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# AVENAR panel

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# AVENAR panel 2000 kits

AVENAR panel 2000

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# AVENAR panel 2000



## Features

- ▶ Compact modular fire panel, expandable up to 4 loops, provides customized solutions for small to medium size applications
- ▶ High resolution display with bright colors to indicate alarms and events
- ▶ 8" touch pad with fixed and programmable buttons, thus adaptable to the situation
- ▶ Integrated Ethernet switch for networking and interfaces to remote services, building management and voice alarm systems
- ▶ Adaptable to local requirements and regulations

The fire panel allows mixed operation of analog addressable and conventional technology. It supports connecting periphery in either stub or loop topologies. Analog addressable fire detectors, manual call points, signaling devices, inputs and outputs are identified and managed by the fire panel as single elements. As required by the building structure the peripherals are grouped software wise in logical zones.

The compact modular fire panel comes as a kit in a housing. The functional modules can be plugged onto the rail inside the housing. The rail provides power and internal communication to the functional modules. A wide range of functional modules is available providing different connections and functions: addressable loops, conventional zones, inputs and outputs as well as interfaces to various devices. The fire alarm panel can be equipped with six functional modules of which a maximum of four can be analog addressable loop modules. This makes the fire panel suitable for small to medium size applications.

The fire panel is available with two different types of housings:

- Wall mount housing

- Frame mount housing

The slim wall mount housings are for mounting directly to the wall. Frame mount housings require an additional frame between the housing and the wall. The frame lets space for e.g. cabling, media converters, and larger batteries. Special installation kits also allow installation in 19" racks.

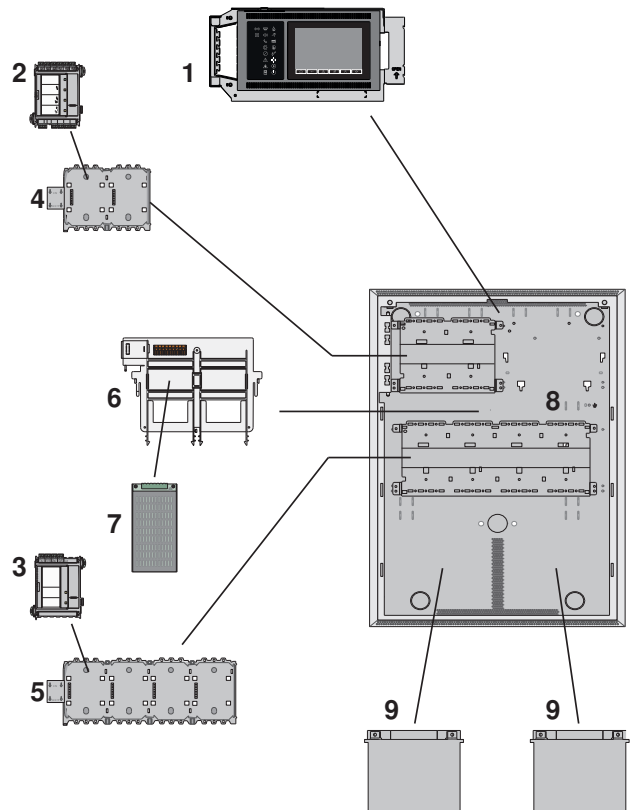
The panel controller is the central component of the fire panel. A color display shows all messages. The touch screen is for operation of the entire system. The user-friendly interface adapts to various situations. This causes correct operation that is simple and clear as well as targeted and intuitive.

Panels and keypads of the AVENAR series and of the FPA-5000 series (MPC-xxxx-B and MPC-xxxx-C) can be combined in one panel network using the Ethernet and the CAN bus interfaces. The remote keypad is for decentralized operation of the panel or of the panel network. Integration into large-scale systems can be done by an Ethernet interface to the Bosch Hierarchy panel (UGM) or to Building Integration System (BIS). Integration into third party management systems is possible with the availability of OPC server and Software Development Kit.

A data interface enables monitoring and full control of Bosch voice alarm systems. This makes the fire panel a complete safety solution.

The fire panel is configured on a laptop using the FSP-5000-RPS programming software. The programming software enables further adaptation, e.g. to country-specific requirements and regulations.

## System overview



Example configuration

- |  |  |
|--|--|
| 1 FPE-2000-PPC Panel controller, premium license | 2 BCM-0000-B Battery Controller Module |
| 3 LSN 0300 A LSN bus module                      | 4 PRS-0002-C Panel Rail Short          |
| 5 PRD 0004 A Panel Rail Long                     | 6 Power supply bracket                 |
| 7 Power supply unit                              | 8 CPH 0006 Panel Housing for 6 Modules |
| 9 Batteries                                      |  |

**Functions**

AVENAR panel 2000 is a compact modular fire panel for small to medium size systems. It comes standard in a housing with panel controller, power supply, battery controller module and one LSN loop module. Depending on the project specific needs, the fire panel can be extended with up to four LSN 0300 A loop modules, in total six functional modules. Each loop can contain up to 254 LSN elements.

**Alarm indication**

All messages are shown on the display with a bright color. The displayed messages contain the following information:

- Message type
- Type of the triggering element
- Description of the exact location of the triggering element
- Logical zone and sub-address of the triggering element

18 Icon LEDs give continuous information about the operating status of the panel or the system. A red icon LED shows an alarm. A blinking yellow icon LED shows a fault. A steady yellow icon LED shows a disabled function. A green icon LED shows proper operation.

Two status LEDs, one red and one yellow, are programmable. The red one shows a self-defined alarm. The yellow one shows a self-defined fault or deactivation. Additional annunciator modules, each with 16 red and 16 yellow LEDs are available to indicate a larger number of self-defined alarms, faults or deactivations.

**Operation and processing of messages**

For operating the panel, an 8 inch touch pad as input medium is put upon the display. There are 6 buttons with fixed functionality as well as 3 programmable function keys.

Examples for the assignment of the function keys:

- Set the panel controller to day mode, set the panel controller to night mode

- Enable detection points or outputs, disable detection points or outputs
- Set standard sensor sensitivity, set alternative sensor sensitivity

Each function key has a virtual status indicator.

At any time, an operator with sufficient user rights can control the function keys.

**Overview of evacuation zones and outputs**

At any time, the operator can get a clear overview of each evacuation zone and of each output connected to the fire protection equipment. Each zone and each output is marked with a programmable text label and a clearly distinctive color reflecting the state: Green shows idle state, power is available. Red shows an activation during fire alarm condition, and fuchsia an activation without a fire alarm condition. Yellow shows a fault or disabled state. An operator with sufficient user rights is able to start the evacuation in selected zones and activate outputs connected to the fire protection equipment through the user interface.

**Saving and printing messages**

The history log keeps incoming alarms and events internally. The history log has a capacity to store 10000 messages. The messages can be shown on the display, and you can export the messages. Additionally, you can connect a log printer via a serial interface module for real-time printing incoming messages.

**Languages**

The operator can change the language of the user interface. A printed quick user guide for each language is supplied with the package. Following languages are included: English, German, Bulgarian, Croatian, Czech, Danish, Dutch, Estonian, French, Greek, Hungarian, Italian, Latvian, Lithuanian, Polish, Portuguese, Romanian, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish and Turkish.

**Operator management**

The system can have up to 200 different registered operators. Login is permitted with a user ID and an 8-digit pin code.

There are four different authorization levels. Depending on the authorization level it is possible for the operator to do certain functions according to EN54-2.

**Licenses**

The panel controller is delivered with a hard coded software license. This software license is implemented during production and cannot be modified, revoked or transported. The license defines the maximum panel network size and availability of certain features and interfaces.

	AVENAR panel 2000, standard license	AVENAR panel 2000, premium license
<b>Ethernet interface to</b>		
Building management system (OPC server, BIS, FSM-5000-FSI)		•
UGM-2040 Hierarchy panel		•
Voice alarm system (Smart Safety Link)		•
<b>Monitoring and control</b>		
Status overview	•	•

	AVENAR panel 2000, standard license	AVENAR panel 2000, premium license
Simultaneous control	•	•
Individual control		•

**Modularity (maximum number)**

Slots for functional modules (max number including slots for LSN modules)	6	6
LSN modules (max number)		
LSN 0300 A modules (1 slot per module)	4	4
LSN 1500 A modules	0	0

**Panel redundancy**

Redundant panel controller		
Keypad as redundant panel controller		

**Network**

Panel network	remote keypads	panels, remote keypads, servers
Max. number of nodes	4 (1 panel, 3 keypads)	32

In total four AVENAR panel 2000 kits are available:

- FPA-2000-SFM: Standard license. Frame mount housing
- FPA-2000-PFM: Premium license. Frame mount housing

- FPA-2000-SWM: Standard license. Wall mount housing
- FPA-2000-PWM: Premium license. Wall mount housing

CTN	Description	FPA-2000-SFM	FPA-2000-PFM	FPA-2000-SWM	FPA-2000-PWM
FPE-2000-SPC	Panel controller, standard license	1	-	1	-
FPE-2000-PPC	Panel controller, premium license	-	1	-	1
LSN 0300 A	LSN bus module 300mA			1	
BCM-0000-B	Battery Controller Module			1	
PRS-0002-C	Panel Rail Short			1	
PRD 0004 A	Panel Rail Long			1	
UPS 2416 A	Universal Power Supply			1	
FDP 0001 A	Dummy Cover Plate			3	
CPH 0006 A	Panel Housing for 6 Modules	1			-
FBH 0000 A	Mounting frame, large	1			-
HCP 0006 A	Panel Housing for 6 Modules	-		1	
FPO-5000-PSB-CH	Power supply bracket	-		1	

## Functional modules

Functional modules are independent encapsulated units. They are placed into a slot of a panel rail. The power supply and the data traffic with the panel are therefore provided automatically. The module is identified by the panel with no further settings and operates in the default operating mode (plug and play).

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

Module	Description	Function
ANI 0016 A	Annunciator module	Indicating system statuses, with 16 red and 16 yellow freely programmable LEDs
BCM-0 000-B	Battery controller module	Controlling the power supply to the panel and the battery charge level
CZM 0004 A	Conventional zone module	Connecting conventional peripheral devices using four monitored conventional lines
ENO 0000 B	External notification module	Connecting fire service equipment complying with DIN 14675
FPE-50 00-UGM	Module interface to UGM	Connection to UGM systems
IOP 0008 A	Input-output module	Individual displays or flexible connection of various electrical devices, with 8 independent digital inputs and 8 open collector outputs
IOS 0020 A	Communication module, 20mA	With S20 and RS232 interfaces
IOS 0232 A	Communication module, RS232	Connection of two devices using two independent serial interfaces, e.g. Plena or a printer.
LSN 0300 A	LSN bus module 300mA	Connection of an LSN loop with up to 254 LSN improved elements or 127 LSN classic elements at a maximum line current of 300 mA
NZM 0002 A	Notification appliance zone module	Allows connection of two conventional, monitored notification appliance circuit lines

Module	Description	Function
RMH 0002 A	Relay module high-voltage	Monitored connection of external elements with feedback, with two changeover contact relays suitable for switching mains voltage
RML 0008 A	Relay module low-voltage	For low voltage switching, with eight changeover contact relays



### Notice

Safety Systems Designer can be used to plan fire alarm systems that conform to the relevant limits (e.g. in terms of cable length and power supply).



### Notice

Safety Systems Designer for fire alarm systems enables the system dimensions, the energy requirements and the quantity and prices of the elements required to be estimated at each different phase in the planning process.

The software is designed for planners and engineering offices that want to produce a quotation for a fire alarm system.

## Detection points

Each element or input that can trigger an alarm counts as a detection point. In accordance with EN54-2, do not connect more than 512 detection points and manual call points to one AVENAR panel 2000!

In case of more than 512 detectors and manual call points, apply the detectors to more AVENAR panels. All elements and inputs that do not use the Input type in the Message type setting are regarded as detection points. Therefore, all elements and inputs for which one of the following settings is programmed as the Message type are regarded as detection points:

- Fire
- Internal fire
- Supervisory
- Multi-criterion
- Smoke
- Fault
- Heat
- Water

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

### Modules      Detection Points

CZM 0004 A      Up to 4 (1 detection point per zone)

IOP 0008 A      Up to 8 (1 detection point per monitored input)

RMH 0002 A      Up to 2

ENO 0000 B requires 1 detection point only if a FSE release element is connected and programmed using the FSP-5000-RPS programming software

FPP-5000-TI 2

**Interface Modules**      **Detection Points**

FLM-420/4CON      Up to 2

FLM-420-I8R1      Up to 8

FLM-420-I2      Up to 2

FLM-420-O8I2      Up to 2

FLM-420-O1I1      Up to 1

FLM-420-RHV      Up to 2

FLM-420-RLE-S      Up to 2

- 3 (green): Building management system, hierarchy panel, voice alarm system
- 4 (red): Remote Services
- 2 signal inputs (IN1/IN2)
- 1 USB function interface for configuration via FSP-5000-RPS
- 1 Memory card interface

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21700 AVENAR panel 2000
	CE	AVENAR panel 2000
Malaysia	BOMBA	23-341 AVENAR panel 2000   AVENAR keypad 8000
Germany	VdS-S	S221001 VdS-Brandmeldesystem-S221001-AVENAR-2021-02-26
	VdS	G 220048 AVENAR panel 2000
Switzerland	VKF	AEAI 31626 Avenar Brandmeldesystem
Poland	CNBOP	4289/2021 AVENAR 2000

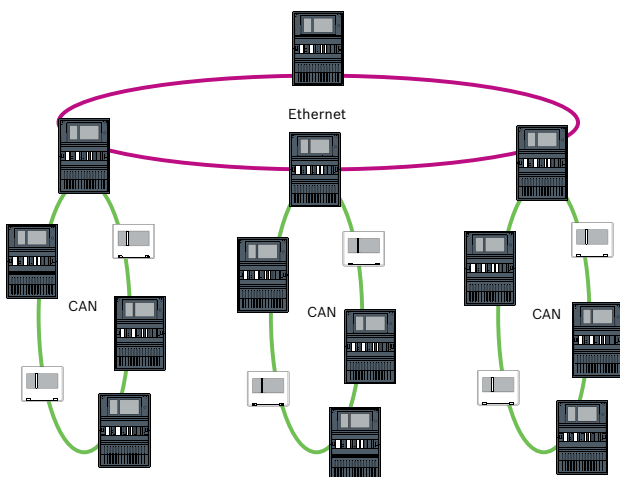
**Networking**

A panel controller with premium license can be networked with up to 32 panel controllers, remote keypads and OPC servers.

Panels and keypads display all messages, or you can form a group of panels and keypads. Within one group, only messages of this group are displayed.

A variety of fire alarm network topologies are possible:

- CAN loop
- Ethernet loop
- Ethernet/CAN double loop
- CAN loop with Ethernet segments
- Ethernet backbone with sub-loops (Ethernet/CAN)



**Interfaces**

The panel controller features

- 2 CAN interfaces (CAN1/CAN2) for networking
- 1 Rail connector
- 4 Ethernet interfaces (1 / 2 / 3 / 4) for networking, prescribed usage:
  - 1 and 2 (blue): Panel network

- The FSP-5000-RPS programming software enables adaption to project- and country-specific requirements. The programming software and the associated documentation can be found at [www.boschsecurity.com](http://www.boschsecurity.com) for those with access rights. Information about the programming software is also included in FSP-5000-RPS online help.

**General planning instructions**

- Country-specific standards and guidelines must be considered during planning.
- The regulations issued by regional authorities and institutions (e.g. fire service) must be adhered to.
- Please note that standards and guidelines may require that a maximum of one function in more than one zone may fail. For example, if the auxiliary power fails, only the fire detectors and/or manual call points of one zone may fail.
- We recommend the use of loops wherever possible, as they offer far greater security than stub lines.
- Terminating each stub and each T-tap with EOL modules is essential to set up a complete fire alarm system with extended line monitoring (creeping short circuit and creeping open monitoring).
- Conventional detectors of the Bosch portfolio for fire products can be connected using one of the following methods:
  - Using the CZM 0004 A 4 Zone Conventional Module  
The module provides four DC primary lines (zones).
  - Using an FLM-420/4-CON GLT interface module on the LSN bus for two zones
- Consider the system limit for the number of LSN elements.

- Each element and input which is able to set off an alarm requires a detection point. Inputs are considered as detection points if they are programmed accordingly using the FSP-5000-RPS Programming Software.
- In accordance with EN 54-2, no more than 512 detectors and their functions may fail if a system component fails.
- 12 V/45 Ah batteries can only be used with the frame installation housings.
- Use fuses complying with national regulations to protect the power lines.
- Recommended fire detector cable: J-Y(St)Y 2 x 2 x 0,8 mm, red.

