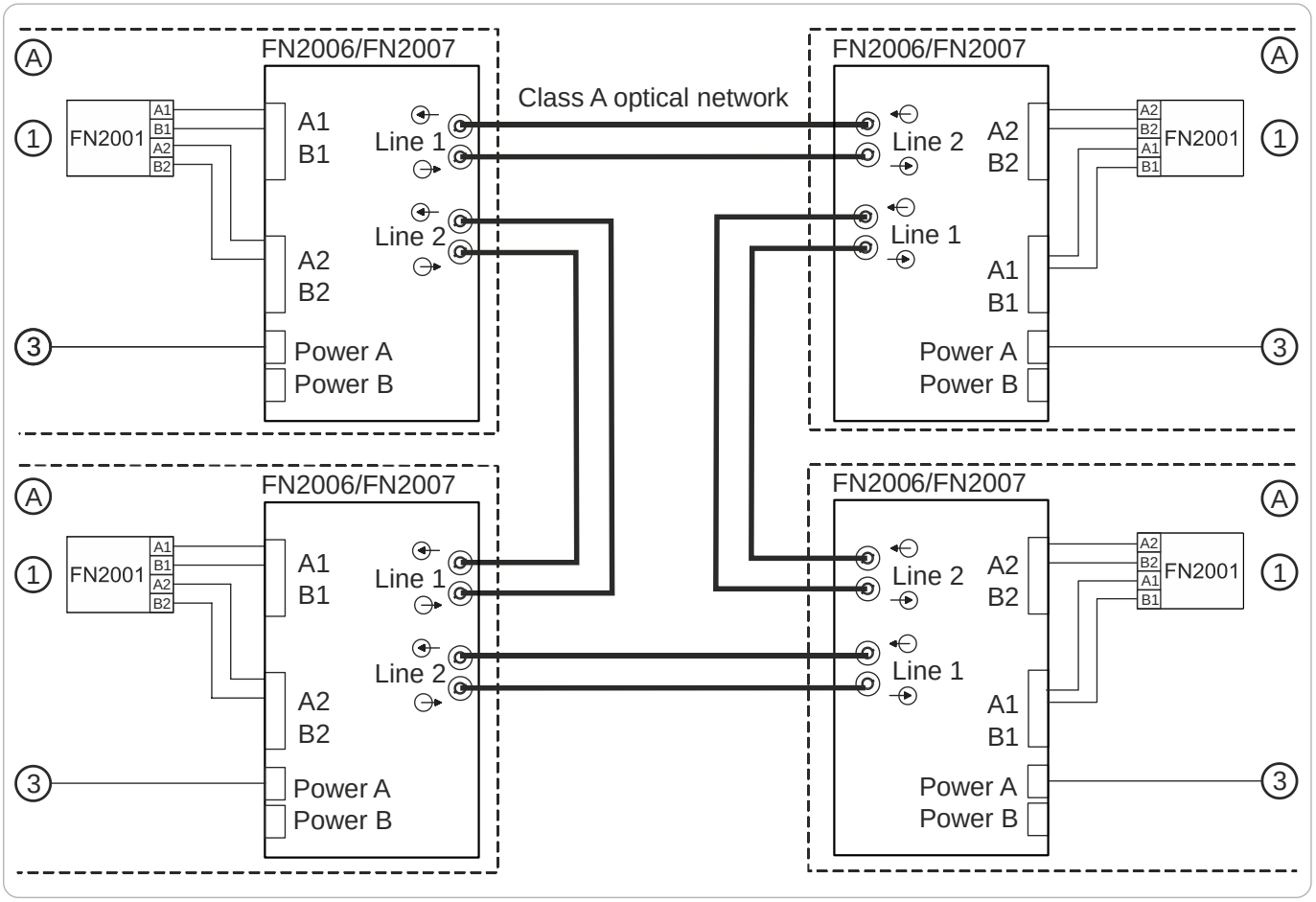

Figure 4: Wiring example of optical network, class A with four fiber network modules

