

Fire Alarm Systems

Databook 08/2009



BOSCH

Invented for life



Fire Alarm Systems

Databook 08/2009

Dear Customer,

We are proud to present the new 2009 edition of our Fire Data Book. It includes quite a few highly innovative products, among them the addressable Local SecurityNetwork improved version (LSNi) components such as the Smoke Detector 520 Series and Automatic Fire Detector 420 Series, complete range of Fire Interface Modules, Manual Call Points, and improved Automatic Special Detectors.

There are also Smoke Aspiration Systems with LSNi technology for all kind of application sizes as well as low-current loop-powered sounders.

A highlight is the new Fire Panel 1200 Series providing a compact solution for small to medium sized projects. Together with the FPA 5000, where we offer enhanced features and network capabilities, there is now a panel platform for every installation, large or small.



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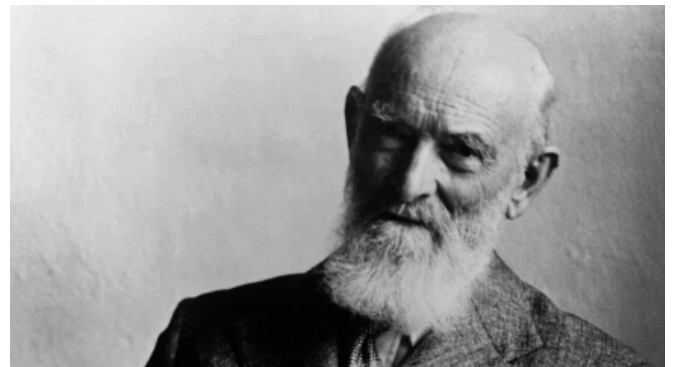
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Modular Panel

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FPA-5000 With Functional Modules



Features

- ▶ **Modular configuration allowing for easy extension**
- ▶ **Easy adaptation to country-specific regulations and conditions**
- ▶ **Complete set-up with up to 46 modules per control panel**
- ▶ **Interconnection of up to 32 Panel Controllers and Remote Keypads (by August 2009)**
- ▶ **Loop or bus connection with redundancy**
- ▶ **Connection to BIS Building Integration System via OPC server**
- ▶ **Control of up to 4096 addresses (stand-alone panel), or of up to 32512 addresses of a network with 2032 addresses per control panel (by August 2009)**
- ▶ **Installation and auto-detection of functional modules by simply inserting them into the Panel Rail**
- ▶ **Large LCD display with touch screen**

Thanks to the modular configuration, the innovative FPA-5000 Modular Fire Panel is easily adapted to local circumstances and regulations. Due to the different functional modules, country-specific characteristics are accommodated in the connection just as quickly as the respective alarm handling.

The fire panel is available with two different housings:

- Housing for mounting directly on the wall
- Frame installation housings which are fitted to the mounting frame and can be swiveled.

With the aid of special mounting kits, the housings can be mounted in 19" cabinets.

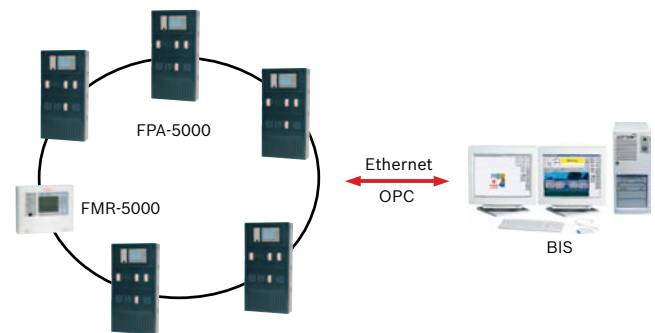
All housings can be extended with various additional housings for all conceivable applications.

The entire fire detection system is configured via a laptop using the new programming software FSP-5000-RPS.

Thanks to the external CAN bus interface, several Panel Controllers and Remote Keypads can be interconnected. Using either a loop structure or bus structure, the network adapts to every application conditions.

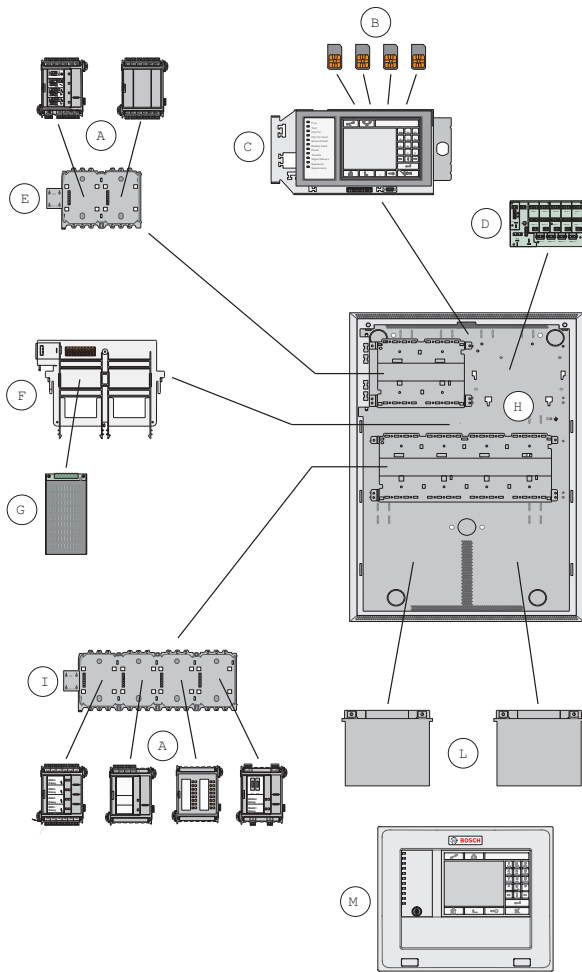
FPA-5000 systems can be connected to the Bosch UGM 2020 Universal Security System and thus, be integrated into a large network system.

An Ethernet interface allows for the connection to a Building Management System (BIS Bosch Building Integration System) via an OPC server.



The FMR-5000 Remote Keypad offers the decentralized operation of a control panel or control panel network.

System Overview



Pos.	Description
A	Functional Modules
B	ADC Address Cards
C	Panel Controller
D	Distributor, optional (RLE/RLU/HPD)
E	Panel Rail Short
F	Power Supply Bracket (installed in Frame Installation Housings ex-works)
G	Power Supply
H	Housing (in this case: HCP 0006 A)
I	Panel Rail Long
L	Batteries
M	Remote Keypad

Functions

Modular Structure of the FPA-5000 Modular Fire Panel

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

Depending on the requirements, the following selection can be made when planning:

1. Housing type: Frame installation or wall-mount

- Selection of a basic housing
 - Optional Extension Housings
 - Optional Power Supply Housings
 - Optional kits for installation in 19" racks
2. Operating and Display Unit with Panel Controller
 - Selection from the various language variants
 3. Panel Rail
 - Selection according to housing type and/or number of required functional modules
 4. Functional modules
 - Selection based on planning and country-specific requirements
 5. Power supply
 - Batteries
 - Additional power supply facilities
 - Power Supply Brackets are preinstalled ex-works for Frame Installation Housings
 - For Wall-mount Housings, Power Supply Brackets are selected as needed
 6. Additional accessories
 - Front Doors
 - Printer with Frame Installation Housing
 - Cable Sets for special applications

Modules

The functional modules are autonomous, encapsulated units that can be inserted into any control panel slot using "plug-and-play" technology. Thus, the power supply and the data traffic to the control panel are indicated automatically without any additional settings. The module is automatically identified by the control panel and functions in the default operating mode.

Wiring to external components is performed using compact connector/screw terminals.

After a replacement, only the connectors need to be reinserted; extensive rewiring is no longer required.

Module	Description
BCM-0000-B	Battery Controller Module <ul style="list-style-type: none"> • module that controls batteries and power supply
ANI 0016 A	Annunciator Module <ul style="list-style-type: none"> • with 16 red and 16 yellow LEDs, freely programmable
LSN 0300 A	LSN improved Module 300 mA <ul style="list-style-type: none"> • for the connection of an LSN loop with up to 254 LSN improved elements or 127 standard LSN elements, maximum line current 300 mA
LSN 1500 A	LSN improved Modul 1500 mA <ul style="list-style-type: none"> • for the connection of an LSN loop with up to 254 LSN improved elements, maximum line current 1500 mA, or with up to 127 standard LSN elements, maximum line current 300 mA
FPE-5000-UGM	Interface Module <ul style="list-style-type: none"> • for the connection to a UGM-2020 System
CZM 0004 A	4 Zone Conventional Module <ul style="list-style-type: none"> • for the connection of existing conventional peripherals, with four monitored conventional lines
IOS 0020 A	20 mA Communication Module <ul style="list-style-type: none"> • sports an S20 interface, an RS232 interface and an S1 interface • for a connection with a voice alarm system Plena via RS232

Module	Description
IOS 0232 A	RS232 Communication Module <ul style="list-style-type: none"> with two RS323 interfaces for a connection with a voice alarm system Ple-na, a printer or laptop
ENO 0000 B	Fire Service Interface Module <ul style="list-style-type: none"> for the connection to fire service equipment according to DIN 14675
IOP 0008 A	Input/Output Module <ul style="list-style-type: none"> with 8 digital inputs and 8 open collector outputs
RML 0008 A	Relay Module <ul style="list-style-type: none"> with 8 relays for low voltage applications
RMH 0002 A	Relay Module <ul style="list-style-type: none"> with 2 relays for mains power (250 V) and with feedback inputs (can also be used as an interface to extinguishing systems)
NZM 0002 A	Notification Appliance Zone Module <ul style="list-style-type: none"> with two monitored primary lines

Networking

The CAN interfaces allow for the connection of up to 32 Panel Controllers and / or Remote Keypads in a single network. Depending on the usage, Panel Controllers and Remote Keypads can either be defined as a group or as a network or as a local node. Within a group, only the conditions of the control panels belonging to the defined group can be displayed. From the network nodes, the conditions of all control panels, regardless of their classification as a group, can be displayed and edited.

When networking via CAN1 and CAN2 interfaces, there are the following three connection topologies:

- Non-redundant bus via CAN1
- Redundant bus via busses CAN1 and CAN2
- Redundant loop via CAN1 and CAN2

For networking with optical fibers, PSI-MOS-DNET CAN/FO converters by Phoenix Contact can be used.

Detection Points

For identification and monitoring purposes, a distinct LSN address is allocated to each LSN element. The Address Cards allocate one detection point per address. The FPA-5000 governs up to 4096 addresses and 4096 detection points respectively.

Each element and input which, after the programming, is able to set off an alarm requires a detection point. This applies to all manual call points and automatic detectors as well as to the following modules and interfaces because of their inputs.

Module	Detection Points
LSN 0300 A	up to 254
CZM 0004 A	up to 4
IOP 0008 A	up to 8
ENO 0000 B	requires a detection point only if an FSE release element is connected and programmed via the FSP-5000-RPS programming software

Interfaces	Detection Points
FLM-420/4-CON	up to 2
FLM-420-I8R1-S	up to 8
FLM-420-I2	up to 2
FLM-420-O8I2-S	up to 2
FLM-420-O1I1	up to 1
FLM-420-RLE-S	up to 2
FLM-420-EOL-2W-W	1 detection point for each interface

Inputs are only considered as detection points if they are programmed as "Supervisory" or "Fault" in the FSP-5000-RPS.

The following interfaces do not require the allocation of detection points: FLM-420-NAC, FLM-420-RHV, FLM-420-RLV1, FLM-420-RLV8, FLM-420-O2.

Signaling devices and outputs have no detection points!

Certifications and Approvals

The provided options according to EN 54-2:1997/A1:2006 include:

- Output to fire alarm devices
- Control of fire alarm routing equipment
 - Output to fire alarm routing equipment
 - Alarm confirmation input from fire alarm routing equipment
- Outputs to fire protection equipment
 - Output type A
 - Output type B
 - Output type C
 - Fault monitoring of fire protection equipment
- Delays to outputs
- Dependencies on more than one alarm signal
 - Type A dependency
 - Type B dependency
- Alarm counter
- Fault warning condition
 - Fault signals from points
 - Total loss of the power supply
 - Output to fault warning routing equipment
- Disabled condition
 - Disablement of addressable points
- Test condition

Region	Certification	
Europe	CE	FPA-5000
	CPD	0786-CPD-20818 FPA 5000
Germany	VdS-S	S 295042 BS 1000
		S205106 BS FPA
	VdS	G 205106 FPA-5000
	DIBt	Z-6.5-2027 (B) FSA 5000 LSN
Switzerland	VKF	AEAI 19197 FPA 5000

Region	Certification	
Belgium	BOSEC	TCC2-738 FPA 5000
		TCC2-739 FPA 5000
		TCC2-740 FPA 5000
		TCC2-741 FPA 5000
		TCC2-742 FPA 5000
		FPA 5000 V2.0
Poland	CNBOP	2662/2008 FPA-5000
Turkey	TSE	14.10.01/TSE-4692 FPA-5000
Czech Republic	TZÚS	080-011414 FPA-5000
Hungary	TMT	TMT-32/2005 FPA-5000
Russia	GOST	B.00223 FPA-5000
		POCC DE.C313B06299
	MOE	UA1.016.0040642-06 FPA-5000
Singapore	PSB	022767 FPA-5000
Bulgaria	GD FSPP	POPSd 60 FPA-5000

Installation/Configuration Notes

- Country-specific standards and guidelines must be considered during planning.
- Connection conditions for the regional authorities and institutions (police, fire service) must be maintained.
- It is preferable to use the loop formation owing to the greater security of loop lines compared with stub lines.
- It is possible to combine LSN interface modules and LSN detectors on one loop or stub line.
- If connecting classic and improved LSN elements within one loop, observe the following:
 - All LSN improved elements must be set to classic mode.
 - The maximum number of elements within one mixed loop is limited to 127.
- Existing conventional detectors can be connected to a CZM 0004 A module. A CZM 0004 A module provides four DC primary lines (zones).
- In accordance with EN 54-2, control panels with more than 512 LSN elements must be connected redundantly. To that end, a second basic housing with a second MPC Panel Controller is used.
- For operation of the fire detection system according to EN 54-13, it is necessary to terminate every stub and T-tap with EOL-modules.

General System Limits

	Max. number
Control panels/remote keypads in network	
• Loop topology	32
• Bus topology, redundant	8
• Bus topology, non-redundant	8
Addresses	
• Stand-alone	4096 stand-alone
• In Network	32512
• In network, per control panel	2032
Detection points / detector zones	

	Max. number
• Stand-alone	4096 stand-alone
• In Network	32512
• In network, per control panel	2032

Limits per Fire Panel

Sets, e.g. bypass group	128
Total number of modules, per control panel	46
Printer	4
Alarm counter (external, internal, revision)	3
Number of entries in the event database	10000
FSP-5000-RPS programming interface	1
Time control channel	20
Time control programs	19
Programming defined days	365
User	10
Access level	4

System Limits Functional Modules

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

System Limits for Each LSN 0300 A Module

- Up to 254 LSN improved version elements or 127 classic LSN elements can be connected
- Output current
 - LSN 0300 A: up to 300 mA
 - LSN 1500 A: up to 1500 mA
- Cable length
 - LSN 0300 A: up to 1600 m
 - LSN 1500 A: up to 3000 m
- Unshielded cables can be used

Note

Owing to the FSD (Fire System Designer) programming software, the planning of fire panels in compliance with the limits (e.g. concerning cable length and power supply) is quick and easy.

Installation Notes

- Fire panels can only be installed in dry, clean interior rooms.
- To ensure optimum battery service life, the control panel should only be operated at sites with normal room temperatures.
- The following environmental conditions must be noted:

- Permissible ambient temperature:
-5 °C – 50 °C (23 °F – 122 °F)
- Permissible relative humidity:
Max. 95 %, non-condensing
- Operating and display elements should be located at eye level.
- Frame installation housings require at least 230 mm free space on the right next to the last housing; this space is for swiveling out the attached housing for connection, maintenance, and service.
- Sufficient space should be left underneath and next to the control panel for any possible extensions, e.g. for an additional power supply or an extension housing.
- Do not operate devices showing condensation.
- Only use the mounting materials specified by BOSCH ST. Interference resistance cannot otherwise be guaranteed.
- If connected to a Building Management System (BIS Bosch Building Integration System) via the Ethernet and an OPC server, please verify with the responsible network administrator that in case of a network spanning multiple buildings
 - the network is designed for connections across multiple buildings (e.g. no interference by different potentials of the ground connection)
 - all users are assigned to the network.

Ordering Information

BCM 0000 A Battery Controller Module for extension of the FPA-5000 with the Panel Controller MPC version A	BCM 0000 A
CBB 0000 A Cable Set BCM/Battery Used to connect a battery pair and a Power Supply Housing to the BCM-0000-B Battery Controller Module	CBB 0000 A
CPB 0000 A Cable BCM/UPS Used to connect the BCM-0000-B Battery Controller Module to a UPS Power Supply, cable length 150 cm	CPB 0000 A
BCM-0000-B Battery Controller Module monitors the power supply of the fire and the charging of the batteries	BCM-0000-B
ANI 0016 A Annunciator Module displays the status of 16 individually programmable detection points	ANI 0016 A
LSN 0300 A LSN improved Module 300 mA for connecting an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements, with a maximum line current of 300 mA	LSN 0300 A
FLM-420-EOL2W-W EOL Module LSN for EN 54-13 compliant termination of LSN stubs or T-taps	FLM-420-EOL2W-W
LSN 1500 A LSN improved Module 1500 mA for connecting an LSN loop with up to 254 LSN improved elements with a maximum line current of 1500 mA, or with up to 127 classic LSN elements, with a maximum line current of 300 mA	LSN 1500 A
FLM-420-EOL2W-W EOL Module LSN for EN 54-13 compliant termination of LSN stubs or T-taps	FLM-420-EOL2W-W

Ordering Information

FPE-5000-UGM Interface Module for connecting the fire panels FPA-5000 and FPA-1200 to superordinate systems (UGM 2020, FAT 2002/RE, FSM-2000)	FPE-5000-UGM
CZM 0004 A 4 Zone Conventional Module for connecting existing conventional peripherals; providing four monitored conventional lines	CZM 0004 A
FLM-320-EOL2W Conventional EOL Module 2-Wire for EN 54-13 compliant termination of conventional lines	FLM-320-EOL2W
IOS 0020 A 20 mA Communication Module provides one interface each of S20, RS232 and S1	IOS 0020 A
IOS 0232 A RS232 Communication Module for connecting two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces	IOS 0232 A
ENO 0000 B Fire Service Interface Module for connecting fire service equipment in compliance with DIN 14675	ENO 0000 B
CPA 0000 A Cable Set AT 2000 Used to connect an AT 2000 to the MPC and the ENO 0000 B.	CPA 0000 A
IOP 0008 A Input/Output Module for individual displays, providing eight independent digital inputs and eight open collector outputs	IOP 0008 A
RML 0008 A Relay Module for low voltage, providing 8 change-over contact relays (type C)	RML 0008 A
RMH 0002 A Relay Module for monitored connection of external elements with feedback, providing 2 change-over contact relays (type C) for high voltage	RMH 0002 A
NZM 0002 A Notification Appliance Zone Module for connecting 2 separate notification appliance zone lines, providing 2 monitored primary lines	NZM 0002 A
NMC 0000 A Cable HPD/NZM Used for synchronization in accordance with UL requirements, cable length 90 cm	NMC 0000 A
Accessories	
FLM-320-EOL2W Conventional EOL Module 2-Wire for EN 54-13 compliant termination of conventional lines	FLM-320-EOL2W
FLM-420-EOL2W-W EOL Module LSN for EN 54-13 compliant termination of LSN stubs or T-taps	FLM-420-EOL2W-W
FDP 0001 A Dummy Cover Plate For available module slots	FDP 0001 A
PSK 0001 A Labelling Strips, Wide 20 sheets each with 6 strips, printable, for the functional modules BCM-0000-B, LSN 0300 A, LSN 1500 A, CZM 0004 A, NZM 0002 A, RMH 0002 A, CTM 0002 A and ENO 0000 B	PSK 0001 A

Ordering Information

PSL 0001 A Labelling Strips, Small

20 sheets each with 10 strips, printable, for
the ANI I0016 A Annunciator Module

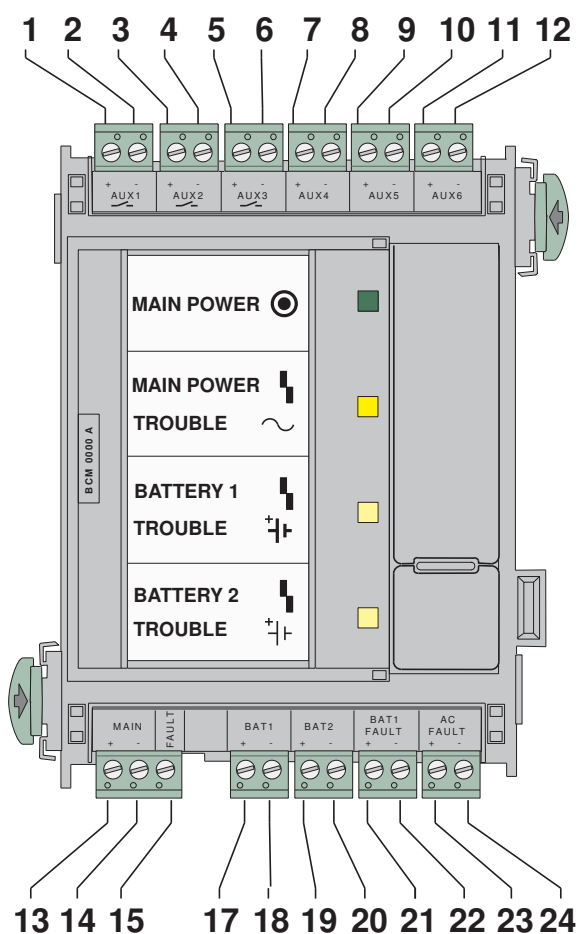
PSL 0001 A

1 BCM 0000 A Battery Controller Module



for extension of the FPA-5000 with the Panel Controller MPC version A

System Overview



Pos.	Description	Connector
1-12	AUX n +/- AUX 1/2/3 AUX 4/5/6	Voltage outputs: - switchable, battery-buffered (programmable) - not switchable, battery-buffered
13-14	MAIN +/-	Power supply unit UPS
15	FAULT	Input fault, mains
17-18	BAT1 +/-	Batteries 1+2 pos./neg.
19-20	BAT2 +/-	Batteries 3+4 pos./neg.
21-22	BAT FAULT -/+	Battery fault
23-24	AC FAULT -/+	Main power fault signal output

Voltage outputs 1, 2 and 3: +24 V / max. 1.4 A
 Voltage outputs 4, 5 and 6: +24 V / max. 0.5 A
 Fault signal outputs: max. 500 mA (at 24 V DC)

Functions

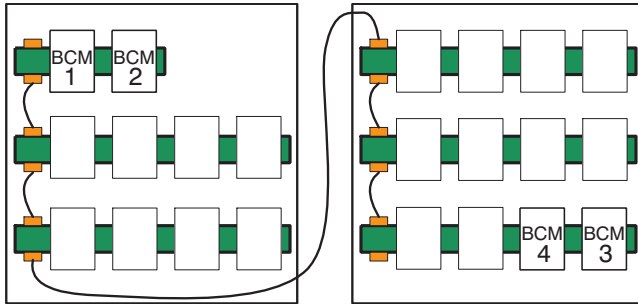
The BCM 0000 A Battery Controller Module monitors the power supply of the entire control panel and controls temperature- and time-controlled charging of up to four batteries (12 V/40 Ah or 12 V/28 Ah).

The charging of batteries is started manually with the key (at $V_{\text{Batt}} < 22 \text{ V}$). The control panel can be started without any mains current if the batteries are charged.

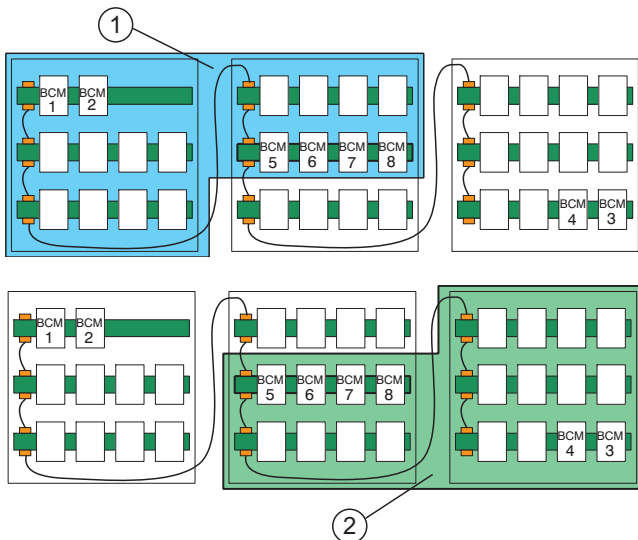
Installation/Configuration Notes

Configuration specifications for Battery Controller Modules

- With 1 to 4 BCM modules:
 - max. 2 modules at the start of the first panel rail
 - max. 2 modules at the end of the last panel rail



- With 5 to 8 BCM modules:
 - 2 modules at the start of the first panel rail (BCM 1 and 2)
 - 2 modules at the end of the last panel rail (BCM 3 and 4)
 - additional BCM modules as shown



Pos. Description

- | | |
|---|--------|
| 1 | Area 1 |
| 2 | Area 2 |
- Current consumption of the BCM modules must not exceed 10 A in Area 1.
 - Current consumption of the BCM modules must not exceed 10 A in Area 2.
 - This only applies to current consumption for consumer loads of the outputs 1-12 (AUX 1-6).

Parts Included

Qty.	Components
1	BCM 0000 A Battery Controller Module
1	Cable set with 2 connection cables: BCM/battery (90 cm) and battery/battery (17 cm)

Note If the batteries are located in a power supply housing, cable set CBB 0000 A is required (cable length for BCM/battery 180 cm).

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
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Current consumption

• Standby	31 mA (at 24 V DC)
• Fault	40 mA (at 24 V DC)

Voltage outputs

• 3 outputs, switchable	+24 V / 1.7 A, battery-buffed (programmable)
• 3 outputs, not switchable	+24 V / 0.5 A, battery-buffered

Capacity of the outputs BAT FAULT, AC FAULT	max. 500 mA (at 27 V DC)
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Maximum current to the panel rails (PRS 0002 A/PRD 0004 A)	Max. 6 A via the BCM 0000 A Max. 8 A via the batteries
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Mechanics

Operating/display elements

• 1 green LED	Power ON
• 3 yellow LEDs	Trouble mains/batt. 1/batt. 2
• 1 key	Batteries charge at V < 22 V and central units start with battery current

Housing material	ABS plastic, Polyac PA-766 (UL94V-0)
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Housing color	Satin finish, anthracite, RAL 7016
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Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
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Weight

• Without packaging	Approx. 185 g (6.5 ounces)
• With packaging	Approx. 335 g (11.8 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F ... 122 °F)
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Permitted storage temperature	-20 °C to 60 °C (-4 °F ... 140 °F)
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Permitted relative humidity	95%, non-condensing
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Protection class as per IEC 60529	IP 30
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Ordering Information

BCM 0000 A Battery Controller Module for extension of the FPA-5000 with the Panel Controller MPC version A	BCM 0000 A
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Accessories

CBB 0000 A Cable Set BCM/Battery Used to connect a battery pair and a Power Supply Housing to the BCM-0000-B Battery Controller Module	CBB 0000 A
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CPB 0000 A Cable BCM/UPS Used to connect the BCM-0000-B Battery Con- troller Module to a UPS Power Supply, cable length 150 cm	CPB 0000 A
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BCM-0000-B Battery Controller Module



Features

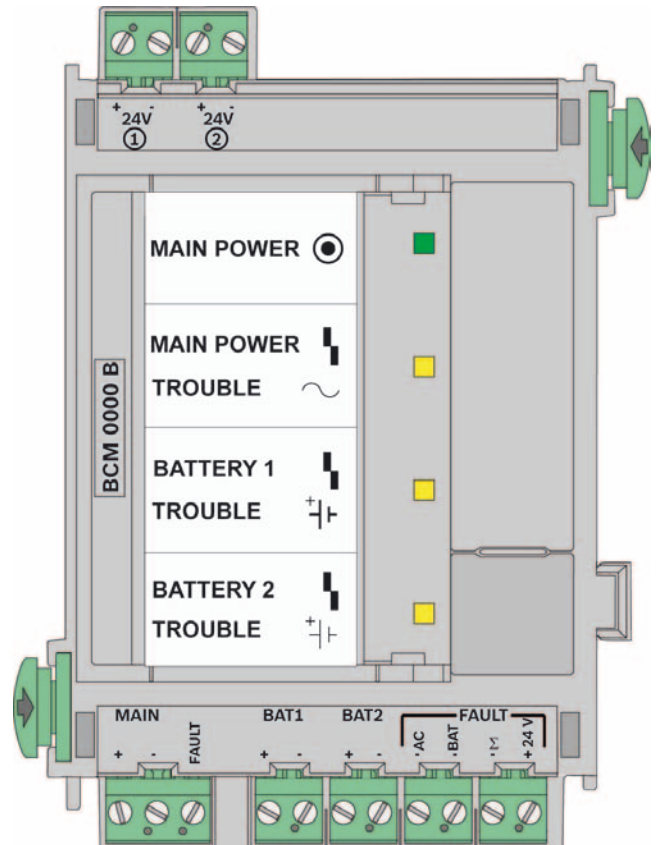
- ▶ Two voltage outputs of 2.8 A at 24 V each
- ▶ Temperature-controlled charging of batteries according to EN 54-4
- ▶ Ready to go thanks to plug-and-play technology and pluggable terminal blocks

The BCM-0000-B Battery Controller Module monitors the power supply of the entire control panel. It controls the charging of up to four batteries (12 V/24 Ah to 12 V/26 Ah or 12 V/36 Ah to 12 V/45 Ah). The charging is actuated by temperature and time.

The key has three functions, depending on the state of the battery controller module:

- The LED test of the module is activated by pushing the key.
- The key starts the charging of the batteries if the battery voltage is between 18 V and 21 V. A mains power supply is required.
- The reset of the 24 V outputs. If an error occurs, the output is deactivated.

System Overview



Description

24V +/-
24V +/-
MAIN +/-
MAIN FAULT
BAT1 +/-
BAT2 +/-
FAULT AC -
FAULT BAT -
FAULT Σ -
FAULT +

Connector

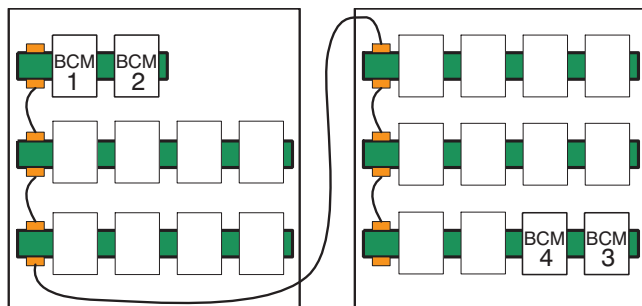
Output max. 2.8 A (battery buffered)
Output max. 2.8 A (battery buffered)
Power supply unit UPS
Input fault, mains
Battery pair 1
Battery pair 2
Main power fault signal output
Battery fault signal output
Collective fault signal output
Signal output +

Installation/Configuration Notes

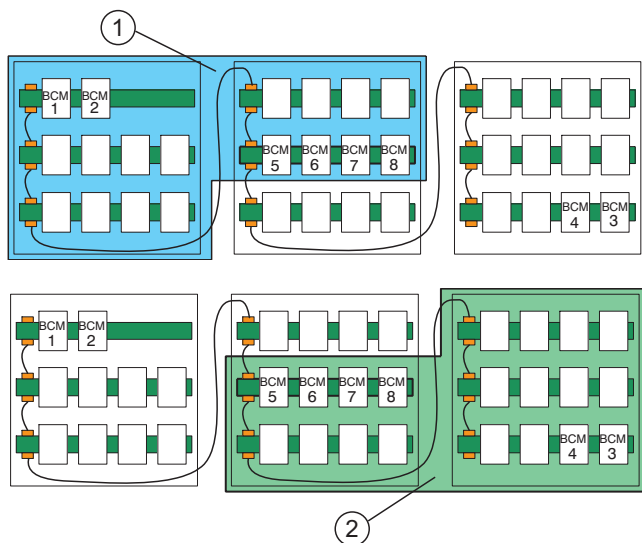
Do not use the 24V outputs in parallel wiring.

Configuration specifications for Battery Controller Modules

- With 1 to 4 BCM modules:
 - max. 2 modules at the start of the first panel rail
 - max. 2 modules at the end of the last panel rail



- With 5 to 8 BCM modules:
 - 2 modules at the start of the first panel rail (BCM 1 and 2)
 - 2 modules at the end of the last panel rail (BCM 3 and 4)
 - additional BCM modules as shown



Pos. Description

- | | |
|---|--------|
| 1 | Area 1 |
| 2 | Area 2 |
- Current consumption of the BCM modules must not exceed 10 A in Area 1.
 - Current consumption of the BCM modules must not exceed 10 A in Area 2.
 - This only applies to the current consumption for consumer loads of the outputs (1) 24 V and (2) 24 V.

Calculation of the standby current according to EN 54-4

$$(1) I_{\max, \text{Standby}} = \frac{C_{\text{Batt}} \cdot I_{\text{Alarm}} \times 0,5\text{h}}{t_{\text{Standby}}} \quad (2) I_{\max, A} = 6A - \frac{C_{\text{Batt}}}{18\text{h}}$$

$$(3) I_{\text{nom}} = \min[I_{\max, \text{Standby}}, I_{\max, A}]$$

Formula (1) gives the maximum panel current required to provide a specific buffering time ($I_{\max, \text{Standby}}$).

Formula (2) gives the maximum panel current with simultaneous consideration of the battery charge ($I_{\max, A}$).

According to formula (3), the required standby current of the panel (I_{nom}) is based on the smaller value of the two maximum current values of the panel.

Parameter:

- t_{Standby} = buffering time in hour

- I_{Alarm} = maximum alarm current ($I_{\max, B}$)
- C_{Batt} = battery capacity in Ah

The following capacities are feasible:

- 24 – 26 Ah and 36 – 45 Ah for 2 batteries
- 48 – 52 Ah and 72 – 90 Ah for 4 batteries

Parts Included

Qty.	Components
1	BCM-0000-B Battery Controller Module
1	Cable set with 2 connection cables: BCM/battery (90 cm) and battery/battery (17 cm)

Note If the batteries are placed in a power supply housing, the cable set CBB 0000 A is required (cable length for BCM/battery 180 cm).

Technical Specifications

Electrical

Input voltage	20,4 V DC to 30 V DC
Current consumption	
• Standby	25 mA
• Fault	40 mA
Voltage outputs	
• 2 outputs, switchable	+24 V / 2.8 A, battery-buffed (programmable)
Capacity of the outputs BAT FAULT, AC FAULT and collective FAULT	0 V / 0 to 20 mA
Maximum current of the module	Max. 6 A
• to the panel rails (PRS 0002 A/PRD 0004 A)	Max. 6 A via the BCM 0000 A
• of the outputs	Max. 5.6 A (2 x 2.8 A not in parallel wiring)
• Maximum battery resistance	430 mΩ
• Permitted battery capacity	
• with 2 batteries	24 – 26 Ah 36 – 45 Ah
• with 4 batteries	48 – 52 Ah 72 – 90 Ah

Mechanics

Operating/display elements	
• 1 green LED	Power ON
• 3 yellow LEDs	Trouble mains/batt. 1/batt. 2
• 1 key	Batteries charge at V < 21 V and central units start with battery current
Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)

Weight	
• Without packaging	Approx. 195 g (6.9 ounces)
• With packaging	Approx. 340 g (12 ounces)

Environmental conditions

Permitted operating temperature	-5°C to 50°C (23°F to 122°F)
Permitted storage temperature	-20°C to 85°C (-13°F to 185°F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information

BCM-0000-B Battery Controller Module	BCM-0000-B
monitors the power supply of the fire and the charging of the batteries	

ANI 0016 A Annunciator Module

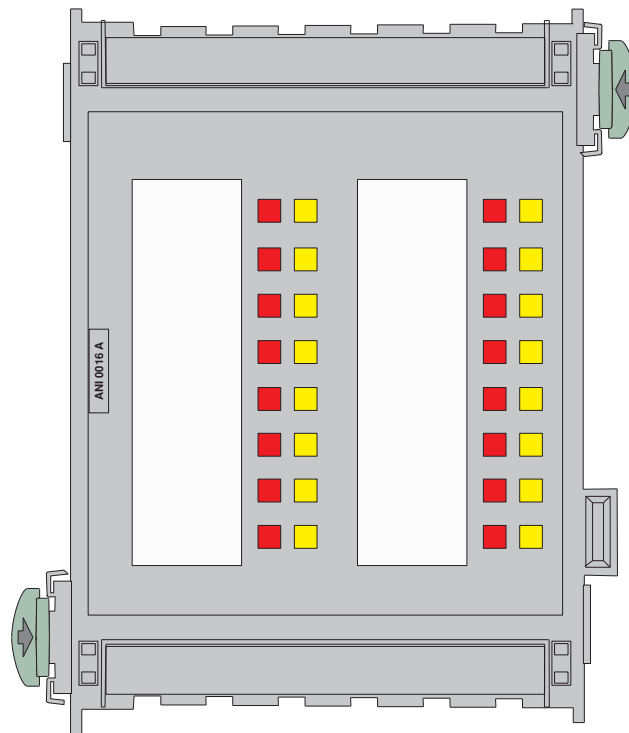


Features

- ▶ **Status display of 16 individually programmable detection points**
- ▶ **Ready to go thanks to plug-and-play technology**

The module, with 16 red and 16 yellow LEDs, can display the status of 16 individually programmable detection points.

System Overview



Functions

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

The module is inserted in an open module slot and is therefore ready for operation.

Only the detection points to be displayed must still be defined via the programming software [RPS].

Parts Included

Qty.	Components
1	ANI 0016 A Annunciator Module
4	Labelling strips

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
Max. current consumption	
• Standby (all LEDs off)	6 mA (at 24 V DC)
• All LEDs on	26 mA (at 24 V DC)

Mechanics

Display elements	16 red LEDs 16 yellow LEDs
Housing material	ABS plastic, Polylic PA-766 (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
Weight	
• Without packaging	Approx. 206 g (7.3 ounces)
• With packaging	Approx. 356 g (12.6 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information**ANI 0016 A Annunciator Module****ANI 0016 A**

displays the status of 16 individually programmable detection points

LSN 0300 A

LSN improved Module

300 mA

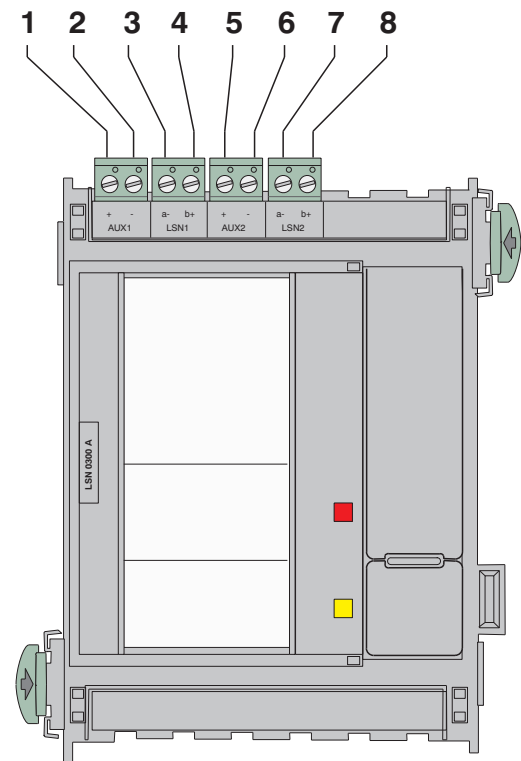


Features

- ▶ Up to 254 LSN improved elements
- ▶ Line length up to 1600 m, depending on configuration and cable type
- ▶ Unshielded cable can be used
- ▶ Line current up to 300 mA, depending on configuration and cable type
- ▶ Additional voltage output (ERT-capable)
- ▶ Flexible network structures (loop, stub, and T-tap)
- ▶ Addressing techniques: LSN improved auto-addressing, LSN classic auto-addressing and manual address assignment

This module allows the connection of an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements, with a maximum line current of 300 mA.

System Overview



Ite	Description	Connection
m	LSN LSN stub	
loop		
p		

1/2	AUX1 + / -	Auxiliary power supply	Auxiliary power supply stub 1
3	LSN a1-	LSN a1- outgoing	Stub 1 LSN a1-
4	LSN b1+	LSN b1+ outgoing	Stub 1 LSN b1+
5/6	AUX2 + / -	Auxiliary power supply***	Auxiliary power supply stub 2
7	LSN a2-	LSN a2- incoming	Stub 2 LSN a1-
8	LSN b2+	LSN b2+ incoming	Stub 2 LSN b1+

*** Auxiliary power must only be returned to AUX2 in looped isolators (ERT systems). [Suitable isolators include YBO-R/SCI isolators]

Installation/Configuration Notes

Note Current consumption of the connected devices and cable length can be calculated with the Fire System Designer (FSD).

- Country-specific standards and guidelines must be considered during planning.
- For operation of the fire detection system according to EN 54-13, it is necessary to terminate every stub and T-tap with EOL-modules.

Parts Included

Qty.	Components
1	LSN 0300 A LSN improved Module 300 mA

Technical Specifications**Electrical systems**

Input voltage	20 V DC to 30 V DC / 5 V DC $\pm$ 5 %
Output voltage:	
• LSN	30 $\pm$ 1.0 V DC
• Aux auxiliary power	28 $\pm$ 1.0 V DC
Max. current consumption	1750 mA at 24 V DC
Nominal current consumption	
• Module	39 mA at 24 V DC
• LSN	1,7 x current consumption of LSN elements
• AUX	1,2 x Auxiliary power
LSN line current	Max. 300 mA, depending on configuration and cable type
AUX auxiliary power (28 V DC)	Max. 500 mA in an LSN loop (ERT system) or 2 x max. 500 mA in 2 stubs

Mechanical systems

Operation/display elements	2 LEDs (red = alarm, yellow = fault) 1 button (LED test)
Housing material	ABS plastic, (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
Weight	Approx. 225 g

System limits

Max. line length	1600 m, depending on configuration and cable type
Number of elements	Max. 127 classic LSN elements Max. 254 LSN improved elements

Environmental conditions

Permissible operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95 % , non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information

LSN 0300 A LSN improved Module 300 mA	LSN 0300 A
for connecting an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements, with a maximum line current of 300 mA	

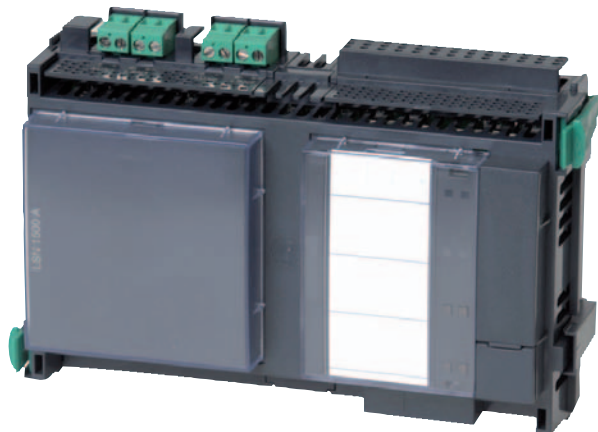
Accessories

FLM-420-EOL2W-W EOL Module LSN	FLM-420-EOL2W-W
for EN 54-13 compliant termination of LSN stubs or T-taps	

LSN 1500 A

LSN improved Module

1500 mA

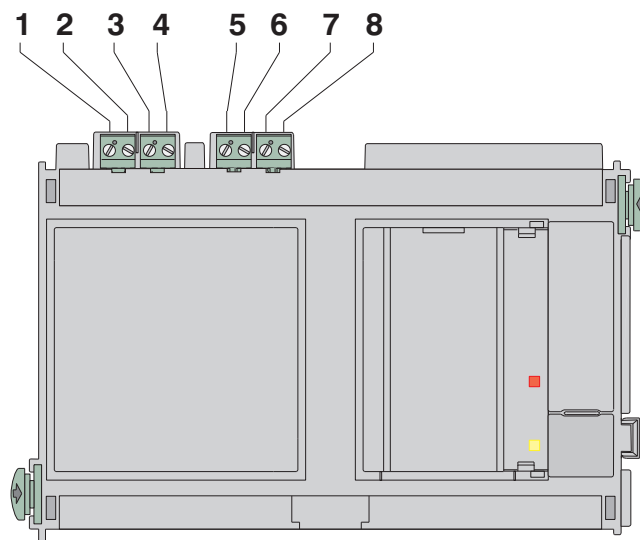


Features

- ▶ Up to 254 LSN improved elements
- ▶ Line length up to 3000 m, depending on configuration and cable type
- ▶ Unshielded cable can be used
- ▶ Line current up to 1500 mA, depending on configuration and cable type
- ▶ Additional voltage output (ERT-capable)
- ▶ Flexible network structures (loop, stub, and T-tap)
- ▶ Addressing techniques: LSN improved auto-addressing, LSN classic auto-addressing and manual address assignment

This module allows the connection of an LSN loop with up to 254 LSN improved elements with a maximum line current of 1500 mA or with up to 127 classic LSN elements, with a maximum line current of 300 mA.

System Overview



Item	Description	Connection
1/2	AUX1 + / -	Auxiliary power supply
3	LSN a1-	LSN a1- outgoing
4	LSN b1+	LSN b1+ outgoing
5/6	AUX2 + / -	Auxiliary power supply***
7	LSN a2-	LSN a2- incoming
8	LSN b2+	LSN b2+ incoming

*** Auxiliary power must only be returned to AUX2 in looped isolators (ERT systems). [Suitable isolators include YBO-R/SCI isolators]

Installation/Configuration Notes

System limits for each LSN 1500 A LSN improved Module

Note Current consumption of the connected devices and cable length can be calculated with the Fire System Designer (FSD).

- Country-specific standards and guidelines must be considered during planning.
- It can only be plugged in on the left side of a PRD 0004 A panel rail and requires two slots!
- For operation of the fire detection system according to EN 54-13, it is necessary to terminate every stub and T-tap with EOL-modules.

Parts Included

Qty.	Components
1	LSN 1500 A LSN improved Module 1500 mA

Note Ready for delivery on request.

Technical Specifications**Electrical systems**

Input voltage	20 V DC to 30 V DC / 5 V DC $\pm$ 5 %
Output voltage:	
• LSN	30 $\pm$ 0.85 V DC
• Aux auxiliary power	28 $\pm$ 1.0 V DC
Max. current consumption	4010 mA at 24 V DC
Nominal current consumption	
• Module	260 mA at 24 V DC
• LSN	1.7 x current consumption of LSN elements
• AUX	1.2 x Auxiliary power
LSN line current:	
• Standby	Max. 750 mA, depending on configuration and cable type
• Alarm	Max. 1500 mA, depending on configuration and cable type, Max. 300 mA at connection of classic LSN elements
AUX auxiliary power (28 V DC)	Max. 500 mA in an LSN loop (ERT system) or 2 x max. 500 mA in 2 stubs

Mechanical systems

Operation/display elements	2 LEDs (red = alarm, yellow = fault) 1 button (LED test)
Housing material	ABS plastic, (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 190 x 60 mm (5.0 x 7.6 x 2.4 in.)
Weight	Approx. 440 g

System limits

Max. line length	3000 m, depending on configuration and cable type
Number of elements	Max. 127 classic LSN elements Max. 254 LSN improved elements

Environmental conditions

Permissible operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95 % , non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information

LSN 1500 A LSN improved Module 1500 mA **LSN 1500 A**
for connecting an LSN loop with up to 254 LSN improved elements with a maximum line current of 1500 mA, or with up to 127 classic LSN elements, with a maximum line current of 300 mA

Accessories

FLM-420-EOL2W-W EOL Module LSN **FLM-420-EOL2W-W**
for EN 54-13 compliant termination of LSN stubs or T-taps

FPE-5000-UGM Interface Module

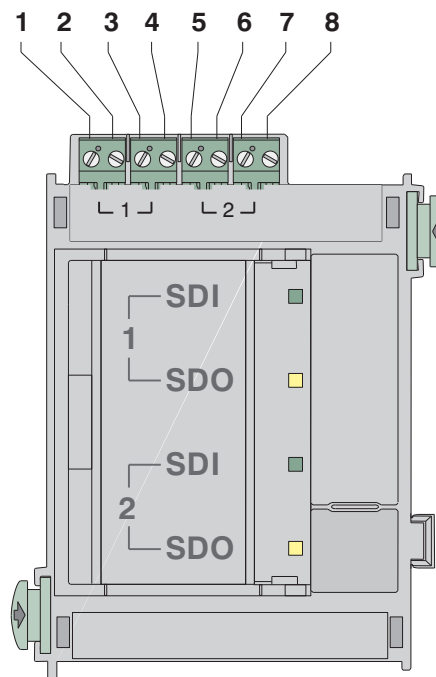


Features

- Easy and redundant connection to superordinate systems
- MTS protocol
- Ready to go thanks to plug-and-play technology and pluggable terminal blocks

The Communication Module is used to connect the fire panels FPA-5000 and FPA-1200 to a superordinate system like the UGM 2020, FAT 2002/RE and FSM-2000. The module provides two bi-directional transmission paths.

System Overview



Pos.	Labeling	Connection	
1	SDI 1 +	Transmission path 1	Data input +
2	SDI 1 -		Data input -
3	SDO 1 +	Transmission path 2	Data input +
4	SDO 1 -		Data input -
5	SDI 2 +		Data input +
6	SDI 2 -		Data input -
7	SDO 2 +		Data input +
8	SDO 2 -		Data input -

Functions

Quant.	Component
1	FPE-5000-UGM Interface Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC
Maximum current consumption	
• Standby	7 mA (at 24 V DC)
• One transmission path active	10 mA (at 24 V DC)
• Both transmission paths active	13 mA (at 24 V DC)
Maximum line length	1000 m
Maximum line resistance	70 Ω
Baud rate	9600 bit/s at 1000 m to 38400 bit/s at 200 m

Mechanics

Operating and display elements

• 4 Bi-colorLEDs	Green = transmission / Yellow = fault
• 1 key switch	LED test
Housing material	ABS plastic (UL94 V-0)
Housing color	satın finish, anthracite, RAL 7016
Dimensions	110 x 90 x 60 mm
Weight	150 g

Environmental conditions

Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Permissible relative humidity	max. 95 %, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information**FPE-5000-UGM Interface Module**

for connecting the fire panels FPA-5000 and
FPA-1200 to superordinate systems
(UGM 2020, FAT 2002/RE, FSM-2000)

FPE-5000-UGM

CZM 0004 A 4 Zone Conventional Module

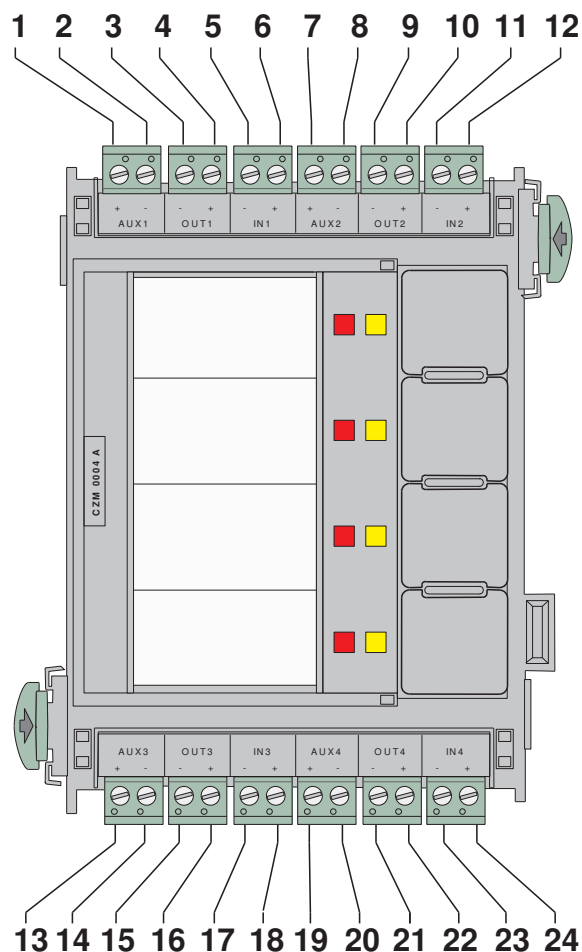


Features

- Connection of 2-wire and 4-wire conventional elements
- Ready to go thanks to plug-and-play technology and pluggable terminal blocks

The CZM 0004 A is used to connect existing conventional peripherals and provides four monitored conventional lines.

System Overview



Pos.	Description	Connector
1 / 2	AUX1 + / -	Additional power supply* zone 1
3 / 4	OUT1 - / +	Zone 1 output low/output high
5 / 6	IN1 - / +	Zone 1 input low/input high
7 / 8	AUX2 + / -	Additional power supply* zone 2
9 / 10	OUT2 - / +	Zone 2 output low/output high
11 / 12	IN2 - / +	Zone 2 input low/input high
13 / 14	AUX3 + / -	Additional power supply* zone 3
15 / 16	OUT3 - / +	Zone 3 output low/output high
17 / 18	IN3 - / +	Zone 3 input low/input high
19 / 20	AUX4 + / -	Additional power supply* zone 4
21 / 22	OUT4 - / +	Zone 4 output low/output high
23 / 24	IN4 - / +	Zone 4 input low/input high

* +24 V DC, connectable

Installation/Configuration Notes

- All additional voltage outputs (AUX 1-AUX 4) can be switched on and off simultaneously.
- 2-wire and 4-wire conventional components can be connected.
- Country-specific standards and guidelines must be considered during planning.

- For operation of the fire detection system according to EN 54-13, it is necessary to terminate every conventional zone with EOL-modules.
- Observe the maximum line resistance:
 - 25 Ω for conventional lines with FMC-300-RW or automatic fire detectors
 - 12 Ω for conventional lines with FMC-120-DKM manual call points.

Parts Included

Qty.	Components
1	CZM 0004 A 4 Zone Conventional Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC (min...max) 5 V DC $\pm$ 5%
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Max. current consumption

• Standby (all 4 zones)	65 mA (at 24 V DC)
• Alarm (all 4 zones)	65 mA + 100 mA per zone (at 24 V DC)

Max. output voltage	20 V DC $\pm$ 5%
---------------------	------------------

Max. output current	100 mA per zone $\pm$ 10%
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Max. lead resistance	2 x 25 Ω per zone
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Mechanics

Operating/display elements	8 LEDs (4 x red, 4 x yellow) 4 keys
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Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
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Housing color	Satin finish, anthracite, RAL 7016
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Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
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Weight

• Without packaging	Approx. 135 g (4.8 ounces)
• With packaging	Approx. 270 g (9.5 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
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Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
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Permitted relative humidity	95%, non-condensing
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Protection class as per IEC 60529	IP 30
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Ordering Information

CZM 0004 A 4 Zone Conventional Module	CZM 0004 A
for connecting existing conventional peripherals; providing four monitored conventional lines	

IOS 0020 A 20 mA Communication Module



Features

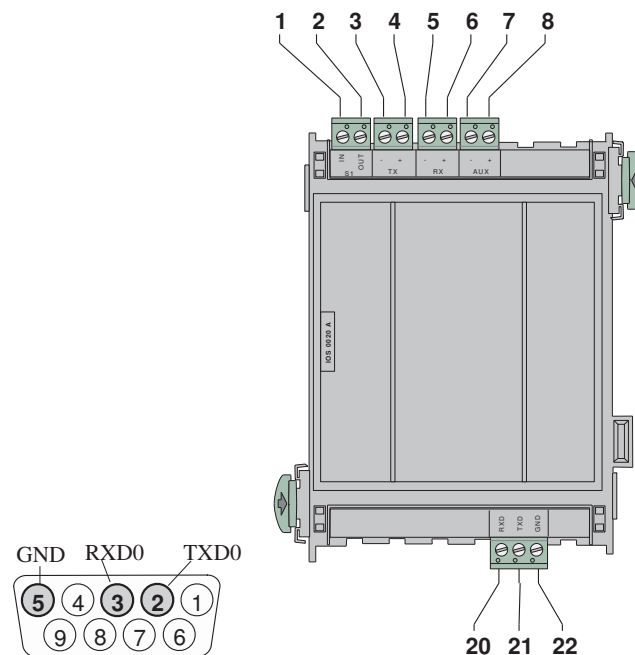
- Connection of peripherals with serial interface
- Ready to go thanks to plug-and-play technology and pluggable terminal blocks

The IOS 0020 A Communication Module has the following interfaces:

- An S20 interface
- An RS232 interface
- An S1 interface.

The voice alarm system Plena can be connected via RS232.

System Overview



Pos.	Description	Connector
1 / 2	S1 IN/OUT	S1 interface
3 / 4	TX - / +	20 mA interface
5 / 6	RX + / -	20 mA interface
7 / 8	AUX - / +	Power supply, +24 V DC/max. 1.3 A
20 / 21 / 22	RXD/TXD/GND	RS232 interface

Parts Included

Qty.	Components
1	IOS 0020 A 20 mA Communication Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
Max. current consumption	15 mA (at 24 V DC)
Max. output current AUX	1.3 A at 24 V DC
Max. cable length	
• 20 mA interface	1000 m (3280 ft.)
• RS232 interface	3 m (10 ft.)

Mechanics

Housing material	ABS plastic, Polyac PA-766 (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
Weight	
• Without packaging	Approx. 175 g (6.2 ounces)
• With packaging	Approx. 350 g (12.4 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information

IOS 0020 A 20 mA Communication Module **IOS 0020 A**
provides one interface each of S20, RS232 and S1

IOS 0232 A RS232 Communication Module

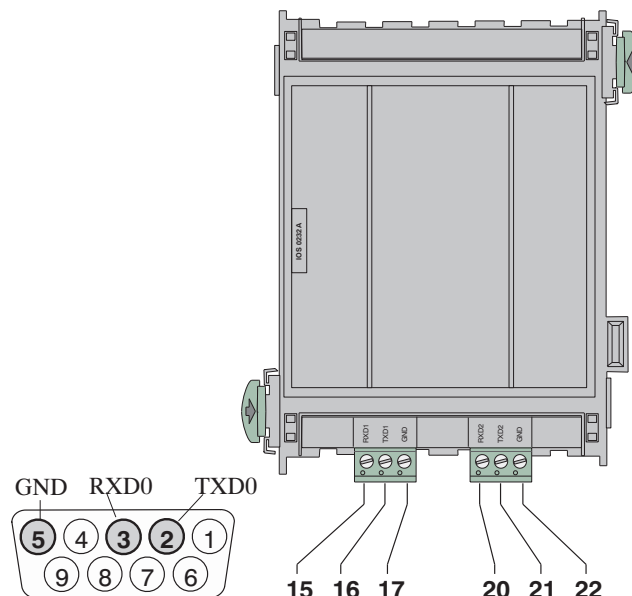


Features

- **Connection of peripherals with RS232 serial interface**
- **Ready to go thanks to plug-and-play technology and pluggable terminal blocks**

The RS232 Communication Module can be used to connect two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces.

System Overview



Pos.	Description	Connector
15 / 16 / 17	RXD1/TXD1/GND	RS232 interface 1
20 / 21 / 22	RXD2/TXD2/GND	RS232 interface 2

Parts Included

Qty.	Components
1	IOS 0232 A RS232 Communication Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC (min...max) 5 V DC $\pm$ 5%
Max. current consumption	15 mA (at 24 V DC)
Max. cable length	3 m (10 ft.) per interface

Mechanics

Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)

Weight

- Without packaging Approx. 180 g (6.3 ounces)
- With packaging Approx. 230 g (8.1 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information

IOS 0232 A RS232 Communication Module	IOS 0232 A
for connecting two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces	

ENO 0000 B Fire Service Interface Module



Features

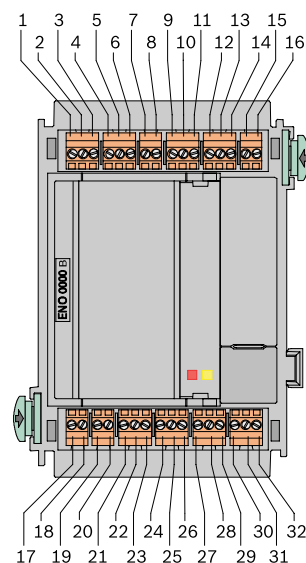
- ▶ **Connection of Fire Service Systems according to DIN 14675**
- ▶ **Ready to go thanks to plug-and-play technology and pluggable terminal blocks**

The ENO 0000 B enables the connection of fire service equipment in compliance with DIN 14675:

- Transmission unit to fire service (AT 2000)
- SD key deposit
- Signal light (BEGA light, BL 200)
- Monitoring of a release device
- 4 freely-programmable relays.

The ENO 0000 B module is only used in Germany.

System Overview



Pos.	Description	Connector
1	A	Ground
2	B	Transmission unit control
3	C	Feedback contact
4	ÜE	AWUG fault
5	NQuit	Acknowledge
6	GND	Ground
7 / 8	ÜE + / -	Transmission unit power supply
9	1	Monitoring of key deposit
10		Jumper from position 10 to 11 for the door release magnet of a 12 V key deposit.
11	2	Ground
12	5	Door release magnet, 24 V, approx. 10 W
13	8	Lock monitoring
14	6/7	Ground
15	9	Heat system, 24 V, approx. 8 W
16	10	Ground
17 / 18	FSE + / -	Monitoring of the release device
19 / 20	II + / -	Signal light, 24 V, approx. 10 W
21 - 32	1/2/3/4	Relays 1-4

Installation/Configuration Notes

- For a fire system operation according to EN 54-2, the transmission units (FMA-AT2000-GSM/-ISDN/-IP) must be installed directly next to or within the fire panel. If the installation is remote, the feedback line to the fire panel must be monitored.

Parts Included

Qty.	Components
1	ENO 0000 B Fire Service Interface Module
2	Labeling strips

Technical Specifications**Electrical**

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
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Max. current consumption

- Standby 25 mA (at 24 V DC)
- All relays triggered 60 mA (at 24 V DC)

Contact load relay	1 A / 30 V DC
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Max. lead resistance transmission unit (ÜE)	2 x 10 Ω
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Max. cable length key deposit	10 m
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Cable type key deposit	LiYY 10 x 0.5 mm ²
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Mechanics

Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
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Housing color	Satin finish, anthracite, RAL 7016
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Dimensions	Approx. 127 x 96 x 60 mm
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Weight	Approx. 150 g
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Environmental conditions

Permitted operating temperature	-5 °C to 50 °C
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Permitted storage temperature	-20 °C to 60 °C
-------------------------------	-----------------

Permitted relative humidity	95 %, non-condensing
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Protection class as per IEC 60529	IP 30
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Ordering Information

ENO 0000 B Fire Service Interface Module for connecting fire service equipment in compliance with DIN 14675	ENO 0000 B
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Accessories

CPA 0000 A Cable Set AT 2000 Used to connect an AT 2000 to the MPC and the ENO 0000 B.	CPA 0000 A
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IOP 0008 A Input/Output Module

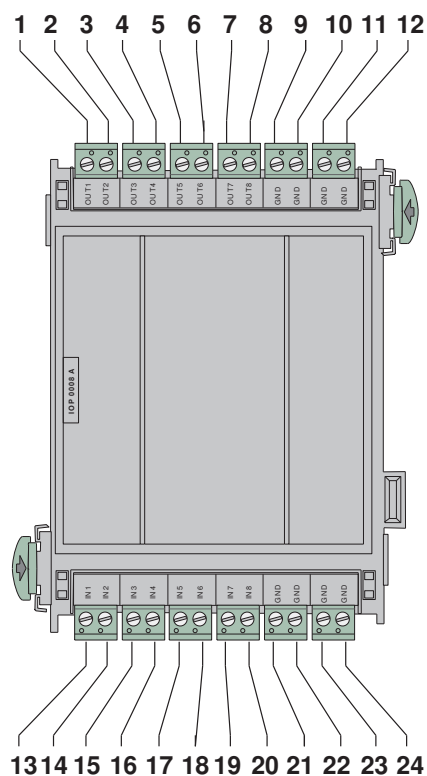


Features

- Interface for electrically isolated inputs and outputs
- Ready to go thanks to plug-and-play technology and pluggable terminal blocks

The IOP 0008 A Input/Output Module has eight independent digital inputs and eight open collector outputs for individual displays.

System Overview



Pos.	Description	Connector
1-8	OUT1-OUT8	8 outputs with a max. voltage of 35 V DC, nominal 700 mA
9-12	GND	Ground
13-20	IN1-IN8	8 inputs with a max. voltage of 5 V DC at 0.1 mA per input
21-24	GND	Ground

Parts Included

Qty.	Components
1	IOP 0008 A Input/Output Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
Max. current consumption	10 mA (at 24 V DC)
Output current	Max 1.5 A, nominal 700 mA (short-circuit protected)
Max. cable length	3 m (10 ft.) per input/output

Mechanics

Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
Weight	Approx. 150 g (5.3 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60°C (-4 °F to 140 °F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information**IOP 0008 A Input/Output Module****IOP 0008 A**

for individual displays, providing eight independent digital inputs and eight open collector outputs

RML 0008 A Relay Module



Features

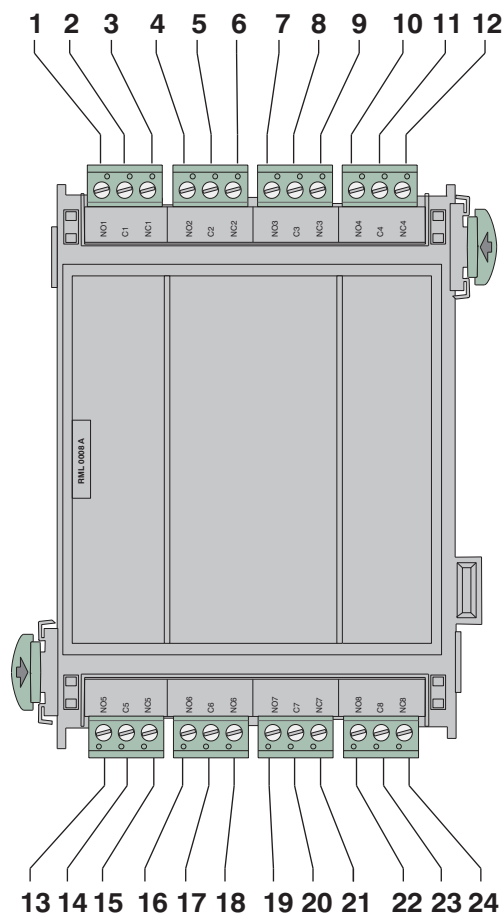
- 8 freely programmable relay outputs
- Ready to go thanks to plug-and-play technology and pluggable terminal blocks

The module has eight change-over contact relays (type C) to provide potential-free output contacts.

Each of the eight relays has an NO (normally open) and an NC (normally closed) contact.

The maximum relay contact load is 30 V DC/1 A.

System Overview



Pos.	Description	Connector
1-3	NO1 / C1 / NC1	Relay 1
4-6	NO2 / C2 / NC2	Relay 2
7-9	NO3 / C3 / NC3	Relay 3
10-12	NO4 / C4 / NC4	Relay 4
13-15	NO5 / C5 / NC5	Relay 5
16-18	NO6 / C6 / NC6	Relay 6
19-21	NO7 / C7 / NC7	Relay 7
22-24	NO8 / C8 / NC8	Relay 8

Parts Included

Qty.	Components
1	RML 0008 A Relay Module Low Voltage

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
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Max. current consumption

- Standby 4 mA (at 24 V DC)
- All relays triggered 68 mA (at 24 V DC)

Max. contact load	1 A at 30 V DC
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Mechanics

Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
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Housing color	Satin finish, anthracite, RAL 7016
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Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
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Weight	Approx. 150 g (5.3 ounces)
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Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
---------------------------------	----------------------------------

Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
-------------------------------	-----------------------------------

Permitted relative humidity	95%, non-condensing
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Protection class as per IEC 60529	IP 30
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Ordering Information

RML 0008 A Relay Module

RML 0008 A

for low voltage, providing 8 change-over contact relays (type C)

RMH 0002 A Relay Module



Features

- ▶ **Contact rating of 5 A**
- ▶ **Ready to go thanks to plug-and-play technology and pluggable terminal blocks**

The module has two change-over contact relays (type C) for monitored connection of external elements with feedback, e. g.

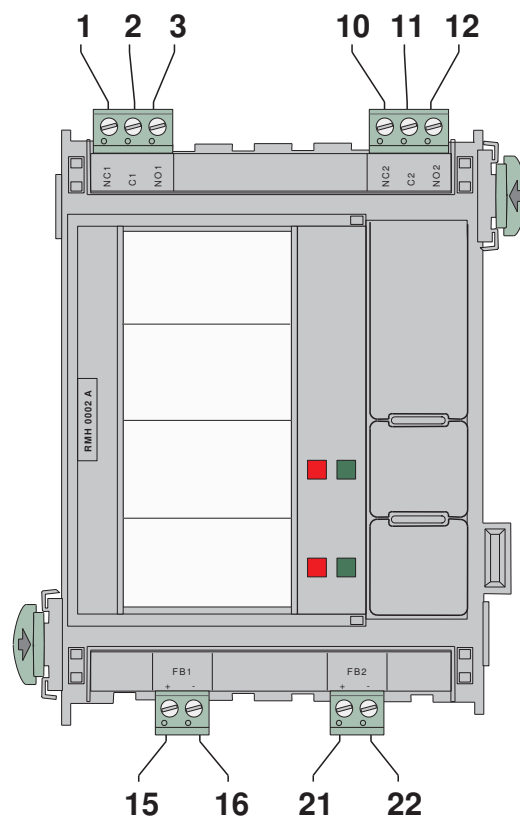
- Door retaining magnets
- Fan
- Smoke dampers.

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

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

The Relay Module can also be used as an extinguishing system interface in accordance with VdS 2496.

System Overview



Pos.	Description	Connector
1-3	NC1/C1/NO1	Relay 1
10-12	NC2/C2/NO2	Relay 2
15 / 16	FB1 + / -	Feedback relay 1
21 / 22	FB2 + / -	Feedback relay 2

Parts Included

Qty.	Components
1	RMH 0002 A Relay Module High Voltage
2	Labeling strips

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
Max. current consumption	
• Standby	10 mA (at 24 V DC)
• Both relays triggered	50 mA (at 24 V DC)
Max. contact load	5 A at 120/230 V AC 5 A at 30 V DC
Feedback current	Max. 4.5 mA per relay
Feedback voltage	Max. 30 V DC

Maximum line resistance of the feedback lines	2 x 25 Ω
---	-----------------

Fuses	F1 = T 6.3 A, F2 = T 6.3 A
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Mechanics

Operating/display elements	4 LEDs (2 x red, 2 x green) 2 keys
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Housing material	PPO Noryl
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Housing color	Satin finish, anthracite, RAL 7016
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Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
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Weight	Approx. 135 g (4.8 ounces)
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Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
---------------------------------	----------------------------------

Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
-------------------------------	-----------------------------------

Permitted relative humidity	95%, non-condensing
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Protection class as per IEC 60529	IP 30
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Ordering Information

RMH 0002 A Relay Module

for monitored connection of external elements with feedback, providing 2 change-over contact relays (type C) for high voltage

RMH 0002 A

NZM 0002 A Notification Appliance Zone Module



Features

- **Monitored control of signaling devices by voltage polarity reversal**
- **Ready to go thanks to plug-and-play technology and pluggable terminal blocks**

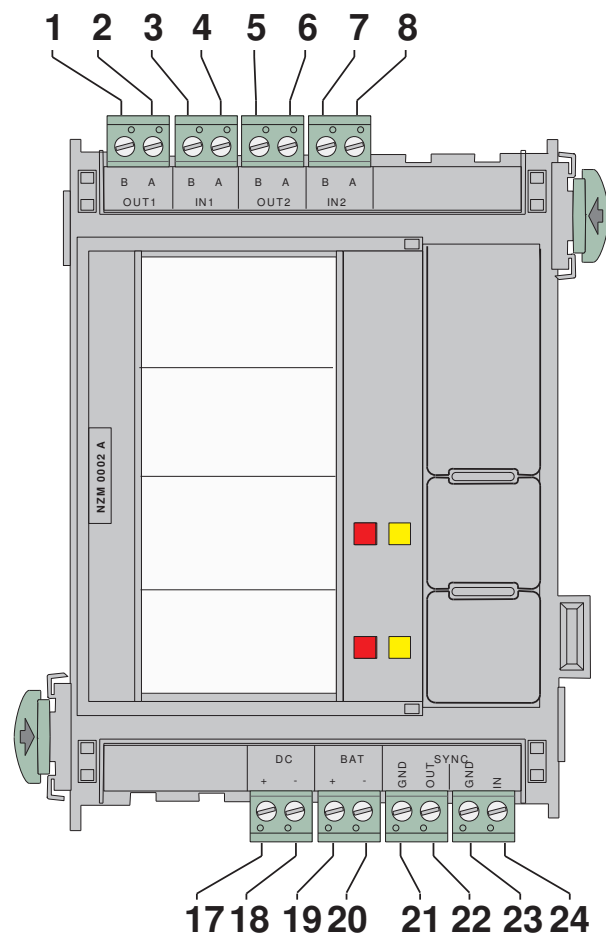
The NZM 0002 A Notification Appliance Zone Module provides two monitored primary lines. This enables the connection of two separate notification appliance zone lines.

Connection of:

- Sirens
- Strobes
- Horns

The operating status of each zone is shown by a red and a yellow status LED.

System Overview



Pos.	Description	Connector
1 / 2	B OUT1/A OUT1	NAC zone 1
3 / 4	B IN1/A IN1	
5 / 6	B OUT2/A OUT2	
7 / 8	B IN2/A IN2	
17 / 18	DC + / -	External power supply via HPD 0000 A Power distributor
19 / 20	BAT + / -	
21 / 22	SYNC GND/OUT	Synchronization output
23 / 24	SYNC GND/IN	Synchronization input

Parts Included

Qty.	Components
1	NZM 0002 A Notification Appliance Zone Module
2	Labelling strips

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5%
Max. current consumption	
• Standby (2 zones)	40 mA (at 24 V DC)
• Alarm (2 zones)	65 mA (at 24 V DC)
Max. output voltage	29.5 V DC
Max. output current for	
• Power supply via rail	500 mA per notification appliance zone line (in the event of an alarm)
• External power supply	3 A per notification appliance zone line (in the event of an alarm)
• Max. cable length	Dependent on type and number of connected signaling devices

Mechanics

Operating/display elements	4 LEDs (2 x red, 2 x yellow) 1 key
Housing material	ABS plastic, Polylac PA-766 (UL94 V-0)
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm (5.0 x 3.8 x 2.4 in.)
Weight	Approx. 135 g (4.8 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

Ordering Information

NZM 0002 A Notification Appliance Zone Module

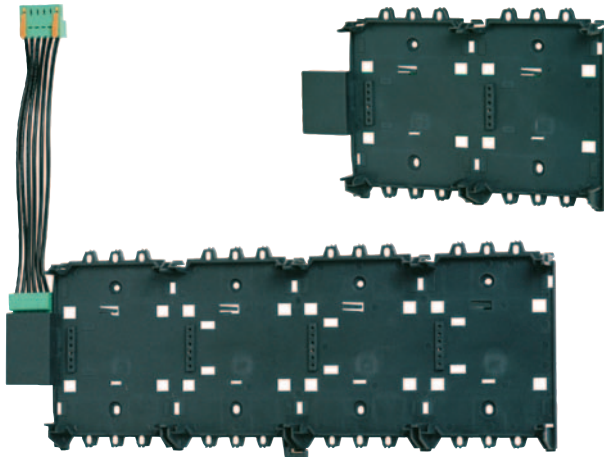
for connecting 2 separate notification appliance zone lines, providing 2 monitored primary lines

Accessories

NMC 0000 A Cable HPD/NZM

Used for synchronization in accordance with UL requirements, cable length 90 cm

Panel Rails



Features

- ▶ **Plug-and-play rails**
- ▶ **Adequate for two or four modules**

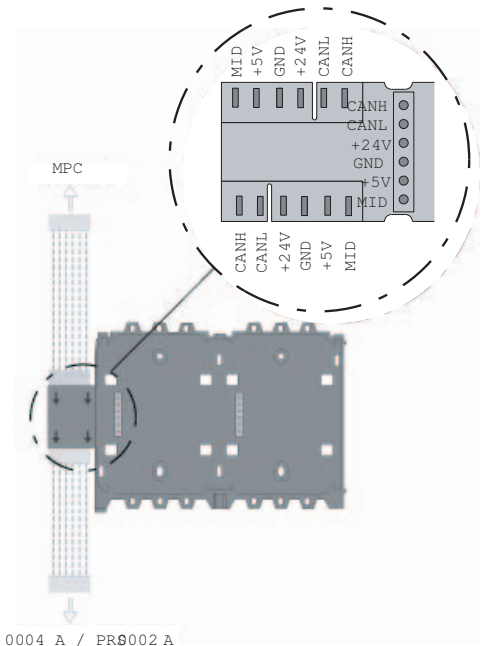
The PRS 0002 A Panel Rail Short and the PRD 0004 A Panel Rail Long are plug-and-play rails made from glass-fiber-reinforced plastic for two or four modules. The power supply for both modules and all the data traffic between the module and the Control Panel are achieved via the plug contacts in the rail.

Functions

PRS 0002 A Panel Rail Short

Due to its hidden position behind the Operating and Display Unit with Panel Controller, the PRS 0002 A Panel Rail Short is intended for mounting of the following modules without operating and display elements:

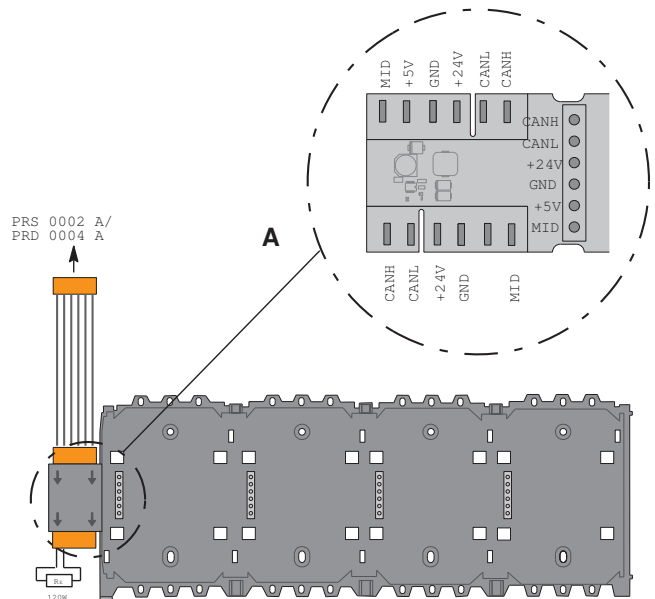
- BCM-0000-B Battery Controller Module
 - IOS 0020 A and IOS 0232 A Communication Modules
- The two modules on the short rail are supplied with voltage (+5 V/GND) directly from the Panel Controller.



PRD 0004 A Panel Rail Long

The PRD 0004 A Panel Rail Long has four module slots.

The panel rails are supplied with voltage via the BCM-0000-B Battery Controller Module and have an integrated DC/DC voltage converter for the 5 V module operating voltage.



Parts Included

Type	Qty.	Components
PRS 0002 A	1	Panel Rail Short, for 2 modules
PRD 0004 A	1	Panel Rail Long, for 4 modules
	1	Data transmission cable

Technical Specifications

Electrical

Input voltage	+5 V DC via MPC +24 V DC via BCM-0000-B
---------------	--

Output voltage

- | | |
|--------------|--|
| • PRS 0002 A | +5 V DC via DC/DC converter
+24 V DC via BCM-0000-B |
| • PRD 0004 A | +5 V DC via BCM-0000-B
+24 V DC via BCM-0000-B |

Mechanics

Material	ABS plastic, Polylac PA-766 (UL94 V-0)
----------	--

Color	Satin finish, anthracite, RAL 7016
-------	------------------------------------

Dimensions

- | | |
|--------------|--|
| • PRS 0002 A | Approx. 146 x 216 x 35 mm
(5.7 x 8.5 x 1.4 inches) |
| • PRD 0004 A | Approx. 146 x 396 x 35 mm
(5.7 x 15.6 x 1.4 inches) |

Weight

- | | |
|--------------|-----------------------------|
| • PRS 0002 A | Approx. 135 g (4.8 ounces) |
| • PRD 0004 A | Approx. 320 g (11.3 ounces) |

Environmental conditions

Permissible operating temperature	-5 °C ... 50 °C (23 °F ... 122 °F)
-----------------------------------	------------------------------------

Permissible storage temperature	-20 °C ... 60 °C (-4 °F ... 140 °F)
---------------------------------	-------------------------------------

Ordering Information

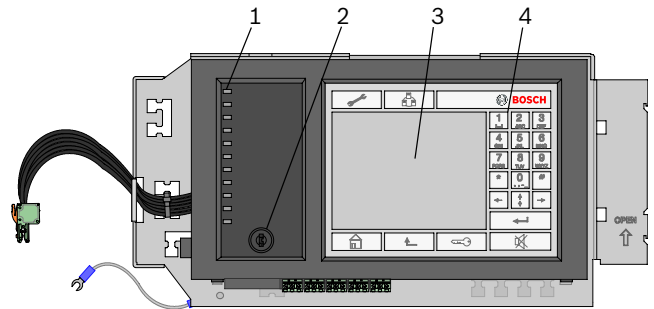
PRS 0002 A Panel Rail Short for up to 2 modules	PRS 0002 A
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PRD 0004 A Panel Rail Long for up to 4 modules	PRD 0004 A
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1 Panel Controller



System Overview



Pos.	Description
1	Status LEDs
2	Key switch
3	LCD touch display
4	Membrane keys

Features

- ▶ Up to 32 Panel Controller or Remote Keypads can be connected to a single network (from August 2009)
- ▶ Ethernet interface for OPC connection
- ▶ Ergonomic design
- ▶ 5.7" touch-screen with 22 fixed keys for the standard entries
- ▶ 11 LEDs for displaying the operating status of the system
- ▶ Simple user guidance thanks to easy menu structures
- ▶ Large number of language variants and country-specific designs

The Panel Controller is the central element of the system, which shows all messages on the display. The complete system is operated via a touch panel above the display. The user-friendly user interface adapts to the various situations. This allows correct operation that is simple, targeted and intuitive.

The FSP-5000-RPS programming software enables adaptation to country-specific circumstances.

Functions

Networking

Via CAN interfaces up to 32 Panel Controller and / or Remote Keypads can be connected to a single network. Depending on usage various panel controller and remote keypads can be grouped or defined as network or a local node. Within a group, conditions of panels can be shown which also belong to the defined group. Independent of groups from network nodes conditions of all panels can be displayed and be edited. Local nodes display conditions of the associated panel.

For networking via CAN1 and CAN2 interfaces the following three connection topologies are possible:

- Non-redundant bus via CAN1
- Redundant bus via busses CAN1 and CAN2
- Redundant loop via CAN1 and CAN2

Alarm indication

The indication element is a high-resolution LCD touch-screen (320 x 240 px) with automatically activated backlight. 11 LEDs provide continuous information about the operating status of the control panel and / or system. Additional LED annunciator modules, each containing 16 detection points, can be used to visually display alarms or faults.