#### System limits for each LSN module

- It is possible to combine LSN interface modules, LSN detectors and notification appliances on one loop or stub line.
- For a mixed connection of LSN classic elements and LSN improved elements, a maximum of 127 elements are permitted.
- The use of unshielded cables is possible.
- Limits per LSN 0300 module:
  - Up to 127 LSN classic elements or 254 LSN improved elements can be connected
  - Current consumption of up to 300 mA
  - Cable length of up to 1600 m

#### Environmental Conditions

- Assembly and operation of the fire panel must be carried out in a clean and dry indoor location.
- Permissible relative humidity: max. 95 % at 25°C, non-condensing
- To ensure optimum battery service life, the panel should only be operated at sites with normal room temperatures.
- Do not operate devices showing condensation.

#### Positioning

- Operating and display elements should be positioned at eye level.  
The distance between the upper edge of the housing and the center of the panel controller display is around 11 cm. For example, if the eye level required is 164 cm, the housing upper edge installation dimension is 175 cm.
- For frame installation housings, a clearance of at least 230 mm is required to the right of the last housing to swivel out the installed housing (e.g. for connection, maintenance or service).
- Sufficient space should be left below and next to the panel for any possible extensions, e.g. for an additional power supply or an extension housing.

#### Building Management System

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

## Technical specifications

### General system limits

Panels/remote keypads/OPC servers in the network	Max. number
Ethernet / CAN (premium license)	32
LSN elements	Max. number
Stand-alone panel	1016
Per network panel	1016
Total network	32512
Detection points	Max. number
EN 54 compliant panel	512
Stand-alone panel, not EN54 compliant	4096
Networked panel, not EN 54 compliant	2048
Total network	32768
NAC groups	Max. number
NAC groups with more than one FNM-420, per loop	6
Voice alarm system	Max. number
In CAN network, per panel (premium license)	1
In total Ethernet network (premium license)	1
Triggers (each trigger counts as one sounder group)	244
<b>System limits per fire panel</b>	
Per fire panel	Max. number
Sets, e.g. bypass group These sets include sets which are automatically created for each LSN bus.	192
Functional modules	6
Printer	4
Alarm counters (external, internal, testing)	3
Entries in the event database	10000
FSP-5000-RPS configuration interfaces (USB)	1
Maximum number of outputs (sounders, controls, etc.) activated in parallel due to the same event	508

**Configuration limits per fire panel**

Configuration limits per fire panel (FSP-5000-RPS)	Max. number
Timer channels	20
Time control programs	19
Configuration for a Specific Day	365
Permission levels	4
User profiles	200
Sum counters and counters (in total)	60000
Exportable objects including counters in the entire panel cluster (without pre-defined system counters)	2000
Importable objects including counters (without pre-defined system counters)	2000
Automatic connections to remote keypad	3
Blocks of State-Dependent Rules (depending on what kind of activations are possible)	8
Maximum number of rules within a block	254

**Number of functional modules**

Number of functional modules	Max. number
ANI 0016 A	4
BCM-0000-B	5
CZM 0004 A	4
ENO 0000 B	4
FPE-5000-UGM	4
IOP 0008 A	4
IOS 0020 A	4
IOS 0232 A	4
LSN 0300 A	4
LSN 1500 A	0
NZM 0002 A	4
RMH 0002 A	4
RML 0008 A	4

**Power loss of panel components**

Component	Power loss
ANI 0016 A	0.62 W (all LEDs lit)
BCM-0000-B	<ul style="list-style-type: none"> <li>0.96 W (controller + green LED lit)</li> <li>1.44 W (per AUX with 1.06 A load)</li> </ul>

Component	Power loss
CZM 0004 A	<ul style="list-style-type: none"> <li>1.65 W (for a line with 100 mA load)</li> <li>3.36 W (for 4 lines with 100 mA load each)</li> </ul>
ENO 0000 B	<ul style="list-style-type: none"> <li>1.44 W (1 relay activated)</li> <li>7.80 W (4 relays activated + key deposit heating active)</li> </ul>
FPE-2000-PPC	max. 10 W
FPE-2000-SPC	max. 10 W
FPE-5000-UGM	0.17 W
IOP 0008 A	0.24 W
IOS 0020 A	0.36 W
IOS 0232 A	0.36 W
LSN 0300 A	<ul style="list-style-type: none"> <li>1.50 W (AUX with 490 mA load)</li> <li>2.72 W (LSN)</li> </ul>
NZM 0002 A	0.96 W
PRD 0004 A	0.07 W
PRS-0002-C	0.07 W
RMH 0002 A	1.16 W
RML 0008 A	1.04 W (all relays activated)
UPS 2416 A	28.00 W

**Electrical**

Input voltage range	100 - 240 V AC
Input frequency range	50 Hz to 60 Hz
Power source (EN 62368-1)	PS 3
Electrical source (EN 62368-1)	ES 3
Terminals 24 V+/- ①, 24 V +/- ②:	
Output voltage (min-max)	20.4 - 30 V battery-buffered
Output current (min-max) (x 2)	0 - 2.8 A
Power source (EN 62368-1)	PS 2
Electrical source (EN 62368-1)	ES 1

**Mechanical**

Flammability rating	UL94-V0
LCD display (pixels)	7" color WVGA 800 x 480
Operating and display elements	<ul style="list-style-type: none"> <li>6 keys</li> <li>18 LEDs</li> </ul>

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015
Front color	Anthracite, RAL 7016
Battery type for wall-mount version <sup>1</sup>	12V 24-27Ah
Battery type for frame-mount version <sup>2</sup>	12V 38-45Ah

<sup>1</sup> Order info: IPS-BAT12V-27AH, F.01U.579.781; <sup>2</sup> Order info: IPS-BAT12V-45AH, F.01U.579.782

### Environmental

Safety class according to EN 62368-1	Class 1 equipment
Permissible ambient temperature during operation	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Relative humidity	Max. 95% non-condensing @25 °C
Protection category	IP 30
Cooling	Natural convection*

\*Do not obstruct the vent holes.

### Ordering information

#### FPA-2000-SFM Panel kit standard license, frame-mount

AVENAR panel 2000 is a compact modular fire panel for small to medium size systems. It comes standard in a housing with panel controller, power supply, battery controller module and one LSN loop module. Depending on the project specific needs, the fire panel can be extended with up to four LSN 0300 A loop modules, in total six functional modules. Each loop can contain up to 254 LSN elements.

The frame-mount panel kit includes a panel controller standard license.

Order number **FPA-2000-SFM**

#### FPA-2000-PFM Panel kit premium license, frame-mount

AVENAR panel 2000 is a compact modular fire panel for small to medium size systems. It comes standard in a housing with panel controller, power supply, battery controller module and one LSN loop module. Depending on the project specific needs, the fire panel can be extended with up to four LSN 0300 A loop modules, in total six functional modules. Each loop can contain up to 254 LSN elements.

The frame-mount panel kit includes a panel controller premium license.

Order number **FPA-2000-PFM**

#### FPA-2000-SWM Panel kit standard license, wall-mount

AVENAR panel 2000 is a compact modular fire panel for small to medium size systems. It comes standard in a housing with panel controller, power supply, battery controller module and one LSN loop module. Depending on the project specific needs, the fire panel can be extended with up to four LSN 0300 A loop modules, in total six functional modules. Each loop can contain up to 254 LSN elements.

The wall-mount panel kit includes a panel controller standard license.

Order number **FPA-2000-SWM**

#### FPA-2000-PWM Panel kit premium license, wall-mount

AVENAR panel 2000 is a compact modular fire panel for small to medium size systems. It comes standard in a housing with panel controller, power supply, battery controller module and one LSN loop module. Depending on the project specific needs, the fire panel can be extended with up to four LSN 0300 A loop modules, in total six functional modules. Each loop can contain up to 254 LSN elements.

The wall-mount panel kit includes a panel controller premium license.

Order number **FPA-2000-PWM**

# AVENAR panel 8000

Panel controller FPE-8000-SPC/PPC

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# Panel controller FPE-8000-SPC/PPC



- ▶ 8" touch pad with fixed and programmable buttons, thus adaptable to the situation
- ▶ Integrated Ethernet switch for networking and interfaces to remote services, building management and voice alarm systems
- ▶ Adaptable to local requirements and regulations
- ▶ User interface and printed short user guide in 24 national languages

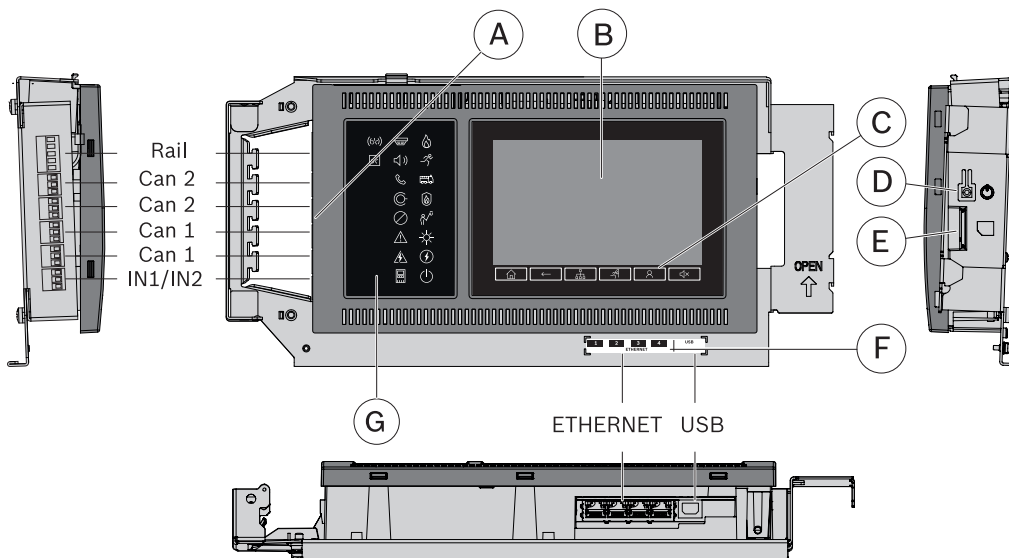
The panel controller is the central component of the fire panel. All messages are shown on the color display. The entire system is operated via a touch screen. The user-friendly user interface adapts to various situations. This allows correct operation that is both simple and clear as well as targeted and intuitive. The FSP-5000-RPS programming software enables adaptation to project- and country-specific requirements.



## System overview

### Features

- ▶ High resolution display with bright colors to indicate alarms and events



Overview of panel controller

Pos.	Designation	Function
A	Interfaces	Panel networking and inputs for internal device monitoring
B	Touchscreen	Operating the networked system through virtual buttons and variable display windows
C	6 fixed buttons	Standard entries
D	Power button	Shutdown and restart of the device
E	Memory card slot	Memory card reader for maintenance services
F	Ethernet ports	Panel networking and interface to various systems
G	18 LEDs	Indicating the operating status

**Functions**

**Alarm indication**

All messages are shown on the display with a bright color. The displayed messages contain the following information:

- Message type
- Type of the triggering element
- Description of the exact location of the triggering element
- Logical zone and sub-address of the triggering element

18 Icon LEDs give continuous information about the operating status of the panel or the system. A red icon LED shows an alarm. A blinking yellow icon LED shows a fault. A steady yellow icon LED shows a disabled function. A green icon LED shows proper operation.

Two status LEDs, one red and one yellow, are programmable. The red one shows a self-defined alarm. The yellow one shows a self-defined fault or deactivation.

Additional annunciator modules, each with 16 red and 16 yellow LEDs are available to indicate a larger number of self-defined alarms, faults or deactivations.

**Operation and processing of messages**

For operating the panel, an 8 inch touch pad as input medium is put upon the display. There are 6 buttons with fixed functionality as well as 3 programmable function keys.

Examples for the assignment of the function keys:

- Set the panel controller to day mode, set the panel controller to night mode
- Enable detection points or outputs, disable detection points or outputs
- Set standard sensor sensitivity, set alternative sensor sensitivity

Each function key has a virtual status indicator.

At any time, an operator with sufficient user rights can control the function keys.

**Overview of evacuation zones and outputs**

At any time, the operator can get a clear overview of each evacuation zone and of each output connected to the fire protection equipment. Each zone and each output is marked with a programmable text label and a clearly distinctive color reflecting the state: Green shows idle state, power is available. Red shows an activation during fire alarm condition, and fuchsia an activation without a fire alarm condition. Yellow shows a fault or disabled state. An operator with sufficient user rights is able to start the evacuation in selected zones and activate outputs connected to the fire protection equipment through the user interface.

**Saving and printing messages**

The history log keeps incoming alarms and events internally. The history log has a capacity to store 10000 messages. The messages can be shown on the display, and

you can export the messages. Additionally, you can connect a log printer via a serial interface module for real-time printing incoming messages.

**Networking**

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

Panels and keypads display all messages, or you can form a group of panels and keypads. Within one group, only messages of this group are displayed.

A variety of fire alarm network topologies are possible:

- CAN loop
- Ethernet loop
- Ethernet/CAN double loop
- CAN loop with Ethernet segments
- Ethernet backbone with sub-loops (Ethernet/CAN)

**Languages**

The operator can change the language of the user interface. A printed quick user guide for each language is supplied with the package. Following languages are included: English, German, Bulgarian, Croatian, Czech, Danish, Dutch, Estonian, French, Greek, Hungarian, Italian, Latvian, Lithuanian, Polish, Portuguese, Romanian, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish and Turkish.

**Operator management**

The system can have up to 200 different registered operators. Login is permitted with a user ID and an 8-digit pin code.

There are four different authorization levels. Depending on the authorization level it is possible for the operator to do certain functions according to EN54-2.

**Interfaces**

The panel controller features

- 2 CAN interfaces (CAN1/CAN2) for networking
- 1 Rail connector
- 4 Ethernet interfaces (1 / 2 / 3 / 4) for networking, prescribed usage:
  - 1 and 2 (blue): Panel network
  - 3 (green): Building management system, hierarchy panel, voice alarm system
  - 4 (red): Remote Services
- 2 signal inputs (IN1/IN2)
- 1 USB function interface for configuration via FSP-5000-RPS
- 1 Memory card interface

**Licenses**

The panel controller is delivered with a hard coded software license. This software license is implemented during production and cannot be modified, revoked or transported. The license defines the maximum panel network size and availability of certain features and interfaces.

	Standard license FPE-8000-SPC	Premium license FPE-8000-PPC
<b>Ethernet interface to</b>		
Building management system (OPC server, BIS, FSM-5000-FSI)		•
UGM-2040 Hierarchy panel		•
Voice alarm system (Smart Safety Link)		•

	Standard license FPE-8000-SPC	Premium license FPE-8000-PPC
<b>Monitoring and control</b>		
Status overview	•	•
Simultaneous control	•	•
Individual control		•
<b>Modularity (maximum number)</b>		
Slots for functional modules (max number including slots for LSN modules)	46	46
LSN modules (max number)		
LSN 0300 A modules (1 slot per module)	32	32
LSN 1500 A modules (2 slots per module)	11	11
<b>Panel redundancy</b>		
Redundant panel controller	•	•
Keypad as redundant panel controller	•	•
<b>Network</b>		
Panel network	panels, remote keypads	panels, remote keypads, servers
Max. number of nodes	32	32

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21699 AVENAR panel 8000
	CE	AVENAR panel 8000   AVENAR keypad 8000
Malaysia	BOMBA	23-340 AVENAR panel 8000   AVENAR keypad 8000
Germany	VdS	G 220047 AVENAR panel 8000
Switzerland	VKF	AEAI 31626 Avenar Brandmeldesystem
Poland	CNBOP	4290/2021 AVENAR 8000

### Installation/configuration notes

- As stipulated by EN 54-2, panels with more than 512 detectors and manual call points must be equipped with a redundant panel controller. Combined with an AVENAR panel 8000, an AVENAR keypad 8000 can be used as a redundant panel controller.
- The FSP-5000-RPS programming software enables adaption to project- and country-specific requirements. The programming software and the associated documentation can be found at [www.boschsecurity.com](http://www.boschsecurity.com) for those with access rights. Information about the programming software is also included in FSP-5000-RPS online help.

### Technical specifications

#### Electrical

Current consumption (mA at 24 VDC)	• standby: 170
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	• alarm: 400
Maximum power loss (W)	10
Max. CAN cable length in networks	Lmax = 1000 m, depending on configuration, cable type and topology

#### Ethernet interface

Maximum copper cable length	100 m
Maximum fiber optic cable length	2km (MM) up to 40 km (SM)

#### Mechanical

Housing material	Polycarbonate (PC)
Color	RAL7016, Anthracite
Weight (kg)	2.4
Dimensions H x W x D (mm)	190 x 404 x 60
Flammability rating	UL94-V0
LCD display (pixels)	7" color WVGA 800 x 480
Operating and display elements	<ul style="list-style-type: none"> <li>• 6 keys</li> <li>• 18 LEDs</li> </ul>
Interfaces	CAN1, CAN2, ETH1, ETH2, ETH3, ETH4, USB, Rail
Signal inputs	IN1/IN2

**Environmental**

Protection class as per EN 60529	IP 30
Permissible operating temperature (°C)	-5 to +50
Relative humidity at 25°C (%)	≤95 (non-condensing)

**Ordering information****FPE-8000-SPC Panel controller, standard license**

central component of AVENAR panel 8000, which is delivered with standard license defining network size, as well as fire detection features according the standards. The entire system is operated via a touchscreen, all messages are shown on the color display. The user-friendly user interface adapts to various requirements.