Class B, style 4 circuit

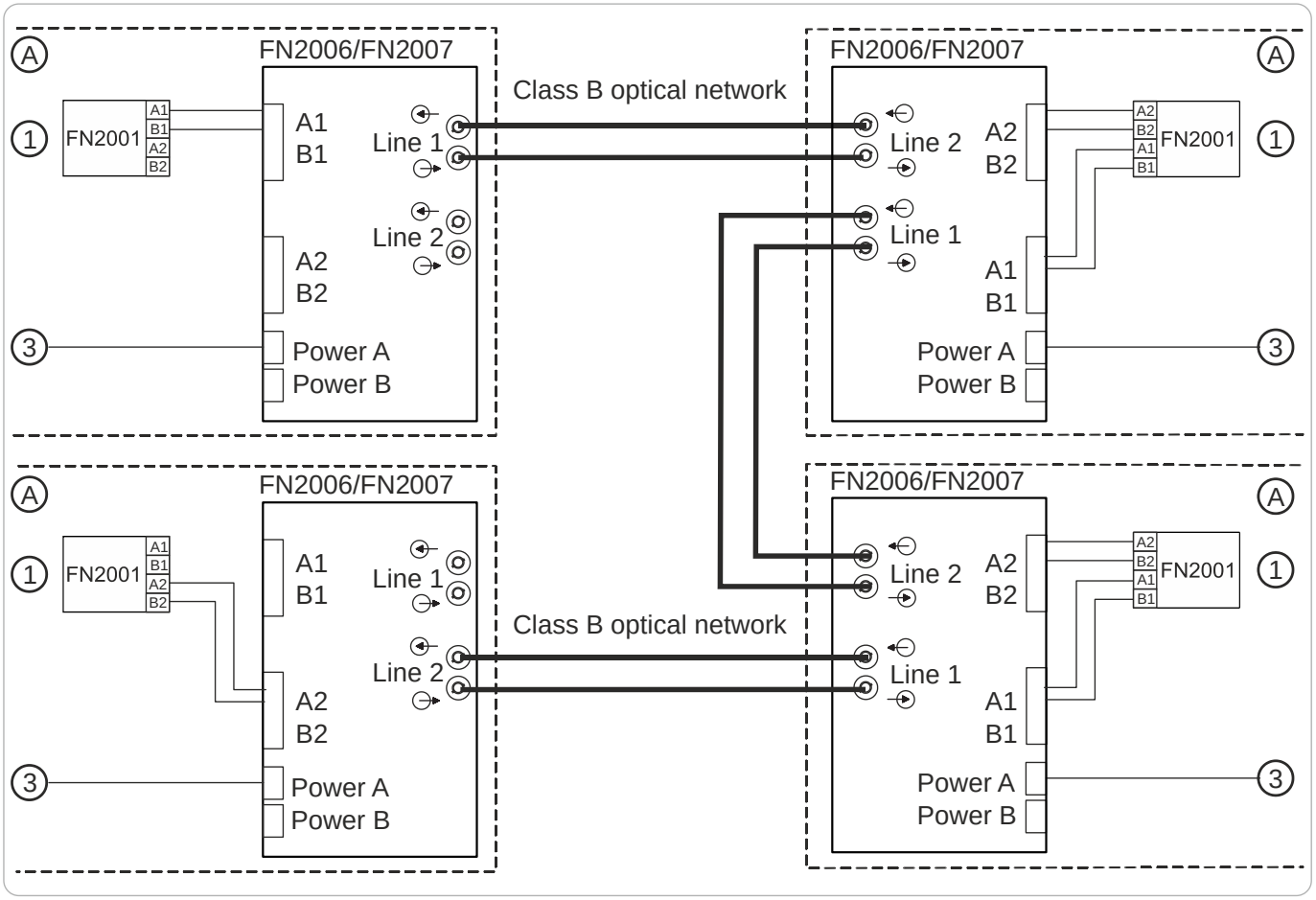

Figure 5: Wiring example of optical network, class B with four fiber network modules