Operation / processing of messages

The operation of the panel controller and the processing of all messages is done on the ergonomically-designed control panel using the integrated LCD touch-screen. To that end, there are permanently located keys on the right, bottom, and upper edge of the display as well as variably located virtual keys in the touch-screen area.

There is a key switch underneath the status LEDs; the key switch has two programmable switch positions, e. g.:

- For switching back and forth between day and night operation
- Local alarm ON / OFF (internal / external alarm)

Interfaces

To transmit the desired configuration to the panel controller, an USB interface is available. Additionally, there is an Ethernet interface to add for example the BIS software to the local network.

Saving and printing messages

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

Language variants

The language of the menu can be selected arbitrarily.

Installation/Configuration Notes

In accordance with EN 54 Part 2, panels with more than 512 LSN elements must be connected redundantly. To that end, a second basic housing with a second Panel Controller is used.

Cable Set CRP 0000 A is required for the redundant connection.

Parts Included

Qty. Components

1	Panel Controller, user interface and labeling strips in the relevant language, CD with FSP-5000-RPS programming software
---	--

Technical Specifications

Electrical

Operating voltage	20 V DC ... 30 V DC
Max. current consumption	
• Standby operation	120 mA @ 24 V DC
• In the event of an alarm	205 mA @ 24 V DC
PRS 0002 A Power Supply	
• Operating voltage	5 V DC $\pm$ 4,5 %
• Current consumption	max. 500 mA
Max. cable length when networking	1000 m depending on configuration, topology and cable type

Mechanics

Display element	5,7" LCD display
Operating element	Touch screen
Permanent operating elements	22 keys
Permanent display elements	11 LEDs
Interfaces	CAN1, CAN2, Ethernet, USB, RS232, 2 signal inputs
Dimensions (H x W x D)	190 mm x 404 mm x 60 mm
Active surface (H x W)	127,5 mm x 170 mm
Weight	ca. 2 kg

Environmental conditions

Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 70 °C

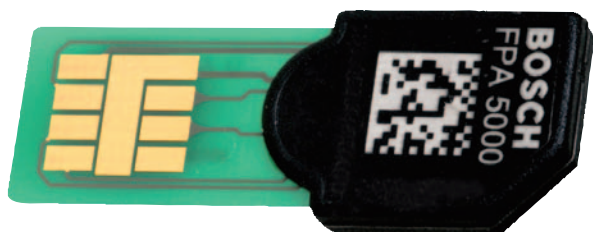
Ordering Information

MPC-0000-B Panel Controller DE	MPC-0000-B
MPC-2000-B Panel Controller ES	MPC-2000-B
MPC-3000-B Panel Controller PL	MPC 3000 B
MPC-4000-B Panel Controller DA	MPC-4000-B
MPC-5000-B Panel Controller FR-NL	MPC-5000-B
MPC-6000-B Panel Controller EL	MPC-6000-B
MPC-7000-B Panel Controller RO-EN	MPC-7000-B
MPC-8000-B Panel Controller RU	MPC-8000-B
MPC-9000-B Panel Controller TR	MPC-9000-B
MPC-1300-B Panel Controller EN	MPC-1300-B
MPC-1400-B Panel Controller PT	MPC-1400-B
MPC-1500-B Panel Controller CS	MPC-1500-B
MPC-1600-B Panel Controller HU	MPC-1600-B
MPC-1700-B Panel Controller IT-DE	MPC-1700-B

Accessories

ADC 0064 A 64 Point Address Card	ADC 0064 A
ADC 0128 A 128 Point Address Card	ADC 0128 A
ADC 0512 A 512 Point Address Card	ADC 0512 A
ADC 1024 A 1024 Point Address Card	ADC 1024 A
ADC-2048-A 2048 Point Address Card	ADC-2048-A
ADC-5000-OPC License Key	ADC-5000-OPC
enables reliable communication between the BIS software and the fire panels FPA-1200 or FPA-5000 or networks	

Address Cards

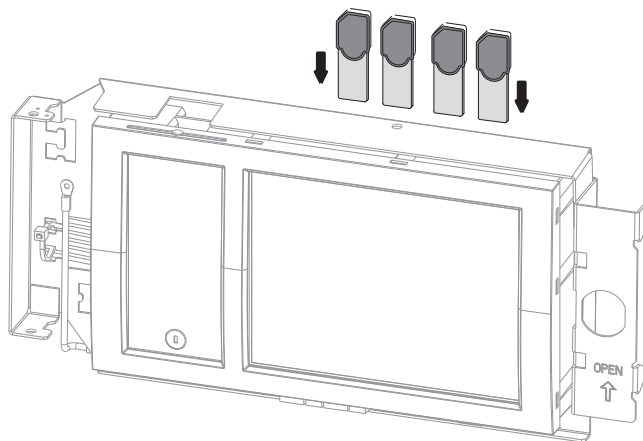


Features

- ▶ Up to 64, 128, 512, 1024 or 2048 addresses on one card
- ▶ Up to four cards in one control panel

A control panel can be equipped with up to four optional Address Cards each containing 64, 128, 512, 1024 or 2048 addresses depending on requirements.

System Overview



Installation/Configuration Notes

- When selecting the address cards, make sure that each module, each supervised module input and each LSN element is allocated to one detection point (one address).
 - Example 1: The CZM 0004 A 4 Zone Conventional Module is allocated to 4 detection points, one per zone.
 - Example 2: The IOP 0008 A Input/Output Module is allocated to up to 8 detection points, one for every single supervised input.

Parts Included

Type	Count	Components
ADC 0064 A	1	SIM card with 64 addresses
ADC 0128 A	1	SIM card with 128 addresses
ADC 0512 A	1	SIM card with 512 addresses
ADC 1024 A	1	SIM card with 1024 addresses
ADC 2048 A	1	SIM card with 2048 addresses

Ordering Information

ADC 0064 A 64 Point Address Card	ADC 0064 A
ADC 0128 A 128 Point Address Card	ADC 0128 A
ADC 0512 A 512 Point Address Card	ADC 0512 A
ADC 1024 A 1024 Point Address Card	ADC 1024 A
ADC-2048-A 2048 Point Address Card	ADC-2048-A

FMR-5000 Remote Keypad



Features

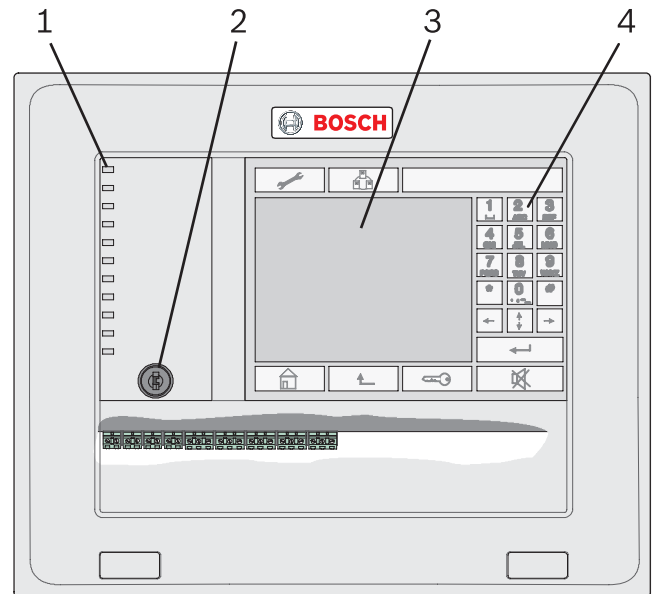
- ▶ Identical user interface like panel controller
- ▶ Convenient solution for remote operation of fire panel
- ▶ Up to 32 Panel Controller or Remote Keypads in a network of FPA-5000 fire panels (by August 2009)
- ▶ Surface and flush mounting possible
- ▶ 5.7" touch-screen with 22 fixed keys for the standard entries
- ▶ 11 LEDs for displaying the operating status of the system
- ▶ Simple user guidance thanks to easy menu structures
- ▶ Large number of language variants and country-specific designs

The FMR-5000 Remote Keypad is a convenient solution for the remote operation of the FPA-1200 Fire Panel, the FPA-5000 Modular Fire Panel or a complete network. The design of the user interface is identical with that of the FPA-1200 and FPA-5000 Panel Controllers and therefore enables an intuitive and quick operation.

In a network of FPA-5000 fire panels, up to 32 Panel Controllers and / or Remote Keypads can be connected.

The FPA-1200 Fire Panel can be networked with up to three FMR-5000 Remote Keypads.

System Overview



Pos.	Description
1	Status LEDs
2	Key switch
3	LCD touch display
4	Membrane keys

Functions

Networking

Via CAN interfaces up to 32 Panel Controllers and / or Remote Keypads can be connected to a single FPA-5000 network. Depending on usage various panel controller and remote keypads can be grouped, defined as network or local node. Within a group, conditions of panels can be shown which also belong to the defined group. Independent of groups, via network nodes conditions of all panels can be displayed and be edited. Local nodes display conditions of the associated panel.

For networking via CAN1 and CAN2 interfaces the following three connection topologies are possible:

- Non-redundant bus via CAN1
- Redundant bus via busses CAN1 and CAN2
- Redundant loop via CAN1 and CAN2

Alarm indication

The indication element is a high-resolution LCD touch-screen (320 x 240 px) with automatically activated backlight. 11 LEDs provide continuous information about the operating status of the control panel and / or system. Additional LED annunciator modules, each containing 16 detection points, can be used to visually display alarms or faults.

Operation / processing of messages

The operation of the panel controller and the processing of all messages is done on the ergonomically-designed control panel using the integrated LCD touch-screen. To that end, there are permanently located keys on the right, bottom, and upper edge of the display as well as variably located virtual keys in the touch-screen area.

There is a key switch underneath the status LEDs; the key switch has two programmable switch positions, e. g.:

- Operation released / not released
- For switching back and forth between day and night operation

Interfaces

The USB interface enables the configuration of the connected fire panel or the complete network.

Saving and printing messages

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

Language variants

The language of the menu can be selected arbitrarily.

Certifications and Approvals

Region	Certification
Poland	CNBOP 2663/2008 FMR-5000

Parts Included

Quant.	Component
1	FMR-5000 Remote Keypad, user interface and labeling strips in language of the country
1	Literature pack

Technical Specifications

Elektrical

Operating voltage	11 V DC to 30 V DC
Max. current consumption	
• Standby	130 mA @ 24 V DC
• Alarm	225 mA @ 24 V DC
Max. resistance	18 Ω
Max. cable length when networking	1000 m depending on configuration, topology and cable type

Mechanical

Display element	5,7" LCD display
Operating element	Touch screen
Fixed operating elements	22 keys
Fixed display elements	11 LEDs
Interfaces	CAN1, CAN2, Ethernet, 100BaseTX, USB, RS232
Dimensions (H x W x T)	280 mm x 340 mm x 87,2 mm
LCD display (H x W)	86 mm x 116 mm
Weight	ca. 3 kg

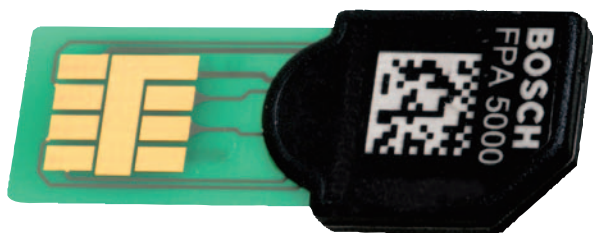
Environmental

Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 70 °C

Ordering Information

FMR-5000-00 Remote Keypad DE	FMR-5000-00
FMR-5000-02 Remote Keypad ES	FMR-5000-02
FMR-5000-03 Remote Keypad PL	FMR-5000-03
FMR-5000-04 Remote Keypad DA	FMR-5000-04
FMR-5000-05 Remote Keypad FR-NL	FMR-5000-05
FMR-5000-06 Remote Keypad EL	FMR-5000-06
FMR-5000-07 Remote Keypad RO-EN	FMR-5000-07
FMR-5000-08 Remote Keypad RU	FMR-5000-08
FMR-5000-09 Remote Keypad TR	FMR-5000-09
FMR-5000-13 Remote Keypad EN	FMR-5000-13
FMR-5000-14 Remote Keypad PT	FMR-5000-14
FMR-5000-15 Remote Keypad CS	FMR-5000-15
FMR-5000-16 Remote Keypad HU	FMR-5000-16
FMR-5000-17 Remote Keypad IT-DE	FMR-5000-17

ADC-5000-OPC License Key

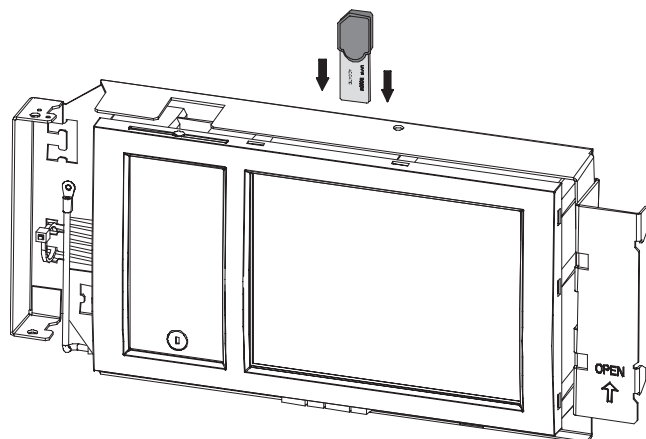


The ADC-5000-OPC License Key enables reliable communication between the BIS software and the fire panels FPA-1200 or FPA-5000 or networks.

For each OPC server only one license key is required. The OPC server can monitor several fire panels or networks.

The OPC server software can be found on the FSP-5000-RPS CD (2.0.49 and higher).

System Overview



Parts Included

Quant.	Component
1	ADC-5000-OPC License Key

Ordering Information

ADC-5000-OPC License Key

enables reliable communication between the BIS software and the fire panels FPA-1200 or FPA-5000 or networks

ADC-5000-OPC

Housings for Frame Installation



Features

- ▶ **Surface-mount or installation in 19" racks**
- ▶ **Modular system**

Housings for Frame Installation are fitted in suitable mounting frames and can be swiveled to the front for installation and service. The mounting frames are screwed to the wall surface and accommodate the pre-cabing.

As an alternative to the surface-mounted version, installation in 19" racks with special installation kits is also possible.

12 V/40 Ah batteries can be used in the frame installation housing.

The modular system makes it easy to extend the facility.

Functions

Housing designs and combinations

Two Housings for Frame Installation are available as the basic unit:

- CPH 0006 A (for 6 modules) or
- MPH 0010 A (for 10 modules)

These housings can accommodate an MPC operating and display unit with panel controller.

Basic housings CPH 0006 A and MPH 0010 A can be extended with the following equipment to meet individual requirements:

- EPH 0012 A Extension housing for an additional 12 modules, frame installation
- Power supply housings PSF 0002 A or PMF 0004 for two or four 12 V/40 Ah batteries respectively and an additional power supply
- USF 0000 A Universal housing small, frame installation.

Mounting frame

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

Mounting frames are available in three sizes:

- FBH 0000 A Mounting frame large
- FMH 0000 A Mounting frame medium
- FSH 0000 A Mounting frame small

The large mounting frame is also available in a design with a distributor rail compliant with EN 500022 (not for use in Germany):

- FHS 0000 A Mounting frame large with distributor rail
- The housings for frame installation require the following mounting frames for surface-mounted version:

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

Mounting plate

An HMP 0003 A Mounting plate can be mounted in large mounting frames FBH 0000 A and FHS 0000 A; this mounting plate can be individually equipped. The mounting bore holes for the components must be drilled on-site by the customer.

Equipment limits

Installation option and maximum number of:

- Modules
- Panel rails (short PRS 0002 A, long: PRD 0004 A)

Housing type	Modules	PRS 0002 A	PRD 0004 A
CPH 0006 A	6	1	1
MPH 0010 A	10	1	2
EPH 0012 A	12	-	3
PSF 0002 A	-	-	-
PMF 0004 A	-	-	-

Installation option and maximum number of:

- MPC operating and display unit with panel controller
- UPS power supplies
- Batteries

Housing type	MPC	UPS power supplies	Batteries
CPH 0006 A	1	1	2 x 40 Ah
MPH 0010 A	1	-	-
EPH 0012 A	-	-	-
PSF 0002 A	-	1	2 x 40 Ah
PMF 0004 A	-	1	4 x 40 Ah

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

The USF 0000 A comes with an HMP 0002 A Mounting plate long and can be equipped according to individual requirements.

Rack installation kit for 19" racks

There are special installation kits available for installation in 19" racks or racks:

Housing type	19" Installation kit
CPH 0006 A	FRB 0019 A
MPH 0010 A	FRB 0019 A
EPH 0012 A	FRB 0019 A
PSF 0002 A	FRS 0019 A
PMF 0004 A	FRM 0019 A
USF 0000 A	FRS 0019 A

If 19" Rack Installation Kits are used, mounting frames are not required.

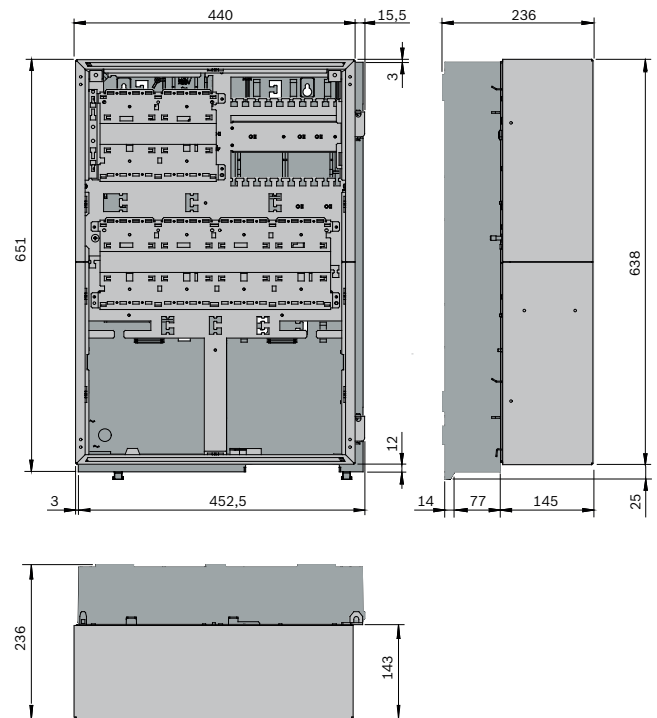
Front doors

Alternatively, the housings can be equipped with transparent front doors made from impact resistant plastic with each door each having a lock on the left or right.

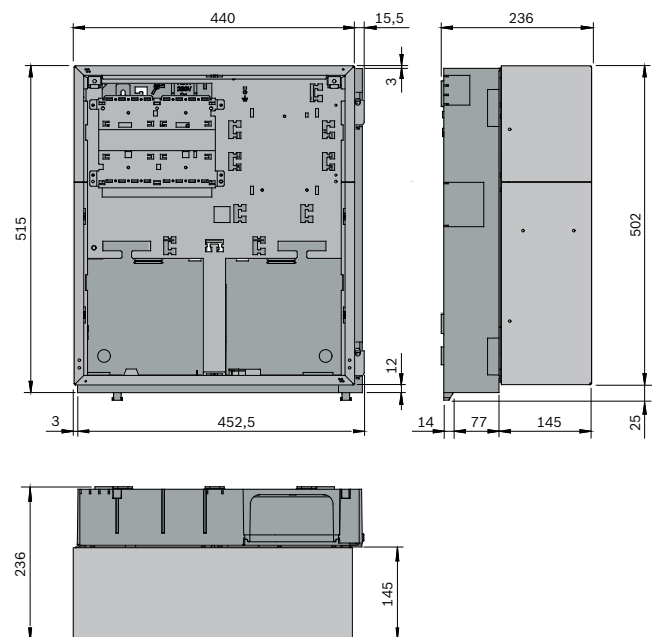
Installation/Configuration Notes

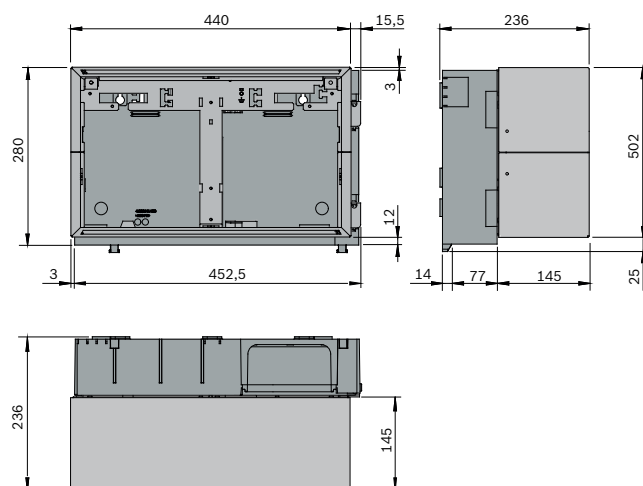
- All mounting frames have an opening for cable bushings; the opening is closed with an insert. Pre-formed cable routes can be created from the insert.
- At least 230 mm free space is required on the right next to the last housing; this space is for swiveling out the attached housing for connection, maintenance, and service.
- The Mounting Frame Large FBH 0000 A and Mounting Frame Small FSH 0000 A are equipped with a earth bar
- For the Mounting Frame Large FBH 0000 A the Earth Bar FPO-5000-EB can be ordered as accessory if necessary.

Installation dimensions of CPH 0006 A, EPH 0012 A and MPH 0010 A:



Installation dimensions of PMF 0002 A, PMF 0004 A and FPP-5000:



Installation dimensions of PSF 0002 A, USF 0000 A and THP 2020 A:**Parts Included**

Type	Qty.	Components
CPH 0006 A	1	Housing, painted sheet steel
	1	Power supply bracket
	1	Cable set for battery connection
MPH 0010 A	1	Housing, painted sheet steel
EPH 0012 A	1	Housing, painted sheet steel
PSF 0002 A	1	Housing, painted sheet steel
	1	Power supply bracket
	1	Cable set for battery connection
PMF 0004 A	1	Housing, painted sheet steel
	1	Power supply bracket
	1	Cable set for battery connection
USF 0000 A	1	Housing, painted sheet steel
	1	HMP 0002 A Mounting Plate Long

Technical Specifications**Mechanics**

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

Dimensions

- CPH 0006 A, MPH 0010 A and EPH 0012 A Approx. 638 x 440 x 236 mm (approx. 25.1 x 17.2 x 9.3 in.)
- PMF 0004 A Approx. 502 x 440 x 236 mm (approx. 19.8 x 17.2 x 9.3 in.)
- PSF 0002 A and USF 0000 A Approx. 267 x 440 x 236 mm (approx. 10.5 x 17.2 x 9.3 in.)

Dimensions, incl. mounting frame

- CPH 0006 A, MPH 0010 A and EPH 0012 A Approx. 638 x 440 x 327 mm (approx. 25.1 x 17.2 x 12.9 in.)
- PMF 0004 A Approx. 502 x 440 x 327 mm (approx. 19.8 x 17.2 x 12.9 in.)
- PSF 0002 A and USF 0000 A Approx. 267 x 440 x 327 mm (approx. 10.5 x 17.2 x 12.9 in.)

Weight

- CPH 0006 A and MPH 0010 A Approx. 12.5 kg (approx. 440 ounces)
- EPH 0012 A Approx. 13.2 kg (approx. 470 ounces)
- PMF 0004 A Approx. 11.4 kg (approx. 400 ounces)
- PSF 0002 A and USF 0000 A Approx. 6.4 kg (approx. 230 ounces)

Ordering Information

CPH 0006 A Modular Panel Housing for 6 Modules, Frame Installation **CPH 0006 A**

MPH 0010 A Modular Panel Housing for 10 Modules, Frame Installation **MPH 0010**

EPH 0012 A Extension Housing for 12 Modules, Frame Installation **EPH 0012 A**

USF 0000 A Universal Housing Small, Frame Installation **USF 0000 A**
comes with mounting plate

PSF 0002 A Power Supply Small, Frame Installation **PSF 0002 A**

PMF 0004 A Power Supply Big, Frame Installation **PMF 0004 A**

Accessories

FBH 0000 A Mounting Frame Large **FBH 0000 A**

FMH 0000 A Mounting Frame Medium **FMH 0000 A**

FSH 0000 A Mounting Frame Small **FSH 0000 A**

FHS 0000 A Mounting Frame Large with Distributor Rail **FHS 0000 A**
as per EN 500022

HMP 0003 A Mounting Plate for Mounting Frame **HMP 0003 A**

RLE 0000 A Junction Board EU **RLE 0000 A**
Comes with 2 D-SUB connectors, 9-pin

FRB 0019 A 19" Rack Installation Kit, Large **FRB 0019 A**
Used for Modular Panel Housings, Frame Installation, CPH 0006 A, MPH 0010 A and EPH 0012 A

FRM 0019 A 19" Rack Installation Kit, Medium **FRM 0019 A**
Used for the PMF 0004 A Power Supply Medium, Frame Installation

FRS 0019 A 19" Rack Installation Kit, Small **FRS 0019 A**
Used for Frame Installation Housings PSF 0002 A and USF 0000 A

FDT 0000 A Front Door Transparent **FDT 0000 A**
Lock right side

FDT 0003 A Front Door Transparent **FDT 0003 A**
Lock left side

FDP 0001 A Dummy Cover Plate **FDP 0001 A**
For available module slots

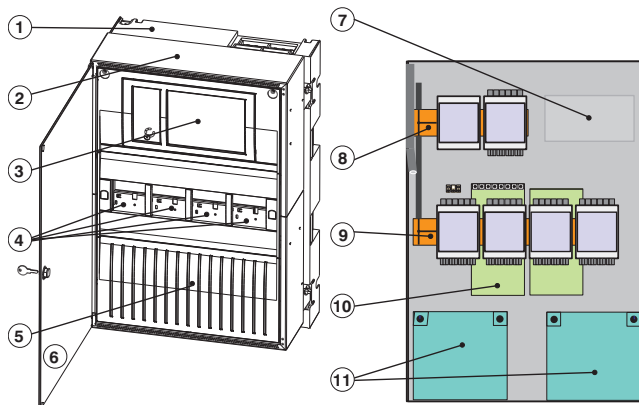
CPH 0006 A Modular Panel Housing for 6 Modules, Frame Installation



The CPH 0006 A can accommodate an MPC Operating and Display Unit with Panel Controller, up to six modules, two 12 V/40 Ah batteries, and a Power Supply. The Power Supply Bracket is fitted ex-works.

The modular configuration means easy extension.

System Overview



Pos.	Description
1	Mounting frame
2	Housing
3	MPC Operating and Display Unit with Panel Controller
4	Modules 3-6
5	Space for 2 batteries
6	Front Door Transparent (optional)
7	Junction Board (optional)
8	Panel Rail for modules 1-2 (behind the MPC)
9	Panel Rail for modules 3-6

Pos. Description

10	Power Supply Bracket for 1 Power Supply
11	2 x 12 V/40 Ah batteries

Installation/Configuration Notes

- The following are required for the CPH 0006 A Modular Panel Housing, Frame Installation:
 - An FBH 0000 A Mounting Frame Large or alternatively
 - An FRB 0019 A Rack Installation Kit for installation in a 19" rack.
- A Power Supply Bracket for a UPS Power Supply is fitted ex-works.
- Can be equipped with:
 - 1 MPC Operating and Display Unit with Panel Controller
 - 1 PRS 0002 A Panel Rail Short, for 2 modules
 - 1 PRD 0004 A Panel Rail Long, for 4 modules
 - 1 UPS Power Supply
 - 2 x 12 V/40 Ah batteries
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 Front Door Transparent, lock left side

Parts Included

Pos. Description

1	Housing, painted sheet steel
1	Power Supply Bracket for 1 UPS Power Supply
1	Battery pole connection cable for frame installation housing
1	Supplementary package

Ordering Information

CPH 0006 A Modular Panel Housing for 6 Modules, Frame Installation

CPH 0006 A

MPH 0010 A Modular Panel Housing for 10 Modules, Frame Installation



The MPH 0010 A can accommodate an MPC Operating and Display Unit with Panel Controller as well as up to 10 modules.

Batteries and Power Supplies must be installed in a separate Power Supply housing.

The modular configuration means easy extension.

Pos.	Description
7	Front Door Transparent (optional)
8	Junction Board (optional)
9	Modules 1-2 (behind the MPC)
10	Panel Rail for modules 1-2
11	Panel Rail for modules 3-6
12	Panel Rail for modules 7-10
13	2 x 12 V/40 Ah batteries (in a separate Power Supply housing)

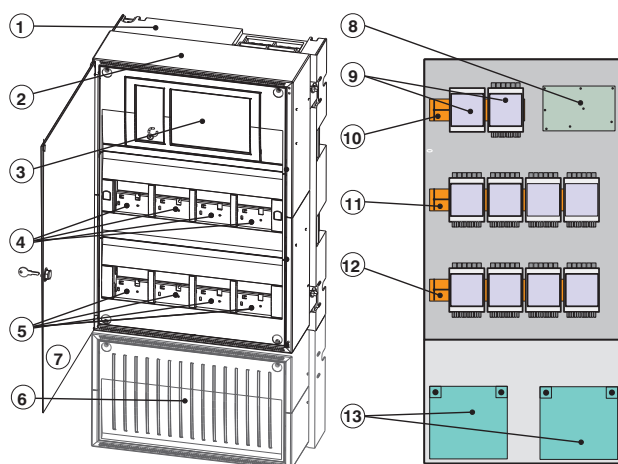
Installation/Configuration Notes

- The following are required for the MPH 0010 A Modular Panel Housing, Frame Installation:
 - An FBH 0000 A Mounting Frame Large or alternatively
 - An FRB 0019 A Rack Installation Kit for installation in a 19" rack.
- Can be equipped with:
 - 1 MPC Operating and Display Unit with Panel Controller
 - 1 PRS 0002 A Panel Rail Short, for 2 modules
 - 2 PRD 0004 A Panel Rails Long, each for 4 modules
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 Front Door Transparent, lock left side

Parts Included

Pos.	Description
1	Housing

System Overview



Pos.	Description
1	Mounting Frame
2	Housing
3	MPC Operating and Display Unit with Panel Controller
4	Modules 3-6
5	Modules 7-10
6	Power Supply (in a separate housing)

Ordering Information

MPH 0010 A Modular Panel Housing for
10 Modules, Frame Installation

MPH 0010

EPH 0012 A Extension Housing for 12 Modules, Frame Installation



- An FRB 0019 A Rack Installation Kit for installation in a 19" rack.
- Can be equipped with:
 - 3 PRD 0004 A Panel Rails Long, each for 4 modules
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 A Front Door Transparent, lock left side

Parts Included

Pos. Description

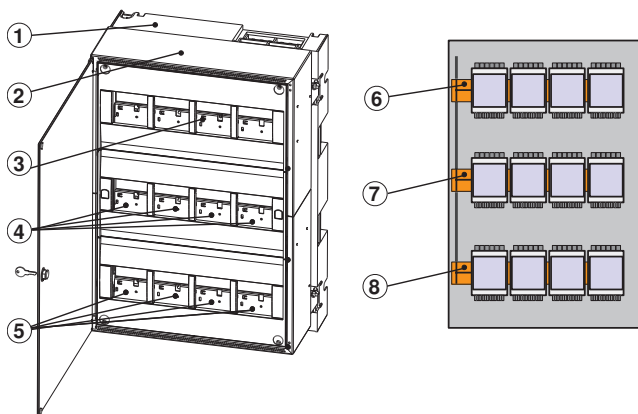
- | | |
|---|---|
| 1 | Housing |
| 1 | CAN bus connection cable, cable length 190 cm |

Ordering Information

**EPH 0012 A Extension Housing for
12 Modules, Frame Installation**

EPH 0012 A

System Overview



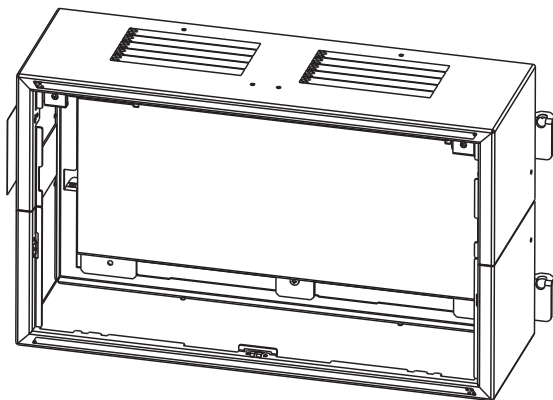
Pos. Description

- | | |
|---|-----------------------------|
| 1 | Mounting Frame |
| 2 | Housing |
| 3 | Modules 1-4 |
| 4 | Modules 5-8 |
| 5 | Modules 9-12 |
| 6 | Panel Rail for modules 1-4 |
| 7 | Panel Rail for modules 5-8 |
| 8 | Panel Rail for modules 9-12 |
- The transparent front door is optional.

Installation/Configuration Notes

- The following are required for the EPH 0012 A Extension Housing, Frame Installation:
 - An FBH 0000 A Mounting Frame Large or alternatively

USF 0000 A Universal Housing Small, Frame Installation



The USF 0000 A Universal Housing Small, Frame Installation has an HMP 0002 A Mounting Plate that is fitted ex-works; the Mounting Plate can be equipped according to individual requirements. The Mounting Plate does not have any mounting bore holes.

Installation/Configuration Notes

- The following are required for the USF 0000 A Universal Housing Small, Frame Installation:
 - An FSH 0000 A Mounting Frame Small or alternatively
 - An FRS 0019 A Rack Installation Kit for installation in a 19" rack.

Parts Included

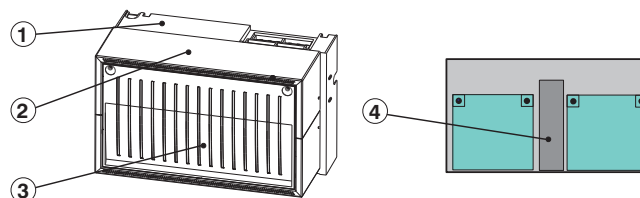
Pos.	Description
1	Housing
1	HMP 0003 A Mounting Plate for Frame Installation

Ordering Information

USF 0000 A Universal Housing Small, Frame Installation **USF 0000 A**
comes with mounting plate

PSF 0002 A Power Supply Small, Frame Installation

System Overview



Pos. Description

1	Mounting Frame
2	Housing
3	Space for 2 x 12 V/40 Ah batteries and 1 UPS Power Supply
4	Power Supply Bracket for 1 UPS Power Supply

Installation/Configuration Notes

- The following are required for the PSF 0002 A Power Supply Small, Frame Installation:
 - An FSH 0000 A Mounting Frame Small or alternatively
 - An FRS 0019 A Rack Installation Kit for installation in a 19" rack.

Parts Included

Pos.	Description
1	Housing
1	Power Supply Bracket for 1 UPS Power Supply
1	Battery pole connection cable for frame installation housing
1	Supplementary package

Ordering Information

PSF 0002 A Power Supply Small, Frame Installation **PSF 0002 A**

PMF 0004 A Power Supply Big, Frame Installation



Parts Included

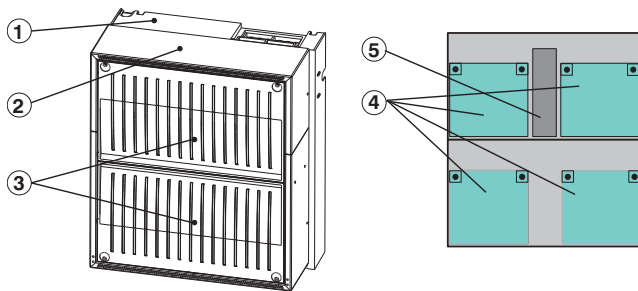
Pos.	Description
1	Housing
1	Power Supply Bracket incl. cable set for 1 UPS Power Supply
1	Battery pole connection cable for frame installation housing
1	Supplementary package

Ordering Information

**PMF 0004 A Power Supply Big, Frame
Installation**

PMF 0004 A

System Overview



Pos. Description

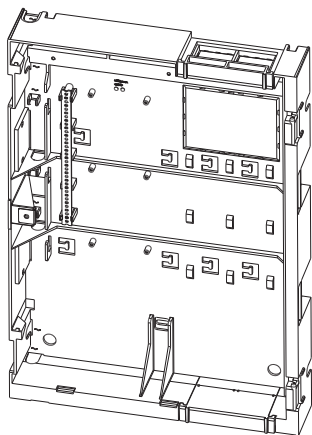
1	Mounting Frame
2	Housing
3	Space for 4 x 12 V/40 Ah batteries and 1 UPS Power Supply
4	4 x 12 V/40 Ah batteries
5	Power Supply Bracket for 1 UPS Power Supply

Installation/Configuration Notes

- The following are required for the PMF 0004 A Power Supply Small, Frame Installation:
 - An FMH 0000 A Mounting Frame Medium or alternatively
 - An FRM 0019 A Rack Installation Kit for installation in a 19" rack.

1

FBH 0000 A Mounting Frame Large



The large mounting frame is required for the frame installation housings:

- CPH 0006 A
- MPH 0010 A
- EPH 0012 A

Parts Included

Pos.	Description
1	Mounting Frame, Large
1	FPO-5000-EB Earth Bar

Technical Specifications

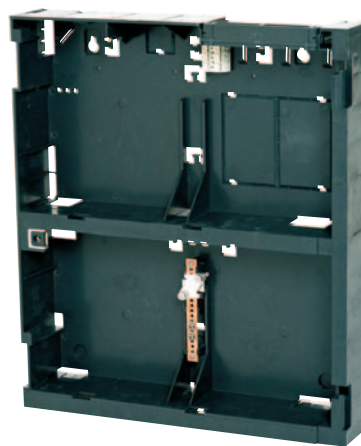
Mechanics

Material	Plastic, ABS
Color	Anthracite gray, RAL 7016
Dimensions	Approx. 638 x 450 x 87 mm (approx. 25.1 x 17.7 x 3.4 in.)

Ordering Information

FBH 0000 A Mounting Frame Large	FBH 0000 A
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FMH 0000 A Mounting Frame Medium



The medium mounting frame is required for the PMF 0004 A Power Supply Big, Frame Installation.

Technical Specifications

Mechanics

Material	Plastic, ABS
Color	Anthracite gray, RAL 7016
Dimensions	Approx. 502 x 450 x 87 mm (approx. 19.8 x 17.7 x 3.4 in.)

Ordering Information

FMH 0000 A Mounting Frame Medium	FMH 0000 A
Accessories	
FPO-5000-EB Earth Bar	FPO-5000-EB
For housing earth connection	

FSH 0000 A Mounting Frame Small



The small mounting frame is required for the frame installation housings:

- PSF 0002 A Power Supply, Frame Installation
- USF 0000 A Universal Housing Small, Frame Installation.

Technical Specifications

Mechanics

Material	Plastic, ABS
Color	Anthracite gray, RAL 7016
Dimensions	Approx. 267 x 450 x 87 mm (approx. 10.5 x 17.7 x 3.4 in.)

Ordering Information

FSH 0000 A Mounting Frame Small	FSH 0000 A
--	-------------------

FHS 0000 A Mounting Frame Large with Distributor Rail



The large mounting frame is equipped with a distributor rail in accordance with EN 500022 for attaching series terminals.

The large mounting frame can be used as an alternative to FBH 0000 A for the following frame installation housings:

- CPH 0006 A
- MPH 0010 A
- EPH 0012 A.

Parts Included

Pos.	Description
1	Mounting Frame Large with Distributor Rail
1	FPO-5000-EB Earth Bar

Technical Specifications

Mechanics

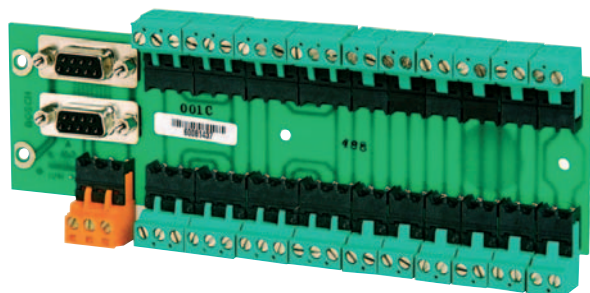
Material	Plastic, ABS
Color	Anthracite gray, RAL 7016
Dimensions	Approx. 638 x 450 x 87 mm (approx. 25.1 x 17.7 x 3.4 in.)

Ordering Information

FHS 0000 A Mounting Frame Large with Distributor Rail as per EN 500022	FHS 0000 A
--	-------------------

1

RLE 0000 A Junction Board EU



The RLE 0000 A Junction Board can be used for the following applications:

- Possibility for cable running
- Possibility to disconnect cables for technical measurements
- Possibility to connect a laptop for parameter setting of the system

The Junction Board can also be installed in the frame installation housing to facilitate connection according to country-specific conditions (e. g. based on British standards).

Ordering Information

RLE 0000 A Junction Board EU

Comes with 2 D-SUB connectors, 9-pin

RLE 0000 A

HMP 0003 A Mounting Plate for Mounting Frame



The HMP 0003 A Mounting Plate can be mounted in large mounting frames FBH 0000 A and FHS 0000 A; this mounting plate can be individually equipped. The mounting bore holes for the components must be drilled on-site by the customer.

Technical Specifications

Mechanics

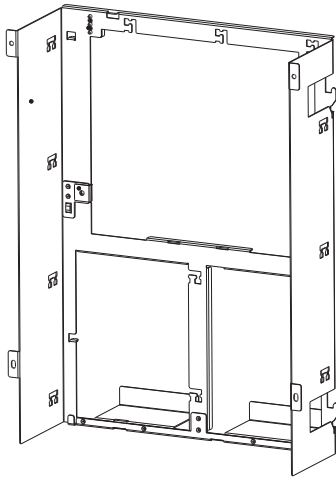
Material	Sheet steel
Dimensions	Approx. 282 x 130 x 7.5 mm (approx. 11.1 x 5.1 x 0.3 in.)

Ordering Information

HMP 0003 A Mounting Plate for Mounting Frame

HMP 0003 A

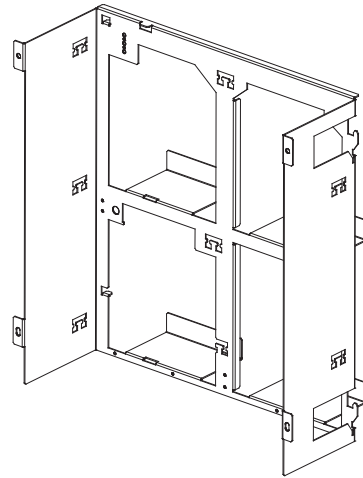
FRB 0019 A 19" Rack Installation Kit, Large



Ordering Information

FRB 0019 A 19" Rack Installation Kit, Large **FRB 0019 A**
Used for Modular Panel Housings, Frame Installation, CPH 0006 A, MPH 0010 A and EPH 0012 A

FRM 0019 A 19" Rack Installation Kit, Medium

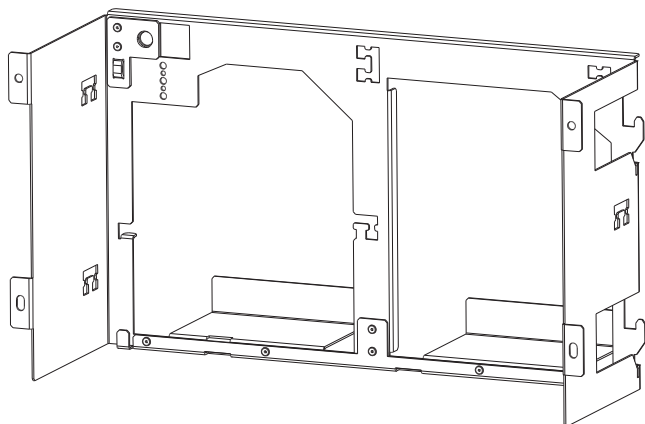


Ordering Information

FRM 0019 A 19" Rack Installation Kit, Medium **FRM 0019 A**
Used for the PMF 0004 A Power Supply Medium, Frame Installation

1

FRS 0019 A 19" Rack Installation Kit, Small



Ordering Information

FRS 0019 A 19" Rack Installation Kit, Small FRS 0019 A

Used for Frame Installation Housings
PSF 0002 A and USF 0000 A

FDT 0000 A Front Door Transparent

Technical Specifications

Mechanics

Material	Polycarbonate
Color	Transparent
Dimensions	Approx. 605 x 430 x 10 mm (approx. 23.8 x 16.9 x 0.39 in.)

Ordering Information

FDT 0000 A Front Door Transparent
Lock right side

FDT 0000 A

FDT 0003 A Front Door Transparent

Technical Specifications

Mechanics

Material	Polycarbonate
Color	Transparent
Dimensions	Approx. 605 x 430 x 10 mm (approx. 23.8 x 16.9 x 0.39 in.)

Ordering Information

FDT 0003 A Front Door Transparent	FDT 0003 A
Lock left side	

Housings for Wall Mounting



Features

- ▶ **Surface-mount, flush-mount or installation in 19" racks**
- ▶ **Modular system**

Wall-mount housings are available in various designs for all conceivable applications. They can be installed as surface-mounted or flush-mounted variants, with variable installation depths up to wall-flush, as well as in 19" racks. The modular system makes it easy to extend the facility.

Functions

Housing designs and combinations

Two wall-mount housings are available as the basic unit:

- HCP 0006 A (for 6 modules) or
- HBC 0010 A (for 10 modules)

These housings can accommodate an MPC Operating and Display Unit with Panel Controller as the central element of the control panel.

Basic housings HCP 0006 A and HBC 0010 A can be extended with the following equipment to meet individual requirements:

- HBE 0012 A Modular Extension Housing for an additional 12 modules, 2 x 12 V/28 Ah batteries
- PSS 0002 A or PSB 0004 A Power Supply Housings for additional power supplies and 12 V/28 Ah batteries
- DIB 0000 A Distribution Box, Frame Installation.

Equipment limits

Installation option and maximum number of:

- Modules
- Panel rails (small: PRS 0002 A, large: PRD 0004 A)

Housing type	Modules	PRS 0002 A	PRD 0004 A
HCP 0006 A	6	1	1
HBC 0010 A	10	1	2
HBE 0012 A	12	-	3
PSS 0002 A	-	-	-

Housing type	Modules	PRS 0002 A	PRD 0004 A
PSB 0004 A	-	-	-
DIB 0000 A	-	-	-

Installation option and maximum number of:

- MPC Operating and Display Unit with Panel Controller
- UPS Power Supplies
- Batteries

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

The DIB 0000 A Distribution Box, Frame Installation, is equipped with a distributor rail and is used to install terminal strips.

Installation types

Various types of installation are possible:

- Surface-mounted
- Flush-mounted with variable installation depths (up to wall-flush)
- Installation in 19" racks.

With surface-mounted installation, the housings are mounted directly on the wall. All other types of installation require special mounting kits.

The housings have pre-formed cable bushings.

Only the 12 V/28 Ah batteries can be integrated in the wall-mount housing.

Installation in 19" racks.

Each wall-mount housing requires an FRK 0019 A Installation kit.

Mounting plates

Mounting plates are available for wall-mount housings in the following designs:

- HMP 0001 A Mounting Plate Short
- HMP 0002 A Mounting Plate Long

The plates can be equipped to meet individual requirements.

The mounting bore holes for the components must be drilled on-site by the customer.

Front doors

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

Installation/Configuration Notes

- All housings have pre-formed cable bushings with the three most common diameters (22 mm, 35 mm, 44 mm).
- The openings are designed for metal pipes with fittings.

- The pre-formed openings for the cable route must be created carefully.
- In order to flush-mount the wall-mount housing, the carrier sheet is first mounted in the recess. The housing is screwed onto the carrier sheet. The sheet acts as a cover for the rear of the housing and also forms part of the corresponding installation kits.

Parts Included

Qty.	Components
1	Housing, painted sheet steel

Technical Specifications

Mechanics

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

Dimensions

- HCP 0006 A Approx. 638 x 440 x 149 mm (approx. 25.1 x 17.2 x 5.87 in.)
- HBC0010A and HBE0012A Approx. 840 x 440 x 149 mm (approx. 33.1 x 17.2 x 5.87 in.)
- PSB 0004 A Approx. 502 x 440 x 149 mm (approx. 19.8 x 17.2 x 5.87 in.)
- PSS 0002 A and DIB 0000 A Approx. 267 x 440 x 149 mm (approx. 10.5 x 17.2 x 5.87 in.)

Weight

- HCP 0006 A Approx. 12.5 kg (approx. 440 ounces)
- HBC0010A and HBE0012A Approx. 17 kg (approx. 600 ounces)
- PSB 0004 A Approx. 11.4 kg (approx. 400 ounces)
- PSS 0002 A and DIB 0000 A Approx. 6.4 kg (approx. 230 ounces)

Ordering Information

HCP 0006 A Modular Panel Housing for 6 Modules	HCP 0006 A
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HBC 0010 A Modular Panel Housing for 10 Modules	HBC 0010 A
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HBE 0012 A Modular Extension Housing for 12 Modules	HBE 0012 A
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PSS 0002 A Power Supply Small	PSS 0002 A
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PSB 0004 A Power Supply	PSB 0004 A
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DIB 0000 A Distribution Box	DIB 0000 A
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Accessories

RLU 0000 A Junction Board Comes with 2 D-SUB connectors, 9-pin	RLU 0000 A
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HMP 0001 A Mounting Plate Short	HMP 0001 A
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HMP 0002 A Mounting Plate Long	HMP 0002 A
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Ordering Information

FRK 0019 A 19" Rack Installation Kit For wall-mount housing	FRK 0019 A
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FDT 0000 A Front Door Transparent Lock right side	FDT 0000 A
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FDT 0003 A Front Door Transparent Lock left side	FDT 0003 A
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FDT 0001 A Large Front Door Transparent Lock right side	FDT 0001 A
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FDT 0002 A Large Front Door Transparent Lock left side	FDT 0002 A
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HCP 0006 A Modular Panel Housing for 6 Modules



The HCP 0006 A can accommodate an MPC Operating and Display Unit with Panel Controller, up to six modules, as well as batteries and Power Supplies.

The modular configuration means easy extension.

Installation/Configuration Notes

- Can be equipped with:
 - 1 MPC Operating and Display Unit with Panel Controller
 - 1 PRS 0002 A Panel Rail Short, for 2 modules
 - 1 PRD 0004 A Panel Rail Long, for 4 modules
 - HPD 0000 A Power Distributor
 - 1 FPO-5000-PSB-CH Power Supply Bracket for panel housings
 - 2 x 12 V/28 Ah batteries
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 Front Door Transparent, lock left side

Parts Included

Pos. Description

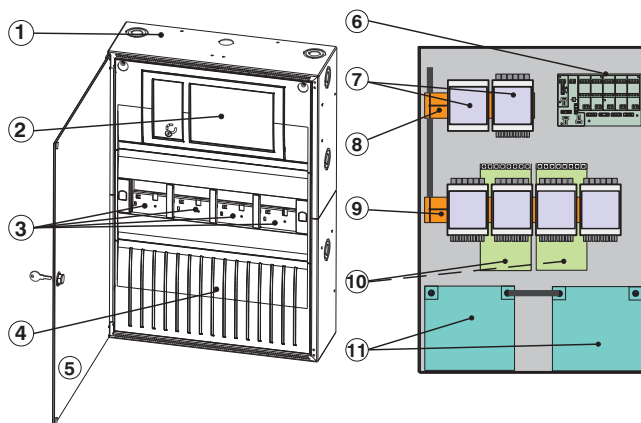
1 Housing

Ordering Information

HCP 0006 A Modular Panel Housing for 6 Modules

HCP 0006 A

System Overview



Pos. Description

- | | |
|----|---|
| 1 | Housing |
| 2 | MPC Operating and Display Unit |
| 3 | Modules 3-6 |
| 4 | Space for 2 batteries |
| 5 | Front Door Transparent (optional) |
| 6 | HPD 0000 A Power Distributor (optional) |
| 7 | Modules 1-2 |
| 8 | Panel Rail for modules 1-2 |
| 9 | Panel Rail for modules 3-6 |
| 10 | Power Supply |
| 11 | 2 x 12 V/28 Ah batteries |

HBC 0010 A Modular Panel Housing for 10 Modules



The HBC 0010 A can accommodate an MPC Operating and Display Unit with Panel Controller, up to ten modules, as well as batteries and Power Supplies.

The modular configuration means easy extension.

Pos. Description

11	Panel Rail for modules 7-10
12	Power Supply
13	2 x 12 V/28 Ah batteries

Installation/Configuration Notes

- Can be equipped with:
 - 1 MPC Operating and Display Unit with Panel Controller
 - 1 PRS 0002 A Panel Rail Short, for 2 modules
 - 2 PRD 0004 A Panel Rails Long, each for 4 modules
 - HPD 0000 A Power Distributor
 - 1 FPO-5000-PSB-CH Power Supply Bracket for Panel Housings
 - 2 x 12 V/28 Ah batteries
- Can be extended with:
 - FDT 0001 A Large Front Door Transparent, lock right side
 - FDT 0002 A Large Front Door Transparent, lock left side

Parts Included

Pos. Description

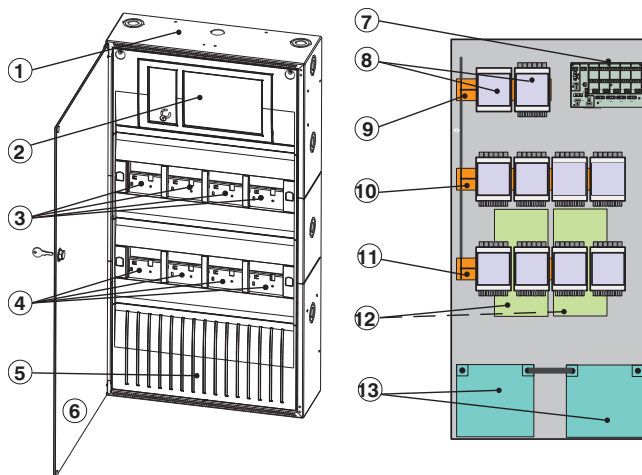
1	Housing
---	---------

Ordering Information

HBC 0010 A Modular Panel Housing for 10 Modules

HBC 0010 A

System Overview



Pos. Description

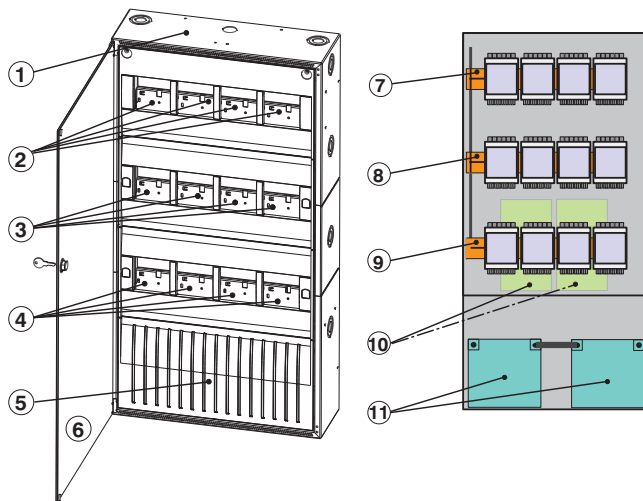
1	Housing
2	MPC Operating and Display Unit
3	Modules 3-6
4	Modules 7-10
5	Space for 2 batteries
6	Front Door Transparent (optional)
7	HPD 0000 A Power Distributor (optional)
8	Modules 1-2
9	Panel Rail for modules 1-2
10	Panel Rail for modules 3-6

HBE 0012 A Modular Extension Housing for 12 Modules



The HBE 0012 A can accommodate up to 12 modules as well as batteries and Power Supplies.

System Overview



Pos. Description

- | | |
|---|--|
| 1 | Housing |
| 2 | Modules 1-4 |
| 3 | Modules 5-8 |
| 4 | Modules 9-12 |
| 5 | Space for 2 batteries or 1 Power Distributor |
| 6 | Front Door Transparent (optional) |
| 7 | Panel Rail for modules 1-4 |
| 8 | Panel Rail for modules 5-8 |
| 9 | Panel Rail for modules 9-12 |

Pos. Description

- | | |
|----|--|
| 10 | Power Supply |
| 11 | 2 x 12 V/28 Ah batteries or alternatively
1 Power Distributor |

Installation/Configuration Notes

- Can be equipped with:
 - 3 PRD 0004 A Panel Rails Long, each for 4 modules
 - 1 FPO-5000-PSB-CH Power Supply Bracket for Panel Housings
 - 2 x 12 V/28 Ah batteries or alternatively 1 HPD 0000 A Power Distributor
- Can be extended with:
 - FDT 0001 A Large Front Door Transparent, lock right side
 - FDT 0002 A Large Front Door Transparent, lock left side

Parts Included

Pos. Description

- | | |
|---|---|
| 1 | Housing |
| 1 | CAN bus connection cable, cable length 190 cm |

Ordering Information

HBE 0012 A Modular Extension Housing for 12 Modules HBE 0012 A

PSS 0002 A Power Supply Small

Ordering Information

PSS 0002 A Power Supply Small

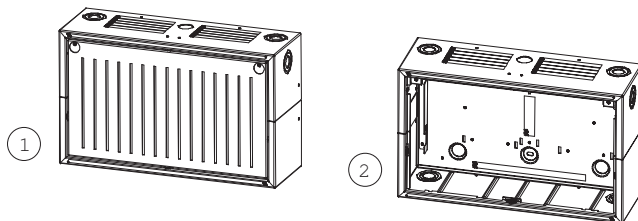
PSS 0002 A

1



The PSS 0002 A is a Power Supply housing that can be flexibly equipped.

System Overview



Pos. Description

- | | |
|---|-----------------------------|
| 1 | Housing |
| 2 | Housing without front panel |

Installation/Configuration Notes

- Equipment variants:
 - 2 x 12 V/28 Ah batteries and 1 Power Supply FPO-5000-PSB1 between the batteries
 - 1 HMP 0002 A Mounting Plate Long for individual equipping.

Note With the HMP 0002 A Mounting Plate, the mounting bore holes for the components must be drilled on-site by the customer.

Parts Included

Pos. Description

- | | |
|---|---------|
| 1 | Housing |
|---|---------|

PSB 0004 A Power Supply



- 2 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket and 1 HMP 0001 A Mounting Plate Short

Note With the HMP 0001 A Mounting Plate, the mounting bore holes for the components must be drilled on-site by the customer.

Parts Included

Pos. Description

1 Housing

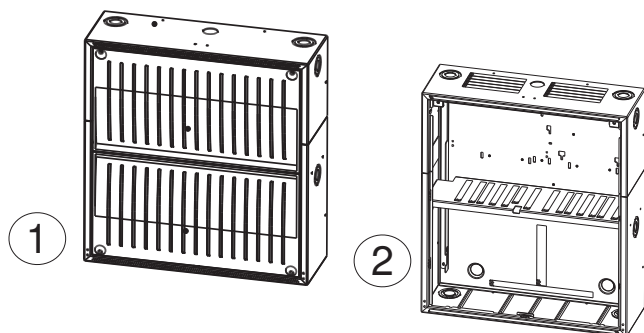
Ordering Information

PSB 0004 A Power Supply

PSB 0004 A

The PSB 0004 A Power Supply housing has enough space for up to four 12 V/28 Ah batteries. Alternatively, a Power Supply Bracket and a Power Distributor and/or a Power Supply Bracket and a Mounting Plate can be installed instead of the two upper batteries.

System Overview



Pos. Description

- 1 Housing
- 2 Housing without front panel

Installation/Configuration Notes

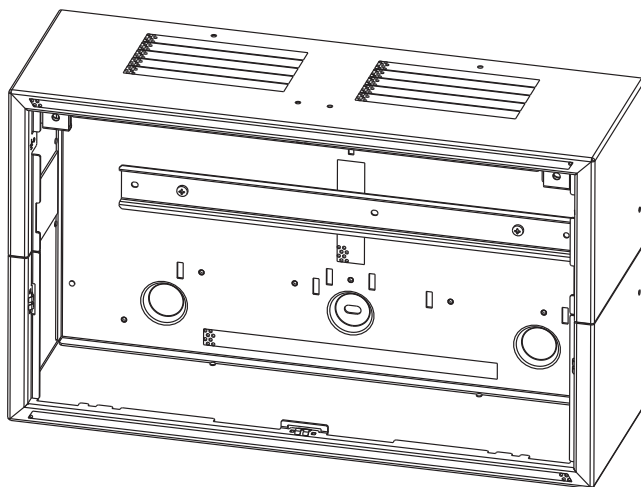
- Equipment variants:
 - 4 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket
 - 2 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket
 - 2 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket and 1 HPD 0000 A Power Distributor

DIB 0000 A Distribution Box



The DIB 0000 A Distribution Box is equipped with a distributor rail compliant with EN 500022 and is used to install series terminals.

System Overview



Parts Included

Pos. Description

1	Housing with distributor rail installed compliant with EN 500022
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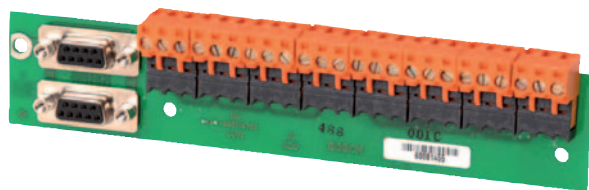
Ordering Information

DIB 0000 A Distribution Box

DIB 0000 A

1

RLU 0000 A Junction Board



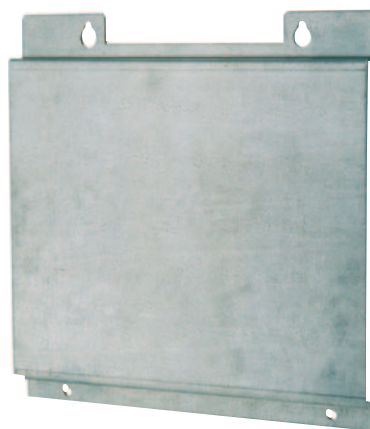
Ordering Information

RLU 0000 A Junction Board

Comes with 2 D-SUB connectors, 9-pin

RLU 0000 A

HMP 0001 A Mounting Plate Short



The HMP 0001 A Mounting Plate Short can be installed in the PSB 0004 A Power Supply Big and can be individually equipped to meet requirements. The mounting bore holes for the components must be drilled on-site by the customer.

Technical Specifications

Mechanics

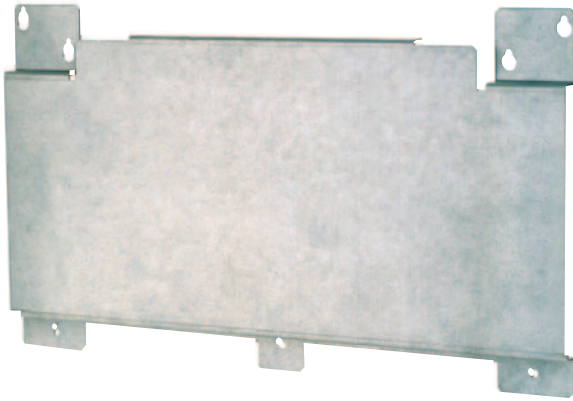
Material	Sheet steel
Dimensions	Approx. 200 x 196 x 14 mm (approx. 7.9 x 7.7 x 0.55 in.)

Ordering Information

HMP 0001 A Mounting Plate Short

HMP 0001 A

HMP 0002 A Mounting Plate Long



The HMP 0002 A Mounting Plate Long can be installed in the PSS 0002 A Power Supply housing and can be individually equipped to meet requirements. The mounting bore holes for the components must be drilled on-site by the customer.

Technical Specifications

Mechanics

Material	Sheet steel
Dimensions	Approx. 394 x 222 x 14 mm approx. 15.5 x 8.4 x 0.55 in.)

Ordering Information

HMP 0002 A Mounting Plate Long	HMP 0002 A
--------------------------------	------------

FRK 0019 A 19" Rack Installation Kit

1

Ordering Information

FRK 0019 A 19" Rack Installation Kit For wall-mount housing	FRK 0019 A
--	------------

FDT 0000 A Front Door Transparent

Technical Specifications

Mechanics

Material	Polycarbonate
Color	Transparent
Dimensions	Approx. 605 x 430 x 10 mm (approx. 23.8 x 16.9 x 0.39 in.)

Ordering Information

FDT 0000 A Front Door Transparent	FDT 0000 A
Lock right side	

FDT 0001 A Large Front Door Transparent

Technical Specifications

Mechanics

Material	Polycarbonate
Color	Transparent
Dimensions	Approx. 807 x 430 x 10 mm (approx. 31.8 x 16.9 x 0.39 in.)

Ordering Information

FDT 0001 A Large Front Door Transparent	FDT 0001 A
Lock right side	

FDT 0002 A Large Front Door Transparent

Technical Specifications

Mechanics

Material	Polycarbonate
Color	Transparent
Dimensions	Approx. 807 x 430 x 10 mm (approx. 31.8 x 16.9 x 0.39 in.)

Ordering Information

FDT 0002 A Large Front Door Transparent	FDT 0002 A
Lock left side	

FDT 0003 A Front Door Transparent

Technical Specifications

Mechanics

Material	Polycarbonate
Color	Transparent
Dimensions	Approx. 605 x 430 x 10 mm (approx. 23.8 x 16.9 x 0.39 in.)

Ordering Information

FDT 0003 A Front Door Transparent	FDT 0003 A
Lock left side	

Power Supply Brackets



The Power Supply Brackets are installed in wall-mount housings and accommodate one Power Supply. The Power Supply Unit is immediately ready for operation via the pre-wired plug connection.

The brackets are made of glass-fiber-reinforced plastic and have a thermal sensor as well as a T10A mains fuse.

Installation/Configuration Notes

FPO-5000-PSB-CH Power Supply Bracket

- For the Modular Panel Housings:
 - HCP 0006 A
 - HBC 0010 A
 - HBE 0012 A

FPO-5000-PSB1 Power Supply Bracket

- For Power Supply Housing, wall mounting:
 - PSS 0002 A
 - PSB 0004 A
- The Power Supply Bracket is mounted in the middle right between a pair of batteries.

Overview

Housing	FPO-5000-PSB-CH	FPO-5000-PSB1
HCP 0006 A	x	-
HBC 0010 A	x	-
HBE 0012 A	x	-
PSS 0002 A	-	x
PSB 0004 A	-	x

x = Installation possible

- = Installation not possible

Parts Included

Qty.	Components
1	Power Supply Bracket

Technical Specifications

Mechanics

Material	PA6 Plastic, Grilon BS V0 (UL94 V-0)
Color	Satin finish, anthracite, RAL 7016

Weight

- FPO-5000-PSB-CH Approx. 550 g (19.4 ounces)
- FPO-5000-PSB1 Approx. 395 g (13.9 ounces)

Environmental conditions

Permissible operating temperature	-5 °C ... 50 °C (23 °F ... 122 °F)
Permissible storage temperature	-20 °C ... 60 °C (-4 °F...140 °F)

Ordering Information

FPO-5000-PSB1 Power Supply Bracket
for PSS 0002 A and PSB 0004 A

FPO-5000-PSB1

FPO-5000-PSB-CH Power Supply Bracket
for HCP 0006 A, HBC 0010 A and HBE 0012 A

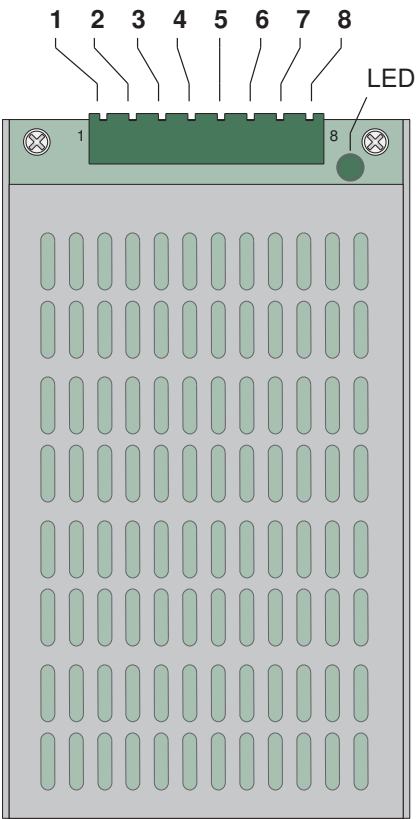
FPO-5000-PSB-CH

UPS 2416 A Universal Power Supply



The UPS Power Supply Unit is a plug-and-play power supply for the entire power supply to the control panel.

System Overview



Pos.	Description	Connector
1-3	ACL/ACN/G	Mains supply
4 / 5	DC+ / DC-	27 V DC output pos./neg.
6	FAULT	Mains fault
7 / 8	RTH+ / RTH-	Thermal sensor pos./neg.

Functions

The Power Supply is protected against pole reversal and overvoltage.

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

A green LED on the Universal Power Supply indicates operativeness.

Installation/Configuration Notes

- The Power Supply Unit is inserted into a Power Supply Bracket and is thus immediately ready for operation.

Parts Included

Type	Qty.	Components
UPS 2416 A	1	Universal Power Supply 24 V/5 A

Technical Specifications

Electrical

Input voltage	100 V AC ... 240 V AC
Input frequency range	50 Hz ... 60 Hz
Efficiency	> 85 %
Back-up time	> 16 ms bei 115 V AC
Output voltage	26 V DC ... 29 V DC (temperature-dependant) Nominal 26.8 V DC at 40°C
Max. output current	6 A
Max. power	160 W (permanent)

Mechanics

Cooling	Ventilation without ventilator
Housing material	Aluminum, anodized
Housing color	Matt black
Dimensions	Approx. 200 x 100 x 40 mm (7.9 x 3.9 x 1.6 in.)
Weight	Approx. 780 g (27.5 ounces)

Environmental conditions

Permitted operating temperature	-5 °C ... 50 °C (23 °F ... 122 °F)
Permitted storage temperature	-20 °C ... 60 °C (-4 °F ... 140 °F)
Permitted relative humidity	95 %, non-condensing

Ordering Information

UPS 2416 A Universal Power Supply	UPS 2416 A
plug-and-play power supply for the entire power supply to the control panel.	

Accessories

CPB 0000 A Cable BCM/UPS	CPB 0000 A
Used to connect the BCM-0000-B Battery Controller Module to a UPS Power Supply, cable length 150 cm	

Cables



Functions

There are various types of cables and cable sets available for connecting the central components:

Cable set	Connection from ...	... to
CPR 0001 A	MPC Panel Controller	RLE 0000 A Junction Board EU/RLU 0000 A Junction Board US
CRP 0000 A	MPC Panel Controller	MPC Panel Controller (redundant)
CBB 0000 A ¹⁾	BCM-0000-B Battery Controller Module	Battery pair
CPB 0000 A	BCM-0000-B Battery controller module	UPS Power Supply
CPP 0000 A	HPD 0000 A Power Distributor	UPS Power Supply
PDC 0000 A ¹⁾	HPD 0000 A Power Distributor	BCM-0000-B Battery Controller Module and battery pair
CPA 0000 A	MPC Panel Controller / ENO 0000 B Fire Service Interface Module	AT 2000 Transmission Unit

1) Required if the power supply is in a separate Power Supply Housing

Cable sets CBB 0000 A and PDC 0000 A are required if the power supply is located in a separate Power Supply Housing. These sets have a longer connection cable to the battery than the standard cable sets supplied with the unit.

Certifications and Approvals

Region	Certification
Russia	GOST POCC DE.C313B06299

Ordering Information

CPR 0001 A Printer Cable To connect the MPC Panel Controller - Junction Board, cable length 100 cm	CPR 0001 A
CRP 0000 A Cable Set Redundant Panel Controller used to redundantly connect one Panel Controller to an additional MPC Panel Controller	CRP 0000 A
CBB 0000 A Cable Set BCM/Battery Used to connect a battery pair and a Power Supply Housing to the BCM-0000-B Battery Controller Module	CBB 0000 A
CPB 0000 A Cable BCM/UPS Used to connect the BCM-0000-B Battery Controller Module to a UPS Power Supply, cable length 150 cm	CPB 0000 A
CPP 0000 A Cable HPD/UPS Used to connect an HPD 0000 A Power Distributor to a UPS Power Supply, cable length 120 cm	CPP 0000 A
CPA 0000 A Cable Set AT 2000 Used to connect an AT 2000 to the MPC and the ENO 0000 B.	CPA 0000 A
NMC 0000 A Cable HPD/NZM Used for synchronization in accordance with UL requirements, cable length 90 cm	NMC 0000 A

THP 2020 A Thermal Printer



The THP 2020 A Thermal Printer comes in a frame installation housing. It is connected to the S20 interface of the IOS 0020 A Communication Module.

Certifications and Approvals

Region	Certification
Russia	GOST POCC DE.C313B06299

Parts Included

Qty.	Components
1	Thermal Printer incl. connection cable
1	USF 0000 A Universal Housing Small, Frame Installation.
1	Connection cable for the printer interface module

Note The Thermal Printer requires either an FSH 0000 A Mounting Frame Small (for surface-mounted installation) or an FRS 0002 A 19" Rack Installation Kit, for Small Frame Installation Housing (for installation in a 19" rack).
The CPR 0001 A Printer Cable is not necessary.

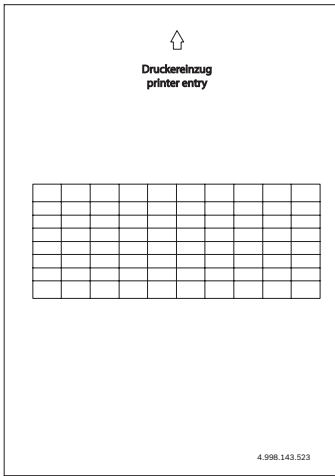
Ordering Information

THP 2020 A Thermal Printer	THP 2020 A
comes standard with frame-mount housing. Additionally required: FSH 0000 A Mounting Frame Small (surface-mounting) or FRS 0002 A 19" Rack Installation Kit Small.	

Accessories

CPR 0001 A Printer Cable	CPR 0001 A
To connect the MPC Panel Controller - Junction Board, cable length 100 cm	

PSL 0001 A Labelling Strips, Small



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

The strips can be printed individually with a customary laser printer. A dot file is available on the CD that came with the MPC Panel Controller.

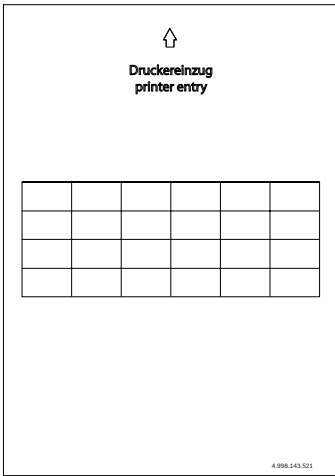
Parts Included

Qty.	Components
20	Each sheet has 10 strips, printable

Ordering Information

PSL 0001 A Labelling Strips, Small	PSL 0001 A
20 sheets each with 10 strips, printable, for the ANI I0016 A Annunciator Module	

PSK 0001 A Labelling Strips, Wide



The PSK 0001 A Labelling Strips for Modules are suitable in the following functional modules:

BCM-0000-B, LSN 0300 A, LSN 1500 A, CZM 0004 A, NZM0002 A, RMH 0002 A, CTM 0002 A and ENO 0000 B.

The strips can be printed individually with a customary laser printer. A dot file is available on the CD that came with the MPC Panel Controller.

Parts Included

Qty.	Components
20	Each sheet has 6 strips, printable,

Ordering Information

PSK 0001 A Labelling Strips, Wide	PSK 0001 A
20 sheets each with 6 strips, printable, for the functional modules BCM-0000-B, LSN 0300 A, LSN 1500 A, CZM 0004 A, NZM 0002 A, RMH 0002 A, CTM 0002 A and ENO 0000 B	

1

FDP 0001 A Dummy Cover Plate



The FDP 0001 A Dummy Cover Plate is used to cover available module slots. It is placed in the corresponding window in the front cover of the housing.

Parts Included

Qty.	Components
1	FDP 0001 A Dummy Cover Plate

Ordering Information

FDP 0001 A Dummy Cover Plate	FDP 0001 A
For available module slots	

FSM-2000 Fire Monitoring System



Features

- ▶ Easy installation and operation
- ▶ Importing floor plans from AutoCAD
- ▶ Zoom and pan
- ▶ Automatic allocation of detection points in floor plan
- ▶ Comprehensive event logging
- ▶ Up to four panels with 2000 detection points at maximum can be connected
- ▶ Can be connected with FPA-5000, FPA-1200, UEZ 2000 LSN, BZ 500 LSN
- ▶ Available in German and English

The FSM-2000 Fire Monitoring System is a graphical user interface for displaying and monitoring small to medium fire alarm systems with up to 2000 detection points. It is designed for four panels of the FPA-5000, FPA-1200, UEZ 2000 LSN or BZ 500 LSN at maximum.

Functions

Installation and Operation

A wizard guides you through the installation as well as the configuration in a few steps. Logically arranged graphics and icons allow to capture events precisely and to initiate appropriate measures.

Importing Floor Plans of AutoCAD

You can import floor plans of AutoCAD as dwf-file. The software automatically allocates the detector list of the fire panel to the floor plan.

Authorizations

You can set up as many operators as required and classify them according to their tasks into one of the three authorization groups: Operator, installer or administrator. A maximum of two operators can be logged on to the system at the same time.

Zoom and Pan

These two functions offer a comfortable navigation in the floor plan. With the zoom function it is possible to increase or minimize specific areas. With the pan function the floor plan can be moved in any direction.

Event Logging

In the event log all procedures and actions are recorded. You can generate statistics, make backups, print the event log and search according to various criteria.

Connectivity

You can connect up to 2000 detection points and four panels to the FSM-2000. It is working with the fire panels FPA-5000, FPA-1200, UEZ 2000 LSN and BZ 500 LSN.

Installation/Configuration Notes

Hardware Preconditions:

- USB port
- CD-ROM
- 3.5" disk drive
- 4 COM ports
- RAM 1024 MB (server), 512 MB (client)
- Hard drive memory of 10 GB
- Network card 100 Mbit

Software Preconditions:

- Windows 2000, Windows XP, Windows 2003 Server (German and English operating system)
- Internet Explorer version 5.0 or 6.0
- MSDE 2000
- Microsoft IIS 5.0 (Windows 2000, Windows XP), Microsoft IIS 6.0 (Windows 2003 Server)

Parts Included

Quant.	Component
1	CD for Installation
1	USB-Dongle
1	Floppy-disk with the file Dongle.crp

Ordering Information**FSM-2000 Fire Monitoring System****FSM-2000**

Additionally order:

- Interface Converter OVS
- Connection Cable DSUB 9F-9M
- IOS 0020 A 20 mA Communication Module (FPA-5000/FPA-1200) or SM 20 Interface Module (UEZ 2000 LSN / BZ 500 LSN)

Accessories**IOS 0020 A 20 mA Communication Module****IOS 0020 A**

provides one interface each of S20, RS232 and S1

Connection Cable DSUB 9F-9M**DB EK 822 9F-9M**

LSN Panels

2

FPA-1200 Fire Panel	82
Accessories - BZ 500 LSN	85
Accessories - UEZ 2000 LSN	98

FPA-1200 Fire Panel



Features

- ▶ **Easy upgrade to 2 loops by second LSN 0300 A module**
- ▶ **Connection of up to 254 elements (127 per loop)**
- ▶ **Remote operation by up to 3 Remote Keypads**
- ▶ **Accommodates up to 6 functional modules for easy adaptation to different local requirements**
- ▶ **Auto-detection of modules**
- ▶ **Plug-in of modules during operation**
- ▶ **Serial interface to Bosch Voice Evacuation System (EVAC)**

Using the well-known LSN bus technology, the FPA-1200 Fire Panel offers efficient protection for small and medium-sized objects and is the ideal solution for 1- and 2-loop applications. It comes as standard with housing, controller, functional modules, power supply and additional accessories according to the country-specific requirements. It is ready-to-go after installation and configuration.

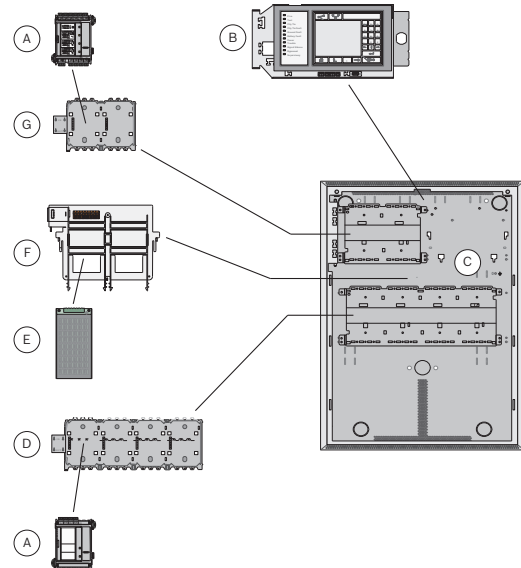
The configuration of the FPA-1200 is set using the FSP-5000-RPS programming software (included in the delivery) on a laptop connected to the panel.

An Ethernet interface allows for the connection to a Building Management System (BIS Bosch Building Integration System) via an OPC server.

Another serial interface provides the option to use the FPA-1200 with the new Bosch Voice Evacuation System (EVAC).

The FPA-1200 can also be connected to the Bosch UGM-2020 Universal Security System (requires an FPE-5000-UGM Interface Module), and thus, be integrated into a large network system.

System Overview



Pos. Description

- | | |
|---|----------------------|
| A | Functional Modules |
| B | Panel Controller |
| C | Panel Housing |
| D | Panel Rail Long |
| E | Power Supply |
| F | Power Supply Bracket |
| G | Panel Rail Short |

Functions

Panel controller

The Panel Controller is the core of the system and shows all messages on the 5.7" touch display. 11 LEDs provide continuous information about the operating status of the control panel and / or system.

The operation of the panel controller and the processing of all messages are performed on the LCD touch display as well. Messages and events are saved internally and can be viewed on the display at any time. A log printer for printing incoming messages can be connected.

The configuration is set and transmitted using the FSP-5000-RPS programming software on a laptop connected to the USB interface of the panel controller.

Modules

The functional modules are autonomous, encapsulated units that can be inserted into any control panel slot using "plug-and-play" technology. Thus, the power supply and the data traffic to the control panel are indicated automatically without any additional settings. The module is automatically identified by the control panel and is run in default operating mode.

The wiring of peripherals is connected by pluggable screw terminals.

After the replacement of a module, only the terminals need to be reinserted; extensive rewiring is no longer required.

The following modules are included in the standard package. Additional modules for special applications can be ordered separately.