Order number **FPE-8000-SPC**

**FPE-8000-CRP Cable set redundant panel controller**

Used to redundantly connect one panel controller to another panel controller.

Order number **FPE-8000-CRP**

**EWE-FPA5MPC-IW 12 mths wrty ext FPA-5000 Main Panel Con**

12 months warranty extension

Order number **EWE-FPA5MPC-IW**

**FPE-8000-PPC Panel controller, premium license**

central component of AVENAR panel 8000, which is delivered with premium license. In addition to network capability and network size, as well as fire detection features according the standards, the premium license provides interfaces for OPC, FSM-5000-FSI, UGM-2040, Smart Safety Link. Individual control of evacuation zones and fire controls is provided. The entire system is operated via a touchscreen, all messages are shown on the color display. The user-friendly user interface adapts to various requirements.

Order number **FPE-8000-PPC**

**FPE-8000-CRP Cable set redundant panel controller**

Used to redundantly connect one panel controller to another panel controller.

Order number **FPE-8000-CRP**

**EWE-FPA5MPC-IW 12 mths wrty ext FPA-5000 Main Panel Con**

12 months warranty extension

Order number **EWE-FPA5MPC-IW**

# AVENAR keypad 8000

FPE-8000-FMR Remote keypad

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# FPE-8000-FMR Remote keypad



shows all messages. The touch screen is for operation of a specific panel or the entire system. The user-friendly interface adapts to various situations. This causes correct operation that is simple and clear as well as targeted and intuitive.

Panels and keypads of the AVENAR series and the FPA-5000 series (MPC-xxxx-B and MPC-xxxx-C) can be combined in one panel network using the Ethernet and the CAN bus interfaces.

In combination with an AVENAR panel 8000, the keypad can be used as a redundant panel controller. In this case, it cannot be used as a remote keypad.

Power can be supplied by the panel and/or an external power supply unit.

The housing of the remote keypad is designed for proper and clean installation at highly visible locations. It allows tilted installation and surface or flush wall mounting without requiring additional installation frames.

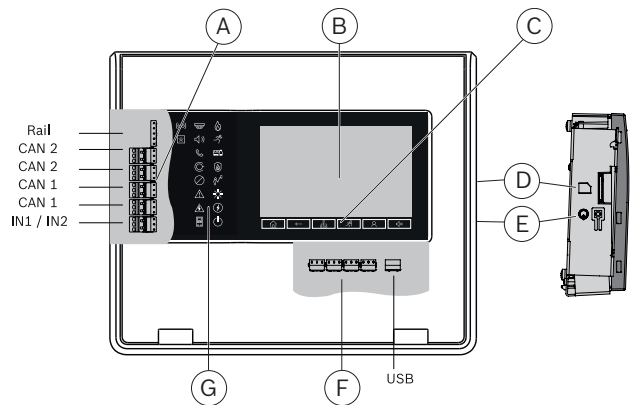
The remote keypad is configured on a laptop using the FSP-5000-RPS programming software. The programming software enables further adaptation, e.g. to country-specific requirements and regulations.

## Features

- ▶ User interface identical to fire panel
- ▶ High resolution display with bright colors to indicate alarms and events
- ▶ 8" touch pad with fixed and programmable buttons, thus adaptable to the situation
- ▶ Clean design for surface and flush mounting
- ▶ Alternative use as redundant panel controller

The remote keypad allows decentralized operation of a fire safety system. The design of the graphical user interface is identical to the fire panels. A color display

## System overview



Pos.	Designation	Function
A	Interfaces	Power supply input, panel networking and inputs for internal device monitoring
B	Touchscreen	Operating the networked system through virtual buttons and variable display windows
C	6 fixed buttons	Standard entries
D	Memory card slot	Memory card reader for maintenance services
E	Power button	Shutdown and restart of the device
F	Ethernet ports	Panel networking and interface to various systems
G	18 LEDs	Indicating the operating status

## Functions

### Alarm indication

All messages are shown on the display with a bright color. The displayed messages contain the following information:

- Message type
- Type of the triggering element
- Description of the exact location of the triggering element

- Logical zone and sub-address of the triggering element

18 Icon LEDs give continuous information about the operating status of the panel or the system. A red icon LED shows an alarm. A blinking yellow icon LED shows a fault. A steady yellow icon LED shows a disabled function. A green icon LED shows proper operation.

Two status LEDs, one red and one yellow, are programmable. The red one shows a self-defined alarm. The yellow one shows a self-defined fault or deactivation.

Additional annunciator modules, each with 16 red and 16 yellow LEDs are available to indicate a larger number of self-defined alarms, faults or deactivations.

### Operation and processing of messages

For operating the panel, an 8 inch touch pad as input medium is put upon the display. There are 6 buttons with fixed functionality as well as 3 programmable function keys.

Examples for the assignment of the function keys:

- Set the panel controller to day mode, set the panel controller to night mode
- Enable detection points or outputs, disable detection points or outputs
- Set standard sensor sensitivity, set alternative sensor sensitivity

Each function key has a virtual status indicator.

At any time, an operator with sufficient user rights can control the function keys.

### Overview of evacuation zones and outputs

At any time, the operator can get a clear overview of each evacuation zone and of each output connected to the fire protection equipment. Each zone and each output is marked with a programmable text label and a clearly distinctive color reflecting the state: Green shows idle state, power is available. Red shows an activation during fire alarm condition, and fuchsia an activation without a fire alarm condition. Yellow shows a fault or disabled state. An operator with sufficient user rights is able to start the evacuation in selected zones and activate outputs connected to the fire protection equipment through the user interface.

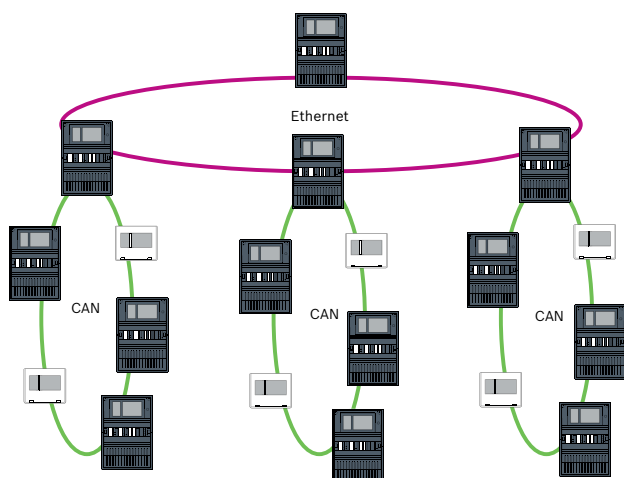
### Networking

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

Panels and keypads display all messages, or you can form a group of panels and keypads. Within one group, only messages of this group are displayed.

A variety of fire alarm network topologies are possible:

- CAN loop
- Ethernet loop
- Ethernet/CAN double loop
- CAN loop with Ethernet segments
- Ethernet backbone with sub-loops (Ethernet/CAN)



### Languages

#### Languages

The operator can change the language of the user interface. A printed quick user guide for each language is supplied with the package. Following languages are included: English, German, Bulgarian, Croatian, Czech, Danish, Dutch, Estonian, French, Greek, Hungarian, Italian, Latvian, Lithuanian, Polish, Portuguese, Romanian, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish and Turkish.

#### Operator management

The system can have up to 200 different registered operators. Login is permitted with a user ID and an 8-digit pin code.

There are four different authorization levels. Depending on the authorization level it is possible for the operator to do certain functions according to EN54-2.

#### Power supply

Power can be supplied by a fire panel and/or an external power supply unit FPP-5000 (F.01U.511.307). For applications requiring functional integrity, a redundant power supply input is available. When the primary power supply fails, the redundant power supply can take over.

#### Use as redundant panel controller

In combination with an AVENAR panel 8000, standard or premium license, an AVENAR keypad 8000 can be used as a redundant panel controller. Only in this case the rail connector is needed.

In case it is used as redundant panel controller, the keypad has to be installed adjacent to the panel. Use cable FPE-8000-CRK (F.01U.349.392) for connection to panel rail. In normal operation, the user interface is switched off until the main controller fails.

#### Interfaces

The Remote keypad features

- 2 CAN interfaces (CAN1/CAN2) for networking
- 1 Rail connector (for redundancy only)
- 4 Ethernet interfaces (1 / 2 / 3 / 4) for networking, prescribed usage:
  - 1 and 2 (blue): Panel network
  - 3 (green): Building management system, hierarchy panel
  - 4 (red): Remote Services
- 2 signal inputs (IN1/IN2)
- 1 USB host interface for configuration via FSP-5000-RPS
- 1 Memory card interface
- 2 Power supply connectors (DC1/DC2)

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	AVENAR panel 8000   AVENAR keypad 8000
Malaysia	BOMBA	23-340 AVENAR panel 8000   AVENAR keypad 8000
	BOMBA	23-341 AVENAR panel 2000   AVENAR keypad 8000
Germany	VdS	G 220049 AVENAR keypad 8000

Region	Regulatory compliance/quality marks	
Poland	CNBOP	4374/2021 FPE-8000-FMR
	CNBOP	63-UWB-0357 FPE-8000-FMR

### Installation/configuration notes

- As stipulated by EN 54-2, panels with more than 512 detectors and manual call points must be equipped with a redundant panel controller. Combined with an AVENAR panel 8000, an AVENAR keypad 8000 can be used as a redundant panel controller.
- The FSP-5000-RPS programming software enables adaption to project- and country-specific requirements. The programming software and the associated documentation can be found at [www.boschsecurity.com](http://www.boschsecurity.com) for those with access rights. Information about the programming software is also included in FSP-5000-RPS online help.

### Parts included

Quantity	Component
1	FPE-8000-FMR Remote keypad
1	Product label
4	Screw, dowel

### Technical specifications

#### Electrical

Minimum operating voltage (VDC)	13.2
Maximum operating voltage (VDC)	30
Current consumption (mA at 20 VDC)	200 mA – 480 mA (standby - alarm)
Maximum power loss (W)	12
Max. CAN cable length in networks	L <sub>max</sub> = 1000 m, depending on configuration, cable type and topology
Max. line resistance, DC1 (Ω)	6
Max. line resistance, DC2 (Ω)	6

#### Mechanical

Housing material	Polycarbonate (PC)
Color	RAL9003, signal white (painted)

Weight (kg)	2.8
Dimensions H x W x D (mm)	280.1 x 339 x 80.2
Flammability rating	UL94-V0
LCD display (pixels)	7" color WVGA 800 x 480
Operating and display elements	<ul style="list-style-type: none"> <li>6 keys</li> <li>18 LEDs</li> </ul>
Interfaces	CAN1, CAN2, ETH1, ETH2, ETH3, ETH4, USB, Rail
Signal inputs	IN1, IN2
Power supply	DC1, DC2

#### Environmental

Protection class as per EN 60529	IP 30
Permissible operating temperature (°C)	-5 to +50
Relative humidity at 25°C (%)	≤95 (non-condensing)

### Ordering information

#### FPE-8000-FMR Remote keypad

Remote operating panel for performing the same operating procedures as the control panel, enabling variable operation of a networked system.

In combination with an AVENAR panel 8000, standard or premium license, an AVENAR keypad 8000 can be used as a redundant panel controller. Only in this case the rail connector is needed.

Order number **FPE-8000-FMR**

#### Accessories

##### FPE-8000-CRK Cable redundant keypad

Used to redundantly connect one remote keypad to a panel controller.

Order number **FPE-8000-CRK**

#### Services

##### EWE-FPA5FMR-IW 12 mths wrty ext FPA-5000 Remote Keypad

12 months warranty extension

Order number **EWE-FPA5FMR-IW**

# Modules

<b>BCM-0000-B Battery controller module</b>	<b>27</b>
<b>ANI 0016 A Annunciator module</b>	<b>30</b>
<b>LSN 0300 A LSN bus module, 300mA</b>	<b>31</b>
<b>LSN 1500 A LSN bus module, 1500mA</b>	<b>33</b>
<b>FPE-5000-UGM Module interface to UGM</b>	<b>35</b>
<b>CZM 0004 A Conventional zone module</b>	<b>37</b>
<b>IOS 0020 A Communication module, 20mA</b>	<b>39</b>
<b>IOS 0232 A Communication module, RS232</b>	<b>41</b>
<b>ENO 0000 B External notification module</b>	<b>42</b>
<b>IOP 0008 A Input-output module</b>	<b>44</b>
<b>RML 0008 A Relay module low-voltage</b>	<b>46</b>
<b>RMH 0002 A Relay module high-voltage</b>	<b>48</b>
<b>NZM 0002 A Notification appliance zone module</b>	<b>50</b>
<b>Panel Rails</b>	<b>52</b>

## BCM-0000-B Battery controller module



### Features

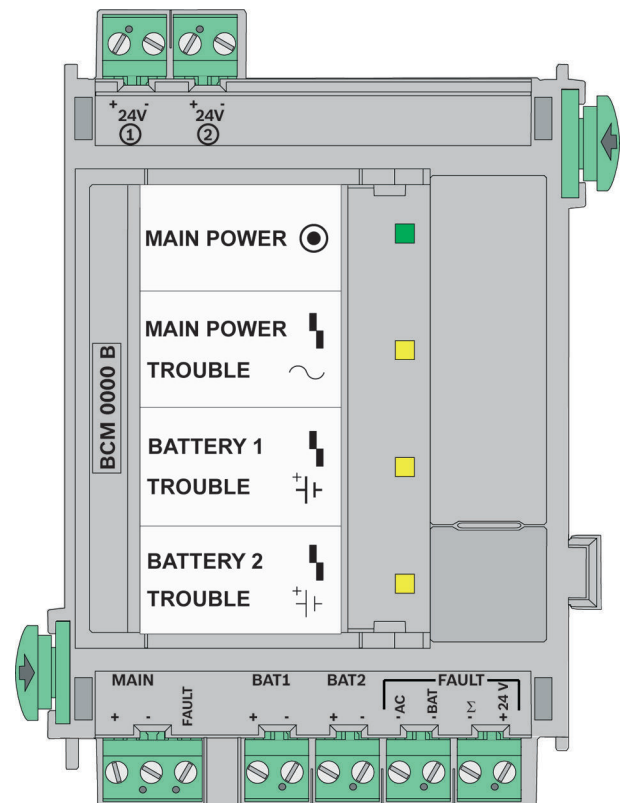
- ▶ Two voltage outputs of 2.8 A at 24 V each
- ▶ Temperature-controlled charging and monitoring of batteries according to EN 54-4:1997/A2:2006
- ▶ Plug-and-play technology and pluggable terminal blocks

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



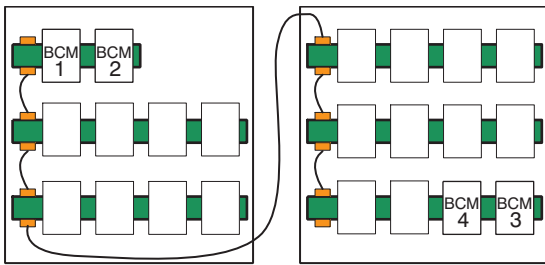
Description	Connector
24V +/-	Output max. 2.8 A (battery buffered)
24V +/-	Output max. 2.8 A (battery buffered)
MAIN +/-	Power supply unit UPS
MAIN FAULT	Input fault, mains
BAT1 +/-	Battery pair 1
BAT2 +/-	Battery pair 2
FAULT AC -	Main power fault signal output
FAULT BAT-	Battery fault signal output
FAULT Σ-	Collective fault signal output
FAULT +	Signal output +

### Installation/configuration notes

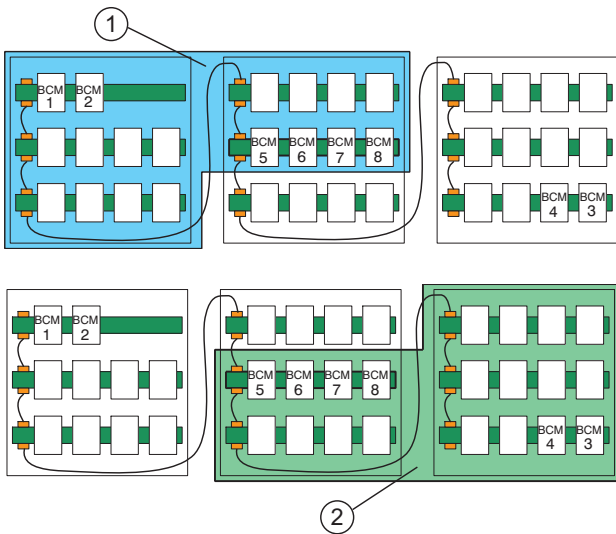
- Do not use the 24V outputs in parallel wiring.
- For FPA-5000 systems with the MPC xxxx A Panel Controller, the BCM 0000 A Battery Controller Module must be employed.