Designation	Description
A	Panel with installed fiber network module
1	Network module (SAFEDLINK), main module
3	'Power A', supply input A to fiber network module
A1/B1	Electric FCnet/C-WEB connection for circuit '1'
A2/B2	Electric FCnet/C-WEB connection for circuit '2'
⊖←	Fiber optic connection (RX), optical receiver
⊖→	Fiber optic connection (TX), optical transmitter

1.5.2 Wiring for XLS

- In XLS systems, 'Power B' connections to the fiber module and monitoring of its trouble contacts are not required, as the fiber modules must be installed in the same housing as the power supplies that provide power to them.
- Power A' inputs can only be supplied by UL 864 approved regulated power sources.
  - PSC-12 (TB3) or PSX-12 (TB3)
  - UL-LISTED REGULATED 24 VDC POWER SUPPLY (POWER LIMITED)

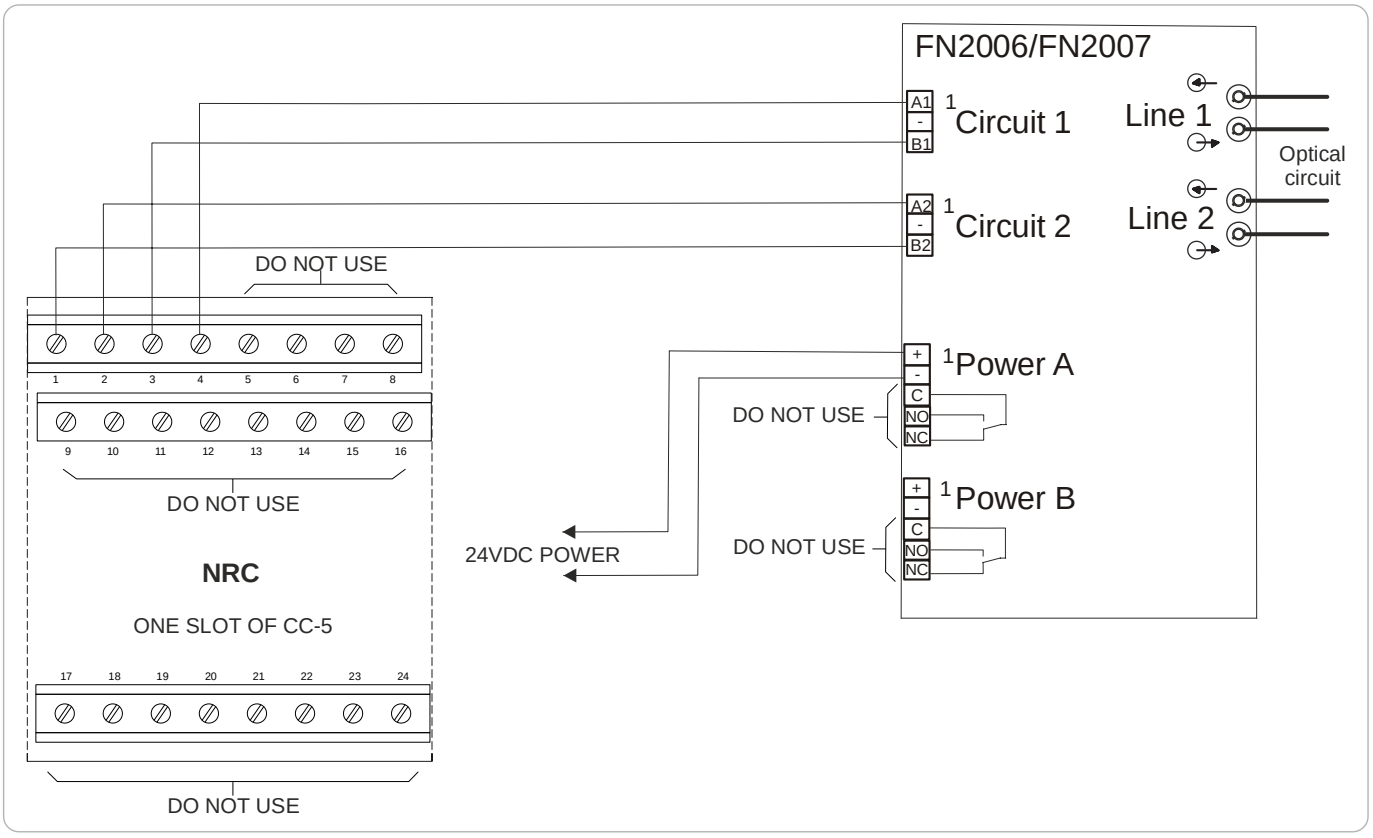

Figure 6: Wiring for XLS

Fiber optic cable wiring

- The accessible laser radiation is safe. It corresponds to laser class 1 in accordance with IEC 60825/ANSI Z136.
- The fiber optic cable is wired crosswise:
  - The optical transmitter (TX) ⊖→ of one device must always be connected with the optical receiver (RX) →⊖ of the other device.
  - Circuit 1 must always be connected with circuit 2.
- The bending radius of the fiber optic cable must not be less than that specified by the manufacturer (e.g. 10 x outer diameter).