Module	Description
BCM-0000-B	Battery Controller Module <ul style="list-style-type: none"> module that controls batteries and power supply
LSN 0300 A	LSN Module 300 mA <ul style="list-style-type: none"> for the connection of an LSN loop with up to 127 elements, maximum line current 300 mA
RML 0008 A (Poland only)	Relay Module <ul style="list-style-type: none"> with 8 relays for low voltage applications

Certifications and Approvals

Region	Certification
Europe	CE FPA-1200
	CPD 0786-CPD-20819 FPA 1200

Installation/Configuration Notes

- Upgrade to 2 loops requires second LSN 0300 A Functional Module
- Max. 2 LSN 0300 A Modules allowed
- Up to 127 LSN elements on each loop
- Max. 6 functional modules in total

Parts Included

Quant.	Component
1	FPA-1200-MPC Panel Controller
1	LSN 0300 A Module 300 mA
1	BCM 0000 B Battery Controller Module
1	PRS 0002 A Panel Rail Short
1	PRD 0004 A Panel Rail Long
1	FPO-5000-PSB-CH Power Supply Bracket
1	UPS 2416 A Universal Power Supply
1	HCP 0006 A Panel Housing
3	FDP 0001 A Dummy Cover Plate
1	RML 0008 A Relay Module (Poland only)
1	CD with FSP-5000-RPS Programming Software

Technical Specifications

Electrical

Operating voltage	20 V DC to 30 V DC
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Mechanics

Display element	5.7" LCD display
Operating element	Touch screen
Interfaces	<ul style="list-style-type: none"> Ethernet USB RS232
Signal inputs	2
Dimensions (H x W x D)	638 mm x 440 mm x 149 mm (25.1 x 17.2 x 5.87 inch)
Weight	Approx. 20 kg (44 lb)

Environmental conditions

Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Protection class as per IEC 60529	IP 30

Ordering Information

FPA-1200 Fire Panel, BE lettering and user documentation in Dutch and French	FPA-1200-BE
FPA-1200 Fire Panel, CZ lettering and user documentation in Czech	FPA-1200-CZ
FPA-1200 Fire Panel, DE lettering and user documentation in German	FPA-1200-DE
FPA-1200 Fire Panel, DK lettering and user documentation in Danish	FPA-1200-DK
FPA-1200 Fire Panel, ES lettering and user documentation in Spanish	FPA-1200-ES
FPA-1200 Fire Panel, GR lettering and user documentation in Greek	FPA-1200-GR
FPA-1200 Fire Panel, HU lettering and user documentation in Hungarian	FPA-1200-HU
FPA-1200 Fire Panel, IT lettering and user documentation in Italian and German	FPA-1200-IT
FPA-1200 Fire Panel, PL lettering and user documentation in Polish	FPA-1200-PL
FPA-1200 Fire Panel, PT lettering and user documentation in Portuguese	FPA-1200-PT
FPA-1200 Fire Panel, NL lettering and user documentation in Dutch	FPA-1200-NL
FPA-1200 Fire Panel, RO lettering and user documentation in Romanian and English	FPA-1200-RO
FPA-1200 Fire Panel, RU lettering and user documentation in Russian	FPA-1200-RU
FPA-1200 Fire Panel, TR lettering and user documentation in Turkish	FPA-1200-TR
FPA-1200 Fire Panel, ZA lettering and user documentation in English	FPA-1200-ZA
FPA-1200 Fire Panel, APR lettering and user documentation in English	FPA-1200-APR
FPA-1200 Fire Panel, Export lettering and user documentation in English	FPA-1200-Export

Ordering Information**Accessories**

BCM-0000-B Battery Controller Module **BCM-0000-B**
monitors the power supply of the fire and the charging of the batteries

ANI 0016 A Annunciator Module **ANI 0016 A**
displays the status of 16 individually programmable detection points

LSN 0300 A LSN improved Module 300 mA **LSN 0300 A**
for connecting an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements, with a maximum line current of 300 mA

CZM 0004 A 4 Zone Conventional Module **CZM 0004 A**
for connecting existing conventional peripherals; providing four monitored conventional lines

IOS 0020 A 20 mA Communication Module **IOS 0020 A**
provides one interface each of S20, RS232 and S1

IOS 0232 A RS232 Communication Module **IOS 0232 A**
for connecting two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces

ENO 0000 B Fire Service Interface Module **ENO 0000 B**
for connecting fire service equipment in compliance with DIN 14675

IOP 0008 A Input/Output Module **IOP 0008 A**
for individual displays, providing eight independent digital inputs and eight open collector outputs

RML 0008 A Relay Module **RML 0008 A**
for low voltage, providing 8 change-over contact relays (type C)

RMH 0002 A Relay Module **RMH 0002 A**
for monitored connection of external elements with feedback, providing 2 change-over contact relays (type C) for high voltage

NZM 0002 A Notification Appliance Zone Module **NZM 0002 A**
for connecting 2 separate notification appliance zonelines, providing 2 monitored primary lines

FPE-5000-UGM Interface Module **FPE-5000-UGM**
for connecting the fire panels FPA-5000 and FPA-1200 to superordinate systems (UGM 2020, FAT 2002/RE, FSM-2000)

PSL 0001 A Labelling Strips, Small **PSL 0001 A**
20 sheets each with 10 strips, printable, for the ANI 0016 A Annunciator Module

PSK 0001 A Labelling Strips, Wide **PSK 0001 A**
20 sheets each with 6 strips, printable, for the functional modules BCM-0000-B, LSN 0300 A, LSN 1500 A, CZM 0004 A, NZM 0002 A, RMH 0002 A, CTM 0002 A and ENO 0000 B

FLM-420-EOL2W-W EOL Module LSN **FLM-420-EOL2W-W**
for EN 54-13 compliant termination of LSN stubs or T-taps

Ordering Information

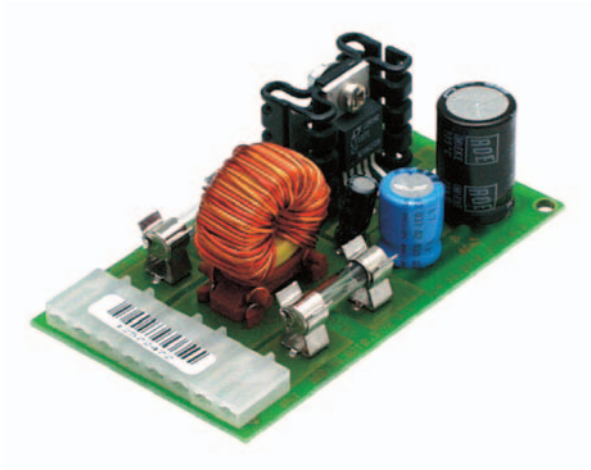
FLM-320-EOL2W Conventional EOL Module 2-Wire **FLM-320-EOL2W**
for EN 54-13 compliant termination of conventional lines

ADC-5000-OPC License Key **ADC-5000-OPC**
enables reliable communication between the BIS software and the fire panels FPA-1200 or FPA-5000 or networks

THP 2020 A Thermal Printer **THP 2020 A**
comes standard with frame-mount housing. Additionally required: FSH 0000 A Mounting Frame Small (surface-mounting) or FRS 0002 A 19" Rack Installation Kit Small.

CPA 0000 A Cable Set AT 2000 **CPA 0000 A**
Used to connect an AT 2000 to the MPC and the ENO 0000 B.

ERWE 10 voltage converter



Generates +28 V at max. 600 mA for the LSN expansion module control outputs.

Required for connecting the following expansion modules:

- NBK 100 LSN
- NTK 100 LSN
- NSB 100 LSN

Can be plugged into the NEV 300 LSN connector board

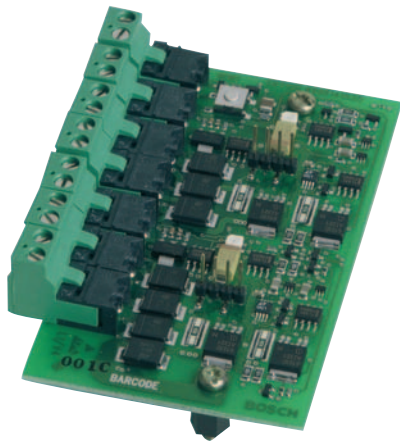
Ordering Information

ERWE 10 voltage converter

ERWE 10

For connecting NBK 100 LSN, NTK 100 LSN, NSB 100 LSN, MSS 401, ERT 100, FK 100 LSN, can be plugged into the NEV 300 LSN connector board

ERT100 Module for Loop System Power Supply



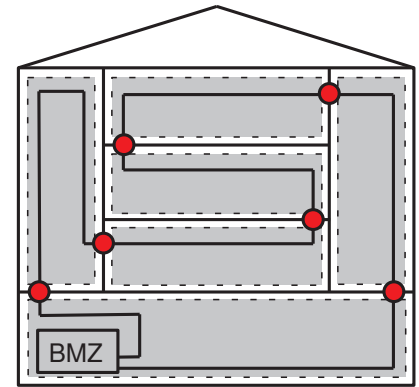
Features

- ▶ **Low voltage sensor at 26.2 V (in accordance with VdS 2110) for interruption free power supply of the sounder MSS 401 LSN in case of activation**
- ▶ **Connection of up to 25 signaling devices of the type MSS 401 LSN per ERT loop, depending upon cable length and cable diameter**
- ▶ **Alarm signaling in accordance with sample guideline for cable equipment (MLAR) without E30 cable**
- ▶ **Connection of up to 25 isolators per ERT100 loop**
- ▶ **Monitoring of two loops per ERT100 Module possible.**

The ERT100 Module is designed for retrofitting the fire panel with the loop system power supply.

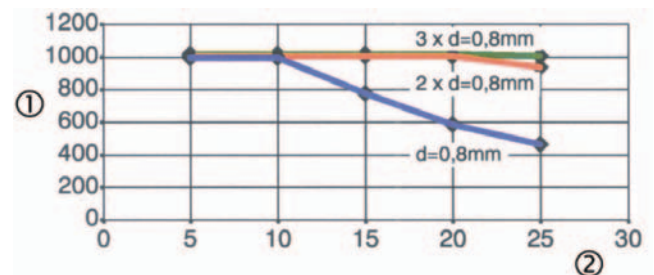
Functions

The ERT100 Module monitors the supply voltage of MSS 401 LSN signaling devices in loop lines, and in combination with isolators (type YBO-R/SCI) makes it possible to maintain the power supply of the unaffected fire sectors in the event of a short-circuit or wire interruption. Two loop lines can be monitored per ERT100 Module. Individual malfunctions are displayed with an LED per loop on the ERT100 Module as well as in the form of clear text on the fire panel. Once the short circuit has been rectified, the elements automatically reestablish contact.



Pos.	Description
1	Fire sector
2	Isolator

Isolators are configured in such a way that the fire sectors or, insofar as these are smaller, alarm sectors are confined. This configuration means that in the event of a short circuit, all elements are kept supplied with voltage before and after the separating isolators. No isolator is used between fire panel and the first or last signaling device. This means that n isolators are required for n fire sectors.



Pos.	Description
1	Range in [m]
2	Number of detector base sounders MSS 401 LSN

A wire gauge of 0.8 mm corresponds to a wire diameter of 0.5 mm².

The range is dependent upon the wire gauge and the number of sounders MSS 401 LSN.

Certifications and Approvals

Region	Certification
Europe	CE ERT 100

Installation/Configuration Notes

- If multi-core cable is used, the additional detector base MSC 420 may be necessary.

BZ 500 LSN:

- For each ERT loop, a fuse of 630 mA (slow-burn) is necessary. It is recommended that a fuse distributor SIV 28 V (article no. F.01U.500.442) be used.
- The BZ 500 LSN can supply a ERT loop with voltage. In the case of two ERT loops or more, a supplementary power supply is required.

UEZ 2000 LSN:

- For each ERT loop, a fuse of 630 mA (slow-burn) is necessary. With more than four ERT loops, a fuse distributor SIV 28 V (item no. F.01U.500.442) must be used.
- The UEZ 2000 B can supply three ERT loops with voltage. In the case of four ERT loops or more, a supplementary power supply is required.

Technical Specifications**Electrical**

Input voltage	+28 V DC
Max. output voltage	+28 V DC
Current consumption in standby mode	20 mA
Current cut-off outputs	< 600 mA
Voltage control	26.2 V
Transmission line malfunction output	Open collector, 100 mA
Transmission line reset input	Internal pull-up, switch after 0 V

Mechanics

Dimensions	56 x 95 mm
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Environmental conditions

Protection class as per EN 60529	IP 30
Permissible operating temperature	-5 °C . . . + 45 °C
Permissible storage temperature	-25 °C . . . + 70 °C

Further characteristics

Malfunction detection/display in accordance with EN 54-2	< 100 s
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Ordering Information

ERT100 Module for Loop System Power Supply	BS ERT 100
Module for retrofitting the fire panel with the loop system power supply	

Isolator Type YBO-R/SCI



Features

- **Positive isolator, recognizes wire interruption and short circuit**
- **Unattended**
- **Isolation displayed through status LED on isolator**

The isolators type YBO-R/SCI are used in combination with an ERT100 Module for the loop system power supply, and enable the power supply to be maintained to the unaffected fire sectors in the event of a short circuit or wire interruption in loops.

Functions

Isolators are configured in such a way that the fire sectors or, insofar as these are smaller, alarm sectors are confined. This configuration means that in the event of a short circuit, all elements are kept supplied with voltage before and after the separating isolators.

During isolation, the LED on the isolator is illuminated.

Once the short circuit has been rectified, the elements return automatically to normal operating condition and restore the connection.

No isolator is used between fire panel and the first or last signaling device. This means that n isolators are required for n fire sectors.

Certifications and Approvals

Complies with EN 54-17:2005

Region	Certification	
Europe	CPD	0832-CPD-0963 YBO-R/SCI
Germany	VdS	G 204049 YBO-R/SCI

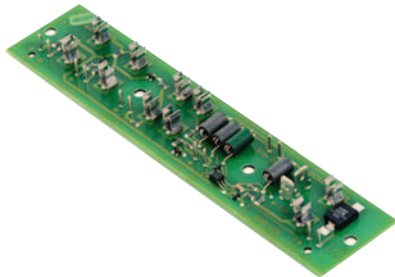
Technical Specifications

Operating voltage	17 - 41 V DC
Current consumption in standby mode	50 µA
Current consumption in the event of short circuit	< 10 mA
Max. current consumption in the event of short circuit	1 A
Max. wire diameter	2.5 mm ² (∅ 1.8 mm)
Permitted operating temperature	-10 °C . . . + 50 °C
Permitted rel. humidity	95% (without condensation)
Housing	Surface-mount, ivory colored
Dimensions (including cover)	∅ 100 mm, 13 mm high
Weight	85 g

Ordering Information

Isolator Type YBO-R/SCI	ERT-Isolator
Positive isolator, recognizes wire interruption and short circuit	

SIV 28 Fuse Distributor 28 V



For monitored fusing of units connected to BZ 500 LSN / UEZ 2000 LSN, max. 5 fuses.

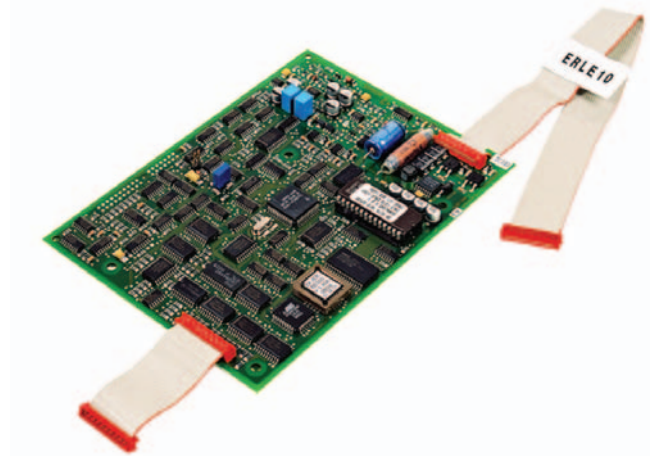
Ordering Information

SIV 28 Fuse Distributor 28 V

Fusing for units connected to BZ 500 LSN / UEZ 2000 LSN, max. 5 fuses

SIV 28

ERLE 10 Line Extension



The kit extends the BZ 500 LSN by one zone (loop) with max. 1000 m cable length.

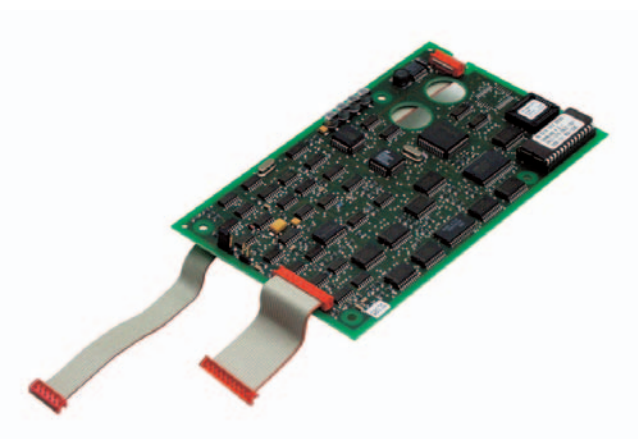
Ordering Information

ERLE 10 Line Extension

for the BZ 500 LSN, zone (loop) with max. 1000 m cable length

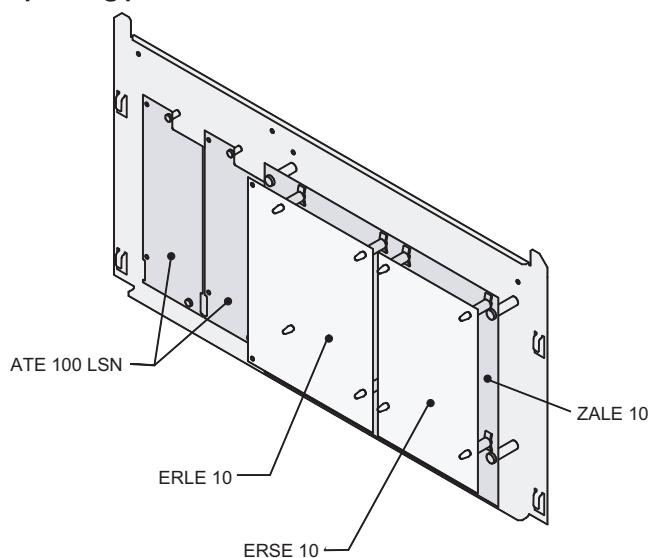
ERLE 10

ERSE 10 Interface Extension



The kit extends the BZ 500 LSN by two serial interfaces.

Configuration of extensions on the reverse side of the operating panel



Ordering Information

ERSE 10 Interface Extension
(2 x serial)

ERSE 10

SM 20 Interface Module



- 20 mA interface
- Maximum range of 1000 m

The SM 20 is required for connection of DR 500 T/AV, BE 500, UGM 2020 or RUBIN.

The ANNE 10 has three slots for the SM 20 or SM 24.

The UEZ 2000 LSN can be extended with up to five SM 20s.

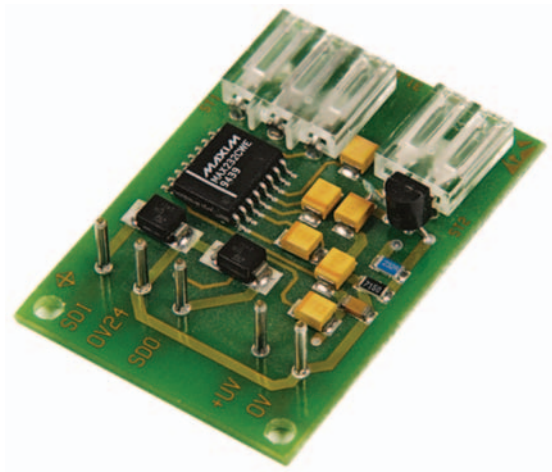
Ordering Information

SM 20 Interface Module

For connecting DR 500 T/AV, BE 500,
UGM 2020 or RUBIN

SM 20

SM 24 Interface Module



V24 interface for control panel networking in SRT network in combination with fiber optic cable (LWL), connection of peripheral equipment or a modem.

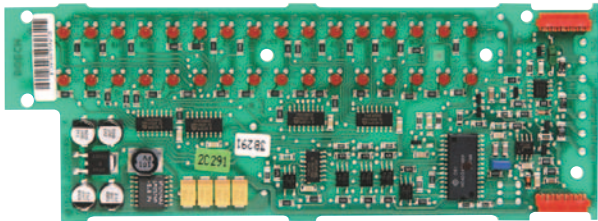
Ordering Information

SM 24 Interface Module

V24 interface for control panel networking in SRT network, for connecting peripheral equipment or a modem

SM 24

BS ATE 100 LSN Primary Extension Kit, Red



Kit with 32 red LEDs **for primary expansion of a foreign-language BZ 500 LSN** (or the German-language BZ 500 LSN without alarm display, item no. 3.002.102.560) for the alarm display (alarm indication) of up to 32 detector zones.

Certifications and Approvals

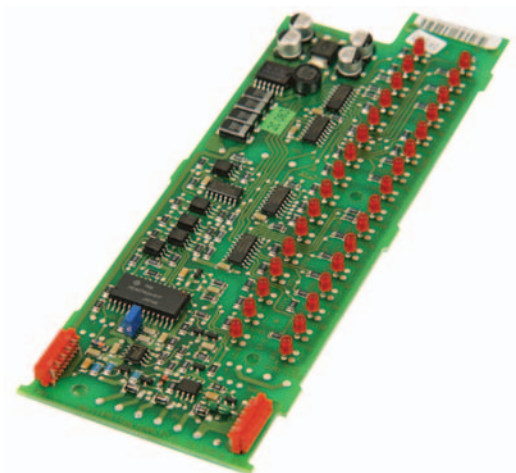
Region	Certification	
Europe	CE	BS ATE / ATG / ATB 100 LSN

Ordering Information

BS ATE 100 LSN Primary Extension Kit, Red
with 32 red LEDs for primary expansion of a foreign-language BZ 500 LSN

BS ATE 100 LSN

ATE 100 LSN red Extension Kit, Red



Kit with 32 red LEDs for extension of an existing alarm display (alarm indication).

This means the alarm indication can comprise a total of 64 detector zones.

Certifications and Approvals

Region	Certification
Europe	CE BS ATE / ATG / ATB 100 LSN

Ordering Information

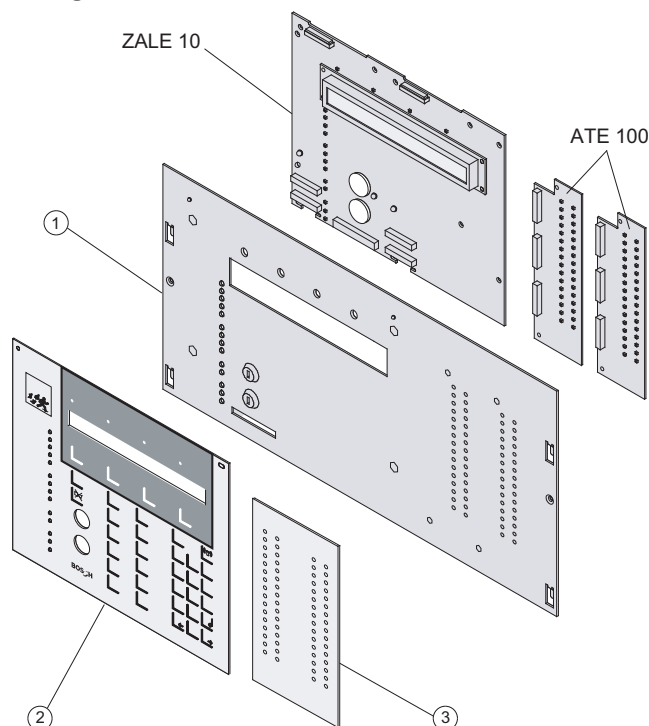
ATE 100 LSN red Extension Kit, Red **ATE 100 LSN red**
with 32 LEDs (red) for extension of an available
alarm display

ATE 100 LSN ye Extension Kit, Yellow

Kit with 32 yellow LEDs for extension of an existing alarm display (alarm indication).

The kit enables faults in up to 32 detector groups to be indicated.

Configuration of extensions



Pos.	Description
1	Mounting plate for the operating panel
2	Plastic membrane keypad
3	Membrane for the parallel display

Certifications and Approvals

Region	Certification
Europe	CE BS ATE / ATG / ATB 100 LSN

Ordering Information

ATE 100 LSN ye Extension Kit, Yellow **ATE 100 LSN ye**
with 32 LEDs (yellow) for extension of an ex-
isting alarm display

Key Switch



Up to two key switches can be deployed on the operating panel of the fire panel.

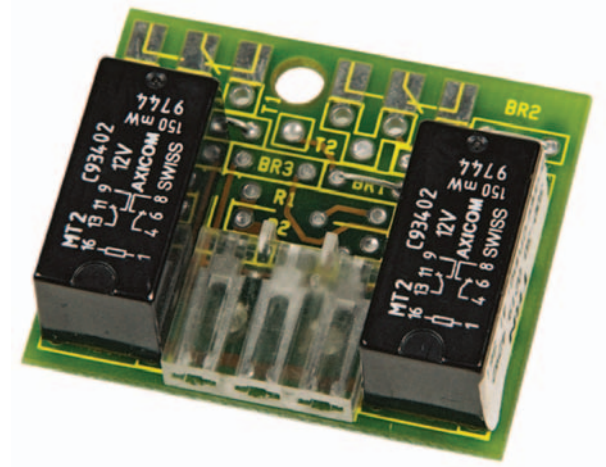
The function is freely programmable, e. g. day/night operation.

Ordering Information

Key Switch
for the BZ 500 LSN operating panel

BZ500-KEY-SWITCH

TRN Panel Relay Module



Panel Relay Module TRN with two relays, each relay with a double-throw contact for potential-free outputs.

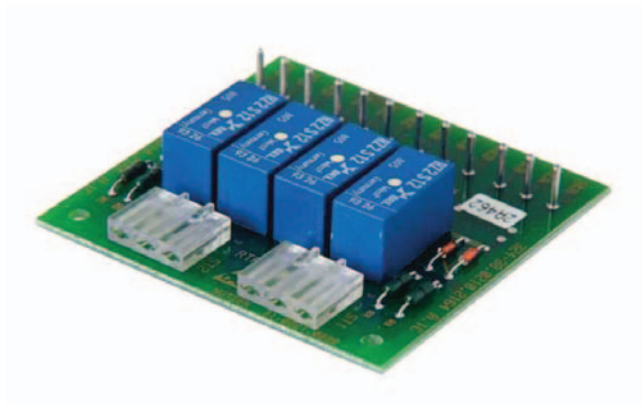
The AVM 100 can be extended with up to six TRNs.

Ordering Information

TRN Panel Relay Module
two relays, each relay with a double-throw contact for potential-free outputs

TRN

RTP Panel Relay Module



Panel Relay Module RTP with four relays, each relay with a double-throw contact for potential-free outputs, up to six RTPs can be plugged into AVM.

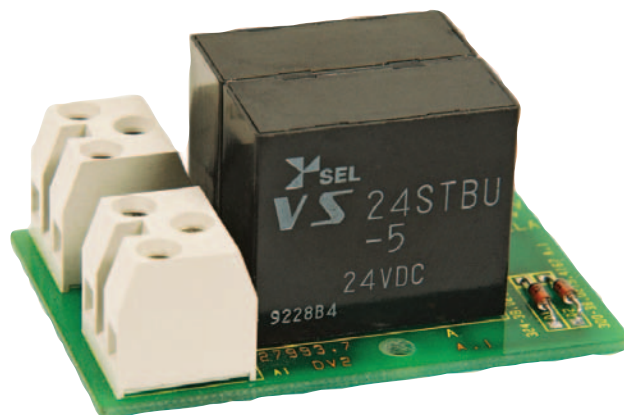
Ordering Information

RTP Panel Relay Module

four relays, each relay with a double-throw contact for potential-free outputs

RTP

BS NRK-N Network Relay Card



Two relays for potential-free outputs, each relay with a double-throw contact 220 V AC

Ordering Information

BS NRK-N Network Relay Card

two relays for potential-free outputs, each relay with a double-throw contact 220 V AC

BS NRK-N

MOD 300 Modem

For connecting control panels to the UGM 2020, modem incl. serial interface for data transmission in telephone networks.

The modem is approved for operation in post office networks. For this purpose an interface module SM 24 is required.

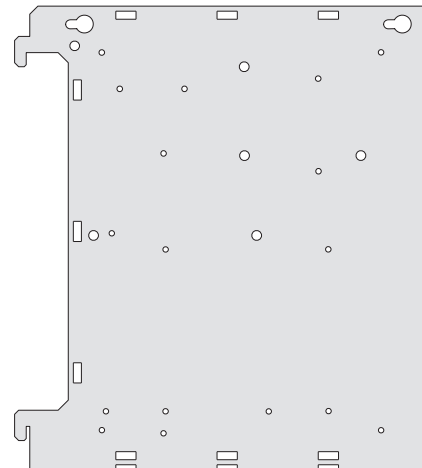
Ordering Information

MOD 300 Modem

for connecting control panels to the UGM 2020, incl. serial interface for data transmission in telephone networks

MOD 300

Options Plate



2

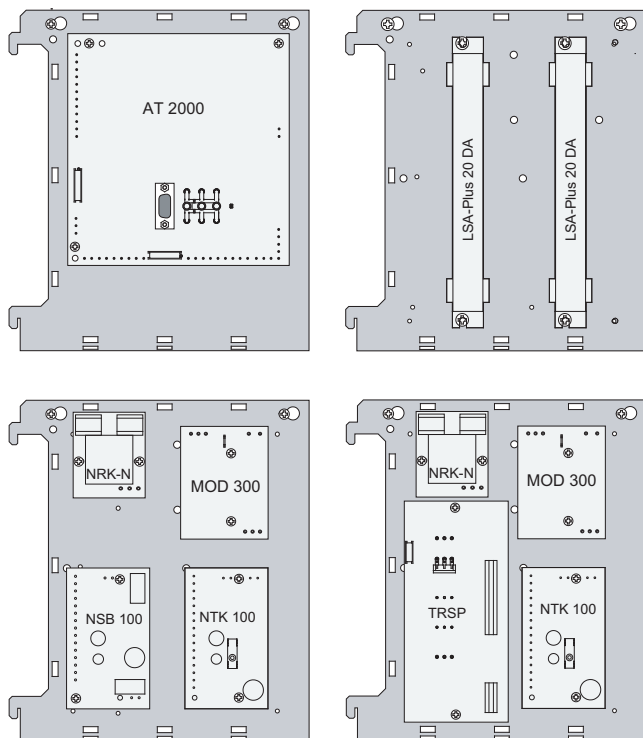
Essential requirements for the installation of an AT 2000!

If all mounting plates on the ANNE 10 are occupied, the following extensions can be used with the Options Plate:

- ICP-BS-TRSP
- BS NRK-N
- MOD 300
- BS NTK 100/BZ500, to realize switching addresses in the BZ 500 LSN
- BS NSB 100/BZ500, for monitored activation of signaling devices or extinguishing systems from the fire panel
- BS NBK 100/BZ500, each for connecting two GLT primary lines
- ICP-LSA-20 Connection Strip

Up to four interface kits are deployable.

2

Configuration of extensions on option plate**Ordering Information****Options Plate**

required for the installation of an AT 2000

BZ-500-PLATE**Mounting Kit 19" for BZ 500 LSN**

For installing the BZ 500 LSN in a 19" frame

Installation/Configuration Notes

The Mounting Kit 19" requires 13 height units = 578 mm.

Ordering Information**Mounting Kit 19" for BZ 500 LSN****BZ-500-19"-KIT**

DR 500 T/AV Tabletop Printer



Thermal paper printer with roll-up equipment, can be used as tabletop model or for wall mounting
An interface module SM 20 is required for connection to the BZ 500 LSN.

Certifications and Approvals

Region	Certification	
Europe	CE	DR 2020 / 2000 / 500 T

Ordering Information

DR 500 T/AV Tabletop Printer	DR 500 T/AV
Thermal paper printer with roll-up equipment, for BZ 500 LSN, interface module SM 20 is required	

Service Switch for Extinguishing Systems

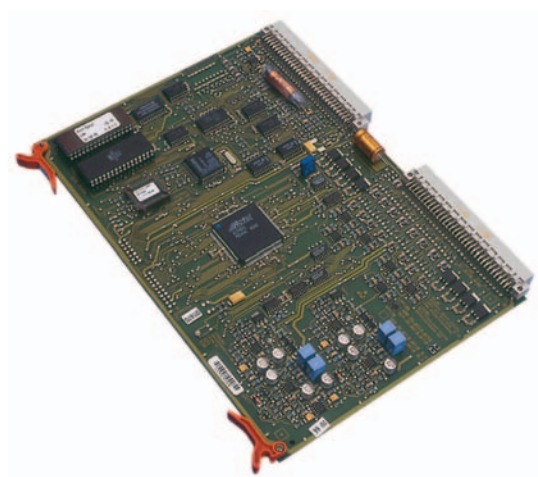


Key switch for deactivating extinguishing systems for maintenance purposes

Ordering Information

Service Switch for Extinguishing Systems for deactivating extinguishing systems for maintenance purposes	FME-KL-EXT
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LVM 100 Line Extension Module



For additional connection of up to 4 loop or 8 stub lines

UEZ 2000 LSN: Can be expanded with 1 LVM

UEZ 2000/6 LSN: Can be expanded with 1 LVM

UEZ 2000/1 LSN: Cannot be expanded.

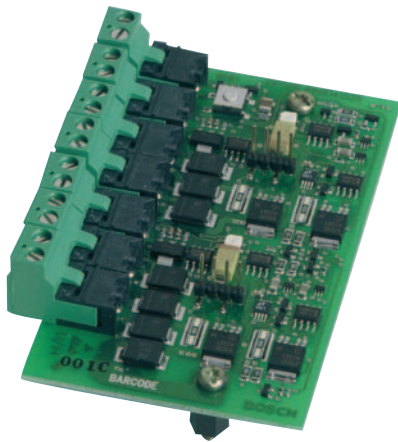
Ordering Information

LVM 100 Line Extension Module

Additional connection of max. 4 loop or 8 stub lines, UEZ 2000 LSN and UEZ 2000/6 LSN can be expanded with 1 LVM

LVM 100

ERT100 Module for Loop System Power Supply



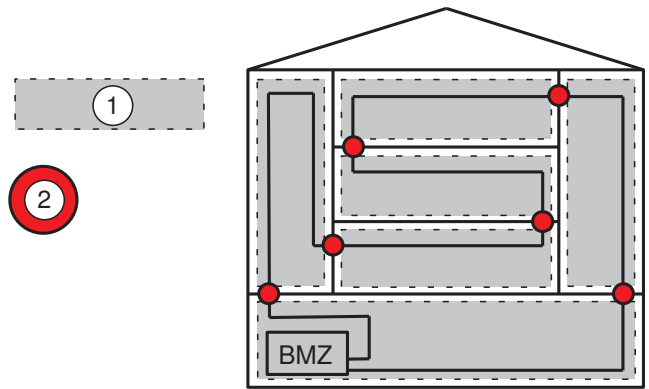
Features

- ▶ **Low voltage sensor at 26.2 V (in accordance with VdS 2110) for interruption free power supply of the sounder MSS 401 LSN in case of activation**
- ▶ **Connection of up to 25 signaling devices of the type MSS 401 LSN per ERT loop, depending upon cable length and cable diameter**
- ▶ **Alarm signaling in accordance with sample guideline for cable equipment (MLAR) without E30 cable**
- ▶ **Connection of up to 25 isolators per ERT100 loop**
- ▶ **Monitoring of two loops per ERT100 Module possible.**

The ERT100 Module is designed for retrofitting the fire panel with the loop system power supply.

Functions

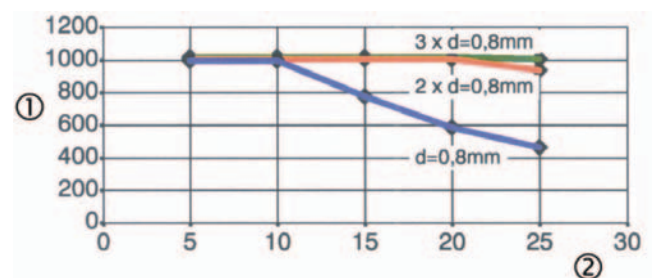
The ERT100 Module monitors the supply voltage of MSS 401 LSN signaling devices in loop lines, and in combination with isolators (type YBO-R/SCI) makes it possible to maintain the power supply of the unaffected fire sectors in the event of a short-circuit or wire interruption. Two loop lines can be monitored per ERT100 Module. Individual malfunctions are displayed with an LED per loop on the ERT100 Module as well as in the form of clear text on the fire panel. Once the short circuit has been rectified, the elements automatically reestablish contact.



Pos. Description

- | | |
|---|-------------|
| 1 | Fire sector |
| 2 | Isolator |

Isolators are configured in such a way that the fire sectors or, insofar as these are smaller, alarm sectors are confined. This configuration means that in the event of a short circuit, all elements are kept supplied with voltage before and after the separating isolators. No isolator is used between fire panel and the first or last signaling device. This means that n isolators are required for n fire sectors.



Pos. Description

- | | |
|---|--|
| 1 | Range in [m] |
| 2 | Number of detector base sounders MSS 401 LSN |

A wire gauge of 0.8 mm corresponds to a wire diameter of 0.5 mm².

The range is dependent upon the wire gauge and the number of sounders MSS 401 LSN.

Certifications and Approvals

Region	Certification	
Europe	CE	ERT 100

Installation/Configuration Notes

- If multi-core cable is used, the additional detector base MSC 420 may be necessary.

BZ 500 LSN:

- For each ERT loop, a fuse of 630 mA (slow-burn) is necessary. It is recommended that a fuse distributor SIV 28 V (article no. F.01U.500.442) be used.
- The BZ 500 LSN can supply a ERT loop with voltage. In the case of two ERT loops or more, a supplementary power supply is required.

UEZ 2000 LSN:

- For each ERT loop, a fuse of 630 mA (slow-burn) is necessary. With more than four ERT loops, a fuse distributor SIV 28 V (item no. F.01U.500.442) must be used.
- The UEZ 2000 B can supply three ERT loops with voltage. In the case of four ERT loops or more, a supplementary power supply is required.

Technical Specifications**Electrical**

Input voltage	+28 V DC
Max. output voltage	+28 V DC
Current consumption in standby mode	20 mA
Current cut-off outputs	< 600 mA
Voltage control	26.2 V
Transmission line malfunction output	Open collector, 100 mA
Transmission line reset input	Internal pull-up, switch after 0 V

Mechanics

Dimensions	56 x 95 mm
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Environmental conditions

Protection class as per EN 60529	IP 30
Permissible operating temperature	-5 °C . . . + 45 °C
Permissible storage temperature	-25 °C . . . + 70 °C

Further characteristics

Malfunction detection/display in accordance with EN 54-2	< 100 s
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Ordering Information

ERT100 Module for Loop System Power Supply	BS ERT 100
Module for retrofitting the fire panel with the loop system power supply	

SM 20 Interface Module



- 20 mA interface
- Maximum range of 1000 m

The SM 20 is required for connection of DR 500 T/AV, BE 500, UGM 2020 or RUBIN.

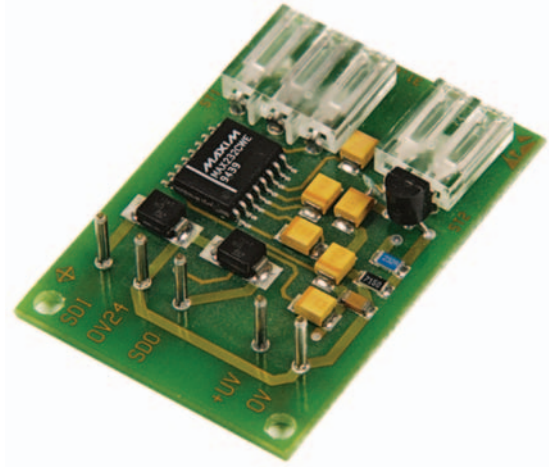
The ANNE 10 has three slots for the SM 20 or SM 24.

The UEZ 2000 LSN can be extended with up to five SM 20s.

Ordering Information

SM 20 Interface Module	SM 20
For connecting DR 500 T/AV, BE 500, UGM 2020 or RUBIN	

SM 24 Interface Module



V24 interface for control panel networking in SRT network in combination with fiber optic cable (LWL), connection of peripheral equipment or a modem.

Ordering Information

SM 24 Interface Module

SM 24

V24 interface for control panel networking in SRT network, for connecting peripheral equipment or a modem

MOD 300 Modem

For connecting control panels to the UGM 2020, modem incl. serial interface for data transmission in telephone networks.

The modem is approved for operation in post office networks. For this purpose an interface module SM 24 is required.

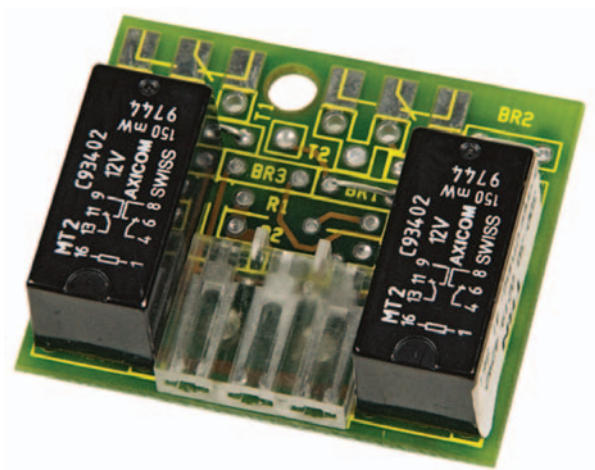
Ordering Information

MOD 300 Modem

MOD 300

for connecting control panels to the UGM 2020, incl. serial interface for data transmission in telephone networks

TRN Panel Relay Module



Panel Relay Module TRN with two relays, each relay with a double-throw contact for potential-free outputs.

The AVM 100 can be extended with up to six TRNs.

Ordering Information

TRN Panel Relay Module

two relays, each relay with a double-throw contact for potential-free outputs

TRN

RTP Panel Relay Module



Panel Relay Module RTP with four relays, each relay with a double-throw contact for potential-free outputs, up to six RTPs can be plugged into AVM.

Ordering Information

RTP Panel Relay Module

four relays, each relay with a double-throw contact for potential-free outputs

RTP

Isolator Type YBO-R/SCI



Features

- **Positive isolator, recognizes wire interruption and short circuit**
- **Unattended**
- **Isolation displayed through status LED on isolator**

The isolators type YBO-R/SCI are used in combination with an ERT100 Module for the loop system power supply, and enable the power supply to be maintained to the unaffected fire sectors in the event of a short circuit or wire interruption in loops.

Functions

Isolators are configured in such a way that the fire sectors or, insofar as these are smaller, alarm sectors are confined. This configuration means that in the event of a short circuit, all elements are kept supplied with voltage before and after the separating isolators.

During isolation, the LED on the isolator is illuminated.

Once the short circuit has been rectified, the elements return automatically to normal operating condition and restore the connection.

No isolator is used between fire panel and the first or last signaling device. This means that n isolators are required for n fire sectors.

Certifications and Approvals

Complies with EN 54-17:2005

Region	Certification	
Europe	CPD	0832-CPD-0963 YBO-R/SCI
Germany	VdS	G 204049 YBO-R/SCI

Technical Specifications

Operating voltage	17 - 41 V DC
Current consumption in standby mode	50 µA
Current consumption in the event of short circuit	< 10 mA
Max. current consumption in the event of short circuit	1 A
Max. wire diameter	2.5 mm ² (∅ 1.8 mm)
Permitted operating temperature	-10 °C ... + 50 °C
Permitted rel. humidity	95% (without condensation)
Housing	Surface-mount, ivory colored
Dimensions (including cover)	∅ 100 mm, 13 mm high
Weight	85 g

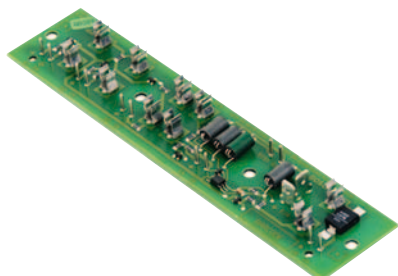
Ordering Information

Isolator Type YBO-R/SCI

Positive isolator, recognizes wire interruption and short circuit

ERT-Isolator

SIV 28 Fuse Distributor 28 V



For monitored fusing of units connected to BZ 500 LSN /
UEZ 2000 LSN, max. 5 fuses.

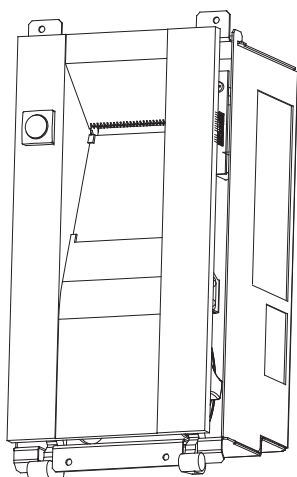
Ordering Information

SIV 28 Fuse Distributor 28 V

Fusing for units connected to BZ 500 LSN /
UEZ 2000 LSN, max. 5 fuses

SIV 28

DR 2020 T/AV Log Printer with Roll-up Equipment



For installation in the display carrier

Note The Log Printer must already be taken into account when ordering. Installation of the printer can only occur in the factory, subsequent installation on location not possible.

Certifications and Approvals

Region	Certification
Europe	CE DR 2020 / 2000 / 500 T

Technical Specifications

Electrical

Operating voltage	10.5 V DC . . . 29 V DC
Current consumption	600 mA at 12 V
Power supply	From the control panel
Fuse	T1A

Mechanics

Dimensions (H x W x D)	130 x 160 x 230 mm
Color	Anthracite, RAL 7016
Weight	Approx. 2 kg

Environmental conditions

Permitted operating temperature	0 °C. . . 50 °C
Permitted relative humidity	93 %, at + 40°C
Classes of equipment as per EN 60950	Class II equipment
Protection class as per EN 60529	IP 30
Contamination level	2 (as per EN 60950)
Environmental class as per VdS 2110	II

Special features

Construction type	Thermal printer
Printout	Alphanumeric
Character height	2.7 mm ± 0.2 mm
Number of lines per printout	Max. 3 lines, of these <ul style="list-style-type: none"> • 1 line standard output • 2 lines additional information
Number of characters / lines	Max. 40 characters
Print speed	At least 5 lines/sec
Paper type	Thermoprint paper rolls
Paper width	58 mm +0/-1 mm
Interface	Parallel
Baud rate	2400 bit/sec, 9600 bit/sec (standard)
Data format	8 bits, 1 start bit, 1 stop bit, no parity bit, ASCII characters
Monitoring	<ul style="list-style-type: none"> • Paper end (signaling of at least 500 print lines before the end) • Cover tamper contact
EMC interference immunity	EN 50130-4
EMC emitted interference	EN 61000-6-3

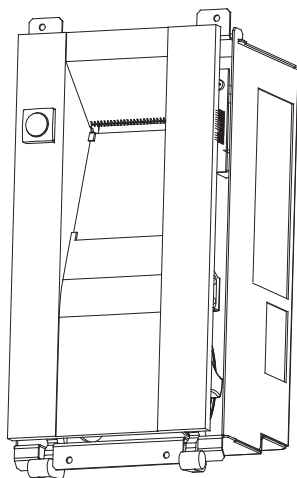
Ordering Information

DR 2020 T/AV Log Printer with Roll-up Equipment

Installation of the printer can only occur in the factory, subsequent installation on location not possible

DR 2020 T/AV

DR 2020 T Log Printer without Roll-up Equipment



Like product ID 4.998.105.681, however without roll-up equipment.

Certifications and Approvals

Region	Certification	
Europe	CE	DR 2020 / 2000 / 500 T

Technical Specifications

See model with roll-up equipment

Ordering Information

DR 2020 T Log Printer without Roll-up Equipment	DR 2020 T
like product ID 4.998.105.681, however without roll-up equipment	

Conventional Panels

3

FP Conventional Fire Panels

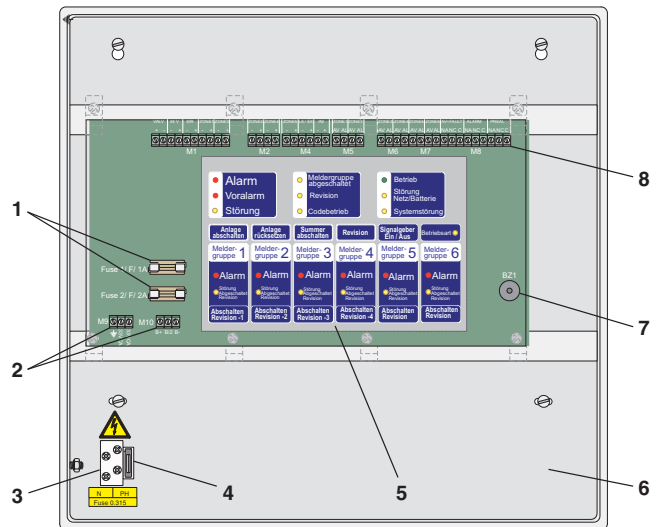


Features

- ▶ Simple operation with clearly-structured operating panel and membrane keypad
- ▶ For two, four or six detector groups, each connecting up to 30 detectors.
- ▶ Alarm and fault display by multicolour LEDs, customized for each detector group
- ▶ Internal buzzer for acoustic alarm and fault display
- ▶ Separate function control for fire panel and for each individual detector zone
- ▶ Robust sheet steel housing

The FP Conventional Fire Panel, using trusted DC line techniques, is the ideal solution for small and medium-sized objects when modern bus technology can be done without.

System Overview



Pos. Designation

- 1 Fuses F1 and F2
- 2 Terminal blocks M9 and M10 for mains and battery power.
- 3 Mains connection clamp block
- 4 Fuse F3
- 5 Operating panel (in corresponding national language)
- 6 Control panel housing
- 7 Internal buzzer
- 8 Clamp blocks M1 - 8 for detector and sensor lines

Functions

The fire panels FP 102/104/106-PA have a pre alarm function, and can be made dependent on the activation of two detectors.

The fire panels FP 102/104/106-2SO have an English operating panel (country-specific customization possible), a second sensor lead, although no pre alarm.

In the case of versions with pre alarms (PA control panels), three delay times can be selected: 30, 60 or 120 s.

In the event of an alarm being triggered, a controllable signaling device (siren) can be switched on or off at any time. The sounder can also be activated if the fire panel is not in alarm status.

Reset of the fire panel after a fault is automatically carried out once the reason for the fault has been dealt with.

Operating levels

The fire panels have three different operating levels:

Access to level 0 is possible without code entry. Four-digit access codes are required to access operating level 1 and 2. The access codes are set at the works and cannot be amended.

A test of various functions can be carried out at each operating level.

- The level 0 test checks the functioning of the LEDs and the buzzer.

- The test at level 1 puts all detector zones simultaneously into revision operation, whereby the fire panel must be reset following the triggering of a detector.
- The level 2 test allows certain detector groups to be selected for testing, the other groups remaining in normal mode.

Programming

The PA fire panels can be used to program each individual detector zone either for one-detector or for two-detector dependency. Independent of the programming of the individual detector zones, all detector zones can be switched simultaneously to single detector dependency. The switching does not affect the respective programming of the individual detector zones.

Certifications and Approvals

Region	Certification
Europe	CE
	FP 102-PA
	FP 104-PA
	FP 106-PA
	FP 102-2SO
	FP 104-2SO
	FP 106-2SO

Installation/Configuration Notes

- The fire panel must be mounted in a dry, maintained interior room, environmental conditions (see Technical Data) being taken into account.
- Attach the fire panels to the wall in such a way that the operating panel is at eye level.
- To enable the front door to be removed, at least 50 mm of free space must be left on the left-hand side of the control panel.
- For optimum battery life, the fire panel should only be operated in locations having normal room temperatures.
- The appropriate requirements stipulated by the local authorities (e. g. fire service) are to be conformed to.

Technical Specifications

Special features

Number of detector zones

• FP 102-PA / FP 102-2SO	2
• FP 104-PA / FP 104-2SO	4
• FP 106-PA / FP 106-2SO	6

Connectable detectors Max. 30 per detector zone

Electrical

Power supply voltage	230 V AC +/- 10%
Power supply current	300 mA
Frequency	50/60 Hz
Power supply output voltage	28V DC
Power supply output current	Max. 1,800 mA
Current consumption in stand-by mode	
• FP 102-PA / FP 102-2SO	100 mA
• FP 104-PA / FP 104-2SO	120 mA
• FP 106-PA / FP 106-2SO	140 mA
Current consumption in alarm mode	
• FP 102-PA / FP 102-2SO	1,400 mA
• FP 104-PA / FP 104-2SO	1,600 mA
• FP 106-PA / FP 106-2SO	1,800 mA
Fuses	
• Power supply	T – 315 mA
• Battery power supply	F – 2 A
• Primary line output	F – 1 A

Battery power supply

Battery type and amount	Gel-accumulator, 2 units (connected in series)
Battery capacity	12 V / 7.2 Ah
Battery charge voltage	27.4 V DC
Battery charge current	500 mA
Back-up time	
• FP 102-PA / FP 102-2SO	Max. 70 h in stand-by mode Max. 4 h in event of alarm
• FP 104-PA / FP 104-2SO	Max. 59 h in stand-by mode Max. 4 h in event of alarm
• FP 106-PA / FP 106-2SO	Max. 45 h in stand-by mode Max. 4 h in event of alarm

Primary line features

Stand-by voltage	
• Zones	20 V DC (+5% / -10%)
• Signaling device lines	24 V DC (±5%)
Current consumption	
• In standby mode	Approx. 5 mA (±1%)
• In alarm mode	Approx. 102 mA (±1%)
Terminator resistance R _E (when connected to Bosch detectors)	3.92 kΩ ¼ W
Maximum line resistance	100 Ω (per primary line)
Mechanics	
Dimensions (W x H x D)	350 x 340 x 90 mm
Weight	
• Without batteries	3.5 kg
• With 2 batteries (12V/7.2Ah)	7.9 kg
Housing color	Light-gray, RAL 9002

Environmental Considerations

Protection class as per EN 60529	IP 30
Classes of equipment as per EN 60950	Class II equipment
Permissible operating temperature	0 °C . . . +40 °C
Permissible storage temperature	-40 °C . . . +70 °C

3

Ordering Information**FP 102-PA Conventional Fire Panel** **FP-102-PA**

For two detector zones, up to 60 detectors,
with pre-alarm, two-detector dependency possible

FP 104-PA Conventional Fire Panel **FP 104-PA**

For four detector zones, up to 120 detectors,
with pre-alarm, two detector dependency possible

FP 106-PA Conventional Fire Panel **FP 106-PA**

for six detector zones, up to 180 detectors,
with pre-alarm, two detector dependency possible

FP 102-2SO Conventional Fire Panel **FP 102-2SO**

for two detector zones, up to 60 detectors,
without pre-alarm, two signaling device outputs

FP 104-2SO Conventional Fire Panel **FP 104-2SO**

for four detector zones, up to 120 detectors,
without pre-alarm, two signaling device outputs

FP 106-2SO Conventional Fire Panel **FP 106-2SO**

for six detector zones, up to 180 detectors,
without pre-alarm, two signaling device outputs

Accessories

Gel Battery 12 V / 7.2 Ah (DU = 1 unit)	IPP-12V-7.2Ah
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Display Panels

4

LSN Display Panels

112

BAT 100 LSN Display Panel

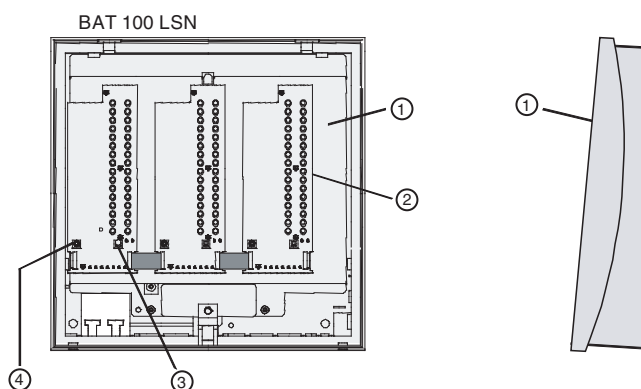


Features

- ▶ Upgradeable with up to three ATG 100 LSN kits
- ▶ 32, 64 or 96 red or yellow display LEDs
- ▶ Monitored data communication control panel - display panel
- ▶ Maintenance of function on the LSN loop via two integrated isolators in the event of wire interruptions or short-circuits

The BAT 100 LSN display panel is a universally usable remote parallel display with up to 96 LEDs (e.g. for a maximum of 96 detector zones).

System Overview



Item	Description
	BAT 100 LSN, display without hood
1	Lower part of housing
2	ATG with 32 LEDs
3	Keys for "LED test" or "buzzer off"
4	Tamper contact

Functions

The BAT 100 LSN display panel handles the display of faults and/or alarms for detectors or detector zones.

Up to three ATG 100 LSN kits can be installed in the BAT 100 LSN housing. An ATG 100 LSN includes 32 red LEDs for alarm indications or 32 yellow LEDs for fault indications. Mixed equipment (red and yellow LEDs) of the display panel with different ATG 100 LSNs is possible. LED displays can be labeled using a printer.

The panel has a buzzer and a reset button for the buzzer. If there is no alarm, the reset button for the LED test can be used.

The ATG 100 LSN kits have integrated isolators for maintaining the function of the elements on the LSN loop in the event of wire interruptions or short-circuits.

Certifications and Approvals

ATG 100 LSN and ATB 100 LSN complied

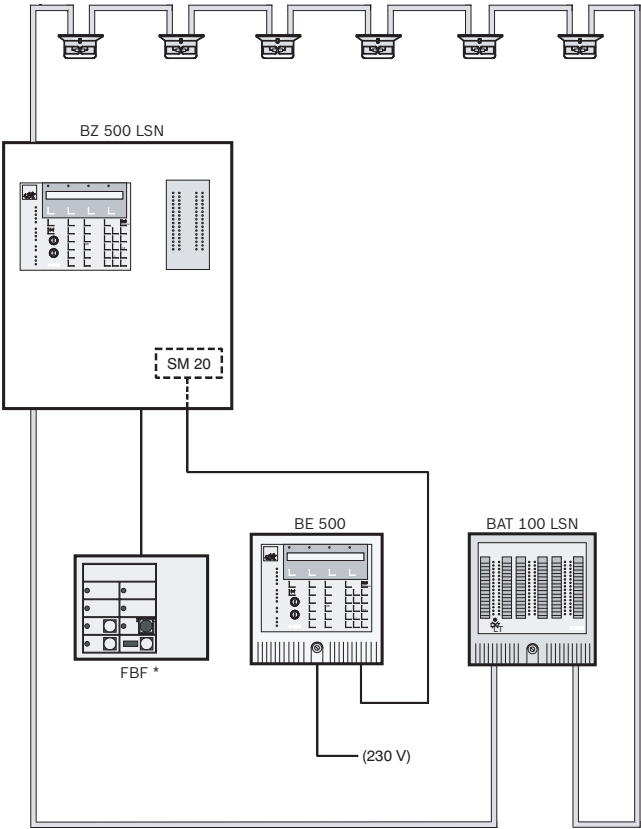
- EN54-17:2005
- EN54-18:2005

Region	Certification
Europe	CE
	BAT 100 LSN
	BS ATE / ATG / ATB 100 LSN
Germany	CPD
	0786-CPD-20596
	ATG100_ATB 100
Hungary	VdS
	G 298030
	BAT 100 LSN
Russia	GOST
	G 297040
	ATG 100
Hungary	TMT
	TMT-89/12/2004.pdf
	BAT 100
Russia	GOST
	POCC DE.C313B06298

Installation/Configuration Notes

- BAT 100 LSN Display Panels can be incorporated at any point on LSN loops or LSN stubs.
- If a BAT 100 LSN is installed in addition to a BE 500 Remote Operating Panel, the BAT 100 LSN should be positioned directly adjacent to the BE 500.

Planning example



* Fire department control panel (in Germany only)

Environmental conditions

Permissible operating temperature	-5 °C to +50 °C
Permissible storage temperature	-20 °C to +60 °C

Special features

LED flash frequency	0.8 Hz
LED colors	Red, yellow

Ordering Information

BAT 100 LSN Display Panel Kit for display panel with 32 red LEDs	BAT 100
Accessories	
ATG 100 LSN red LED Kit, Red Kit for display panel with 32 red LEDs	ATG 100 LSN red
ATG 100 LSN ye LED Kit, Yellow Kit for display panel with 32 yellow LEDs	ATG 100 LSN ye
ATG100-16red-16ye LED Kit, Red/Yellow Kit for display panel with 16 red and 16 yellow LEDs	ATG100-16red-16ye
Labeling Strips PU = 10 units	BAT100-LABELS
ATB 100 LSN for Incorporation into Location Map Panels	ATB 100 LSN

Parts Included

Qty.	Component
1	BAT 100 LSN display panel

Technical Specifications

Electrics

ATG 100 LSN module

Operating voltage	
• LSN part	+12 VDC to +30 V DC
• Other functions	+8 V DC to +30 V DC
Current consumption of LSN part	3 mA
Power intake of other functions	All 32 LEDs on: max. 160 mA All 32 LEDs off: max. 6 mA

Mechanics

BAT 100 LSN housing

Dimensions (H x W x D)	270 x 270 x 75 mm
Material	Plastic, ABS Terluran
Color	Light gray, RAL 9002
Weight	Approx. 1 kg

Power Supplies and Batteries

5

Power Supplies

116

Power Supply Unit Kit 12 V/5.4 A

Power Supply Unit for universal utilization

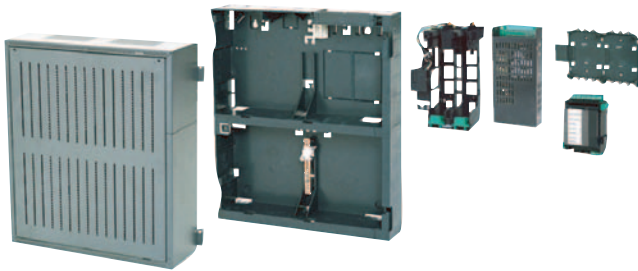
Ordering Information

Power Supply Unit Kit 12 V/5.4 A
for universal utilization

FPP-BS-12V5A

5

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

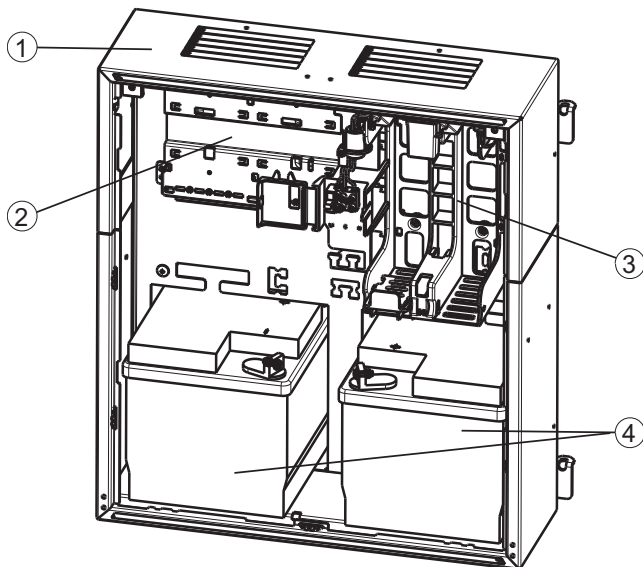


Features

- ▶ **Charging process controlled by temperature and time**
- ▶ **Voltage outputs each electronically fused and connectable in parallel**
- ▶ **Can hold two batteries**

The FPP-5000 External Power Supply Unit Kit is designed for universal power supply, and has space for two 12 V/ 45 Ah batteries. This is configured using components of the Modular Fire Panel FPA-5000.

System Overview



Pos. Description

- 1 Power Supply Housing, Frame Installation, medium PMF 0002 A
 - 2 Mount for 1 Panel Rail Short PRS 0002 A to hold 1 Battery Controller Module BCM-0000-B
 - 3 Power Supply Bracket for 1 UPS 2416 A Universal Power Supply 24 V/6 A
 - 4 Space for 2 batteries 12 V/45 Ah
- The Power Supply Housing is positioned on a Mounting Frame Medium FMH 0000 A (not shown).

Functions

In the case of the FPP-5000 Power Supply Unit, the Panel Rail made of glass fiber reinforced plastic is fitted a BCM-0000-B Battery Controller Module.

The Power Supply Unit is inserted into the Power Supply Bracket, and is immediately operational via the pre-wired plug-and-socket connections.

The bracket is equipped with a thermal sensor.

The Universal Power Supply UPS 2416 A is protected against excess voltage and reversed polarity. The output voltage is monitored and controlled externally. The output FAULT signals that a malfunction has occurred. The green onboard LED shows that the unit is operational.

The BCM-0000-B Battery Controller Module monitors the power supply and controls the charging of the batteries (2 x 12 V / 45 Ah), subject to temperature parameters and set times.

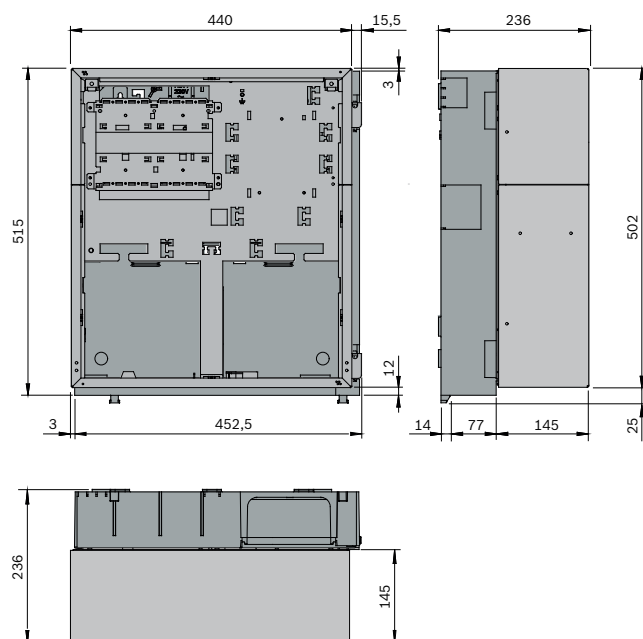
Each voltage output is electronically fused. All voltage outputs can be connected in parallel.

Certifications and Approvals

Complies with:

- EN 54-4:1997/A1:2002
- EN 54-17:2005

Region	Certification	
Europe	CE	FPP-5000 Energieversorgung
	CPD	0786-CPD-20357 FPP-5000
Germany	VdS	G 205050 FPP-5000
Russia	GOST	POCC DE.C313B06299
Bulgaria	GD FSPP	POPSd 61 FPP-5000

Installation/Configuration Notes**Installation dimensions**

Capacity of the fault outputs 0 V / 0 to 20 mA
 BAT FAULT, AC FAULT, and
 collective fault

Voltage outputs

- 2 switch outputs +24 V / 2.8 A (20.4-30 V), battery buffered

Mechanics

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015 Front: anthracite gray, RAL 7016
Dimensions (installed)	Approx. 502 x 450 x 327 mm (approx. 19.8 x 17.7 x 12.9 in.)

Environmental Considerations

Classes of equipment as per EN 60950	Class I equipment
Permissible operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permissible storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Relative humidity	Max. 95% non-condensing
Cooling	Ventilation without ventilator

Parts Included

Amount	Components
1	PMF 0002 A Power Supply Housing Frame Installation medium, with Power Supply Bracket
1	FMH 0000 A Mounting Frame Medium
1	UPS 2416 A Universal Power Supply 24 V/6 A
1	PRS 0002 A Panel Rail Short
1	BCM-0000-B Battery Controller Module
1	CPB 0000 A Cable Set BCM/UPS
1	CBB 0000 A Cable Set BCM/Battery
1	Battery pole connection cable for Frame Installation Housing
1	Supplementary package

Note Optional: Earth Bar FPO-5000-EB

Ordering Information

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

Technical Specifications**Electrical**

Input voltage range	100 V AC to 240 V AC
Input frequency range	50 Hz to 60 Hz
Efficiency	85%
Bridging time	> 100 ms at 230 V AC
Output voltage	
• Mains supply	26 to 29 V DC (dependent on temp.)
• Mains supply nominal	26.8 V DC (at 40 °C)
• Battery supply	21 to 23 V DC
Max. output current	6 A
Max. output	160 W (permanent)

FPP-5000-TI Trouble Interface for FPP-5000

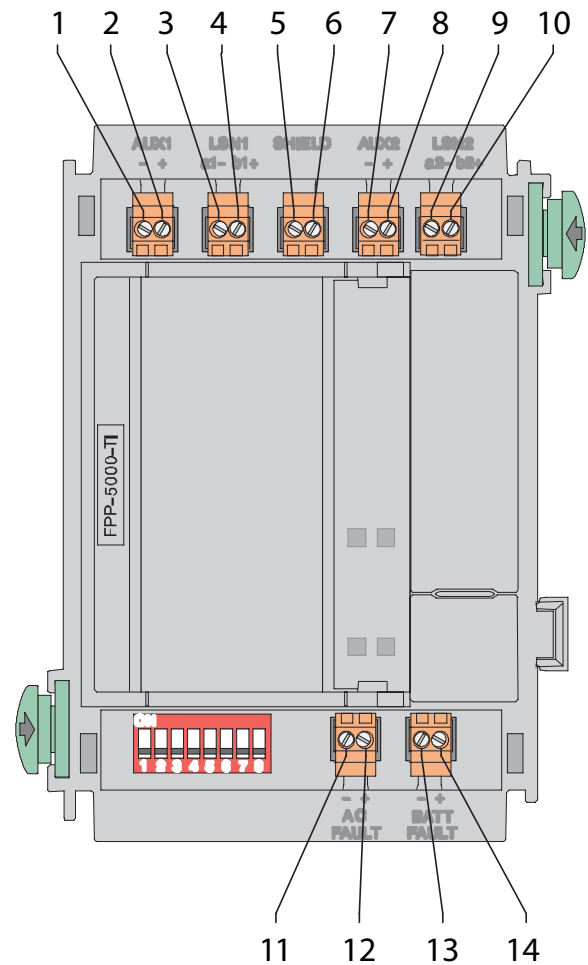


Features

- Installation and auto-detection by simply inserting the modul into the Panel Rail
- Fault message transfer of mains fault signal and battery fault signal via Local SecurityNetwork LSN.

The FPP-5000-TI is an extension for the FPP-5000 External Power Supply Unit Kit 24 V/6 A. It provides the fault message transfer of the mains fault signal and the battery fault signal to the fire panel via the Local SecurityNetwork LSN. The two fault messages are provided by the corresponding outputs at the BCM 0000 A Battery Controller Module. The module is directly connected to the LSN data bus and is also power supplied via the LSN data bus line.

Functions



Pos.	Labelling	Connection
1	AUX1 -	Auxiliary power supply incoming (support points to loop through)
2	AUX1 +	
3	LSN1 a1 -	LSN incoming
4	LSN1 b1 +	
5	SHIELD	Shield wire
6	SHIELD	
7	AUX2 -	Auxiliary power supply outgoing (support points to loop through)
8	AUX2 +	
9	LSN1 a2 -	LSN outgoing
10	LSN1 b2 +	
11	AC FAULT -	Mains fault input
12	AC FAULT +	
13	BATT FAULT -	Battery fault input
14	BATT FAULT +	

Technical Specifications

Electrical

Input voltage (min - max)	15 V DC to +33 V DC
Maximum current consumption	1.15 mA at 24 V DC (from LSN)

Mechanical

Address setting	Via eight DIP switches
Housing material and color	ABS plastic, (UL94 V-0), semi-gloss anthracite, RAL 7016
Dimensions (W x H x L)	Approx. 127 x 96 x 60 mm (approx. 5.0 x 3.8 x 2.4 inches)

Environmental conditions

Protection type as per IEC 60529	IP 20
Permissible operating temp.	-5 °C to 50 °C (23 °F to 122 °F)
Permissible storage temp.	-20 °C to 60 °C (-4 °F to 140 °F)
Relative humidity	Max. 95% non-condensing

Ordering Information

**FPP-5000-TI Trouble Interface for
FPP-5000**

FPP-5000-TI

Converter Kit 24 V/28 V/ 35 V

Voltage Converter for UEV 1000 and UZG 1000 to convert 12 V to 24 V, 28 V or 35 V

Note Installation in the UZG 1000 is possible only in conjunction with the Power Supply Unit Kit 12 V / 5,4 A.

Ordering Information**Converter Kit 24 V/28 V/35 V**

for UEV 1000, UZG 1000 (Power Supply Unit Kit 12 V/5,4 A required)

FMX-

BSW-24V28V35V

Automatic Fire Detectors

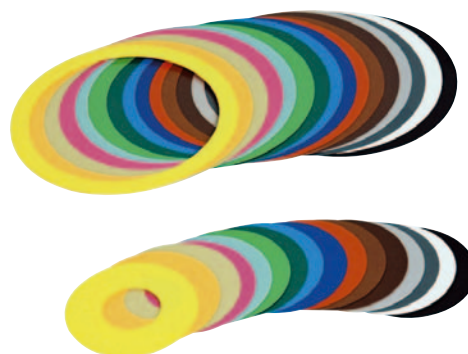
6

LSN Detectors	122
Accessories - Series 500 LSN and 520 LSN	133
Accessories - Series 420 LSN improved version	140
LSN RF Fire Detection Systems	152
Accessories - LSN RF Fire Detection System	157
Conventional Detectors	159
Accessories - Series 500 Conventional	172
Accessories - Series 320 Conventional	178
Accessories - DO1101A-Ex	188
Specialty Detectors	192

FAP-520 Automatic Fire Detectors LSN improved version



The detectors and trim rings in the "transparent with color inserts" version are supplied complete with reversible printed color ring sets, offering a choice of 16 colors for individual color matching.



6

Features

- ▶ **Modern, ultra-flat design**
- ▶ **Smooth, easily-cleaned detector surface**
- ▶ **Innovative fastening mechanism**
- ▶ **High reliability**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**
- ▶ **Extended system parameters of improved LSN technology**

The FAP-520 Automatic Fire Detectors combine the advantages of the improved LSN technology with the aesthetic benefits of flush-mounted installation and the option to choose the color. The detectors are specially designed for connection to the Local SecurityNetwork LSN improved version with the significantly extended system parameters.

The FAP-520 is available as a scattered light smoke detector or as a multi-sensor detector with an additional gas sensor. The respective versions of the detectors are available in white or transparent with color toning inserts.

Functions

The smooth, flush-installation surface means the FAP-520 Fire Detectors can be installed in areas with high aesthetic requirements. In addition, the detectors are suitable for areas with heightened dust exposure.

Sensor technology and signal processing

All detectors in the FAP-520 Series are equipped with two optical sensors and a pollution sensor. The FAP-OC-520 multisensor detector contains a gas sensor as an additional detection channel.

The individual sensors can be programmed with RPS or WinPara software via the LSN network. All sensor signals are constantly analyzed by the internal signal evaluation electronics and are linked with each other through algorithms.

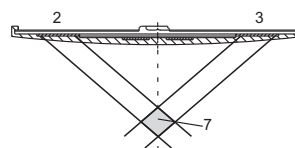
By linking the optical sensors and the gas sensor, the OC detector can also be used in places where the work carried out gives rise to small amounts of smoke, steam or dust. The alarm will only be triggered automatically if the signal combination corresponds with the characteristic diagram of the installation location that was selected during configuring. Consequently, a very high reliability against false alarms is obtained.

When 50% of the alarm threshold is reached, a pre alarm is signaled (displayed in the event database of the fire panel).

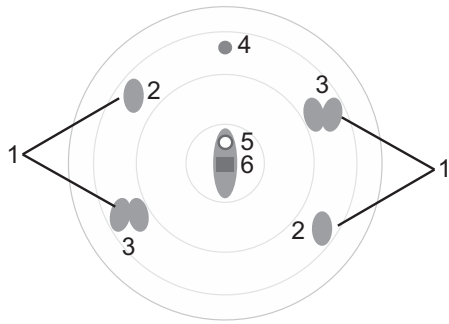
Optical sensor (smoke sensor)

The optical sensor (1) operates according to the scattered light method.

The LEDs (3) transmit light at a defined angle into the scattered light area (7).



In case of fire, the light is scattered by the smoke particles and strikes the photo diodes (2), which transform the quantity of light into a proportional electrical signal.



Interference effects from daylight and commercial lighting sources are filtered out with an optical daylight filter and by the use of electronic filtering and phase-locked rectification (ambient light stability: glare test DIN EN 54-7).

The various light-emitting and photo diodes of the sensor are individually controlled by the detector electronics. Consequently, signal combinations are produced that are independent of each other and ideally suitable for the detection of smoke, which makes it possible to differentiate between smoke and interference agents (insects, objects). In addition, the time characteristics and the correlation of the optical sensor signals for the fire or interference detection are evaluated.

Moreover, plausibility checking of the various signals makes it possible to detect errors in the analysis electronics and the LEDs.

Chemical sensor (CO gas sensor)

The gas sensor (4) detects mainly the carbon monoxide (CO) that is produced by a fire, but it also detects hydrogen (H) and nitrogen monoxide (NO).

The basic measuring principle is CO oxidation on an electrode and the measurable current that arises from this. The sensor signal value is proportional to the concentration of gas.

The gas sensor delivers additional information to effectively suppress deceptive values.

The CO sensor is monitored by measuring the internal capacity. If the capacity lies outside the permitted range, an error message is output on the fire panel. In this case, the detector continues to operate purely as a scattered light smoke detector.

Depending on the service life of the gas sensor, the FAP-OC 520 Fire Detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Pollution sensor

The contamination level on the detector surface is continually measured by the pollution sensor (6); the result is evaluated and indicated in three stages on the fire panel.

Contamination of the detector surface leads to active adaptation of the threshold (drift compensation) and to a fault indication in the case of heavy contamination.

Improved LSN features

The 520 Series Fire Detectors offer all the features of the improved LSN technology:

- Flexible network structures, including "T-tapping" without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing selectable via rotary switch, in each case with or without auto-detection
- Power supply for connected elements via LSN bus up to 300 mA
- Unscreened fire detection cable can be used
- Cable length up to 1000 m
- Downwards compatibility to existing LSN systems and control panels.

In addition, the FAP-520 Fire Detectors offer all the established benefits of LSN technology. The following data can be read out for each configured detector:

- Serial number
- Contamination level of the optical section,
- Operating hours
- Current analog values.

In the event of an alarm, individual detector identification is transmitted to the fire panel.

The sensor is self-monitoring. The following errors are indicated on the fire panel:

- Failure of the evaluation electronics or one of the LEDs on the optical sensor
- Heavy contamination (instead of false alarm)
- Failure of the CO sensor (in the case of FAP-OC 520).

Further performance characteristics

Various operating states are indicated on the detector by means of a clearly visible two-color LED. In the event of an alarm, the LED flashes red.

The control of an external detector alarm display is possible.

Preservation of the LSN loop function is guaranteed in the event of wire interruption or short circuit by means of integrated isolators.

The innovative detector locking, which operates on the ballpoint-pen principle, provides fast and simple insertion and replacement of the detector. We recommend the specially developed FAA-500-RTL exchanger device, especially in the case of high installation heights.

To allow convenient detector testing, the FAA-500-TTL test adapter with magnet and additional service accessories is available. The magnet triggers a reed contact, which sets the detector in test mode.

Certifications and Approvals

Complies with

- EN54-7:2000/A1:2002/A2:2006
- EN54-17:2005

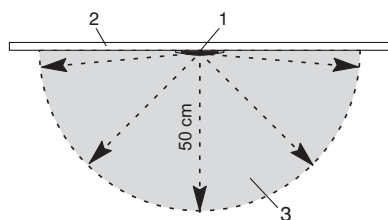
Region	Certification	
Europe	CE	FAP-520 / FAA-500-R
	CPD	0786-CPD-20201 FAP-O 520 / 520-P 0786-CPD-20202 FAP-OC 520 / 520-P
Germany	VdS	G 205125 FAP-O 520/520-P G 205119 FAP-OC 520/520-P
Poland	CNBOP	2565/2007 FAP-O 520, FAP-O 520-P 2566/2007 FAP-OC 520, FAP-OC 520-P
Hungary	TMT	TMT-20/2006 FAP-O 520, FAP-O 520-P TMT-21/2006 FAP-OC 520, FAP-OC 520-P
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200 with the improved LSN system parameters
- in "Classic Mode" can be connected to the LSN fire panels BZ 500 LSN, UEZ 2000 LSN, UGM 2020 and to other panels or their receiver modules with identical connection conditions, although with the previous LSN system parameters
- The detectors and detector bases can be used together with the „Rotaris“ lamp by Philips.
- The detectors must be installed exclusively in the FAA-500 LSN Bases provided. In addition, the detector base must be installed in an FAA-500-BB Ceiling Mount Back Box or in an FAA-500-SB Surface Mount Back Box.

Note For flush ceiling mounting with FAA-500-BB: The false ceiling may have a maximum thickness of 32 mm. Above the false ceiling, a free height of at least 110 mm is required.

- The detectors are not intended for outdoor use.
- A hemispherical space with a radius of 50 cm must remain free below the detectors.



- 1 Detector
2 Ceiling
3 Hemispherical space below the detector

- Care must be taken to ensure that neither people, large animals, plants, swinging doors nor any objects intrude into this area and that no parts of the detector surface become covered.
- The detectors may only be installed in a position which is out of arm's reach. We therefore recommend a minimum installation height of 2.70 m.
- The detectors may not be installed in rooms in which data is transmitted by means of high-intensity infrared light (e.g. in rooms with IR systems for interpreters).
- The detectors must be mounted so that they are not exposed to any direct sunlight.

- A minimum distance of 50 cm from lamps must be maintained. The detectors may not be mounted in a cone of light from lamps.
- The bases are equipped as standard with a spring which is suitable for installation of the detector in false ceilings. When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger springs FAA-500-SPRING with red markings.
- Maximum permitted air speed: 20 m/s
- Country-specific standards and guidelines must be observed during the planning phase.

Installation/configuration notes in accordance with VdS/VDE

- The FAP-OC 520, like the FAP-O 520, is planned according to the guidelines for optical detectors (see DIN VDE 0833 Part 2 and VDS 2095).

Parts Included

Detector type	Qty.	Components
FAP-O 520	1	Optical Smoke Detector, White
FAP-O 520-P	1	Optical Smoke Detector, Transparent with Color Inserts
FAP-OC 520	1	Multisensor Detector Optical/Chemical, White
FAP-OC 520-P	1	Multisensor Detector Optical/Chemical, Transparent with Color Inserts

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	< 3.26 mA
Alarm output	Per data word by two-wire signal line
Indicator output	Open collector connects 0 V over 1.5 kΩ through, max. 15 mA

Mechanics

Dimensions	
• Detector	Ø 113 x 55 mm
• Detector with Trim Ring	Ø 150 x 55 mm
• Detector with Trim Ring, Base and Ceiling Mount Back Box	Ø 150 x 110 mm
Housing material	Polycarbonate
Color	
• Detector housing	Signal white, RAL 9003
• Detector front plate FAP-O 520/ FAP-OC 520	signal white matt
• Detector front plate FAP-O 520-P/ FAP-OC 520-P	transparent/silver-gray
Weight	
• FAP-OC 520(-P)	180 g / 370 g
• FAP-O 520(-P)	170 g / 360 g
• Trim Ring	30 g / 60 g

Environmental conditions

Permissible operating temperature

- FAP-O 520 (-P) -20 °C to +65 °C
- FAP-OC 520 (-P) -10 °C to +50 °C

Permissible relative humidity 95% (non-condensing)

Permissible air speed 20 m/s

Protection class as per EN 60529

- FAP-O 520 (-P) IP 53
- FAP-OC 520 (-P) IP 33

PlanningMonitoring area Max. 120 m² (Heed local guidelines!)

Maximum installation height 16 m (Heed local guidelines!)