### 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 ( $I_{\text{nom}}$ ) is based on the smaller value of the two maximum current values of the panel.

Parameter:

- $t_{\text{Standby}}$  = buffering time in hour
- $I_{\text{Alarm}}$  = maximum alarm current ( $I_{\max, B}$ )
- $C_{\text{Batt}}$  = 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**

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



**Notice**

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 (20.4 - 30 V) 2,8 A battery-buffered (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
• of the outputs	Max. 5.6 A (2 x 2.8 A, not in parallel wiring)
Maximum battery resistance (fault threshold)	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	
<ul style="list-style-type: none"> <li>• 1 green LED</li> </ul>	Power ON
<ul style="list-style-type: none"> <li>• 3 yellow LEDs</li> </ul>	Trouble mains/batt. 1/ batt. 2
<ul style="list-style-type: none"> <li>• 1 key</li> </ul>	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**

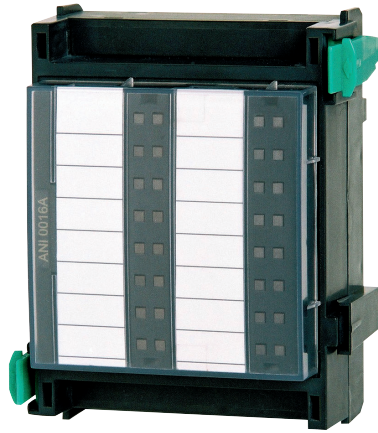
Permitted operating temperature	-5°C to 50°C (23°F to 122°F)
Permitted storage temperature	-20°C to 85°C (-13°F to 185°F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

**Ordering information****BCM-0000-B Battery controller module**

monitors the power supply of the fire panel and the charging of the batteries

Order number **BCM-0000-B**

## ANI 0016 A Annunciator module

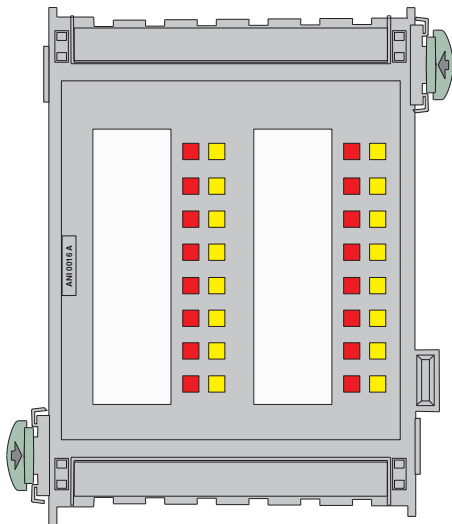


### Features

- ▶ 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

Quantity	Component
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	<ul style="list-style-type: none"> <li>• Standby (all LEDs off) 6 mA (at 24 V DC)</li> <li>• All LEDs on 26 mA (at 24 V DC)</li> </ul>

#### Mechanics

Display elements	16 red LEDs 16 yellow LEDs
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	<ul style="list-style-type: none"> <li>• Without packaging Approx. 206 g (7.3 ounces)</li> <li>• With packaging Approx. 356 g (12.6 ounces)</li> </ul>

#### 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

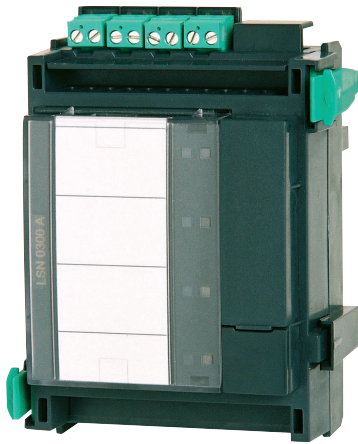
### Ordering information

#### ANI 0016 A Annunciator module

displays the status of 16 individually programmable detection points

Order number **ANI 0016 A**

## LSN 0300 A LSN bus module, 300mA

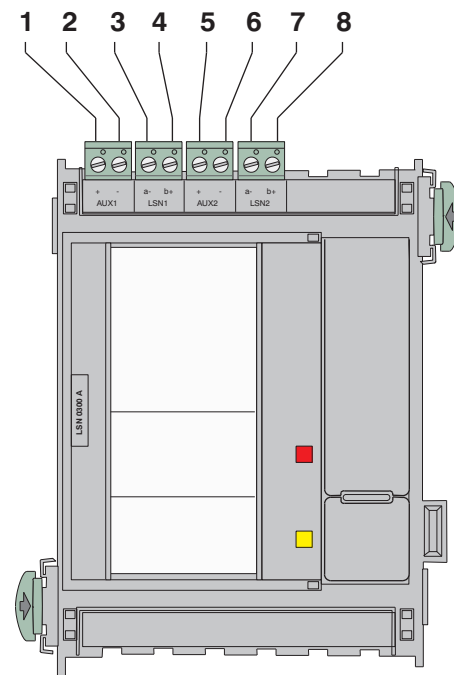


### Features

- ▶ 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
- ▶ Flexible network structures (loop, stub, and T-tap)

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



Item	Description	Connection	
		LSN loop	LSN stub
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+

### Installation/configuration notes



#### Notice

Current consumption of the connected devices and cable length can be calculated with the Safety Systems Designer (SSD).

- 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**

Quantity	Component
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. 2 x 500 mA

**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
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
Permitted storage temperature	-20 °C to 60 °C
Permitted relative humidity	95 % , non-condensing
Protection class as per IEC 60529	IP 30

**Ordering information****LSN 0300 A LSN bus module, 300mA**

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

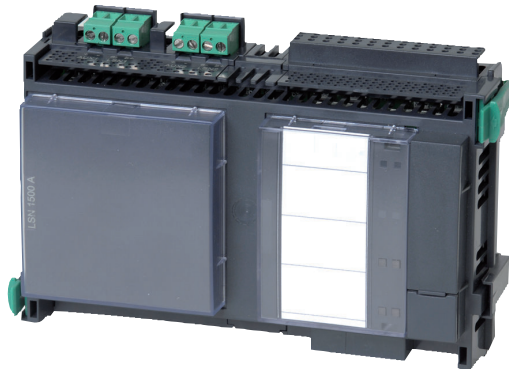
Order number **LSN 0300 A**

**Accessories****FLM-420-EOL2W-W End-of-line module 2-wire LSN wall-mount**

for termination of 2-wire LSN line with Extended Line Supervision (ELS), for wall-mounting

Order number **FLM-420-EOL2W-W**

## LSN 1500 A LSN bus module, 1500mA

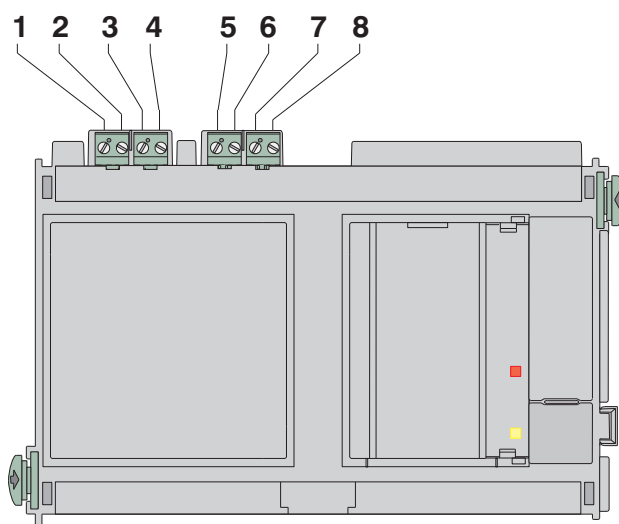


### Features

- ▶ 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
- ▶ Flexible network structures (loop, stub, and T-tap)

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

Item	Description	Connection	
		LSN loop	LSN stub
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+

### Installation/configuration notes

#### System limits for each LSN 1500 A LSN improved Module



#### Notice

Current consumption of the connected devices and cable length can be calculated with the Safety Systems Designer (SSD).

- 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

Quantity	Component
1	LSN 1500 A LSN improved Module 1500 mA



#### Notice

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. 2 x 500 mA

### 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 bus module, 1500mA

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  
Order number **LSN 1500 A**

#### Accessories

#### FLM-420-EOL2W-W End-of-line module 2-wire LSN wall-mount

for termination of 2-wire LSN line with Extended Line Supervision (ELS), for wall-mounting  
Order number **FLM-420-EOL2W-W**

# FPE-5000-UGM Module interface to UGM



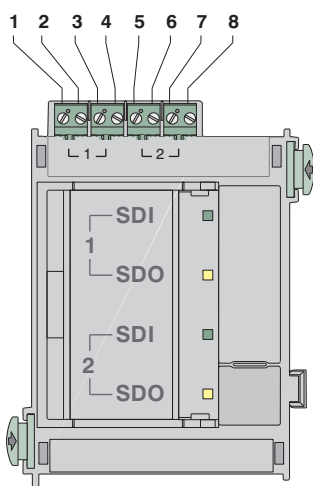
3	SDO 1 +		Data input +
4	SDO 1 -		Data input -
5	SDI 2 +	Transmission path 2	Data input +
6	SDI 2 -		Data input -
7	SDO 2 +		Data input +
8	SDO 2 -		Data input -

## Features

- ▶ Easy and redundant connection to superordinate systems
- ▶ MTS protocol
- ▶ 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



Po s.	Labeling	Connection	
1	SDI 1 +	Transmission path 1	Data input +
2	SDI 1 -		Data input -

## Functions

Quant.	Component
1	FPE-5000-UGM Interface Module

## Parts included

Quantity	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	satin 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 Module interface to UGM**

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

Order number **FPE-5000-UGM**

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# CZM 0004 A Conventional zone module

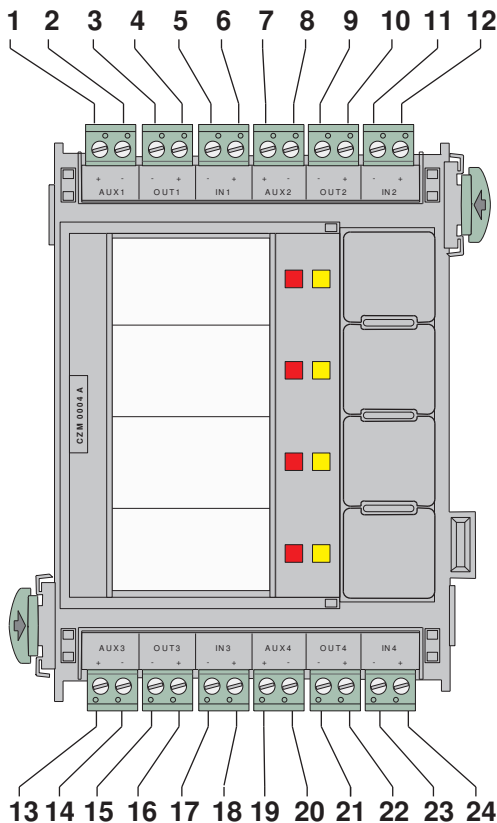


## Features

- ▶ Connection of 2-wire and 4-wire conventional elements
- ▶ Plug-and-play technology and pluggable terminal blocks

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

## System overview



Pos.	Description	Connector
1 / 2	AUX1 + / -	Auxiliary 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 + / -	Auxiliary 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 + / -	Auxiliary 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 + / -	Auxiliary 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 auxiliary 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

Quantity	Component
1	CZM 0004 A 4 Zone Conventional Module
4	3.9 kOhm resistors

## Technical specifications

### Electrical

Input voltage	20 V DC to 30 V DC (min...max) 5 V DC $\pm$ 5%
Max. current consumption	
<ul style="list-style-type: none"> <li>Standby (all 4 zones)</li> </ul>	65 mA (at 24 V DC)
<ul style="list-style-type: none"> <li>Alarm (all 4 zones)</li> </ul>	65 mA + 100 mA per zone (at 24 V DC)

#### Outputs OUT1- OUT4

<ul style="list-style-type: none"> <li>Max. output voltage</li> </ul>	20 V DC $\pm$ 5%
<ul style="list-style-type: none"> <li>Output current</li> </ul>	per zone
<ul style="list-style-type: none"> <li>Max. line resistance</li> </ul>	2 x 25 $\Omega$ per zone

#### Auxiliary power supply AUX1 - AUX4

<ul style="list-style-type: none"> <li>Max. output current (all 4 outputs in total)</li> </ul>	230 mA
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### Mechanics

Operating/display elements	8 LEDs (4 x red, 4 x yellow) 4 keys
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	
<ul style="list-style-type: none"> <li>Without packaging</li> </ul>	Approx. 135 g (4.8 ounces)
<ul style="list-style-type: none"> <li>With packaging</li> </ul>	Approx. 270 g (9.5 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

### Electrical

	CZM 0004 A Conventional zone module
Input voltage (VDC)	20 VDC – 30 VDC
Operating voltage (VDC)	19 VDC – 20 VDC
Current consumption on rail (mA)	65 mA
Power dissipation (W)	3.36 W
Output current (mA)	0 mA – 90 mA

### Mechanical

	CZM 0004 A Conventional zone module
Color	Gray
LED color	Red; Yellow
Material	Plastic
Material finish	Satin
Dimension (H x W x D) (mm)	127 mm x 96 mm x 60 mm
Weight (g)	135 g

### Environmental

	CZM 0004 A Conventional zone module
Operating temperature (°C)	-5 °C – 50 °C
Storage temperature (°C)	-20 °C – 60 °C
Operating relative humidity, non-condensing (%)	0% – 95%
Weather rating (IEC 60529)	IP30

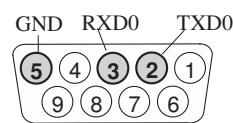
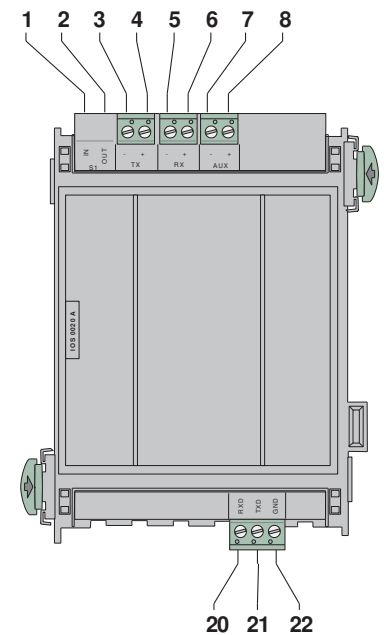
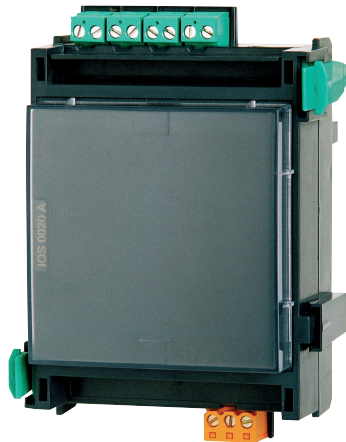
## Ordering information

### CZM 0004 A Conventional zone module

for connecting conventional peripherals; provides four monitored conventional lines

Order number **CZM 0004 A**

## IOS 0020 A Communication module, 20mA



### Features

- ▶ Connection of peripherals with serial interface
- ▶ Plena connection via RS232
- ▶ Ready to go thanks to plug-and-play technology
- ▶ Pluggable terminal blocks

The IOS 0020 A Communication Module has the following interfaces:

- an S20 interfaces
- an RS232 interface

The voice alarm system Plena can be connected via RS232.