Class A, style 7 circuit

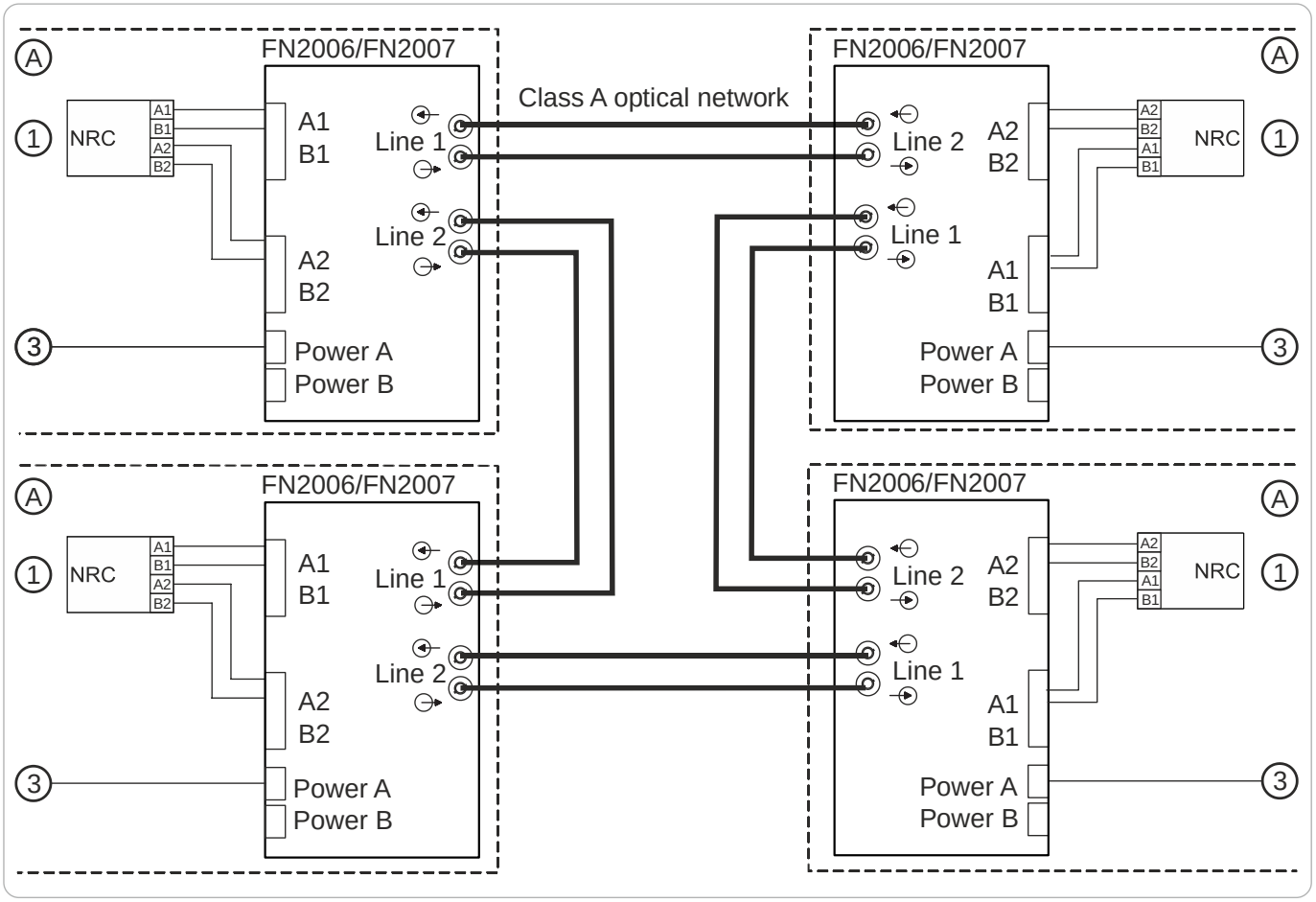

Figure 7: Wiring example of optical network, class A with four fiber network modules