Minimum installation height Out of arm's reach
Minimum installation height recommended by BOSCH: 2.70 m

Minimum distance to lamps 0.5 m

For flush ceiling mounting with FAA-500-BB

- Thickness of the false ceiling Max. 32 mm
- Required bored hole Ø 130 mm (-1 mm to +5 mm)
- Installation depth 110 mm
Note: Above the false ceiling, a free height of at least 110 mm is required.

Further characteristics

Detection principle

- FAP-O 520(-P) Scattered light measurement
- FAP-OC 520(-P) Combination of scattered light measurement and combustion gas measurement

Response sensitivity

- FAP-O 520(-P) < 0.18 dB/m (EN 54-7)
- FAP-OC 520(-P) Optical section: < 0.36 dB/m (EN 54-7)
Gas sensor section: in ppm range

Individual display Two-color LED, red (alarm), green (test mode)

Ordering Information**Accessories****FAA-500-TR-W Trim Ring, White** **FAA-500-TR-W**
for 500 and 520 Series Fire Detectors**FAA-500-TR-P Trim Ring, Transparent with Color Inserts** **FAA-500-TR-P**
for 500 and 520 Series Fire Detectors**FAA-500 LSN Base** **FAA-500**
for installation of the FAP-520 Fire Detector**FAA-500-R LSN Base with Relay** **FAA-500-R**
Only used in conjunction with the 5000 Series Modular Fire Panel.**FAA-500-GB LSN Base for GB** **FAA-500-GB****FAA-500-R-GB LSN Base with Relay for GB** **FAA-500-R-GB**
Only used in conjunction with the 5000 Series Modular Fire Panel.**FAA-500-BB Ceiling Mount Back Box** **FAA-500-BB**
for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors**FAA-500-CB Built-in Housing for Concrete Ceilings** **FAA-500-CB****FAA-500-SB Surface Mount Back Box** **FAA-500-SB****FAA-500-SB-H Surface Mount Back Box with Damp Room Seal** **FAA-500-SB-H****FAA-500-SPRING for Concrete/Wooden Ceilings** **FAA-500-SPRING**
(DU = 10 units)**Ordering Information****FAP-O 520 Optical Smoke Detector, White** **FAP-O 520****FAP-O 520-P Optical Smoke Detector, Transparent with Color Inserts** **FAP-O 520-P****FAP-OC 520 Multisensor Detector Optical/Chemical, White** **FAP-OC 520****FAP-OC 520-P Multisensor Detector Optical/Chemical, Transparent with Color Inserts** **FAP-OC 520-P**

FAP-520 Automatic Fire Detectors LSN improved version

**FAP-O 520****FAP-O 520-P****FAP-OC 520****FAP-OC 520-P**

	FAP-O 520	FAP-O 520-P	FAP-OC 520	FAP-OC 520-P
Detector type	optical	optical	optical/chemical	optical/chemical
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	< 3.26 mA	< 3.26 mA	< 3.26 mA	< 3.26 mA
Protection category	IP 53	IP 53	IP 33	IP 33
Permissible operating temperature	-20 °C . . . +65 °C	-20 °C . . . +65 °C	-10 °C . . . +50 °C	-10 °C . . . +50 °C
Monitoring area	max. 120 m ²	max. 120 m ²	max. 120 m ²	max. 120 m ²
Maximum installation height	16 m	16 m	16 m	16 m
Color	white	transparent with color inserts	white	transparent with color inserts

FAP-420/FAH-420 Automatic Fire Detectors LSN improved version



Features

- **Combination of optical, thermal and chemical sensors with intelligent evaluation electronics.**
- **Detector properties adapted to cater for room usage**
- **Drift compensation in optical and gas measurement section**
- **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**
- **Extended system parameters of improved LSN technology**

The 420 Series Automatic Fire Detectors combine the advantages of the improved LSN technology with the performance characteristics of the proven MAGIC.SENS Fire Detectors, which are distinguished by superb accuracy as well as detection speed and precision. These have been specially designed for connection to the Local SecurityNetwork LSN improved version with the significantly improved system parameters. Integrated turning switches ensure easy addressing of detectors, either automatically or manually, as well as with or without autodetection.

System Overview

Operating mode	Detector type			
	FAP-OTC 420	FAP-OT 420	FAP-O 420(KKW)	FAH-T 420(KKW)
Combined	x	x	-	-
Optical	x	x	x	-
Thermo-max.	x	x	-	x
Thermal differential	x	x	-	x
Chemical (+ optical)	x	-	-	-

Functions

Sensor technology and signal processing

The individual sensors can be configured via the LSN network manually or using a timer.

All sensor signals are analyzed continually by the internal evaluation electronics and are linked with each other via an inbuilt microprocessor. The link between the sensors means that the combined detectors can also be used where light smoke, steam or dust must be expected during the course of normal operation.

Only if the signal combination corresponds to that for the programming of the selected usage site field code will the alarm be triggered automatically. This results in a higher level of security against false alarms.

In addition, the time curve for fire and malfunction detection sensor signals is also analyzed, resulting in increased reliability of detection for each individual sensor.

In the case of the optical and chemical sensor, the response threshold (drift compensation) is actively adjusted. Manual or time-controlled switch-off of individual sensors is required for adjustment to extreme interference factors.

Optical sensor (smoke sensor)

The optical sensor uses the scattered-light method.

An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

Thermal sensor (temperature sensor)

A thermistor in a resistance network is used as a thermal sensor, from which an analog-digital converter measures the temperature-dependent voltage at regular intervals.

Depending on the specified detector class, the temperature sensor triggers the alarm status when the maximum temperature of 54 °C or 69 °C is exceeded (thermal maximum), or if the temperature rises by a defined amount within a specified time (thermal differential).

Chemical sensor (CO gas sensor)

The main function of the gas sensor is to detect carbon monoxide (CO) generated as a result of a fire, but it will also detect hydrogen (H) and nitrous monoxide (NO). The sensor signal value is proportional to the concentration of gas. The gas sensor delivers additional information to effectively suppress deceptive values.

Depending on the service life of the gas sensor, the FAP-OTC 420 detector switches off the C sensors after five years of operation. The detector will continue to function as an OT detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OTC detector.

Improved LSN features

The 420 Series Fire Detectors offer all the features of the improved LSN technology:

- Flexible network structures, including "T-tapping" without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing selectable via rotary switch, in each case with or without auto-detection
- Power supply for connected elements via LSN bus up to 300 mA
- Unscreened fire detection cable can be used
- Cable length up to 1000 m
- Downwards compatibility to existing LSN systems and central units

LSN features

Operating data display

In addition, the FAP/FAH-420 detectors offer all the established benefits of LSN technology. RPS or WinPara software can be used to change the detection characteristics of the respective room utilization. In addition, each configured detector, with the exception of the KKW types, can provide the following data:

- Serial number,
- Contamination level of the optical section,
- Operating hours,
- Current analog values.

Analog values are:

- Optical system values: current measured value of the scattered light sensor; the measuring range is linear and covers from 170 (new) to 700 (dirty).
- Contamination: the contamination value shows how much the current contamination value has increased relative to the original condition.
- CO value: display of the current measured value (max. 550).

Self-monitoring of sensor technology

The sensor is self-monitoring. The following errors are indicated on the fire panel:

- Fault indication in the event of the failure of the detector electronics
- Continuous display of contamination level during service
- Fault indication if heavy contamination is detected (in place of false alarms)

In the event of wire interruption or short-circuit, integrated dividing elements maintain the functional security of the LSN loop.

In the event of an alarm, individual detector identification is transmitted to the fire panel.

Further performance characteristics

The detectors have a dust-repellent labyrinth and cap construction.

The detector alarm indication takes the form of a red flashing LED that is easily visible 360°.

It is possible to activate a remote external detector alarm display.

The stable and robust detector base no longer has to be directed due to the centralized position of the individual display.

The integrated strain relief for interfloor cables prevents the removal of cables from the terminal after installation. The terminals for cable cross-sections up to 2.5 mm² are very easily accessible.

The detector bases have a mechanical removal lock (can be activated/deactivated).

Certifications and Approvals

The detectors comply with:

Region	Certification	
Europe	CE	FAP-/FAH-420 / FAA-MSR420 / FAA-MS-R-SP
		FAP- / FAH-420 KKW
	CPD	0786-CPD-20129 FAH-T 420
		0786-CPD-20128 FAH-T 420 KKW
		0786-CPD-20117 FAP-O 420
		0786-CPD-20125 FAP-O 420 KKW
		0786-CPD-20118 FAP-OT 420
		0786-CPD-20119 FAP-OT 420
		0786-CPD-20120 FAP-OTC 420
		0786-CPD-20121 FAP-OTC 420
Germany	VdS	G 205080 FAP-OTC 420
		G 205081 FAP-OT 420
		G 205082 FAP-O 420
		G 205083 FAH-T 420
		G 205088 FAP-O 420 KKW
		G 205089 FAH-T 420 KKW
Turkey	TSE	14.10.01/TSE-6990 Detectors

Region	Certification		
Hungary	TMT	TMT-19/2006 FAP-OT 420, FAP-OT 420 KKW, FAP-OTC 420	
		TMT-17/2006 FAP-O 420, FAP-O 420 KKW	
		TMT-18/2006 FAH-T 420, FAH-T 420 KKW	
Russia	GOST	POCC DE.C313B06300	
Detector type	EN54-5:2000/ A1:2002	EN54-7:2000/ A1:2002/ A2:2006	EN54-17:2005
FAP-OTC 420	□	□	□
FAP-OT 420	□	□	□
FAP-O 420		□	□
FAH-T 420	□		□
FAP-O 420 KKW	□	□	□
FAH-T 420 KKW	□		□

Installation/Configuration Notes

- For connection to the fire panels FPA-5000 and FPA-1200 with the improved LSN system parameters
- in "Classic Mode" can be connected to the LSN fire panels BZ 500 LSN, UEZ 2000 LSN, UGM 2020 and to other panels or their receiver modules with identical connection conditions, although with the previous LSN system parameters
- During planning works, it is essential to adhere to national standards and guidelines.

Installation/configuration notes in accordance with VdS/VDE

- The FAP-OTC 420, and FAP-OT 420 types are planned in accordance with the guidelines for optical detectors if operated as optical detectors or as combined optical/thermal detectors (see DIN VDE 0833 Part 2 and VDS 2095)
- If occasional disconnection of the optical unit (scattered light sensor) is required, planning must be based on the guidelines for heat detectors (see DIN VDE 0833 Part 2 and VDS 2095)
- When planning fire barriers according to DIBt, note that the FAH-T 420 (KKW) must be configured in accordance with class A1R.

Parts Included

Detector type	Qty.	Components
FAP-OTC 420	1	Multisensor Detector Optical/Thermal/Chemical
FAP-OT 420	1	Multisensor Detector Optical/Thermal
FAP-O 420	1	Optical Smoke Detector
FAH-T 420	1	Heat Detector (Thermal Differential/Thermal Maximum)
FAP-O 420 KKW	1	Optical Smoke Detector *
FAH-T 420 KKW	1	Heat Detector (Thermal Differential/Thermal Maximum) *

* For use in areas with increased radioactive radiation

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	< 0.51 mA
Alarm output	Per data word by two-wire signal line
Indicator output	Open collector connects 0 V over 1.5 kΩ through, max. 15 mA

Mechanics

Dimensions	
• Without base	Ø 99.5 x 52 mm
• With base	Ø 120 x 63.5 mm
Housing	
• Material	Plastic, ABS (Novodur)
• Color	White, similar to RAL 9010, matt finish
Weight	
• FAP-OTC 420	Approx. 80 g / approx. 125 g
• FAP-OT 420, FAP-O 420, FAP-O 420 KKW, FAH-T 420 and FAH-T 420 KKW	Approx. 75 g / approx. 115 g

Environmental conditions

Permissible operating temperature	
• FAP-OTC 420	-10 °C to +50 °C
• FAP-OT 420	-20 °C to +50 °C
• FAP-O 420 / FAP-O 420 KKW	-20 °C to +65 °C
• FAH-T 420 / FAH-T 420 KKW	-20 °C to +50 °C
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s.
Protection class as per EN 60529	IP 40, IP 43 detector base with damp room seal

Planning

Monitoring area

- FAP-OTC 420, FAP-OT 420, FAP-O 420, FAP-O 420 KKW Max. 120 m² (Heed local guidelines!)

- FAH-T 420, FAH-T 420 KKW Max. 40 m² (Heed local guidelines!)

Maximum installation height

- FAP-OTC 420, FAP-OT 420, FAP-O 420, FAP-O 420 KKW Max. 16 m (Heed local guidelines!)

- FAH-T 420, FAH-T 420 KKW Max. 7.5 m (Heed local guidelines!)

Further characteristics

Response sensitivity

- Optical part In accordance with EN 54 T7 (programmable)
- Thermal maximum part > 54 °C / >69 °C
- Thermal differential part A1R / A2R / BR, in line with prEN 54-5 (programmable)
- Gas sensor In ppm range

Individual display

LED red

Color code

- FAP-OTC 420 Yellow loop
- FAP-OT 420 Black loop
- FAP-O 420, FAP-O 420 KKW No marking
- FAH-T 420, FAH-T 420 KKW Red loop

Ordering Information

FAP-OTC 420 Multisensor Detector Optical/Thermal/Chemical **FAP-OTC 420**

FAP-OT 420 Multisensor Detector Optical/Thermal **FAP-OT 420**

FAP-O 420 Optical Smoke Detector **FAP-O 420**

FAH-T 420 Heat Detector **FAH-T 420**
thermal differential/thermal maximum

FAP-OT 420 KKW multisensor detector optical/thermal **FAP-OT420-KKW**

FAP-O 420 KKW Optical Smoke Detector **FAP-O420-KKW**
for use in areas with increased radioactive radiation

FAH-T 420 KKW Heat Detector **FAH-T420-KKW**
thermal differential/thermal maximum, for use in areas with increased radioactive radiation

Ordering Information

Accessories

MS 400 Detector Base **MS 400**
for surface-mounted and flush-mounted cable feed

MSF 400 Detector Base with Damp Room Seal **MSF 400**
for surface-mounted and flush-mounted cable feed

MSC 420 Additional Base with Damp Room Seal **MSC 420**
for surface-mounted cable feed

FAA-MSR 420 Detector Base with Relay **FAA-MSR 420**

FAA-MS 420-R-SP Detector Base with Relay and Spring **FAA-MS 420-R-SP**
for use in Great Britain

MS 420 LSN Detector Base with Spring **MS 420**
for use in Great Britain

SSK 400 Protective Dust Cover **SSK 400**
(packing unit = 10 units)

TP4 400 Support Plate for Detector Identification **TP4 400**
(packing unit = 50 units)

TP8 400 Support Plate for Detector Identification **TP8 400**
(packing unit = 50 units)

SK 400 Protective Basket **SK 400**

MH 400 Detector Heating Element **MH 400**

MK 400 Detector Console **MK 400**
Console for DIBt compliant mounting of detectors above doors etc., including detector base

Mounting Bracket for Fire Detectors on False Floor Stilts **FMX-DET-MB**

MPA External Detector Alarm Display **MPA**
according to DIN 14623

FAP-420/FAH-420 Automatic Fire Detectors LSN improved version**FAP-O 420****FAP-O420-KKW****FAH-T 420**

Detector type	optical	optical	thermal differential/thermal maximum
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	< 0.51 mA	< 0.51 mA	< 0.51 mA
Protection category	IP 40, IP 43 with MSF 400	IP 40, IP 43 with MSF 400	IP 40, IP 43 with MSF 400
Permissible operating temperature	-20 °C . . . +65 °C	-20 °C . . . +65 °C	-20 °C . . . +50 °C
Monitoring area	max. 120 m ²	max. 120 m ²	max. 40 m ²
Maximum installation height	16 m	16 m	7.5 m
Use in areas with increased radio-active radiation	–	•	–
Color code	no marking	no marking	red loop

FAP-420/FAH-420 Automatic Fire Detectors LSN improved version

**FAH-T420-KKW****FAP-OT 420****FAP-OTC 420**

Detector type	thermal differential/thermal maximum	optical/thermal	optical/thermal/chemical
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	< 0.51 mA	< 0.51 mA	< 0.51 mA
Protection category	IP 40, IP 43 with MSF 400	IP 40, IP 43 with MSF 400	IP 40, IP 43 with MSF 400
Permissible operating temperature	-20 °C . . . +50 °C	-20 °C . . . +50 °C	-10 °C . . . +50 °C
Monitoring area	max. 40 m ²	max. 120 m ²	max. 120 m ²
Maximum installation height	7.5 m	16 m	16 m
Use in areas with increased radio-active radiation	•	–	–
Color code	red loop	black loop	yellow loop

FAA-500-TR-W Trim Ring, White



White Trim Ring for 500 und 520 Series Fire Detectors

Ordering Information

FAA-500-TR-W Trim Ring, White
for 500 and 520 Series Fire Detectors

FAA-500-TR-W

FAA-500-TR-P Trim Ring, Transparent with Color Inserts



Trim Ring for the "transparent with color inserts" Fire Detectors in the 500 and 520 Series



Ordering Information

FAA-500-TR-P Trim Ring, Transparent with Color Inserts
for 500 and 520 Series Fire Detectors

FAA-500-TR-P

FAA-500 LSN Base



6

FAA-500 LSN Bases are required for installing FAP-520 Fire Detectors.

Functions

The screw-type terminals guarantee a secure electrical connection through the clamped contacts when mounting the FAP-520 Fire Detector.

The Bases are provided with three holders for cable ties.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06300

Technical Specifications

Connections	Power supply (0 V, + V) LSN (a-in/out, b-in, b-out) C point Shielding
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight	185 g/270 g (without/with packaging)

Ordering Information

FAA-500 LSN Base for installation of the FAP-520 Fire Detector	FAA-500
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FAA-500-R LSN Base with Relay



Ordering Information

FAA-500-R LSN Base with Relay

Only used in conjunction with the 5000 Series Modular Fire Panel.

FAA-500-R

FAA-500-R LSN Bases with Relay are used for installing the FAP-520 Fire Detectors in special applications, e. g. control of an emergency door in accordance with DIBt.

Note FAA-500 R Bases can only be used in conjunction with the 5000 Series Modular Fire Panel.

Certifications and Approvals

Region	Certification	
Europe	CE	FAP-520 / FAA-500-R
Russia	GOST	POCC DE.C313B06300

Technical Specifications

Connections	Power supply (0 V, + V) LSN (a-in/out, b-in, b-out) C point Shielding Relay (NO, NC, COM)
Power intake	0.2 mA
Relay contact load	1 A, 30 V DC
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight	210 g/290 g (without/with packaging)

FAA-500-GB LSN Base for GB



FAA-500-R-GB LSN Base with Relay for GB



FAA-500-GB LSN Bases for GB are required for installing the FAP-520 Fire Detectors in Great Britain. They are provided with integrated jumper elements that preserve the loop function if the detector is removed.

Technical Specifications

Special feature	Jumper elements to preserve the loop function if the detector is removed
Connections	Power supply (0 V, + V) LSN (a-in/out, b-in, b-out) C point Shielding
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight	200 g/280 g (without/with packaging)

Ordering Information

FAA-500-GB LSN Base for GB

FAA-500-GB

The FAA-500-R-GB LSN Base with Relay for GB has integrated jumper elements for use with FAP-520 Fire Detectors in Great Britain. It also has a relay for special applications, e. g. control of an emergency door in accordance with DIBt.

Jumper elements ensure that the loop function is preserved if the detector is removed.

Note FAA-500-R-GB Bases can only be used in conjunction with the 5000 Series Modular Fire Panel.

Technical Specifications

Special feature	Jumper elements to preserve the loop function if the detector is removed
Connections	Power supply (0 V, + V) LSN (a-in/out, b-in, b-out) C point Shielding Relay (NO, NC, COM)
Power intake	0.2 mA
Relay contact load	1 A, 30 V DC
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight	200 g/280 g (without/with packaging)

Ordering Information

FAA-500-R-GB LSN Base with Relay for GB
Only used in conjunction with the 5000 Series
Modular Fire Panel.

FAA-500-R-GB

FAA-500-BB Ceiling Mount Back Box



The FAA-500-BB Ceiling Mount Back Box is necessary for flush ceiling installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors.

Technical Specifications

Mounting dimensions

- Maximum thickness of the false ceiling 32 mm
- Mounting height 11 cm
- Required bore hole $\varnothing$ 130 mm (-1 mm/+5 mm)

Max. cable diameter 1.4 cm

Dimensions $\varnothing$ 140 x 104 mm

Housing material Polycarbonate

Housing color White

Weight (without/with packaging) 100 g/200 g

Ordering Information

FAA-500-BB Ceiling Mount Back Box
for ceiling flush installation in false ceilings
when mounting 500 and 520 Series Bases and
Fire Detectors

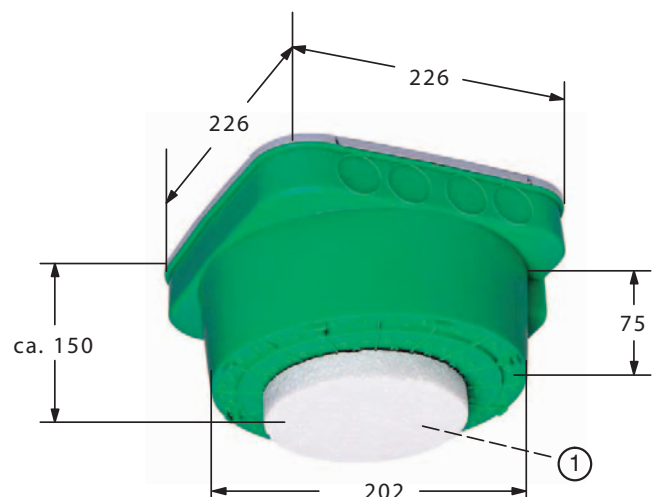
FAA-500-BB

FAA-500-CB Built-in Housing for Concrete Ceilings



FAA-500-CB Built-in Housings are used to install 500 and 520 Series Fire Detectors in concrete ceilings. These make it possible to position cable ducts with ease and precision. A Ceiling Mount Back Box is installed in the Built-in Housing which receives the base and the detector.

System Overview



Pos.	Description
1	Front part

Ordering Information

FAA-500-CB Built-in Housing for Concrete Ceilings

FAA-500-CB

FAA-500-SB Surface Mount Back Box



FAA-500-SB-H Surface Mount Back Box with Damp Room Seal



For special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling, Surface Mount Back Boxes are available.

This is used as an alternative to the Ceiling Mount Back Box. The Surface Mount Back Boxes are designed for flush-mounted cable feed and surface-mounted cable feed with cable protection conduits.

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
 - Each 25 mm (1.0 inch) for 3/4" cable protection conduit
- In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 80 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight	Approx. 195 g/300 g (without/with packaging)

Ordering Information

FAA-500-SB Surface Mount Back Box

FAA-500-SB

For special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling, Surface Mount Back Boxes are available.

This is used as an alternative to the Ceiling Mount Back Box. The Surface Mount Back Boxes are designed for flush-mounted cable feed and surface-mounted cable feed with cable protection conduits.

The FAA-500-SB-H has an additional seal for damp rooms.

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
 - Each 25 mm (1.0 inch) for 3/4" cable protection conduit
- In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 82 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight (without/with packaging)	Approx. 225 g/330 g

Ordering Information

**FAA-500-SB-H Surface Mount Back Box
with Damp Room Seal**

FAA-500-SB-H

FAA-500-SPRING for Concrete/Wooden Ceilings



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DU = 10 units

The bases of the 500 Series are fitted with spring as standard. This is suitable for installing the detector in false ceilings.

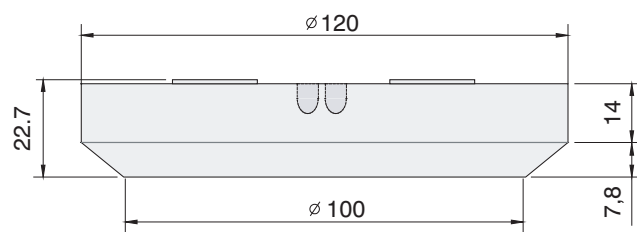
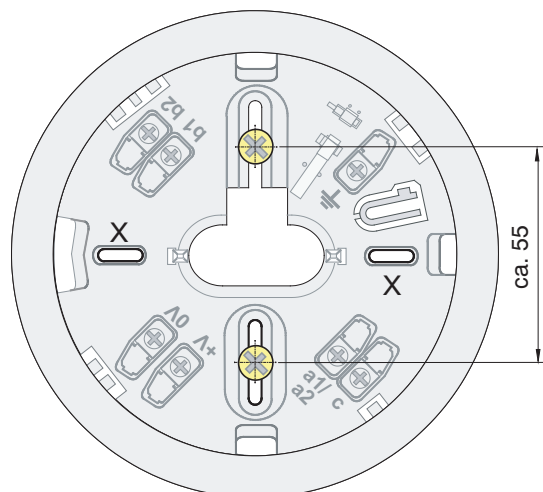
When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger FAA-500-SPRING springs with red markings.

Ordering Information

**FAA-500-SPRING for Concrete/Wooden
Ceilings**
(DU = 10 units)

FAA-500-SPRING

MS 400 Detector Base



The detector head is installed in the Detector Base MS 400. The base is suitable for surface-mounted cable feeds as well as for flush-mounted cable feeds, and has separate attachment points for ceiling mount/flush-mounted back boxes. In addition, it fits all standard bore patterns.

The Detector Base made of white ABS plastic (Novodur, color similar to RAL 9010) has a matt finish and seven terminal screws to connect the detector and its features to the fire panel.

Contacts connected to the terminals guarantee a secure electric connection when the detector module is installed. Cables up to 2.5 mm² in diameter can be used.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding
Housing material	ABS (Novodur)
Housing color	Similar to RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	72 g

Certifications and Approvals

Region	Certification
Russia	GOST POCC DE.C313B06298

Installation/Configuration Notes

Installation information for 400/420 Series Detector Bases

- The drill holes marked with an "X" may only be used to mount the base to flush-mounted back boxes.
- Keep shielded auxiliary wire as short as possible, and make sure this is insulated.

Ordering Information

MS 400 Detector Base for surface-mounted and flush-mounted cable feed	MS 400
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MSF 400 Detector Base with Damp Room Seal

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The MSF 400 Detector Base is available for use of the detector in a humid environment.

With the integrated seal made of TPE, the detector base MSF 400 protects the detector effectively against the entry of condensation water.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

Installation/Configuration Notes

Installation information for damp room seal

- **Do not cut into** the damp room seal on the cable feeds. Instead, pierce these using a pointed implement, and then draw the cable through.

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding
Housing	
• Base material	ABS (Novodur)
• Seal material	TPE
• Base color	Similar to RAL 9010
Dimensions	Ø 120 x 24.7 mm
Weight	90 g

Ordering Information

MSF 400 Detector Base with Damp Room Seal **MSF 400**

for surface-mounted and flush-mounted cable feed

MS 420 LSN Detector Base with Spring



6

The MS 420 LSN is a detector base designed for use in Great Britain

This can be used to mount the MAGIC.SENS LSN Detector as well as detectors from the 420 Series, and has integrated jumper elements that preserve the loop function if the detector is removed.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06300

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding
Housing material	ABS (Novodur)
Housing color	Similar RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	72 g

Ordering Information

MS 420 LSN Detector Base with Spring for use in Great Britain	MS 420
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FAA-MSR 420 Detector Base with Relay

Ordering Information

FAA-MSR 420 Detector Base with Relay

FAA-MSR 420



6

The FAA-MSR 420 is a detector base with a change-over relay (Form C).

Note FAA-MSR 420 relay bases can only be used in conjunction with improved LSN technology (fire panels FPA-5000 and FPA-1200).

To protect against unauthorized removal, the detector head can be secured with a variable locking.

The maximum contact load of the relay is 1 A @ 30 V DC.

Certifications and Approvals

Region	Certification	
Europe	CE	FAP-/FAH-420 / FAA-MSR420 / FAA-MS-R-SP
Russia	GOST	POCC DE.C313B06300

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding Relay (NO, C, NC)
Relay contact load capacity	1 A @ 30 V DC
Housing material	ABS (Novodur)
Housing color	Similar RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	82 g

FAA-MS 420-R-SP Detector Base with Relay and Spring

Ordering Information

FAA-MS 420-R-SP Detector Base with Relay and Spring
for use in Great Britain

FAA-MS 420-R-SP



6

The FAA-MS 420-R-SP is a relay base for use in Great Britain. It is equipped with a change-over relay (form C) for DIBt connections as well as with integrated jumper elements that preserve the loop function if the detector is removed.

Note FAA-MS 420-R-SP relay bases can only be used in conjunction with improved LSN technology (fire panels FPA-5000 and FPA-1200).

To protect against unauthorized removal, the detector head can be secured with a variable locking.

The maximum contact load of the relay is 1 A @ 30 V DC.

Certifications and Approvals

Region	Certification	
Europe	CE	FAP-/FAH-420 / FAA-MSR420 / FAA-MS-R-SP

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding Relay (NO, C, NC)
Relay contact load	1 A @ 30 V DC
Housing material	ABS (Novodur)
Housing color	Similar RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	82 g

MSC 420 Additional Base with Damp Room Seal



6

The Additional Base MSC 420 was conceived specially for surface-mounted cable feeds with cable protection conduits and has 2 opposing pre-cut inlets of 20 mm diameter and 2 additional opposing and prepared inlets for up to 28 mm diameter.

To protect against condensation water penetration, a seal made of TPE is situated on the base of the MSC 420.

Technical Specifications

Base material	ABS (Novodur)
Seal material	TPE
Base color	Similar to RAL 9010
Dimensions	Ø 120 x 36.7 mm
Weight	74 g

Ordering Information

MSC 420 Additional Base with Damp Room Seal **MSC 420**
for surface-mounted cable feed

MPA External Detector Alarm Display according to DIN 14623



Technical Specifications

Operating voltage 9 V DC ... 30 V DC

Current consumption for display

- T.2 Approx. 2 mA
- T.3 Limited to approx. 13 mA
- T.4 Limited to 20 mA maximum

Display medium 1 LED via a light guide

Permissible wire gauge 0.6 mm ... 0.8 mm

Dimensions 85 x 85 x 50 mm

Weight 65 g

Protection class as per IEC 60529 IP 40

Ordering Information

**MPA External Detector Alarm Display
according to DIN 14623**

MPA

The External Detector Alarm Display is required if the detector is not directly visible or has been mounted in false ceilings or false floors. The External Detector Alarm Display should be mounted in corridors or access pathways to the corresponding building sections or rooms.

The transparent red alarm display conforms to DIN 14623.

Certifications and Approvals

Region	Certification	
Europe	CE	MPA
Germany	VdS	G 294052 MPA
	PTB	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA
Poland	CNBOP	2095/2006 MPA
Russia	GOST	POCC DE.C313B06298

Installation/Configuration Notes

Note If unshielded cables are used, the cable length between a LSN detector and an External Detector Alarm Display is restricted to a maximum of 3 m.
If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the External Detector Alarm Display within one loop or stub).

FAA-420-RI Remote Indicator



Weight	45 g
Protection class as per IEC 60529	IP 40

Ordering Information

FAA-420-RI Remote Indicator

FAA-420-RI

The FAA-420-RI is an external detector alarm display and is required if the detector is not directly visible or has been mounted in false ceilings or false floors. The external detector alarm display should be mounted in corridors or access pathways of the corresponding building sections or rooms.

Certifications and Approvals

Region	Certification	
Europe	CE	FAA-420-RI
Russia	GOST	POCC DE.C313B06298

Installation/Configuration Notes

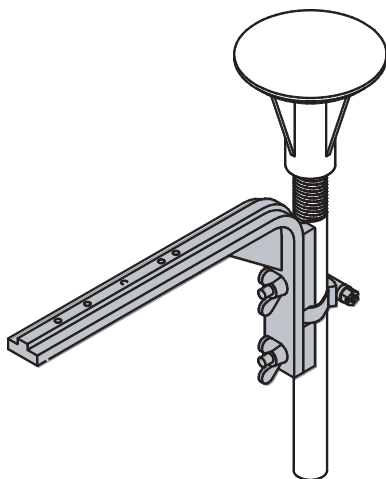
Note If unshielded cables are used, the cable length between an LSN detector and an external detector alarm display is restricted to a maximum of 3 m.

If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the external detector alarm display within one loop or stub).

Technical Specifications

Operating voltage	5 V DC ... 30 V DC
Maximum current consumption	20 mA
Display medium	2 LEDs
Permissible wire gauge	0.6 mm – 2.0 mm
Dimensions	84 x 84 x 35 mm

Mounting Bracket for Fire Detectors on False Floor Stilts



Mounting Bracket to mount the detector in floor cavities.
The detector base is **not** included in the scope of delivery.

Ordering Information

Mounting Bracket for Fire Detectors on
False Floor Stilts

FMX-DET-MB

MK 400 Detector Console



Console for DIBt compliant mounting of detectors above doors etc.

The detector base is included in the scope of delivery.

Planning notes

Dimensions (L x B x H): 185 x 129 x 29 mm (without base)

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06300

Ordering Information

MK 400 Detector Console

Console for DIBt compliant mounting of detectors above doors etc., including detector base

MK 400

MH 400 Detector Heating Element

The Detector Heating Element MH 400 is deployed at locations where the functional safety of the detector might be impaired by condensation (dew), e. g. in warehouses which are briefly opened in order to allow vehicles to enter and leave.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06300

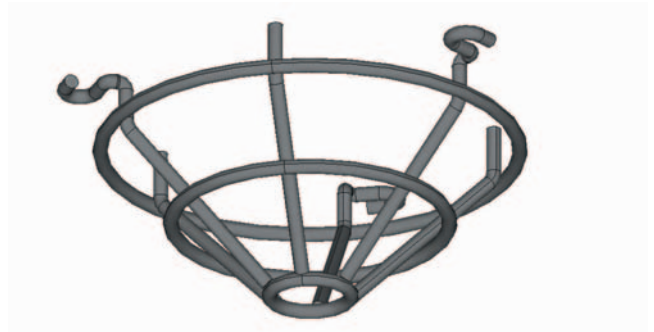
Installation/Configuration Notes

- The integrated 1 kΩ resistor has a nominal performance of 3 W. With a looped-through 28 V power supply (monitored), up to 10 Detector Heating Elements MH 400 can be deployed per loop.
- External power supply (not monitored) is possible.
- The supply voltage may not be permitted to fall below 23 V.

Ordering Information

MH 400 Detector Heating Element	MH 400
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SK 400 Protective Basket



In the case of installation of the detector e. g. in a sports hall, the Protective Basket prevents balls or other sports equipment hitting and possibly damaging the detector.

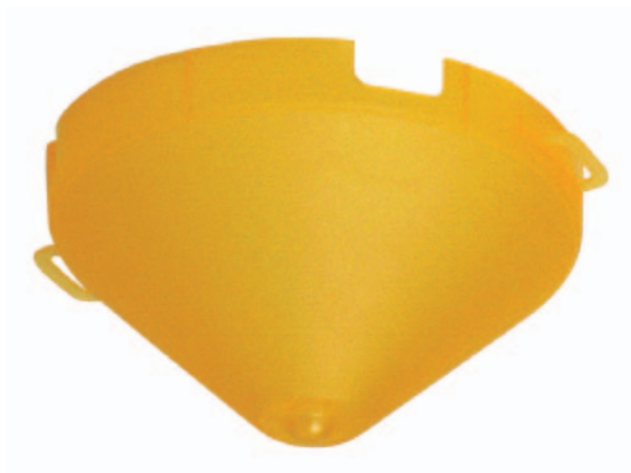
The robust Protective Basket consists of 5 mm round steel, and is painted aluminum gray (RAL 9007).

Diameter (max.): 148 mm
Height: 75 mm

Ordering Information

SK 400 Protective Basket	SK 400
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SSK 400 Protective Dust Cover



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Packing unit = 10 units

The Protective Dust Cover SSK 400 protects a mounted detector base – with or without detector head – against dirt during building work.

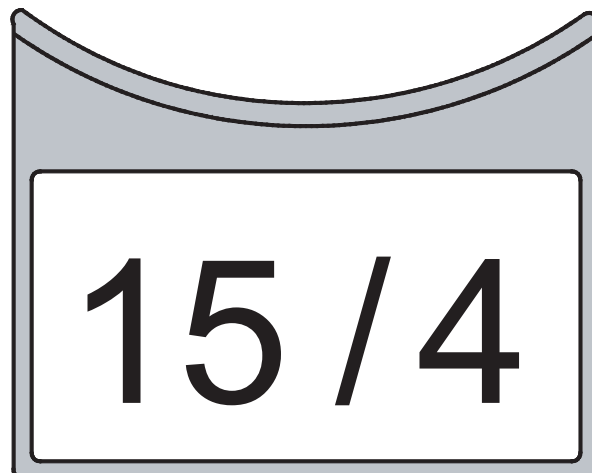
The Protective Dust Cover made of polypropylene (PP) is pushed onto the installed detector base.

Ordering Information

SSK 400 Protective Dust Cover
(packing unit = 10 units)

SSK 400

TP4 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 4 m and is configured for a self-adhesive label with dimensions of up to 65 x 34 mm.

Note

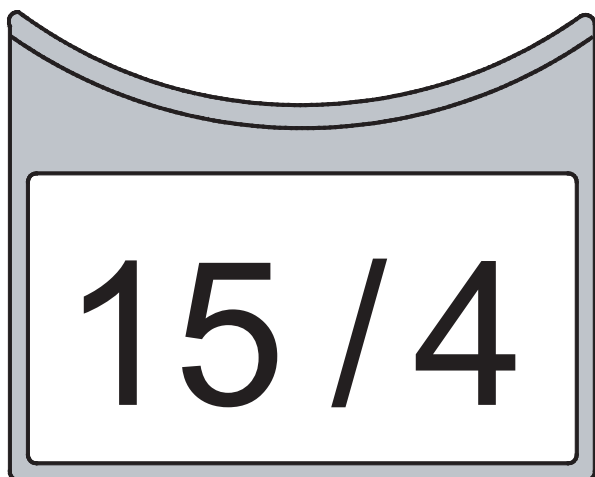
Labels by Zweckform have proven practical. The self-adhesive labels are made of white polyester film and can be labeled with a laser printer or copier.

Ordering Information

TP4 400 Support Plate for Detector Identification
(packing unit = 50 units)

TP4 400

TP8 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 8 m and is configured for a self-adhesive label with dimensions of up to 97 x 44 mm.

Note Labels by Zweckform have proven practical. The self-adhesive labels are made of white polyester film and can be labeled with a laser printer or copier.

Ordering Information

TP8 400 Support Plate for Detector Identification (packing unit = 50 units)	TP8 400
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LSN RF Fire Detection System



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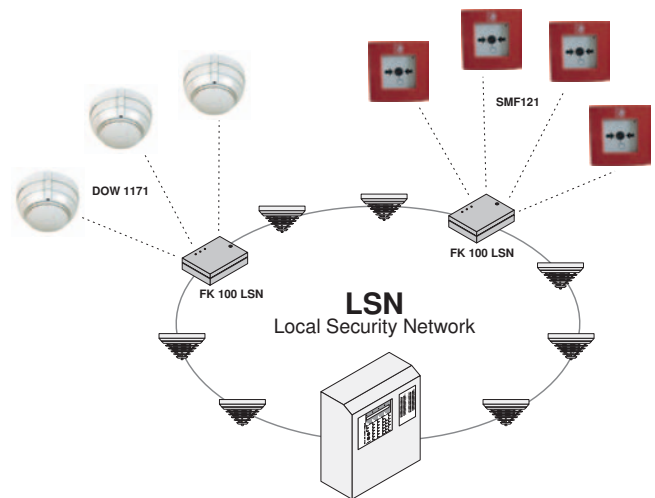
Features

- ▶ **Highly efficient thanks to simple installation, flexible expandability and automatic configuration**
- ▶ **High level of transmission and functional reliability**
- ▶ **Transmission path monitoring**
- ▶ **Optical RF Smoke Detector with outstanding interference immunity**
- ▶ **Up to 30 Optical RF Smoke Detectors or up to 10 RF Manual Call Points per RF Expansion Module can be connected**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**

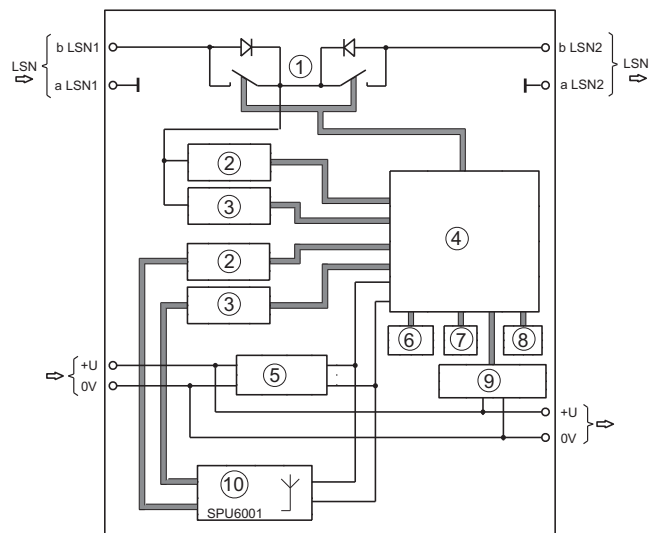
The LSN RF Fire Detection System operates in the new 868-870 MHz SRD (Short Range Devices) band, released exclusively for security technology. The SRD band does not interfere with long-range industrial, scientific and medical applications with high transmission power.

System Overview

LSN RF Fire Detection System



FK 100 LSN RF Expansion Module



Pos. Description

- | | |
|----|--|
| 1 | FET switch |
| 2 | Receiving data |
| 3 | Transmitting data |
| 4 | Microprocessor for data processing/data transfer |
| 5 | Voltage supply |
| 6 | Reed contact |
| 7 | LEDs |
| 8 | Tamper contact |
| 9 | Monitoring of external voltage supply |
| 10 | SPU6001 Radio module |

Functions

The LSN RF Fire Detection System (the radio cell) consists of an FK 100 LSN RF Expansion Module and up to 30 DOW 1171 Optical RF Smoke Detectors or up to 10 SMF121 RF Manual Call Points. The RF Expansion Module is installed as an LSN element in a loop or stub line and is the interface between the RF Smoke Detectors and the fire panel.

The information transfer between the detector and the Expansion Module is bi-directional. If a base channel is occupied by an external system, this is recognized immediately and the radio cell switches to a secondary channel to guarantee alarm transmission.

FK 100 LSN RF Expansion Module

The LSN part in the RF Expansion Module is supplied with voltage via the LSN cable. The radio module connected requires a separate power supply.

The integrated microcontroller drives interfaces and user elements and is responsible for data transfer between the RF Smoke Detector and the fire panel.

The FK 100 LSN has a tamper contact, a reed switch for manually activating the configuration mode and three LEDs for displaying the operating status.

The RF Expansion Module meets the standard regulations and guidelines for security systems: EN 54; DIN VDE 0833; VdS.

DOW 1171 Optical RF Smoke Detector

The battery-powered, configurable RF Smoke Detector operates using the reliable scattered light principle with side scattering. In conjunction with the modern detection algorithm it achieves uniform response behavior, while providing outstanding interference immunity. The same radio module is integrated into the detector and the RF Expansion Module for bidirectional information transfer.

SMF121 RF Manual Call Point

The SMF121 RF Manual Call Point is used to trigger an alarm in the event of a fire or other emergency. Via a wireless connection, the SMF121 and the required SMF6120 RF Base (battery-powered) easily connect to the FK 100 LSN RF Expansion Module.

Certifications and Approvals

The FK 100 LSN complies with

- EN54-17:2005
- EN54-18:2005

The DOW 1171 complies with:

- EN54-7:2000/A1:2002

The radio module used in the FK 100 LSN RF Expansion Module, the DOW 1171 Optical RF Smoke Detector and in the SMF6120 RF Base is certified in the following countries (radio licensing in line with ANNEX4, Directive 99/5EC Radio recognition, CE 0123 (!)):

Austria (A), Belgium (B), Croatia (HR), Denmark (DK), Germany (D), Italy (I), Luxembourg (L), The Netherlands (NL), Norway (N), Portugal (P), Spain (E), Slovakia (SK), Slovenia (SLO), Sweden (S), Switzerland (CH), Great Britain (GB).

Region	Certification	
Europe	CE	FK 100 LSN
		DOW 1171
	CPD	0786-CPD-20089 DOW 1171 0786-CPD-20336 FK 100 LSN
Germany	VdS	G 203016 FK 100 LSN
		G 200112 DOW 1171
Russia	GOST	POCC DE.C313B06300
		POCC DE.C313.B06297

Installation/Configuration Notes

Boundary values

- Up to 30 DOW 1171 Optical RF Smoke Detectors can be connected per FK 100 LSN RF Expansion Module.
- A maximum of 127 LSN elements is allowed per LSN processing assembly. Each RF Expansion Module and each RF Smoke Detector or RF Manual Call Point is counted as an LSN element, e. g. with the maximum number of smoke detectors:
1 FK 100 LSN + 30 DOW 1171 = 31 LSN elements.
- When several FK 100 LSNs are installed in the same area, a minimum distance of 2 m must be maintained between the individual RF Expansion Modules.
- In addition, the maximum distance of 40 m and an attenuation of 90 dB must be adhered to between the RF Expansion Modules and the RF Smoke Detectors (see Planning a Radio Cell).
- 16 radio channels are available. The RF Expansion Modules automatically search for a free channel within the permitted range. The basic radio channels can be displayed using WinPara or FSP-5000-RPS.
This means that a maximum of 16 RF Expansion Modules (recommended is a maximum of 10) may be installed within one area (max. distance 40 m/max. attenuation 90 dB). The installation of additional RF Expansion Modules has to be checked on a case-by-case basis depending on whether the radio range does affect that of the first RF Expansion Module group (with a max. of 16 RF Expansion Modules).
- The RF Expansion Modules and the RF Smoke Detectors must not be installed in a metal cabinet.
- The necessary room for servicing (e. g. replacing batteries) and repair must be taken into account.

Connection and Power Supply

- An FK 100 LSN must not be connected to an NAK 100 LSN Branch Interface.
- A separate power supply is necessary for the module, the microprocessor and the peripherals.
- Power is supplied to the LSN components in the FK 100 LSN via two wires in the LSN line.

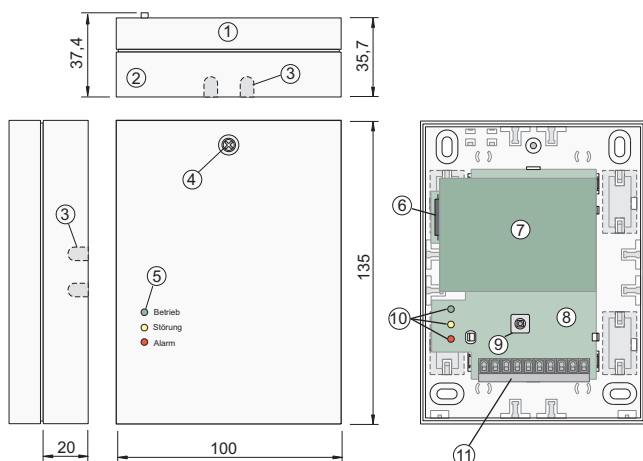
- The wire pair of the separate power supply can be looped through to provide power to the downstream LSN elements.

Note If the power supply to the FK 100 LSN is disconnected, the batteries must be removed from the RF Smoke Detectors!

Accessories

- If wall structures or other structural properties of a building are not known, field strength measurements are taken using the DZW 1171 wireless test unit to ensure more reliable planning.
- The Radiospy software with field strength measurement unit is a convenient tool for checking the planning for a radio cell and displaying it graphically using a PC/laptop.
- The DBZ 1193A detector identification for the DOW 1171 is a polycarbonate holder with cover for holding an identifier plate.
- The exchanger device ensures convenient detector replacement for the DOW 1171 RF Smoke Detector.
- For commissioning a wireless system without a fire panel (FACP), a magnet is needed to activate the reed contact in the RF Expansion Module.

FK 100 LSN device construction



Pos. Description

- | | |
|----|--|
| 1 | Cover with embedded fibre-optic cables |
| 2 | Lower part of housing |
| 3 | Pre-prepared inputs/outputs for surface-mounting cable ducts |
| 4 | Cover screw |
| 5 | Optical fibers for LED display indicating operating state |
| 6 | Reed contact |
| 7 | Radio module |
| 8 | Interface board |
| 9 | Tamper contact |
| 10 | LED display indicating operating state |
| 11 | Terminal block |

Planning a wireless cell

- The range that can be achieved by a radio system in a building is generally dependent on the reflection and absorption responses of the materials used and on the design of the ceilings and walls!
- Line of sight visibility between the wireless components is not necessary.

- The RF Expansion Module should always be positioned right between the RF Smoke Detectors/Manual Call Points. Since radio propagation is spherical, the connection is not restricted to a single floor.
- To determine the actual attenuation at the installation site, the attenuation given by distance must be added to the attenuation values of each construction element (walls, ceilings). The total attenuation of the transmission path must not exceed 90 dB.**
- The limiting values and calculation examples apply both to the RF Expansion Module - RF Smoke Detector radio link and to the RF Expansion Module - RF Expansion Module radio link.

Attenuation of the transmission path from distance with line of sight

- In buildings, doubling of the distance between RF Expansion Module and RF detector raises the attenuation figure by 16 to 17 dB.

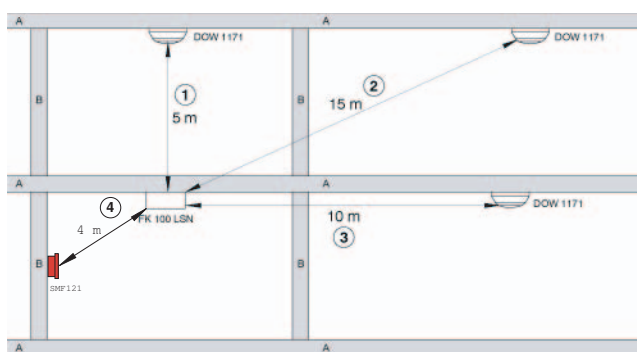
Distance [m]	5	10	15	20	25	30	40
Attenuation [dB]	40	57	67	74	79	83	90

Attenuation from construction elements in buildings

Construction element	Attenuation values	
Room dividers	very low	1 dB
Dry brick walls or concrete walls/ceilings	low	6 dB
Limestone brick	average	-10 dB
Limestone building blocks	average	-10 dB
Wood framed or wood panelled walls	average	-10 dB
Damp brick walls	average	-10 dB
Coated plasterboard, double walls	high	15 dB
Steel-reinforced concrete	high	-30 dB
Thick damp brick walls	very high	40 dB

Calculation example

The FK 100 LSN RF Expansion Module is mounted under a reinforced concrete ceiling. The dividing walls are made from concrete.



Pos. Description

- | | |
|-----|---|
| 1-3 | Transmission paths, see calculation example |
| A | Reinforced concrete ceiling |
| B | Concrete wall |

Transmission Path 1:

5 m distance + reinforced concrete ceiling = 40 dB + 30 dB
= **70 dB**

Transmission Path 2:

15 m distance + reinforced concrete ceiling + concrete wall
= 67 dB + 30 dB + 6 dB = **103 dB**

Transmission Path 3:

10 m distance + concrete wall = 57 dB + 6 dB = **63 dB**

Transmission Path 4:

4 m distance = **35 dB**

Transmission paths 1, 3 and 4 can be operated:

total attenuation < 90 dB.

The detector for transmission path 2 can no longer be reached:

total attenuation 103 dB > 90 dB permissible total attenuation.

Parts Included**FK 100 LSN RF Expansion Module****Qty. Components**

1 FK 100 LSN RF Expansion Module, incl. connection terminals

DOW 1171 Optical RF Smoke Detector**Qty. Components**

1 Optical RF Smoke Detector
2 9 V lithium battery
1 Detector base

SMF121 RF Manual Call Point**Qty. Components**

1 SMF121 RF Manual Call Point

Note With the SMF121 RF Manual Call Point, one SMF6120 RF Base as well as two HFM-BAT Lithium Batteries 3.6 V have to be ordered in addition.

Technical Specifications**FK 100 LSN RF Expansion Module****Electrical**

Operating voltage

- LSN components +10 V ... +33 V DC
- Other components +20 V ... +30 V DC

Current consumption

- LSN components 6 mA
- Other components < 20 mA

Mechanical

Dimensions (W x H x D) 135 x 100 x 35.7 mm
Housing material Plastic ABS, Terluran
Color Light gray, RAL 9002
Weight Approx. 200 g

Ambient conditions

Protection class as per EN 60529 IP 30
Permissible operating temperature -10 °C. ... +55 °C

Planning

Maximum range in buildings 40 m
Max. number of FK 100 LSN 16
Max. number of DOW 1171 30 per FK 100 LSN
Max. number of SMF121 10 per FK 100 LSN

Special features

Frequency range 868 to 870 MHz (SRD band)
Channel spacing 25 kHz
Transmitting power Max. 5 mW

DOW 1171 RF Smoke Detector**Electrical**

Voltage supply Two 9 V lithium batteries
Battery life cycle Approx. 5 years
Average current consumption 0.07 mA

Mechanical

Dimensions (W x H x D) Ø119 x 73 mm
Housing material Plastic PC/ABS
Housing color White, similar to RAL 9002
Weight Approx. 335 g

Ambient conditions

Protection class according to EN 60529 IP 44
Permissible operating temperature -10 °C ... +55 °C
Permitted relative humidity < 95% at T < 34 °C

Planning

Range in buildings 40 m
Maximum number of DOW 1171 30 per FK 100 LSN

Special features

Detection principle Scattered light measurement

SMF121 RF Manual Call Point with SMF6120 RF Base**Electrical**

Voltage supply Two 3.6 V lithium batteries
Battery life cycle Approx. 5 years
Current consumption 0.06 mA

Mechanical

Dimensions (W x H x D)
• SMF121 125 mm x 125 mm x 36,5 mm
• SMF6120 116,3 mm x 116,3 mm x 42 mm
• SMF121 incl. SMF6120 125 mm x 125 mm x 56,5 mm
Housing material ABS
LED red
Housing color red, RAL 3000

Weight

- | | |
|-----------|-----------|
| • SMF121 | ca. 200 g |
| • SMF6120 | ca. 185 g |
| • HFM-BAT | ca. 20 g |

Ambient conditions

Permissible operating temperature -10 °C ... 55 °C

Permitted relative humidity Max. 95 %

Protection class according to EN 60529 IP 43

Planning

Max. range in buildings 30 m

Max. number of SMF121 10 per FK 100 LSN

6

Ordering Information

FK 100 LSN RF Expansion Module	FK 100 LSN RF
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DOW 1171 Optical RF Smoke Detector	DOW1171 RF
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DZW 1171 Radio Test Unit	DZW 1171
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Radio Spy 1 Field Strength Measuring Unit and Software	RADIO SPY 1
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DBZ 1193A Detector identification	DOW1171-ident
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Exchanger Device for DO1101A-Ex and DOW 1171	FAA-RTL-SIEMENS
---	------------------------

fits only on Siemens service poles

Lithium Block Battery 9 V for Optical RF Smoke Detector DOW 1171	IPP-9V-Block
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DU = 1 unit

SMF121 RF Manual Call Point	SMF121
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For RF Manual Call Point please order separately:

1 x SMF6120 RF Base

2 x HFM-BAT Lithium Battery 3.6 V for

SMF6120

SMF6120 RF Base	SMF6120
------------------------	----------------

HFM-BAT Lithium Battery 3.6 V for SMF6120	HFM-BAT
--	----------------

DZW 1171 Radio Test Unit



Field strength measuring device for planning and checking the maximum reach of a RF Fire Detection System in unknown building structures.

Device A is fixed in position at the predetermined installation location of the RF Interface Module. Device B is taken to the intended place of installation of the RF Smoke Detector DOW 1171 and checks whether the permitted attenuation of the radio signal is not exceeded.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06300

Ordering Information

DZW 1171 Radio Test Unit DZW 1171

Radio Spy 1 Field Strength Measuring Unit and Software



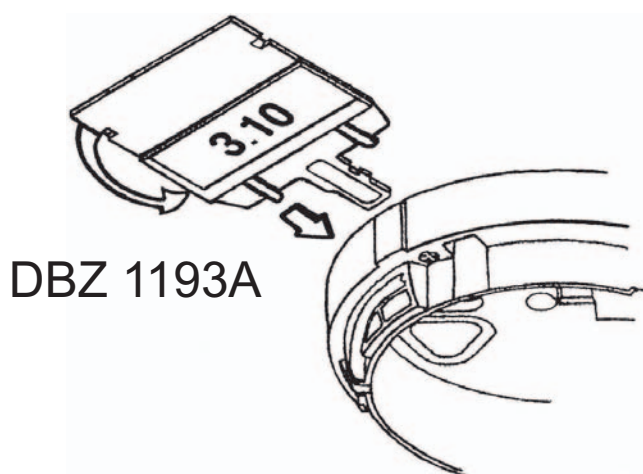
Field Strength Measuring Unit and Software, for easy PC-based planning and graphic representation of a RF Fire Detection System.

The Radio Spy 1 functions in a manner similar to the Radio Test Unit, although the field strength and configuration of the RF Fire Detection System are shown graphically on the screen.

Ordering Information

Radio Spy 1 Field Strength Measuring Unit RADIO SPY 1
and Software

DBZ 1193A Detector identification



Holder made of polycarbonate with hinged lid, for safe insertion of a identifier plate size 58 mm x 19 mm

Ordering Information

DBZ 1193A Detector identification

DOW1171-ident

Exchanger device for the DOW 1171 RF smoke detector



Note

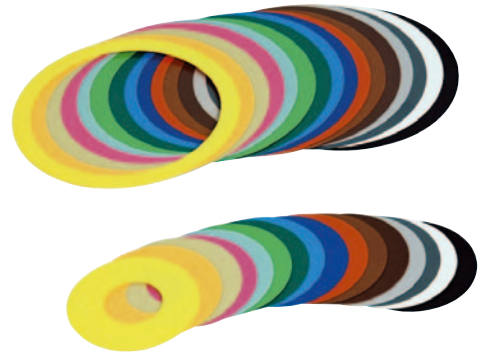
The detector exchanger fits only on Siemens service poles.
The service pole is not included in the scope of delivery.

Ordering Information

Exchanger device for the DOW 1171 RF smoke detector
for Siemens service poles

FAA-RTL-Siemens

FCP-500 Conventional Automatic Fire Detectors



6

Features

- ▶ **Modern, ultra-flat design**
- ▶ **Matches the surrounding decor by using color toning inserts**
- ▶ **Smooth, easily-cleaned detector surface**
- ▶ **Innovative fastening mechanism**
- ▶ **High reliability**

FCP-500 Conventional Automatic Fire Detectors satisfy the most demanding aesthetic requirements owing to their flat design, which offers flush ceiling mounting and the option of color matching.

The FCP-500 is available as a scattered light smoke detector or as a multi-sensor detector with an additional gas sensor. The respective versions of the detectors are available in white or transparent with color inserts.

Functions

The smooth, flush-installation surface means the FCP-500 detectors can be installed in areas with high aesthetic requirements. In addition, the fire detectors are suitable for areas with heightened dust exposure.

The detectors and trim rings in the "transparent with color inserts" version are always supplied complete with reversible printed color rings, which offer a choice of 16 colors for individual color matching.

Sensor technology and signal processing

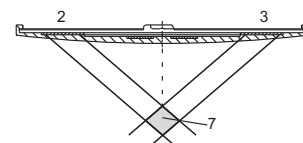
All detectors in the FCP-500 series are equipped with two optical sensors and a pollution sensor. The FCP-OC 500 multisensor detector contains a gas sensor as an additional detection channel.

All sensor signals are constantly analyzed by the internal signal evaluation electronics and are linked with each other through algorithms.

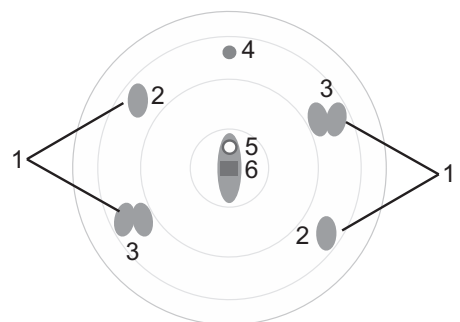
By linking the optical sensors and the gas sensor, the OC detector can also be used in places where the work carried out gives rise to small amounts of smoke, steam or dust. The alarm will only be triggered automatically if the signal combination corresponds with the detector's characteristic diagram. Consequently, a very high reliability against false alarms is obtained.

Optical sensor (smoke sensor)

The optical sensor (1) operates according to the scattered light method. The LEDs (3) transmit light at a defined angle into the scattered light area (7).



In case of fire, the light is scattered by the smoke particles and strikes the photo diodes (2), which transform the quantity of light into a proportional electrical signal.



Interference effects from daylight and commercial lighting sources are filtered out with an optical daylight filter and by the use of electronic filtering and phase-locked rectification (ambient light stability: glare test DIN EN 54-7).

The various light-emitting and photo diodes of the sensor are individually controlled by the detector electronics. Consequently, signal combinations are produced that are independent of each other and ideally suitable for the detection of smoke, which makes it possible to differentiate between smoke and interference agents (insects, objects). In addition, the time characteristics and the correlation of the optical sensor signals for the fire or interference detection are evaluated.

Moreover, plausibility checking of the various signals makes it possible to detect errors in the analysis electronics and the LEDs.

Chemical sensor (CO gas sensor)

The gas sensor (4) detects mainly the carbon monoxide (CO) that is produced by a fire, but it also detects hydrogen (H) and nitrogen monoxide (NO).

The basic measuring principle is CO oxidation on an electrode and the measurable current that arises from this. The sensor signal value is proportional to the concentration of gas.

The gas sensor delivers additional information to effectively suppress deceptive values.

Depending on the service life of the gas sensor, the FCP-OC 500 detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Pollution sensor

The contamination level on the detector surface is continually measured by the pollution sensor (6); the result is evaluated and indicated.

Contamination of the detector surface leads to active adaptation of the threshold value (closed-circuit value correction).

Further performance characteristics

Various operating states are indicated on the detector by means of a clearly visible two-color LED. In the event of an alarm, the LED flashes red.

The innovative detector locking, which operates on the ballpoint-pen principle, provides fast and simple insertion and replacement of the detector. We recommend the specially developed FAA-500-RTL exchanger device, especially in the case of high installation heights.

To allow convenient detector testing, the FAA-500-TTL test adapter with magnet and additional service accessories is available.

Certifications and Approvals

Comply with:

- EN54-7:2000/A1:2002/A2:2006

Region	Certification	
Europe	CE	FCP-500
	CPD	0786-CPD-20203 FCP-O 500 / 500-P
		0786-CPD-20204 FCP-OC500 / 500-P
Germany	VdS	G 205124 FCP-O 500/500-P
		G 205118 FCP-OC 500/500-P
Belgium	BOSEC	TCC2-K658 FCP-O 500, FCP-O 500-P, FCA-500-EU, FCA-500-E-EU
Russia	GOST	POCC DE.C313.B06297

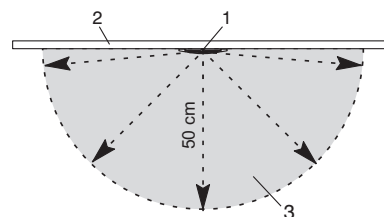
Installation/Configuration Notes

- Can be connected to:
 - Conventional Fire Panel BZ 1012/1016/1024/1060
 - Universal Fire Panel UEZ 1000
 - Universal Fire Panel UGM 2020
 - Other panels or their receiver modules with identical connection conditions
 - UEZ 2000 LSN, BZ 500 LSN, FPA-5000 and FPA-1200 via appropriate interfaces
- The detectors and detector bases can be used together with the „Rotaris“ lamp by Philips.
- The FCP-OC 500, like the FCP-O 500, is planned according to the guidelines for optical detectors (see DIN VDE 0833 Part 2 and VDS 2095).
- The detectors must be installed exclusively in the FCA-500 bases provided. In addition, the detector base must be installed in an FAA-500-BB ceiling mount back box or in FAA-500-SB surface mount back box.

Note For flush ceiling mounting with FAA-500-BB: The false ceiling may have a maximum thickness of

Note 32 mm. Above the false ceiling, a free height of at least 110 mm is required.

- FCP-500 detectors are not intended for outdoor use.
- A hemispherical space with a radius of 50 cm must remain free below the detectors.



- 1 Detector
- 2 Ceiling
- 3 hemispherical space below the detector

- Care must be taken to ensure that neither people, larger animals, plants nor any objects intrude into this area and that no parts of the detector surface become covered.
- The detectors may only be installed in a position which is out of arm's reach. We therefore recommend a minimum installation height of 2.70 m.

- The detectors may not be installed in rooms in which data is transmitted by means of high-intensity infra-red light (e. g. in rooms with IR systems for interpreters).
- The detectors must be mounted so that they are not exposed to any direct sunlight.
- A minimum distance of 50 cm from lamps must be maintained. The detectors may not be mounted in a cone of light from lamps.
- The bases are equipped as standard with a spring which is suitable for installation of the detector in false ceilings. When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger springs FAA-500-SPRING with red markings.
- Maximum permitted air speed: 20 m/s
- Country-specific standards and guidelines must be observed during the planning phase.
- Technical Specifications

Parts Included

Detector type	Qty.	Components
FCP-O 500	1	Optical Smoke Detector, White
FCP-O 500-P	1	Optical Smoke Detector, Transparent with Color Inserts
FCP-OC 500	1	Multisensor Detector Optical/Chemical, White
FCP-OC 500-P	1	Multisensor Detector Optical/Chemical, Transparent with Color Inserts

Technical Specifications

Electrical

Operating voltage	8.5 V DC bis 33 V DC
Standby current	
• FCA-500-EU	3 mA
• FCA-500-E-EU	24 mA
Alarm current	47 mA
Fault current	
• FCA-500-EU	52 mA
• FCA-500-E-EU	58 mA
Alarm resistance	0 Ω (UL application) or 680 Ω
Fault relay output	NC / C
Indicator output	Relay connects 0 V over 1.5 kΩ

Mechanics

Individual display	Two-color LED, red (alarm), green (test mode)
Dimensions	
Detector	Ø 113 x 55 mm
Detector with trim ring	Ø 150 x 55 mm
Detector with cover, base and ceiling mount back box	Ø 150 x 110 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Front plate color	
FCP-O 500/ FCP-OC 500	Signal white matt

FCP-O 500-P/ FCP-OC 500-P	Transparent/silver-gray
Weight	Without / with packaging
FCP-OC 500(-P)	180 g / 370 g
FCP-O 500(-P)	170 g / 360 g
Trim Ring	30 g / 60 g

Environmental conditions

Protection class as per EN 60529	
FCP-O 500 (-P)	IP 53
FCP-OC 500 (-P)	IP 33
Permissible operating temperature	
FCP-O 500 (-P)	-20 °C bis +65 °C
FCP-OC 500 (-P)	-10 °C bis +50 °C
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s

Planning

Monitoring area	Max. 120 m ² (Heed local guidelines!)
Maximum installation height	Max. 16 m (Heed local guidelines!)
Minimum installation height	Out of arm's reach Minimum installation height recommended by BOSCH: 2.70 m

In the case of flush ceiling mounting with ceiling mount back box

Thickness of the false ceiling	Max. 32 mm
Required bored hole	Ø 130 mm (-1 mm bis +5 mm)
Installation depth	110 mm Note: Above the false ceiling, a free height of at least 110 mm is required.
Minimum distance to lamps	0.5 m

Special features

Detection principle	
• FCP-O 500 (-P)	Scattered light measurement
• FCP-OC 500 (-P)	Combination of scattered light measurement and combustion gas measurement

Features

• All FCP-500 detectors	Contamination detection Drift compensation (optical section)
• In addition, for FCP-OC 500(-P)	Drift compensation in the gas sensor section

Response sensitivity

• FCP-O 500 (-P)	< 0.18 dB/m (EN 54-7)
• FCP-OC 500 (-P)	Optical section: < 0.36 dB/m (EN 54-7) Gas sensor section: in ppm range

Ordering Information

FCP-O 500 Optical Smoke Detector, White	FCP-O 500
FCP-O 500-P Optical Smoke Detector, Transparent with Color Inserts	FCP-O 500-P
FCP-OC 500 Multisensor Detector Optical/Chemical, White	FCP-OC 500
FCP-OC 500-P Multisensor Detector Optical/Chemical, Transparent with Color Inserts	FCP-OC 500-P

Accessories

FAA-500-TR-W Trim Ring, White for 500 and 520 Series Fire Detectors	FAA-500-TR-W
FAA-500-TR-P Trim Ring, Transparent with Color Inserts for 500 and 520 Series Fire Detectors	FAA-500-TR-P
FCA-500-EU Conventional Base for the FCP--500 Series detectors	FCA-500-EU
FCA-500-E-EU Conventional Base EOL for the FCP-500 Series detectors, with integrated EOL resistor	FCA-500-E-EU
FAA-500-BB Ceiling Mount Back Box for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors	FAA-500-BB
FAA-500-CB Built-in Housing for Concrete Ceilings	FAA-500-CB
FAA-500-SB Surface Mount Back Box	FAA-500-SB
FAA-500-SB-H Surface Mount Back Box with Damp Room Seal	FAA-500-SB-H
FAA-500-SPRING for Concrete/Wooden Ceilings (DU = 10 units)	FAA-500-SPRING

FCP-500 Conventional Automatic Fire Detectors**FCP-O 500****FCP-O 500-P****FCP-OC 500****FCP-OC 500-P**

Detector type	optical	optical	optical/chemical	optical/chemical
Operating voltage	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC
Current consumption				
- Standby current	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA
- Alarm current	47 mA	47 mA	47 mA	47 mA
- Fault current	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA
Protection category	IP 53	IP 53	IP 33	IP 33
Permissible operating temperature	-20 °C . . . +65 °C	-20 °C . . . +65 °C	-10 °C . . . +50 °C	-10 °C . . . +50 °C
Monitoring area	max. 120 m ²	max. 120 m ²	max. 120 m ²	max. 120 m ²
Maximum installation height	16 m	16 m	16 m	16 m
Color	white	transparent with color inserts	white	transparent with color inserts

FCP-320/FCH-320 Conventional Automatic Fire Detectors



6

Features

- ▶ **High reliability of detection thanks to evaluation electronics**
- ▶ **Active adjustment of the threshold (drift compensation) if the optical sensor becomes dirty**
- ▶ **Activation of a remote external detector alarm display possible**
- ▶ **Mechanical removal lock (can be activated/deactivated)**
- ▶ **Dust-repellent labyrinth and cap construction**
- ▶ **All detectors have an „Chamber Maid Plug“ at the bottom for cleaning the optical chamber with compressed air (not required with the Heat Detector FCH-T320).**

The FCP-320/FCH-320 Series Conventional Automatic Fire Detectors set new standards in fire detection technology through a combination of optical, thermal and chemical (gas) sensors and intelligent evaluation electronics. Their most impressive feature is their ability to prevent false alarms, as well as speed and accuracy of detection.

The enhanced operating voltage range of 8,5 V DC up to 30 V DC and the two variants with 820 Ω alarm resistor or 470 Ω alarm resistor enables the detector application with nearly all conventional fire panels.

System Overview

Operating mode	Detector type			
	FCP-OC320	FCP-OT320	FCP-O320	FCH-T320/T320-FSA
Combined	x	x	-	-
Optical (scattered light measurement)	x	x	x	-
Thermal max.	-	x	-	x
Thermal differential	-	x	-	x
Chemical (gas measurement)	x	-	-	-

Functions

The FCP-OC320 and FCP-OT320 Multisensor Detectors each combine two detection principles. All sensor signals are analyzed continually by the internal evaluation electronics and are linked with each other.

If a signal combination fits the detector's programmed code field, an alarm is automatically triggered. By linking the sensors, the combined detectors can also be used in places where work carried out gives rise to light smoke, steam or dust.

Optical sensor (smoke sensor)

The optical sensor uses the scattered-light method.

An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

Thermal sensor (temperature sensor)

A thermistor in a resistance network is used as a thermal sensor; an analog-digital converter measures the temperature-dependent voltage at regular intervals.

When the maximum temperature of 54°C is exceeded (thermal maximum), or if the temperature rises by a defined amount within a specified time (thermal differential), the temperature sensor triggers the alarm status.

Chemical sensor (CO gas sensor)

The main function of the gas sensor is to detect carbon monoxide (CO) generated as a result of a fire, but it will also detect hydrogen (H) and nitrous monoxide (NO). The sensor signal value is proportional to the concentration of gas. The gas sensor delivers additional information to effectively suppress deceptive values.

Depending on the service life of the gas sensor, the OC 310 detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Special features	Detector type			
	FCP-OC320	FCP-OT320	FCP-O320	FCH-T320 / T320-FSA
Drift compensation in optical unit	x	x	x	-
Drift compensation in the gas sensor	x	-	-	-

Certifications and Approvals

The detectors comply with:

Region	Certification	
Europe	CE	FCP-/FCH-320
	CPD	0786-CPD-20353 FCH-T320_FCH-T320-R470
		0786-CPD-20354 FCH-T320-FSA
		0786-CPD-20351 FCP-O320_FCP-O320-R470
		0786-CPD-20355 FCP-OC320_FCP-OC320-R470
Germany	VdS	0786-CPD-20352 FCP-OT320_FCP-OT320-R470
		G 208003 FCH-T320_-R470
		G 208004 FCH-T320-FSA
		G 208001 FCP-O320_-R470
		G 208002 FCP-OT320_-R470
		G 208005 FCP-OC320_-R470

Detector type	EN54-5:2000/ A1:2002	EN54-7:2000/ A1:2002
FCP-OC320		⌋
FCP-OC320-R470		⌋
FCP-OT320	⌋	⌋
FCP-OT320-R470	⌋	⌋
FCP-O320		⌋
FCP-O320-R470		⌋
FCH-T320	⌋	
FCP-T320-R471	⌋	
FCH-T320-FSA	⌋	

Installation/Configuration Notes

- Up to 32 detectors can be connected per primary line.
- Maximum cable length: 1000 m, for J-Y(St) Y n x 2 x 0.6/0.8
- Country-specific standards and guidelines must be observed during the planning phase.

Installation/configuration notes in accordance with VdS/DIBt

- Planning for multisensor detectors follows the guidelines for optical detectors, unless a specific VdS planning guideline is available (see DIN VDE 0833 Part 2 and VDS 2095).

- The OC and OT types are planned using the guidelines for optical detectors if operated as optical detectors or as combined detectors; see DIN VDE 0833 Part 2 and VDS 2095.
- When planning fire barriers according to DIBt, you have to use the FCH-T320-FSA. This detector has the characteristic curve corresponds to class A1R.

Parts Included

Detector type	Qty	Components
FCP-OC320	1	Multisensor Detector Optical/Chemical
FCP-OT320	1	Multisensor Detector Optical/Thermal
FCP-O320	1	Optical Smoke Detector
FCH-T320	1	Heat Detector (Thermal Differential/Thermal Maximum)
FCH-T320-FSA	1	Heat Detector for Fire Barriers conforming to DIBt, Quality-controlled (Thermal Differential/Thermal Maximum)

Technical Specifications

Electrical

Operating voltage	8.5 V DC ... 30 V DC
Current consumption	< 0.12 mA
Alarm output	Increase in current (alarm resistance 820 Ω or 470 Ω)
Indicator output	Open collector connects 0 V in the event of an alarm over 3.92 kΩ

Mechanics

Individual display	LED red
Dimensions	
• Without base	Ø 99.5 x 52 mm
• With base	Ø 120 x 63.5 mm
Housing material	Plastic, ABS
Housing color	White, similar to RAL 9010, matt finish
Weight	Without / with packaging
• FCP-OC320	Approx. 85 g / approx 130 g
• FCP-OT320 / FCP-O320 / FCH-T320 / FCH-T320-FSA	Approx. 80 g / approx. 120 g

Environmental conditions

Protection class as per EN 60529	IP 30, IP 32 with detector base with damp room seal
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Permissible operating temperature	
• FCP-OC320	-10 °C ... +50 °C
• FCP-OT320	-20 °C ... +50 °C
• FCP-O320	-20 °C ... +65 °C
• FCH-T320 / T320-FSA	-20 °C ... +50 °C

Planning

Monitoring area

- | | |
|----------------------------------|--|
| • FCP-OC320, FCP-OT320, FCP-O320 | Max. 120 m ² (Heed local guidelines!) |
| • FCH-T320 | Max. 40 m ² (Heed local guidelines!) |

Maximum installation height

- | | |
|----------------------------------|-------------------------------|
| • FCP-OC320, FCP-OT320, FCP-O320 | 16 m (Heed local guidelines!) |
| • FCH-T320 | 6 m (Heed local guidelines!) |

Special features

Response sensitivity

- | | |
|--|------------------------------------|
| • Optical part | < 0.2 dB/m, in line with EN 54 T7 |
| • Thermal maximum part | >54 °C |
| • Thermal rate-of-rise part (in line with prEN 54-5) | FCH-T320: A2R
FCH-T320-FSA: A1R |
| • Chemical part | In ppm range |

Color code

- | | |
|-----------------------|------------|
| • FCP-OC320 | Blue ring |
| • FCP-OT320 | Black ring |
| • FCP-O320 | No marking |
| • FCH-T320 / T320-FSA | Red ring |

Ordering Information

FCP-OC320 Multisensor Detector Optical/Chemical with 820 Ohm alarm resistor	FCP-OC320
FCP-OC320-R470 Multisensor Detector Optical/Chemical with 470 Ohm alarm resistor	FCP-OC320-R470
FCP-OT320 Multisensor Detector Optical/Thermal with 820 Ohm alarm resistor	FCP-OT320
FCP-OT320-R470 Multisensor Detector Optical/Thermal with 470 Ohm alarm resistor	FCP-OT320-R470
FCP-O320 Optical Smoke Detector with 820 Ohm alarm resistor	FCP-O320
FCP-O320-R470 Optical Smoke Detector with 470 Ohm alarm resistor	FCP-O320-R470
FCH-T320 Heat Detector thermal differential/thermal maximum detector, with 820 Ohm alarm resistor	FCH-T320
FCH-T320-R470 Heat Detector thermal differential/thermal maximum detector, with 470 Ohm alarm resistor	FCH-T320-R470
FCH-T320-FSA Heat Detector, for Fire Barriers conforming to DIBt thermal differential/thermal maximum detector, with 820 Ohm alarm resistor	FCH-T320-FSA

Ordering Information

Accessories

MS 400 Detector Base for surface-mounted and flush-mounted cable feed	MS 400
MSF 400 Detector Base with Damp Room Seal for surface-mounted and flush-mounted cable feed	MSF 400
MSC 420 Additional Base with Damp Room Seal for surface-mounted cable feed	MSC 420
MSR 320 Conventional Detector Base with Relay	MSR 320
MSD 320 Conventional Detector Base with Diode	MSD 320
MPA External Detector Alarm Display according to DIN 14623	MPA
FAA-420-RI Remote Indicator	FAA-420-RI
Mounting Bracket for Fire Detectors on False Floor Stilts	FMX-DET-MB
MK 400 Detector Console Console for DIBt compliant mounting of detectors above doors etc., including detector base	MK 400
MH 400 Detector Heating Element	MH 400
SK 400 Protective Basket	SK 400
SSK 400 Protective Dust Cover (packing unit = 10 units)	SSK 400
TP4 400 Support Plate for Detector Identification (packing unit = 50 units)	TP4 400
TP8 400 Support Plate for Detector Identification (packing unit = 50 units)	TP8 400

FCP-320/FCH-320 Conventional Automatic Fire Detectors



FCP-0320



FCP-0C320



FCP-0T320

Detector type	optical	optical/chemical	optical/thermal
Operating voltage	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC
Current consumption	< 0.12 mA	< 0.12 mA	< 0.12 mA
Protection category	IP 30, IP 32 with MSF 400	IP 30, IP 32 with MSF 400	IP 30, IP 32 with MSF 400
Permissible operating temperature	-20 °C . . . +65 °C	-10 °C . . . +50 °C	-20 °C . . . +50 °C
Monitoring area	max. 120 m ²	max. 120 m ²	max. 120 m ²
Maximum installation height	16 m	16 m	16 m
Alarm resistance	820 Ω	820 Ω	820 Ω
Color code	no marking	blue loop	black loop
For fire barriers conforming to DIBt, quality-controlled	–	–	–

FCP-320/FCH-320 Conventional Automatic Fire Detectors



FCP-0320-R470



FCP-OC320-R470



FCP-OT320-R470

Detector type	optical	optical/chemical	optical/thermal
Operating voltage	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC
Current consumption	< 0.12 mA	< 0.12 mA	< 0.12 mA
Protection category	IP 30, IP 32 with MSF 400	IP 30, IP 32 with MSF 400	IP 30, IP 32 with MSF 400
Permissible operating temperature	-20 °C . . . +65 °C	-10 °C . . . +50 °C	-20 °C . . . +50 °C
Monitoring area	max. 120 m ²	max. 120 m ²	max. 120 m ²
Maximum installation height	16 m	16 m	16 m
Alarm resistance	470 Ω	470 Ω	470 Ω
Color code	no marking	blue loop	black loop
For fire barriers conforming to DIBt, quality-controlled	–	–	–

FCP-320/FCH-320 Conventional Automatic Fire Detectors

**FCH-T320****FCH-T320-R470****FCH-T320-FSA**

Detector type	thermal differential/thermal maximum	thermal differential/thermal maximum	thermal differential/thermal maximum
Operating voltage	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC
Current consumption	< 0.12 mA	< 0.12 mA	< 0.12 mA
Protection category	IP 30, IP 32 with MSF 400	IP 30, IP 32 with MSF 400	IP 30, IP 32 with MSF 400
Permissible operating temperature	-20 °C . . . +50 °C	-20 °C . . . +50 °C	-20 °C . . . +50 °C
Monitoring area	max. 40 m ²	max. 40 m ²	max. 40 m ²
Maximum installation height	6 m	6 m	6 m
Alarm resistance	820 Ω	470 Ω	820 Ω
Color code	red loop	red loop	red loop
For fire barriers conforming to DIBt, quality-controlled	–	–	•

DO1101A-Ex Optical Smoke Detector for Ex Areas



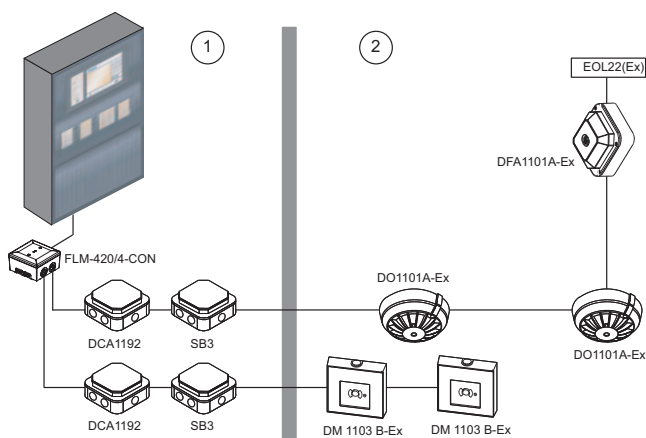
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Features

- ▶ Elegant, compact and robust design
- ▶ Deception-proof operating behaviour
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination
- ▶ High resistance to interference through current gain

The DO1101A-Ex is an Optical Smoke Detector for the detection of smoldering and flaming fires in potentially explosive areas in zones 1 and 2.