### System overview

Pos.	Description	Connector
1   2	-	-
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

Quantity	Component
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, 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. 175 g (6.2 ounces)
• With packaging	Approx. 350 g (12.4 ounces)

**Environmental conditions**

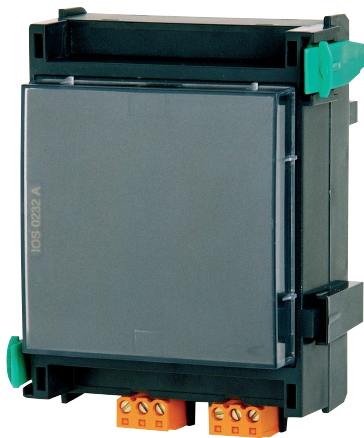
Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
Permitted storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Permitted relative humidity	95%, non-condensing
Protection class as per IEC 60529	IP 30

**Ordering information**

**IOS 0020 A Communication module, 20mA**  
provides one interface of each S20 and RS232  
Order number **IOS 0020 A**

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## IOS 0232 A Communication module, RS232

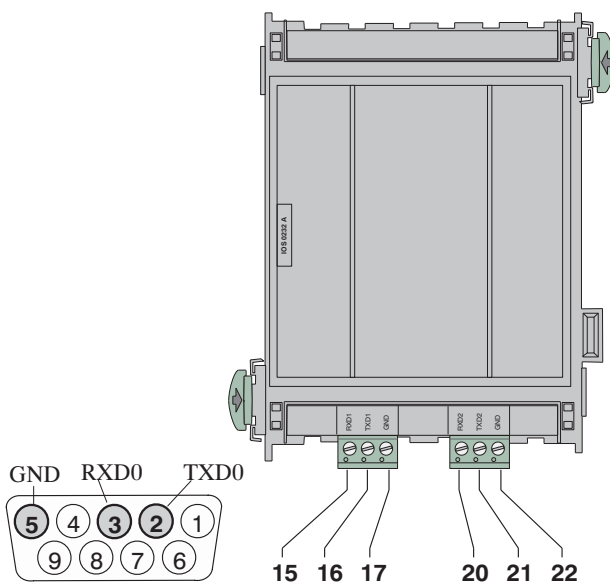


### Features

- ▶ Connection of peripherals with RS232 serial interface
- ▶ 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

Quantity	Component
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, 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. 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

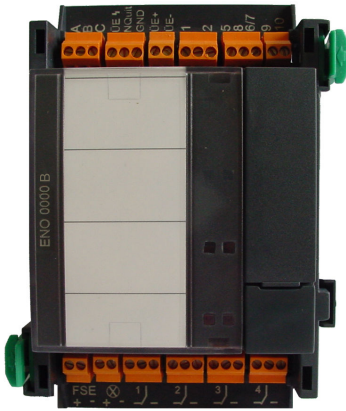
### Ordering information

#### IOS 0232 A Communication module, RS232

for connecting two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces

Order number **IOS 0232 A**

## ENO 0000 B External notification module



### Features

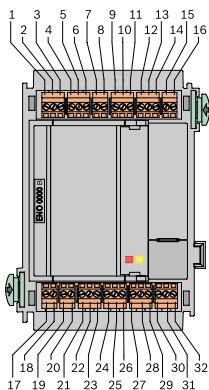
- ▶ Connection of Fire Service Systems according to DIN 14675
- ▶ Plug-and-play technology and pluggable terminal blocks

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	⊗ + / -	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

Quantity	Component
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 ± 5%
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

Max. lead resistance transmission unit (ÜE)	2 x 10 $\Omega$
Max. cable length key deposit	10 m
Cable type key deposit	LiYY 10 x 0.5 mm <sup>2</sup>

#### 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
Weight	Approx. 150 g

#### Environmental conditions

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

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

#### Ordering information

##### ENO 0000 B External notification module

for connecting fire service equipment in compliance with DIN 14675

Order number **ENO 0000 B**

##### Accessories

##### CPA 0000 A Cable set panel control to analog transm

Used to connect an AT 2000 to the MPC and the ENO 0000 B.

Order number **CPA 0000 A**

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## IOP 0008 A Input-output module

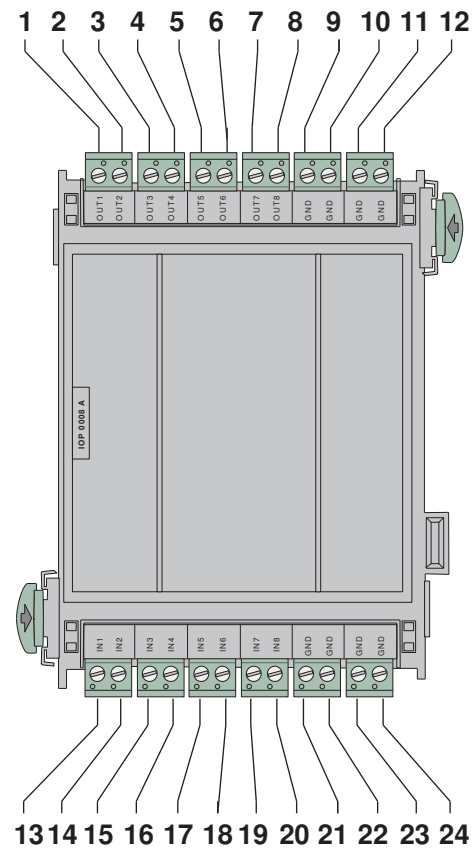


### Features

- ▶ Interface for electrically isolated inputs and outputs
- ▶ 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 or flexible connection of various electrical devices.

### 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

Quantity	Component
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

for individual displays or flexible connection of various electrical devices, providing eight independent digital inputs and eight open collector outputs

Order number **IOP 0008 A**

## RML 0008 A Relay module low-voltage

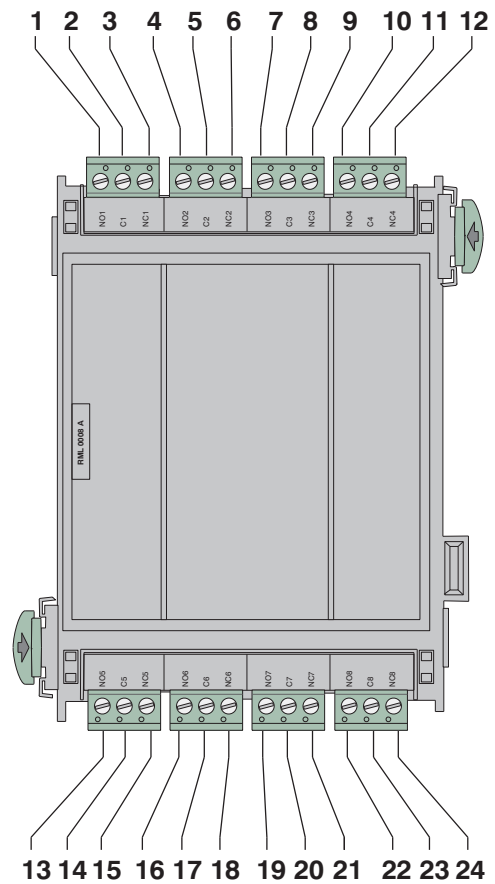


### Features

- ▶ 8 freely programmable relay outputs
- ▶ 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

Quantity	Component
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%
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

### 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	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

#### RML 0008 A Relay module low-voltage

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

Order number **RML 0008 A**

## RMH 0002 A Relay module high-voltage



### Features

- ▶ Contact rating of 5 A
- ▶ Plug-and-play technology and pluggable terminal blocks

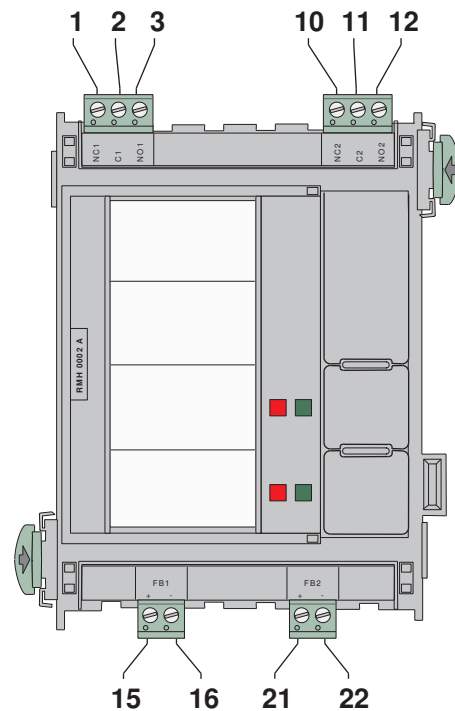
The module has two change-over contact relays (type C) for monitored connection of external elements with feedback, e. g.

- 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

Quantity	Component
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	
<ul style="list-style-type: none"> <li>• Standby</li> </ul>	10 mA (at 24 V DC)
<ul style="list-style-type: none"> <li>• Both relays triggered</li> </ul>	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 $\Omega$
Fuses	F1 = T 6.3 A, F2 = T 6.3 A

### Mechanics

Operating/display elements	4 LEDs (2 x red, 2 x green) 2 keys
Housing material	PPO Noryl
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

#### RMH 0002 A Relay module high-voltage

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

Order number **RMH 0002 A**

## NZM 0002 A Notification appliance zone module



### Features

- ▶ Monitored control of signaling devices by voltage polarity reversal
- ▶ Plug-and-play technology and pluggable terminal blocks

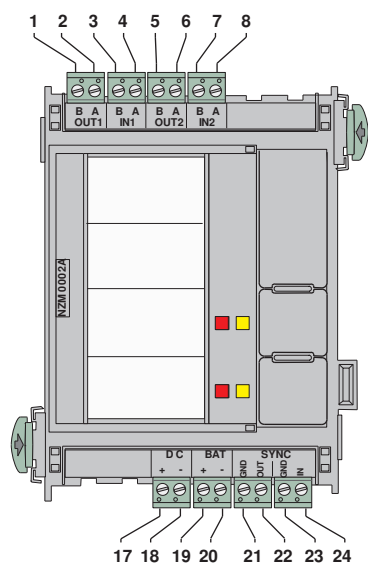
The NZM 0002 A Notification Appliance Zone Module provides two monitored primary lines. This enables the connection of two separate notification appliance zone lines.

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	NAC zone 2
7 / 8	B IN2/A IN2	
17 / 18	DC + / -	External power supply
19 / 20	BAT + / -	not allocated
21 / 22	SYNC GND/OUT	Synchronization output
23 / 24	SYNC GND/IN	Synchronization input

### Installation/configuration notes

- For operating the fire alarm system according to VdS 2540 the signaling device lines must be designed in loop topology.

### Parts included

Quantity	Component
1	NZM 0002 A Notification Appliance Zone Module
2	Labeling strips
2	3.9 kOhm resistors

### Technical specifications

#### Electrical

Input voltage	20 V DC to 30 V DC 5 V DC $\pm$ 5 %
Max. current consumption	<ul style="list-style-type: none"> <li>• Standby (2 zones) 40 mA (at 24 V DC)</li> <li>• Alarm (2 zones) 65 mA (at 24 V DC)</li> </ul>
Min. output voltage	20.2 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)
Max. output current for external power supply	2.8 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) 2 keys (LED test)
Housing material	ABS plastic, Polylac PA-766
Housing color	Satin finish, anthracite, RAL 7016
Dimensions	Approx. 127 x 96 x 60 mm
Weight	Approx. 135 g

**Environmental conditions**

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

Technical specifications:

- Input voltage (VDC): 20 VDC – 30 VDC
- Output voltage (VDC): 20.20 VDC – 29.50 VDC
- Current consumption on rail (mA): 40 mA – 65 mA

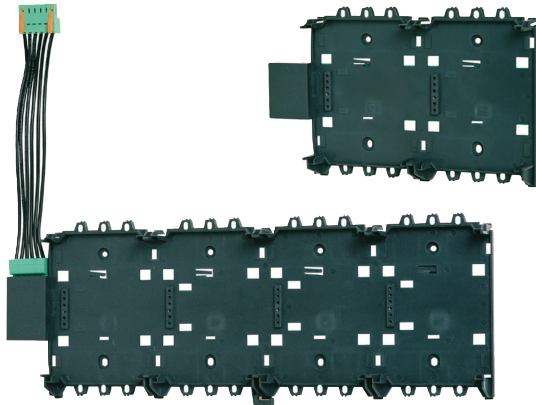
	NZM 0002 A Notification appliance zone module

	NZM 0002 A Notification appliance zone module
Weather rating (IEC 60529)	IP30
Operating temperature (°C)	-5 °C – 50 °C
Storage temperature (°C)	-20 °C – 60 °C
Operating relative humidity, non-condensing (%)	0% – 95%
Material	Plastic
Color in RAL	RAL 7016 Anthracite gray
Dimension (H x W x D) (mm)	127 mm x 96 mm x 60 mm
Weight (g)	135 g

**Ordering information**

**NZM 0002 A Notification appliance zone module**  
for connecting 2 separate notification appliance zone lines, provides 2 monitored primary lines  
Order number **NZM 0002 A**

## Panel Rails



### Features

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

The Panel Rail Short and the 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.

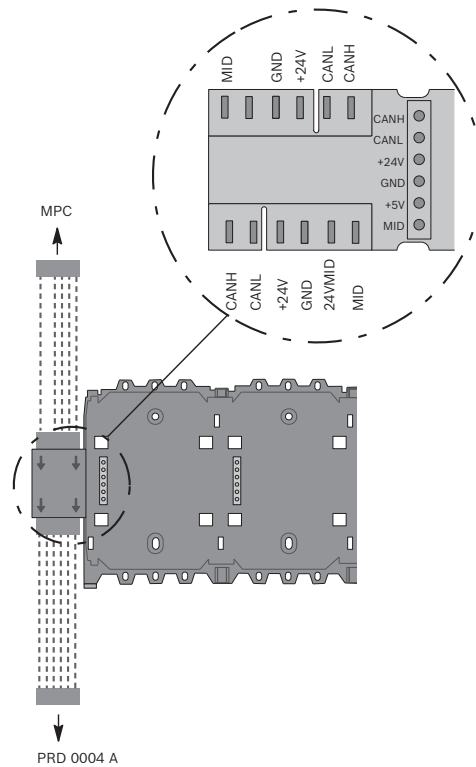
### Functions

The panel rails are supplied with 24 V via the BCM-0000-B Battery Controller Module and have an integrated DC/DC converter generating 5 V operating voltage required by the modules.

#### PRS-0002-C Panel Rail Short

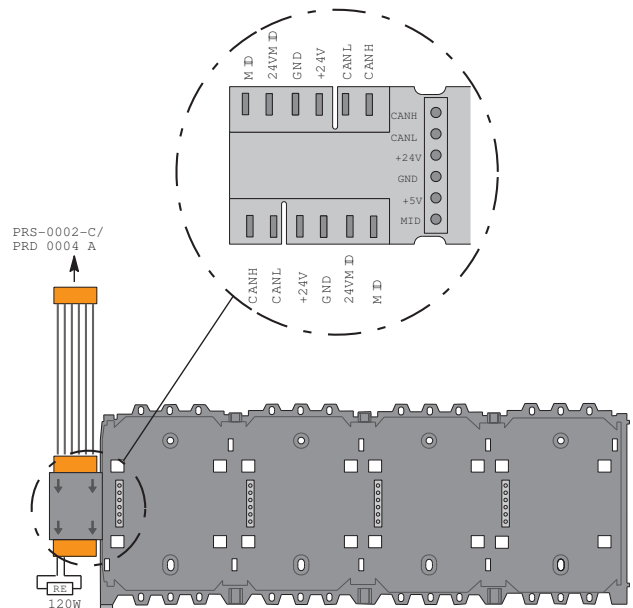
The Panel Rail Short has two module slots. Due to its hidden position behind the Operating and Display Unit with Panel Controller, the Panel Rail Short is intended for mounting of the following modules without operating and display elements:

- BCM-0000-B Battery Controller Module
- IOS 0020 A and IOS 0232 A Communication Modules



#### PRD 0004 A Panel Rail Long

The Panel Rail Long has four module slots.



### Technical specifications

#### Electrical

Input voltage	24 V DC via BCM-0000-B
Output voltage	<ul style="list-style-type: none"> <li>• 24 V DC via BCM-0000-B</li> <li>• 5 V DC via DC/DC converter</li> </ul>

**Mechanics**

Material	ABS plastic, Polylac PA-766 (UL94 V-0)
Color	Satin finish, anthracite, RAL 7016

**Environmental conditions**

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)

**Ordering information**

**PRD 0004 A Panel rail, large**  
for up to 4 modules  
Order number **PRD 0004 A**

**PRS-0002-C Panel rail small**  
Provides slots for up to 2 modules.  
Order number **PRS-0002-C**

# Enclosures

**Housings for Wall Mounting** 55

**Housings for Frame Installation** 57

## Housings for Wall Mounting



### Features

- ▶ Surface-mount, flush-mount or installation in 482.6 mm (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 482.6 mm (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 the panel controller as the central element of the fire alarm 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 additional 12 modules and 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	-	-	-

PSB 0004 A	-	-	-
DIB 0000 A	-	-	-

Installation option and maximum number of:

- 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 482.6 mm (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 482.6 mm (19") racks

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

#### Installation/configuration notes

- All housings have pre-formed cable bushings with the three most common diameters (22 mm, 35 mm, 44 mm).
- The pre-formed openings for the cable route must be created carefully.
- Assembly and operation of the fire panel must be carried out in a clean and dry indoor location.