Class B, style 4 circuit

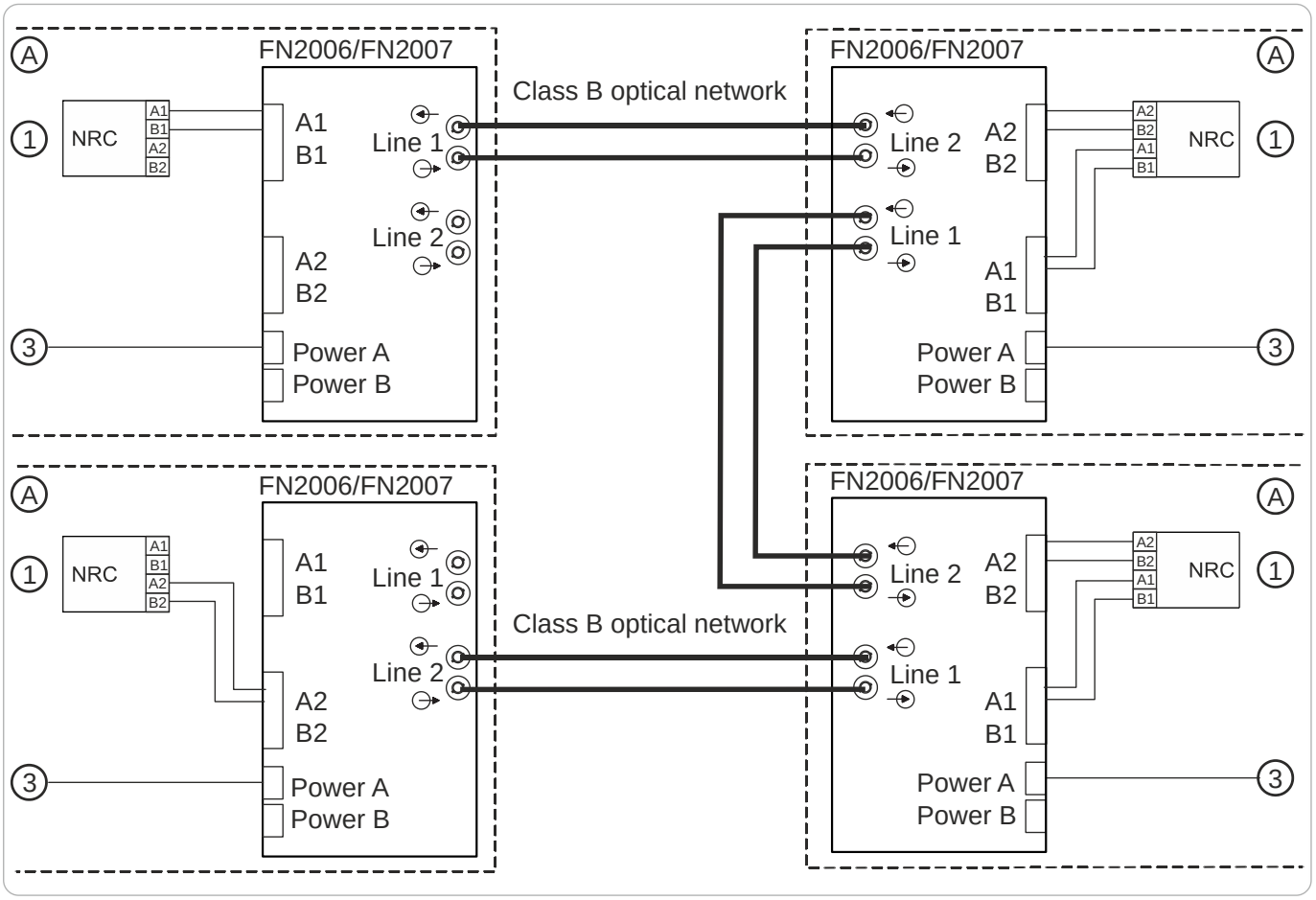

Figure 8: Wiring example of optical network, class B with four fiber network modules

Designation	Description
A	Panel with installed fiber network module
1	CC-2 or CC-5 containing NRC-2
3	'Power A', supply input A to fiber network module
A1/B1	Copper XNET connection for circuit '1'
A2/B2	Copper XNET FCnet/C-WEB connection for circuit '2'
	Fiber optic connection (RX), optical receiver
	Fiber optic connection (TX), optical transmitter

XNET wiring

- Copper XNET wiring may be twisted shielded or twisted unshielded pairs.
- DO NOT use cable glands with shielded wire if wiring for XNET.
- Ground faults detected at <1 kΩ.
- Fiber optic cable must be in the same housing as the NRC.
- Each pair is individually supervised.

1.5.3 Power supply sockets (4, 6)

The 5-pole connectors for the power supply are supplied with the fiber network module.

Pin	Designation	Description
1	DC 24 V+	Supply input + of DC 24 V AUX from periphery board or CC-2 / CC-5
2	DC 24 V-	Supply input - of DC 24 V AUX from periphery board or CC-2 / CC-5
3	COM	Common contact
4	NO	Normally open
5	NC	Normally closed

Admissible cable cross-section: 16…28 AWG

- When the module is installed in fire control panels or fire voice control panels alone, the power supply does not have to be supervised or routed redundantly.
- The supply line for a remote network module must be shielded.
- In the event of a fault, relay contacts COM and NC are connected.