System Overview



Pos.	Description
1	Non-Ex area
2	Ex area zone 1 or 2

Functions

The optical sensor in the smoke detector uses the scattered-light method. An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

The entire electronic system is protected inside the detector. The base is only used for the detector contact.

Certifications and Approvals

Region	Certification	
Europe	CE	DO 1101A-Ex
Germany	VdS	G 296052 DO 1101A-Ex
	PTB	02 ATEX 2135 DO1101A-Ex
Hungary	TMT	TMT-89/09/2004 DO 1101A-Ex
Russia	GOST	POCC DE.C313.B06297

Parts Included

Qty.	Components
1	DO1101A-Ex Optical Smoke Detector

Technical Specifications

Electrical

Operating voltage	16 V DC ... 28 V DC
Standby current consumption	0.1 mA

Mechanics

Individual display	LED red
Connection terminals	0.2 mm ² ... 2.5 mm ²
Dimensions (D x H)	
• Detector	Ø 116 mm x 51 mm
• Detector incl. base	Ø 116 mm x 61 mm

Housing material

• Detector	Plastic, ABS
• Base	Plastic (ASA)

Color (detector and base) White, RAL 9010

Weight incl. base 185 g

Environmental conditions

Protection class as per EN 60529	IP 43
Permissible operating temperature	-25 °C ... +60 °C
Permissible storage temperature	-40 °C ... +75 °C
Permissible relative humidity	≤ 95%

Planning

Monitoring area as per EN 54-7 Max. 120 m² (Heed local guidelines!)

Special features

Detection principle Scattered light measurement

Explosion classification in line with IEC 60079 and EN 50020 Ex ib IIC T4 (Ta ≤ 60 °C)

Ordering Information

D01101A-Ex Optical Smoke Detector for Ex Areas **D01101A-Ex**

Accessories

Base for D01101A-Ex Smoke Detector **D01101A-EX-BASE**

DBZ 1191 Additional Base **DBZ1191**
for the standard base of the D01101A-Ex

DBZ 1192 Additional Base for Damp Rooms **DBZ1191+BOX**
for the standard base of the D01101A-Ex

DBZ 1193A Detector Identification **DOW1171-IDENT**
Purchase order quantity must be 10 or multiple of 10.

SB3 Safety Barrier incl. DCA1192 Input/Output Module **SB3**

FAA-500-TR-W Trim Ring, White



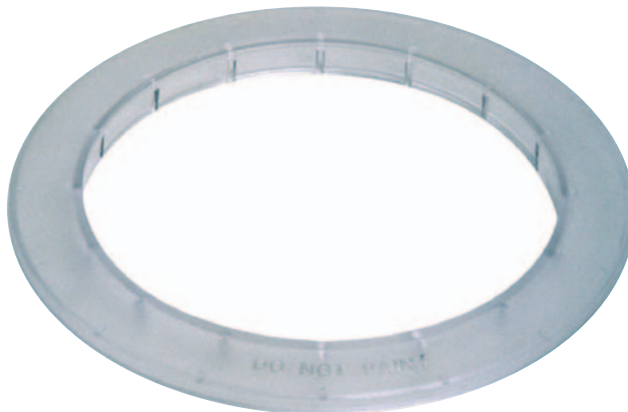
White Trim Ring for 500 und 520 Series Fire Detectors

Ordering Information

FAA-500-TR-W Trim Ring, White
for 500 and 520 Series Fire Detectors

FAA-500-TR-W

FAA-500-TR-P Trim Ring, Transparent with Color Inserts



Trim Ring for the "transparent with color inserts" Fire Detectors in the 500 and 520 Series



Ordering Information

FAA-500-TR-P Trim Ring, Transparent with Color Inserts
for 500 and 520 Series Fire Detectors

FAA-500-TR-P

FCA-500-EU Conventional Base



For installation of FCP-500 detectors.

Functions

The screw-type terminals guarantee a secure electrical connection through the clamped contacts when mounting the FCP-500 detector.
The bases are provided with three holders for cable ties.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313.B06297

Technical Specifications

Connections	Power supply (0 V, +V) Fault relay (C, NC) Alarm relay (NO, C) C-point Shielding
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions (D x H)	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight (without / with packaging)	200 g / 280 g

Ordering Information

FCA-500-EU Conventional Base
for the FCP--500 Series detectors

FCA-500-EU

FAA-500-BB Ceiling Mount Back Box



The FAA-500-BB Ceiling Mount Back Box is necessary for flush ceiling installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors.

Technical Specifications

Mounting dimensions

• Maximum thickness of the false ceiling	32 mm
• Mounting height	11 cm
• Required bore hole	Ø 130 mm (-1 mm/+5 mm)
Max. cable diameter	1.4 cm
Dimensions	Ø 140 x 104 mm
Housing material	Polycarbonate
Housing color	White
Weight (without/with packaging)	100 g/200 g

Ordering Information

FAA-500-BB Ceiling Mount Back Box
for ceiling flush installation in false ceilings
when mounting 500 and 520 Series Bases and
Fire Detectors

FAA-500-BB

FAA-500-CB Built-in Housing for Concrete Ceilings



FAA-500-SB Surface Mount Back Box

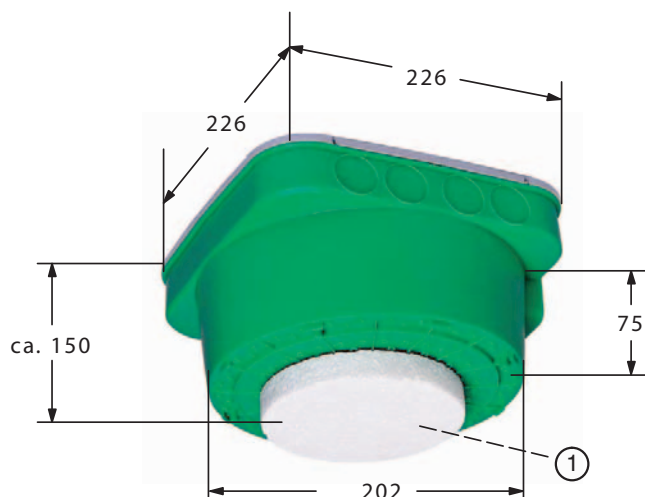


FAA-500-CB Built-in Housings are used to install 500 and 520 Series Fire Detectors in concrete ceilings. These make it possible to position cable ducts with ease and precision. A Ceiling Mount Back Box is installed in the Built-in Housing which receives the base and the detector.

For special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling, Surface Mount Back Boxes are available.

This is used as an alternative to the Ceiling Mount Back Box. The Surface Mount Back Boxes are designed for flush-mounted cable feed and surface-mounted cable feed with cable protection conduits.

System Overview



Pos.	Description
1	Front part

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
 - Each 25 mm (1.0 inch) for 3/4" cable protection conduit
- In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 80 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight	Approx. 195 g/300 g (without/with packaging)

Ordering Information

FAA-500-SB Surface Mount Back Box

FAA-500-SB

Ordering Information

FAA-500-CB Built-in Housing for Concrete Ceilings

FAA-500-CB

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal



Ordering Information

FAA-500-SB-H Surface Mount Back Box
with Damp Room Seal

FAA-500-SB-H

6

For special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling, Surface Mount Back Boxes are available.

This is used as an alternative to the Ceiling Mount Back Box. The Surface Mount Back Boxes are designed for flush-mounted cable feed and surface-mounted cable feed with cable protection conduits.

The FAA-500-SB-H has an additional seal for damp rooms.

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
 - Each 25 mm (1.0 inch) for 3/4" cable protection conduit
- In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 82 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight (without/with packaging)	Approx. 225 g/330 g

FAA-500-SPRING for Concrete/Wooden Ceilings



DU = 10 units

The bases of the 500 Series are fitted with spring as standard. This is suitable for installing the detector in false ceilings.

When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger FAA-500-SPRING springs with red markings.

Ordering Information

FAA-500-SPRING for Concrete/Wooden Ceilings
(DU = 10 units)

FAA-500-SPRING

FAA-500-RTL Exchanger Device



The FAA-500-RTL Exchanger Device for the insertion and removal of detectors of the 500 and 520 Series, fits on the SOLO100 Telescopic Access Pole.

Parts Included

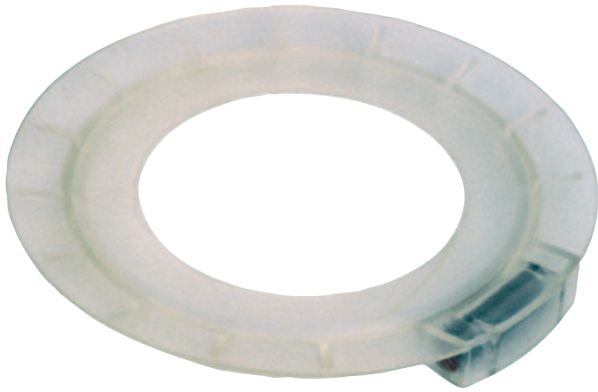
Qty.	Components
1	FAA-500-RTL Exchanger Device for Detectors of the 500 and 520 Series
Note	The SOLO100 Telescopic Access Pole is not included in the scope of delivery.

Ordering Information

FAA-500-RTL Exchanger Device
for Detectors of the 500 and 520 Series

FAA-500-RTL

FAA-500-TTL Test Adapter with Magnet



6

The FAA-500-TTL Test Adapter is placed on the SOLO330 Smoke Detector Tester. It serves to test detectors in the 500 and 520 Series.

Functions

The magnet integrated into the Test Adapter switches the detector into test mode automatically by activating the reed switch. The operating mode of the detector is indicated by its two-color LED.

Installation/Configuration Notes

For the detector test of the 500 and 520 Series, you will need:

- FAA-500-TTL Test Adapter
- SOLO330 Smoke Detector Tester

Also required for detectors with CO sensor:

- Solo CO Testing gas

Note For the detectors in the 500 and 520 Series, no test aerosol is required for optical smoke detectors!

Parts Included

Qty.	Components
1	FAA-500-TTL Test Adapter with Magnet

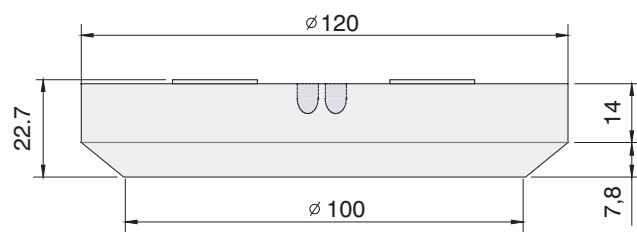
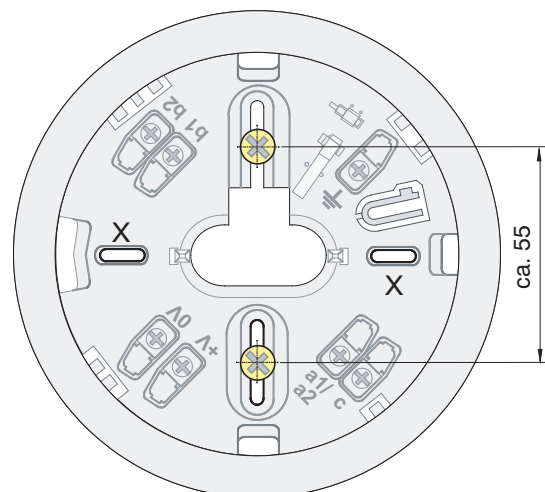
Ordering Information

FAA-500-TTL Test Adapter with Magnet

The FAA-500-TTL Test Adapter is placed on the SOLO330 Smoke Detector Tester. It serves to test detectors in the 500 and 520 Series.

FAA-500-TTL

MS 400 Detector Base



The detector head is installed in the Detector Base MS 400. The base is suitable for surface-mounted cable feeds as well as for flush-mounted cable feeds, and has separate attachment points for ceiling mount/flush-mounted back boxes. In addition, it fits all standard bore patterns.

The Detector Base made of white ABS plastic (Novodur, color similar to RAL 9010) has a matt finish and seven terminal screws to connect the detector and its features to the fire panel.

Contacts connected to the terminals guarantee a secure electric connection when the detector module is installed. Cables up to 2.5 mm² in diameter can be used.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding
Housing material	ABS (Novodur)
Housing color	Similar to RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	72 g

Certifications and Approvals

Region	Certification
Russia	GOST POCC DE.C313B06298

Installation/Configuration Notes

Installation information for 400/420 Series Detector Bases

- The drill holes marked with an "X" may only be used to mount the base to flush-mounted back boxes.
- Keep shielded auxiliary wire as short as possible, and make sure this is insulated.

Ordering Information

MS 400 Detector Base for surface-mounted and flush-mounted cable feed	MS 400
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MSF 400 Detector Base with Damp Room Seal



The MSF 400 Detector Base is available for use of the detector in a humid environment.

With the integrated seal made of TPE, the detector base MSF 400 protects the detector effectively against the entry of condensation water.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

Installation/Configuration Notes

Installation information for damp room seal

- **Do not cut into** the damp room seal on the cable feeds. Instead, pierce these using a pointed implement, and then draw the cable through.

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding
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Housing

• Base material	ABS (Novodur)
• Seal material	TPE
• Base color	Similar to RAL 9010

Dimensions	Ø 120 x 24.7 mm
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Weight	90 g
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Ordering Information

MSF 400 Detector Base with Damp Room Seal	MSF 400
for surface-mounted and flush-mounted cable feed	

MSC 420 Additional Base with Damp Room Seal



The Additional Base MSC 420 was conceived specially for surface-mounted cable feeds with cable protection conduits and has 2 opposing pre-cut inlets of 20 mm diameter and 2 additional opposing and prepared inlets for up to 28 mm diameter.

To protect against condensation water penetration, a seal made of TPE is situated on the base of the MSC 420.

Technical Specifications

Base material	ABS (Novodur)
Seal material	TPE
Base color	Similar to RAL 9010
Dimensions	Ø 120 x 36.7 mm
Weight	74 g

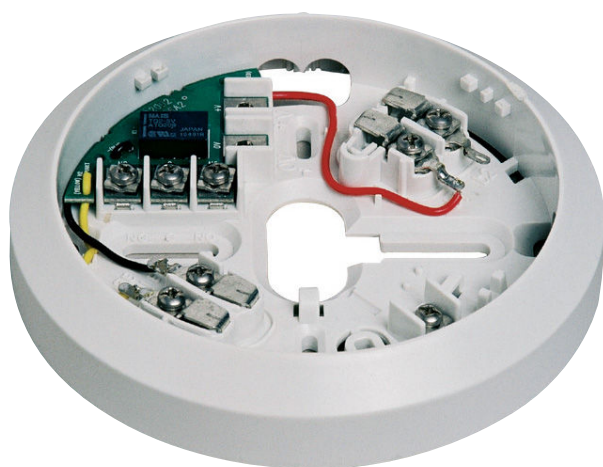
Ordering Information

MSC 420 Additional Base with Damp Room Seal	MSC 420
for surface-mounted cable feed	

MSR 320 Conventional Detector Base with Relay

Ordering Information

MSR 320 Conventional Detector Base with Relay MSR 320



6

For use according to British Standard, the Series 320 detector is mounted in the MSR 320 Conventional Detector Base with Relay.

The MSR 320 is provided with an integrated relay that has NO/C/NC contacts for switching applications (e. g. dampers, door holders, etc.).

The detector unit can be protected against unauthorized removal with a variable locking bar.

Note For EOL resistance refer to fire panel instructions.

Mounting notes for the MSR 320

- The bases are prepared for surface cable feed at four positions with prepared knockouts.
- Flush mounting cable feed occurs through the base center.
- Keep the shielding wire as short as possible and isolate it.

Technical Specifications

Connections	Power supply (0 V, +V) a1/a2, b1, b2 C-point Shielding Relay (NO, C, NC)
Relay contact load	1 A @ 30 V DC
Housing material	ABS (Novodur)
Housing color	similar RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	82 g

MSD 320 Conventional Detector Base with Diode



6

For use according to British Standard, the Series 320 detector is mounted in the MSD 320 Conventional Detector Base with Diode.

The MSD 320 is provided with an integrated diode that preserves the loop function if the detector is removed.

The detector unit can be protected against unauthorised removal with a variable locking bar.

Note For EOL resistance refer to panel instructions.

Mounting notes for the MSD 320

- The bases are prepared for surface cable feed at four positions with prepared knockouts.
- Flush mounting cable feed occurs through the base center.
- Choose shielding wire as short as possible and isolate it.

Technical Specifications

Connections	Power supply (0 V, +V) a1/a2, b1, b2 C- point Shielding
Housing material	ABS (Novodur)
Housing color	similar RAL 9010
Dimensions	Ø 120 x 22,7 mm
Weight	72 g

Ordering Information

MSD 320 Conventional Detector Base with Diode **MSD 320**

MPA External Detector Alarm Display according to DIN 14623



Technical Specifications

Operating voltage 9 V DC ... 30 V DC

Current consumption for display

- T.2 Approx. 2 mA
- T.3 Limited to approx. 13 mA
- T.4 Limited to 20 mA maximum

Display medium 1 LED via a light guide

Permissible wire gauge 0.6 mm ... 0.8 mm

Dimensions 85 x 85 x 50 mm

Weight 65 g

Protection class as per IEC 60529 IP 40

Ordering Information

**MPA External Detector Alarm Display
according to DIN 14623**

MPA

The External Detector Alarm Display is required if the detector is not directly visible or has been mounted in false ceilings or false floors. The External Detector Alarm Display should be mounted in corridors or access pathways to the corresponding building sections or rooms.

The transparent red alarm display conforms to DIN 14623.

Certifications and Approvals

Region	Certification	
Europe	CE	MPA
Germany	VdS	G 294052 MPA
	PTB	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA
Poland	CNBOP	2095/2006 MPA
Russia	GOST	POCC DE.C313B06298

Installation/Configuration Notes

Note If unshielded cables are used, the cable length between a LSN detector and an External Detector Alarm Display is restricted to a maximum of 3 m.
If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the External Detector Alarm Display within one loop or stub).

FAA-420-RI Remote Indicator



Weight	45 g
Protection class as per IEC 60529	IP 40

Ordering Information

FAA-420-RI Remote Indicator

FAA-420-RI

6

The FAA-420-RI is an external detector alarm display and is required if the detector is not directly visible or has been mounted in false ceilings or false floors. The external detector alarm display should be mounted in corridors or access pathways of the corresponding building sections or rooms.

Certifications and Approvals

Region	Certification	
Europe	CE	FAA-420-RI
Russia	GOST	POCC DE.C313B06298

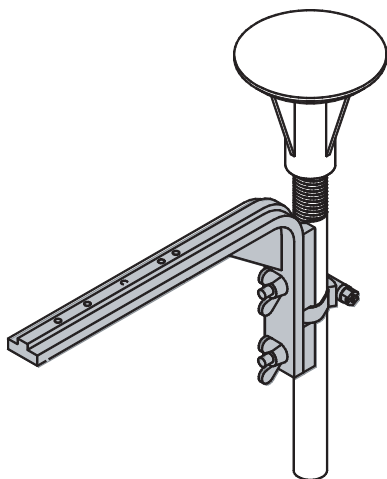
Installation/Configuration Notes

Note	If unshielded cables are used, the cable length between an LSN detector and an external detector alarm display is restricted to a maximum of 3 m.
	If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the external detector alarm display within one loop or stub).

Technical Specifications

Operating voltage	5 V DC ... 30 V DC
Maximum current consumption	20 mA
Display medium	2 LEDs
Permissible wire gauge	0.6 mm – 2.0 mm
Dimensions	84 x 84 x 35 mm

Mounting Bracket for Fire Detectors on False Floor Stilts



Mounting Bracket to mount the detector in floor cavities.
The detector base is **not** included in the scope of delivery.

Ordering Information

Mounting Bracket for Fire Detectors on
False Floor Stilts

FMX-DET-MB

MK 400 Detector Console



Console for DIBt compliant mounting of detectors above doors etc.

The detector base is included in the scope of delivery.

Planning notes

Dimensions (L x B x H): 185 x 129 x 29 mm (without base)

Certifications and Approvals

Region	Certification
Russia	GOST POCC DE.C313B06300

Ordering Information

MK 400 Detector Console

Console for DIBt compliant mounting of detectors above doors etc., including detector base

MK 400

MH 400 Detector Heating Element

The Detector Heating Element MH 400 is deployed at locations where the functional safety of the detector might be impaired by condensation (dew), e. g. in warehouses which are briefly opened in order to allow vehicles to enter and leave.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06300

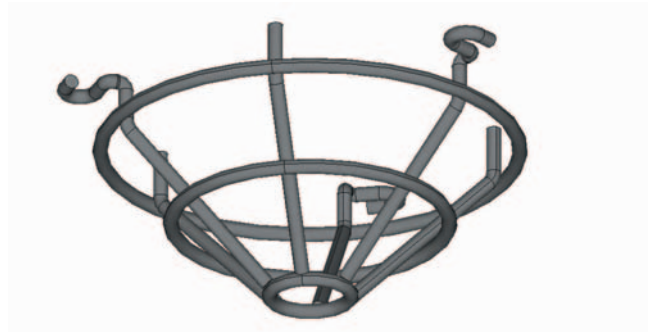
Installation/Configuration Notes

- The integrated 1 k Ω resistor has a nominal performance of 3 W. With a looped-through 28 V power supply (monitored), up to 10 Detector Heating Elements MH 400 can be deployed per loop.
- External power supply (not monitored) is possible.
- The supply voltage may not be permitted to fall below 23 V.

Ordering Information

MH 400 Detector Heating Element	MH 400
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SK 400 Protective Basket



In the case of installation of the detector e. g. in a sports hall, the Protective Basket prevents balls or other sports equipment hitting and possibly damaging the detector.

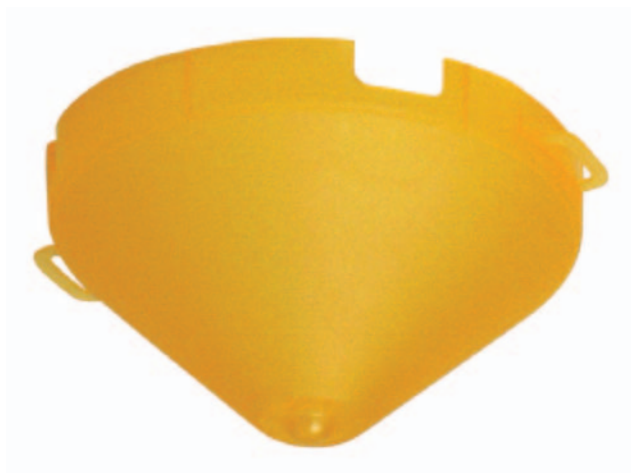
The robust Protective Basket consists of 5 mm round steel, and is painted aluminum gray (RAL 9007).

Diameter (max.): 148 mm
Height: 75 mm

Ordering Information

SK 400 Protective Basket	SK 400
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SSK 400 Protective Dust Cover



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Packing unit = 10 units

The Protective Dust Cover SSK 400 protects a mounted detector base – with or without detector head – against dirt during building work.

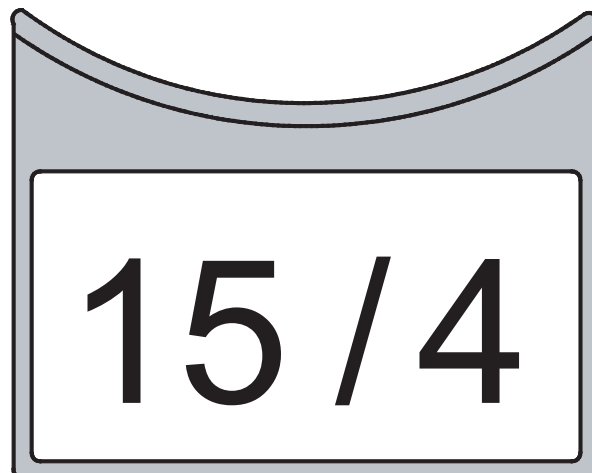
The Protective Dust Cover made of polypropylene (PP) is pushed onto the installed detector base.

Ordering Information

SSK 400 Protective Dust Cover
(packing unit = 10 units)

SSK 400

TP4 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 4 m and is configured for a self-adhesive label with dimensions of up to 65 x 34 mm.

Note

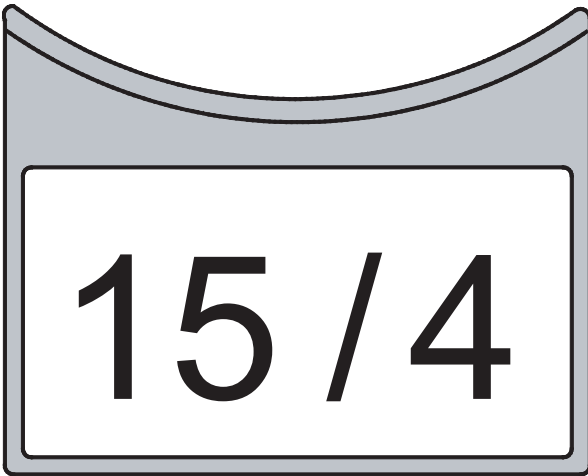
Labels by Zweckform have proven practical. The self-adhesive labels are made of white polyester film and can be labeled with a laser printer or copier.

Ordering Information

TP4 400 Support Plate for Detector Identification
(packing unit = 50 units)

TP4 400

TP8 400 Support Plate for Detector Identification



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Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

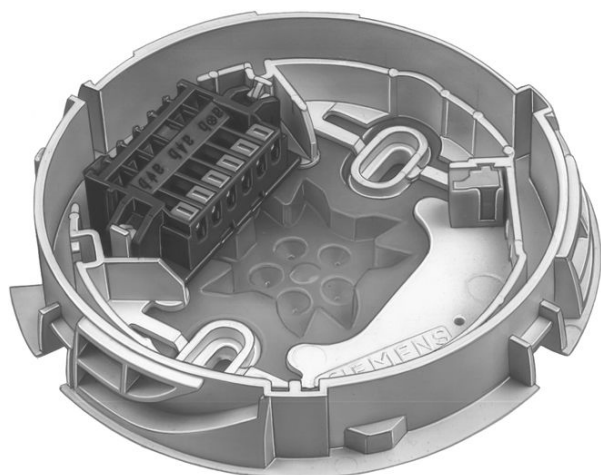
This is designed for an installation height of up to 8 m and is configured for a self-adhesive label with dimensions of up to 97 x 44 mm.

Note Labels by Zweckform have proven practical. The self-adhesive labels are made of white polyester film and can be labeled with a laser printer or copier.

Ordering Information

TP8 400 Support Plate for Detector Identification (packing unit = 50 units)	TP8 400
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Base for DO1101A-Ex Smoke Detector



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Standard Base with integrated rubber seal and terminal block with efficient cutting/clamping function for wire diameters from 0.6 mm to 0.8 mm

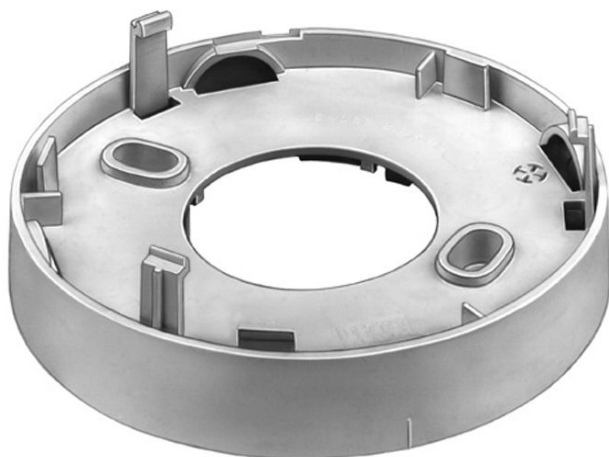
Technical Specifications

Cable diameter	0.2 mm ² . . 2.5 mm ²
Housing material	Plastic, ASA
Housing color	White, RAL 9010
Dimensions (D x H)	Ø 113 x 26 mm
Weight	Approx. 65 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C . . . +70 °C
Permissible storage temperature	-30 °C . . . +75 °C

Ordering Information

Base for DO1101A-Ex Smoke Detector DO1101A-EX-BASE

DBZ 1191 Additional Base



6

Additional Base for the standard base of the DO1101A-Ex.

The additional base is required for attachment to uneven surfaces and to feed surface cables with external diameters of up to 14 mm. The standard base is placed on top and attached with snap-action catches.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313.B06297

Technical Specifications

Cable diameter	0.2 mm ² .. 2.5 mm ²
Housing material	Plastic, ASA
Housing color	White, RAL 9010
Dimensions (D x H) (with detector and base)	Ø 116 x 78 mm
Weight	Approx. 50 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C

Ordering Information

DBZ 1191 Additional Base
for the standard base of the DO1101A-Ex

DBZ1191

DBZ 1192 Additional Base for Damp Rooms



Additional Base for Damp Rooms for the standard base of the DO1101A-Ex

This additional base for damp rooms is required for installation in damp and dirty environments.

Surface cable feeds realized with PG16 threaded sections.

The standard base is placed on top and attached with snap-action catches.

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313.B06297

Technical Specifications

Dimensions (W x H x D)	134 x 134 x 70 mm
Housing material	Plastic, ABS / PC-GF20
Housing color	White, RAL 9010
Weight	Approx. 260 g
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C

Ordering Information

DBZ 1192 Additional Base for Damp Rooms **DBZ1191+BOX**
for the standard base of the DO1101A-Ex

DBZ 1193A Detector Identification



Holder made of polycarbonate with hinged lid, for safe insertion of a identifier plate size 58 mm x 19 mm

Note Maximum typeface size 16 mm!

Ordering Information

DBZ 1193A Detector Identification

DOW1171-IDENT

Purchase order quantity must be 10 or multiple of 10.

SB3 Safety Barrier incl. DCA1192 Input/Output Module



Functions

The SB3 Safety Barrier limits the electrical energy between non-inherently safe and inherently safe circuits and thus prevents the ignition of gas mixtures by electrical sparks.

The Safety Barrier must always be installed outside the explosive area.

The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier.

Certifications and Approvals

Region	Certification	
Europe	CE	DC 1192 SB 3
	CPD	0786-CPD-20512 DC 1192
Germany	VdS	G 298021 DC 1192
	PTB	01 ATEX 2088 SB 3

Parts Included

Qty.	Components
1	SB3 Safety Barrier
1	Installation set for SB3
1	DCA1192 Input/Output Module
1	Terminal carrier for DCA1192
1	EOL22(Ex) line termination, included with the DCA1192
2	Housing with cover

Technical Specifications

SB3 Safety Barrier, with Housing

Max. voltage	28 V DC
Max. permissible current	100 mA
Max. output	0.7 W
Wire gauge	0.2 mm ² ... 2.5 mm ²
Cable bushings	PG16 (6x)
Dimensions (W x H x D)	135 x 135 x 65 mm
Housing material	Plastic, PC
Housing color	White, RAL 9010
Weight	Approx. 450 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C
Ignition protection according to EN 50014/20	Inherent safety EEx ia IIC / IIB

DCA1192 Input/Output Module, with Housing

External supply	
• Operating voltage	18 V DC ... 32 V DC
• Current consumption	Max. 5 mA
• Line resistance	50 Ω ... 250 Ω
• Line termination	EOL22(Ex)
Line termination	
• Operating voltage	18 V DC ... 22 V DC
• Standby current	≤45 mA
• Operating current	≤150 mA
• Line resistance	50 Ω ... 250 Ω
• Line termination	EOL22(Ex)
Wire gauge	0.2 mm ² ... 2.5 mm ²
Cable bushings	PG16 (6x)
Housing material	Plastic, PC
Housing color	White, RAL 9010
Dimensions (W x H x D)	135 x 135 x 65 mm
Weight	Approx. 425 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C
Permissible relative humidity	≤100% at T≤34 °C

Ordering Information

SB3 Safety Barrier incl. DCA1192 Input/Output Module **SB3**

FAS-420-TM Series Aspiring Smoke Detectors LSN improved version



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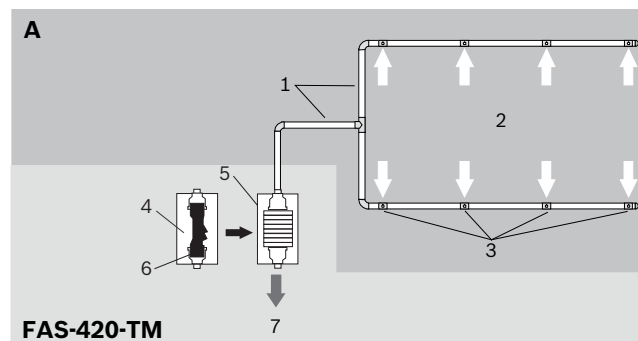
Features

- ▶ For connecting to the fire panels FPA-5000 and FPA-1200 with LSN improved technology
- ▶ High deceptive alarm immunity with intelligent *LOGIC-SENS* signal processing
- ▶ Innovative fire source identification technology allows the exact location of the fire to be pinpointed by monitoring up to five distinct zones
- ▶ Innovative airflow monitoring including single-hole monitoring detects obstruction and breakage
- ▶ Installation and commissioning made easy by plug-and-play function
- ▶ Easy to diagnose using FAS-ASD-DIAG Diagnostic Software
- ▶ Simple implementation of the pipe system planning through patented aspiration reducing film sheets
- ▶ Preservation of LSN loop functions in the event of wire interruption or short-circuit through two integrated isolators

The FAS-420-TM Series Aspiring Smoke Detectors are specially designed for direct connection to the Local SecurityNetwork improved version with the extended range of features. These active fire detection systems are for early fire detection in zone and equipment protection, as well as for the monitoring of air-conditioning units or ducts. The exact location of the fire can be pinpointed using the innovative fire source identification.

The aspirating smoke detectors are fitted with the latest fire detection technology. Their resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under difficult environmental conditions.

System Overview



A	Pipe system
FAS-420-TM series	Aspiring smoke detector
1	Smoke aspiration pipe
2	Air intake
3	Air sampling openings
4	Detection unit incl. airflow sensor
5	Housing base
6	Aspiration unit
7	Air outlet

Functions

The aspiration unit uses a pipe system with defined air sampling openings to draw in air samples from the monitoring range and route them to the detection unit.

Depending on the programmed response sensitivity of the detection unit and the alarm threshold, the FAS-420-TM Aspiring Smoke Detector triggers the alarm when the appropriate light obscuration level is reached. The alarm is displayed via the pre-alarm or main alarm LED on the device and forwarded to the connected fire panel.

Various time-delay settings can be selected for displaying and forwarding alarms and malfunctions.

A malfunction message is reset via the connected fire panel. Alarm and malfunction messages are displayed simultaneously on the device via the Local SecurityNetwork (LSN) using the reset function on the detector line.

Avoiding false alarms

The *LOGIC-SENS* intelligent signal processing compares the measured smoke level with known disturbance variables and decides whether something is an alarm or deception.

Fire source identification

Innovative fire source identification technology allows the exact location of the fire to be pinpointed by monitoring up to five distinct zones.

Airflow monitoring

An airflow sensor checks the connected pipe system for breakage and obstruction.

Response sensitivity

FAS-420-TM series Aspirating Smoke Detectors have a response sensitivity of 0.5%/m to 2%/m light obscuration. The alarm threshold can be set at intervals of 0.1%/m with FAS-ASD-DIAG. The smoke level display on the FAS-420-TM-RVB model allows a response sensitivity of 0.05%/m to 0.2%/m light obscuration.

Allocating detector address

The address on the Aspirating Smoke Detector is set using the DIP switch. Both automatic and manual address allocation are possible, with or without auto detection.

The following settings are possible:

Address Operating mode

0	Automatic address allocation for loop/stub in LSN improved mode (T-tap not possible)
1 - 254	Manual address allocation for loop/stub/T-tap in LSN improved mode
255	Automatic address allocation for loop/stub in LSN classic mode (address range: max. 127)

LSN improved features

FAS-420-TM series Aspirating Smoke Detectors feature LSN improved technology:

- Flexible network structures, including T-tapping with no additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used.

The FAS-420-TM series also offers all the established benefits of LSN technology. The operating data and fault messages can be found on the panel controller.

In the event of an alarm, individual detector identification is transmitted to the fire panel.

FAS-420-TM series variant models

All FAS-420-TM series Aspirating Smoke Detectors have LED displays for operating mode, malfunction and main alarm, as well as offering an infrared diagnostics port. In addition to this, the FAS-420-TM-R and FAS-420-TM-RVB variants offer an optical fire location display for up to five zones. The FAS-420-TM-RVB also includes a pre-alarm display and a 10-segment smoke level display.

Certifications and Approvals

Region	Certification
Europe	CE FAS-420-TM Series

Installation/Configuration Notes

- For connecting to the fire panels FPA-5000 and FPA-1200 with extended range of LSN features.
- Programming is carried out via the programming software FSP-5000-RPS.

Pipe system planning

In planning, a distinction is made between area monitoring and equipment monitoring.

The aspiration pipe system should be arranged such that any fires can be detected at the initial stage. The number of air sampling openings and the structure of the pipe system depend on the size and geometry of the monitoring area.

Symmetrical structure

The aspiration pipe system incl. aspiration borings should preferably be symmetrical in structure, i.e.:

- Same number of air sampling openings per pipe branch
- Same pipe branch lengths (maximum deviation $\pm 20\%$)
- Same distance between adjacent air sampling openings on the smoke aspiration pipe (maximum deviation $\pm 20\%$)

Asymmetrical structure

If structural issues make it impossible to maintain this symmetry, the following conditions apply:

- The number of air sampling openings and the length of the shortest and longest pipe branch within the pipe system must not exceed a quantity ratio of 1:2.
- The distance between adjacent air sampling openings on the smoke aspiration pipe must be the same (maximum deviation $\pm 20\%$).
- The diameters of the air sampling openings are determined separately for each pipe branch. The diameters depend on the total number of air sampling openings in the pipe branch in question.

Branch length

For faster detection, it is best to select several short branches rather than a few long branches (U and double-U pipe systems preferable).

Pipe configuration

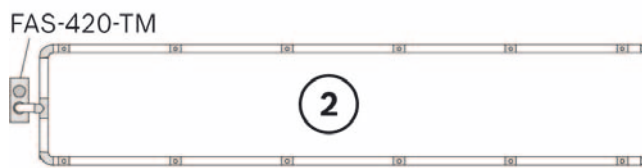
Depending on the geometry of the area, the aspiration pipe is planned as an I, U, M or double-U pipe system.

Note Planning with fire source identification requires I pipe configuration.

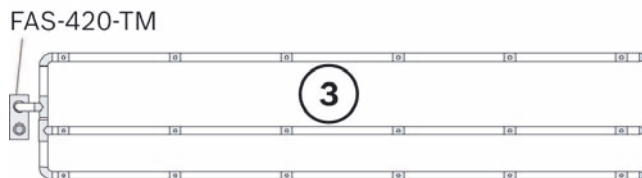
FAS-420-TM



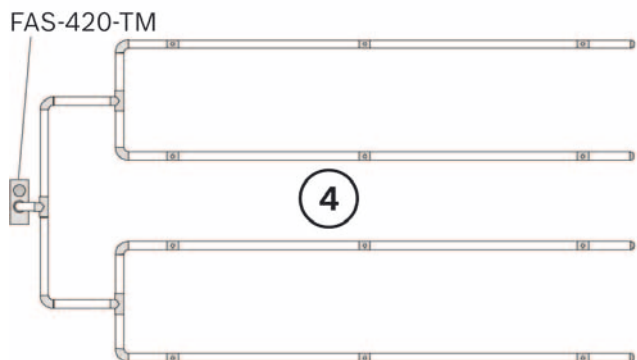
FAS-420-TM



FAS-420-TM



FAS-420-TM



Item	Designation
1	I-pipe system
2	U-pipe system
3	M-pipe system
4	Double-U pipe system

For further information on the following aspects of FAS-420-TM planning, please refer to the operation guide “FAS-420-TM Series Aspirating Smoke Detectors LSN improved version” (Product ID F.01U.088.878):

- Planning airflow monitoring
- Defining the sensitivity
- Planning limitations
- Planning air sampling pipes
- Standard Pipe Planning
- Simplified Pipe Planning
- Planning for Forced Airflow
- Setting of the fan current

Parts Included

Type of device	Qty.	Components
FAS-420-TM	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction and alarm
FAS-420-TM-R	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction, alarm and fire source identification
FAS-420-TM-RVB	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction, pre-alarm, main alarm, fire source identification and 10-segment smoke level display

Note The FAS-420-TM-HB Housing Base must be ordered separately for standard units.

Technical Specifications

Electrical

LSN power supply	15 V DC . . 33 V DC		
Auxiliary power supply	15 V DC . . 30 V DC		
LSN current consumption	3.25 mA		
Current consumption from auxiliary power supply	Fan voltage		
	9 V	10.5 V	12 V
- Starting current	150 mA	150 mA	150 mA
- In standby	105 mA	125 mA	145 mA
- With alarm, device variants FAS-420-TM and FAS-420-TM-R	110 mA	130 mA	150 mA
- With alarm, device variant FAS-420-TM-RVB	140 mA	160 mA	180 mA

Displays on the device

	FAS-420-TM	FAS-420-TM-R	FAS-420-TM-RVB
Operation	Green LED	Green LED	Green LED
Malfunction	Yellow LED	Yellow LED	Yellow LED
Alarm	Red LED	Red LED	2 red LEDs (pre-alarm and main alarm)
Fire location - display		5 red LEDs (zones A-E)	5 red LEDs (zones A-E)
Smoke level - display		-	Yellow smoke level display with 10 segments (1-10)
Infrared port	IR transmitter/receiver	IR transmitter/receiver	IR transmitter/receiver

Mechanics

Conical duct connections Ø 25 mm	1x aspiration pipe 1x air return
• Aspiration pipe	1 pipe
• Air return	1 pipe
Cable bushings:	
• Housing base sides	8 x M 20 and 2 x M 25
• Housing base rear wall	4 x M 25

Dimensions (W x H x D)	140 x 222 x 70 mm
Weight	Approx. 0.8 kg
Housing material	Plastic (ABS)
Housing color	Papyrus white (RAL 9018)
Environmental conditions	
Protection category according to EN 60529	
• Without air return	IP 20
• With pipe section 100 mm/pipe bend	IP 42
• With air return	IP 54
Permissible temperature range:	
• FAS-420-TM series Aspirating Smoke Detector	-20 °C to +60 °C
• PVC pipe system	0 °C to +60 °C
• ABS pipe system	-40 °C to +80 °C
Permissible relative humidity (non-condensing)	Max. 95%
Special features	
Sound power level (at 9 V fan voltage) EN27779, 1991	40 dB(A)
Response sensitivity (light obscuration)	0.5 to 2.0%/m
Life cycle of fan (at 12 V and 24 °C)	60,000 hrs

Ordering Information

FAS-420-TM Aspirating Smoke Detector LSN improved version with LED displays for operating mode, malfunction and alarm	FAS-420-TM
FAS-420-TM-R Aspirating Smoke Detector LSN improved version with LED displays for operating mode, malfunction, alarm and fire source identification	FAS-420-TM-R
FAS-420-TM-RVB Aspirating Smoke Detector LSN improved version with LED displays for operating mode, malfunction, alarm, fire source identification and smoke level display	FAS-420-TM-RVB
Accessories	
FAS-420-TM-HB Housing Base for Aspirating Smoke Detectors Series FAS-420-TM	FAS-420-TM-HB
FAS-ASD-DIAG Diagnostic Software The FAS-ASD-DIAG Diagnostic Software enables reading out all stored device data and gives advices to remove failures. Including connection cable for USB interface and diagnosis tool with an infrared interface.	FAS-ASD-DIAG
Test Pipe	RAS test pipe
Test Adapter	RAS test adapter
AF-BR Marking Tapes for Aspiration Reducing Film Sheets Price per piece, DU 10 pieces	TITANUS AF-BR

Ordering Information

AF-2.0 Aspiration Reducing Film Sheets 2.0 mm Price per piece, DU 10 pieces	TITANUS AF-2.0
AF-2.5 Aspiration Reducing Film Sheets 2.5 mm Price per piece, DU 10 pieces	TITANUS AF-2.5
AF-3.0 Aspiration Reducing Film Sheets, 3.0 mm Price per piece, DU 10 pieces	TITANUS AF-3.0
AF-3.2 Aspiration Reducing Film Sheets, 3.2 mm Price per piece, DU 10 pieces	TITANUS AF-3.2
AF-3.4 Aspiration Reducing Film Sheets, 3.4 mm Price per piece, DU 10 pieces	TITANUS AF-3.4
AF-3.6 Aspiration Reducing Film Sheets, 3.6 mm Price per piece, DU 10 pieces	TITANUS AF-3.6
AF-3.8 Aspiration Reducing Film Sheets, 3.8 mm Price per piece, DU 10 pieces	TITANUS AF-3.8
AF-4.0 Aspiration Reducing Film Sheets, 4.0 mm Price per piece, DU 10 pieces	TITANUS AF-4.0
AF-4.2 Aspiration Reducing Film Sheets, 4.2 mm Price per piece, DU 10 pieces	TITANUS AF-4.2
AF-4.4 Aspiration Reducing Film Sheets, 4.4 mm Price per piece, DU 10 pieces	TITANUS AF-4.4
AF-4.6 Aspiration Reducing Film Sheets, 4.6 mm Price per piece, DU 10 pieces	TITANUS AF-4.6
AF-5.0 Aspiration Reducing Film Sheets, 5.0 mm Price per piece, DU 10 pieces	TITANUS AF-5.0
AF-5.2 Aspiration Reducing Film Sheets, 5.2 mm Price per piece, DU 10 pieces	TITANUS AF-5.2
AF-5.6 Aspiration Reducing Film Sheets, 5.6 mm Price per piece, DU 10 pieces	TITANUS AF-5.6
AF-6.0 Aspiration Reducing Film Sheets, 6.0 mm Price per piece, DU 10 pieces	TITANUS AF-6.0
AF-6.8 Aspiration Reducing Film Sheets, 6.8 mm Price per piece, DU 10 pieces	TITANUS AF-6.8
AF-7.0 Aspiration Reducing Film Sheets, 7.0 mm Price per piece, DU 10 pieces	TITANUS AF-7.0

FAS-420-TM Series Aspirating Smoke Detectors LSN improved version



FAS-420-TM



FAS-420-TM-R



FAS-420-TM-RVB

Model variant	with simple alarm indication (only main alarm)	with simple alarm indication (only main alarm) and fire source indication	with differentiated alarm indication (pre- and main alarm), fire source indication and smoke level display
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption LSN	3.25 mA	3.25 mA	3.25 mA
Current consumption AUX	depending on the configuration between 105 mA and 150 mA	depending on the configuration between 105 mA and 150 mA	depending on the configuration between 105 mA and 180 mA
Protection category according to EN 60529			
- without air-return pipe	IP 20	IP 20	IP 20
- with pipe section 100 mm/ pipe bend	IP 42	IP 42	IP 42
- with air-return pipe	IP 54	IP 54	IP 54
Permissible operating temperature			
- Aspirating smoke detectors	-20 °C . . . +60 °C	-20 °C . . . +60 °C	-20 °C . . . +60 °C
- Pipe system PVC	0 °C . . . +60 °C	0 °C . . . +60 °C	0 °C . . . +60 °C
- Pipe system ABS	-40 °C . . . +80 °C	-40 °C . . . +80 °C	-40 °C . . . +80 °C
Max. sensitivity (light obscuration)			
- max. response sensitivity	0.5 %/m	0.5 %/m	0.5 %/m
- max. display sensitivity	–	–	0.05 %/m
Max. number of air sampling openings per pipe system			
- without fire source identification	8	8	8
- with fire source identification	–	5	5
Max. monitoring area	400 m ²	400 m ²	400 m ²
Max. length of the pipe system			
- pipe Ø 25 mm	50 m	50 m	50 m
- additional pipe Ø 12 mm	8 x 3 m	8 x 3 m	8 x 3 m

FAS-420 Series Aspirating Smoke Detectors

LSN improved version



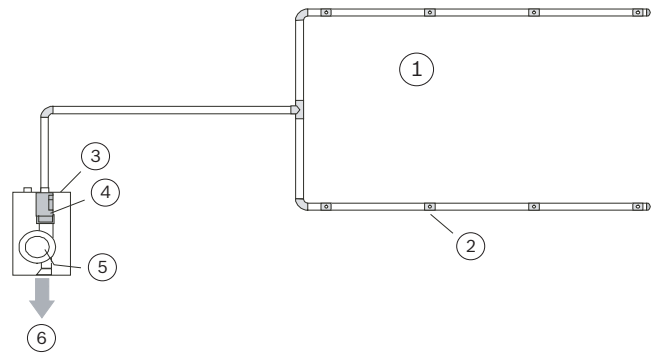
Features

- ▶ Connectable to the fire panels FPA-5000 and FPA-1200 with the improved LSN technology
- ▶ High deceptive alarm immunity with intelligent signal processing *LOGIC-SENS*
- ▶ Innovative airflow monitoring including single-hole monitoring detects obstruction and breakage
- ▶ Initial set-up made easy by automatic initialization
- ▶ Easy diagnostics through flash code on the Detector Module or by using the FAS-ASD-DIAG diagnostic software
- ▶ Simple implementation of the pipe system planning through patented Aspiration reducing Film Sheets
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

The FAS-420 Series Aspirating Smoke Detectors are specially designed for direct connection to the Local SecurityNetwork LSN improved version with the extended features. They are active fire detection systems for early fire detection in area and equipment monitoring, as well as for the monitoring of air conditioning units or ducts.

They have the latest detection technology. Their resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under extreme environmental conditions.

System Overview



Pos.	Description
1	Pipe system/air intake
2	Air sampling openings
3	Housing
4	Detector Module incl. airflow sensor
5	Aspiration unit
6	Air outlet

Functions

The aspiration unit takes air samples from the monitoring area through a pipe system with defined air sampling openings and passes the samples to the Detector Module. Depending on the response sensitivity of the used Detector Module, the Aspirating Smoke Detector triggers an alarm when the appropriate smoke density is reached. This alarm is displayed via the alarm LED on the unit and is transmitted to the fire panel.

An airflow sensor checks the connected pipe system for breakage and obstruction.

Intelligent signal processing *LOGIC-SENS* compares the measured smoke level with known disturbance variables and decides between alarm and deception. For the display and transmission of alarm and faults various delay times can be selected.

Each Detector Module is monitored for contamination, signal malfunction and device removal. Malfunctions and certain device states are displayed using various LED flash codes on the Detector Module's electronics PCB.

A fault message is reset via the connected fire panel. Via the Local SecurityNetwork LSN the alarm and fault messages on the unit are reset simultaneously with the detector line.

There are three different Detector Modules available for the FAS-420 Series Aspirating Smoke Detectors. These modules have different response sensitivities:

Detector Module	Max. sensitivity (light obscuration)	Levels for selection
DM-TT-50(80)	0.5 %/m (0.8 %/m)	2
DM-TT-10(25)	0.1 %/m (0.25 %/m)	4
DM-TT-01(05)	0.015 %/m (0.05 %/m)	4

Note The sensitivity is based on the measurements during Standard Test Fires (previous measurement in brackets).

The FAS-420-TP2 and the FAS-420-TT2 runs with two Detector Modules.

Two air sampling pipe systems can be connected to monitor two areas. When monitoring only one area with two pipe systems, dual-detector dependency may be implemented. Connection to the fire panels FPA-5000 and FPA-1200 and programming via FSP-5000-RPS also allows for dual-zone dependency.

Address allocation

The integrated DIP switches are used to select between automatic or manual addressing with or without auto detection.

The following settings are possible:

Address	Operating mode
0	Automatic addressing in improved version LSN mode for loop/stub (T-taps not possible)
1 – 254	Manual addressing in improved version LSN mode for loop/stub/T-taps
255	Automatic addressing in classic LSN mode for loop/stub (address range: max. 127)

Features of improved LSN

The Aspirating Smoke Detectors in the 420 Series offer all the features of the LSN technology improved version:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

In addition, the FAS-420 Series offer all the established benefits of LSN technology. Operating data and fault messages can be found on the panel controller. In the event of an alarm, individual detector identification is transmitted to the fire panel.

Model variants FAS-420 Series

The variants FAS-420-TP1 and FAS-420-TP2 are the cost-effective Aspirating Smoke Detectors for universal use with LED displays for operation, malfunction, and alarm (two alarm indications on the FAS-420-TP2).

The FAS-420-TT1 and FAS-420-TT2 offer differentiated alarm indications (info, pre, and main alarm) as well as a smoke level display in 10 levels (with the FAS-420-TT2 all alarm and smoke level displays are doubled). Depending on the used Detector Module, a resolution of the sensitivity indication of up to 0,0015 %/m, 0,01 %/m or 0,05 %/m can be selected.

Certifications and Approvals

Region	Certification
Europe	CE FAS-420-TP1/TP2 FAS-420-TT1/TT2
Germany	VdS G 208046 FCS 320 TT_TPSeries_FAS-420 TT_TPSeries
Russia	GOST POCC DE.C313B06300

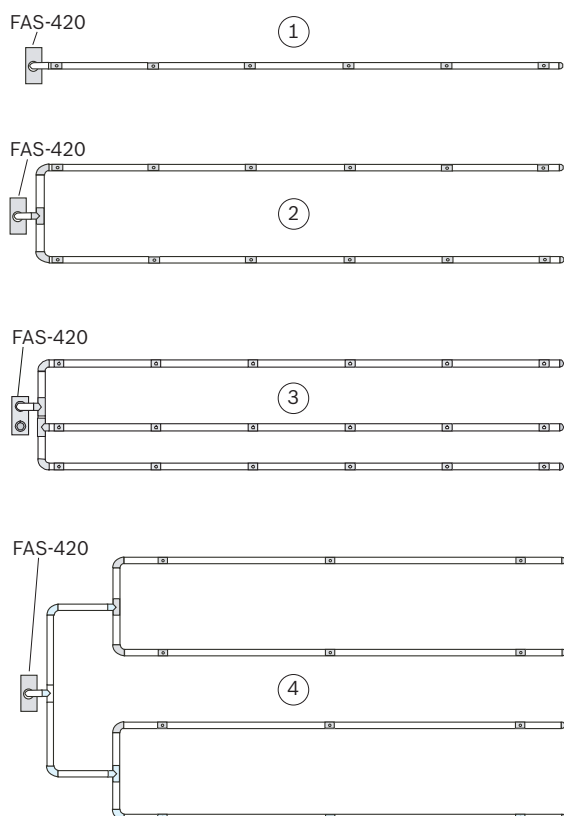
Installation/Configuration Notes

- For connection to the fire panels FPA-5000 and FPA-1200 with the extended system parameters of LSN improved version.
- Programming is carried out via RPS.
- The fan requires a separate power supply.
- An external detector alarm display for connection to the FAS-420 Series Aspirating Smoke Detectors can be ordered separately.

Planning of the pipe system

- In planning, a distinction is made between area monitoring and equipment monitoring.
- PVC pipes and halogen-free aspiration pipes can be used.
- For equipment monitoring, halogen-free pipes should be used.
- The air sampling pipe system should be arranged such that any fires can be detected at the initial stage.
- The pipe system including air sampling openings must always be symmetrical in design ($\pm 10\%$ deviation).
- If structural issues make it impossible to maintain this symmetry, the following conditions apply:
 - The number of air sampling openings and the length of the shortest and longest pipe branch within the pipe system must not exceed a quantity ratio of 01:02.
 - The distance between neighboring air sampling openings on the aspiration pipe must be even (max. deviation $\pm 20\%$).
 - The diameters of the air sampling openings are determined separately for each pipe branch. The diameters depend on the total number of air sampling openings in the pipe branch in question.
- Greater distances between the Aspirating Smoke Detector and aspiration pipe are specified for pipes with a 40 mm diameter.
- Depending on the geometrics of the area, the I-, U-, M- or double U-pipe system is utilized.

Note Take notice when planning that the fans of the Aspirating Smoke Detectors produce a noise level of 45 dB(A).



Pos.	Designation
1	I-pipe system
2	U-pipe system
3	M-pipe system
4	Double U-pipe system

- For a faster detection, it is best to select several short branches rather than a few long branches (U and double-U pipe systems preferable).
- Bends are preferable to angles in the event of directional changes.
- In order to increase transport speed in critical application areas, the fan voltage can be increased from 6.9 V to 9 V.

Planning limitations

- Pipe length between two air sampling openings:
 - Minimum 4 m (0.1 m with Simplified Pipe Planning)
 - Maximum 12 m.
- The maximum monitoring area per air sampling opening corresponds to the maximum monitoring area of point-type detectors according to valid planning guidelines.
- Maximum of 32 air sampling openings per pipe system
- Max. pipe length / max. total monitoring area per pipe system:
 - **300 m / 2880 m²** (VdS-compliant)
 - With two Detector Modules: **2*280 m / 5760 m²**

Aspiration pipe planning

Aspiration pipe systems are constructed according to planning specifications with the common pipe components as well as components for special applications, e. g. Water Separator or Detonation Safety Barrier.

All borings for the smoke aspiration systems are made to a diameter of 10 mm and the exact aspiration openings are implemented by means of the patented Aspiration Reducing Film Sheets. For each aspiration hole a Aspiration reducing Film Sheet with corresponding punch diameter and Marking Tape must be provided.

Note For applications in areas where a blowing-out system is necessary (e. g. low-temperature areas or where high levels of dust accumulate), special suction reducers with plastic clips are available as separate items.

For further information on the following aspects of FAS-420 planning, please refer to the operation guide “FAS-420 Series Aspirating Smoke Detectors LSN improved version” (product ID F.01U.029.275):

- Specifying the sensitivity
- Standard planning in line with VdS
- Planning with long pipe feed lines
- Planning for high-rise warehouses
- Simplified Planning
- Planning with single-hole monitoring
- Planning for forced airflow

Parts Included

Type of device	Qty	Components
FAS-420-TP1	1	Aspirating Smoke Detector basic unit, with LED displays for operation, malfunction, and alarm, for one Detector Module, for connecting one pipe system
FAS-420-TP2	1	Aspirating Smoke Detector basic unit, with LED displays for operation, malfunction, and alarm, for two Detector Modules, for connecting two pipe systems
FAS-420-TT1	1	Aspirating Smoke Detector basic unit, with differentiated alarm and smoke level display, for one Detector Module, for connecting one pipe system
FAS-420-TT2	1	Aspirating Smoke Detector basic unit, with differentiated alarm and smoke level display, for two Detector Modules, for connecting two pipe systems

Note One or two Detector Modules must be ordered separately for the basic units (see table). Only use Detector Modules of the type DM-TT-XX for all variants of the FAS-420 series.

For type of device	Qty	Required Detector Modules
FAS-420-TP1	1	Either DM-TT-50(80), DM-TT-10(25) or DM-TT-01(05)
FAS-420-TP2	2	DM-TT-50(80), DM-TT-10(25) and/or DM-TT-01(05)
FAS-420-TT1	1	Either DM-TT-50(80), DM-TT-10(25) or DM-TT-01(05)
FAS-420-TT2	2	DM-TT-50(80), DM-TT-10(25) and/or DM-TT-01(05)

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC	
Current consumption from LSN	3.25 mA	
Current consumption from auxiliary power supply (at 24 V)	FAS-420-TP1/ FAS-420-TT1	FAS-420-TP2/ FAS-420-TT2
• Starting current, fan voltage 6.9 V	300 mA	330 mA
• Starting current, fan voltage 9 V	300 mA	330 mA
• In standby, fan voltage 6.9 V	200 mA	230 mA
• In standby, fan voltage 9 V	260 mA	310 mA
• On alarm, fan voltage 6.9 V	230 mA	290 mA
• On alarm, fan voltage 9 V	290 mA	370 mA

Mechanics

Displays on the device

FAS-420-TP1 / FAS-420-TP2

- In operation Green LED
- Malfunction Yellow LED
- Alarm 1 red LED / 2 red LEDs

FAS-420-TT1 / FAS-420-TT2

- In operation Green LED
- Malfunction Yellow LED
- Level display 1 x / 2 x smoke level display, each with 10 segments (1 - 10)
- Alarm 1 x 3 / 2 x 3 red LEDs for info alarm, pre-alarm and main alarm

Conical duct connections for Ø 25 mm

- Aspiration pipe 1 pipe / 2 pipes
- Air return 1 pipe

Cable bushings	5 x M 20 and 2 x M 25
Dimensions (W x H x D)	200 x 292 x 113 mm
Housing material	Plastic (ABS)
Housing color	Papyrus white, RAL 9018
Weight	Approx. 1.5 kg

Environmental conditions

Protection class as per EN 60529	IP 20
Permissible temperature range	
• Series FAS-420 Aspirating Smoke Detectors	-20 °C to +60 °C
• Pipe system PVC	00 °C to +60 °C
• Pipe system ABS	-40 °C to +80 °C
Permissible relative humidity (non-condensing)	10 to 95 %

Special features

Acoustic power level	45 dB(A)
Response sensitivity (max. light obscuration)	
• Detector Module DM-TT-50(80)	0.5 %/m (0.8 %/m)
• Detector Module DM-TT-10(25)	0.1 %/m (0.25 %/m)
• Detector Module DM-TT-01(05)	0.015 %/m (0.05 %/m)
Service life of the fan (12 V)	43,000 hrs at 24 °C

Ordering Information

FAS-420-TP1 Aspirating Smoke Detector LSN improved version FAS-420-TP1

Basic unit without Detector Module, for connecting one pipe system

FAS-420-TP2 Aspirating Smoke Detector LSN improved version FAS-420-TP2

Basic unit without Detector Modules, for connecting two pipe systems

FAS-420-TT1 Aspirating Smoke Detector LSN improved version FAS-420-TT1

Basic unit without Detector Module, for connecting one pipe system

FAS-420-TT2 Aspirating Smoke Detector LSN improved version FAS-420-TT2

Basic unit without Detector Modules, for connecting two pipe systems

Accessories

DM-TT-50(80) Detector Module DM-TT-50(80)

for Aspirating Smoke Detectors Series FAS-420, with max. sensitivity of 0,5 %/m (0.8 %/m) light obscuration

DM-TT-10(25) Detector Module DM-TT-10(25)

for Aspirating Smoke Detectors Series FAS-420, with max. sensitivity of 0,1 %/m (0.25 %/m) light obscuration

DM-TT-01(05) Detector Module DM-TT-01(05)

for Aspirating Smoke Detectors Series FAS-420, with max. sensitivity of 0,015 %/m (0.05 %/m) light obscuration

MT-1 Device Mounting TITANUS MT-1 mount

FAS-ASD-DIAG Diagnostic Software FAS-ASD-DIAG

The FAS-ASD-DIAG Diagnostic Software enables reading out all stored device data and gives advices to remove failures. Including connection cable for USB interface and diagnosis tool with an infrared interface.

Test Pipe RAS test pipe

Test Adapter RAS test adapter

AF-BR Marking Tapes for Aspiration Reducing Film Sheets TITANUS AF-BR

Price per piece, DU 10 pieces

AF-2.0 Aspiration Reducing Film Sheets 2.0 mm TITANUS AF-2.0

Price per piece, DU 10 pieces

Ordering Information

AF-2.5 Aspiration Reducing Film Sheets 2.5 mm Price per piece, DU 10 pieces	TITANUS AF-2.5
AF-3.0 Aspiration Reducing Film Sheets, 3.0 mm Price per piece, DU 10 pieces	TITANUS AF-3.0
AF-3.2 Aspiration Reducing Film Sheets, 3.2 mm Price per piece, DU 10 pieces	TITANUS AF-3.2
AF-3.4 Aspiration Reducing Film Sheets, 3.4 mm Price per piece, DU 10 pieces	TITANUS AF-3.4
AF-3.6 Aspiration Reducing Film Sheets, 3.6 mm Price per piece, DU 10 pieces	TITANUS AF-3.6
AF-3.8 Aspiration Reducing Film Sheets, 3.8 mm Price per piece, DU 10 pieces	TITANUS AF-3.8
AF-4.0 Aspiration Reducing Film Sheets, 4.0 mm Price per piece, DU 10 pieces	TITANUS AF-4.0
AF-4.2 Aspiration Reducing Film Sheets, 4.2 mm Price per piece, DU 10 pieces	TITANUS AF-4.2
AF-4.4 Aspiration Reducing Film Sheets, 4.4 mm Price per piece, DU 10 pieces	TITANUS AF-4.4
AF-4.6 Aspiration Reducing Film Sheets, 4.6 mm Price per piece, DU 10 pieces	TITANUS AF-4.6
AF-5.0 Aspiration Reducing Film Sheets, 5.0 mm Price per piece, DU 10 pieces	TITANUS AF-5.0
AF-5.2 Aspiration Reducing Film Sheets, 5.2 mm Price per piece, DU 10 pieces	TITANUS AF-5.2
AF-5.6 Aspiration Reducing Film Sheets, 5.6 mm Price per piece, DU 10 pieces	TITANUS AF-5.6
AF-6.0 Aspiration Reducing Film Sheets, 6.0 mm Price per piece, DU 10 pieces	TITANUS AF-6.0
AF-6.8 Aspiration Reducing Film Sheets, 6.8 mm Price per piece, DU 10 pieces	TITANUS AF-6.8
AF-7.0 Aspiration Reducing Film Sheets, 7.0 mm Price per piece, DU 10 pieces	TITANUS AF-7.0

FAS-420 Series Aspirating Smoke Detectors LSN improved version



FAS-420-TP1



FAS-420-TP2



FAS-420-TT1



FAS-420-TT2

Model variant	with simple alarm indication (only main alarm)	with differentiated alarm indication (info, pre, and main alarm) and smoke level display	with simple alarm indication (only main alarm)	with differentiated alarm indication (info, pre, and main alarm) and smoke level display
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption LSN	3.25 mA	3.25 mA	3.25 mA	3.25 mA
Current consumption AUX	depending on the configuration between 200 mA and 300 mA	depending on the configuration between 230 mA and 370 mA	depending on the configuration between 200 mA and 300 mA	depending on the configuration between 230 mA and 370 mA
Protection category	IP 20	IP 20	IP 20	IP 20
Permissible operating temperature				
- Aspirating smoke detectors	-20 °C . . . +60 °C	-20 °C . . . +60 °C	-20 °C . . . +60 °C	-20 °C . . . +60 °C
- Pipe system PVC	-10 °C . . . +60 °C	-10 °C . . . +60 °C	-10 °C . . . +60 °C	-10 °C . . . +60 °C
- Pipe system ABS	-40 °C . . . +80 °C	-40 °C . . . +80 °C	-40 °C . . . +80 °C	-40 °C . . . +80 °C
Number of detector modules	1	2	1	2
Dual-detector dependency configurable	–	•	–	•
Max. sensitivity (light obscuration)				
- max. response sensitivity	depending on the detector module between 0.05%/m and 0.8%/m	depending on the detector module between 0.05%/m and 0.8%/m	depending on the detector module between 0.05%/m and 0.8%/m	depending on the detector module between 0.05%/m and 0.8%/m
- max. display sensitivity	–	–	depending on the detector module between 0.005%/m and 0.08%/m	depending on the detector module between 0.005%/m and 0.08%/m
Max. number of air sampling openings per pipe system	24	2x24	24	2x24
Max. monitoring area	2880 m ²	2x2880 m ²	2880 m ²	2x2880 m ²
Max. length of the pipe system	180 m	2x180 m	180 m	2x180 m

Components for Smoke Aspiration Systems



A wide range of aspiration pipe components are available for use in smoke aspiration systems. The use of appropriate components allows for a safe and reliable operation even under extreme ambient conditions.

Ordering Information

FAS-ASD-PHF16 Polywell Hose Flexible, PG16 50 m roll, flexible, black, non halogen	FAS-ASD-PHF
FAS-ASD-TRPG16 Threaded Ring, PG16 including PG16 internal threads, 5 units	FAS-ASD-TRPG16
FAS-ASD-CSL Connection Straight Line connection between aspiration hose and aspiration pipe, including PG16 internal thread	FAS-ASD-CSL
FAS-ASD-3WT Three Way Tap including fittings, for 25 mm pipe system	FAS-ASD-3WT
FAS-ASD-F Flange for ventilation duct	FAS-ASD-F
FAS-ASD-AR Reduction includes a 10 mm bore for adding a suction reducing film sheet, 10 units	FAS-ASD-AR
FAS-ASD-CLT Ceiling Lead-through white, ABS, 10 units	FAS-ASD-CLT
FAS-ASD-AHC Aspiration Hose for Ceiling Lead-through 50 m roll, white, PE	FAS-ASD-AHC
Dust Collector, for Pipe Exterior Ø 25 mm	AD25 dust collect
FAS-ASD-DSB Detonation Safety Barrier type PROTEGO EG IIA	FAS-ASD-DSB
Water Separator, for Pipe Exterior Ø 25 mm	AD25 water sep

Ordering Information

FAS-ASD-WS Water Separator including metal sinter filter and manual drain valve, including fixing bracket and PG screw joint for 25 mm pipe system	FAS-ASD-WS
Filter Box Small, for Pipe Exterior Ø 25 mm	AD25 filter box s
Replacement Filter Mat for Filter Box Small	RAS spare filter s
FAS-ASD-FL Filterbox Large for 25 mm pipe system, including filter set and two PG29 screw joints	FAS-ASD-FL
FAS-ASD-RFL Replacement Filter Large Set including one of a fine, medium and rough filter mat (60 ppi, 45 ppi and 25 ppi)	FAS-ASD-RFL

Fireray 50/100RV Linear Smoke Detectors



6

Features

- ▶ **Extended monitoring area**
- ▶ **Transmitter, receiver, and evaluating unit integrated into a compact housing**
- ▶ **Electronic help for detector alignment and automatic detector calibration procedure**
- ▶ **Automatic compensation for contamination**
- ▶ **LED display in control unit for various operating states**
- ▶ **Adjustable alarm thresholds**

The Linear Smoke Detectors Fireray 50RV and Fireray 100RV are easy to mount, cost-effective, and work in retro-operation with an extended range:

- Fireray 50RV: 5 m to 50 m
- Fireray 100RV: 50 m to 100 m

Preferred areas of application are historical buildings, churches, museums, shopping centers, factory halls, warehouses, power plants, ex areas, contaminated environments, etc.

Functions

The transmitter emits an infrared light beam (880 nm) that is focused through a lens and invisible. The light beam is reflected by 180° by the prism reflector mounted opposite and returned to the transmitter/receiver combination.

If the IR beam is obscured by smoke and the signal received drops below the selected threshold value for 10 s, the Fireray triggers a fire alarm and the alarm relay closes.

The activation threshold can be adjusted to the environmental conditions. Settings 25% (sensitive), 35%, and 50% (non-sensitive) are possible.

For the alarm relay, you can select between auto-reset and alarm storage.

Various operating states are displayed by LEDs:

- Alarm
- Malfunction
- Operating display
- End of the readjustment for contamination/aging

Slow changes in the operating states (e. g. aging of the components, contamination of the optic, etc.) do not lead to faulty triggering, but are compensated for by automatic amplification control. The state of the system is compared with a default reference value every 15 minutes and in case of deviations, compensated automatically up to 0.7 dB/h. If the readjustment limit is reached, either "Malfunction" or "Alarm" is triggered.

If the IR beam is obscured for at least 10 seconds by more than 90% with a sharp signal increase, the fault relay switches. The reason can be an obstacle in the beam path, turning of the detector, covering of the reflector, etc. After removing the cause of the malfunction, the fault relay is set again and the detector is reset automatically into the detection-ready state after 5 s. The fire panel must be reset separately.

The detector has an alarm output in the form of a floating self-holding relay contact.

Certifications and Approvals

Meets the following regulations:

- BS 5839 Part 5
- EN54-12:2002

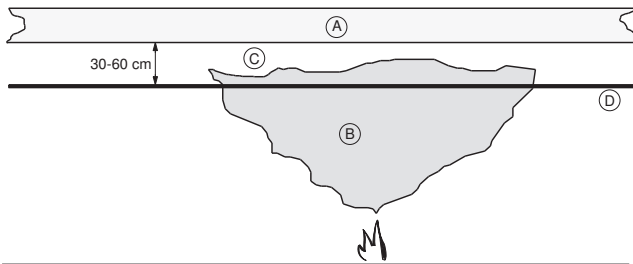
Region	Certification	
Europe	CE	Fireray 50RV/100RV
	CPD	0786-CPD-20045 Fireray 50R/50RV/100R/100RV
Germany	VdS	G 203070 Fireray 50RV/100RV
Hungary	TMT	TMT-89/07/2004 Fireray 50RV/100RV
Russia	GOST	POCC DE.C313B06300
		POCC.YII001.B07219 Fireray2000 & Fireray 50-100RV
		POCC GB.bb02.H04311 Fireray2000 & Fireray50-100RV
Sweden	INTYG	09-407 Fireray 50_Fireray 100

Installation/Configuration Notes

General installation/configuration notes

- For connection to the LSN, the following are required:
 - One FLM-420/4-CON Conventional Interface Module
 - One Mini Distributor a.P. 6 DA.

- To implement cross zoning, the following are required:
 - One FLM-420/4-CON Conventional Interface Module
 - One Mini Distributor a.P. 6 DA.
- Between the detector and reflector there must be a constant visual connection, which may not be interrupted by movable objects (e. g. overhead crane).
- Detector and reflector are generally installed at the same height and aligned with one another. The relatively wide angle of the IR beam makes adjustments easier and guarantees reliable long-term stability.
- The mounting surface for the detector must be firm and vibration-free. Metal supports that may be affected by heat or cold are unsuitable for the installation.
- The reflector is mounted at the permissible distance on a solid, non-reflecting surface, whereby the light beam must hit the reflector vertically.
- The detector must be installed so that direct irradiation of sunlight or artificial light into the optical system is prevented. Normal ambient light has no influence on the IR beam and the analysis.
- A screened cable must be used to protect against radiated interference. Possible sources of interference are to be avoided when routing cables and the cable must be protected against mechanical damage.
- Heat accumulation under roof surfaces can prevent the travel of climbing smoke to the ceiling. The detector must therefore be mounted below an expected heat accumulation. This can mean that the benchmark values for D_L specified in the table must be exceeded.



Pos. Description

A	Ceiling
B	Mushroom cloud
C	Heat accumulation
D	IR beam

- Since the smoke over a fire source does not just climb vertically upwards, but rather spreads like a mushroom cloud (depending on existing air currents and air pads), the width of the monitoring area is much greater than the diameter of the IR beam.
- The sideways detection width on both sides of the beam center line is 7.5 m.
- Country-specific standards and guidelines with respect to planning must be adhered to.

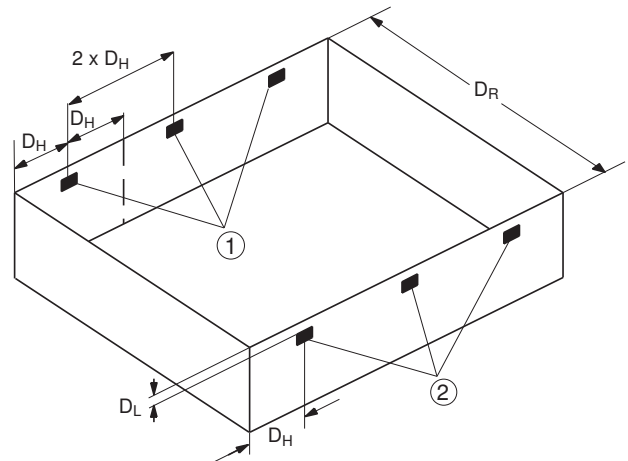
Detector arrangement

The detectors must be deviated up so that the following distances are adhered to:

D_H	horizontal distance detector-wall or detector-ceiling	at least 0.5 m, max. 7.5 m
$2 \times D_H$	Distance between two parallel beams	max. 15 m
D_L	Distance from the ceiling	0.3 m to 0.6 m
D_R	Range = distance detector-reflector.	
	- Fireray 50RV:	over 5 m to 50 m
	- Fireray 100RV:	over 50 m to 100 m

- The center line of the monitoring beam may not be closer than 0.5 m to walls, equipment or stored goods.
- The prism reflectors permit angle deviations up to 5° from the center line without signal weakening.

Positioning detectors on flat ceilings

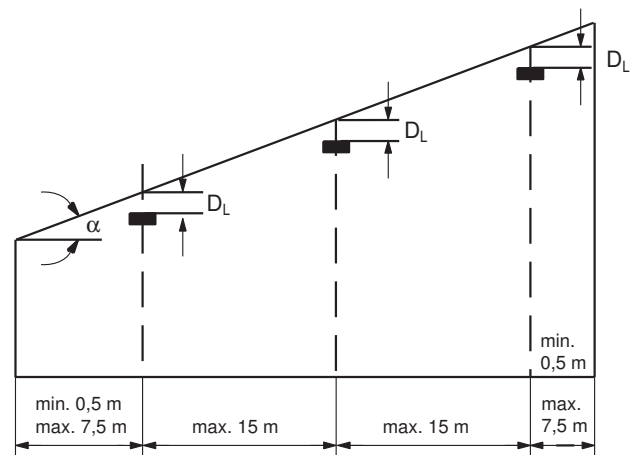


Pos. Description

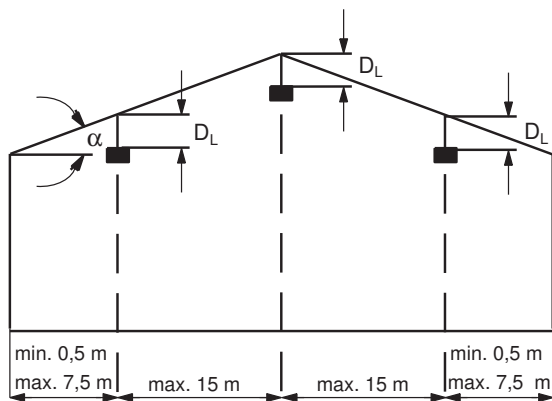
1	Fireray 50/100RV
2	Prism reflectors

D_H, D_L, D_R see table above

Positioning the detectors in a tilted roof



Positioning the detectors in a saddleback roof



Note The ceiling distance can be reduced with saddleback roofs by 1 % per degree, maximum 25 %.

Detector arrangement in accordance with VdS/VDE

- The number of light beam smoke detectors must be selected so that the maximum monitoring area A in the table is not exceeded (meets VdS 2095 and DIN VDE 0833-2).

Room height R_H	D_H	A	D_L at $\alpha < 20^\circ$	D_L at $\alpha > 20^\circ$
up to 6 m	6 m	1200 m ²	0.3 m to 0.5 m	0.3 m to 0.5 m
over 6 m to 12 m	6.5 m	1300 m ²	0.4 m to 0.7 m	0.4 m to 0.9 m
more than 12 m to 16 m ^{*)}	7 m ^{*)}	1400 m ² ^{**)}	0.6 m to 0.9 m ^{**)}	0.8 m to 1.2 m ^{**)}

D_H = greatest permissible horizontal distance of any point of the ceiling to the next-closest beam

A = maximum monitoring area per detector (= double the product of the greatest horizontal distance D_H and highest allowable detector/reflector distance)

D_L = distance of the detector to the ceiling

α = angle which the roof/ceiling pitch forms with the horizontal; if a roof has different pitches (e. g. sheds), use the smallest existing pitch

^{*)} With a room height of more than 12 m, it is recommended that you provide a second monitoring level on which the detectors are arranged offset to the first monitoring level

^{**) Depends on use and environmental conditions (e. g. quick fire development and smoke spread)}

- Depending on the roof construction (flat, tilted or saddleback), the detectors and reflectors must be arranged depending on the roof pitch α and the room height R_H so that the light beam in the distance D_L runs under the roof (see table).

Parts Included

Fireray 50RV

Qty.	Components
1	Linear Smoke Detector Fireray 50RV: compact device with integrated transmitter, receiver, and control unit
1	Prism reflector
1	Test filter
1	Connection cable with plug
1	Installation material

Fireray 100RV

Qty.	Components
1	Linear Smoke Detector Fireray 100RV: compact device with integrated transmitter, receiver, and control unit
4	Prism reflectors
1	Test filter
1	Connection cable with plug
1	Installation material

Technical Specifications

Electrical

Operating voltage	10 V DC ... 30 V DC
Current consumption	
• In standby	< 4 mA @ 24 V
• In alarm/malfunction	< 15 mA
Reset control by power disruption	> 5 s
Alarm relay (contact load)	Open contact, potential free (2 A @ 30 V DC)
Fault relay (contact load)	Break contact element, potential free (2 A @ 30 V DC)

Mechanics

LED indicators for	
• Alarm	Red
• Malfunction	Yellow
• Operation	Yellow flashing once in 10 seconds
• Limit of the readjustment for contamination/aging	Yellow flashing once in 2 seconds
Dimensions (W x H x D)	
• Fireray 50/100RV	126 x 210 x 120 mm
• Prism reflector	100 x 100 x 9.5 mm
Housing Color	Light gray/black
Housing material	ABS, non-flammable
Weight	670 g

Environmental conditions

Protection class as per EN 60529	IP 50
Permissible operating temperature	-30 °C ... 55 °C

Planning

Permissible distance detector-reflector

• Fireray 50RV	Min. 5 m - max. 50 m
• Fireray 100RV	Min. 50 m - max. 100 m

Side detection width (on both sides of the light beam)	Max. 7.5 m (Heed local guide- lines!)
---	--

Special features

Optical wavelength	880 nm
Adjustable alarm threshold values	2.50 dB (25%) 3.74 dB (35%) 6.02 dB (55%)

Tolerance of the axial deviation (at 35% sensitivity)

• Detector	$\pm 0.8^\circ$
• Prism reflector	$\pm 5.0^\circ$

Ordering Information

Fireray 50RV	Fireray 50 RV
Fireray 100RV	Fireray 100 RV

Fireray 2000 Linear Smoke Detector



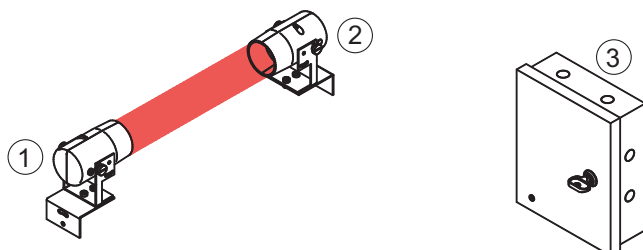
6

Features

- ▶ **Extended monitoring area**
- ▶ **Increased security against false alarms with gain control**
- ▶ **Potential-free, self-holding relay double-throw contact as alarm output**
- ▶ **LED displays in the control unit for:**
- ▶ **Adjustable thresholds**

The Fireray 2000 is an optical Linear Smoke Detector for the detection of light and dark smoke across an area of 10 m to 100 m or 2 m to 45 m in reflection operation using prisms. Preferred areas of application are very large and high halls, e. g. airplane hangars, factory buildings and similar buildings where the use of point-type automatic automatic call points is not possible.

System Overview

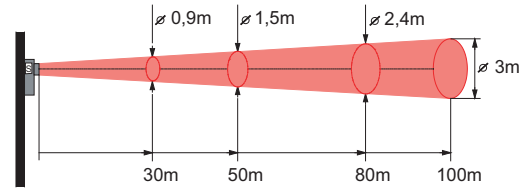


Pos. Description

- | | |
|---|----------------------|
| 1 | Infrared transmitter |
| 2 | Infrared receiver |
| 3 | Control unit |

Functions

The transmitter transmits an invisible infrared light beam bundled through a lens to the receiver.



At a maximum distance of 100 m the core diameter of the light beam is 3 m. The core diameter is the area of the conical IR beam in which orderly operation of the system is possible.