## 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
• HBC 0010 A and HBE 0012 A	Approx. 840 x 440 x 149 mm
• PSB 0004 A	Approx. 502 x 440 x 149 mm
• PSS 0002 A and DIB 0000 A	Approx. 267 x 440 x 149 mm
Weight	
• HCP 0006 A	Approx. 12.5 kg
• HBC 0010 A and HBE 0012 A	Approx. 17 kg
• PSB 0004 A	Approx. 11.4 kg
• PSS 0002 A and DIB 0000 A	Approx. 6.4 kg

## Ordering information

**HCP 0006 A Housing 6 modules, wall-mount**  
for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks  
Order number **HCP 0006 A**

**HBC 0010 A Housing 10 modules, wall-mount**  
for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks  
Order number **HBC 0010 A**

**HBE 0012 A Extension housing, wall-mount**  
for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks  
Order number **HBE 0012 A**

**PSS 0002 A Power supply housing, small, wall**  
for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks  
Order number **PSS 0002 A**

**PSB 0004 A Power supply housing, large, wall**  
for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks  
Order number **PSB 0004 A**

### Accessories

**FRK 0019 A Install. kit for 19" racks, wall-mount**  
For wall-mount housing  
Order number **FRK 0019 A**

## Housings for Frame Installation



### Features

- ▶ Surface-mount or installation in 482.6 mm (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 482.6 mm (19") racks with special installation kits is also possible.

12 V/45 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/45 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 the large mounting frames FBH 0000 A and FHS 0000 A; this mounting plate can be individually equipped. It contains fixing holes for a distributor rail.

#### **i** Notice

The distributor rail is not included in the scope of delivery.

#### 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 45 Ah
MPH 0010 A	1	-	-
EPH 0012 A	-	-	-
PSF 0002 A	-	1	2 x 45 Ah
PMF 0004 A	-	1	4 x 45 Ah

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 482.6 mm (19") racks

There are special installation kits available for installation in 482.6 mm (19") racks:

Housing type	19" Rack 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 CPH 0006 A, MPH 0010 A and EPH 0012 A can be equipped with transparent front doors made from impact resistant plastic with each door each having a lock on the left or right:

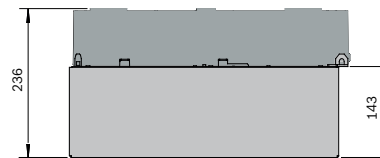
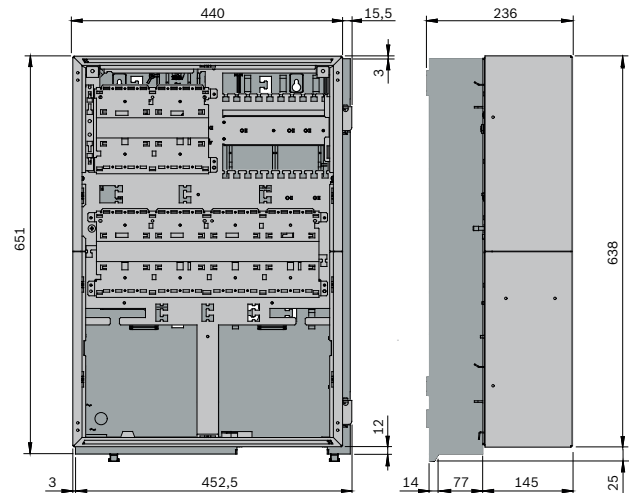
- FDT 0000 A Front Door Transparent, lock right side
- FDT 0003 A Front Door Transparent, lock left side

#### Installation/configuration notes

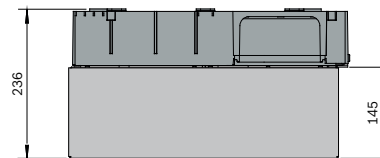
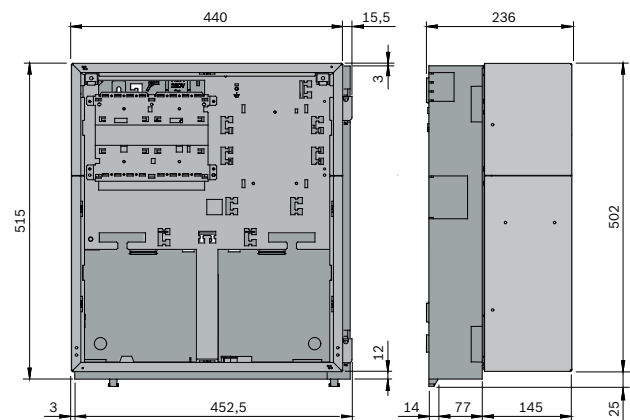
- All mounting frames have an opening for cable bushings; the opening is closed with an insert. Pre-formed cable routes can be created from the insert.
- At least 230 mm free space is required on the right next to the last housing; this space is for swiveling out the attached housing for connection,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

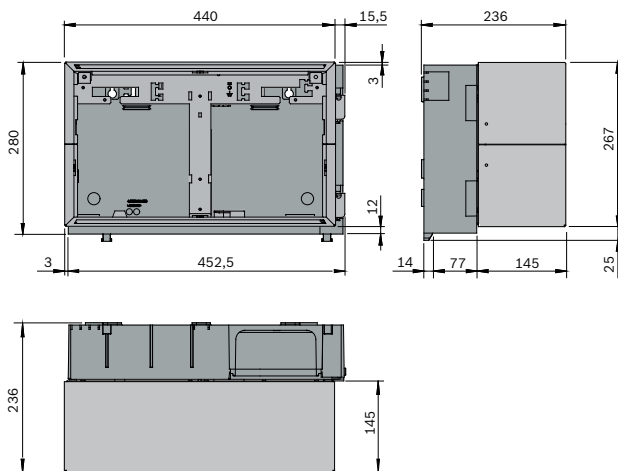
- Assembly and operation of the fire panel must be carried out in a clean and dry indoor location.

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



#### Installation dimensions of PMF 0004 A:



**Installation dimensions of PSF 0002 A and USF 0000 A:**

**Parts included**
**Technical specifications**
**Mechanics**

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015 Front: anthracite gray, RAL 7016
Dimensions	
<ul style="list-style-type: none"> <li>CPH 0006 A, MPH 0010 A and EPH 0012 A</li> </ul>	Approx. 638 x 440 x 145 mm
<ul style="list-style-type: none"> <li>PMF 0004 A</li> </ul>	Approx. 502 x 440 x 145 mm
<ul style="list-style-type: none"> <li>PSF 0002 A and USF 0000 A</li> </ul>	Approx. 267 x 440 x 145 mm
Dimensions, incl. mounting frame	
<ul style="list-style-type: none"> <li>CPH 0006 A, MPH 0010 A and EPH 0012 A</li> </ul>	Approx. 653 x 456 x 236 mm
<ul style="list-style-type: none"> <li>PMF 0004 A</li> </ul>	Approx. 527 x 456 x 236 mm
<ul style="list-style-type: none"> <li>PSF 0002 A and USF 0000 A</li> </ul>	Approx. 292 x 456 x 236 mm
Weight	
<ul style="list-style-type: none"> <li>CPH 0006 A and MPH 0010 A</li> </ul>	Approx. 12.5 kg
<ul style="list-style-type: none"> <li>EPH 0012 A</li> </ul>	Approx. 13.2 kg
<ul style="list-style-type: none"> <li>PMF 0004 A</li> </ul>	Approx. 11.4 kg
<ul style="list-style-type: none"> <li>PSF 0002 A and USF 0000 A</li> </ul>	Approx. 6.4 kg

**Ordering information**

**CPH 0006 A Housing 6 modules, frame-mount**  
for surface-mounting or installation in 482.6 mm (19") racks  
Order number **CPH 0006 A**

**MPH 0010 A Housing 10 modules, frame-mount**  
for surface-mounting or installation in 482.6 mm (19") racks  
Order number **MPH 0010 A**

**EPH 0012 A Extension housing, frame-mount**  
for surface-mounting or installation in 482.6 mm (19") racks  
Order number **EPH 0012 A**

**USF 0000 A Universal housing, frame-mount**  
comes with mounting plate, for surface-mounting or installation in 482.6 mm (19") racks  
Order number **USF 0000 A**

**PSF 0002 A Power supply housing, small, frame**  
for surface-mounting or installation in 482.6 mm (19") racks  
Order number **PSF 0002 A**

**PMF 0004 A Power supply housing, large, frame**  
for surface-mounting or installation in 482.6 mm (19") racks  
Order number **PMF 0004 A**

**Accessories**

**FBH 0000 A Mounting frame, large**  
required for housing CPH 0006 A, MPH 0010 A and EPH 0012 A, with earth bar  
Order number **FBH 0000 A**

**FMH 0000 A Mounting frame, medium**  
required for housing PMF 0004 A  
Order number **FMH 0000 A**

**FSH 0000 A Mounting frame, small**  
required for housing PSF 0002 A and USF 0000 A  
Order number **FSH 0000 A**

**HMP 0003 A Plate for mounting frame**  
usable with FBH 0000 A and FHS 0000 A  
Order number **HMP 0003 A**

**FRB 0019 A Installation kit for 19" racks, large**  
used for Modular Panel Housings, Frame Installation, CPH 0006 A, MPH 0010 A and EPH 0012 A  
Order number **FRB 0019 A**

**FRM 0019 A Installation kit for 19" racks, medium**  
used for the PMF 0004 A Power Supply Medium, Frame Installation  
Order number **FRM 0019 A**

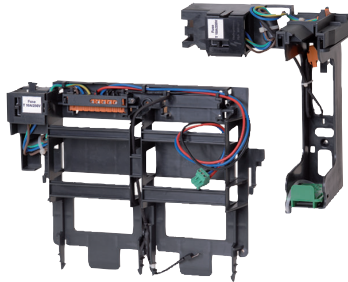
**FRS 0019 A Installation kit for 19" racks, small**  
used for Frame Installation Housings PSF 0002 A and USF 0000 A  
Order number **FRS 0019 A**

**FDP 0001 A Dummy cover**  
For available module slots  
Order number **FDP 0001 A**

# Power supply

<b>Power Supply Brackets</b>	<b>61</b>
<b>UPS 2416 A Power supply unit, 24V</b>	<b>62</b>

## 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

### 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, single slot

for PSS 0002 A and PSB 0004 A

Order number **FPO-5000-PSB1**

#### FPO-5000-PSB-CH Power supply bracket, compact housing

for HCP 0006 A, HBC 0010 A and HBE 0012 A

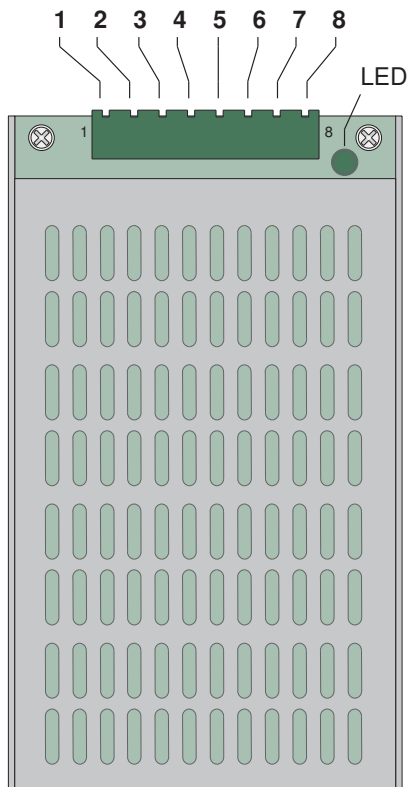
Order number **FPO-5000-PSB-CH**

## UPS 2416 A Power supply unit, 24V



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

Quantity	Component
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 Power supply unit, 24V**

plug-and-play power supply for the entire power supply to the control panel.

Order number **UPS 2416 A**

**Accessories****CPB 0000 A Cable set, power supp to battery control**

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

Order number **CPB 0000 A**

**Services****EWE-UPS2416-IW 12 mths wrty ext UPS2426 Power Supply**

12 months warranty extension

Order number **EWE-UPS2416-IW**

# Networking devices

<b>Ethernet Switch</b>	<b>65</b>
<b>Media Converter</b>	<b>67</b>
<b>FPM-5000-KES Mounting kit for Ethernet switch</b>	<b>69</b>
<b>FPM-5000-KMC Mounting kit for media converter</b>	<b>70</b>

## Ethernet Switch



### Features

- ▶ Power supply/signalling contact 1 and 2: 1x plug-in terminal block 2-pole, 1x plug-in terminal block 2-pole
- ▶ V.24 access: 1x RJ11 socket
- ▶ USB interface: 1x USB to connect the auto configuration adapter ACA21-USB

The 8 Port Fast Ethernet Switch is managed, for DIN rail store-and-forward-switching and has a fanless design.

### Functions

#### Network size – length of cable

Twisted Pair (TP)	0 m – 100 m
Multimode fibre (MM) 50/125 µm	0 - 5000 m, 8 dB Link Budget with 1300 nm, A = 1 dB/km, 3 dB Reserve, B = 800 MHz x km
Multimode fibre (MM) 32.5/125 µm	0 - 4000 m, 8 dB Link Budget with 1300 nm, A = 1 dB/km, 3 dB Reserve, B = 500 MHz x km
Singlemode fibre (SM) 9/125 µm	0 – 32,5 km, 16 dB Link Budget with 1300 nm, A = 0.4 dB/km, 3 dB Reserve, D = 3.5 ps/(nm x km)
Singlemode fibre (LH) 9/125 µm (Long Haul-Transceiver)	-

#### Network size – cascability

Line-/star topology	Any
Ring structure (HIPER-Ring) quantity switches	> 100
Reconfiguration time	< 10ms (10 switches), < 30ms (50 switches), < 40ms (100 switches), < 60ms (200 switches)

### Regulatory information

Security for Industrial Control Equipment	cUL 508
Hazardous areas	cUL 1604 Class1 Div 2
Shipbuilding	Germanischer Lloyd
Rail standard	EN50121-4
Substation	IEC 61850-3, IEEE 1613
Transportation	NEMA TS2

### Technical specifications

#### Electrical

Operating voltage	
• Power supply 1	20 to 30 V DC
• Power supply 2	20 to 30 V DC
Power consumption	14 W

#### Mechanics

Dimensions	120 x 137 x 115 mm
Weight	1.0 kg
Protection category	IP30
Stability	
• IEC 60068-2-27 shock	15 g, 11 ms durations, 18 shocks
• IEC 60068-2-6 vibration	1 mm, 2 Hz - 13.2 Hz, 90 min.; 0.7g, 13.2 Hz - 100 Hz, 90 min.; 3.5 mm, 3 Hz - 9 Hz, 10 cycles, 1 octave/min.; 1g, 9 Hz - 150 Hz, 10 cycles, 1 octave/min

#### Environmental conditions

Permissible operating temperature	-40°C – 85°C
Permissible storage temperature	-40°C – 85°C
Ambient Relative Humidity	10% - 95%

**Software**

Management	Serial Interface, Web-Interface, SNMP V1/V2, Hi-Vision Filetransfer SW http/TFTP
Diagnostic	LEDs, Log-File, Syslog, Relais Contact, RMON, Port Mirroring 1:1 nad n:1, Topology Discovery 802.1AB
Configuration	Comand Line Interface (CLI), TELNET, BootP, DHCP, DHCP option 82, HIDiscovery
Security	Port Security (IP und MAC) with several addresses, SNMP V3, SSH, Authentication (IEEE802.1x), Radius Authentication for SNMPv3 (Web)
Redundancy functions	HIPER-Ring, Fast HIPER-Ring, MRP, MSTP, RSTP - IEEE802.1D-2004, MRP and RSTP simultaneously, Link Aggregation, multiple Rings
Filter	QoS 4 Classes, Portpriority (IEEE 802.1D/p), VLAN (IEEE 802.1Q), shared VLAN learning, Multicast (IGMP Snooping/Querier), Multicast Detection unknown Multicast, Broadcastlimiter, Fast Aging, Multicast GMRP IEEE 802.1D
Industrial profiles	EtherNet/IP und PROFINET (2.2 PDEV, GSDML Stand-alone Generator, automatic device exchange) Profile inclusive, configuration and diag-

nostic via automation software, e.g. STEP7, or Control Logix

Time synchronization

SNTP Server, Realtime Clock with energy storage

Flow control

Flow Control 802.3x, Port Priority 802.1D/p, Priority (TOS/DIFFSERV), Prio (MAC/IP), Prio Mapping (TOS Layer2), Traffic Shaping (Unicast, Multicast, Broadcast) Ingress / Egress

**EMC interference immunity**

EN 61000-4-2 electrostatic discharge	8 kV contact discharge, 15 kV air discharge
EN 61000-4-3 electrostatic field	35 V/m (80-2700 MHz); 1 kHz, 80% AM
EN 61000-4-4 fast transients (burst)	4 kV power line, 4 kV data line
EN 61000-4-5 surge voltages	power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line IEEE1613: power line 5 kV (line/earth)
EN 61000-4-6 conducted immunity	3 V (10 kHz-150 kHz), 10 V (150 kHz-80 MHz)
EN 61000-4-16 low-frequency transients	30 V, 50 Hz consistently; 300 V, 50 Hz 1 s

**EMC emitted immunity**

FCC CFR47 Part 15	FCC 47 CFR Part 15 Class A
EN 55022	EN 55022 Class A

**Ordering information**

**BPA-ESWEX-RSR20 ESW 2040 ethernet switch - EX**  
8 port fast ethernet switch managed, for DIN rail store-and-forward-switching, with fanless design.  
Order number **BPA-ESWEX-RSR20**

## Media Converter



### Features

- ▶ DIP switch configuration for Link-Fault-Pass-Through, link down alarm, speed, duplex mode
- ▶ 768K bits buffer memory
- ▶ Full wire-speed forwarding rate
- ▶ Alarms for power and port link failure by relay output
- ▶ Redundant power inputs with Terminal Block and DC Jack

The Ethernet Fibre Optics Converter is used for electric utility automation and accept 10/100 Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX. The Converter complies with the standard of IEC61850-3, IEEE1613 and EN50121-4.