Terminal block with housing

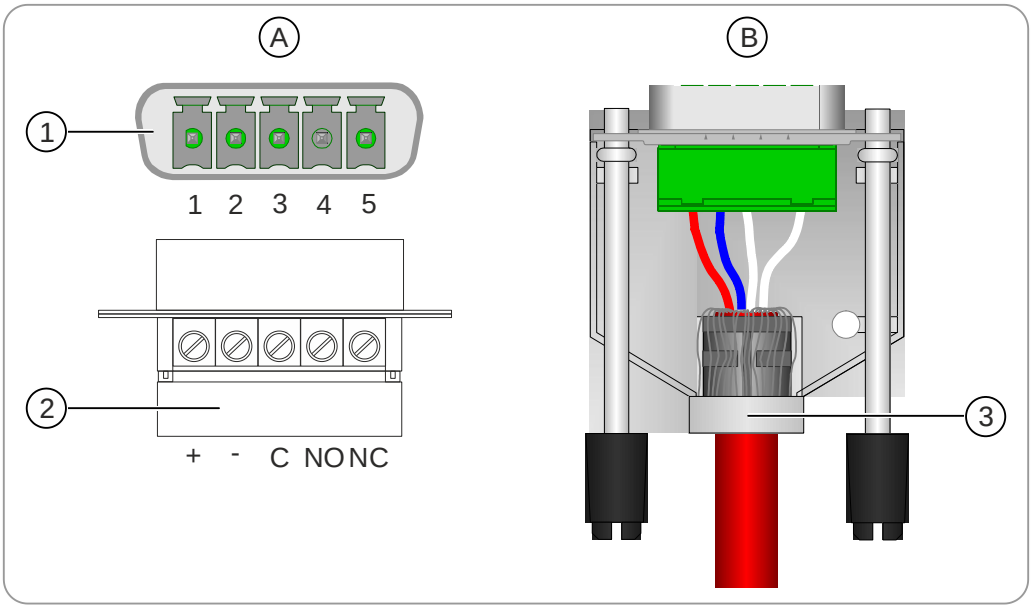

Figure 9: Connector power A (B)

A	Connector plug without housing	**B**	Connector plug with housing
1	Connector	3	360° shielding
2	Cover cap, open		

!	***NOTICE***
	Do not use housing when installing in the XLS system.

1.5.4 Sockets for FCnet/C-WEB SAFEDLINK-lines (7, 8)

The 3-pole connectors for the FCnet/C-WEB connection are supplied with the fiber network module.

The total cable length of the electrical FCnet/C-WEB connections (copper cable) in the optical network must not exceed 3300 ft / 1005 m.

Connection bush A1/B1

Pin	Designation	Description
3	B1	FCnet/C-WEB/XNET SAFEDLINK Line 1 (-)
2	NC	Do not use
1	A1	FCnet/C-WEB/XNET SAFEDLINK Line 1 (+)

Admissible cable cross-section: 16…28 AWG

Connection bush A2/B2 (7, 8)

Pin	Designation	Description
3	B2	FCnet/C-WEB/XNET SAFEDLINK Line 2 (-)
2	NC	Do not use
1	A2	FCnet/C-WEB/XNET SAFEDLINK Line 2 (+)