If smoke interrupts the beam, the signal in the receiver is attenuated depending on the thickness of the smoke. If an attenuation according to the set threshold lasts longer than 5 s, an alarm is triggered.

The alarm threshold can be set to 25% or 35% or 50% with the use of prisms.

Slow changes (e. g. contamination of the optical system) do not cause false alarms; instead, they are balanced out by an automatic gain control. Here the current state of the system is compared with a reference value and adjusted stepwise in case of deviations greater than 7%. By default, the comparison is done every 1.5 hours.

With a comp switch, manual or automatic alarm reset can be selected.

The Fireray 2000 can also be used as reflection fire alarm system with prisms (transmitters and receivers on the same wall).

Certifications and Approvals

Comply with:

- EN54-12:2002

Region	Certification	
Europe	CE	Fireray 2000
	CPD	0786-CPD-20196 Fireray 2000
Germany	VdS	G 297058 Fireray 2000
Czech Republic	TZÚS	080-001259 Fireray 2000
Hungary	TMT	TMT-89/08/2004 Fireray 2000
Russia	GOST	POCC DE.C313B06298
		POCC GB.bb02.H04311 Fireray2000 & Fireray50-100RV
		POCC.YII001.B07219 Fireray2000 & Fireray 50-100RV
Sweden	INTYG	09-408 Fireray 2000

Installation/Configuration Notes

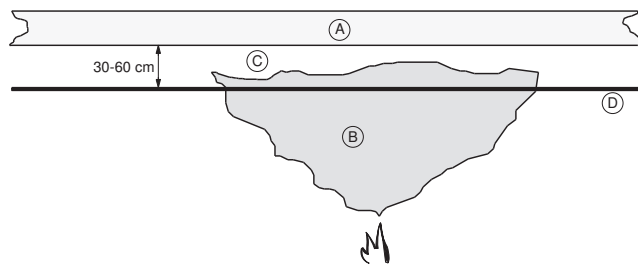
General installation/configuration notes

- A FLM-420/4-CON Conventional Interface Module is required for connection of the Fireray 2000 to the LSN.
- Between the detector and reflector there must be a constant visual connection, which may not be interrupted by movable objects (e. g. overhead crane).
- The mounting surfaces for the transmitter and receiver must be stable and free of vibration. Installation on metal surfaces should be avoided since they expand and contract in case of temperature fluctuations.
- Inaccessible areas are monitored by monitoring transmitters and receivers outside and letting them look through windows into the monitoring area. The minimum diameter of the opening must be 20 cm or an opening corresponding to the diameter of the beam.

Warning Normal panes of glass reduce the effective system range by approx. 10% per pane

- When installing the receiver, be sure that the direct penetration of sunlight or other light into the optical system is avoided. Normal environmental light has no influence on the receiver.
- The control unit must be installed in an area that is easy to reach. A screened cable must be used. The maximum cable length of 100 m to the receiver may not be exceeded.
- An adjustment tool can be ordered separately. It is connected to the control unit. Alignment, particularly over larger distances, is considerably simplified with the help of two LED displays.

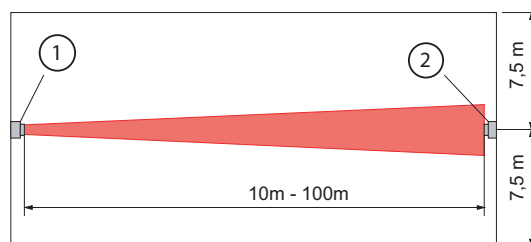
Heat accumulation under roof surfaces can prevent the travel of climbing smoke to the ceiling. The detector must therefore be mounted below an expected heat accumulation. This can mean that the benchmark values for D_L specified in the table must be exceeded.



Pos. Description

- | | |
|---|-------------------|
| A | Ceiling |
| B | Mushroom cloud |
| C | Heat accumulation |
| D | IR beam |

- Since the smoke over a fire source does not just climb vertically upwards, but rather spreads like a mushroom cloud (depending on existing air currents and air pads), the width of the monitoring area is much greater than the diameter of the IR beam.



Pos. Description

- | | |
|---|-------------|
| 1 | Transmitter |
| 2 | Receiver |

- The sideways detection width on both sides of the beam center line is 7.5 m.
- Country-specific standards and guidelines with respect to planning must be adhered to.

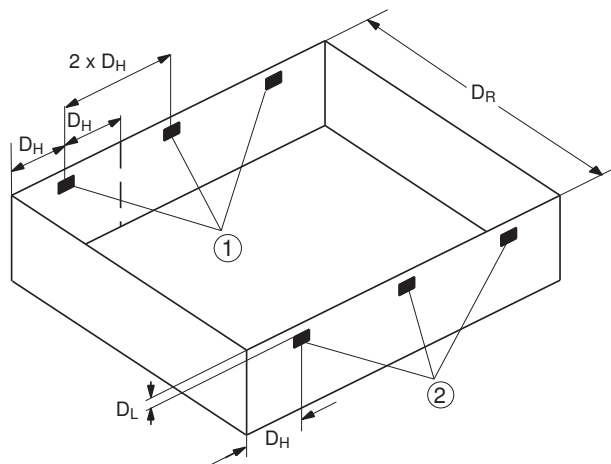
Detector arrangement

The detectors must be divided up so that the following distances are adhered to:

D_H	Horizontal distance detector-wall or detector-ceiling	at least 0.5 m, max. 7.5 m
$2 \times D_H$	Distance between two parallel beams	max. 15 m
D_L	Distance from the ceiling	0.3 m to 0.6 m
D_R	Range = distance between detector and reflector:	
	- Fireray 2000	over 10 m to 100 m
	- Fireray 2000 in retro operation:	over 2 m to 45 m

- The center line of the monitoring beam may not be closer than 0.5 m to walls, equipment or stored goods.
- The prism reflectors permit angle deviations up to 5° from the center line without signal weakening.

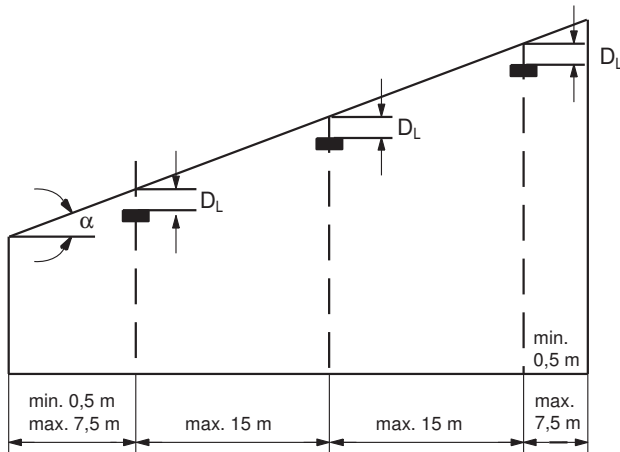
Positioning detectors on flat ceilings



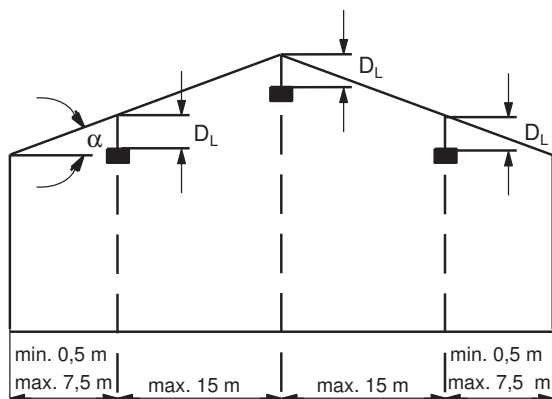
Pos. Description

- | | |
|---|---|
| 1 | Fireray 2000 transmitter or receiver |
| 2 | Fireray 2000 receiver or transmitter or prism |

Positioning the detectors in a tilted roof



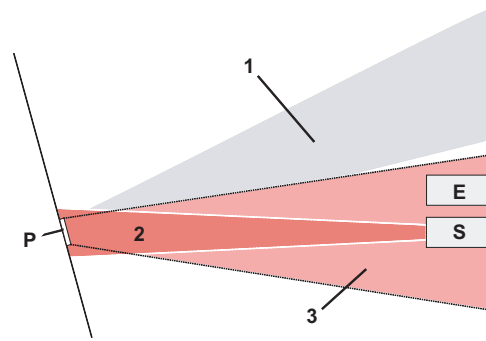
Positioning the detectors in a saddleback roof



Note The ceiling distance can be reduced by 1% per degree for saddleback roofs, up to a maximum of 25%.

Installation as reflection fire alarm system with prisms

- To install transmitter and receiver on the same wall, you need prisms that reflect the light by 180°. The use of prisms eases the installation of transmitters and receivers and the comparison.
- With installation as reflection fire alarm system with prisms, transmitter and receiver must be installed as close to one another as possible.
- Required number of prisms:
 - Distance up to 25 m: 1 prism
 - Distance up to 45 m: 9 prisms
- To achieve effective reflection, the prisms must be installed right-angled to the IR beam of the transmitter. Deviations cause a weaker signal.

**Pos. Description**

- 1 Additional reflection from the polished prism surface
- 2 Beam from transmitter
- 3 Main portion of the reflected beam to the receiver
- P Prism
- E Receiver
- S Transmitter

Detector arrangement in accordance with VdS/VDE

The number of light beam smoke detectors must be selected so that the maximum monitoring area A in the table is not exceeded (fulfills VdS 2095 and DIN VDE 0833-2).

Room height R_H	D_H	A	D_L at $\alpha < 20^\circ$	D_L at $\alpha > 20^\circ$
up to 6 m	6 m	1200 m ²	0.3m to 0.5 m	0.3m to 0.5 m
over 6 m to 12 m	6.5 m	1300 m ²	0.4m to 0.7 m	0.4m to 0.9 m
more than 12 m to 16 m *) **)	7 m *)	1400 m ² **)	0.6m to 0.9 m **)	0.8m to 1.2 m **)

D_H = greatest permissible horizontal distance of any point of the ceiling to the next-closest beam

A = maximum monitoring area per detector (= double the product of the greatest horizontal distance D_H and highest allowable detector/reflector distance)

D_L = distance of the detector to the ceiling

α = angle which the roof/ceiling pitch forms with the horizontal; if a roof has different pitches (e. g. sheds), use the smallest existing pitch

*) With a room height of more than 12 m, it is recommended that you provide a second monitoring level on which the detectors are arranged offset to the first monitoring level

**) Depends on use and environmental conditions (e. g. quick fire development and smoke spread)

- Depending on the roof construction (flat, tilted or saddleback), the detectors and reflectors must be arranged depending on the roof pitch α and the room height R_H so that the light beam in the distance D_L runs under the roof (see table).

Parts Included

Qty.	Components
1	Control unit, Fireray 2000
1	Infrared transmitter
1	Infrared receiver
1	Test filter

Technical Specifications**Electrical**

Operating voltage	24 VDC (11.5 ... 28 V DC)
-------------------	------------------------------

Current consumption

- | | |
|-------------------|---------------|
| • In standby | Approx. 14 mA |
| • During an alarm | Approx. 22 mA |

Mechanics

LED indicators for	Malfunction (beam interruption) Signal too high Signal too low Alarm
--------------------	---

Dimensions (W x H x D)

- | | |
|--|------------------------|
| • Control unit incl. key | 212 x 261.5 x 120.6 mm |
| • Transmitter incl. installation frame | 90 x 130 x 115 mm |
| • Receiver incl. installation frame | 90 x 130 x 115 mm |
| • Prism | 124.6 x 103 x 9.5 mm |

Color (all parts)	White, RAL 9010
-------------------	-----------------

Material

- | | |
|------------------------------------|-------------|
| • Control unit incl. key | Aluminium |
| • Transmitter and receiver housing | Sheet steel |

Weight

- | | |
|--|--------|
| • Control unit incl. key | 1060 g |
| • Transmitter incl. installation frame | 650 g |
| • Receiver incl. installation frame | 650 g |

Environmental conditions

Protection class as per EN 60529	IP 54
Permissible operating temperature	-20 °C ... 55 °C

Planning

Permissible distance transmitter-receiver	Min. 10 m - max. 100 m
Permissible distance transmitter-receiver in reflection operation with prism	Min. 2 m - max. 45 m

Special features

Optical wavelength	880 nm
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Ordering Information**Fireray 2000 Linear Smoke Detector****Fireray 2000****Accessories****Prism for Fireray 2000**

Distance: up to 25 m: 1 prism, up to 35 m:
4 prisms, up to 45 m: 6 prisms

Fireray 2000-prism

FRay5000-50-EN Linear Smoke Detector



6

Features

- ▶ **Extended monitoring range**
- ▶ **Transmitter and receiver integrated into a compact housing**
- ▶ **Electronic and optical feature for detector alignment and self-alignment during operation**
- ▶ **Remote control unit at eye level for easy installation and programming**
- ▶ **Automatic contamination compensation**
- ▶ **Control unit with LED and LCD displaying - various operating states**
- ▶ **Adjustable alarm thresholds**
- ▶ **Building shift compensation**

The FRay5000-50-EN Linear Smoke Detector covers distances between 8 m and 100 m. A reflective prism allows for the accurate detection of smoke particles within the given distance range.

For ranges between 8 m and 50 m, one prism is sufficient. For ranges between 50 m and 100 m, four prisms are required. The additional prisms are included in the FRay5000-LR-Kit Long Range Kit.

Key application areas are large halls such as historical buildings, churches, museums, shopping centers, factory halls, warehouses, etc.

The FRay5000-50-EN Linear Smoke Detector is suitable for use in areas where point-type detectors are not effective.

Functions

The transmitter emits an invisible infrared light beam (850 nm) that is focused through a lens. The light beam is reflected by the prism mounted opposite and returned to the transmitter/receiver combination.

If the IR beam is obscured by smoke and the signal received drops below the selected threshold (standard 10 s, adjustable), the detector triggers a fire alarm and the alarm relay closes.

The sensitivity can be adjusted according to the environmental conditions. The default settings of 25% (sensitive), 35% and 50% (non-sensitive) can be changed in steps of 1%.

The alarm relay can be set to auto-reset or latched mode. The LEDs indicate three different operating states:

- Alarm
- Fault
- Operation

You can control and set all parameters via the control unit and LCD display.

Slow changes in the operating states (e. g. component aging, optics contamination, etc.) do not cause false alarms, but are compensated by the automatic gain control. Every 15 minutes, the system state is compared with a default reference value and in the case of a deviation, is corrected automatically to 0.17 dB/h. If the compensation limit is reached, "Fault" the fault signal is indicated.

If the IR beam is obscured within 2 s and the obscuration is more than 87% and lasts for 10 seconds and above (operator changeable), the fault relay switches. Faults may be caused by an obstacle in the beam path, by the covering of the reflector, etc. As soon as the fault cause is removed, the fault relay is cleared and after 5 s, the detector is automatically reset to standard operation. The fire panel must be reset separately.

The system has an alarm output, which is a relay with a potential-free change-over contact.

Certifications and Approvals

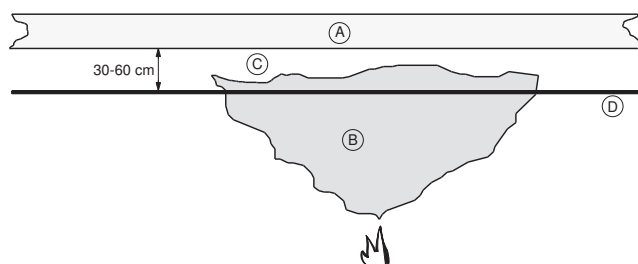
Comply with:

- EN54-12:2002

Region	Certification	
Europe	CE	FRAY5000-50-EN
	CPD	0832-CPD-0565 Fireray 5000
Germany	VdS	G 208017 Fireray 5000
Belgium	BOSEC	TCC2-K803 Fireray 5000
Great Britain	BRE	831a/03 Fireray 5000
Sweden	INTYG	08-722 Fireray 5000

Installation/Configuration Notes

- For connection to the LSN, one FLM-420/4-CON Conventional Interface Module is required.
- For direct connection to the FPA-5000, one CZM 0004 A module is required.
- The line of sight between the detector and the reflector always has to be clear and may not be interfered by moving objects (e. g. overhead crane).
- Heat accumulation under the roof may prevent smoke from rising up to the ceiling. Thus, the detector must be mounted below the expected heat accumulation. Accordingly, the benchmark values for X1 specified in the table have to be exceeded.
- The mounting surface for the detector must be firm and vibration-free. Metal supports that may be affected by heat or cold are unsuitable for the installation.
- The detector and the reflector are usually installed at the same height and aligned with one another. The wide angle of the IR beam allows for an easy adjustment and for a reliable long-term stability.
- The detector must be mounted in a position where the detector's optical system is not exposed to direct sunlight or artificial light. Normal ambient light has no influence on the IR beam and the analysis.



Pos. Description

A	Ceiling
B	Mushroom cloud
C	Heat accumulation
D	IR beam

- Since the smoke from a fire does not simply rise straight up, but rather spreads like a mushroom cloud (depending on air current and accumulation), the monitoring range is much greater than the diameter of the IR beam.
- The lateral detection on either side of the beam is 7.5 m.
- Country-specific Standards and guidelines on planning must be observed.

Detector arrangement

The detectors must be arranged according to the following distances:

X1	Distance from the ceiling	0.3 m to 0.6 m
X2	Horizontal distance detector/wall	min. 0.5 m
X3	Horizontal distance between two detectors under gable roofs	

Example: Gable roof, 10° roof pitch

$$X3 = 7.5 \text{ m} + (7.5 \text{ m} \times 10\%)$$

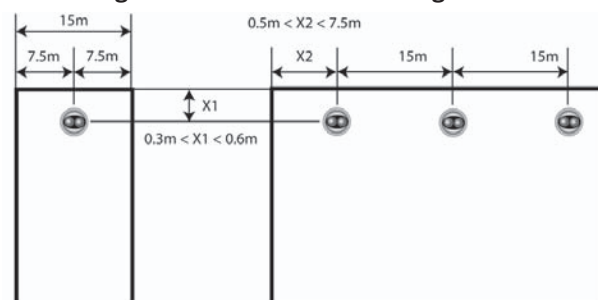
$$X3 = 7.5 \text{ m} + 0.75 \text{ m}$$

$$X3 = 8.25 \text{ m}$$

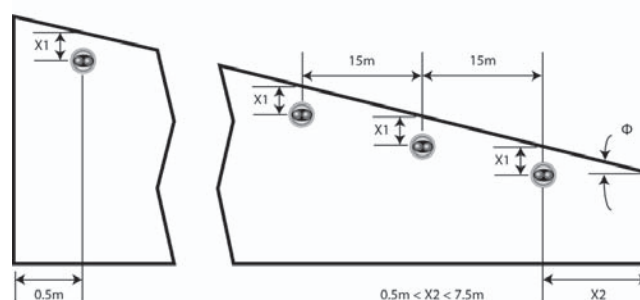
- The maximum distance between two detectors with parallel IR beams is 15 m.

- The centre line of the monitoring beam may not be closer than 0.5 m to walls, furniture or stored goods.
- The reflectors allow an angle deviation of up to 5° from the centre line without causing a weakening of the signal.

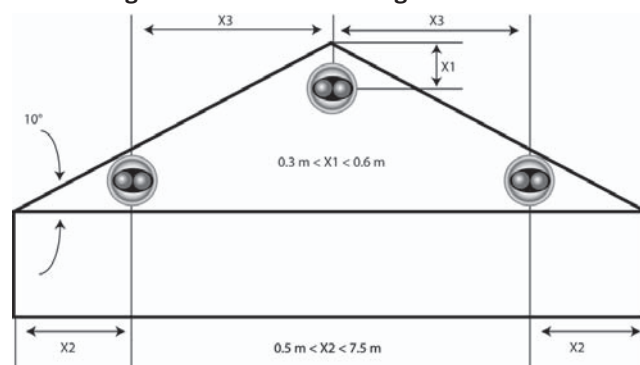
Positioning the detectors on flat ceilings



Positioning the detectors under a shed roof



Positioning the detectors under a gable roof



Detector arrangement in accordance with VdS/VDE

- The number of light beam smoke detectors must be selected according to the maximum monitoring area A listed in the table and which must not be exceeded (meets VdS 2095 and DIN VDE 0833-2).

Room height R_H	X2	A	X1 at $\alpha < 20^\circ$	X1 at $\alpha > 20^\circ$
Up to 6 m	6 m	1200 m ²	0.3 m to 0.5 m	0.3 m to 0.5 m
6 m to 12 m	6,5 m	1300 m ²	0.4 m to 0.7 m	0.4 m to 0.9 m
12 m to 16 m (*)	7 m (*)	1400 m ² (**)	0.6 m to 0.9 m (**)	0.8 m to 1.2 m (**)

X2 = greatest permissible horizontal distance of any point of the ceiling to the next-closest beam

A = maximum monitoring area per detector (= double the product of the greatest horizontal distance D_H and the highest allowable detector/reflector distance)

X1 = distance between the detector and the ceiling

α = angle which the roof/ceiling pitch forms with the horizontal; if a roof has different pitches (e. g. sheds), use the smallest pitch.

* With a room height of more than 12 m, it is recommended that you provide a second monitoring level on which the detectors are arranged offset to the first monitoring level

** Depends on use and environmental conditions (e. g. quick fire and spread of smoke)

- Depending on the roof construction (flat, tilted or gable), the detectors and reflectors must be arranged according to the roof pitch α and the room height R_H so that the light beam runs along the roof in a distance D_L (see table).

6

Parts Included

Qty.	Components
1	FRay5000-50-EN Linear Smoke Detector: compact device with integrated transmitter and receiver
1	Reflective prism
1	Control unit
1	Installation kit

Technical Specifications

Electrical

Operating voltage 14 V DC ... 28 V DC

Current consumption

• In standby < 12 mA @ 24 V DC

• In alarm/fault < 52 mA @ 24 V DC

Reset control by power disruption > 5 s

Alarm relay (contact load) 100 mA @ 30 V

Fault relay (contact load) 100 mA @ 30 V

Mechanics

LED indicators for

• Alarm Flashes red every 10 s

• Fault Flashes yellow every 10 s

• Operation Flashes green every 10 s

Dimensions (W x H x D)

• Detector 135 x 135 x 135 mm

• Prism reflector 100 x 100 x 10 mm

• Control unit 200 x 235 x 71 mm

Housing

• Color Light gray/black

• Material C6600, non-flammable

Weight

• Detector 500 g

• Prism reflector 70 g

• Control unit 900 g

Environmental conditions

Protection class as per EN 60529 IP 54

Permissible operating temperature -10 °C...55 °C

Planning

Permissible distance detector-reflector Min. 8 m – max. 50 m

• with FRay5000-LR-Kit Long Range Kit Min. 50 m – max. 100 m

Lateral detection (on either sides of the light beam) Max. 7.5 m (heed local guidelines!)

Special features

Optical wavelength 850 nm

Tolerance of the axial deviation

• Detector $\pm 0.3^\circ$

• Reflective prism $\pm 5.0^\circ$

Ordering Information

FRay5000-50-EN Linear Smoke Detector **FRay5000-50-EN**
Range 8-50 m

Accessories

FRay5000-LR-Kit Long Range Kit **FRay5000-LR-Kit**
3 additional prisms for ranges between 164 ft and 328 ft (50 m and 100 m).

FRAY5000-BR Universal Bracket Accessory for FRay5000 **FRAY5000-BR**
Universal Bracket for use with Fireray 5000 detector head or FRAY5000-4PRISM Prism Plate for 4 prism or FRAY5000-1PRISM Prism Plate for 1 prism.

FRAY5000-4PRISM Prism Plate for 4 prism **FRAY5000-4PRISM**
Prism Plate for 4 prisms for use with FRAY5000-BR Universal Bracket Accessory for Fray5000 (not included).

FRAY5000-1PRISM Prism Plate for 1 prism **FRAY5000-1PRISM**
Prism Plate for 1 prism for use with FRAY5000-BR Universal Bracket Accessory for Fray5000 (not included).

FCS-LWM-1 Linear Heat Detector



Features

- ▶ **Resistant to mechanical and chemical influences, corrosion, humidity and dust**
- ▶ **Simple installation and initial set-up**
- ▶ **Minimal maintenance costs through continual self-monitoring of the sensor cable.**
- ▶ **Configurable response temperature**
- ▶ **Test key for maintenance (simulates alarm and malfunction).**
- ▶ **Use in constricted spaces and under extreme environmental conditions.**

The FCS-LWM-1 is a Linear Heat Detector for detecting fire. Its functionality is based on the change in resistance of an electrical conductor caused by a rise in temperature.

Functions

The four copper wires on the sensor cable are each surrounded by a color-coded (orange, white, red, blue) material with a negative temperature coefficient and encased in a thermally resistant external coating. Two copper wires are connected to the bare end of the sensor cable to form two loops. The end of the sensor cable is then hermetically sealed. Both loops are continually monitored. In the event of an interruption or short circuit, the control unit outputs a trouble message.

If the temperature rises, the electrical resistance between the two loops changes. The control unit detects this change and triggers the alarm if the defined response temperature is exceeded. Both short sensor lengths and longer sections with small temperature increases

are detected.

Certifications and Approvals

Region	Certification	
Europe	CE	FCS-LWM-1
Germany	VdS	G 205066 FCS-LWM-1
Russia	GOST	POCC DE.C313B06298

Parts Included

Quant.	Component
1	Detector box with control unit

Technical Specifications

Electrical

Voltage	10 - 30 V DC
Current consumption	
• Standby	25 mA (at 24 V DC)
• On alarm (ALARM DIFF/ALARM MAX)	25 mA (at 24 V DC)
• Malfunction	15 mA (at 24 V DC)
Switch-on current	< 100 mA (at 24 V DC)

Mechanical

Display	
• In operation	LED green, continuously lit
• ALARM DIFF	LED red, continuously lit
• ALARM MAX	LED red, continuously lit
• Malfunction	LED yellow, flashing light
Test keys	2 x for simulating alarm, malfunction and LED test
Dimensions (H x W x D)	200 mm x 120 mm x 80 mm
Material	ABS
Color	Grey, similar to RAL 7035
Weight	Appr. 550 g

Environmental conditions

Protection class as per EN 60529	IP 65
Temperature range	- 20 °C to + 50 °C

Sensor Cables

Features

- | | |
|---|--|
| • Blue Sensor Cable | Suitable for use in non-aggressive atmosphere with high humidity |
| • Black Sensor Cable with Nylon Coating | Suitable for use in aggressive atmosphere (nylon coating protects against acids and bases) |
| • Black Sensor Cable with Steel Netting | suitable for use in aggressive atmosphere (nylon coating protects against acids and bases), the surrounding stainless steel netting reduces the mechanical load of the cable under extreme conditions. |

Heat resistance

- | | |
|----------------|-----------|
| • Up to 100 °C | Unlimited |
| • Up to 150 °C | 35 h |
| • Up to 175 °C | 25 h |

Exterior diameter

- | | |
|---|---------|
| • Blue Sensor Cable | 3.15 mm |
| • Black Sensor Cable with Nylon Coating | 4.1 mm |
| • Black Sensor Cable with Steel Netting | 4.7 mm |

Weight per 100 m

- | | |
|---|--------|
| • Blue Sensor Cable | 1600 g |
| • Black Sensor Cable with Nylon Coating | 2150 g |
| • Black Sensor Cable with Steel Netting | 4150 g |

Minimum tensile strength	100 N
--------------------------	-------

Wire diameter	0.46 mm
---------------	---------

Coating thickness	0.34 mm
-------------------	---------

Thickness of the exterior jacket	0.25 mm
----------------------------------	---------

Wire material

- | | |
|------------------------------|---------------------------------|
| • Lines 1 + 3 (orange + red) | Copper (blank) |
| • Lines 2 + 4 (white + blue) | Copper (with polyester coating) |

Coating material

- | | |
|------------------------------|------------------------|
| • Lines 1 + 3 (orange + red) | Special NTC polymer |
| • Lines 2 + 4 (white + blue) | Non-conductive polymer |

Ordering Information**FCS-LWM-1 Linear Heat Detector****FCS-LWM-1****Accessories****Blue Sensor Cable, per Meter**

suitable for use in non-aggressive atmosphere with high humidity

LHD4-SC-BLUE**Black Sensor Cable with Nylon Coating, per Meter**

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)

LHD4-SC-BLACK**Black Sensor Cable with Woven Steel Cover, per Meter**

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)

LHD4-SC-STEEL**Ordering Information****Terminal Connector for Sensor Cable****LHD4-terminal****Intermediate Connector for Sensor Cable****LHD4-connector**

ADW 511A Linear Heat Detector



Features

- ▶ **Compact, robust design**
- ▶ **Suitable for use under extreme environmental conditions**
- ▶ **Low maintenance costs through periodic fully automated seal verification and self-monitoring**
- ▶ **Application-specific default settings by rotary switch**
- ▶ **Response behavior can be programmed by PC**

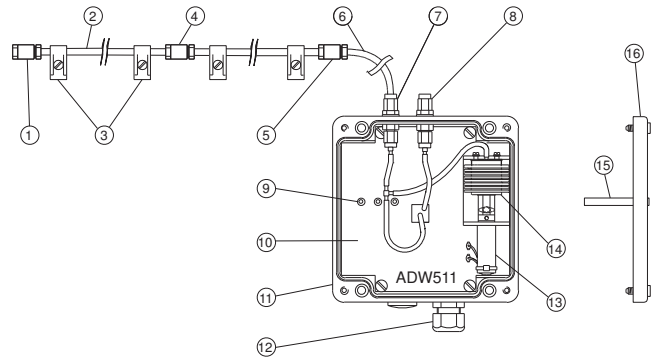
The Transafe ADW 511A is a Linear Heat Detector with differential and maximum temperature recording.

The mode of operation is based on volumetric expansion of a gas on heating and the corresponding increase in pressure in a pneumatically sealed system.

The heat detector comprises a sensor tube (SENSTUBE) and a detector box (with control unit).

The robust design makes the ADW 511A particularly suitable for use in extreme areas in which conventional detectors cannot be used (e. g. response grades in line with EN 54 Part 5 and for increased ambient temperatures in line with EN 54 Part 8).

System Overview



Pos. Description

- | | |
|-------|---|
| 1 | End screw cap |
| 2 | Sensor tube segment |
| 3 | Fixing bridles |
| 4 + 5 | SERTO clamp |
| 6 | Sensor tube segment |
| 7 | Sensor tube connection |
| 8 | Reference tube |
| 9 | Operating status display LEDs |
| 10 | PC board with evaluation electronics |
| 11 | Detector box housing |
| 12 | Cable duct (PG clamp) |
| 13 | Pump drive motor |
| 14 | Pump |
| 15 | Fiber-optic cable for the 3 display LEDs (Pos. 9) |
| 16 | Housing cover of the detector box |

Functions

The pressure sensor continually measures the pressure in the sensor tube. The sensor signals are evaluated by the microprocessor. The differential behavior is electronic.

If the pressure in the sensor tube rises strongly over a short time, the ADW 511A triggers an alarm.

Disturbance variables such as slow pressure changes, e. g. as a result of weather-related temperature fluctuations or pressure blows caused by high volumes of traffic in tunnels are filtered out.

The evaluation of maximums is designed so that the pressure value corresponding to a programmable maximum temperature triggers the alarm. The ADW 511A also responds to gradual temperature increases over a longer time period, e.g. $\Delta T = 40K/h$ overheating of an oven. A temperature sensor in the detector box continually measures the current ambient temperature and derives the reference value for the maximum evaluation value.

Self-monitoring

A test motor with a pressure pump generates a specified pressure excess in the sensor tube in regular, configurable intervals.

If the value measured by the sensor does not correspond to the set value, e. g. because of a leak or crushing of the sensor tube, a fault indication is displayed.

Alarm and fault indications take the form of three LEDs on the PC board using three fiber-optic cables in the housing cover.

Certifications and Approvals

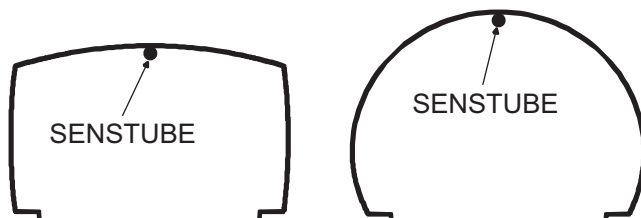
Region	Certification	
Europe	CE	ADW 511 A
Germany	VdS	G 204122 ADW 511A
Russia	GOST	POCC DE.C313B06298

Installation/Configuration Notes

General Planning Notes

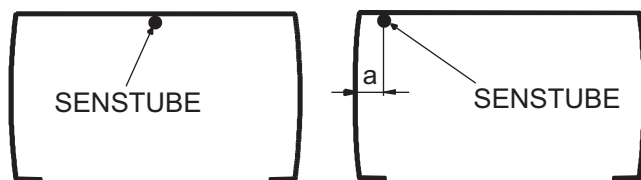
- The mounting location of the detector box and sensor tube (SENSTUBE) must not be exposed to direct sunlight.
- The detector box can be mounted anywhere, although a minimum distance of 0.1 m from switching boxes, niches etc. must be provided on the sensor tube connection side.
- If used in a tunnel, or if it must be fitted outdoors, the detector box must be installed in an additional protective box.
- At tunnel entrance portals, a distance of 25 m must be maintained between the sensor tube end and the portal.
- The minimum sensor tube length is 20 m.

Tunnel with curved roof, or round construction and 2 to 3 traffic lanes



- The sensor tube **must always** be installed in the middle of the tunnel roof (max. permitted side tolerance ± 0.5 m).
- The maximum permitted sensor tube length is 130 m.

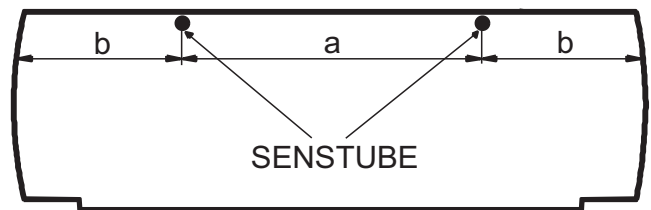
Tunnel with flat roof and 2 to 3 traffic lanes



- The sensor tube **should** preferably be installed in the middle of the tunnel roof (max. permitted side tolerance ± 0.5 m).
- The sensor tube side mounting is possible taking a minimum distance (a) to tunnel wall into account.
 - For 2 traffic lanes: $a > 0.5$ m
 - For 3 traffic lanes: $a > 1.0$ m

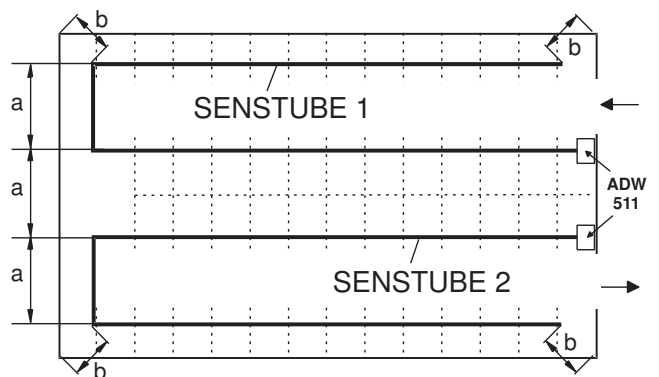
- The maximum permitted sensor tube length is 130 m.

Tunnel with flat roof and more than 3 traffic lanes



- At least two sensor tubes are required
- The maximum distance (a) between the sensor tubes is 10 m.
- The maximum distance (b) between sensor tube and tunnel wall is $\frac{1}{2} a = 5$ m.

Storage halls, parking garages, vehicle decks and applications with similar usage



- It is possible to lay the sensor tube in a spiral.
- The maximum permitted sensor tube length is 80 m.
- The maximum distance (a) between the sensor tubes is 7.2 m.
- The maximum distance (b) between sensor tube and tunnel wall is $\frac{1}{2} a = 3.6$ m.
- Roof underpinnings must take guidelines in force into account.

Other applications

- For all other applications, the sensor tube must be installed after agreement with the commissioning authorities responsible.
- The permitted sensor tube length is 80 m as standard. Longer lengths are application-specific and must be approved by the manufacturer.
- For use in areas with raised ambient temperature, metal bridges must be used for sensor tube mounting. In addition, the detector box must be mounted in an area with normal ambient temperatures.

Parts Included

Qty.	Components
1	Transafe ADW 511A detector box, signal analysis and monitoring module of the linear maximum and differential heat detector

Technical Specifications**Electrical**

Operating voltage	10 V DC to 30 V DC
Max. current consumption (12 / 24 V DC operation)	Measured at 10.5 V DC / 14 V DC
• In standby	114 mA / 90 mA approx.
• In the event of an alarm (diff./ max.)	124 mA / 99 mA approx.
• In the event of pre-alarm + alarm	135 mA / 108 mA approx.
• In the event of malfunction	103 mA / 81 mA approx.
• When testing	127 mA / 102 mA approx.

Maximum contact load of alarm relay 1 A / 50 V DC

Mechanics

Connections	Contact outputs for
	• Alarm
	• Pre-alarm
	• Malfunction
	• Leakage
RS232 serial interface	9-pin D-SUB connector for programming and data transmission
Displays	
• ALARM DIFF	LED red
• ALARM MAX	LED red
• POWER / FAULT	LED yellow

Detector box

• Material	Polyester, fiber-reinforced
• Color	Dark gray, RAL 7000
• Dimensions (W x H x D)	160 x 205 x 93 mm
• Weight	1700 g approx.

Sensor tube

• Material	Copper
• Dimensions (Ø x L)	Ø 5 mm x 20 m to 130m

Environmental conditions

Protection class as per EN 60529	IP 65
Permissible operating temperature	
• Detector box	-20 °C to +50 °C
• Sensor tube ⁽¹⁾	-40 °C to +160 °C
Permissible relative humidity	
• Detector box	95 %
• Sensor tube	100 %

(1) Subject to prior consultation with Bosch ST, lower or higher operating temperatures may be possible

System limits

Maximum permitted sensor tube length

- Tunnel applications (incl. tube mounting) 20 m to 130 m
- For other applications (incl. tube mounting) 20 m to 80 m

Special features

Detection principle Change in volume of gases caused by temperature change

Detector class according to EN 54-5 A1 - G

Ordering Information

ADW 511A Linear Heat Detector	ADW 511 A
Accessories	
Copper Pipe and Accessories order quantity must be specified in meters, delivery occurs in 5.5 m long pieces, Ø 5 mm, including 6 clamps and 1 SERTO screw connector	ADW53A6M-CU-PIPE
Plastic Hose, 25 m Reel PA (polyamide)	ADW53A-TUBE

Infrared Flame Detectors



6

Features

- ▶ **Compact, robust and nearly maintenance-free**
- ▶ **Suitable for outdoor use under extreme conditions**
- ▶ **Optimal adjustment to the environmental conditions with 10 DIP switches**
- ▶ **Two sensitivity levels**
- ▶ **Easy-to-see red individual display**
- ▶ **For room heights from 1.50 m to 20 m**

Infrared Flame Detectors are used to detect open flames in rooms or outdoors.

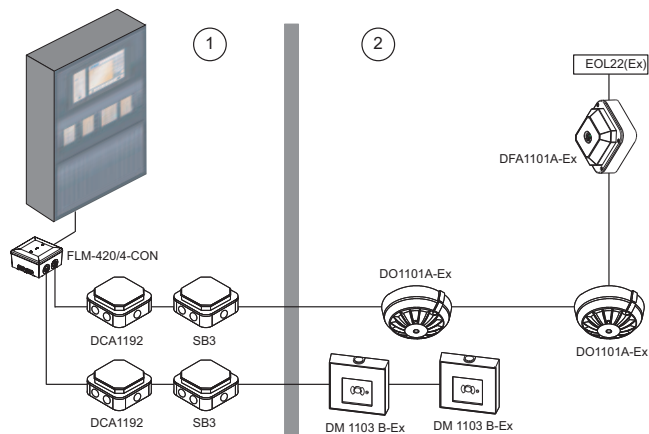
They are especially suitable for smokeless liquid and gas fires as well as for fires of materials that contain carbon with strong smoke development.

Typical areas of application are:

large industrial warehouses, airplane hangars, chemical facilities, oil refineries, machine rooms, ferries and freight ships, power plants, printing plants, wood warehouses, subway tunnels.

The DF1101A-Ex is an inherently safe Infrared Flame Detector for use in explosive areas of the zones 1 and 2, e. g. in high warehouse halls for flammable liquids, where liquid fires could occur in an explosive atmosphere.

System Overview



Pos.	Description
1	Non-Ex area
2	Ex area zone 1 or 2

Functions

The detection element of the Infrared Flame Detector consists of two pyroelectric sensors (sensor 1 and 2) and a silicon photo diode (sensor 3).

While sensor 1 detects the flame, the other two sensors measure the malfunction beam in other wavelength ranges.

Sensor	Spectral range	Detection from
1	4.0 μm to 4.8 μm	CO ₂
2	5.1 μm to 6.0 μm	Sources of interference
3	0.7 μm to 1.1 μm	Solar radiation

The combination of the three sensors and the intelligent signal processing with fuzzy algorithms and wavelet creates outstanding reliability of detection with high protection against false alarms.

Certifications and Approvals

The D1101A-Ex meets the explosion classification in line with IEC 60079 and EN 50020 (Eex ib IIC T4).

Region	Certification
Europe	CE DF 1192 DF 1101-Ex
Germany	VdS G 299085 DF1101-Ex/DF1192
Russia	GOST POCC DE.C313B06298

Installation/Configuration Notes

- Both Infrared Flame Detectors comply with EN 54-10.
- The response sensitivity and the resulting monitoring area of an Infrared Flame Detector depend on:
 - Detection distance
 - Possible spread of fire

- Fire material
- Detector sensitivity
- Detector arrangement.
- Purely for physical reasons, IR flame detectors can detect **no** fires of inorganic materials (e. g. sulfur, phosphorous, magnesium, natrium, hydrogen, etc.).
- The detector must have a direct visual line to all possible fire locations of the monitoring area.
- Practical area monitoring is achieved with a detector arrangement at a 45° to the corners of the area.
- If the room height is more than 5 m, the detector axis should be aligned towards the opposite corner of the room.
- The space above the detector is outside of the detection area.
- Despite wide-ranging insensitivity, the sensors must be protected against direct or indirect sunlight; it may be necessary to install a covering housing.
- The Infrared Flame Detectors can be connected using a NBK 100 LSN to the Local SecurityNetwork LSN.

Parts Included

Detector type	Qty.	Components
DF1192	1	Infrared Flame Detector DF1192
D1101A-Ex	1	Infrared Flame Detector D1101A-Ex
	1	Base for Infrared Flame Detector DFB1190

Note With the Infrared Flame Detector DF1192, the DFB1190 detector base is not included in the scope of delivery and must be ordered separately.

Technical Specifications

Electrical

Operating voltage	16 V DC ... 28 V DC
Standby current consumption	0.5 mA

Mechanics

Individual display	LED red
Connection terminals	0.2 mm ² ... 2.5 mm ²
Dimensions (W x H x D)	
• Detector	135 x 135 x 32 mm
• Detector incl. base	135 x 135 x 77 mm
Housing material	
• Detector	Cast aluminum
• Base	Plastic, PC, fiber-reinforced
Color (detector and base)	White, RAL 9010
Weight incl. base	
• DF1192	500 g
• DF1101A-Ex	750 g

Environmental conditions

Protection class as per EN 60529	IP 67
Permissible operating temperature	-35 °C ... +70 °C
Permissible storage temperature	-40 °C ... +75 °C
Relative humidity	< 100 %, no heavy condensation of the sensor window

Planning

Max. installation height	1.5 ... 20 m
Max. monitoring area	80 m ² (Heed local guidelines!)

Special features

Detection principle	Detection of infrared radiation
Detection area	90°

Ordering Information

DF1192 Infrared Flame Detector	DF1192
DFB1190 Base for Infrared Flame Detector	DF1192-base
DF1101A-Ex Infrared Flame Detector for Ex Areas	DF1101A-Ex
SB3 Safety Barrier incl. DCA1192 Input/Output Module	SB3

FAD-420-HS-EN Duct Smoke Detector



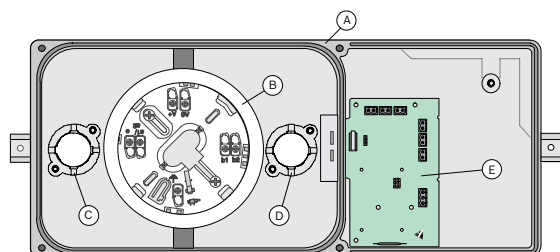
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Features

- ▶ Use in ventilation systems with air velocities from 1.5 m/s to 20 m/s
- ▶ For the activation of fans, door controls or external display devices an optional Relay Board can be installed
- ▶ A clear section on the frosted cover allows observing the alarm LED of the integrated FAD-O420 Detector
- ▶ Control to prevent unwanted removal of the cover
- ▶ Easy installation of the FAD-O420 Detector
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

The FAD-420-HS-EN Duct Smoke Detector with integrated FAD-O420 Detector detects smoke in ventilation ducts. Smoke particles in the air are reliably detected and reported to the fire panel by the LSN improved bus system.

System Overview



- A Air sampling housing
- B Detector Base for the FAD-O420 Detector
- C,D Mounting flange for sample tube or ventilation tube
- E Connection board

Functions

Air from the ventilation duct is constantly directed through the sample tube and the air sampling housing to the purpose-built FAD-O420 Detector.

Smoke particles in the air are reliably detected and reported to the fire panel by the LSN improved bus system.

Certifications and Approvals

Region	Certification
Europe	CE FAD-O 420

Installation/Configuration Notes

- Air velocities from 1.5 m/s to 20 m/s
- Horizontal or vertical mount of housing
- If a remote indicator is connected (like MPA or FAA-420-RI), the FAD-RB-DIBT Relay Board **must not** be used!

Parts Included

Quant.	Component
1	Air sampling housing with connection board, Detector base and installation material
1	D344-1.5 sample tube (length 45.7 cm)
1	Ventilation tube
2	D344-TF air filter for sample and ventilation tube

Note Please note that the FAD-420-HS-EN does not come with the required FAD-O420 Detector. The FAD-O420 Detector has to be ordered in addition.

Technical Specifications

FAD-420-HS-EN Duct Smoke Detector

Electrical

Operating voltage	24 V DC (15 ... 33 V DC)
Maximum current consumption	Approx. 0.5 mA (approx. 0.7 mA when FAD-RB-DIBT Relay Board is installed)
Electromagnetic susceptibility (EMS)	EN 50130-4
Electromagnetic emission (EME)	EN 61000-6-3

Mechanics

Dimensions (H x W x D)	16.5 x 39.5 x 11 cm
Material and Color	<ul style="list-style-type: none"> • Housing base: Plastic fiber reinforced, PPE + PS (UL94-V1), grey • Housing cover: Plastic, PC (UL94-V2), clear • Weight: Approx. 1.5 kg

Environmental Conditions

Permissible air velocity	1.5 m/s ... 20 m/s
Permissible operating temperature	0 °C ... 50 °C
Permissible storage temperature	-20 °C ... 80 °C
Permissible relative humidity	95 %, non condensing
Protection class as per EN 60529	IP 30

FAD-RB-DIBT Relay Board

Maximum contact load	2 A at 30 V DC
Weight	11 g

Ordering Information

FAD-420-HS-EN Duct Smoke Detector The FAD-0420 Detector must be ordered in addition.	FAD-420-HS-EN
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Accessories

FAD-0420 Detector for Use in Air Sampling Housing	FAD-0420
FAD-RB-DIBT Relay Board for DIBT Application	FAD-RB-DIBT
FAA-420-RI Remote Indicator	FAA-420-RI
D344-3 Sample Tube length 91.4 cm (3 ft)	D344-3
D344-5 Sample Tube length 1.52 m (5 ft)	D344-5
D344-TF Filter for Sample/Ventilation Tube Replaceable filters for duct detector sampling tubes, available in packages of 20	D344-TF

Manual Call Points

7

LSN Manual Call Points	226
Conventional Manual Call Points	237
Accessories - Manual Call Points LSN and Conventional	246
Conventional Manual Call Points for Ex Areas	249
Accessories - Manual Call Points for Ex Areas	251

FMC-420RW Single Action Call Points LSN improved



7

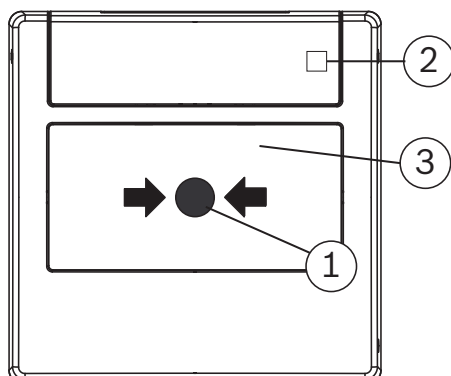
Features

- ▶ Alarm triggering by pressing the black marking or breaking the glass pane
- ▶ Protection against injury through foil-labeled glass pane
- ▶ LED display for triggered alarm or inspection evaluation
- ▶ Individual call point identification
- ▶ Call point query routines with evaluation and multiple transmission
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

FMC-420RW Single Action Call Points are used for manual alarm triggering and can be employed in both the Local SecurityNetwork (LSN) and the LSN improved version.

Functions

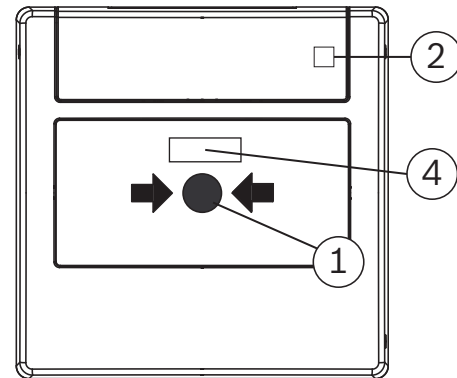
Single action call points with glass pane:



Pressing the black marking (1) breaks the glass pane (3), which triggers the alarm and causes the LED display (2) to flash.

Single action call points can be reset with the test key and by replacing the glass pane (3). The LED display (2) goes out.

Resettable single action call points:



Pressing the black marking (1) triggers the alarm. The alarm status is displayed by the red window (4) and the flashing LED display (2).

Single action call points can be reset using the test key. The LED display (2) goes out.

Individual call point identification

Neither single action call points with glass pane nor resettable single action call points are reset on the fire panel.

Individual call point identification with display of the call point address on the fire panel ensures the quick location of the triggered call point.

Certifications and Approvals

Region	Certification	
Europe	CPD	0786-CPD-20333 FMC-420RW
Germany	VdS	G 207087 FMC-420RW

Installation/Configuration Notes

- Manual call points must be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm $\pm$ 200 mm (55 in. $\pm$ 8 in.), measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be sufficiently lit with daylight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that can be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.

- Standards, guidelines and planning recommendations regarding the installation location etc. should also be taken into consideration.
- The regulations of the local fire services must be observed.

Parts Included

Quantity Components

1	FMC-420RW-GSGRD Manual Call Point with Glass Pane, Surface-mounted, Red
1	FMC-420RW-GSRRD Manual Call Point Resettable, Surface-mounted, Red
1	FMC-420RW-GFGRD Manual Call Point with Glass Pane, Flush-mounted, Red
1	FMC-420RW-GFRRD Manual Call Point Resettable, Flush-mounted, Red
1	FMC-420RW-GSGYE Manual Call Point with Glass Pane, Surface-mounted, Yellow
1	FMC-420RW-GSRYE Manual Call Point Resettable, Surface-mounted, Yellow
1	FMC-420RW-GSGBU Manual Call Point with Glass Pane, Surface-mounted, Blue
1	FMC-420RW-GSRBU Manual Call Point Resettable, Surface-mounted, Blue

Note The FMC-KEY-RW Test Key is not included in the scope of delivery and must be ordered separately.

Technical Specifications

Electrical

Operating voltage	15 VDC to 33 VDC
Current consumption	0.4 mA

Mechanical components

Dimensions (H x W x D)	
<ul style="list-style-type: none"> FMC-420RW-GFGRD, FMC-420RW-GFRRD 	107 mm x 107 mm x 38.5 mm (4.2 in. x 4.2 in. x 1.5 in.)
<ul style="list-style-type: none"> FMC-420RW-GSGRD, FMC-420RW-GSGBU, FMC-420RW-GSGYE 	87 mm x 87 mm x 56 mm (3.4 in. x 3.4 in. x 2.2 in.)
<ul style="list-style-type: none"> FMC-420RW-GSRRD, FMC-420RW-GSRBU, FMC-420RW-GSRYE 	87 mm x 87 mm x 56 mm (3.4 in. x 3.4 in. x 2.2 in.)
Housing material	Plastic, ASA
Colors	
<ul style="list-style-type: none"> Red 	RAL 3001
<ul style="list-style-type: none"> Blue 	RAL 5005
<ul style="list-style-type: none"> Yellow 	RAL 1003

Environmental conditions

Protection category according to EN 60529	IP 52
Permissible operating temperature	-25 °C to +70 °C

Ordering Information

FMC-420RW-GSGRD Manual Call Point with Glass Pane, Red Surface-mounted	FMC-420RW-GSGRD
FMC-420RW-GSRRD Manual Call Point Resettable, Red Surface-mounted	FMC-420RW-GSRRD
FMC-420RW-GFGRD Manual Call Point with Glass Pane, Flush-mounted, Red Flush-mounted	FMC-420RW-GFGRD
FMC-420RW-GFRRD Manual Call Point Resettable, Flush-mounted, Red Flush-mounted	FMC-420RW-GFRRD
FMC-420RW-GSGYE Manual Call Point with Glass Pane, Yellow Surface-mounted	FMC-420RW-GSGYE
FMC-420RW-GSRYE Manual Call Point Resettable, Yellow Surface-mounted	FMC-420RW-GSRYE
FMC-420RW-GSGBU Manual Call Point with Glass Pane, Blue Surface-mounted	FMC-420RW-GSGBU
FMC-420RW-GSRBU Manual Call Point Resettable, Blue Surface-mounted	FMC-420RW-GSRBU

Accessories

FMC-SPACER-RWRD Spacer, Red For the flush-mounted variant of the RW call points. Its use increases the storage room for the cables. 1 unit = 5 spacers	FMC-SPACER-RWRD
FMC-SPGL-RW Spare Glasses Spare glasses for all RW call points. 1 unit = 5 spare glasses	FMC-SPGL-RW
FMC-SIGN-RW Out of Order Sign Used instead of the glass pane when a call point is not ready for use. 1 unit = 5 signs	FMC-SIGN-RW
FMC-KEY-RW Test Key The key can open, check, and reset manual call points. 1 unit = 1 key	FMC-KEY-RW
FMC-FLAP-RW Clear Hinged Flap To protect against accidental triggering; with seal. 1 unit = 5 flaps	FMC-FLAP-RW

FMC-420RW Single Action Call Points LSN improved version

**FMC-420RW-GSGRD****FMC-420RW-GSRRD****FMC-420RW-GFGRD****FMC-420RW-GFRRD**

Design	with glass pane	resettable	with glass pane	resettable
Range of use	indoor	indoor	indoor	indoor
Mounting	surface-mounted	surface-mounted	flush-mounted	flush-mounted
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	0.4 mA	0.4 mA	0.4 mA	0.4 mA
Protection category	IP 52	IP 52	IP 52	IP 52
Permissible operating temperature	-25°C . . . +70°C	-25°C . . . +70°C	-25°C . . . +70°C	-25°C . . . +70°C
Color	red, RAL 3001	red, RAL 3001	red, RAL 3001	red, RAL 3001

FMC-420RW Single Action Call Points LSN improved version

	FMC-420RW-GSGYE	FMC-420RW-GSRYE	FMC-420RW-GSGBU	FMC-420RW-GSRBU
Design	with glass pane	resettable	with glass pane	resettable
Range of use	indoor	indoor	indoor	indoor
Mounting	surface-mounted	surface-mounted	surface-mounted	surface-mounted
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	0.4 mA	0.4 mA	0.4 mA	0.4 mA
Protection category	IP 52	IP 52	IP 52	IP 52
Permissible operating temperature	-25°C . . . +70°C	-25°C . . . +70°C	-25°C . . . +70°C	-25°C . . . +70°C
Color	yellow, RAL 1003	yellow, RAL 1003	blue, RAL 5005	blue, RAL 5005

FMC-210-DM Manual Call Points



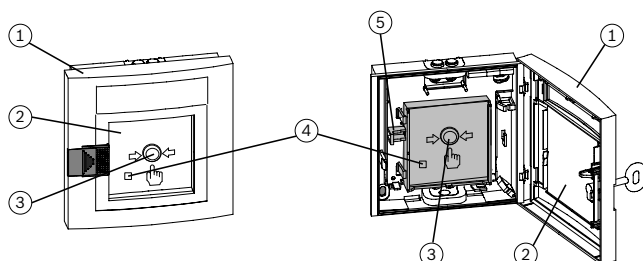
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Features

- ▶ **Adjustment of the Manual Call Point after alarm triggering**
- ▶ **Automatic or manual detector addressing via rotary switch possible**
- ▶ **Indicator LED for alarm or for inspection evaluation**
- ▶ **Call point query routines with evaluation and multiple transmission**
- ▶ **Individual call point identification**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**

The FMC-210-DM Manual Call Points are used to trigger the alarm manually, and are deployed in the Local SecurityNetwork LSN and LSN improved. Form H Manual Call Points are designed for outdoor deployment, form G Manual Call Points are designed for indoor deployment.

Functions



In the event of an alarm, the glass pane (2) is broken first, then the manual call point (3) is pressed hard. This activates the microswitch for alarm triggering and the indicator LED (4) blinks. A mechanism holds the pressed call point down.

The manual call point can be reset with the reset lever (5) or by closing the door of the manual call point (1). The indicator LED (4) goes out.

This does not reset the alarm on the fire panel.

Individual call point identification with display of the call point address on the fire panel ensures the quick location of the triggered call point.

Variants

The designs of the manual call points for outdoor and indoor use are identical. The manual call points for indoor use (form G) are available in red, blue, and yellow; the manual call points for outdoor use (form H) are available in red and blue.

Form H manual call points are equipped with an especially resistant PC board layered with parylene.

Improved LSN features

The manual call points offer all the features of the improved LSN technology:

- Flexible network structures, including "T-tapping" without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing selectable via rotary switch, in each case with or without auto-detection
- Power supply for connected elements via LSN bus up to 300 mA
- Shielded and unshielded cables can be used
- Cable length up to 1000 m
- Downwards compatibility to existing LSN systems and control panels.

Certifications and Approvals

Region	Certification	
Europe	CE	FMC-210-DM-G-B / -H-B / -SM-G-B
		FMC-210-DM-G-R / -H-R / -SM-G-R
		FMC-210-DM-G-Y / EST-G-B
	CPD	0786-CPD-20293 FMC-210-DM-G/H-R 0786-CPD-20244 FMC-210-DM-G-Y 0786-CPD-20245 FMC-210-EST-G-B
Germany	VdS	G 206100 FMC-210-EST-G-B
		G 206098 FMC-210-DM-G-R/-G-R-A/-H-R
		G 206099 FMC-210-DM-G-Y
Poland	CNBOP	0082/2008 FMC-210 DM-G-R, FMC-210 DM-H-R
Czech Republic	TZÚS	080_12987 FMC-210

Region	Certification	
Russia	GOST	POCC DE.C313.B06297
Slovakia	EVPÚ	SK08-ZSV-0071 FMC-210-DM, FMC-210-EST

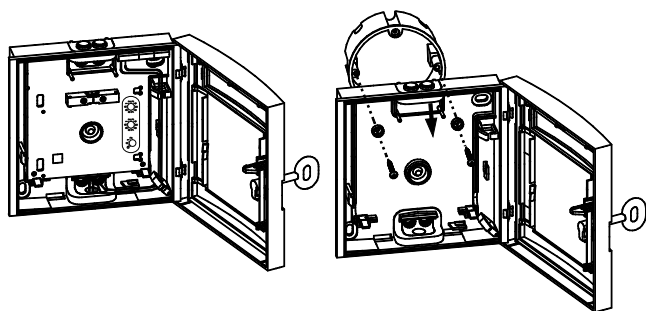
Type Number	Complies with
FMC-210-DM-G-R	EN 54-11:2001/A1:2005, EN 54-17:2005
FMC-210-DM-H-R	EN 54-11:2001/A1:2005, EN 54-17:2005
FMC-210-DM-G-Y	EN 12094-3:2003, EN 54-17:2005
FMC-210-EST-G-B	EN 12094-3:2003, EN 54-17:2005

Installation/Configuration Notes

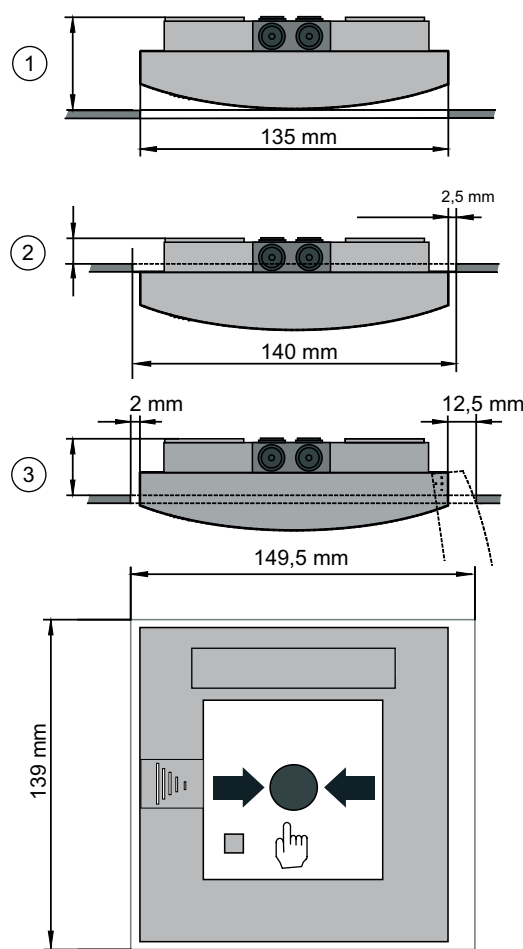
- Manual call points must be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm $\pm$ 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be adequately illuminated by sunlight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that may be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.
- Additional norms, guidelines, and planning recommendations with respect to installation location, etc. must be taken into account (see fire detector manual).
- The regulations of the local fire services must be observed.

Installation

- The cable duct can be surface-mounted or flush-mounted.



- Installation in fire hose cabinets is possible in three ways:



Pos. Description

- | | |
|---|--|
| 1 | Installation depth version 1: ca. 40 mm |
| 2 | Installation depth version 2: 14 mm |
| 3 | Installation depth version 3: min. 30 mm |

Parts Included

Type Number	Component
FMC-210-DM-G-R Form G, Red	Manual Call Point for indoor use, indirect triggering (type B), housing color red
FMC-210-DM-H-R Form H, Red	Manual Call Point for outdoor use, indirect triggering (type B), housing color red
FMC-210-DM-G-B Form G, Blue	Manual Call Point for indoor use, indirect triggering (type B), housing color blue
FMC-210-DM-H-B Form H, Blue	Manual Call Point for outdoor use, indirect triggering (type B), housing color blue
FMC-210-DM-G-Y Form G, Yellow	Manual Call Point for indoor use, indirect triggering (type B), housing color yellow
FMC-210-EST-G-B Form G, Blue	Electronic Stop Device for indoor use, indirect triggering (type B), housing color blue

Note The key must be ordered separately.

Technical Specifications

Electrical

Operating voltage	24 V DC (15 V DC ... 33 V DC)
Current consumption	0.4 mA

Mechanics

Dimensions (W x H x D)	135 x 135 x 40 mm / 5.31 x 5.31 x 1.5 in.
Housing material	Plastic, ASA
Colors	Red, RAL 3001 Blue, RAL 5005 Yellow, RAL 1003
Weight	Approx. 235 g

Environmental Considerations

Protection class as per EN 60529

- Form H (outdoor use) IP 54
- Form G (indoor use) IP 52

Norm

- FMC-210-DM-G-R,
FMC-210-DM-H-R EN 54-11
- FMC-210-DM-G-Y,
FMC-210-EST-G-B EN 12094-3

Permissible operating temperature

- Form H (outdoor use) -25 °C ... +70 °C /
-13 °F ... 158 °F
- Form G (indoor use) -10 °C ... +55 °C /
14 °F ... 131 °F

Ordering Information

FMC-210-DM-G-R Form G, Red **FMC-210-DM-G-R**
Manual call point for indoor use, indirect triggering (type B)

FMC-210-DM-H-R Form H, Red **FMC-210-DM-H-R**
Manual call point for outdoor use, indirect triggering (type B)

FMC-210-DM-G-B Form G, Blue **FMC-210-DM-G-B**
Manual call point for indoor use, indirect triggering (type B)

FMC-210-DM-H-B Form H, Blue **FMC-210-DM-H-B**
Manual call point for outdoor use, indirect triggering (type B)

FMC-210-DM-G-Y Form G, Yellow **FMC-210-DM-G-Y**
Manual call point for indoor use, indirect triggering (type B)

FMC-210-EST-G-B Form G, Blue **FMC-210-EST-G-B**
Electronic stop device for indoor use, indirect triggering (type B)

Ordering Information

Accessories

FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank) **FMX-FSO-LSN**

For the labeling field of manual call points of the Series FMC-210.
1 unit = 10 sheets

FMC-FST-DE Printed Labeling Foils for the Upper Label Field **FMC-FST-DE**

For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets

FMC-SPGL-DEIL Spare Glasses **FMC-SPGL-DEIL**

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.
1 unit = 5 spare glasses

Sign with label "Nicht in Betrieb" **FMM-SIGN**

Metal sign for fire detectors form G or H

Key for Fire Detectors Types G and H **FMM-KEY-Form G/H**
made of red plastic (ASA)

FMC-210-DM Single Action Call Points**FMC-210-DM-G-R****FMC-210-DM-H-R****FMC-210-DM-G-B**

Range of use	indoor	outdoor	indoor
Mounting	surface-mounted/flush-mounted	surface-mounted/flush-mounted	surface-mounted/flush-mounted
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	0.4 mA	0.4 mA	0.4 mA
Protection category	IP 52	IP 54	IP 52
Permissible operating temperature	-10°C . . . +55°C	-25°C . . . +70°C	-10°C . . . +55°C
Color	red, RAL 3001	red, RAL 3001	blue, RAL 5005

FMC-210-DM Single Action Call Points

**FMC-210-DM-H-B****FMC-210-DM-G-Y****FMC-210-EST-G-B**

Range of use	outdoor	indoor	indoor
Mounting	surface-mounted/flush-mounted	surface-mounted/flush-mounted	surface-mounted/flush-mounted
Operating voltage	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC	15 V DC . . . 33 V DC
Current consumption	0.4 mA	0.4 mA	0.4 mA
Protection category	IP 54	IP 52	IP 52
Permissible operating temperature	-25°C . . . +70°C	-10°C . . . +55°C	-10°C . . . +55°C
Color	blue, RAL 5005	yellow, RAL 1003	blue, RAL 5005

FMC-210-SM Single Action Call Points

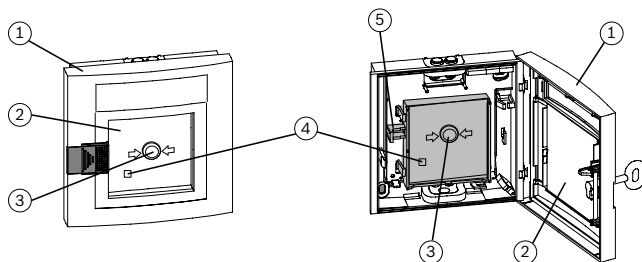


Features

- ▶ Alarm triggering by breaking of the glass pane
- ▶ Automatic or manual detector addressing via rotary switch possible
- ▶ Indicator LED for alarm or for inspection evaluation
- ▶ Call point query routines with evaluation and multiple transmission
- ▶ Individual call point identification
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

The FMC-210-SM Single Action Call Points are used to trigger the alarm manually, and can be used in the Local SecurityNetwork LSN and LSN improved. The FMC-210-SM Single Action Call Points are designed for indoor deployment.

Functions



With single action call points, the alarm is triggered when the glass plate (2) is broken and the button (3) springs up. This activates the microswitch for alarm triggering and the indicator LED (4) blinks.

The call point (3) can be reset after inserting a new glass pane (2) and closing the door of the single action call point (1). The indicator LED (4) goes out.

This does not reset the alarm on the fire panel.

Individual call point identification with display of the call point address on the fire panel ensures the quick location of the triggered call point.

Certifications and Approvals

FMC-210-SM-G-R applies to

- EN 54-11:2001/A1:2005
- EN 54-17:2005

Region	Certification	
Europe	CPD	0786-CPD-20316 FMC-210-SM-G-R
Germany	VdS	G 207008 FMC-210-SM-G-R

Installation/Configuration Notes

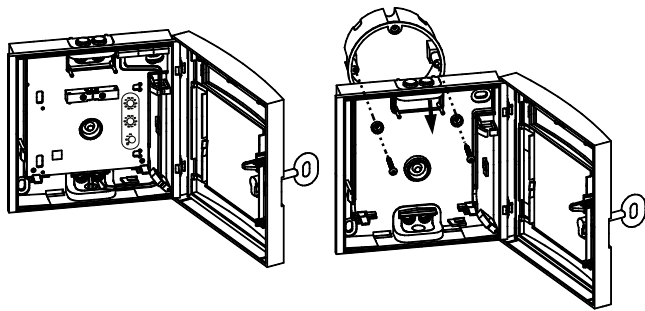
- Manual call points must be mounted visibly along escape and rescue routes (e. g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm $\pm$ 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be adequately illuminated by sunlight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that may be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.
- Further standards, guidelines and planning recommendations regarding the installation location etc., should also be taken into consideration (see Fire Detection manual).
- The regulations of the local fire services must be observed.

Installation notes in accordance with VdS/VDE

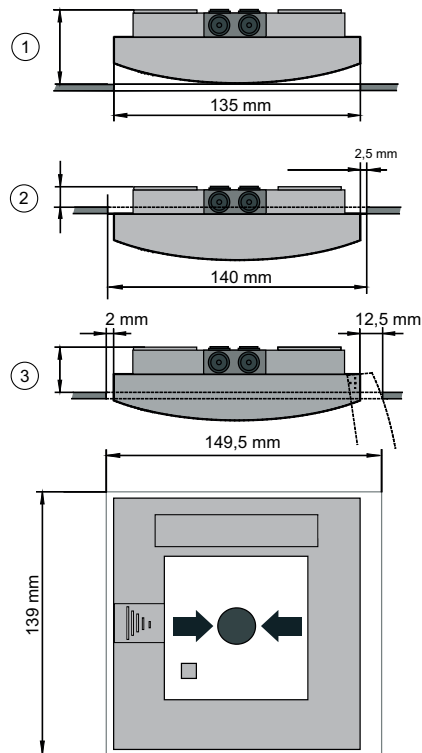
- The distance between manual call points should not be more than 100 m according to DIN 14675 or 80 m according to VdS.
- In high risk areas, manual call points should be installed at a distance of max. 40 m (VDE 0833 Part 2, Point 7.2.6).

Installation

- The cable duct can be surface-mounted or flush-mounted.



- Installation in fire hose cabinets is possible in three ways:



Pos.	Description
1	Installation depth version 1: ca. 40 mm
2	Installation depth version 2: 14 mm
3	Installation depth version 3: min. 30 mm

Parts Included

TypeNumber.	Component
FMC-210-SM-G-B Form G, Blue	Single Action Call Point for indoor use, direct triggering (type A)
FMC-210-SM-G-R Form G, Red	Single Action Call Point for indoor use, direct triggering (type A)

Note The key must be ordered separately.

Technical Specifications

Electrical

Operating voltage	15 VDC ... 33 VDC
Current consumption	0.4 mA

Mechanics

Dimensions (H x W x D)	135 x 135 x 40 mm
Housing material	Plastic, ASA

Colors

• FMC-210-SM-G-R	Red, RAL 3001
• FMC-210-SM-G-B	Blue, RAL 5005

Weight	Approx. 235 g
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Environmental Considerations

Protection class as per EN 60529	IP 52
Permissible operating temperature	-10 °C ... +55 °

Ordering Information

FMC-210-SM-G-R Form G, Red	FMC-210-SM-G-R
Single Action Call Point for indoor use, direct triggering (type A)	

FMC-210-SM-G-B Form G, Blue	FMC-210-SM-G-B
Single Action Call Point for indoor use, direct triggering (type A)	

Accessories

FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank)	FMX-FSO-LSN
For the labeling field of manual call points of the Series FMC-210. 1 unit = 10 sheets	

FMC-FST-DE Printed Labeling Foils for the Upper Label Field	FMC-FST-DE
For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets	

FMC-SPGL-DEIL Spare Glasses	FMC-SPGL-DEIL
For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210. 1 unit = 5 spare glasses	

Key for Fire Detectors Types G and H	FMM-KEY-Form G/H
made of red plastic (ASA)	

Sign with label "Nicht in Betrieb"	FMM-SIGN
Metal sign for fire detectors form G or H	

FMC-300RW Single Action Call Points



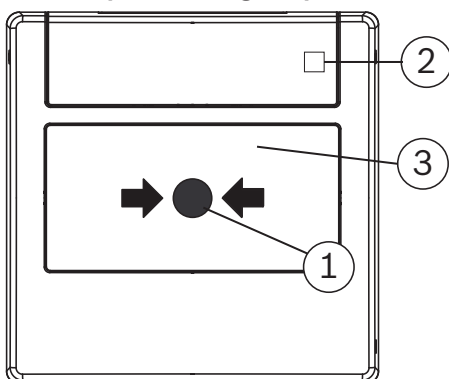
Features

- ▶ Alarm triggering by pressing the black marking or breaking the glass pane
- ▶ Protection against injury through foil-labeled glass pane
- ▶ LED display for triggered alarm or inspection evaluation

FMC-300RW Single Action Call Points are used for manual alarm triggering and are employed in conventional technology.

Functions

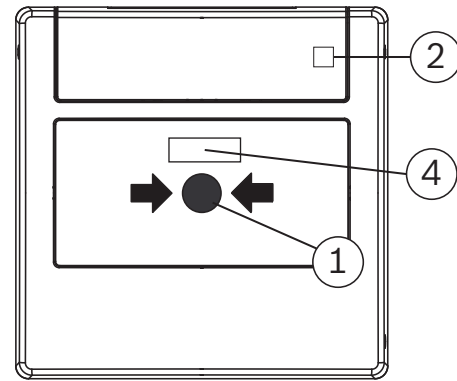
Single action call points with glass pane:



Pressing the black marking (1) breaks the glass pane (3), which triggers the alarm and causes the LED display (2) to flash.

Single action call points can be reset with the test key and by replacing the glass pane (3). The LED display (2) goes out.

Resettable single action call points:



Pressing the black marking (1) triggers the alarm. The alarm status is displayed by the red window (4) and the flashing LED display (2).

Single action call points can be reset using the test key. The LED display (2) goes out.

Certifications and Approvals

Applies to EN 54-11:2001/A1:2005

Region	Certification	
Europe	CPD	0786-CPD-20332 FMC-300RW
Germany	VdS	G 207086 FMC-300 RW

Installation/Configuration Notes

- Manual call points must be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm $\pm$ 200 mm (55 in. $\pm$ 8 in.), measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be sufficiently lit with daylight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that can be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.
- Standards, guidelines and planning recommendations regarding the installation location etc. should also be taken into consideration.
- The regulations of the local fire services must be observed.

Parts Included

Quantity Components

1	FMC-300RW-GSGBU Manual Call Point with Glass Pane, Blue
1	FMC-300RW-GSRBU Manual Call Point Resettable, Blue
1	FMC-300RW-GSGRD Manual Call Point with Glass Pane, Red
1	FMC-300RW-GSRRD Manual Call Point Resettable, Red
1	FMC-300RW-GSGYE Manual Call Point with Glass Pane, Yellow
1	FMC-300RW-GSRYE Manual Call Point Resettable, Yellow

Note The FMC-KEY-RW Test Key is not included in the scope of delivery and must be ordered separately.

Technical Specifications

Electrical

Operating voltage	20 VDC (8.5 VDC to 30 VDC)
Current consumption	specified by the respective security system
Alarm resistor	820 Ω +/- 10% (8.5 VDC to 30 VDC)

Mechanical components

Dimensions (H x W x D)	87 mm x 87 mm x 56 mm (3.4 in. x 3.4 in. x 2.2 in.)
Housing material	Plastic, ASA
Colors	
• Red	RAL 3001
• Blue	RAL 5005
• Yellow	RAL 1003

Environmental conditions

Protection category according to EN IP 52
60529

Permissible operating temperature -25 °C to +70 °C

Ordering Information

Accessories

FMC-SPACER-RWRD Spacer, Red For the flush-mounted variant of the RW call points. Its use increases the storage room for the cables. 1 unit = 5 spacers	FMC-SPACER-RWRD
FMC-SPGL-RW Spare Glasses Spare glasses for all RW call points. 1 unit = 5 spare glasses	FMC-SPGL-RW
FMC-SIGN-RW Out of Order Sign Used instead of the glass pane when a call point is not ready for use. 1 unit = 5 signs	FMC-SIGN-RW
FMC-KEY-RW Test Key The key can open, check, and reset manual call points. 1 unit = 1 key	FMC-KEY-RW
FMC-FLAP-RW Clear Hinged Flap To protect against accidental triggering; with seal. 1 unit = 5 flaps	FMC-FLAP-RW

Ordering Information

FMC-300RW-GSGBU Manual Call Point with Glass Pane, Blue	FMC-300RW-GSGBU
FMC-300RW-GSRBU Manual Call Point Resettable, Blue	FMC-300RW-GSRBU
FMC-300RW-GSGRD Manual Call Point with Glass Pane, Red	FMC-300RW-GSGRD
FMC-300RW-GSRRD Manual Call Point Resettable, Red	FMC-300RW-GSRRD
FMC-300RW-GSGYE Manual Call Point with Glass Pane, Yellow	FMC-300RW-GSGYE
FMC-300RW-GSRYE Manual Call Point Resettable, Yellow	FMC-300RW-GSRYE

FMC-300RW Single Action Call Points**FMC-300RW-GSGBU****FMC-300RW-GSRBU****FMC-300RW-GSGRD**

Design	with glass pane	resettable	with glass pane
Range of use	indoor	indoor	indoor
Mounting	surface-mounted	surface-mounted	surface-mounted
Operating voltage	8.5 V DC . . . 30 V DC	8.5 V DC . . . 30 V DC	8.5 V DC . . . 30 V DC
Current consumption	specified by the respective se- curity system	specified by the respective se- curity system	specified by the respective se- curity system
Protection category	IP 52	IP 52	IP 52
Permissible operating tempera- ture	-25°C . . . +70°C	-25°C . . . +70°C	-25°C . . . +70°C
Color	blue, RAL 5005	blue, RAL 5005	red, RAL 3001

FMC-300RW Single Action Call Points

**FMC-300RW-GSRRD****FMC-300RW-GSGYE****FMC-300RW-GSRYE**

Design	resettable	with glass pane	resettable
Range of use	indoor	indoor	indoor
Mounting	surface-mounted	surface-mounted	surface-mounted
Operating voltage	8.5 V DC . . . 30 V DC	8.5 V DC . . . 30 V DC	8.5 V DC . . . 30 V DC
Current consumption	specified by the respective security system	specified by the respective security system	specified by the respective security system
Protection category	IP 52	IP 52	IP 52
Permissible operating temperature	-25°C . . . +70°C	-25°C . . . +70°C	-25°C . . . +70°C
Color	red, RAL 3001	yellow, RAL 1003	yellow, RAL 1003

FMC-120-DKM Manual Call Points

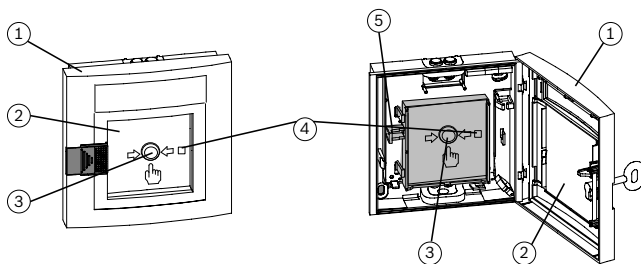


Features

- Adjustment of the manual call point after alarm triggering
- Indicator LED for alarm or for inspection evaluation
- Second contact with connections for panel control
- Variants for indoor and outdoor use

The FMC-120-DKM Manual Call Points handle manual alarm triggering and are used with conventional technology.

Functions



In the event of an alarm, the glass pane (2) is broken first, then the manual call point (3) is pressed hard.

This activates the micro switch for alarm triggering and the indicator LED (4) blinks.

A locking mechanism holds the pressed manual call point.

The manual call point can be reset with the reset lever (5). The indicator LED (4) goes out.

This does not reset the alarm on the fire panel.

Variants

The design of the manual call points for indoor (form G) and outdoor use (form H) are identical. Three color variants, red, blue, and yellow are available.

Detectors for outdoor use (form H) have a cover equipped with a seal.

Certifications and Approvals

Region	Certification	
Europe	CE	FMC-120-EST-G-B / -DKM-G-Y
		FMC-120-DKM-G-R / -H-R
		FMC-120-DKM-G-B
	CPD	0786-CPD-20294 FMC-120-DKM-G/H-R 0786-CPD-20231 FMC-120-DKM-G-Y 0786-CPD-20232 FMC-120-EST-G-B/-H-HE
Germany	VdS	G 298061 FMC-120-DKM-G-R / -H-R
		G 206079 FMC-120-DKM-G-Y
		G 206080 FMC-120-EST-G-B
	PTB	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA 01 ATEX 2163 X FMC-120-DKM
Russia	GOST	POCC DE.C313.B06297

Type Number

FMC-120-DKM-G-R

FMC-120-DKM-H-R

FMC-120-DKM-G-Y

FMC-120-EST-G-B

Complies with

EN54-11:2001/A1:2005

EN54-11:2001/A1:2005

EN12094-3:2003

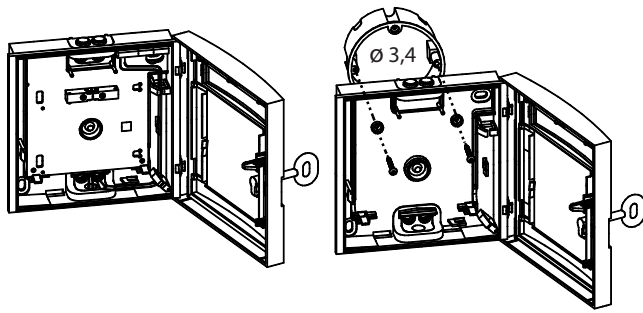
EN12094-3:2003

Installation/Configuration Notes

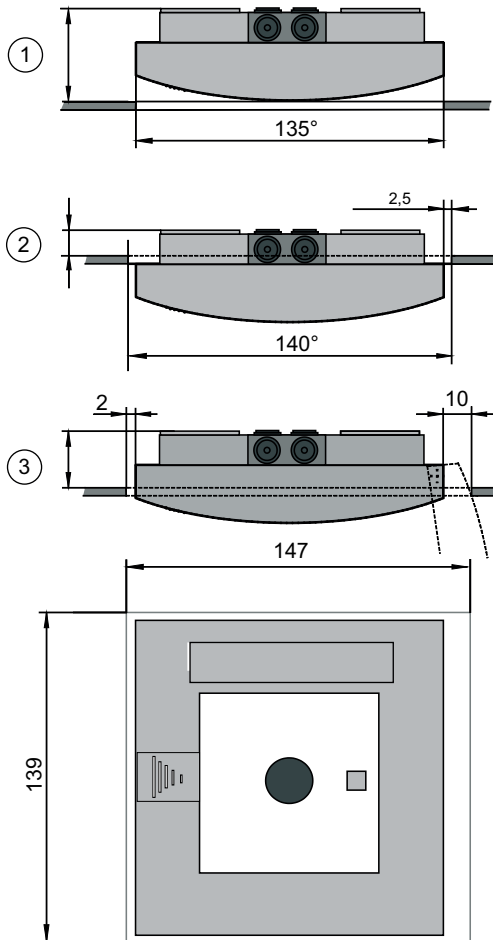
- Manual call points have to be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm $\pm$ 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be illuminated sufficiently with daylight or another light source (including emergency lighting, if present).
- Max. one test detector may be used for primary lines together with automatic detectors. The test detector is connected at the end of the primary line.
- Further standards, guidelines and planning recommendations regarding the installation location etc., should also be taken into consideration (see Fire Detection manual).
- Regulations of local fire departments must be observed.