### Functions

#### Network size – length of cable

Multimode fibre (MM) 50/125 µm	0 - 2000 m, 15 dB Link Budget with 1300 nm, A = 1 dB/km, 13 dB Reserve, B = 800 MHz x km
Multimode fibre (MM) 62.5/125 µm	0 - 2000 m, 15 dB Link Budget with 1300 nm, A = 1 dB/km, 13 dB Reserve, B = 500 MHz x km
Singlemode fibre (SM) 9/125 µm	0 – 40 km, 30 dB Link Budget with 1300 nm, A = 0.4 dB/km, 14 dB Reserve, D = 3.5 ps/(nm x km)

### Regulatory information

#### Safety

- UL508

#### EMI

- FCC Part 15, Class A
  - EN61000-6-4
  - EN55022
  - EN61000-3-2
  - EN61000-3-3

#### EMS

- IEC61850-3 & IEEE1613: Substation & Power automation Applications
- EN50121-4: Railway Applications
- EN61000-6-2
  - EN61000-4-2 (ESD Standards)  
Contact: + / - 8KV; Criteria B  
Air: + / - 15KV; Criteria B
  - EN61000-4-3 (Radiated RFI Standards)  
35V/m, 80 to 1000MHz; 80% AM Criteria A
  - EN61000-4-4 (Burst Standards)  
Signal Ports: + / - 4KV; Criteria A  
D.C. Power Ports: + / - 4KV; Criteria A
  - EN61000-4-5 (Surge Standards)  
Signal Ports: + / - 2KV; Line-to-Line; Criteria A  
D.C. Power Ports: + / - 2KV; Line-to-earth; Criteria A
  - EN61000-4-6 (Induced RFI Standards)  
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A  
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
  - EN61000-4-8 (Magnetic Field Standards)  
1000A/m @ 50, 60Hz; Criteria A

#### Environmental Test Compliance

- IEC60068-2-6 Fc (Vibration Resistance)  
5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
- IEC60068-2-27 Ea (Shock)  
25g @ 11ms (Half-Sine Shock Pulse; Operation)  
50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)
- IEC60068-2-32 Ed (Free Fall)  
1M (3.281ft.)

Region	Regulatory compliance/quality marks	
Europe	CE	el1141_ce

### Technical specifications

#### Electrical

Operating voltage	20 to 30 V DC (terminal block)
Power consumption	2.4W MAX. 0.2A@12VDC, 0.05A @ 48VDC
Overload current protection	Present
Reverse polarity protection	Present

#### Mechanics

Material	Aluminium case, IP30
Dimensions	50 x 110 x 135 mm (1.97 x 4.33 x 5.31 inches)
Weight	0.8Kg (1.76lbs.)
Installation	DIN rail (top hat type 35mm), panel, rack mounting

**Environmental conditions**

Permissible operating temperature	-40°C to 75°C (-40°F to 167°F)
Permissible storage temperature	-40°C to 85°C (-40°F to 185°F)
Ambient relative humidity	5% to 95% (non-condensing)

**Interface**

Ethernet port	10/100BASE-TX: 1 port 100BASE-FX: 1 port
LED indicators	
<ul style="list-style-type: none"> <li>Per unit</li> </ul>	Power status (Power 1, Power 2, Fault), link-fault-pass-through
<ul style="list-style-type: none"> <li>Per port</li> </ul>	10/100TX: Link Activity, full-duplex/collision, speed 100FX: Link/Activity, full-duplex/collision
Relay contact	Relay contact rating with current 1A@30VDC, 0.5A@120VAC
Fibre connector type	SC

**Technology**

Standards	<ul style="list-style-type: none"> <li>IEEE802.3 10BASE-T</li> <li>IEEE802.3u 100BASE-FX, IEEE802.3x</li> </ul>
Forward and filtering rate	<ul style="list-style-type: none"> <li>14,80pps for 10Mbps</li> <li>148,810pps for 100Mbps</li> </ul>
<ul style="list-style-type: none"> <li>Packet buffer memory</li> </ul>	768K bits
<ul style="list-style-type: none"> <li>Processing type</li> </ul>	<ul style="list-style-type: none"> <li>Store-and-forward</li> <li>Half-duplex back-pressure and IEEE802.3x full-duplex flow control</li> </ul>

**Ordering information****EL1141-10B-BH Media converter, multi-mode**

Ethernet Fibre Optics Converter for electric utility automation and acceptance of 10/100 Mbps-Full/Half-duplex, Auto-Negotiation and Auto-MDI/MDIX. Transmission via multimode fibre (MM).

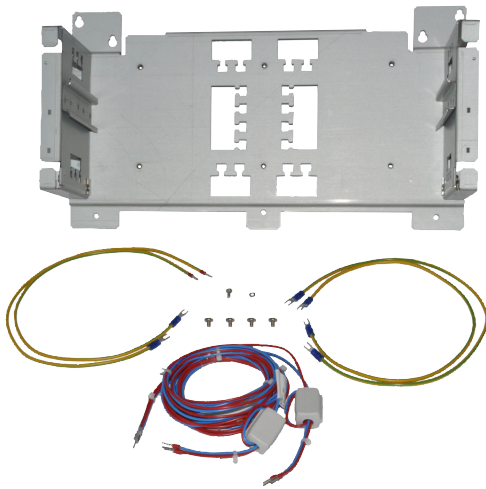
Order number **EL1141-10B-BH**

**EL1141-B0B-BH Media converter, single-mode**

Ethernet Fibre Optics Converter for electric utility automation and acceptance of 10/100 Mbps-Full/Half-duplex, Auto-Negotiation and Auto-MDI/MDIX. Transmission via singlemode fibre (SM).

Order number **EL1141-B0B-BH**

## FPM-5000-KES Mounting kit for Ethernet switch



The mounting kit is installed in the USF 0000 A or PSS 0002 A housings and accommodates up to 2 Ethernet switches or media converters.

### Parts included

Quantity	Component
1	Bracket for Ethernet Switch [Media Converter]
1	Cable set for connection: Media Converter/ Switch to BCM
2	Cable set for ground connection of Media Converter
2	Cable set for ground connection of Switch
1	Screw set: M4 x 5 (4x), M3 x 6 (1x)

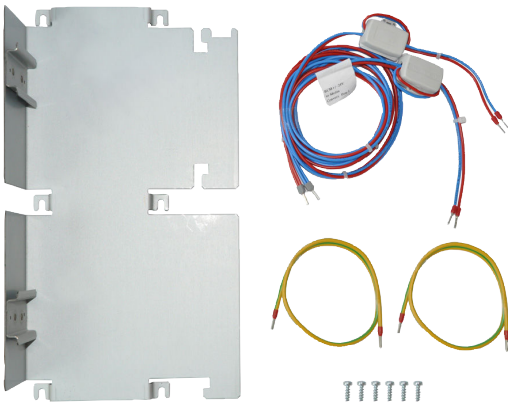
### Technical specifications

### Ordering information

**FPM-5000-KES Mounting kit for Ethernet switch** mounting kit to install the Ethernet switch or media converter in the USF 0000 A or PSS 0002 A housings. Order number **FPM-5000-KES**

1

## FPM-5000-KMC Mounting kit for media converter



The mounting kit is installed in the FHS 0000 A or FBH 0000 A mounting frame and accommodates up to 2 media converters.

### Parts included

Quantity	Component
1	Bracket for Media Converter
1	Cable set for connection of media converter to BCM

Quantity	Component
2	Cable set for ground connection of media converter
1	Screw set: KB40 x 12 (6x)

### Technical specifications

### Ordering information

**FPM-5000-KMC Mounting kit for media converter** mounting kit to install up to two media converters in the FHS 0000 A or FBH 0000 A mounting frame.  
Order number **FPM-5000-KMC**

### Accessories

#### **EL1141-10B-BH Media converter, multi-mode**

Ethernet Fibre Optics Converter for electric utility automation and acceptance of 10/100 Mbps-Full/Half-duplex, Auto-Negotiation and Auto-MDI/MDIX. Transmission via multimode fibre (MM).

Order number **EL1141-10B-BH**

#### **EL1141-B0B-BH Media converter, single-mode**

Ethernet Fibre Optics Converter for electric utility automation and acceptance of 10/100 Mbps-Full/Half-duplex, Auto-Negotiation and Auto-MDI/MDIX. Transmission via singlemode fibre (SM).

Order number **EL1141-B0B-BH**

# Software and service

<b>Remote Services</b>	<b>72</b>
<b>Fire Monitoring System</b>	<b>74</b>
<b>FSD-SSD-APP Safety Systems Designer</b>	<b>77</b>

## Remote Services



### Features

- ▶ Plug and play Ethernet connection to fire panels
- ▶ Highly secure connectivity to Remote Services
- ▶ Trial license for all Remote Services
- ▶ Pre-configured for enabling Remote Services

Remote Services offer a secure remote internet connection to fire panels for system integrators. For the Remote Services the pre-configured Secure Network Gateway is required.

### System overview

Remote Services offer following services for system integrators:

#### Remote Connect

Remote Connect provides a trusted and secure internet connection, which enables remote access to a panel via FSP-5000-RPS. Remote Connect is the basis for all Remote Services.

#### Remote Alert

With Remote Alert, the panel pushes relevant status information to the Remote Portal. Transferred data are analyzed with Remote Alert. In case of an unexpected event, the user will be informed via SMS and/or e-mail about the received alerts.

#### Remote Interact

Remote Interact enables the use of the mobile application Remote Fire Safety for smartphones. The user receives instant push notifications to smartphones in case of alarms or systems warnings.

#### Remote Maintenance

Remote Maintenance offers the possibility to remotely monitor certain parameters of various security items connected to a fire panel. It collects data of relevant LSN devices and functional modules and sends them to the Remote Portal where they are analyzed and visualized for maintenance activities.

While Remote Connect supports connection to a panel network via Ethernet or CAN, Remote Alert and Remote Maintenance functionality is only supported when Ethernet networking between panels is provided and configured for service usage.

### Functions

This device is pre-configured for use only with Remote Services and its functionality is therefore limited to ensure the highly secure connectivity of Bosch Remote Services.

#### Hardware Specifications Base System

- Energy efficient and fan-free MIPS processor architecture.
- 128 MB RAM
- Gigabit-WAN-Port (10/100/1000 Mbit/s)
- 1 Power LED
- 9 LEDs for extended status information

In case of a complete reset of the device using the reset button on the front cover, Remote Services functionality is permanently deleted. The Secure Network Gateway cannot be used or configured for Remote Services together with the fire panel anymore. However, previously limited functionality of the hardware becomes available for use without Remote Services of the fire panel. For a detailed description of the functionality please see: <https://www.tdt.de>

### Parts included

#### Technical specifications

##### Electrical

	FPA-REMOTE-GATEWAY Secure Network Gateway
Input voltage (VDC)	9 VDC – 30 VDC
Nominal capacity (V)	12 V
Power consumption (W)	5 W
Rated input current (A)	1 A

##### Environmental

	FPA-REMOTE-GATEWAY Secure Network Gateway
Operating temperature (°C)	-5 °C – 55 °C
Operating relative humidity, non-condensing (%)	0% – 85%

##### Mechanical

	FPA-REMOTE-GATEWAY Secure Network Gateway
Dimension (H x W x D) (mm)	33 mm x 185 mm x 155 mm
Material	Metal
Weight (g)	860 g

#### Connection of the Remote Services bundle

Connection	Secure Network Gateway required
------------	---------------------------------

**Ordering information****FPA-REMOTE-GATEWAY Secure Network Gateway**

Pre-configured Secure Network Gateway for highly secure plug and play Ethernet connection to the fire panel with included trial license for Remote Services: Remote Connect, Remote Alert, Remote Interact and Remote Maintenance.

Order number **FPA-REMOTE-GATEWAY**

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**CBS-BNDLE1-FIR Fire panel remote services bundle**

One-year license for highly secure remote access and services for the fire panel via Ethernet.

Order number **CBS-BNDLE1-FIR**

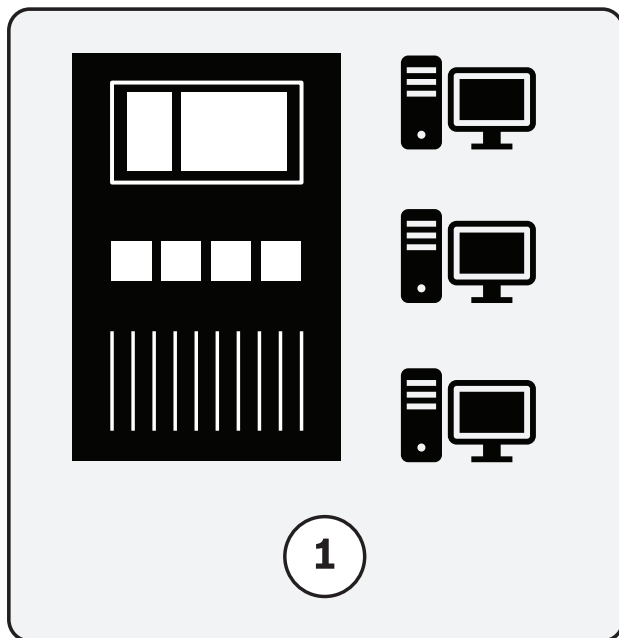
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## Fire Monitoring System



### Features

- ▶ Monitoring of single or networked panels



An exclusive Ethernet network in order to set up a central fire alarm network (1) is required. For security and reliability reasons, no networks used for any other purpose (2) may be part of this special network environment. The Fire Monitoring System has to be part of this exclusive fire alarm Ethernet network without direct access to the Internet (3).

If an internet connection is established to receive the Fire Monitoring System license, this internet connection must be removed before the fire alarm network is put into operation. Only recommended accessories may be used.

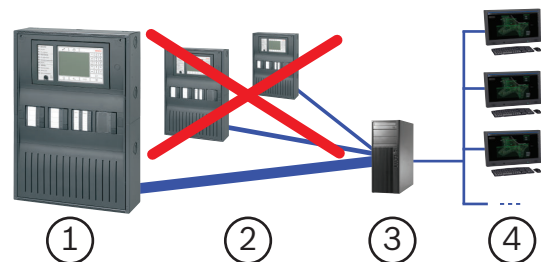
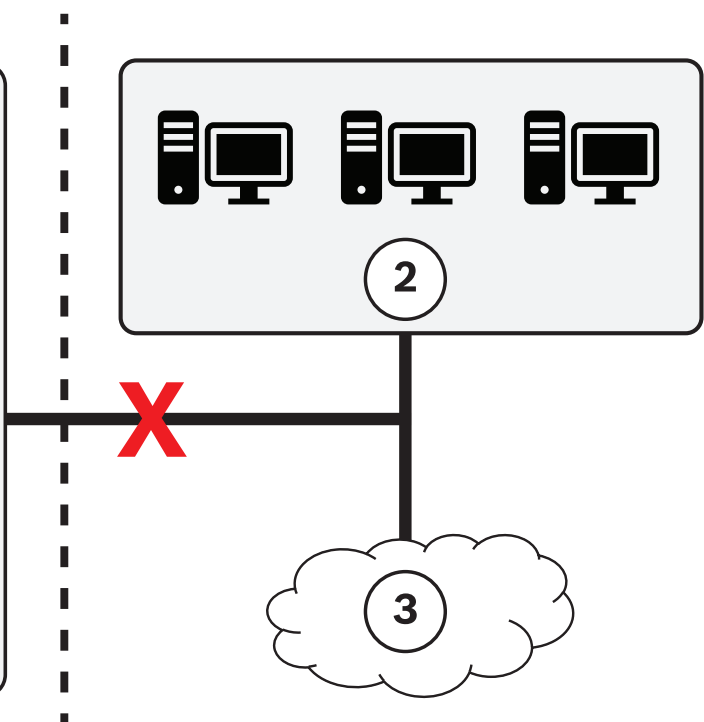
**Single panel connection**  
TX Ethernet cable (copper)

- ▶ Management of up to 10000 detection points
- ▶ Simultaneous connection of up to 10 clients
- ▶ Extensive logging of events and operations
- ▶ User friendly installation and configuration

The Fire Monitoring System is a graphical user interface for displaying and monitoring small to medium fire alarm systems with up to 10000 detection points. It is compatible with AVENAR panel 8000, AVENAR panel 2000, FPA-5000 and FPA-1200.