Admissible cable cross-section: 16…28 AWG

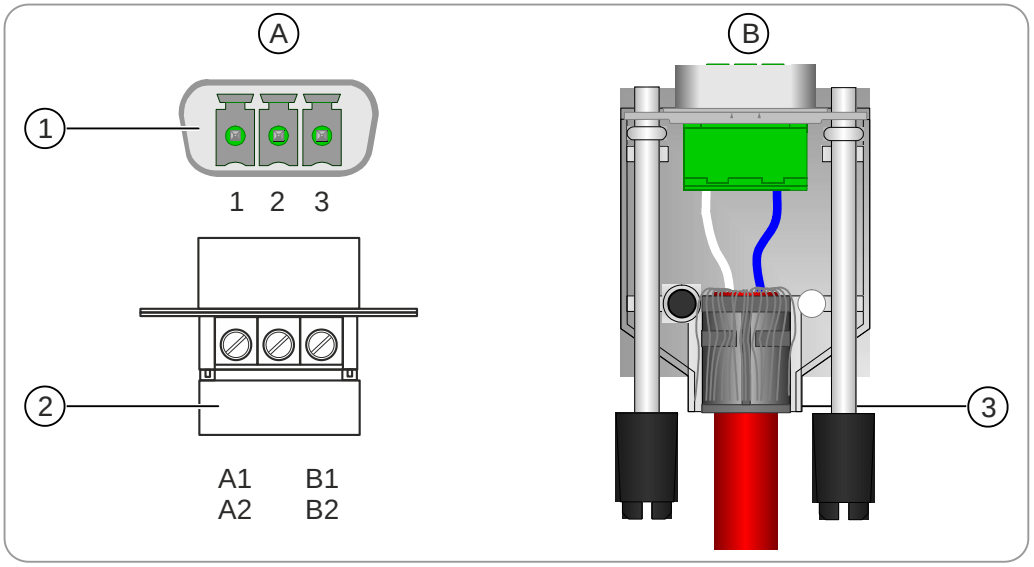

Figure 10: Connector EF1/EF2, FCnet/C-WEB A1/B1 (A2/B2)

A	Connector plug without housing	**B**	Connector plug with housing
1	Connector	3	360° shielding
2	Cover cap, open		

1.6 Indicators

LED	Color	Function	Condition	Meaning
RX1	Green	Receipt of data from fiber optic circuit '1'	Lit up	Data is being received from circuit '1'
Fail1	Yellow	Fault on fiber optic circuit '1'	Lit up	Weakly receiving data from circuit '1'
Fail2	Yellow	Fault on fiber optic circuit '2'	Lit up	Weakly receiving data from circuit '2'.
RX2	Green	Receiving data from fiber optic circuit '2'	Lit up	Data is being received from circuit '2'
Power B	Green	Supervision of feeding voltage for 'Power B'	On	Normal operation (feeding voltage available)
			Off	No feeding voltage or voltage below minimum input voltage (9 V)
Power A	Green	Supervision of feeding voltage for 'Power A'	On	Normal operation (feeding voltage available)
			Off	No feeding voltage or voltage below minimum input voltage (9 V)
LNK1	Green	Data transmission for FCnet/C-WEB circuit '1'	Flashes	Data is being transmitted via A1/B1
EF1	Yellow	Ground fault supervision on FCnet/C-WEB circuit '1'	Lit up	Ground fault on A1/B1
EF2	Yellow	Creation of ground fault on FCnet/C-WEB circuit '2'	Flashes	Ground fault on A1/B1 mirrored on A2/B2
LNK2	Green	Data transmission for FCnet/C-WEB circuit '2'	Flashes	Data is being transmitted via A2/B2

1.7 Technical data

Supply input	Input voltage	DC 24 V
	Decentralized mounting	Shielded supply cable (not in scope of supply)
	Operating current	Max. 132 mA @ DC 24 V
Supervision contact	Ohmic load:	
	• Maximum switching voltage	DC 30 V
	• Maximum switching current	DC 1 A
Fibre optic cable	Type of connection	SC connector
	Cable end box	Standard 'PC' or 8° polish 'APC'
	Wavelength	1310 nm (for MM and SM)
FN2007-U1	**Multi-mode**	
	Range:	
	• Fiber type 62.5/125 µm	13,100 ft. / 3993 m
	• Fiber type 50/125 µm	6550 ft / 1996 m
	Optical budget:	
	• Fiber type 62.5/125 µm	11 dBm
	• Fiber type 50/125 µm	7.5 dBm
FN2006-U1	**Single mode**	
	Range:	
	• Fiber type 9/125 µm	131,000 ft. / 39930 m
	Optical budget:	
	• Fiber type 9/125 µm	29 dBm
	• Minimum optical attenuation (corresponds to a minimum fiber length of 13,000 ft / 3962 m)	3 dBm
FCnet/C-WEB	Total length of line	3300 ft/1005 m at 315 kbit/s
	Impedance	120 Ω
	Transmission mode	Half-duplex
	Cable type	Shielded and unshielded cables

2 FCC Statement

⚠ WARNING

Installation and usage of equipment is not in accordance with instructions manual

Radiation of radio frequency energy

Interference to radio communications

- Install and use equipment in accordance with instructions manual.
- Read the following information.

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications.

It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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