Installation

- Cables can be inserted surface-mounted or flush-mounted.



- Installation in fire hose cabinets is possible in three ways:



Pos.	Description
1	Installation depth version 1: 36 mm
2	Installation depth version 2: 14 mm
3	Installation depth version 3: approx. 30 mm

Technical Specifications

Electrical

Operating voltage	24 V DC (16.2 V DC ... 30 V DC)
Current consumption	Specified by the respective security system

Mechanics

Dimensions (W x H x D)	135 x 135 x 37 mm / 5.31 x 5.31 x 1.4 in.
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Housing material	Plastic (ASA)
Colors	Red, RAL 3001 Blue, RAL 5005 Yellow, RAL 1003

Weight	Approx. 224 g
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Environmental conditions

Protection class as per EN 60529

Form G (indoor area)	IP 52
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Form H (outdoor area)	IP 54
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Norm

FMC-120-DKM-G-R, FMC-120-DKM-H-R	EN 54-11
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FMC-120-DKM-G-Y, FMC-120-EST-G-B	EN 12094-3
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Permissible operating temperature

Form G (indoor area)	-10 °C ... +55 °C / 14 °F ... 131 °F
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Form H (outdoor area)	-25 °C ... +70 °C / -13 °F ... 158 °F
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Ordering Information

FMC-120-DKM-G-R Form G, Red Conventional Manual Call Point for indoor use, indirect triggering (type B)	FMC-120-DKM-G-R
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FMC-120-DKM-H-R Form H, Red Conventional Manual Call Point for outdoor use, indirect triggering (type B)	FMC-120-DKM-H-R
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FMC-120-DKM-G-B Form G, Blue Conventional Manual Call Point for indoor use, indirect triggering (type B)	FMC-120-DKM-G-B
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FMC-120-DKM-H-B Form H, Blue Conventional Manual Call Point for outdoor use, indirect triggering (type B)	FMC-120-DKM-H-B
--	------------------------

FMC-120-DKM-G-Y Form G, Yellow Conventional Manual Call Point for indoor use, indirect triggering (type B)	FMC-120-DKM-G-Y
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FMC-120-EST-G-B Form G, Blue Conventional Electronic Stop Device for indoor use, indirect triggering (type B)	FMC-120-EST-G-B
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Accessories

FMX-FSO-GLT Punched, Self-adhesive Foil Sets (Blank)	FMX-FSO-GLT
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For the labeling field of conventional manual
call points of the Series FMC-120,
1 unit = 10 sheets

FMC-FST-DE Printed Labeling Foils for the Upper Label Field	FMC-FST-DE
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For yellow and blue manual call points of Series
FMC-120 and FMC-210, 1 unit = 5 sheets

FMC-SPGL-DEIL Spare Glasses For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210. 1 unit = 5 spare glasses	FMC-SPGL-DEIL
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Ordering Information

Sign with label "Nicht in Betrieb" Metal sign for fire detectors form G or H	FMM-SIGN
Key for Fire Detectors Types G and H made of red plastic (ASA)	FMM-KEY-Form G/H

FMC-120-DKM Single Action Call Points

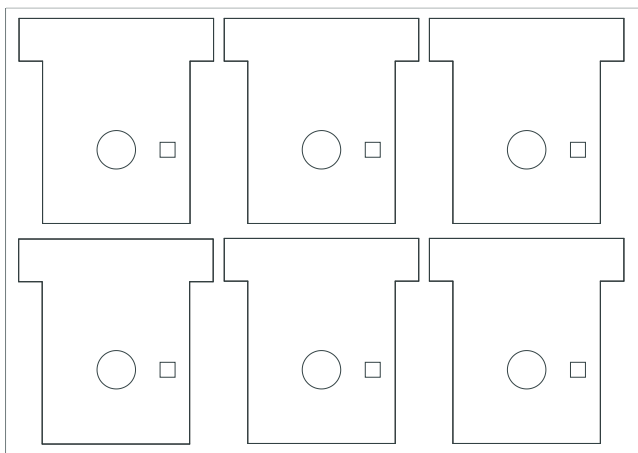
**FMC-120-DKM-G-R****FMC-120-DKM-H-R****FMC-120-DKM-G-B**

Range of use	indoor	outdoor	indoor
Mounting	surface-mounted/flush-mounted	surface-mounted/flush-mounted	surface-mounted/flush-mounted
Operating voltage	16.2 V DC . . . 30 V DC	16.2 V DC . . . 30 V DC	16.2 V DC . . . 30 V DC
Current consumption	specified by the respective security system	specified by the respective security system	specified by the respective security system
Protection category	IP 52	IP 54	IP 52
Permissible operating temperature	-10°C . . . +55°C	-25°C . . . +70°C	-10°C . . . +55°C
Color	red, RAL 3001	red, RAL 3001	blue, RAL 5005

FMC-120-DKM Single Action Call Points**FMC-120-DKM-H-B****FMC-120-DKM-G-Y****FMC-120-EST-G-B**

Range of use	outdoor	indoor	indoor
Mounting	surface-mounted/flush-mounted	surface-mounted/flush-mounted	surface-mounted/flush-mounted
Operating voltage	16.2 V DC . . . 30 V DC	16.2 V DC . . . 30 V DC	16.2 V DC . . . 30 V DC
Current consumption	specified by the respective security system	specified by the respective security system	specified by the respective security system
Protection category	IP 54	IP 52	IP 52
Permissible operating temperature	-25°C . . . +70°C	-10°C . . . +55°C	-10°C . . . +55°C
Color	blue, RAL 5005	yellow, RAL 1003	blue, RAL 5005

Punched, Self-adhesive Foil Sets (Blank), for Operating Panel and Labeling Field



10 punched foil sets, appropriate for DM/DKM/SM/SKM, for individual printing with a customary laser printer

The required print file is available on the WinPara diskette.

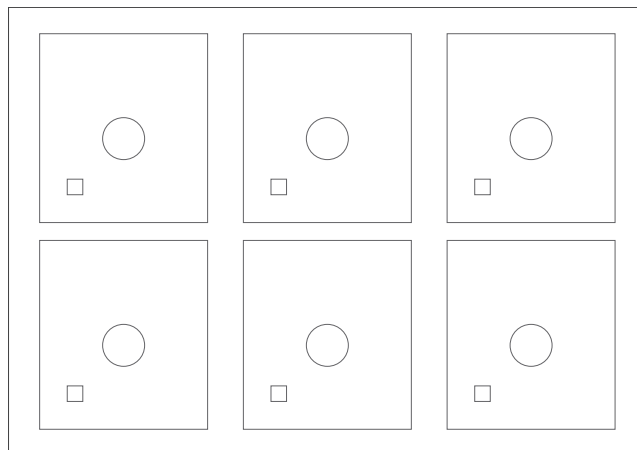
Ordering Information

**Punched, Self-adhesive Foil Sets (Blank),
for Operating Panel and Labeling Field**

10 units, for DM/DKM/SM/SKM, for individual
printing

DKM120-LABEL

FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank)



For the labeling field of manual call points of the Series FMC-210.

1 unit = 10 sheets

Appropriate for printing at standard laser printers. The
required print file is available on the WinPara disk.

Ordering Information

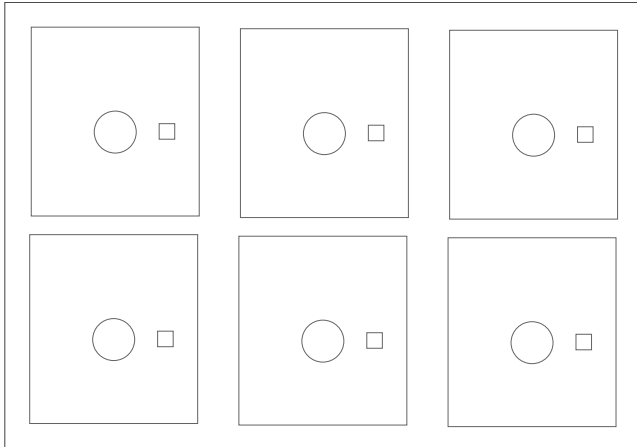
**FMX-FSO-LSN Punched, Self-adhesive Foil
Sets (Blank)**

For the labeling field of manual call points of
the Series FMC-210.

1 unit = 10 sheets

FMX-FSO-LSN

FMX-FSO-GLT Punched, Self-adhesive Foil Sets (Blank)



For the labeling field of conventional manual call points of the Series FMC-120.

1 unit = 10 sheets

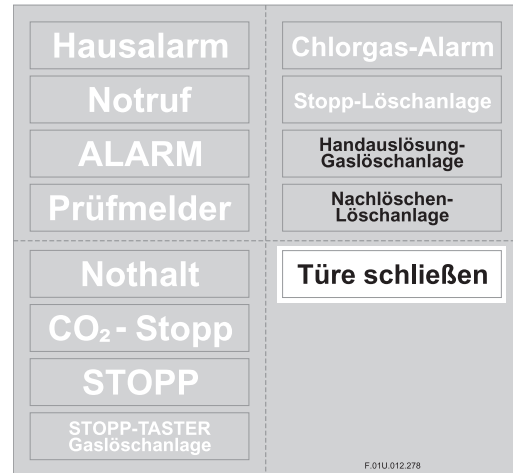
Appropriate for printing at standard laser printers. The required print file is available on the WinPara disk.

Ordering Information

FMX-FSO-GLT Punched, Self-adhesive Foil Sets (Blank) FMX-FSO-GLT

For the labeling field of conventional manual call points of the Series FMC-120,
1 unit = 10 sheets

FMC-FST-DE Printed Labeling Foils for the Upper Label Field



For yellow and blue manual call points of Series FMC-120 and FMC-210.

1 unit = 5 sheets

All labeling foils meet the requirements of the EN 12094-3 (use in gas extinguishing system).

Ordering Information

FMC-FST-DE Printed Labeling Foils for the Upper Label Field FMC-FST-DE

For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets

FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.

1 unit = 5 spare glasses

Ordering Information

FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.

1 unit = 5 spare glasses

FMC-SPGL-DEIL

Conventional Manual Call Points for Ex Areas

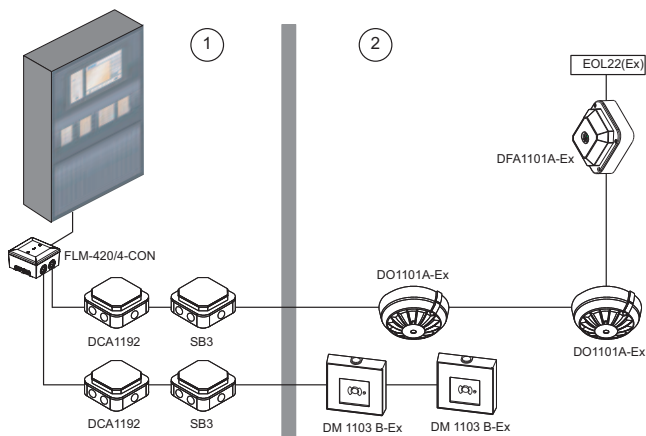


The Conventional Manual Call Points for Ex Areas are used to manually activate the alarm in zones 1 and 2 at risk of explosion.

The K type call points are encapsulated, intrinsically safe call points and do not require any safety barriers.

The DM 1103 B-Ex Manual Call Points for ex zones must be connected via a Safety Barrier SB 3 incl. Input/Output Module DCA1192 (see system overview).

System Overview



For DM 1103 B-Ex:

Pos.	Description
1	Non-ex area
2	Ex area zone 1 or 2

Functions

In the event of an alarm, the glass pane (2) is broken first, then the pushbutton (3) is pressed hard. Thus the switch triggers the alarm.

A locking mechanism holds the pressed manual call point.

The pushbutton can be reset with the reset lever.

This does not reset the alarm on the fire panel.

Certifications and Approvals

Region	Certification
Europe	CE DM 1103
	BASEEFA Ex 98E2304 DM 1103 B-Ex
Germany	VdS G 297060 DKM 2014/2-ex-/GLU
	G 295036 DM 1103 B-Ex
	PTB 97 ATEX 3197 DKM 2014/2 / DKM 2014/2-GLU
Hungary	TMT TMT-50-05/2004 DM 200, DM 210, DKM 120, DM 1103B-Ex
Russia	GOST POCC DE.C313.B06297

Installation/Configuration Notes

- Manual call points must be illuminated sufficiently with daylight or another light source (including emergency lighting, if present).
- An installation height of 1400 mm $\pm$ 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be installed along escape and rescue routes (e.g. exits, passageways, stairwells).
- Further standards, guidelines and planning recommendations regarding the installation location etc., should also be taken into consideration (see Fire Detection manual).
- Regulations of local fire departments must be observed.

Installation/configuration notes in accordance with VdS/VDE

- The distance between manual call points should not exceed 100 m according to DIN 14675 or 80 m according to VdS.
- In high risk areas, manual call points should be installed at a distance of max. 40 m (VDE 0833 Part 2, Point 7.2.6).
- According to VdS, up to 10 manual call points can be connected to a primary line.

DKM 2014/2-ex Manual Call Point Type K

- For connection to the LSN, an NBK 100 LSN Fire Interface is required.
- Can be connected directly to the following conventional control panels:
 - BZ 1012
 - BZ 1060
 - UEZ 1000 GLT.
- With an NBK 100 LSN Fire Interface, can be connected to the following control panels:
 - BZ 500 LSN
 - UEZ 1000 LSN

- UEZ 2000 LSN
- UGM 2020 LSN

DKM 2014/2-ex-UGM Manual Call Point Type K, for Connection to UGM Conventional

- Can be connected directly to the UGM-GLT Universal Danger Detection System

DM 1103 B-Ex manual call point for ex area

- For connection to the LSN, an NBK 100 LSN interface is required.
- For use in explosive areas of zones 1 and 2, a safety barrier and an input/output module are required, which must be mounted in front of the ex area.
- Cables can be inserted surface-mounted or flush-mounted

Parts Included

Type	Qty.	Components
DKM 2014/2-ex	1	Manual Call Point Type K, for ex areas, for surface mounting
DKM 2014/2-ex-UGM	1	Manual Call Point Type K, for Connection to UGM Conventional, for ex areas, for surface mounting
DM 1103 B-Ex	1	DM 1103 B-Ex manual call point, color red
	1	Key for DM1103B-Ex manual call point
	2	PG11 cable screws

Technical Specifications

DKM 2014/2-ex Manual Call Point Type K

DKM 2014/2-ex-UGM Manual Call Point Type K, for Connection to UGM Conventional

Operating voltage	24 V DC
Switch contact	Type 366 (encapsulated), II 2 G EEx d IIC
Maximum contact load	5 A / 250 V AC 0,25 A / 250 V DC
Cable entry	<ul style="list-style-type: none"> • 1x M16 x 1.5 tightening diameter 4-8 mm, EEx e II • Blind plug: 1x M16x1.5 EEx e II
Housing material	Polyester, glass fiber reinforced
Colors	Red, RAL 3001
Dimensions (W x H x D)	136 x 138 x 88 mm
Weight	Approx. 1800 g
Protection class as per EN 60529	IP 66
Permissible operating temperature	-25 °C to +40 °C
Ex classification	Eex emd IIC T6
Test certificate / PTB No.	97-37001
ATEX approval no.	PTB 97 ATEX 3197

DM 1103 B-Ex Manual Call Point

Operating voltage	16V DC to 28V DC
Cable duct	PG11 screws (2x)
Connection terminals	0.2 mm to 1.5 mm
Housing material	Plastic, PC
Color	Red, RAL 3000

Dimensions (W x H x D)	134.4 x 134.4 x 43.5 mm
Weight	Approx. 200 g
Protection class as per EN 60529	IP 54
Permissible operating temperature	-25 °C to +60 °C
Permissible storage temperature	-30 °C to +75 °C
Permissible relative humidity	≤100% at T≤34 °C
Ex classification	EEx ib IIC T4

Ordering Information

DKM 2014/2-ex Manual Call Point Type K for Ex area	DKM 2014/2-ex
Key for Fire Detector Type K	FMX-7743.0.0500
DKM 2014/2-ex-UGM Manual Call Point Type K, for Connection to UGM Conventional	DKM 2014/2-ex-UGM
for ex area, exclusively for use in conjunction with the Universal Danger Detection System UGM-GLT	
Key for Fire Detector Type K	FMX-7743.0.0500
DM 1103 B-Ex Manual Call Point	DM1103B-Ex
for zone 1 and 2 areas at risk of explosion	
SB3 Safety Barrier incl. DCA1192 Input/Output Module	SB3
Accessories	
FMC-SPGL-DEIL Spare Glasses	FMC-SPGL-DEIL
For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.	
1 unit = 5 spare glasses	

SB3 Safety Barrier incl. DCA1192 Input/Output Module



Functions

The SB3 Safety Barrier limits the electrical energy between non-inherently safe and inherently safe circuits and thus prevents the ignition of gas mixtures by electrical sparks.

The Safety Barrier must always be installed outside the explosive area.

The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier.

Certifications and Approvals

Region	Certification	
Europe	CE	DC 1192 SB 3
	CPD	0786-CPD-20512 DC 1192
Germany	VdS	G 298021 DC 1192
	PTB	01 ATEX 2088 SB 3

Parts Included

Qty.	Components
1	SB3 Safety Barrier
1	Installation set for SB3
1	DCA1192 Input/Output Module
1	Terminal carrier for DCA1192
1	EOL22(Ex) line termination, included with the DCA1192
2	Housing with cover

Technical Specifications

SB3 Safety Barrier, with Housing

Max. voltage	28 V DC
Max. permissible current	100 mA
Max. output	0.7 W
Wire gauge	0.2 mm ² ... 2.5 mm ²
Cable bushings	PG16 (6x)
Dimensions (W x H x D)	135 x 135 x 65 mm
Housing material	Plastic, PC
Housing color	White, RAL 9010
Weight	Approx. 450 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C
Ignition protection according to EN 50014/20	Inherent safety EEx ia IIC / IIB

DCA1192 Input/Output Module, with Housing

External supply	
• Operating voltage	18 V DC ... 32 V DC
• Current consumption	Max. 5 mA
• Line resistance	50 Ω ... 250 Ω
• Line termination	EOL22(Ex)
Line termination	
• Operating voltage	18 V DC ... 22 V DC
• Standby current	≤45 mA
• Operating current	≤150 mA
• Line resistance	50 Ω ... 250 Ω
• Line termination	EOL22(Ex)
Wire gauge	0.2 mm ² ... 2.5 mm ²
Cable bushings	PG16 (6x)
Housing material	Plastic, PC
Housing color	White, RAL 9010
Dimensions (W x H x D)	135 x 135 x 65 mm
Weight	Approx. 425 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C
Permissible relative humidity	≤100% at T≤34 °C

Ordering Information

SB3 Safety Barrier incl. DCA1192 Input/Output Module **SB3**

Interface and EOL Modules

8

LSN Interface Modules Series 420	258
LSN Interface Modules Series 100	291
EOL Modules	293

LSN Interface Modules Serie 420

**FLM-420/4-CON****FLM-420-NAC****FLM-I 420-S**

Interface type	Conventional Interface Module 4-wire LSN	Signaling Device Interface Module	Short Circuit Isolator
Function	Connecting conventional detectors to LSN fire panels	Connecting signaling devices	Isolating alarm zones with short circuit
Wiring type	4-wire	4-wire	2-wire
Input voltage LSN	15 V DC to 33 V DC	15 V DC to 33 V DC	15 V DC to 33 V DC
Max. current consumption from LSN	8.5 mA	6.06 mA	0.25 mA (after initialization)
Potential-free outputs	–	–	–
Maximum contact load	–	–	–
Maximum switching load	–	–	–
Protection category	-S: IP 54; -D: IP 30	-S: IP 54; -D: IP 30	IP 54
Permissible operating temperature	-20°C to +55°C	-20°C to +50°C	-20°C to +50°C
Connectable to LSN classic fire panels	•	•	–
Design			
- E: in-built	–	–	–
- W: wall-mount	–	–	–
- D: DIN rail	•	•	–
- S: with surface-mounted housing	•	•	•

LSN Interface Modules Serie 420

**FLM-420-RHV****FLM-420-RLV1****FLM-420-RLV8-S**

Interface type	Relay High Voltage Interface Module	Relay Interface Module Low Voltage	Octo-relay Interface Module Low Voltage
Function	2 change-over contact relays with feedback lines	1 change-over contact relay	8 change-over contact relays
Wiring type	2-wire	2-wire	2-wire
Input voltage LSN	15 V DC to 33 V DC	15 V DC to 33 V DC	15 V DC to 33 V DC
Max. current consumption from LSN	17.15 mA	1.75 mA	3.55 mA
Potential-free outputs	•	•	•
Maximum contact load	10 A/120 V AC 10 A/230 V AC 10 A/24 V DC 6 A/30 V DC	-D: 5 A/30 V DC -S: 2 A/30 V DC	2 A/30 V DC
Maximum switching load	–	–	–
Protection category	-S: IP 54; -D: IP 30	IP 30	IP 43
Permissible operating temperature	-20°C to +50°C	-20°C to +55°C	-20°C to +65°C
Connectable to LSN classic fire panels	•	•	•
Design			
- E: in-built	–	•	–
- W: wall-mount	–	–	–
- D: DIN rail	•	•	–
- S: with surface-mounted housing	•	–	•

LSN Interface Modules Serie 420

**FLM-420-I2****FLM-420-O2****FLM-420-I8R1-S**

Interface type	Input Interface Module	Output Interface Module	Octo-input Interface Module with Relay
Function	Monitoring of up to 2 inputs	2 semi-conductor outputs for controlling external devices	Monitoring of up to 8 inputs
Wiring type	2-wire	2-wire	2-wire
Input voltage LSN	15 V DC to 33 V DC	15 V DC to 33 V DC	15 V DC to 33 V DC
Max. current consumption from LSN	10.4 mA	4.9 mA	5.5 mA
Potential-free outputs	–	•	•
Maximum contact load	–	–	2 A/30 V DC
Maximum switching load	–	700 mA/30 V DC	–
Protection category	IP 30	IP 30	IP 43
Permissible operating temperature	-20°C to +65°C	-20°C to +65°C	-20°C to +65°C
Connectable to LSN classic fire panels	–	–	•
Design			
- E: in-built	•	•	–
- W: wall-mount	•	•	–
- D: DIN rail	•	•	–
- S: with surface-mounted housing	–	–	•

LSN Interface Modules Serie 420

**FLM-420-01I1**

Interface type	Output-input Interface Module
Function	1 semi-conductor output for controlling external devices and 1 monitored input
Wiring type	2-wire
Input voltage LSN	15 V DC to 33 V DC
Max. current consumption from LSN	1.9 mA
Potential-free outputs	•
Maximum contact load	–
Maximum switching load	700 mA/30 V DC
Protection category	IP 30
Permissible operating temperature	-20°C to +65°C
Connectable to LSN classic fire panels	–
Design	
- E: in-built	•
- W: wall-mount	–
- D: DIN rail	•
- S: with surface-mounted housing	–

FLM-420/4-CON Conventional Interface Modules

4-wire LSN



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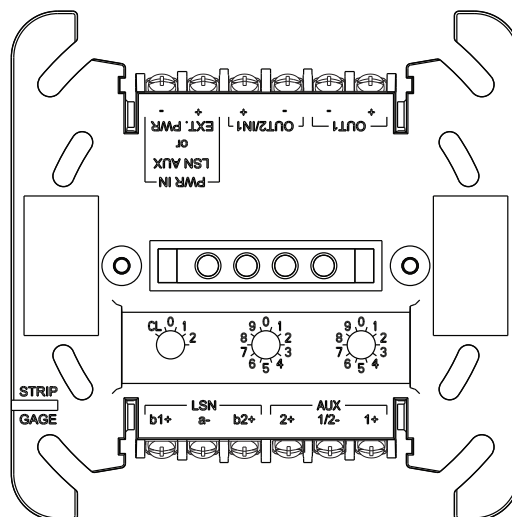
Features

- ▶ Can be used with a wide range of conventional detectors
- ▶ Monitoring of primary lines for alarms, short circuits and wire breaks
- ▶ Conventional detectors can be connected in two stubs or one loop
- ▶ Individual detector parameters can be programmed for each stub
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators
- ▶ Expanded system limiting values of LSN improved technology

The FLM-420/4-CON Conventional Interface Modules allow conventional detectors to be connected to LSN fire panels via a 4-wire supply network (Local SecurityNetwork LSN with external power supply).

The interface modules in the 420 series have been specially developed for connecting to the Local SecurityNetwork LSN improved version and offer the enhanced functionality. In classic mode, selected via the integrated rotary switches, the interface modules can be connected to all classic LSN fire panels.

System Overview



Description

LSN b1+ | a- | b2+
 AUX 2+ | 1/2- | 1+
 OUT1 + | -
 OUT2/IN1 - | +
 PWR IN
 LSN AUX or EXT.PWR + | -

Connection

LSN (in/out)
 Output power supply 4-wire detectors
 Stub 1 or loop out
 Stub 2 or loop in
 Input power supply (from LSN or external source)

Functions

Features conventional lines

Individual detector parameters can be programmed for each stub. Within one stub or loop the detector parameters have to be consistent.

Only one EOL resistance can be selected for each interface module.

The detector voltage AUX (supply to 4-wire detectors) can be switched on or off for each line individually. For configurations with only one stub or one loop the two outputs AUX with 200 mA maximum current intensity can be switched in parallel.

If a line has only 2-wire detectors connected, the AUX output of this line might be switched in parallel with the AUX output of the second line (with 4-wire detectors). In this case, both AUX outputs are reset in parallel at once.

If both lines have only 2-wire detectors connected, both AUX outputs are set off.

The detector lines are short-circuit proof. In the event of a short circuit on the line, a fault message is sent to the control panel.

In the event of a line interruption in the loop, the loop is split into two stubs to retain all detectors.

The system detects removal of detectors and indicates a fault message on the fire panel.

The fire panel detects a ground connection for each individual line.

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Interface module functions

The interface module has a red LED for displaying alarms. Current values and other parameters can also be displayed.

Address switches

The rotary switches integrated in the interface module can be used to select automatic or manual addressing with or without auto detection.

The following settings are possible:

Address	Operating mode	Fire panel
0 0 0	Loop/stub in LSN mode improved version with automatic addressing (T-taps not possible)	FPA-5000 FPA-1200
0 0 1 - 254	Loop/stub/T-taps in LSN mode improved version with manual addressing	FPA-5000 FPA-1200
CL 0 0	Loop/stub in LSN mode classic	BZ 500 LSN UEZ 2000 LSN UGM 2020

Features of LSN improved version

The interface modules in the 420 series offer all the features of the improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per fire panel loop or stub line
- Rotary switches allow operator to select automatic and manual addressing, either with or without auto detection
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

Interface variants

Different versions of the interface module are available:

- FLM-420/4-CON-S for surface-mount installation with housing
- FLM-420/4-CON-D for installation via an adapter on a DIN rail or in a FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420_4-CON/-S/-D
	CPD	0786-CPD-20399 FLM-420/4-CON-S, -D
Germany	VdS	G 208010 FLM-420/4-CON; FLM-420/4CON-D

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- For compatible devices, please refer to the Compatibility List (document number F.01U.079.455) available for download at www.boschsecurity.com/emea/fire.
- Programming is done with the programming software of the fire panel.
- Within one stub (class B) or loop (class A) the detector parameters have to be consistent (e.g. standby current, alarm resistance).
- Loop wiring of the conventional zone (class A) does not require an EOL resistor as it is already integrated in the interface module.
- The power supply is provided via the two wires on the LSN additional voltage or by an external power supply unit. External power supply units must be free-of-ground.
- The surface-mounted housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched cable ducts for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable duct for diameter up to 21 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- For operation of the fire detection system according to EN 54-13, it is necessary to terminate every conventional zone with EOL modules.
- Observe the maximum line resistance of 25 Ω for conventional lines with manual call points or automatic fire detectors.

Parts Included

Type	Qty.	Component
FLM-420/4-CON-S	1	Conventional Interface Module for 4-wire LSN, with surface-mounted housing, cable with EOL resistor (3k92)
FLM-420/4-CON-D	1	Conventional Interface Module for 4-wire LSN, with adapter for installation on a DIN rail in accordance with EN 5000022, light pipe, cable with EOL resistor (3k92)

Technical Specifications

Electrical

LSN

- LSN input voltage 15 V DC to 33 V DC (min. to max.)
- Max. current consumption from LSN 8.5 mA

Primary line

- Line voltage 21 to 22 VDC (21,5 VDC typ. ±0,5 VDC)
- Max. line current 80 mA (±10% at 25 °C)
- Max. line resistance 50 Ω per line (max. 2 x 25 Ω)

Input power supply (PWR IN)

- Voltage 24 to 30 V DC
- Residual ripple < 150 mV

Output power supply 4-wire detector (AUX)

- Voltage 23.5 V DC to 30 V DC (rated voltage 24 V DC)
- Residual ripple < 300 mV
- Max. current (supply to 4-wire detector) 200 mA per output (can be switched in parallel)

EOL resistor for stub wiring of conventional zone (class B)

- With calibration value 2,2 kΩ
- Without calibration value 2,2 kΩ / 3,9 kΩ

Mechanics

Display element 1 red LED, flashes at 1 Hz in the event of an alarm

Address setting 3 rotary switches

Connections 12 screw terminals

Permitted wire cross-section 0.6 to 3.3 mm²

Housing material

- Surface-mounted housing ABS/PC blend
- Interface housing and adapter PPO (Noryl)

Color

- Surface-mounted housing Signal white, RAL 9003
- Interface housing and adapter Off- white, similar to RAL 9002

Dimensions

- FLM-420/4-CON-S Approx. 126 x 126 x 71 mm (W x H x D)
- FLM-420/4-CON-D Approx. 110 x 110 x 48 mm (W x H x D)

Weight Without / with packaging

- FLM-420/4-CON-S Approx. 390 g / 590 g
- FLM-420/4-CON-D Approx. 150 g / 350 g

Environmental conditions

Permitted operating temperature -20 °C to +55 °C

Permitted storage temperature -25 °C to +80 °C

Permitted rel. humidity < 96% (non-condensing)

Classes of equipment as per IEC 60950 Class III equipment

Protection class as per IEC 60529

- FLM-420/4-CON-S IP 54
- FLM-420/4-CON-D IP 30

Ordering Information

FLM-420/4-CON-S Conventional Interface Module 4-wire LSN **FLM-420/4-CON-S**
with surface-mounted housing

FLM-420/4-CON-D Conventional Interface Module 4-wire LSN **FLM-420/4-CON-D**
type DIN rail

Accessories

FLM-IFB126-S Surface-mounted Housing **FLM-IFB126-S**
as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)

FLM-420-NAC Signaling Device Interface Modules



Features

- ▶ **Rotary switches for automatic or manual address setting**
- ▶ **Control of signaling device line by pole reversal**
- ▶ **Synchronized activation of all signaling devices connected to a LSN module via FLM-420-NAC Signaling Device Interface Module**
- ▶ **Ten different output signals via LSN selectable**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**
- ▶ **Available with surface-mounted housing or DIN rail adapter**

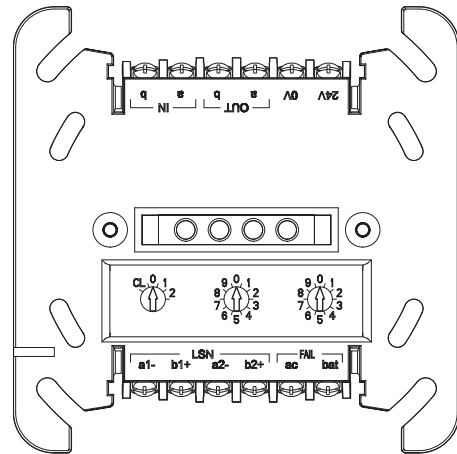
FLM-420-NAC Signaling Device Interface Modules make it possible to monitor and activate a group of signaling devices (NAC = Notification Appliance Circuit) in the Local SecurityNetwork LSN.

Each interface module offers one monitored primary line. This means one signaling device line can be connected to LSN fire panels.

The following can be connected:

- Sounders
- Strobes
- Horns.

System Overview



Description

b IN / a IN
b OUT / a OUT
0 V / 24 V
a1- / b1+
a2- / b2+
FAIL ac
FAIL bat

Connector

NAC zone input
NAC zone output
Ext. power supply
LSN in
LSN out
Trouble ext. voltage
Trouble ext. battery

Functions

Interface module variants

Two different versions of the interface module are available:

- FLM-420-NAC-S for surface-mounting with housing
- FLM-420-NAC-D for installation on a DIN rail with adapter.

Functions

The functions of the signaling device interface module are:

1. Activation of signaling devices in the event of an alarm
2. Monitoring the signaling device line
3. Monitoring the ext. power supply
4. Status display via LEDs

When activated signaling devices connected to FLM-420-NAC zones are synchronized through the LSN module they are connected to.

The control of the signaling device line is performed through polarity reversal.

The status of the NAC zone is shown by a red and a green LED.

Rotary switches

The rotary switch integrated in the interface module can be used to select between automatic or manual addressing with or without auto detection.

The following settings are possible:

- | | |
|-------------|--|
| 0 0 0 | Loop/stub in LSN mode improved version with automatic addressing (T-tap system not possible) |
| 0 0 1 - 254 | Loop/stub/T-tap system in LSN mode improved version with manual addressing |
| CL 0 0 | Loop/stub in classic LSN mode |

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-NAC/-S/-D
	CPD	0786-CPD-20375 FLM-420-NAC
Germany	VdS	G 207052 FLM-420-NAC-S; FLM-420-NAC-D
Hungary	TMT	TMT-24/2006 FLM-420-NAC, FLM-420-S
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- National standards and guidelines must be taken into account during the planning stage.
- An external power supply is required for the FLM-420-NAC interface module.
- The surface-mounted housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched cable ducts for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable duct for diameter up to 21 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.

Parts Included

Type	Qty.	Components
FLM-420-NAC-S	1	Signaling Device Interface Module with surface-mounted housing
FLM-420-NAC-D	1	Signaling Device Interface Module for installation on a DIN rail with adapter

Technical Specifications**Electrical**

Input voltage	15 V DC to 33 V DC
Max. current consumption	
• from LSN	6,06 mA (normal operation and alarm)
• from external power supply	15 mA (normal operation) + output current
External power supply	20,4 V DC to 29 V DC
Max. output current	3 A (during an alarm, from ext. power supply)
EOL resistance	3.9 kΩ

Mechanics

Display elements	
• Red LED	Alarm
• Green LED	Normal operation
LSN/Address setting	3 rotary switches for
	• Mode LSN "classic" or LSN improved version
	• Automatic or manual addressing
Connections	12 threaded clamps
Max. wire diameter for terminals	3.3 mm ² (12 AWG)
Housing material	
• Interface module	PPO (Noryl)
• Surface-mount housing	ABS/PC-Blend
Housing color	
• Interface module	Off-white, similar to RAL 9002
• Surface-mount housing	Signal white, RAL 9003
Dimensions	
• FLM-420-NAC-S	Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)
• FLM-420-NAC-D (with DIN rail adapter)	Approx. 110 x 110 x 48 mm (4.33 x 4.33 x 1.89 in.)
Weight	
FLM-420-NAC-S	Approx. 390 g (13.8 ounces)
FLM-420-NAC-D (with DIN rail adapter)	Approx. 150 g (5.3 ounces)

System limits

Number of zones per signaling device interface module 1

Further characteristics

Output signals	Steady BS 5839 March Time March Time 120 California Coded Synchronization protocol (Wheelock, Gentex)
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Environmental conditions

Permitted operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Permitted storage temperature	-25 °C to 80 °C (-13 °F to 176 °F)
Permitted relative humidity	< 96%
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	
• FLM-420-NAC-S	IP 54
• FLM-420-NAC-D	IP 30

Ordering Information

FLM-420-NAC-S Signaling Device Interface Module with surface-mounted housing	FLM-420-NAC-S
FLM-420-NAC-D Signaling Device Interface Module for installation on a DIN rail with adapter	FLM-420-NAC-D

FLM-I 420-S Short Circuit Isolator



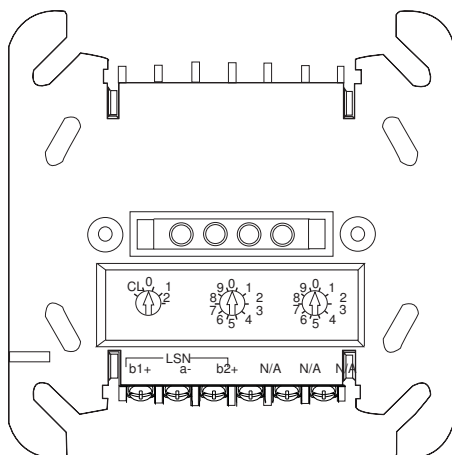
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Features

- ▶ Rotary switch for automatic and manual address setting
- ▶ Preservation of LSN loop functions in the event of a short-circuit by two integrated isolators
- ▶ Power supply via LSN
- ▶ Three free screw terminals

The Short Circuit Isolator isolates alarm zones in which a short circuit has occurred. This means the functionality of the remainder of the network remains preserved.

System Overview



Description Connector

b1+ / a- / b2+	LSN
N/A (3 x)	free terminals, e.g. for looping through ext. auxiliary voltage and for shielding

Functions

Features of improved LSN

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

Address switch (rotary switch)

The address of the Short Circuit Isolator is set using the rotary switches.

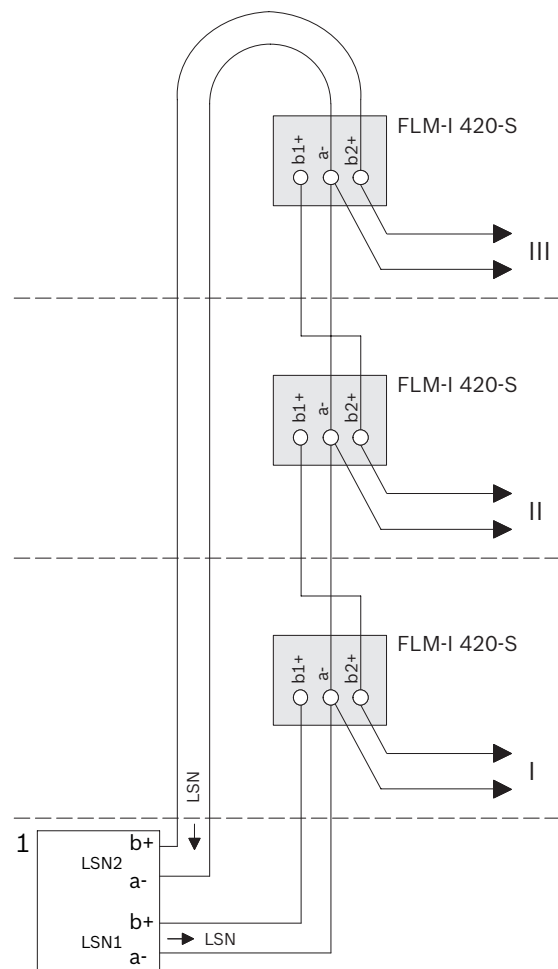
The following settings are possible:

0 0 0	Loop/stub in LSN mode improved version with automatic addressing (T-tap system not possible)
0 0 1 - 254	Loop/stub/T-tap system in LSN mode improved version with manual addressing
CL 0 0	Loop/stub in classic LSN mode

Configuration

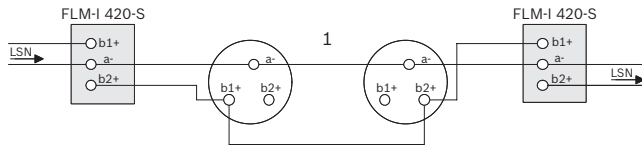
The Short Circuit Isolator isolates alarm zones in which a short circuit has occurred. The following illustrations show typical configurations of the isolator module.

Wiring example: Isolation of separate floors



Pos. Description

1	Fire panel
I, II, III	Floors

Typical wiring in a T-Tap

Pos.	Description
1	Alarm zone / device group with LSN elements

Certifications and Approvals

Complies with EN54-17:2005

Region	Certification
Europe	CE FLM-I 420-S CPD 0786-CPD-20374 FLM-I 420-S
Germany	VdS G 207045 FLM-I 420-S; FLM-I 420-D
Hungary	TMT TMT-24/2006 FLM-420-NAC, FLM-I 420-S
Russia	GOST POCC DE.C313B06300

Installation/Configuration Notes

- National standards and guidelines must be taken into account during the planning stage.
- The surface-mounted housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable ducts for diameter up to 21 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- Connectable to the fire panels FPA-5000 Modular and FPA-1200 with LSN technology improved version.

Parts Included

Qty.	Components
1	Short Circuit Isolator with surface-mounted housing.
1	DIN rail adapter

Note Alternatively to the use of the surface-mounted housing, the Isolator can be mounted on a DIN rail with the included adapter.

Technical Specifications**Electrical**

Input voltage 15 V DC to 33 V DC

Max. current consumption

- During initialization < 0.4 mA
- Following the initialization < 0.25 mA

Mechanics

LSN/Address setting 3 rotary switches for

- Mode LSN classic or LSN improved version
- Automatic or manual addressing

Connections 6 threaded clamps

Housing material

- Isolator module PPO (Noryl)
- Surface-mount housing ABS/PC-Blend

Housing color

- Isolator module Off-white, similar to RAL 9002
- Surface-mount housing Signal white, RAL 9003

Dimensions Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)

Weight Approx. 150 g (5.3 ounces)

Environmental conditions

Permitted operating temperature -20 °C to 50 °C (-4 °F to 122 °F)

Permitted storage temperature -25 °C to 85 °C (-13 °F to 176 °F)

Permitted relative humidity < 96%

Classes of equipment as per IEC 60950 Class III equipment

Protection class as per IEC 60529 IP 54

Ordering Information

FLM-I 420-S Short Circuit Isolator with surface-mounted housing

FLM-I 420-S

FLM-420-RHV Relay High Voltage Interface Modules



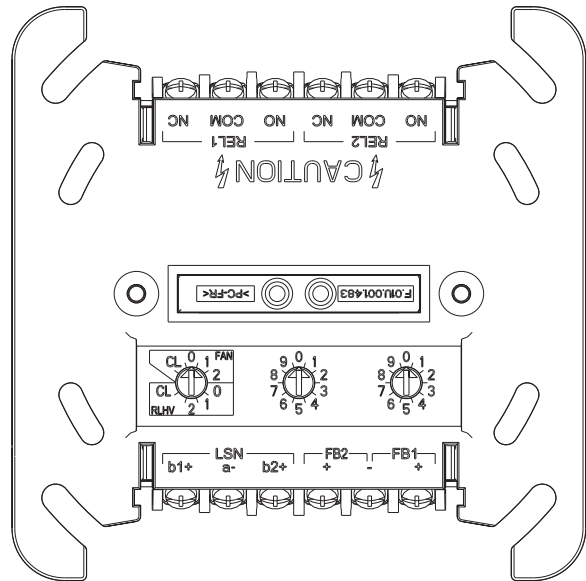
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Features

- ▶ **Relay function or fan control function selectable**
- ▶ **Rotary switches for automatic or manual address setting**
- ▶ **LED display for operating state (can be deactivated with LSN)**
- ▶ **Power supply via LSN**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**
- ▶ **Available with surface-mounted housing or DIN rail adapter**

The FLM-420-RHV Relay High Voltage Interface Modules are used to control the activation of external elements, e. g. smoke dampers or fans (FAN function), via the Local SecurityNetwork LSN.

System Overview



Description

NO / C / NC
NO / C / NC
b1+ / a- / b2+
FB2+
FB1/FB2-
FB1+

Connector

Relay 1
Relay 2
LSN
Relay 2, feedback +
Relay 1 and 2, feedback -
Relay 1, feedback +

Functions

Interface module variants

Two different versions of the interface module are available:

- FLM-420-RHV-S for surface-mounting with housing
- FLM-420-RHV-D for installation on a DIN rail with adapter.

Relay and FAN function

The interface modules have two change-over contact relays (Form C) for the controlled activation of external elements. The relay contacts are protected with 10 A fuses which are built into the module.

The maximum relay contact loads are (values apply to resistive load):

- 10 A at 120 V AC / 230 V AC / 24 V DC
- 6 A at 30 V DC.

Rotary switches

The rotary switches can be used to select either the relay function (RLHV) or the fan control function (FAN) as well as to define the address of the interface module.

The following settings are possible:

Function selection (rotary switch 1)

RLHV Relay function used to control external elements

FAN Fan control function

Address setting (rotary switches 1-3)

0 0 0 Loop/stub in LSN mode improved version with automatic addressing (T-tap system not possible)

0 0 1 - 254 Loop/stub/T-tap system in LSN mode improved version with manual addressing

CL 0 0 Loop/stub in classic LSN mode

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

Further performance characteristics

The status of the two relays is shown via a red and a green LED.

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

The power is provided via the LSN loop.

Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-RHV/-S/-D
	CPD	0786-CPD-20376 FLM-420-RHV
Germany	VdS	G 207053 FLM-420-RHV-S; FLM-420-RHV-D
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- National standards and guidelines must be taken into account during the planning stage.
- It is not permitted
 - to operate the relays with different voltages (high voltage and low voltage)
 - to place two different AC line voltage phases on the relay contacts.
- The monitoring function is deactivated at the time of delivery, and can be activated via the panel software.
- The surface-mounted housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched cable ducts for diameter up to 21 mm/to 34 mm (for conduits)

- 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable ducts for diameter up to 21 mm (for conduit)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Components
FLM-420-RHV-S	1	Relay High Voltage Interface Module with surface-mounted housing
FLM-420-RHV-D	1	Relay High Voltage Interface Module for installation on a DIN rail with adapter

Technical Specifications**Electrical**

Input voltage	15 V DC to 33 V DC (min...max)
Max. current consumption	17.15 mA (normal operation and activated)
Max. contact load	10 A at 120 V AC 10 A at 230 V AC 10 A at 24 V DC 6 A at 30 V DC
Max. bounce period of NC contact	9 ms
Feedback current	1 mA (EOL resistance R=3.9 kΩ)
Feedback voltage	Max. 30 V DC
Fuses (F1, F2)	10 A / 250 V

Mechanics

Operating/display elements	2 LEDs (1 x red, 1 x green)
Function selection and address setting	3 rotary switches for <ul style="list-style-type: none"> • FAN/RLHV function • Mode LSN "classic" or LSN „improved version“ • Automatic or manual addressing
Connections	12 threaded clamps
Housing material	<ul style="list-style-type: none"> • Interface module PPO (Noryl) • Surface-mount housing ABS/PC-Blend
Housing color	<ul style="list-style-type: none"> • Interface module Off-white, similar to RAL 9002 • Surface-mount housing Signal white, RAL 9003

Dimensions

- | | |
|--|---|
| • FLM-420-RHV-S | Approx. 126 x 126 x 71 mm
(4.96 x 4.96 x 2.8 in.) |
| • FLM-420-RHV-D (with
DIN rail adapter) | Approx. 110 x 110 x 48 mm
(4.33 x 4.33 x 1.89 in.) |

Weight

- | | |
|-----------------|-----------------------------|
| • FLM-420-RHV-S | Approx. 390 g (13.8 ounces) |
| • FLM-420-RHV-D | Approx. 150 g (5.3 ounces) |

Environmental conditions

Permitted operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
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Permitted storage temperature	-25 °C to 85 °C (-13 °F to 176 °F)
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Permitted relative humidity	< 96%
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Classes of equipment as per IEC 60950	Class II equipment
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Protection class as per IEC 60529	
--------------------------------------	--

- | | |
|-----------------|-------|
| • FLM-420-RHV-S | IP 54 |
| • FLM-420-RHV-D | IP 30 |

Ordering Information

FLM-420-RHV-S Relay High Voltage Interface Module with surface-mounted housing	FLM-420-RHV-S
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FLM-420-RHV-D Relay High Voltage Interface Module for installation on a DIN rail with adapter	FLM-420-RHV-D
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FLM-420-RLV1 Relay Interface Modules Low Voltage



Features

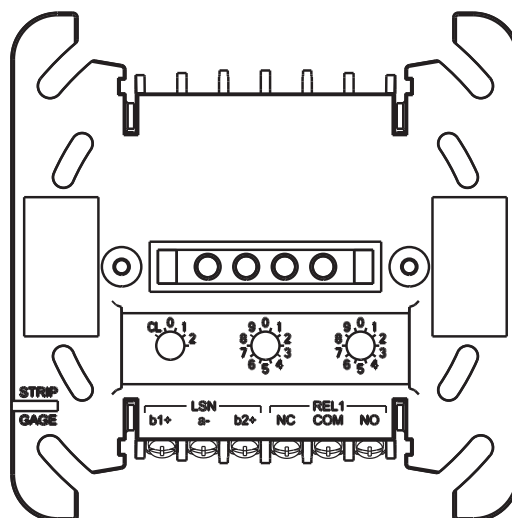
- ▶ **Maximum switching current of 5 A (type DIN rail) / 1 A (type in-built)**
- ▶ **Low current consumption**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**

The FLM-420-RLV1 Relay Interface Modules Low Voltage feature a changeover contact relay for providing a potential-free output contact.

They are 2-wire LSN elements. When connected to the fire panels FPA-5000 and FPA-1200, the interface module offers the enhanced functionality of LSN improved technology.

System Overview

FLM-420-RLV1-D



Description

REL1 NC | COM | NO

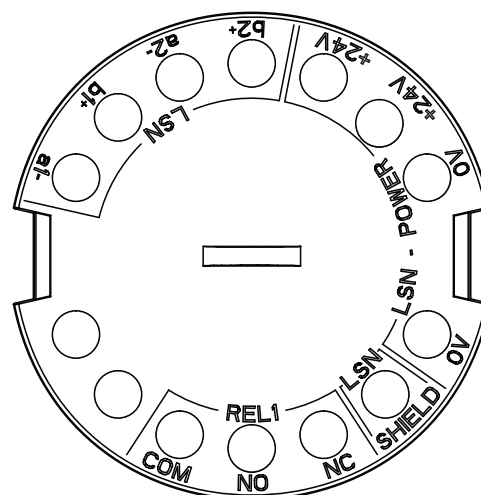
LSN b1+ | a- | b2+

Connection

Relay (NC, COM and NO contact)

LSN (in/out)

FLM-420-RLV1-E



Description

REL1 COM | NO | NC

LSN SHIELD

LSN POWER

0 V | 0 V | +24 V | +24 V

LSN a1- | b1+ | a2- | b2+

Connection

Relay (COM, NO and NC contact)

Shielding cable (if available)

LSN power supply (supports for looping through)

LSN (in/out)

Functions

Address switches

The addresses of the interface modules are set using:

- DIP switches for FLM-420-RLV1-E
- Rotary switches for FLM-420-RLV1-D.

When connecting to the FPA-5000 Modular Fire Panel (LSN mode improved version), the operator can select automatic or manual addressing with or without auto-detection. In LSN mode classic, connection to the fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020 is possible.

Address rotary switches	Address DIP switches	Operating mode
0 0 0	0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 - 2 5 4	1 - 254	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	255	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

Interface variants

The input interface modules are available in various designs:

- FLM-420-RLV1-E type in-built:
 - Can be built in to standard device boxes in accordance with EN 60670
 - For space-saving installation in devices
- FLM-420-RLV1-D type DIN rail:
 - For installation on a DIN rail in accordance with EN 500022 with included adapter
 - Can be built in to a FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-RLV1-E
		FLM-420-RLV1-D
	CPD	0786-CPD-20291 FLM-420-RLV1 0786-CPD-20292 FLM-420-RLV1-W, -E
Germany	VdS	G 207077 FLM-420-RLV1-D; FLM-420-RLV1-E; FLM-420-RLV1-W
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- Programming is done with the programming software of the fire panel.
- The connected device must have a minimum activation time of 20 ms.
- The LSN connection is established via the two wires on the LSN line.
- The in-built (-E) version is fitted with terminals to allow a second wire pair to be looped through to the LSN power supply of subsequent elements.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-RLV1-E	1	Relay Interface Module Low Voltage, type in-built
FLM-420-RLV1-D	1	Relay Interface Module Low Voltage, type DIN rail, with adapter and light pipe

Technical Specifications

Electrical

LSN

• LSN input voltage	15 V DC to 33 V DC (min. to max.)
• Max. current consumption from LSN	1.75 mA

Relay (low voltage)	Normally closed, common and normally open contact (NC/COM/NO)
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Contact load (ohm resistive load) FLM-420-RLV1-E

• Max. switching current	1 A
• Max. switching voltage	30 V DC
• Min. switching current	0.01 mA
• Min. switching voltage	10 mV DC

Contact load (ohm resistive load) FLM-420-RLV1-D

• Max. switching current	5 A
• Max. switching voltage	30 V DC
• Min. switching current	0.1 mA
• Min. switching voltage	100 mV DC

Minimum activation time of the connected device > 20 ms

Mechanical

Connections

- | | |
|------------------|----------------------|
| • FLM-420-RLV1-E | 12 screw terminals |
| • FLM-420-RLV1-D | 6 threaded terminals |

Permitted wire cross-section

- | | |
|------------------|----------------------------|
| • FLM-420-RLV1-E | 0.6 to 2.0 mm ² |
| • FLM-420-RLV1-D | 0.6 to 3.3 mm ² |

Address setting

- | | |
|------------------|-------------------|
| • FLM-420-RLV1-E | 8 DIP switches |
| • FLM-420-RLV1-D | 3 rotary switches |

Housing material

- | | |
|-------------------------------|--------------|
| • FLM-420-RLV1-E | ABS/PC blend |
| • FLM-420-RLV1-D with adapter | PPO (Noryl) |

Color

- | | |
|------------------|--------------------------------|
| • FLM-420-RLV1-E | Signal white, RAL 9003 |
| • FLM-420-RLV1-D | Off-white, similar to RAL 9002 |

Dimensions

- | | |
|-------------------------------|---------------------------------------|
| • FLM-420-RLV1-E | Approx. 50 mm x 22 mm (Ø x H) |
| • FLM-420-RLV1-D with adapter | Approx. 110 x 110 x 48 mm (W x H x D) |

Weight

- | | |
|------------------|--------------------------|
| | Without / with packaging |
| • FLM-420-RLV1-E | Approx. 35 g / 130 g |
| • FLM-420-RLV1-D | Approx. 150 g / 235 g |

Environmental conditions

Permitted operating temperature	-20 °C to +55 °C
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Permitted storage temperature	-25 °C to +80 °C
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Permitted rel. humidity	< 96% (non-condensing)
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Classes of equipment as per IEC 60950	Class III equipment
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Protection class as per IEC 60529	IP 30
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Ordering Information

FLM-420-RLV1-E Relay Interface Module Low Voltage type in-built	FLM-420-RLV1-E
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FLM-420-RLV1-D Relay Interface Module Low Voltage DIN rail type	FLM-420-RLV1-D
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FLM-IFB126-S Surface-mounted Housing as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)	FLM-IFB126-S
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FLM-420-RLV8-S Octo-relay Interface Module Low Voltage



8

Features

- ▶ **Maximum switching capacity of the relays 2 A / 30 V DC**
- ▶ **Low current consumption**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**
- ▶ **Easy wiring thanks to pluggable terminal blocks**

The FLM-420-RLV8-S Octo-relay Interface Module Low Voltage features eight changeover contact relays for providing potential-free output contacts.

It is a 2-wire LSN element. When connected to the fire panels FPA-5000 and FPA-1200, the interface module offers the enhanced functionality of LSN improved technology.

Functions

Relay function

The eight changeover contact relays of the FLM-420-RLV8-S allow for a separate connection of up to eight single external elements.

The maximum contact load (resistive load) is 2 A / 30 V DC.

Address switches

The addresses of the interface modules are set by rotary switches.

In case of a connection to the Local SecurityNetwork LSN improved version, the operator can select automatic or manual addressing with or without auto-detection. In LSN mode classic, connection to the fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020 is possible.

Address	Mode
0 0 0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 ... 2 5 4	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules of the 420 Series have all features of the improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

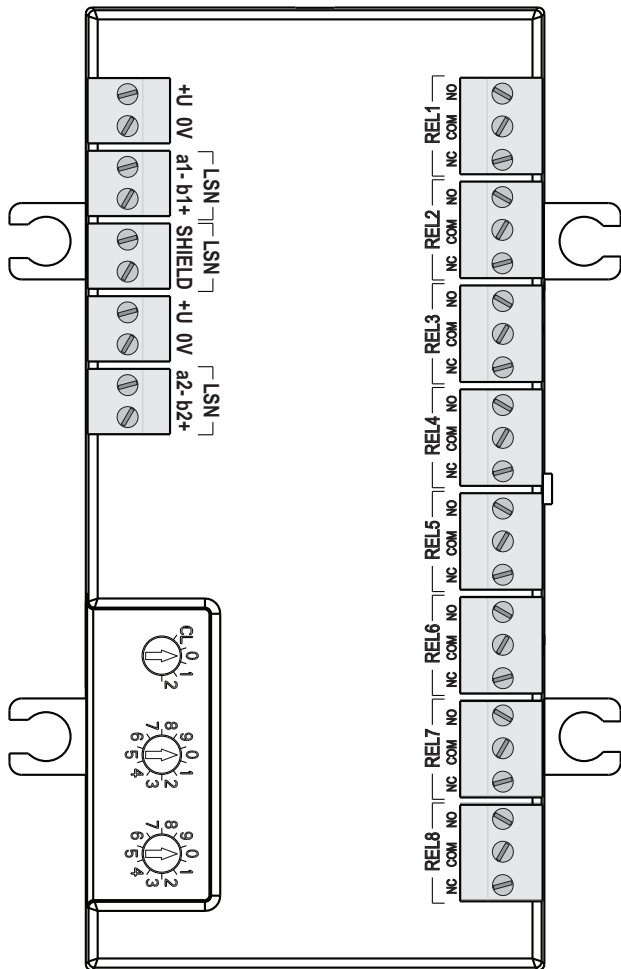
Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-RLV8-S
	CPD	0786-CPD-20559 FLM-420-RLV8-S
Germany	VdS	G 208183 FLM-420-RLV8-S

Installation/Configuration Notes



Description		Connection
	+U 0V	Auxiliary power supply (support points to loop through)
LSN	a1- b1+	LSN incoming
LSN	SHIELD	Cable shielding (if available)
LSN-POWER	+U 0V	Auxiliary power supply (support points to loop through)
LSN	a2- b2+	LSN outgoing
REL1 ... REL8	NC COM NO	Relay 1 to relay 8 (NC contact / COM / NO contact)

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- Programming is done with the programming software of the fire panel.
- The LSN connection is established by the two wires of the LSN line.
- The interface module has terminals blocks to allow a second pair of wires to be looped through to an auxiliary power to supply downstream connected elements.
- The cables are fed through rubber bushings or PG cable glands
- The pluggable terminal blocks allow for an easy wiring even if the interface module is built in.
- Use included spacers when mounting on uneven surface.

- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-RLV8-S	1	Octo-relay Interface Module Low Voltage, in housing for surface mounting

Technical Specifications

Electrical

LSN

- LSN input voltage 15 V DC to 33 V DC (min. to max.)
- Max. current consumption from LSN 3.55 mA

8 relays (low voltage) (NC contact / COM / NO contact)

Contact load (resistive load)

- Max. switching current 2 A
- Max. switching voltage 30 V DC
- Min. switching current 0.01 mA
- Min. switching voltage 10 mV DC

Mechanical

Connections	Screw terminals
Wire diameter	0.6 to 3.3 mm ²
Address setting	3 rotary switches
Material	ABS + PC-FR
Housing color	Signal white, RAL 9003
Dimensions	Approx. 140 x 200 x 48 mm (W x H x D)
Weight (without/with packing)	Approx. 490 g / 810 g

Environmental conditions

Permissible operating temperature	-20 °C to +65 °C
Permissible storage temperature	-25 °C to +80 °C
Permissible rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 43

Ordering Information

FLM-420-RLV8-S Octo-relay Interface Module Low Voltage

FLM-420-RLV8-S

2-wire LSN element with eight changeover contact relays for providing potential-free output contacts, in housing for surface mounting

FLM-420-I8R1-S Octo-input Interface Module with Relay



8

Features

- ▶ Individually selectable monitoring functions (EOL or contact) for the eight inputs each
- ▶ Maximum switching capacity 2 A / 30 V DC
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators
- ▶ Easy wiring thanks to pluggable terminal blocks

The FLM-420-I8R1-S Octo-input Interface Module with Relay allows the monitoring of up to eight inputs. Additionally, it features a change-over contact relay for providing a potential-free output contact.

It is a 2-wire LSN element. When connected to the fire panels FPA-5000 and FPA-1200, the interface module offers the enhanced functionality of LSN improved technology.

Functions

Monitoring functions of the inputs

The FLM-420-I8R1-S Octo-input Interface Module provides two monitoring functions:

1. Monitoring of a line by an EOL resistor
2. Monitoring of a potential-free contact

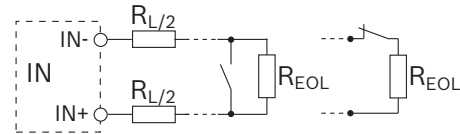
The monitoring functions of the eight inputs can be selected individually by setting the corresponding addresses.

Line monitoring with EOL resistor

The monitoring with EOL resistor can be activated individually for each of the inputs. The EOL resistor has a standard resistance of 3.9 kΩ.

The interface module detects

- Standby
- Triggering in the event of a short circuit
- Triggering in the event of line interruption.



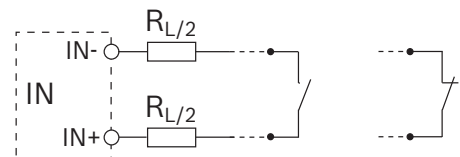
Position Description

R_{Σ}	Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be reliably detected if the overall line resistance is within the specified range:

Line condition	Overall line resistance R_{Σ}
Standby	1500 Ω to 6000 Ω
Short circuit	< 800 Ω
Interruption	> 12 000 Ω

Contact monitoring



The interface module evaluates the operating conditions "open" or "closed". The normal operating condition can be programmed for each input. Contact monitoring has a pulse intensity of 8 mA.

Change-over contact relay

The maximum contact load (resistive load) is 2 A / 30 V DC.

Address switches

The addresses of the interface modules are set by rotary switches.

In case of a connection to the fire panels FPA-5000 and FPA-1200 (improved version LSN mode), the operator can select automatic or manual addressing with or without auto-detection. In LSN mode classic, connection to the fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020 is possible.

Address	Mode
0 0 0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 ... 2 5 4	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules of the 420 series have all features of the improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

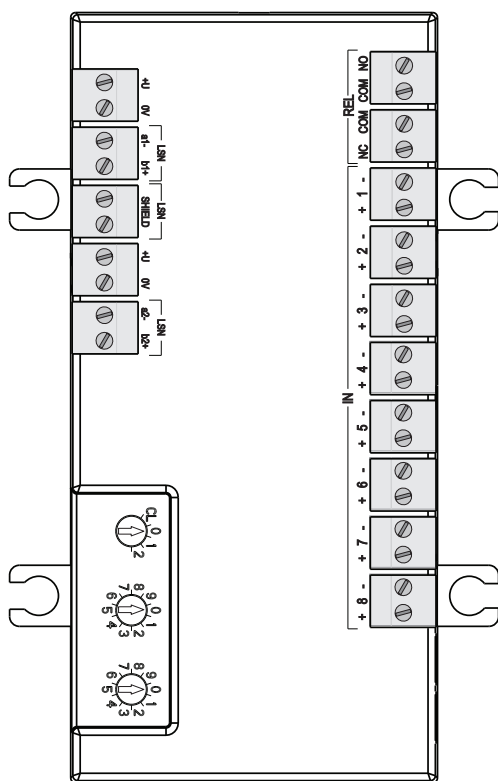
Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-I8R1-S
	CPD	0786-CPD-20560 FLM-420-I8R1-S
Germany	VdS	G 208184 FLM-420-I8R1-S

Installation/Configuration Notes



Description	Connection
+U 0V	Auxiliary power supply (support points to loop through)
LSN a1- b1+	LSN incoming
LSN SHIELD	Cable shielding (if available)
+U 0V	Auxiliary power supply (support points to loop through)
LSN a2- b2+	LSN outgoing
IN 1 ... 8: + -	Input 1 to input 8
REL NC COM COM NO	Change-over relay (NC contact / COM, COM / NO contact)

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN control panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- Programming is done with the programming software of the fire panel.
- The LSN connection is established by the two wires of the LSN line.
- The activation of the inputs IN 1...8 has to be carried out electrically isolated from LSN (e. g. with relay contact, pushbutton, etc.).
- The inputs must have a minimum activation time of 3.2 s.
- The maximum cable length of all inputs connected to the loop or stub is 500 m in total. Additionally, all outputs which are not electrically isolated from LSN must be included in the total line length calculation (e.g. peripherals connected via C points). With UEZ 2000 LSN and UGM 2020, the limitation to 500 m applies to each Network Processing Converter (NVU).
- The interface module has terminals blocks to allow a second pair of wires to be looped through to an auxiliary power supply.
- The cables are fed through rubber bushings or PG cable glands.
- The pluggable terminal blocks allow for an easy wiring even if the interface module is built in.
- Use included spacers when mounting on uneven surface.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-I8R1-S	1	Octo-input Interface Module with Relay, in housing for surface mounting

Technical Specifications

Electrical

LSN

- LSN input voltage 15 V DC to 33 V DC
- Max. current consumption from LSN 5.5 mA

Inputs 8, independent

Line monitoring with EOL

- EOL resistor Nominal 3.9 kΩ
- Overall line resistance R_{Σ} with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$
 - Standby: 1500 Ω to 6000 Ω
 - Line interruption: > 12.000 Ω
 - Short circuit: < 800 Ω

Contact monitoring

- Max. current strength (current pulse) 8 mA

Minimum activation time of the inputs IN 1...8 3.2 s

Relay (low voltage) (NC / COM / NO contact)

Contact load (resistive load)

- Max. switching current 2 A
- Max. switching voltage 30 V DC
- Min. switching current 0.01 mA
- Min. switching voltage 10 mV DC

Mechanical

Connections	Screw terminals
Wire diameter	0.6 mm ² to 3.3 mm ²
Address setting	3 rotary switches
Material	ABS + PC-FR
Housing color	Signal white, RAL 9003
Dimensions	Approx. 140 x 200 x 48 mm (W x H x D)
Weight (without/with packing)	Approx. 480 g / 800 g

Environmental conditions

Permissible operating temperature	-20 °C to +65 °C
Permissible storage temperature	-25 °C to +80 °C
Permissible rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 43

System limiting values

Maximum cable length of all inputs and outputs which are connected to the loop or stub and not electrically isolated from LSN 500 m in total

Ordering Information

FLM-420-I8R1-S Octo-input Interface **FLM-420-I8R1-S**

Module with Relay

2-wire LSN element, allows the monitoring of up to eight inputs, with a change-over contact relay for providing a potential-free output contact, in housing for surface mounting

FLM-420-I2 Input Interface Modules



Features

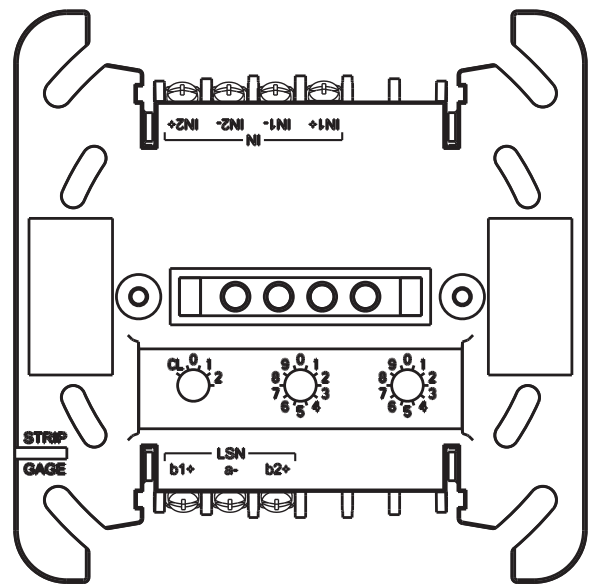
- ▶ Line monitoring when operating with EOL resistor
- ▶ Contact monitoring
- ▶ Voltage monitoring
- ▶ Individual monitoring of the two inputs
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

The FLM-420-I2 Input Interface Modules monitor up to two inputs.

They are 2-wire LSN elements for connection to the Local SecurityNetwork LSN improved version with the enhanced functionality.

System Overview

FLM-420-I2-D



Description

IN1+ | IN1-

IN2+ | IN2-

LSN b1+ | a- | b2+

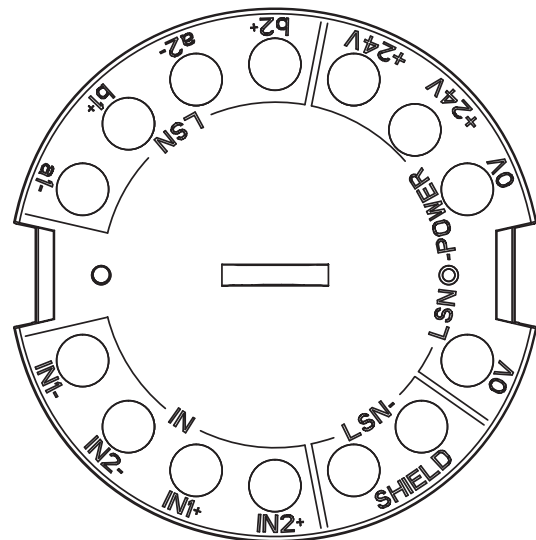
Connection

Input 1

Input 2

LSN (in/out)

FLM-420-I2-E / FLM-420-I2-W



Description

IN1- | IN1+

IN2- | IN2+

LSN-SHIELD

LSN POWER

0V | 0V | +24V | +24V

LSN a1- | b1+ | a2- | b2+

Connection

Input 1

Input 2

Shielding cable (if available)

LSN power supply (supports for looping through)

LSN (in/out)

Functions

Monitoring functions

The FLM-420-I2 Input Interface Modules offer three monitoring functions:

1. Monitoring of a line with EOL resistor
2. Monitoring of a potential-free contact
3. Voltage monitoring

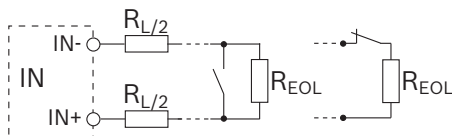
The monitoring functions can be selected for the two inputs individually by address setting via the programming software.

Line monitoring with EOL resistor

Operation with EOL resistor can be programmed for each input individually. The standard EOL resistor is 3.9 kΩ.

The interface module detects

- Standby
- Triggering in the event of line interruption
- Triggering in the event of a short circuit.

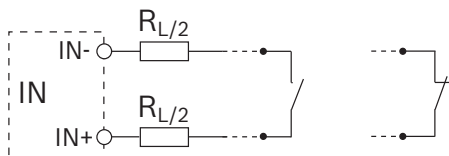


Position	Description
R_{Σ}	Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be definitely detected if the overall line resistance is within the specified ranges:

Line condition	Overall line resistance R_{Σ}
Standby	1500 Ω to 6000 Ω
Interruption	> 12.000 Ω
Short circuit	< 800 Ω

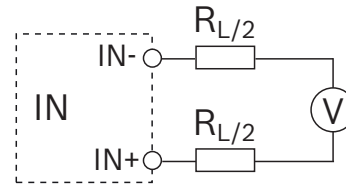
Contact monitoring



Position	Description
$R_{L/2}$	Line resistance with $R_{L/2} + R_{L/2} \leq 50 \Omega$

The interface module evaluates the operating conditions "open" or "closed". The normal operating condition can be programmed for each input. Contact monitoring is carried out with a pulse intensity of 8 mA. The module detects signals from a duration of 300 ms.

Voltage monitoring



Position	Description
$R_{L/2}$	Line resistance with $R_{L/2} + R_{L/2} \leq 50 \Omega$

Voltage monitoring is carried out between 0 V DC and 30 V DC. The programming software can be used to select two threshold values.

Address switches

The addresses of the interface modules are set using:

- DIP switches for FLM-420-I2-E and FLM-420-I2-W
- Rotary switches for FLM-420-I2-D.

In improved version LSN mode, the operator can select automatic or manual addressing with or without auto-detection.

Address rotary switches	Address DIP switches	Operating mode
0 0 0	0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 - 2 5 4	1 – 254	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	255	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

Interface variants

The Input Interface Modules are available in various designs:

- FLM-420-I2-E type in-built:
 - Can be built in to standard device boxes in accordance with EN 60670 (e.g. below standard switch programs)
 - For space-saving installation in devices
- FLM-420-I2-W type wall-mount (with cover):
 - Can be built in to standard device boxes in accordance with EN 60670
 - For surface mounting in conjunction with the FMX-IFB55-S interface box.
- FLM-420-I2-D type DIN rail:
 - For installation on a DIN rail in accordance with EN 50022 with included adapter

- Can be built in to a FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-I2-W/-E FLM-420-I2-D
	CPD	0786-CPD-20288 FLM-420-I2-D 0786-CPD-20287 FLM-420-I2-W, -E
	VdS	G 207076 FLM-420-I2-D; FLM-420-I2-E; FLM-420-I2-W
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200.
- Programming is done with the programming software of the fire panel.
- The LSN connection is established via the two wires on the LSN line.
- A maximum cable length of 3 m is permitted per input.
- When mounting the in-built type interface module below a switch, a minimum depth of the device box of 60 mm is recommended.
- The in-built (-E) and wall-mount (-W) versions are fitted with terminals to allow a second wire pair to be looped through to the LSN power supply of subsequent elements.

Parts Included

Type	Qty.	Component
FLM-420-I2-E	1	Input Interface Module, type in-built
FLM-420-I2-W	1	Input Interface Module, type wall-mount, with cover and accessories
FLM-420-I2-D	1	Input Interface Module, type DIN rail, with adapter and light pipe

Technical Specifications

Electrical

LSN

- LSN input voltage 15 V DC to 33 V DC
- Max. current consumption from LSN 10.4 mA

Inputs 2, independent of each other

Line monitoring with EOL

- EOL resistor Nominal 3.9 kΩ
- Overall line resistance
 - During standby: 1500 to 6000 Ω
 - Interruption: > 12.000 Ω
 - Short circuit: < 800 Ω

Contact monitoring

- Max. current (current peak) 8 mA

Voltage monitoring

- Voltage range 0 to 30 V DC
- Input resistance $\geq 50 \text{ k}\Omega$
- Selectable threshold values
 - 0.8 V DC ($\pm 0.3 \text{ V DC}$)
 - 3.3 V DC ($\pm 0.3 \text{ V DC}$)
 - 10.2 V DC ($\pm 0.5 \text{ V DC}$)
 - 21.2 V DC ($\pm 0.5 \text{ V DC}$)

Mechanical

Connections

- FLM-420-I2-E / W 14 screw terminals
- FLM-420-I2-D 7 screw terminals

Permitted wire cross-section

- FLM-420-I2-E / W 0.6 to 2.0 mm²
- FLM-420-I2-D 0.6 to 3.3 mm²

Address setting

- FLM-420-I2-E / W 8 DIP switches
- FLM-420-I2-D 3 rotary switches

Housing material

- FLM-420-I2-E / W ABS/PC blend
- FLM-420-I2-D with adapter PPO (Noryl)

Color

- FLM-420-I2-E / W Signal white, RAL 9003
- FLM-420-I2-D with adapter Off-white, similar to RAL 9002

Dimensions

- FLM-420-I2-E Approx. 50 mm x 22 mm (Ø x H)
- FLM-420-I2-W Approx. 76 mm x 30 mm (Ø x H)
- FLM-420-I2-D with adapter Approx. 110 x 110 x 48 mm (W x H x D)

Weight

- Without / with packaging
- FLM-420-I2-E Approx. 35 g / 130 g
- FLM-420-I2-W Approx. 55 g / 155 g
- FLM-420-I2-D Approx. 150 g / 235 g

Environmental conditions

Permitted operating temperature	-20 °C to +65 °C
Permitted storage temperature	-25 °C to +80 °C
Permitted rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 30

System limiting values

Max. cable length per input	3 m
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Ordering Information

FLM-420-I2-E Input Interface Module flush-mount type	FLM-420-I2-E
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FLM-420-I2-W Input Interface Module wall-mount type, with cover	FLM-420-I2-W
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FMX-IFB55-S Interface Box Surface-mount	FMX-IFB55-S
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FLM-420-I2-D Input Interface Module DIN rail type	FLM-420-I2-D
---	---------------------

FLM-IFB126-S Surface-mounted Housing as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)	FLM-IFB126-S
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FLM-420-O2 Output Interface Modules



Features

- ▶ **Two semi-conductor outputs, can be switched independently of each other**
- ▶ **Outputs are electrically isolated from LSN loop and short-circuit proof**
- ▶ **Max. switchable current per output 700 mA**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**

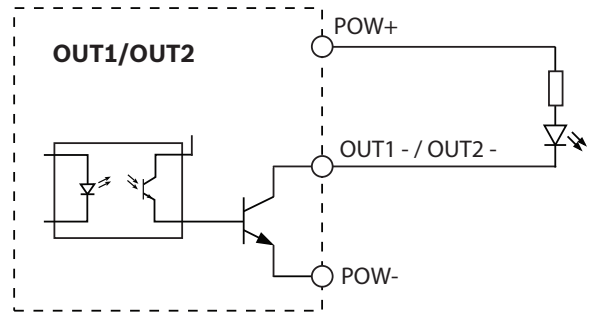
The FLM-420-O2 Output Interface Modules have two outputs to control external devices.

They are 2-wire LSN elements for connection to the Local SecurityNetwork LSN improved version with the enhanced functionality.

Functions

Semi-conductor outputs

The two semi-conductor outputs can be switched independently of each other. They are electrically isolated from the LSN loop and protected against short circuits.



Functionality of the semi-conductor outputs

Power supply

The loads' power supply can be selected for each output:

- Power supply of the interface module
- External power supply.

Address switches

The addresses of the interface modules are set using:

- DIP switches for FLM-420-O2-E and FLM-420-O2-W
- Rotary switches for FLM-420-O2-D.

In improved version LSN mode, the operator can select between automatic or manual addressing with or without auto-detection.

Address rotary switches	Address DIP switches	Operating mode
0 0 0	0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 - 2 5 4	1 - 254	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	255	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

Interface module variants

The Output Interface Modules are available in various designs:

- FLM-420-O2-E type in-built:
 - Can be built in to standard device boxes in accordance with EN 60670
 - For space-saving installation in devices
- FLM-420-O2-W type wall-mount (with cover):
 - Can be built in to standard device boxes in accordance with EN 60670
 - For surface mounting in conjunction with the FMX-IFB55-S interface box.
- FLM-420-O2-D type DIN rail:
 - For installation on a DIN rail in accordance with EN 50022 with included adapter

- Can be built in to a FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

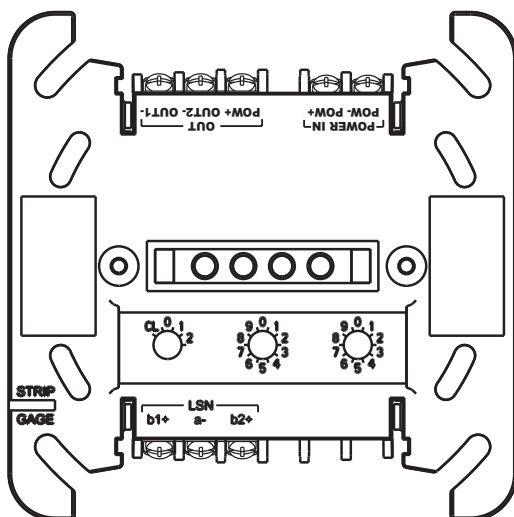
Complies with

- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-02-/W/-E
		FLM-420-02-D
	CPD	0786-CPD-20290 FLM-420-02-D 0786-CPD-20289 FLM-420-02-W, -E
Germany	VdS	G 207075 FLM-420-02-D; FLM-420-02-E; FLM-420-02-W
Russia	GOST	POCC DE.C313B06300

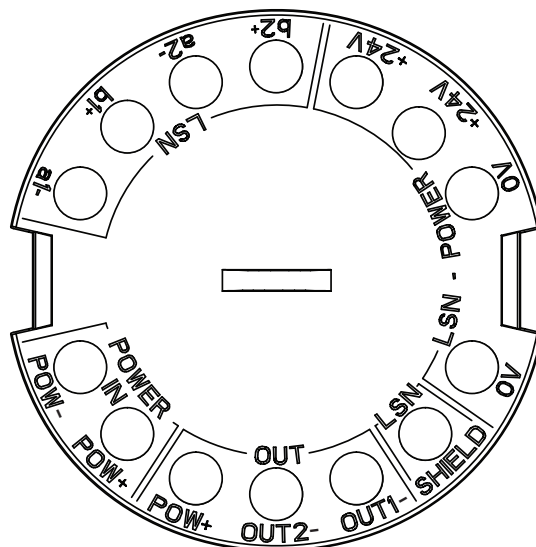
Installation/Configuration Notes

FLM-420-02-D



Description	Connection
POWER IN: POW- POW+	Power supply (LSN and outputs)
POW+	Reference potential (+)
OUT2-	Output 2 (switched negative potential)
OUT1-	Output 1 (switched negative potential)
LSN b1+ a- b2+	LSN (in/out)

FLM-420-02-E / FLM-420-02-W



Description	Connection
POWER IN POW+ POW-	Power supply (LSN and outputs)
POW+	Reference potential (+)
OUT2-	Output 2 (switched negative potential)
OUT1-	Output 1 (switched negative potential)
LSN SHIELD	Shielding cable (if available)
LSN POWER 0 V 0 V +24 V +24 V	LSN power supply (supports for looping through)
LSN a1- b1+ a2- b2+	LSN (in/out)

- Can be connected to the fire panels FPA-5000 and FPA-1200.
- Programming is done with the programming software of the fire panel.
- The LSN connection is established via the two wires on the LSN line.
- The power supply for the outputs can be provided by the power supply of the interface module or an external power supply. External power supply units must be free-of-ground.
- The loads are switched against the negative potential of the interface modules (OUT1- or OUT2-). The positive potential is provided by either the power supply of the interface module (POW+) or an external power supply unit.
- The maximum switchable voltage to the semi-conductor outputs is 30 V DC. The maximum switchable current is 700 mA per output.
- A maximum cable length of 3 m is permitted per output.
- The in-built (-E) and wall-mount (-W) versions are fitted with terminals to allow a second wire pair to be looped through to the LSN power supply of subsequent elements.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-02-E	1	Output Interface Module, type in-built
FLM-420-02-W	1	Output Interface Module, type wall-mount, with cover and accessories
FLM-420-02-D	1	Output Interface Module, type DIN rail, with adapter and light pipe

Technical Specifications**Electrical**

LSN

- LSN input voltage 15 V DC to 33 V DC
- Max. current consumption from LSN 4.9 mA

Outputs 2, independent of each other

- Max. switching voltage of semi-conductor outputs 30 V DC
- Max. switchable output current 700 mA per output
- Bounce period (when initializing the system) < 2 ms

External power supply 5 to 30 V DC (min. to max.)

Mechanical

Connections

- FLM-420-02-E / -W 14 screw terminals
- FLM-420-02-D 8 screw terminals

Permitted wire cross-section

- FLM-420-02-E / -W 0.6 to 2.0 mm²
- FLM-420-02-D 0.6 to 3.3 mm²

Address setting

- FLM-420-02-E / -W 8 DIP switches
- FLM-420-02-D 3 rotary switches

Housing material

- FLM-420-02-E / -W ABS/PC blend
- FLM-420-02-D with adapter PPO (Noryl)

Color

- FLM-420-02-E / -W Signal white, RAL 9003
- FLM-420-02-D with adapter Off-white, similar to RAL 9002

Dimensions

- FLM-420-02-E Approx. 50 mm x 22 mm (Ø x H)
- FLM-420-02-W Approx. 76 mm x 30 mm (Ø x H)
- FLM-420-02-D with adapter Approx. 110 x 110 x 48 mm (W x H x D)

Weight Without / with packaging

- FLM-420-02-E Approx. 35 g / 130 g
- FLM-420-02-W Approx. 55 g / 155 g
- FLM-420-02-D Approx. 150 g / 235 g

Environmental conditions

Permitted operating temperature -20 °C to +65 °C

Permitted storage temperature -25 °C to +80 °C

Permitted rel. humidity < 96% (non-condensing)

Classes of equipment as per IEC 60950 Class III equipment

Protection class as per IEC 60529 IP 30

System limits

Max. cable length per output 3 m

Ordering Information

FLM-420-02-E Output Interface Module type in-built	FLM-420-02-E
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FLM-420-02-W Output Interface Module type wall-mount, with cover	FLM-420-02-W
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FMX-IFB55-S Interface Box Surface-mount	FMX-IFB55-S
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FLM-420-02-D Output Interface Module DIN rail type	FLM-420-02-D
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FLM-IFB126-S Surface-mounted Housing as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)	FLM-IFB126-S
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FLM-420-O1I1 Output-input Interface Modules



8

Features

- ▶ **Semi-conductor output electrically isolated from LSN loop and short-circuit proof**
- ▶ **Max. switchable current per output 700 mA**
- ▶ **Individually selectable input monitoring functions (EOL or contact)**
- ▶ **Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators**

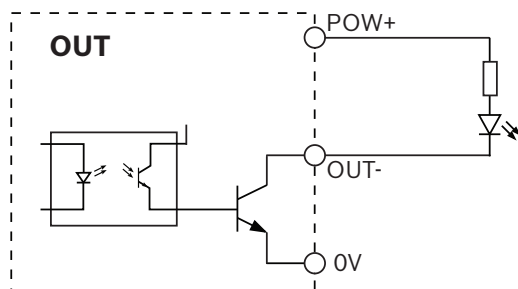
The FLM-420-O1I1 Output-input Interface Modules are fitted with one output to control external devices and with one monitored input.

They are 2-wire LSN elements for connection to the fire panels FPA-5000 and FPA-1200 and offer the enhanced functionality of LSN improved technology.

Functions

Semi-conductor output

The semi-conductor output is electrically isolated from the LSN loop and protected against short circuits.



Functionality of the semi-conductor output

Output power supply

The power supply for loads connected to the output can be selected as:

- Auxiliary power supply from the fire panel
- External power supply units.

Input monitoring functions

The FLM-420-O1I1 Output-input-Interface Module provides two monitoring functions:

1. Monitoring of a line by an EOL resistor
2. Monitoring of a potential-free contact

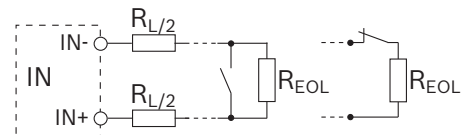
The input monitoring functions can be selected by setting the corresponding addresses.

Line monitoring with EOL resistor

The EOL resistor has a standard resistance of 3.9 kΩ.

The interface module detects

- Standby
- Triggering in the event of a short circuit
- Triggering in the event of line interruption.



Position

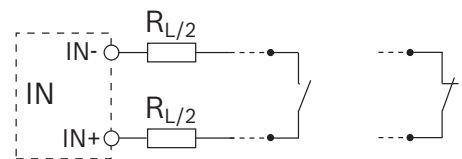
Description

R_{Σ}	Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be reliably detected if the overall line resistance is within the specified range:

Line condition	Overall line resistance R_{Σ}
Standby	1500 Ω to 6000 Ω
Short circuit	< 800 Ω
Interruption	> 12.000 Ω

Contact monitoring



The interface module evaluates the operating conditions "open" or "closed". The normal operating condition can be programmed for each input. Contact monitoring has a pulse intensity of 8 mA.

Address switches

The address of the interface module is set using:

- DIP switches in case of the FLM-420-O1I1-E
- Rotary switches in case of the FLM-420-O1I1-D.

In improved version LSN mode, the operator can select automatic or manual addressing with or without auto-detection.

Address rotary switches	Address DIP switches	Mode
0 0 0	0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 - 2 5 4	1 - 254	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	255	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used

Interface variants

The Output-input Interface Modules are available in various designs:

- FLM-420-O1I1-E in-built version:
 - Suitable for standard device boxes according to EN 60670 and
 - For a space-saving installation in all devices.
- FLM-420-O1I1-D DIN-rail version:
 - Suitable for installation on a DIN-rail according to EN 500022 with included adapter and
 - For the FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

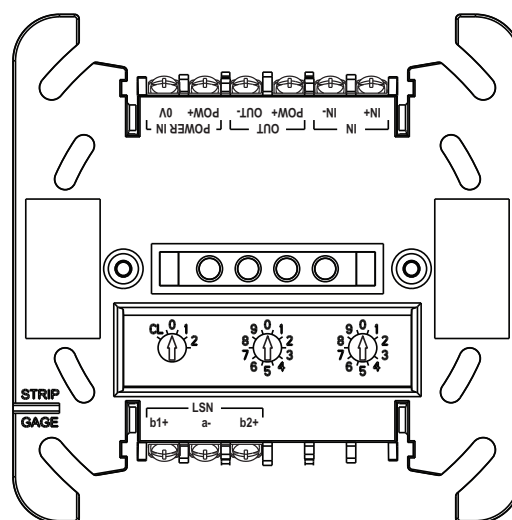
Complies with

- EN 54-17: 2005
- EN 54-18: 2005

Region	Certification	
Europe	CE	FLM-420-O1I1-E FLM-420-O1I1-D

Installation/Configuration Notes

FLM-420-O1I1-D

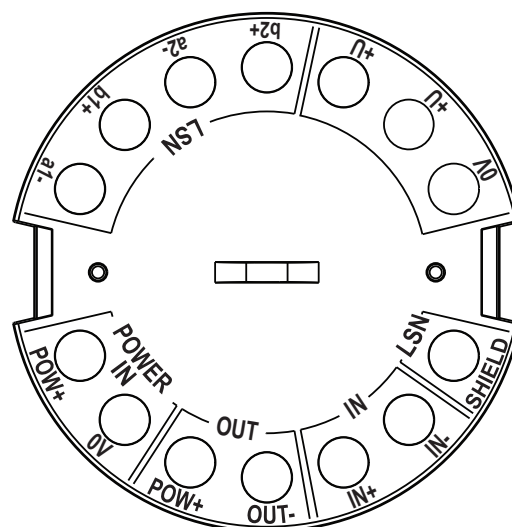


Description

IN	IN- IN+	Input 1
OUT	POW+	Reference potential (+)
	OUT-	Output (switched negative potential)
POWER IN	POW+ 0V	Power supply output
LSN	b1+ a- b2+	LSN (incoming / outgoing)

Connection

FLM-420-O1I1-E



Description

POWER IN	POW+ 0V-	Power supply (interface module and output)
OUT	POW+	Reference potential (+)
	OUT-	Output (switched negative potential)
IN	- +	Input
LSN	SHIELD	Cable shielding (if available)
	0V +U +U	Auxiliary power supply (support points to loop through)
LSN	b2+ a2- b1+ a1-	LSN (incoming / outgoing)

- Can be connected to the fire panels FPA-5000 and FPA-1200.

- Programming is done with the programming software of the fire panel.
- The LSN connection is established by the two wires of the LSN line.
- The power supply for the output is either fed by the auxiliary power supply from the fire panel or by an external power supply unit. External power supplies must be free-of-ground.
- The outputs OUT/OUT- are switched against the negative potential of the interface module (POWER IN/OV). The positive potential (OUT/POW+) is either supplied by the auxiliary power (AUX) from the fire panel or by an external power supply unit.
- The maximum switchable voltage of the semi-conductor output is 30 V DC. The maximum switchable current is 700 mA (depending on the external power supply).
- The activation of the input IN has to be carried out electrically isolated from LSN (e.g. with relay contacts, pushbutton, etc.).
- The input must have a minimum activation time of 3.2 s.
- A maximum cable length of 3 m is permitted per input and output.
- The maximum cable length of all inputs connected to the loop or stub is 500 m in total. Additionally, all outputs which are not electrically isolated from LSN must be included in the total line length calculation (e.g. peripherals connected via C points). With UEZ 2000 LSN and UGM 2020, the limitation to 500 m applies to each Network Processing Converter (NVU).
- The interface module has terminals blocks to allow a second pair of wires to be looped through to supply the downstream connected elements with LSN power.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-01I1-E	1	Output-input Interface Module, in-built version
FLM-420-01I1-D	1	Output-input Interface Module, DIN-rail version, with adapter and light pipe

Technical Specifications

Electrical

LSN

- LSN input voltage 15 V DC to 33 V DC
- Max. current consumption from LSN 1.9 mA

Output

- Max. switchable voltage of semi-conductor output 30 V DC
- Max. switchable output current 700 mA (depending on external power supply)
- External power supply 5 V DC to 30 V DC

Input

Line monitoring with EOL

- EOL resistor Nominal 3.9 kΩ
- Overall line resistance R_{Σ} with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$
 - Standby: 1500 Ω to 6000 Ω
 - Short circuit: < 800 Ω
 - Line interruption: > 12.000 Ω

Contact monitoring

- Max. current strength (current pulse) 8 mA

Minimum activation time of the input 3.2 s

Mechanical

Connections

- FLM-420-01I1-E 14 screw terminals
- FLM-420-01I1-D 12 screw terminals

Permissible wire diameter

- FLM-420-01I1-E 0.6 mm² to 2.0 mm²
- FLM-420-01I1-D 0.6 mm² to 3.3 mm²

Address setting

- FLM-420-01I1-E 8 DIP switches
- FLM-420-01I1-D 3 rotary switches

Housing material

- FLM-420-01I1-E ABS/PC blend
- FLM-420-01I1-D incl. adapter PPO (Noryl)

Housing color

- FLM-420-01I1-E Signal white, RAL 9003
- FLM-420-01I1-D incl. adapter Gray white, similar to RAL 9002

Dimensions

- FLM-420-01I1-E Approx. 50 mm x 22 mm (Ø x H)
- FLM-420-01I1-D incl. adapter Approx. 110 x 110 x 48 mm (W x H x D)

Weight

- FLM-420-01I1-E Without/with packing Approx. 35 g / 170 g
- FLM-420-02-D Approx. 95 g / 390 g

Environmental conditions

Permissible operating temperature -20 °C to +65 °C

Permissible storage temperature -25 °C to +80 °C

Permissible rel. humidity < 96% (non-condensing)

Classes of equipment as per IEC 60950 Class III equipment

Protection class as per IEC 60529 IP 30

System limiting values

Maximum cable length input 3 m

Maximum cable length output 3 m

Ordering Information

FLM-420-01I1-E Output-input Interface Module in-built version	FLM-420-01I1-E
---	-----------------------

FLM-420-01I1-D Output-input Interface Module DIN-rail version	FLM-420-01I1-D
---	-----------------------

A white, rectangular, modular power supply unit. It features a terminal block on the front with several screw terminals. A label on the front provides technical specifications and safety information. The unit is designed for modular installation in a rack.

The FLM-420-RLE-S is used for the supervised monitoring and activation of extinguishing systems connected to the Local SecurityNetwork.

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop (according to EN 54-17). A fault indication is sent to the fire panel.

Certifications and Approvals

Complies with EN 54-17:2005, EN 54-18:2005 and VdS 2496

Region	Certification	
Europe	CE	FLM-420-RLE-S
	CPD	0786-CPD-20725 FLM-420-RLE-S
Germany	VdS	G 209085 FLM-420-RLE-S

Installation/Configuration Notes

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN control panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020 (from WinPara SW version 4.83).
- The FLM-420-RLE-S can be surface-mounted with the provided housing, or mounted on a DIN rail without the housing. A DIN rail adapter is included in the delivery.

Parts Included

Quant.	Component
1	FLM-420-RLE-S Extinguishing Interface Module
1	Surface-mount housing
1	DIN rail adapter

Technical Specifications

Electrical

Input voltage	15 V DC to 33 V DC
Max. current consumption	7.9 mA
Activation extinguishing system	
• after initialization / during standby	3.3 kOhm
• during alarm	680 Ohm
Max. monitoring voltage	6 V
Max. monitoring current	1.5 mA (line short-circuit)

Mechanics

Operating/display elements	2 LEDs (1 yellow, 1 red)
Address setting	3 rotary switches for
	• LSN classic mode or LSN improved version
	• Automatic or manual addressing
Connection	8 screw terminals
Material	
• Interface module	PPO (Noryl)
• Surface-mount housing	ABS/PC blend
Color	
• Interface module	Gray white, similar to RAL 9002
• Housing	Signal white, RAL 9003

Dimensions

- | | |
|---|---|
| • with housing | Approx. 126 x 126 x 71 mm
(4.96 x 4.96 x 2.8 in.) |
| • without housing (with DIN rail adapter) | Approx. 110 x 110 x 48 mm
(4.33 x 4.33 x 1.89 in.) |

Weight

- | | |
|-------------------|-----------------------------|
| • with housing | Approx. 390 g (13.8 ounces) |
| • without housing | Approx. 150 g (5.3 ounces) |

Environmental conditions

Permitted operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Permitted storage temperature	-25 °C to 85 °C (-13 °F to 176 °F)
Permitted relative humidity	< 96%
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 30

Ordering Information

FLM-420-RLE-S Extinguishing Interface Module

The FLM-420-RLE-S is used for the supervised monitoring and activation of extinguishing systems.

FMX-IFB55-S Interface Box Surface-mount



The FMX-IFB55-S Interface Box Surface-mount acts as a retainer for interface modules of wall mount type in the 420 series.

Parts Included

Type	Qty.	Component
FMX-IFB55-S	1	Interface Box Surface-mount
Note A compatible cover is included in the scope of delivery for interface modules of wall mount type in the 420 series (FLM-420-...-W).		

Technical Specifications

Mechanics

Material	ABS
Color	Signal white, RAL 9003
Weight	Approx. 30 g
Dimensions (Ø x H)	76 x 33 mm

Ordering Information

FMX-IFB55-S Interface Box Surface-mount **FMX-IFB55-S**

FLM-IFB126-S Surface-mounted Housing



The FLM-IFB126-S Surface-mounted Housing acts as a retainer for interface modules type DIN rail or as a spare housing for the type surface-mount in the 420 series.

Installation/Configuration Notes

- The Surface-mounted Housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched cable ducts for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable ducts for diameter up to 21 mm (for conduit)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.

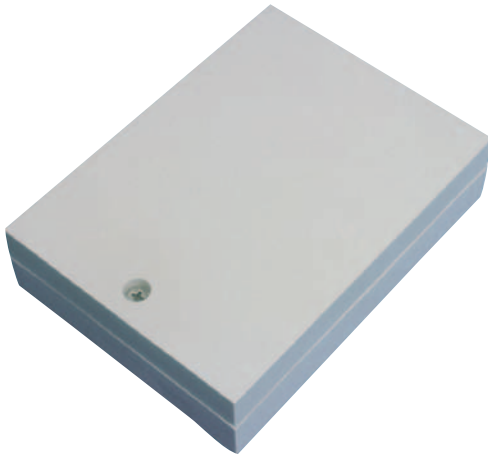
Technical Specifications

Material	ABS/PC Blend
Color	Signal white (RAL 9003)
Dimensions	Approx. 126 x 126 x 70 mm
Weight	Approx. 235 g

Ordering Information

FLM-IFB126-S Surface-mounted Housing **FLM-IFB126-S**
 as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)

NAK 100 LSN Branch Interface

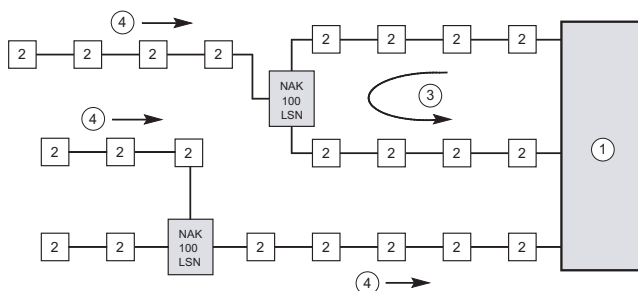


Features

- Connection of up to 32 LSN elements on a stub
- Tamper surveillance of the branch expansion

NAK 100 LSN Branch Interface can also be used to switch stubs with other LSN elements to loops/stubs.

System Overview



Pos.	Description
1	Fire panel
2	LSN element
3	Loop
4	Stub

Functions

The NAK 100 LSN has a device contact (tamper contact), which if triggered sends a signal that is transmitted as a separate message.

Certifications and Approvals

Region	Certification	
Europe	CE	NAK 100 LSN
Germany	VdS	G 293018 NAK 100 LSN
Hungary	TMT	TMT-50-7/2004 FK 100 LSN, NAK/NBK/NKK/NSB/NTK 100 LSN
Russia	GOST	POCC DE.C313.B06297

Installation/Configuration Notes

- Maximum 32 LSN elements can be connected to a stub.
- The power supply of the LSN part in the NAK 100 LSN occurs via the two wires of the LSN line.
- A second wire pair can be looped through to provide a separate power supply for subsequent LSN interface.

Installation/configuration notes in accordance with VdS/VDE

- In accordance with VdS, automatic detectors may not be mixed with manual call points in a stub.
- VdS allows a maximum of 10 manual call points per stub.

Parts Included

Qty.	Components
1	Interface housing for surface mounting
1	Interface circuit board NAK 100 LSN
1	Bag with connection accessories

Technical Specifications

Electrical

Operating voltage	+10 V DC .. +33 V DC
Current consumption	2.5 mA

Mechanics

Housing

• Material	Plastic, ABS Terluran
• Color	Light-gray, RAL 9002
• Dimensions (W x H x D)	100 x 135 x 35.7 mm

Weight	Approx. 140 g
--------	---------------

Environmental conditions

Protection class as per EN 60529	IP 30
Permissible operating temperature	0 °C ... +50 °C

Planning

Connection	Branch for loop or stub lines
------------	-------------------------------

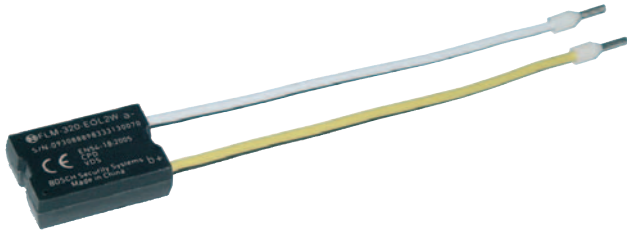
Ordering Information

NAK 100 LSN Branch Interface

To connect additional stubs to further LSN elements on the loops or stubs

NAK 100-AP

FLM-320-EOL2W Conventional EOL Module 2-Wire



Ordering Information

FLM-320-EOL2W Conventional EOL Module 2-Wire **FLM-320-EOL2W**
for EN 54-13 compliant termination of conventional lines

The EOL module terminates conventional lines according to EN 54-13.

It detects faults of the conventional line according to EN 54-13 and reports them to the fire panel. The reports are displayed on the panel controller.

For wirings according to EN 54-13 a maximum of 32 automatic fire detectors or 10 manual call points can be used.

Installation/Configuration Notes

- Max. 32 automatic fire detectors in a conventional line.
- Max. 10 manual call points in a conventional line.

Parts Included

Qty.	Components
1	FLM-320-EOL2W Conventional EOL Module

Available from end of 2009.

Technical Specifications

Electrical

Operating voltage	9 V DC to 30 V DC
Current consumption	< 2.0 mA

Mechanics

Housing material	Thermelt 861
Housing color	black
Dimensions (H x W x D)	25 x 17 x 8 mm
Weight	7 g

Environmental conditions

Permissible operating temperature	-25°C to 70°C
Permissible storage temperature	-25°C to 85°C
Permissible relative humidity	<96%, non condensing
Protection class as per IEC 60529	IP 30

FLM-420-EOL2W-W EOL Module LSN



Environmental conditions

Permissible operating temperature	-20°C to 55°C
Permissible storage temperature	-25°C to 85°C
Permissible relative humidity	<96%, non condensing
Protection class as per IEC 60529	IP 40

Ordering Information

FLM-420-EOL2W-W EOL Module LSN
for EN 54-13 compliant termination of LSN
stubs or T-taps

FLM-420-EOL2W-W

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The EOL module terminates LSN stubs or T-taps according to EN 54-13.

It detects LSN line faults according to EN 54-13 and reports them to the fire panel via LSN. The reports are displayed on the panel controller.

For wirings according to EN 54-13 a maximum of 32 automatic fire detectors or 10 manual call points can be used in a LSN stub or T-tap.

Installation/Configuration Notes

- Max. 32 automatic fire detectors in a LSN stub or T-tap.
- Max. 10 manual call points in a LSN stub or T-tap.

Parts Included

Qty.	Components
1	FLM-420-EOL2W-W EOL Module LSN

Available from end of 2009.

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	< 1.5 mA

Mechanics

Housing material	ABS + PC Blend
Housing color	Signal white (RAL 9003)
Dimensions (Ø x D)	76 x 30 mm
Weight	50 g

Signaling Devices

9

Acoustic Signaling Devices	298
Optical Signaling Devices	309

Acoustic Signaling Devices

**MSS300-SA****SG 200****DS 10**

LSN/GLT	GLT	GLT	GLT
Operating voltage	9 V DC to 30 V DC	10 V DC to 30 V DC	230 V AC, 24 V DC
Current consumption from LSN	–	–	–
Current consumption from external source	Standby: 1 mA/ Alarm: 20 mA	< 32 mA	230 V type: max. 60 mA 24 V type: max. 420 mA
Protection category	IP 54	with flush-mounted base: IP 54 with surface-mounted base: IP 65	IP 55
Permissible operating temperature	-10 °C to +55 °C	-40 °C to +80 °	-25 °C to +55 °C
Sound pressure	87 dB(A) to 100 dB(A)	93 dB(A) to 114 dB(A)	105 dB(A) to 110 dB(A)
Color	red (RAL 3001)	red (RAL 3001), white (RAL 9010)	red (RAL 2002)

Acoustic Signaling Devices



HPW/11

LSN/GLT	GLT
Operating voltage	230 V AC
Current consumption from LSN	–
Current consumption from external source	100 mA
Protection category	IP 55
Permissible operating temperature	-20 °C to +60 °C
Sound pressure	approx. 110dB(A)
Color	light gray

MAGIC.SENS Detector Base Sounders

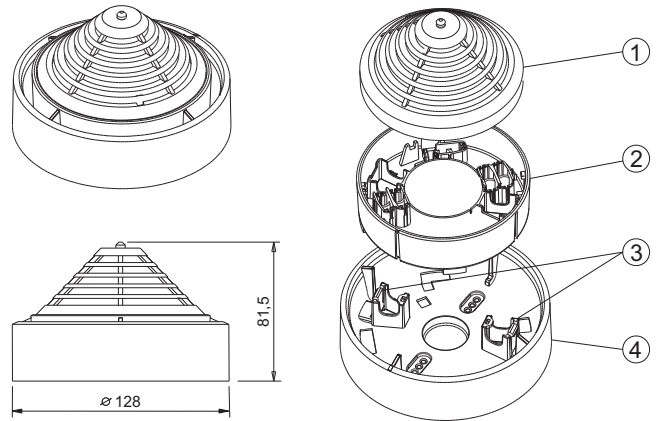


Features

- ▶ Volume up to 100 dB(A)
- ▶ Electronic tone generator integrated into the signaling device
- ▶ 11 different tone variants can be selected (incl. DIN tone)
- ▶ Great reliability and long service life
- ▶ For surface-mounted and flush-mounted cable feed
- ▶ The LSN types maintain LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

Detector Base Sounders are used when the acoustic signaling of an alarm is required directly at the site of the fire.

System Overview



Pos. Description

- | | |
|---|-----------------|
| 1 | Detector module |
| 2 | Sounder unit |
| 3 | Snap-fit hooks |
| 4 | Mounting base |

Functions

The electronic tone generator integrated into the signaling device can produce 11 different tones (including DIN tones conforming to DIN 33404 and EN 457).

The tone variants include different wailing tones, various signals for fire alarms, and other special modulations. Depending on the tone type, volume set, and operating voltage, the sound pressure level varies between 87 dB(A) and 100 dB(A).

The programming of the tone type and volume setting is performed:

- for the MSS 300 via integrated DIP switch and potentiometer (continuously)
- for the MSS 401 via the LSN.

Certifications and Approvals

Region	Certification	
Europe	CE	MSS 300 WS
		MSS 300 ws - EC
		MSS 400 LSN
		MSS 401 LSN
Germany	VdS	G 204067 MSS 300
		G 204068 MSS 400 / 401
Russia	GOST	POCC DE.C313B06298

Installation/Configuration Notes

- MAGIC.SENS Detector Base Sounders are intended only for interior areas.

- The current consumption depends on the tone type selected and is maximum 20 mA.

MSS 300 ws Detector Base Sounder White

- Control from the C point of the deployed fire detector
- When the detector is reset in the event of an alarm, the sounder is not reset.
- The sounder continues to sound for approx. 90 s after being switched off after occurrence of an alarm.

MSS 300 ws EC Detector Base Sounder White

- The sounder is externally controlled, e.g. via FLM-420-NAC or NZM 0002 A (not via the C point of the deployed detector).

MSS 401 LSN Detector Base Sounder White

- The Detector Base Sounder as well as the deployed detector are each independent LSN elements.
- The current consumption from the LSN is only max. 1.025 mA, as the sounder has a separate power supply.
- Requires a separate power supply.

Tone type table

No.	Signal type (sound type)	Frequency / modulation	Acoustic sound level at 24 V
1*	Increasing/ decreasing tone (DIN tone)	1200/500 Hz at 1 Hz	96 dB(A)
2	Increasing/ decreasing tone British alarm tone (BS 5839)	800-970 Hz at 1 Hz	100 dB(A)
3	Increasing/ decreasing tone Australian alarm tone (AS 2220)	2400-2850 Hz at 7 Hz	95 dB(A)
4	Variable tone Dutch alarm tone	500-1200 Hz 3.5 s on/ 0.5 s off	97 dB(A)
5	Continuous tone, British alarm tone (BS 5839)	970 Hz	97 dB(A)
6	Variable tone, French alarm tone	554 Hz/100 ms 440 Hz/400 ms	97 dB(A)
7	Continuous tone, Swedish alarm tone	660 Hz	97 dB(A)
8	Variable tone	580/1000 Hz each 500 ms on / off	91 dB(A)
9	Pulse tone	580 Hz each 250 ms on / off	87 dB(A)
10	USA temporal 3 tone ISO 8201	610 Hz	99 dB(A)
11	USA temporal 3 tone ISO 8201	2850 Hz	94 dB(A)

* Delivery state: tone complying with DIN 33404 or EN 457

Technical Specifications

Electrical

Operating voltage	
• MSS 300	9 V DC to 30 V DC
• MSS 401 LSN	15 V DC to 33V DC
Current consumption from external source	Quiescent state / alarm
• MSS 300 LSN	1 mA / max. 20 mA
• MSS 401 LSN	2 mA / max. 20 mA
Current consumption from LSN	
• MSS 401 LSN	Max. 1.025 mA

Mechanics

Connections (inputs/outputs)	0.28 mm ² to 2.5 mm ²
Dimensions (W x H)	128 x 40.5 mm
Weight	
• Without packaging	Approx. 220 g
• With packaging	Approx. 260 g

Housing	
• Material	Plastic, ABS (Novodur)
• Color	White, similar to RAL 9010

Environmental conditions

Protection category as per EN 60529 (with detector)	IP 30
Permissible operating temperature	-10 °C to +55 °C
Permissible storage temperature	-25 °C to +85 °C

Special features

Sound pressure level at a distance of 1 m	Max. 100 dB (A)
Frequency range	440 Hz up to 2.85 kHz

Ordering Information

MSS 300 ws Detector Base Sounder White Control via C-point of the detector	MSS 300
MSS 300 ws-EC Detector Base Sounder White Control through fire panel via interface	MSS300-WH-EC

MAGIC.SENS Detector Base Sounders

**MSS 300****MSS300-WH-EC**

GLT/LSN	GLT	GLT
Control	by the C point of the fire detector	by the fire panel via an interface
Operating voltage	9 V DC . . . 28 V DC	9 V DC . . . 28 V DC
Current consumption	external power supply	external power supply
- Standby	1 mA	1 mA
- Alarm	max. 20 mA	max. 20 mA
Protection category	IP 30	IP 30
Permissible operating temperature	-10 °C . . . +55 °C	-10 °C . . . +55 °C

SG 200 Acoustic Signaling Devices



Features

- ▶ Volume up to 114 dB(A)
- ▶ Compact, robust and maintenance-free
- ▶ Can be used in adverse environmental conditions
- ▶ For 12 V DC and 24 V DC
- ▶ Molded in electronic circuitry
- ▶ Available for surface and flush-mounted cable feed

The SG 200 are acoustic signaling devices with an electronic tone generator and are designed for connection to fire panels.

Functions

The integrated tone generator offers a selection of 28 tone variants, including various wailing tones, diverse signals for fire alarm (e. g. the DIN tone according to EN 457 / DIN 33404) and other special modulations.

The programming/coding is undertaken via a five-pin DIP switch in the signaling device. With a selected tone type, on activation of the second input, the second tone type is switched on.

The volume can be set continuously via an integrated potentiometer.

Depending on the tone type, volume set, and operating voltage, the sound pressure varies between 93 dB(A) and 114 dB(A).

Monitored connection to fire panels is possible.

The bayonet lock enables simple mounting.

Certifications and Approvals

Region	Certification	
Europe	CE	SG 200
	CPD	0786-CPD-20177 SG 200
Germany	VdS	G 204147 SG 200
Poland	CNBOP	0149/2008 SG 200
Hungary	TMT	TMT-89/13/2004 SG 200, SG 100
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- Can be connected to the following fire panels:
 - BZ 500 LSN
 - UEZ 1000 LSN
 - UEZ 2000 LSN
 - UGM 2020.
- When connected to monitored control lines **with feedback**, the acoustic signaling devices must be operated using a universal circuit relay UAR.
- When connected to monitored control lines **without feedback** no UAR is required.
- Doubled screw clips exist for looping-in of voltage.

Table: tone type, sound pressure level in dB(A) and current consumption in mA

Tone 1/(2)	Signal type (sound type)	Frequency / modulation	Sound level dB(A) ±3dB	Current consumption mA ±3mA
at 12 / 24 V				
1/(21)	Variable tone BS 5839 Part 1	800/1000 Hz at 2 Hz	90 / 99 dB(A)	9/18 mA
2/(2)	Pulse tone Swedish alarm tone	660 Hz each 1.8 ms on / off	90 / 98 dB(A)	6/13 mA
3/(22)	Variable tone	2400/2970 Hz at 2 Hz	102 / 113 dB(A)	12/25 mA
4/(18)	Pulse tone, ISO 8210, BS 5839	1 kHz at 0.3 Hz, every 0.5 s on/off	86 / 94 dB(A)	10/24 mA
5/(22)	Increasing/decreasing tone	2400-2900 Hz at 7 Hz	97 / 105 dB(A)	12/23 mA
6/(6)	Pulse tone Swedish alarm tone	600 Hz at 1 Hz	90 / 99 dB(A)	8/14 mA
7/(21)	Pulse tone BS 5839 Part 1	1000 Hz 0.2 s on / 1 s off	83 / 93 dB(A)	7/11 mA
8/(21)	Increasing/decreasing tone BS 5839 Part 1 Fast Sweep (LF)	800-1000 Hz at 1 Hz	94 / 101 dB(A)	9/16 mA
9/(9)	Continuous tone Swedish alarm tone	660 Hz	90 / 99 dB(A)	8/13 mA
10/(21)	Variable tone BS 5839 Part 1	800-1000 Hz at 1 Hz	91 / 97 dB(A)	9/17 mA

Tone 1/(2)	Signal type (sound type)	Frequency / modulation	Sound level dB(A) ±3dB	Current consumption mA ±3mA
11/(11)	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	93 / 101 dB(A)	13/26 mA
12/(21)	Slow whoop	500-1200 Hz 0.5 s	92 / 100 dB(A)	9/15 mA
13/(21)	Increasing/decreasing tone BS 5839 Part 1 Fast Sweep (LF)	800-1000 Hz at 50 Hz	90 / 98 dB(A)	9/15 mA
14/(21)	Special tone, French alarm tone	554 Hz/100 ms 400 Hz/400 ms	87 / 95 dB(A)	7/12 mA
15/(21)	Increasing/decreasing tone BS 5839 Part 1, Fast Sweep (LF)	800-1000 Hz at 7 Hz	91 / 99 dB(A)	9/15 mA
16/(16)	Pulse tone, Swedish alarm tone	660 Hz, 6.5 s on/ 13 s off	89 / 98 dB(A)	7/12 mA
17/(21)	Pulse tone BS 5839 Part 1	1000 Hz at 1 Hz	85 / 95 dB(A)	9/15 mA
18/(4)	Pulse tone, ISO 8201, BS 5839 Part 1	2,9kHz at 0,3Hz, on/off every 0.5 s	103 / 115 dB(A)	14/25 mA
19/(22)	Increasing/decreasing tone	2400/2900 Hz at 1 Hz	99 / 104 dB(A)	11/22 mA
20/(21)	Pulse tone Pelican Crossing	2900 Hz, 150 ms on / 100 ms off	102 / 110 dB(A)	10/25 mA
21/(21)	Continuous tone BS 5839 Part 1	1000 Hz	87 / 91 dB(A)	9/18 mA
22/(21)	Continuous tone	2900 Hz	104 / 111 dB(A)	14/27 mA
23/(23)	Alternating tone, Swedish alarm tone	800-970 Hz at 50 Hz	89 / 95 dB(A)	7/13 mA
24/(22)	Pulse tone Back-up alarm	2400-2850 Hz at 50 Hz	103 / 111 dB(A)	13/23 mA
25/(22)	Variable tone BS 5839 Part 1	970 Hz	90 / 97 dB(A)	9/15 mA
26*/(21)	Increasing/decreasing tone DIN tone (see below)	1200-500 Hz at 1 Hz	90 / 98 dB(A)	8/16 mA
27/(22)	Increasing/decreasing tone	2400-2900 Hz at 50 Hz	98 / 108 dB(A)	12/22 mA
28/(28)	Pulse tone Swedish alarm tone	660 Hz, each 150 ms on / off	88 / 96 dB(A)	4/9 mA

* Delivery state: tone complies with DIN 33404 or EN 457

Measurement: SPL values for 1m measurement position are based on a measurement at 3 m + 9,54 dB.

Measuring setup for DIN sound (DIN 33404, Part 3) according to DIN EN54-3:2001/A1:2002.

Parts Included

Qty.	Components
1	Acoustic Signaling Device, red or white
1	Base, surface or flush cable feed

Technical Specifications

Electrical

Operating voltage	10 V DC ... 30 V DC
Current consumption	< 32 mA
Switch-on current / time	30 mA (over 2 s) / 1.5 ms

Mechanics

Dimensions (W x H)	
• With flush-mounted base	Ø 93 mm x 81 mm
• With surface-mounted base	Ø 93 mm x 101.5 mm
Housing material	Plastic, ABS
Color	Red, RAL 3001 White, RAL 9010
Weight	
• With flush-mounted base	300 g
• With surface-mounted base	320 g

Environmental conditions

Permissible operating temperature	-40°C ... +80°C
Permissible rel. humidity	Complying with VdS EN 54-3
Protection class as per EN 60529	
• With flush-mounted base	IP 54
• With surface-mounted base	IP 65

Special features

Max. sound pressure	
• At 12 V	110 dB(A) ±3 dB(A)
• At 24 V	114 dB(A) ±3 dB(A)
Frequency range	400 Hz to 2900 Hz (±0.15%)
Volume control	- 20 dB(A)

Ordering Information

SG 200 Red, Surface-mounted Cable Feed	SG200-S-red
SG 200 Red, Flush-mounted Cable Feed	SG200-R-red
SG 200 White, Surface-mounted Cable Feed	SG200-S-white
SG 200 White, Flush-mounted Cable Feed	SG200-R-white

DS 10 Sounders



Features

- ▶ **Very robust housing made of 4 mm pressure-molded aluminum**
- ▶ **Compact and maintenance-free**
- ▶ **Great reliability and long lifespan**
- ▶ **Can be used in adverse environmental conditions**
- ▶ **Reverse polarity protected connections**
- ▶ **Volume up to 110 dB(A)**

The DS 10 sounders are acoustic signaling devices for connection to fire panels, available for operating voltage 230 V AC or 24 V DC.

Functions

The DS 10 sounders have an integrated tone generator with a selection of 6 sound variants, including DIN tones conforming to EN 457 (DIN 33404).

Depending on the tone type, volume set, and operating voltage, the sound pressure level varies between 105 dB(A) and 110 dB(A).

The programming/coding is undertaken via DIP switches in the signaling device.

The DS 10 sounders can be used as a monitored and non-monitored signaling devices.

Certifications and Approvals

VdS ID number: **G 28 609**

CE DS 10

EN54-3: 2006

Region	Certification	
Europe	CE	DS 10
Germany	VdS	G 28609 DS 10

Installation/Configuration Notes

- For surface-mounted cable feed
- Can be connected to the following fire panels:
 - BZ 1012
 - BZ 1060
 - BZ 500 LSN
 - UEZ 1000 LSN
 - UEZ 2000 LSN
 - UGM 2020.
- The DS 10 sounders can be directly connected to monitored control lines.

Tone type table

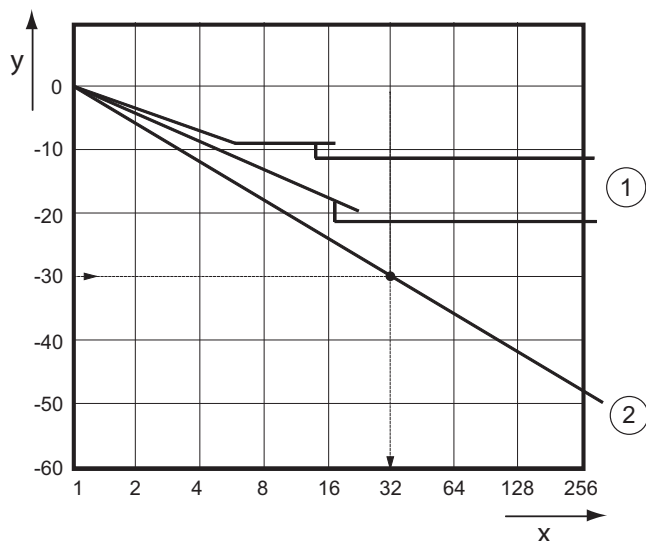
No	Signal shape	Frequency
1	DIN tone (increasing/decreasing tone)	1200-500 Hz
2	Variable tone	825/1075 Hz
3	Pulse tone 1	825 Hz
4	Pulse tone 2	500 Hz
5	Continuous tone 1	825 Hz
6	Continuous tone 2	500 Hz

Calculation example:

Number of signaling devices used:

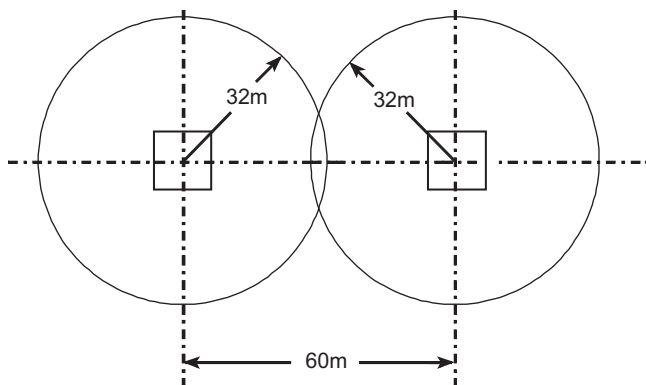
Maximum DS 10 sound pressure level:	110 dB
less 10 dB for unique audibility:	-10 dB
less environmental sound level:	-70 dB

Attenuation through distance from siren:	30 dB
--	--------------

Diagram: Sound Pressure Level Drop

Pos.	Description
x	Distance from loudspeaker (m)
y	Sound pressure level decrease (dB)
1	Sound pressure decrease on reflection (depends on room volume and reverberation time)
2	Drop of sound pressure without reflection

The diagram shows a maximum distance of 32 m for this damping. It is therefore recommended that an audible notification appliance be installed approximately every 60 m.

**Technical Specifications**

Operating voltage	
• DS 10 rot, 230 V	230 V AC
• DS 10 rot, 24 V	24 V DC (12 V DC ... 30 V DC)
Current consumption	
• 230 V type	Max. 60 mA
• 24 V type	Max. 420 mA
Sound pressure level at a distance of 1 m	Max. 110 dB (A)
Frequency range	500 Hz up to 1.2 kHz
Permissible operating temperature	-25 °C . . +55 °C
Permissible relative humidity	95%
Protection class as per EN 60529	IP 66/67
Dimensions (W x H x D)	133 x 119 x 133 mm
Housing material	Cast aluminum
Housing color	Red, similar to RAL 2002
Weight	
• 230 V type	2,200 g
• 24 V type	1,800 g

Ordering Information

DS 10 Red, 230 V	DS10-230V
DS 10 Red, 24 V	DS10-24V

Parts Included

Qty.	Components
1	Sounder red, 24 V DC or 230 V AC, surface-mounted cable feed

HPW 11 AC Alarm Horn



Environmental conditions

Protection class as per EN 60529 IP 55

Special features

Sound pressure level at a distance of 1 m: Approx. 110 dB (A)

Ordering Information

HPW 11 AC Alarm Horn

universal acoustic signaling device for dry and damp areas.

HPW/11

Features

- ▶ Robust housing made of impact-resistant plastic
- ▶ Suitable for indoor and outdoor use
- ▶ Very loud alarm tone: 110 dB(A)

The AC run Alarm Horn is a universal acoustic signaling device for dry and damp areas.

Certifications and Approvals

Region	Certification	
Europe	CE	HPW 11
Russia	GOST	POCC DE.C313B06300

Parts Included

Qty.	Components
1	HPW 11 AC Alarm Horn, 230 V

Technical Specifications

Electric

Operating voltage	230 V AC
Current consumption	100 mA

Mechanics

Line feed	PG11 screw point for cable diameter 8-12 mm
Housing material	Plastic, ABS
Housing color	Light gray
Weight	
• With megaphone	1,200 g approx
• Without megaphone	900 g approx.

FNM-420-A Sounder Indoor



Features

- ▶ **Volume up to 101.3 dB(A)**
- ▶ **Maximum current consumption less than 3,9 mA**
- ▶ **Up to 100 sounders per loop**
- ▶ **Constant sound pressure level between 22 V and 33 V operating voltage**
- ▶ **Synchronization without delay**
- ▶ **Easy to install**
- ▶ **Long lifetime and modern design**
- ▶ **32 different tone variants can be selected (incl. DIN Tone)**

The indoor sounders are used independently for signaling an alarm directly at the fire location.

Functions

The sounder allows to select 32 types of alarm and evacuation tones (incl. DIN tone 33404 Part 3) for different requirements.

You can adjust the sound pressure by five levels according to the operational environment. Depending on the tone type and volume set, the sound pressure varies between 65 dB and 101.3 dB. Sounders of the same LSN loop and with the same tone type provide synchronization without delay. The sounders can be programmed easily via the fire panel.

Certifications and Approvals

Complies with

- EN 54-3:2001
- EN 54-17:2005

Installation/Configuration Notes

- The signaling devices are intended for indoor use.
- The current consumption depends on the tone type selected and is maximum 3,9 mA.
- The maximum quantity of sounders on a loop depends on the cable diameter and overall loop current. Please refer to the Fire System Designer for a safe loop configuration.

Tone type table

Nr	Signal type (Tone type)	Frequency / modulation	Sound pres- sure level dB(A)	EN 54-3 **
1*	Sweeping tone = DIN-Tone	1200-500 Hz at 1 Hz, off 10 ms	99.0 dB(A)	93.9 dB(A)
2	Sweeping tone	2400-2900 Hz at 50 Hz	98.7 dB(A)	
3	Sweeping tone	2400-2900 Hz at 7 Hz	99.6 dB(A)	
4	Sweeping tone	800/1000 Hz at 7 Hz	99.0 dB(A)	
5	Intermittent tone	1000 Hz at 1 Hz	101.2 dB(A)	
6	Intermittent tone	1000 Hz / 0.25 s on, 1 s off	100.5 dB(A)	
7	Alternating tone	800/1000 Hz at 1 Hz	101.3 dB(A)	
8	Continuous tone	970 Hz	99.1 dB(A)	94.7 dB(A)
9	Alternating tone	800/1000 Hz at 2 Hz	101.0 dB(A)	
10	Intermittent tone	970 Hz / 0,5 s on/ off, 3 tones per 4 cy- cles	99.0 dB(A)	94.0 dB(A)
11	Intermittent tone	2900 Hz / 0,5 s on/ off	100.1 dB(A)	
12	Intermittent tone	1000 Hz / 0,5 s on/ off	101.2 dB(A)	
13	Sweeping tone	800/1000 Hz at 1 Hz	100.3 dB(A)	
14	Alternating tone	510 Hz/610 Hz / 0,5 s on/off	97.8 dB(A)	
15	Intermittent tone	510 Hz / 1 s on, 1 s off	96.5 dB(A)	
16	Intermittent tone	2900 Hz at 1 Hz	99.2 dB(A)	
17	Alternating tone	2400/2900 Hz at 2 Hz	99.4 dB(A)	
18	Sweeping tone	2400-2900 Hz at 1 Hz	101.2 dB(A)	
19	Sweeping tone	1400-2000 Hz at 10 Hz	97.3 dB(A)	
20	Sweeping tone	500-1200 Hz / 0.5 s	98.5 dB(A)	
21	Continuous tone	2900 Hz	98.1 dB(A)	
22	Sweeping tone	800/1000 Hz at 50 Hz	99.8 dB(A)	
23	Alternating tone	554 Hz/100 ms + 440 Hz/400 ms	95.7 dB(A)	

Nr	Signal type (Tone type)	Frequency / modulation	Sound pres- sure level dB(A)	EN 54-3 **
24	Slow Whoop	500-1200 Hz in 3,5 s, off 0,5 s	100.1 dB(A)	96.0 dB(A)
25	Intermittent tone	2900 Hz / 150 ms on, 100 ms off	99.6 dB(A)	
26	Continuous tone	660 Hz	97.6 dB(A)	
27	Intermittent tone	660 Hz; 1,8 s on/off	97.6 dB(A)	
28	Intermittent tone	660 Hz/150 ms on/ off	96.4 dB(A)	
29	USA temporal 3 tone ISO 8201	610 Hz	97.7 dB(A)	
30	US Temporal Pattern LF	950 Hz / 0,5 s on/ off x 3 then 1,5 s off	95.8 dB(A)	
31	3. Hi/Lo	1000/800 Hz (0,25 s on/alter- nate)	100.7 dB(A)	
32	Thyssen Krupp Tone	450/650 Hz at 2 Hz	96.5 dB(A)	

* Delivery state: Tone in accordance with DIN 33404

** Results taken from EN 54-3 test results: Min SPL @ 15V @ max. volume @ loudest node dB(A). All other SPL measurements are taken 'on axis' and are not third party verified.

Parts Included

Qty.	Components
1	Sounder Indoor
1	Key to open the housing

Technical Specifications

Electrical

Operating voltage 15 V DC to 33 V DC

Current consumption

- Quiescent state < 1 mA
- Alarm < 3,9 mA

Mechanics

Connections (inputs/outputs) 0,28 mm² to 2,5 mm²

Dimensions (H x W x D) 105 x 105 x 95 mm

Housing

- Material Plastic, ABS
- Color red, similar to RAL 3001
white, similar to RAL 9010

Weight

- Without packaging 250 g
- With packageing 300 g

Environmental conditions

Permissible operating temperature -25 °C to +70 °C

Permissible storage temperature -25 °C to +85 °C

Protection class as per EN 60529 IP 42

Special features

Sound pressure level at a distance of 1 m max. 101.3 dB(A)

Frequency range 440 Hz up to 2,90 kHz

Ordering Information

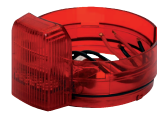
FNM-420-A-WH Sounder Indoor, white

FNM-420-A-WH

FNM-420-A-RD Sounder Indoor, red

FNM-420-A-RD

Optical Signaling Devices

**BL 200****PB 2005****EASY AV-R****FNS-420-R**

Signaling device type	Strobe	Strobe	In-built Strobe for SG 200	LSN Strobe
LSN/GLT	GLT	GLT	GLT	LSN
Operating voltage	10 V DC to 30 V DC	18 V DC to 30 V DC	10 V DC to 32 V DC	15 V DC to 33 V DC
Current consumption/Power consumption	12 V type: 150 mA 24 V type: 175 mA	5.6 W	3 mA to 10 mA	0.5 mA to 6.55 mA
Protection category	IP 65	IP 55	IP 65/IP 54	IP 42
Permissible operating temperature	-20 °C to +55 °C	-30 °C to +55 °C	-25 °C to +70 °C	-20 °C to +60 °C
Flash strength	12 V type: 0.7 J 24 V type: 1.3 J	5.0 J	1.9 cd/3.6 cd	> 2 cd

BL 200 Strobes

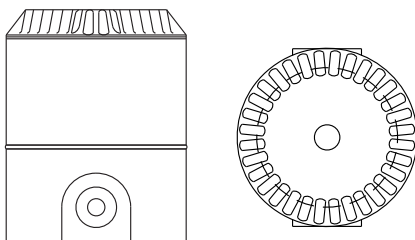


Features

- ▶ **Compact, robust and maintenance-free**
- ▶ **Reliable, bright light, and long-lived with Xenon flash tubes**
- ▶ **For operating voltage 12 V DC and 24 V DC**
- ▶ **Can be used in adverse environmental conditions**
- ▶ **Suitable for surface and flush-mounted cable feed**

The BL 200 Strobes are universally-applicable signaling devices for optical alarm and designed for connection to fire panels.

System Overview



Functions

The strobe lamps are located in the upper section of the transparent signaling device. When activated via the fire panel, this emits flashes of light in accordance with the color of the signaling device. The blink frequency is once a second.

The electronic circuit is cast and the connections are reverse polarity protected.

Certifications and Approvals

Region	Certification	
Europe	CE	BL 200
Germany	VdS	G 207104 BL 200
Poland	CNBOP	0148/2008 BL 200
Russia	GOST	POCC DE.C313B06300

Installation/Configuration Notes

- The Strobes are suitable for mounting in interior and protected exterior areas.
- The upper section of the signaling device is connected to the base by a bayonet lock.
- The strobe lens has screw threads and is also secured against removal by a security screw.
- Can be connected to the following fire panels:
 - BZ 1060
 - BZ 500 LSN
 - UEZ 1000 LSN
 - UEZ 2000 LSN
 - UGM 2020.

Parts Included

Quant.	Component
1	Signaling device upper section in red, white, yellow or green transparent
1	Mounting base, red, for surface and flush-mounted cable feed

Technical Specifications

Electrical

Operating voltage	12 V DC / 24 V DC
Current consumption	<ul style="list-style-type: none"> • 12 V DC 150 mA • 24 V DC 175 mA
Starting current	< 1 A

Mechanics

Housing	
• Material	Plastic PC (polycarbonate)
• Color of signaling device upper section	Red White Yellow Green
• Color of mounting base	Red, RAL 3001
Dimensions	Ø 93 mm x 112.5 mm
Weight	300 g

Environmental conditions

Protection class as per EN 60529	IP 65
Permissible operating temperature	-20 °C ... +55 °C

Special features

Flash strength

- | | |
|----------|-------|
| • 12 VDC | 0.7 J |
| • 24 VDC | 1.3 J |

Flash frequency 1Hz (± 10%)

Minimum service life 5 million flashes

Maximum service life 50 million flashes

Ordering Information**BL 200 Red, 12 V/24 V****BL200-S-red**

Signaling device upper part red transparent, base red, for surface-mounted and flush-mounted cable feed

BL 200 White, 12 V/24 V**BL200-S-white**

Signaling device upper part white transparent, base red, for surface-mounted and flush-mounted cable feed

BL 200 Yellow, 12 V/24 V**BL200-S-yellow**

Signaling device upper part yellow transparent, base red, for surface-mounted and flush-mounted cable feed

BL 200 Green, 12 V/24 V**BL-200-S-green**

Signaling device upper part green transparent, base red, for surface-mounted and flush-mounted cable feed

FNS-P400RTH Rotating Beacons

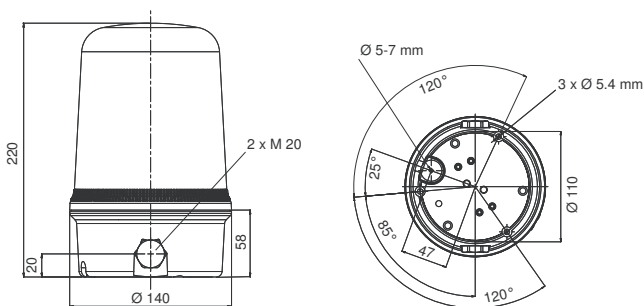


Features

- ▶ Powerful halogen bulbs
- ▶ 360° light beam
- ▶ Extremely rugged and durable thanks to high-quality synthetic
- ▶ Suitable for indoor and outdoor applications
- ▶ Can be mounted in any orientation

The rotating beacons are used for an additional local alarm notification.

System Overview



Functions

Inside the beacon, a motor-driven mirror rotates around the halogen bulb with constant speed and thus, generates a blinking signal.

In the event of an alarm, the beacons are activated by the appropriate interface or functional modules of the fire panel.

Certifications and Approvals

Region	Certification
Europe	CE FNS-P400RTH

Installation/Configuration Notes

- A right-angle mounting bracket can be ordered separately for easy wall mounting

Parts Included

Quant.	Component
1	Rotating Beacon with motor and reflector, in a weatherproof housing with a red or amber lens

Technical Specifications

Electrical

Operating voltage	230 V
Current consumption	186 mA
Light output	40 W

Mechanics

Housing	
• Material	Polycarbonate (PC)
• Base color	Black
• Lens color	Transparent red or amber
Light source	Halogen bulb
Dimensions	Ø 140 x 220 mm
Weight	578 g

Environmental conditions

Protection class as per EN 60529	IP 65
Permissible operating temperature	-25°C to +50°C

Special features

Rotation speed	Approx. 180 min ⁻¹
Lifespan	> 5,000 h

Ordering Information

FNS-P400RTH-Y Rotating Beacon Amber, 230 V	FNS-P400RTH-Y
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Rotating Beacon FNS-P400RTH-Y with amber lens

FNS-P400RTH-R Rotating Beacon Red, 230 V	FNS-P400RTH-R
---	----------------------

Rotating Beacon FNS-P400RTH-Y with red lens

Accessories

Mounting Bracket for FNS-P400RTH	FNA-P400RBA-MB
---	-----------------------

for easy wall-mounting of the FNS-P400RTH Rotating Beacon; mounting bracket material: polycarbonate.

PB 2005 Strobe Red, 24 V

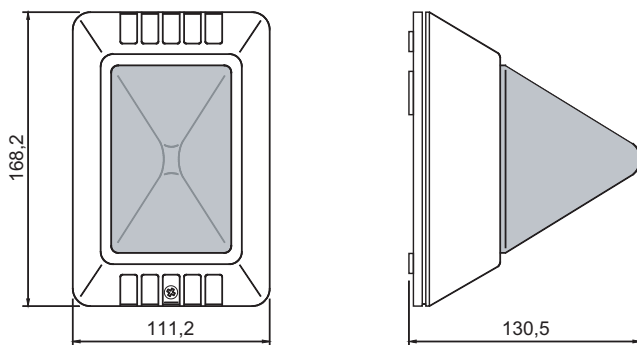


Features

- ▶ **Compact, robust and maintenance-free**
- ▶ **Reliable, bright light, and long-lived with Xenon flash tubes**
- ▶ **Can be used in adverse environmental conditions**
- ▶ **Polarity-safe connections**
- ▶ **Cable feed surface and flush-mounted possible**

The PB 2005 Strobe is a signaling device for visual alarm. It is designed for connection to fire panels.

System Overview



Functions

- The strobe lamps are located in the transparent upper section of the signaling device. This issues flashes of red light when controlled via the central fire panel.
- The blink frequency is once a second.
- The circuit board has a protective lacquer.

Certifications and Approvals

Region	Certification	
Europe	CE	PB 2005

Installation/Configuration Notes

- Can be connected to the following fire panels:
 - BZ 1060
 - BZ 500 LSN
 - UEZ 1000 LSN
 - UEZ 2000 LSN
 - UGM 2020.

Note When connected to the BZ 1060, a resistance of 10 Ω /2 W in series is switched.

Parts Included

Qty.	Components
1	PB 2005 Strobe Red, 24 V, consisting of a gray lower part and a signal part of red, transparent acrylic glass

Technical Specifications

Electrical

Operating voltage	18 V DC . . . 30 V DC
Current consumption	230 mA
Power consumption	5.6 W

Mechanics

Cable entry	M20
Housing material	Plastic, ABS
Housing color	Graphite gray, RAL 7024
Signal strobe lens material	PC
Signal strobe lens color	Red transparent
Dimensions (W x H x D)	166 mm x 111 mm x 128 mm
Weight	Approx. 310 g

Environmental conditions

Protection class as per EN 60529	IP 55
Permissible operating temperature	-30°C . . . +55°C
Permissible storage temperature	-40°C . . . +70 °C
Permitted relative humidity	90%

Special features

Flash strength	5.0 J
Flash frequency	1 Hz
Service life ^{*)}	8 million flashes

^{*)} After approx. 8 million flashes, the light emission amounts to only 70% of the initial power. The flash tube has then become only a bit darker.

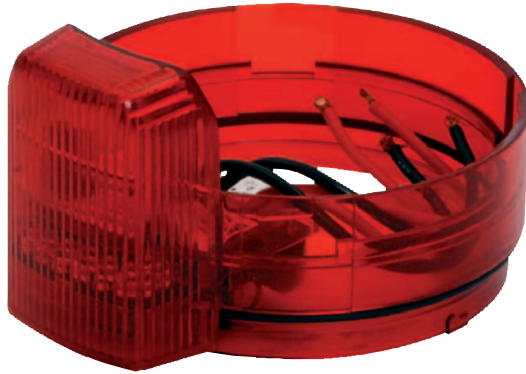
Ordering Information

PB 2005 Strobe Red, 24 V

Signaling device for visual alarm, for connection to fire panels

PB 2005

EASY AV-R Conventional In-built Strobe for SG 200



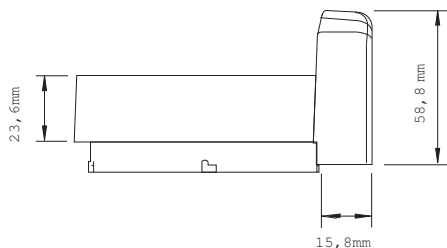
Features

- ▶ Quick installation
- ▶ No additional wiring or power supply necessary
- ▶ Extremely low power consumption
- ▶ Two flash frequency and light intensity (brightness) levels can be selected (set via jumper)

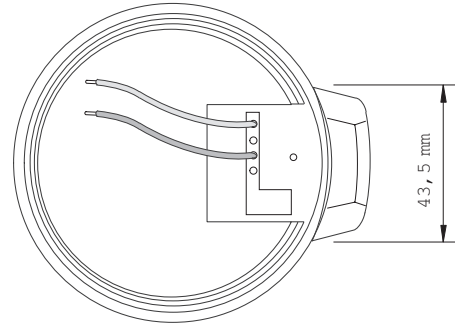
The EASY AV-R Conventional In-built Strobe is installed in the SG 200 Sounder to enable an additional visual alarm. The EASY AV-R is suitable for all variants of the SG 200 and its predecessor, the SG 100.

System Overview

View 1



View 2



Certifications and Approvals

Region	Certification
Europe	CE Easy AV-R
Russia	GOST POCC DE.C313B06300

Parts Included

Quantity	Components
1	EASY AV-R Conventional In-built Strobe for SG 200, red, with seal ring

Technical Specifications

Electrical

Operating voltage	10 VDC to 32 VDC
Current consumption	3 mA to 10 mA
Light intensity	
- High	3.6 cd
- Low	1.8 cd

Mechanics

Material	PC (UL94 V-0)
Color	Red, transparent
Weight	73 g

Environmental conditions

Permissible operating temperature	-25 °C to +70 °C
Protection class as per EN 60529	

- SG 100 / SG 200 with surface-mounted cable feed IP 65
- SG 100 / SG 200 with flush-mounted cable feed IP 54

Special features

Flash frequency	1 Hz / 1.5 Hz
Light intensity	1.9 cd / 3.6 cd
Flash strength	Approx. 1 W / 2 W
Light color (wave length)	Red, 625 nm to 640 nm

Ordering Information

**EASY AV-R Conventional In-built Strobe for
SG 200** **EASY AV-R**

Red strobe for retrofitting to SG 200 Sounder
and SG 100 previous model

FNS-420-R LSN Strobe, Red

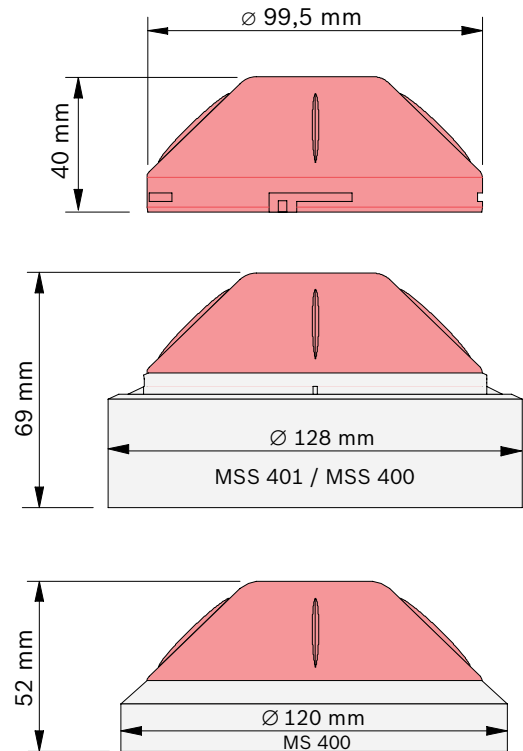


Features

- ▶ Quick installation
- ▶ No additional cabling or power supply
- ▶ Low consumption thanks to LED-technology
- ▶ Synchronized flash rate of 1 Hz

The FNS-420-R LSN Strobe is an optical signaling device and can be connected exclusively to the fire panels FPA-5000 and FPA-1200.

System Overview



Functions

The LSN Strobe can only be used with the MSS 400 LSN and the MSS 401 LSN Detector Base Sounders providing a combination of visual and acoustic signaling. Mounted on the MS 400 Detector Base, the FNS-420-R can be used as a strobe without acoustic signaling.

Both applications are easily integrated into an existing Local SecurityNetwork (LSN).

Note The FNS-420-R LSN Strobe cannot be used with stand-alone or conventional sounders.

Certifications and Approvals

Complies with EN54-17:2005

Region	Certification	
Europe	CE	FNS-420-R LSN
	CPD	0786-CPD-20531 FNS-420
Germany	VdS	G 207145 FNS-420-R

Installation/Configuration Notes

The FNS-420-R LSN Strobe can be connected exclusively to the fire panels FPA-5000 and FPA-1200.

Parts Included

Quant.	Component
1	FNS-420-R LSN Strobe, Red

Technical Specifications**Electrical**

Operating voltage	28 V DC (15 to 33 V DC)
Current consumption	0.5 to 6.55 mA
Light intensity	> 2 cd

Mechanical

Dimension (H x W)	40 x 99.5 mm
Weight	67 g
Material	PC, ABS (UL94 V-2)

Environmental conditions

Operating temperature	-20 °C to 60 °C
Protection class as per EN 60529	IP 42

Ordering Information**FNS-420-R LSN Strobe, Red****FNS-420-R**

Optical signaling device that can be connected to the fire panels FPA-5000 and FPA-1200.

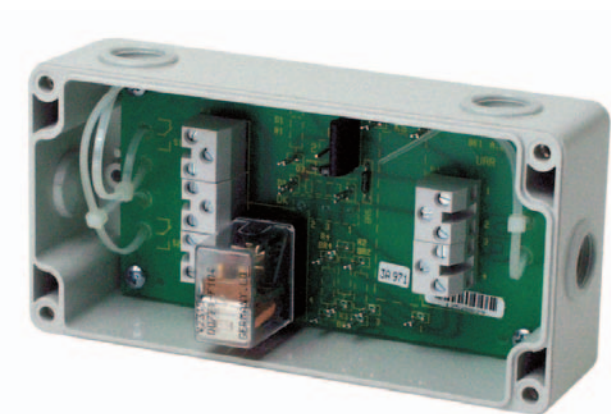
Distributors and Relays

10

Relays

320

UAR Relays for Fire Detection Systems



The Universal Connection Relay (UAR) is controlled by a security system and handles the triggering of additional equipment on monitored control lines.

The UAR can be, depending on the connection to the security system, equipped with a 12 V relay or a 24 V relay.

Technical Specifications

Operating voltage	10.5 V DC ... 29 V DC
Permissible switching current	Max. 3 A
Switching voltage	60 V AC/DC
Switching power with AC current load	180 VA
Permissible ambient temperature	-25 °C ... +60 °C
Protection class as per EN 60529	IP 54
Housing color	Gray
Dimensions (W x H x D)	160 x 80 x 55 mm
Weight	Approx. 300 g

Ordering Information

UAR/12 V Universal Connection Relay	FMX-UAR12-compl
Both parts (housing and relay) are needed.	
UAR/24 V Universal Connection Relay	FMX-UAR24-compl
Both parts (housing and relay) are needed.	

Certifications and Approvals

Region	Certification	
Europe	CE	UAR 12V/24V
Germany	VdS	G 178046 UAR
Russia	GOST	POCC DE.C313B06300

Parts Included

UAR/12 V Universal Connection Relay

Qty.	Components
1	Relay housing with PC board and relay base
1	Relay 12 V
1	Bag with connection accessories

UAR/24 V Universal Connection Relay

Qty.	Components
1	Relay housing with PC board and relay base
1	Relay 24 V
1	Bag with connection accessories

Test and Service Devices

11

Test Devices	322
Service Devices	328

SOLO461 Heat Detector Tester



Features

- ▶ **Operating status display with multi-color LED**
- ▶ **Automatic detector recognition with infrared sensors**
- ▶ **Automatic switch-off after 5 min. standby time**
- ▶ **Automatic switch-off in case of battery overvoltage**
- ▶ **Enters standby mode after 120 seconds of use**
- ▶ **Microprocessor maintains constant heat and airflow even with variations in battery voltage**

The SOLO461 Heat Detector Tester operates with a battery to direct heated air at heat detector sensors. It uses a patented CAT™ (Cross Air Technology) system to focus the air and direct it horizontally at the sensor regardless of the detector's size or shape.

Functions

Cross Air Technology

Under control of a microprocessor, blown air is heated by the element just before exiting the duct. The narrow opening focuses the heated air into a beam. A reference platform incorporated into the Heat Detector Tester ensures that the beam of heated air is correctly lined up with the sensor whatever the shape and size of the detector.

Because the beam of hot air is blown horizontally directly at the sensor:

- Test times are dramatically reduced
- Minimum power is required thereby extending battery life
- The possibility of heat damage to detector plastics is significantly reduced

Tool Operation

When the tool is fully assembled, press the switch on the tester to put the tool into standby mode. When the tester is positioned so that it encloses a detector, the detector interrupts an infrared beam turning on the heater and blower units in the tester. Hold the tool in place over the detector until either:

- the detector alarms indicating proper operation
- until the tool automatically times out indicating a problem with the detector

When the tool is moved away from the detector or when the tool times out the heater shuts off and the blower runs for a few seconds to cool the heater.

Certifications and Approvals

Region	Certification	
USA	UL	URRQ.S4994, URRQ.S7201 SOLO461

Parts Included

Quant.	Component
1	SOLO461 Heat Detector Tester
2	SOLO720 Battery
1	Charging set with mains and car connector
1	Literature pack

Technical Specifications

Electrical

Charging set operating voltage

• Alternating voltage	110 to 240 V AC ~50/60 Hz
• Direct voltage	11 to 16 V DC

Mechanical

Weight

• Without battery	600 g (21 oz)
• With battery	1.1 kg (38.8 oz)

Dimension (Ø x H) 99.5 mm x 52 mm (3.9 in x 2 in)

Environmental

Operating temperature	5 °C to 45 °C (40 °F to 115 °F)
Storage temperature	-10 °C to 50 °C (15 °F to 120 °F)
Permissible relative humidity	85% (non-condensing)

Trademarks

CAT™ and SOLO™ are trademarks of No Climb Products, Ltd.

Ordering Information

SOLO461 Heat Detector Tester	SOLO461
Heat Detector Tester operating with a battery	

Accessories

SOLO610 Test Equipment Bag	SOLO610
Robust bag made of sturdy woven polyester for carrying and storing test and service products.	

SOLO100 Telescopic Access Pole	SOLO100
Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed Extension Poles.	

SOLO101 Fixed Extension Pole	SOLO101
Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.	

SOLO720 Battery	SOLO720
Rechargeable battery bar for the SOLO461 Heat Detector Tester	

SOLO330 Smoke Detector Tester



¹Only the sensing chamber needs to be sealed within the tester cup.

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd

Ordering Information

SOLO330 Smoke Detector Tester

SOLO330

Tests smoke detectors in place using an aerosol.

Features

- ▶ Touch-sensitive, spring-loaded mechanism for effective, economic aerosol delivery
- ▶ Clear cup allows view of detector LED
- ▶ Strong and durable modern plastics technology for long life and minimal weight
- ▶ Compatible with SOLO100 and SOLO101 Poles

Use the SOLO330 Smoke Detector Tester for in place testing of smoke detectors using an aerosol designed to simulate smoke particles.

Certifications and Approvals

Region	Certification
USA	UL URRQ.S4994, URRQ.S7201 SOLO330

Parts Included

Quant.	Component
1	SOLO330 Smoke Detector Tester
1	Literature pack

Technical Specifications

Mechanical

Detector size range ¹ (Ø)	99 mm (3.9 in)
Weight	567 g (1 lb 4 oz)
Working angle	0° to 90°

SOLO100 Telescopic Access Pole



Features

- ▶ **Non-conductive at voltage of 20 kV**
- ▶ **Expandable with up to three SOLO101 Fixed Extension Poles**

The SOLO100 Telescopic Access Pole enables the installation and replacement of fire detectors at high ceilings. It can be expanded with up to three SOLO101 Fixed Extension Poles.

The Telescopic Access Pole withstands high voltage situations and is checked for Safety compliance in accordance with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

Technical Specifications

Electrical

Conductivity Tested per BS EN 61235 Section 12; applied voltage 20 kV

Mechanics

Length

- | | |
|-------------------------------|-------------------------------------|
| • Europe, Middle East, Africa | 1 m to 3.4 m (3.3 ft to 11.2 ft) |
| • America | 1.26 m to 4.5 m (4.1 ft to 14.8 ft) |

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Ordering Information

SOLO100 Telescopic Access Pole	SOLO100
Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed Extension Poles.	

Accessories

SOLO101 Fixed Extension Pole	SOLO101
Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.	

Solo A3-001 Test Aerosol for Optical Smoke Detectors



Spray with 250 ml Test Aerosol for Optical Smoke Detectors,

DU = 12 pieces

Ordering Information

Solo A3-001 Test Aerosol for Optical Smoke Detectors **Solo A3-001**

DU = 12 pieces

Solo CO Testing Gas



Spray with CO testing gas for multisensor detectors with C component.

Contents: approx. 4 l compressed gas

(DU = 12 pieces)

Ordering Information

Solo CO Testing Gas
for multisensor detectors with C-sensor, DU =
12 pieces.

Solo CO test gas

LSN Simulator



By imitating an LSN loop or stub, one at a time, the LSN Simulator enables the testing of the LSN control panel parameters.

The required SenSim software is available for download on the BOSCH ExtraNet (authorized access only).

Suitable for:

- BZ 500 LSN
- UEZ 2000 LSN
- UGM 2020

Ordering Information

LSN Simulator

IPB-SIM-LSN

LSN Test Device



By imitating the control panel the LSN Test Device enables the testing of the periphery.

The required PG32 software is available for download on the BOSCH ExtraNet (authorized access only).

Suitable for:

- BZ 500 LSN
- UEZ 2000 LSN
- UGM 2020

Ordering Information

LSN Test Device

IPB-TD-LSN

SOLO200 Detector Removal Tool



Features

- ▶ Suitable for a wide range of detector sizes
- ▶ Adjustable color-coded grips rotate to fit different sized detectors
- ▶ Universal joint ensures tool remains parallel with ceiling

With its pivoting grip segments and three different diameters, the SOLO200 Detector Removal Tool is suitable for the insertion and removal of most fire detectors.

The plastic caps ensure secure gripping of fire detectors and thus also protect the detector surface against damage.

Functions

Adjustment of detector sizes

The color-coded grips use a pull and twist motion to rotate to the desired combinations and lock into place to fit the following detector sizes:

Color combination	Detector diameter
Yellow	64 mm to 76 mm (2.5 in to 3 in)
Yellow and red	74 mm to 93 mm (2.91 in to 3.66 in)
Yellow and blue	75 mm to 87 mm (2.95 in to 3.93 in)
Blue	86 mm to 98 mm (3 in to 3.85 in)
Blue and red	92 mm to 105 mm (3.6 in to 4.13 in)
Red	98 mm to 112 mm (3.85 in to 4.4 in)

Universal joint

A universal joint enables detector removal and replacement even if the detector cannot be accessed from directly underneath.

Parts Included

Qty.	Components
1	SOLO200 Detector Removal Tool
2	Plastic caps for the Detector Removal Tool

Note The SOLO100 Telescopic Access Pole or SOLO101 Fixed Extension Pole must be purchased separately.

Technical Specifications

Mechanics

Detector size range (Ø)	64 mm to 112 mm (2.5 to 4.4 in)
Weight	1.1 kg (2 lb 7 oz)
Working angle	max. 30°

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Ordering Information

SOLO200 Detector Removal Tool	SOLO200
Use to remove and replace detectors	

FME-420-ADAP Tool Adapter for MS420



The FME-420-ADAPT Tool Adapter can be used in addition to the SOLO200 Detector Removal Tool. The plastic bowl and the adapter pole optimize the insertion and removal of fire detectors when using detector bases with springs (MS 420, FAA-MS 420-R-SP).

Note Use the plastic bowl exclusively with the adapter pole. On the adapter pole there is a rubber bearing that cushions the turning motion when removing the fire detectors and prevents damage.

Ordering Information

FME-420-ADAP Tool Adapter for MS420

FME-420-ADAP

Exchanger Device for DO1101A-Ex and DOW 1171



Exchanger Device for the insertion and removal of the following fire detectors:

- DO1101A-Ex Optical Smoke Detector for Ex Areas
- DOW 1171 Optical RF Smoke Detector

Parts Included

Qty.	Components
1	Exchanger Device for DO1101A-Ex and DOW 1171

Note The Exchanger Device fits only on Siemens service poles. The service pole is not included in the scope of delivery.

Ordering Information

Exchanger Device for DO1101A-Ex and DOW 1171

fits only on Siemens service poles

FAA-RTL-SIEMENS

SOLO100 Telescopic Access Pole



Ordering Information

SOLO100 Telescopic Access Pole	SOLO100
Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed Extension Poles.	

Accessories

SOLO101 Fixed Extension Pole	SOLO101
Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.	

Features

- ▶ **Non-conductive at voltage of 20 kV**
- ▶ **Expandable with up to three SOLO101 Fixed Extension Poles**

The SOLO100 Telescopic Access Pole enables the installation and replacement of fire detectors at high ceilings. It can be expanded with up to three SOLO101 Fixed Extension Poles.

The Telescopic Access Pole withstands high voltage situations and is checked for Safety compliance in accordance with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

Technical Specifications

Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

Mechanics

Length

- | | |
|-------------------------------|-------------------------------------|
| • Europe, Middle East, Africa | 1 m to 3.4 m (3.3 ft to 11.2 ft) |
| • America | 1.26 m to 4.5 m (4.1 ft to 14.8 ft) |

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

SOLO101 Fixed Extension Pole



Ordering Information

SOLO101 Fixed Extension Pole

SOLO101

Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.

Features

- ▶ **Non-conductive at voltage of 20 kV**
- ▶ **Expandable with other Fixed Extension Pole**
- ▶ **Extension for the SOLO100 Telescopic Access Pole**

The SOLO101 Fixed Extension Pole enables the installation and replacement of fire detectors at ceilings.

Use it individually or with up to three other Fixed Extension Poles. It also can be used with the SOLO100 Telescopic Access Pole.

The Fixed Extension Pole withstands high voltage situations and is checked for safety compliance in accordance with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

Technical Specifications

Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

Mechanical

Length

- | | |
|-------------------------------|-----------------|
| • Europe, Middle East, Africa | 1 m (3.3 ft) |
| • Amerika | 1.13 m (3.7 ft) |

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

SOLO610 Test Equipment Bag



The SOLO610 Test Equipment Bag is made of sturdy woven polyester with a PVC coating for carrying and storing test and service products. It is designed with special compartments to hold a full range of products.

Certifications and Approvals

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Parts Included

Quant.	Component
1	SOLO610 Test Equipment Bag

Ordering Information

SOLO610 Test Equipment Bag

Robust bag made of sturdy woven polyester for carrying and storing test and service products.

SOLO610

A		
ADC-5000-OPC License Key	45	
Address Cards	42	
ADW 511A Linear Heat Detector	217	
ANI 0016 A Annunciator Module	14	
ATE 100 LSN red Extension Kit, Red	92	
ATE 100 LSN ye Extension Kit, Yellow	92	
B		
Base for DO1101A-Ex Smoke Detector	188	
BAT 100 LSN Display Panel	112	
BCM 0000 A Battery Controller Module	8	
BCM-0000-B Battery Controller Module	11	
BL 200 Strobes	309	
BS ATE 100 LSN Primary Extension Kit, Red	91	
BS NRK-N Network Relay Card	94	
C		
Cables	75	
Components for Smoke Aspiration Systems	203	
Conventional Manual Call Points for Ex Areas	249	
Converter Kit 24 V/28 V/35 V	120	
CPH 0006 A Modular Panel Housing for 6 Modules, Frame Installation	49	
CZM 0004 A 4 Zone Conventional Module	22	
D		
DBZ 1193A Detector identification	158	
DBZ 1191 Additional Base	189	
DBZ 1192 Additional Base for Damp Rooms	190	
DBZ 1193A Detector Identification	190	
DIB 0000 A Distribution Box	67	
DO1101A-Ex Optical Smoke Detector for Ex Areas	170	
DR 2020 T Log Printer without Roll-up Equipment	106	
DR 2020 T/AV Log Printer with Roll-up Equipment	105	
DR 500 T/AV Tabletop Printer	97	
DS 10 Sounders	303	
DZW 1171 Radio Test Unit	157	
E		
EASY AV-R Conventional In-built Strobe for SG 200	315	
ENO 0000 B Fire Service Interface Module	28	
EPH 0012 A Extension Housing for 12 Modules, Frame Installation	51	
ERLE 10 Line Extension	89	
ERSE 10 Interface Extension	90	
ERT100 Module for Loop System Power Supply	86,99	
ERWE 10 voltage converter	85	
Exchanger Device for DO1101A-Ex and DOW 1171	329	
Exchanger device for the DOW 1171 RF smoke detector	158	
F		
FAA-420-RI Remote Indicator	147,183	
FAA-500 LSN Base	134	
FAA-500-BB Ceiling Mount Back Box	137,173	
FAA-500-CB Built-in Housing for Concrete Ceilings	137,174	
FAA-500-GB LSN Base for GB	136	
FAA-500-R LSN Base with Relay	135	
FAA-500-R-GB LSN Base with Relay for GB	136	
FAA-500-RTL Exchanger Device	176	
FAA-500-SB Surface Mount Back Box	138,174	
FAA-500-SB-H Surface Mount Back Box with Damp Room Seal	138,175	
FAA-500-SPRING for Concrete/Wooden Ceilings	139,176	
FAA-500-TR-P Trim Ring, Transparent with Color Inserts	133,172	
FAA-500-TR-W Trim Ring, White	133,172	
FAA-500-TTL Test Adapter with Magnet	177	
FAA-MS 420-R-SP Detector Base with Relay and Spring	144	
FAA-MSR 420 Detector Base with Relay	143	
FAD-420-HS-EN Duct Smoke Detector	222	
FAP-420/FAH-420 Automatic Fire Detectors LSN improved version	127	
FAP-520 Automatic Fire Detectors LSN improved version	122	
FAS-420 Series Aspirating Smoke Detectors LSN improved version	197	
FAS-420-TM Series Aspirating Smoke Detectors LSN improved version	192	
FBH 0000 A Mounting Frame Large	54	
FCA-500-EU Conventional Base	173	
FCP-320/FCH-320 Conventional Automatic Fire Detectors	164	
FCP-500 Conventional Automatic Fire Detectors	159	
FCS-LWM-1 Linear Heat Detector	215	
FDP 0001 A Dummy Cover Plate	78	
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FDT 0001 A Large Front Door Transparent	70	
FDT 0002 A Large Front Door Transparent	71	
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FLM-420-I2 Input Interface Modules	277	
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FLM-420-RLV8-S Octo-relay Interface Module Low Voltage	272	
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FME-420-ADAP Tool Adapter for MS420	329	Mounting Bracket for Fire Detectors on False Floor Stilts	148,184
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FPP-5000 External Power Supply Unit Kit 24 V/6 A	117	NZM 0002 A Notification Appliance Zone Module	36
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