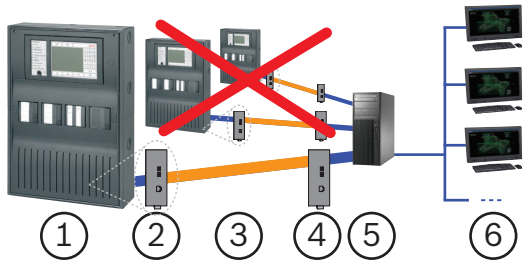
### System overview

A fire panel can be connected to the Fire Monitoring System via an Ethernet connection.



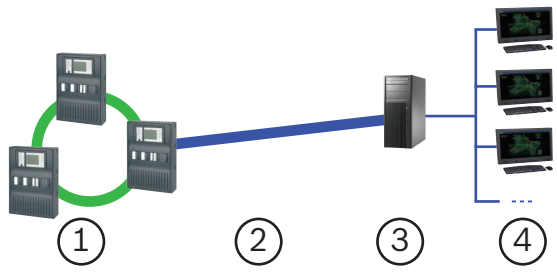
- |   |                                      |
|---|--------------------------------------|
| 1 | Fire Alarm Panel                     |
| 2 | Peer-to-Peer connection (100 m max.) |
| 3 | Fire Monitoring System: server       |
| 4 | Fire Monitoring System: clients      |

**Single panel connection**  
FX Ethernet cable (fiber optic)



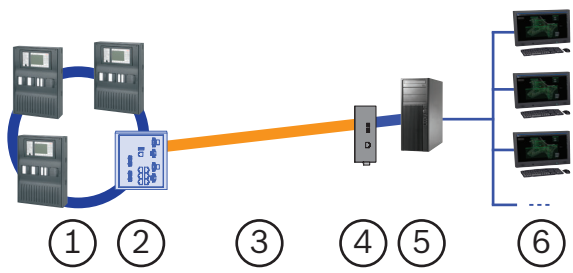
1	Fire Alarm Panel
2	Media converter
3	Singlemode (SM)/Multimode (MM) Fiber (40 km/2 km max.)
4	Media converter
5	Fire Monitoring System: server
6	Fire Monitoring System: clients

**Panel network connection**  
TX Ethernet cable (copper)



1	CAN Network
2	Peer-to-Peer connection (100 m max.)
3	Fire Monitoring System: server
4	Fire Monitoring System: clients

**Panel network connection**  
FX Ethernet cable (fiber optic)



1	Ethernet network
2	Ethernet switch
3	Singlemode (SM)/Multimode (MM) Fiber (40 km/2 km max.)
4	Media Converter
5	Fire Monitoring System: server
6	Fire Monitoring System: clients

**Functions**

**User friendly installation and operation**

A wizard guides through the installation as well as the configuration in a few steps. Automatic transfer of the panel configuration to the software allows comfortable object management (e.g. predefined sensors). To add an object, the operator simply clicks on the desired position on the map. System devices can be allocated to objects through a drop down menu.

**Importing floor plans**

The Fire Monitoring System supports an easy import of various file formats, including dwg and dxf.

**Extended map management**

In each map, specific areas can be defined to create sub-maps. In case of event there is an automatic zoom into the relevant sub-map. The operator can manually zoom into maps or sub-map and a pan function allows to move the map in any direction.

**Object management on the map**

A single sensor or a group of devices can be selected and be moved into another map by a simple Drag & Drop operation. Copy and paste of objects in different maps is supported as well.

A summary of all objects errors is shown in a dashboard and detailed information is provided in a separate list. Also a view on the last 10 events/alarms of an object can be displayed quickly.

**User rights management**

The authorizations are based on customizable groups. The rights to access to e.g. different sources, maps, alarm zones and devices are managed at group level. Each user can be part of one or more groups. A list of allowed commands and mandatory actions (e.g. notes) can be configured for each user.

**Event logging**

In the event log all procedures and actions are recorded. You can search according to various criteria, cluster and generate statistics, make backups or print the event log. The reports can be exported to Excel.

**Connectivity**

A standalone fire alarm panel or a panel network can be connected to the Fire Monitoring System.

**Language versions**

The Fire Monitoring System is available in following languages: Chinese, Danish, Dutch, English, French, German, Italian, Polish, Portuguese, Romanian, Russian, Spanish, Turkish.

The user interface language can be individually defined by the user.

**Installation/configuration notes**

**Hardware preconditions**

- Processor: Core i5
- RAM: Minimum 8 GB
- Free Disk Space: Minimum 1 GB
- Gigabit Network card
- Monitor resolution: Minimum 1366x768 pixel
- The hardware must be dedicated specifically to the use of the software.

**Software preconditions**

Server (operating system)

- Microsoft Windows 10 Professional (64 bit)
- Microsoft Windows 10 Enterprise (64 bit)
- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2019

#### Server (database server)

- Microsoft SQL Server 2014 Express (included)
- Microsoft SQL Server 2014 Standard
- Microsoft SQL Server 2016 Standard
- Microsoft SQL Server 2017 Standard

#### Client (operating system)

- Microsoft Windows 10 Professional (64 bit)
- Microsoft Windows 10 Enterprise (64 bit)

#### Graphic card preconditions

- GPU Intel 530/Nvidia Quadro P400
- Direct3D 9 compatible
- Graphic card driver installed (latest available version)
- Directx Runtime installed

### Technical specifications

The Fire Monitoring System is a graphical user interface for displaying and monitoring small to medium fire alarm systems.

### Ordering information

#### FSM-2500 Fire monitoring system

Monitoring Software to manage up to 2500 detection points.

Order number **FSM-2500**

#### FSM-5000 Fire monitoring system

Monitoring Software to manage up to 5000 detection points.

Order number **FSM-5000**

#### FSM-10K Fire monitoring system

Monitoring Software to manage up to 10000 detection points.

Order number **FSM-10K**

#### FSM-2500-EP Fire monitoring system, evolution pack

Yearly maintenance agreement for upgrades of FSM-2500.

Order number **FSM-2500-EP**

#### FSM-5000-EP Fire monitoring system, evolution pack

Yearly maintenance agreement for upgrades of FSM-5000.

Order number **FSM-5000-EP**

#### Accessories

#### BPA-ESWEX-RSR20 ESW 2040 ethernet switch - EX

8 port fast ethernet switch managed, for DIN rail store-and-forward-switching, with fanless design.

Order number **BPA-ESWEX-RSR20**

#### EL1141-10B-BH Media converter, multi-mode

Ethernet Fibre Optics Converter for electric utility automation and acceptance of 10/100 Mbps-Full/Half-duplex, Auto-Negotiation and Auto-MDI/MDIX. Transmission via multimode fibre (MM).

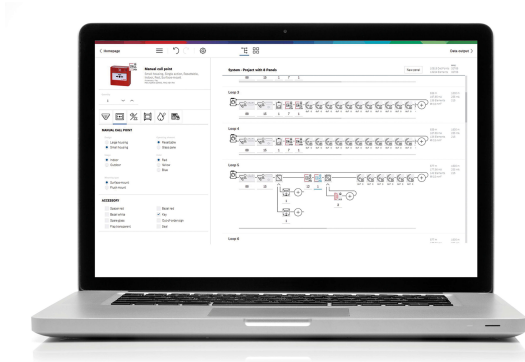
Order number **EL1141-10B-BH**

#### EL1141-B0B-BH Media converter, single-mode

Ethernet Fibre Optics Converter for electric utility automation and acceptance of 10/100 Mbps-Full/Half-duplex, Auto-Negotiation and Auto-MDI/MDIX. Transmission via singlemode fibre (SM).

Order number **EL1141-B0B-BH**

## FSD-SSD-APP Safety Systems Designer



### Features

- ▶ Easy-to-use tool thanks to generic terminology as well as intuitive and fast navigation
- ▶ Reliable planning thanks to constant plausibility check of the system limits
- ▶ Optimized monitored planning thanks to transparent feedback and close to reality visualization of the system
- ▶ Available in 17 languages (user interface and data outputs)
- ▶ Free of charge

The Safety Systems Designer is a comprehensive planning solution for rapid configuration of EN 54 fire alarm systems.

It supports the planning activities of architects, planners, specifiers, distributors and system integrators at different stages of a fire alarm project.

### Functions

#### Quick start

Based on the provided Excel import template, the total quantities of addressable peripherals in a system can be rapidly imported to Safety Systems Designer. The quick start import feature allows to automatically and evenly distribute these peripherals to the minimum number of required loops and panels.

#### Faster planning

A large set of predefined export templates is provided so that the planning documentation can be generated with one click. The following data outputs are available to be exported to Excel:

- Bill of material outputs in different formats and with different grouping (by category, by panel, by module, combined)
- Panels parameters and battery calculation outputs including a.o. for each panel the defined standby and alarm time, total standby and alarm current, set buffer and the resulting total required backup capacity

- Detailed loops parameters output with a.o. an overview for each loop of the cable specification, total standby and alarm current, recommended and potential loop length, voltage drop
  - Auxiliary power sources output listing all 4-wire devices and their selected auxiliary power supply source
- For planners and specifiers a manufacturer neutral tender text output of the entire configured fire alarm system can be exported as Word document. Furthermore drawing outputs of the entire fire alarm system and its networking configuration are provided.

#### Optimized monitored planning

Each configuration is immediately reflected at the user interface which ensures a transparent feedback on the current state of the planning and anytime a close to reality visualization of the full fire alarm system.

For a structured overview, each panel, loop and panel module can be given a user-defined and appropriate name.

Details of the selected product are displayed in a preview of the product selection area, including a direct link to the related datasheet.

#### Reliable planning

The key indicators are visualized, showing the maximum capacity versus the current state which is instantly updated with each configuration step:

- at system level the total number of detection points and loop elements
- at panel level the total number of detection points, loop elements and panel modules
- at loop level the total current consumption, quantity of loop elements, loop length and used loop cable diameter.

Rising above any of the system limits is reported to the user with a direct link to the source of error.

Moreover, based on the specified number of peripherals and further system elements, the housing components and required number of batteries are automatically calculated.

#### Networking planning

All needed components to network the system nodes and panel interfaces are automatically added based on the project settings:

- selected technology, e.g. CAN bus (copper), ethernet cable (copper) or ethernet cable (fiber optic, single or multi mode)
- distance between the panels, remote keypads and panel interfaces
- number of used ethernet ports

Each conflict with any of the system or technology limits is reported to the user with a direct link to the source of error.

#### User friendly installation and operation

A simple Setup Assistant guides through the installation in a few steps with no activation of the local admin rights required.

Thanks to generic terminology as well as intuitive and fast navigation the tool can be used immediately.

### Parts included

Quantity	Component
1	Safety Systems Designer

1

## Technical specifications

### Hardware Preconditions

- Processor: Dual-core 2.5 GHz
- RAM: 3 GB.
- Network card 100 Mbps
- Monitor resolution: 1920x1080 pixel (Minimum 1366x768 pixel)

### Software Preconditions

- Windows 10 Pro and Enterprise (64 Bit, version 21H1)

- .NET Framework from version 4.7.2
- Other Preconditions
- Internet Connection

## Ordering information

### **FSD-SSD-APP Safety Systems Designer**

Order number **FSD-SSD-APP**

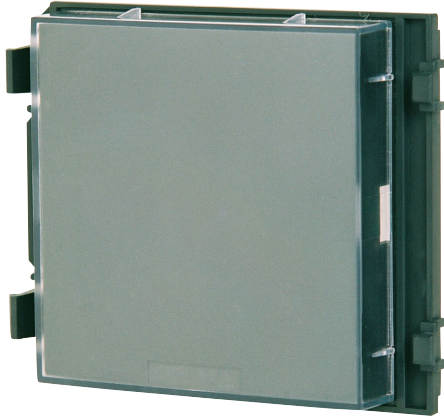
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# Accessories

<b>FDP 0001 A Dummy cover</b>	<b>80</b>
<b>FPE-8000-CRK Cable redundant keypad</b>	<b>81</b>
<b>FPE-8000-CRP Cable set redundant panel controller</b>	<b>82</b>
<b>CBB 0000 A Cable set, battery control to battery</b>	<b>83</b>
<b>CPA 0000 A Cable set panel control to analog transm</b>	<b>84</b>
<b>CPB 0000 A Cable set, power supp to battery control</b>	<b>85</b>

## FDP 0001 A Dummy cover

1



### Features

- ▶ Easy to plug

- ▶ Closing the gaps effectuates uniform and appealing appearance

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

Quantity	Component
1	FDP 0001 A Dummy Cover Plate

### Technical specifications

For covering available module slots (127 x 96 mm)

### Ordering information

#### FDP 0001 A Dummy cover

For available module slots  
Order number **FDP 0001 A**

## FPE-8000-CRK Cable redundant keypad



### Features

- ▶ Direct connection to panel rail long (PRD 0004 A)
- ▶ Protection against incorrect installation

Cable FPE-8000-CRK is used to redundantly connect a remote keypad to a AVENAR panel 8000 in accordance with EN 54-2 for systems with more than 512 elements.

### Parts included

Quantity	Component
1	Cable for panel controller / remote keypad redundant connection

### Technical specifications

#### Mechanical

Color	blue
Length (cm)	280

#### Environmental

Operating temperature (°C)	-5 to +50
Storage temperature (°C)	-20 to +60

### Ordering information

#### FPE-8000-CRK Cable redundant keypad

Used to redundantly connect one remote keypad to a panel controller.

Order number **FPE-8000-CRK**

1

## FPE-8000-CRP Cable set redundant panel controller



### Features

- ▶ Direct connection to panel rail long (PRD 0004 A)
- ▶ Protection against incorrect installation

Cable set FPE-8000-CRP is used to redundantly connect a panel controller to an AVENAR panel 8000 in accordance with EN 54-2 for systems with more than 512 elements. The redundant panel controller does not need a second small rail (PRS-0002-C) anymore.

### Parts included

Quantity	Component
1	CAN bus connection cable
1	Cable for panel controller / panel controller redundant connection

### Technical specifications

#### Mechanical

Color CAN bus cable	black
Color redundant cable	purple
Length CAN bus cable (cm)	320
Length redundant cable (cm)	280

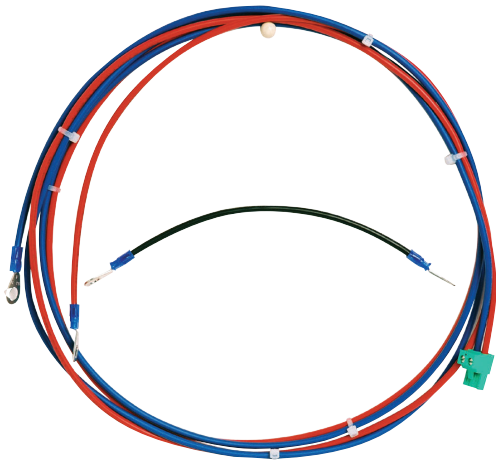
#### Environmental

Operating temperature (°C)	-5 to +50
Storage temperature (°C)	-20 to +60

### Ordering information

**FPE-8000-CRP Cable set redundant panel controller**  
Used to redundantly connect one panel controller to another panel controller.  
Order number **FPE-8000-CRP**

## CBB 0000 A Cable set, battery control to battery



Cable Set CBB 0000 A is required if the power supply is placed in a separate Power Supply Housing. The connection cable from the BCM-0000-B Battery Controller Module to the batteries is 180 cm long.

### Parts included

- 1 Cable (180 cm) BCM -> battery pair
- 1 Cable (17 cm) battery 1 -> battery 2

### Technical specifications

### Ordering information

**CBB 0000 A Cable set, battery control to battery**  
Used to connect a battery pair and a Power Supply Housing to the BCM-0000-B Battery Controller Module  
Order number **CBB 0000 A**

1

## CPA 0000 A Cable set panel control to analog transm



### Features

- ▶ To connect an AT 2000 to the MPC and ENO 000 B
- ▶ Enables Teleservice

The CPB 0000 A Cable Set is required for connecting an AT 2000 Transmission Unit to the MPC Panel Controller and the ENO 0000 B Fire Service Interface Module.

### Parts included

Quantity	Component
1	Cable to connect the AT 2000 Transmission Unit to the MPC Panel Controller
1	Cable to connect the AT 2000 Transmission Unit (with the AT 2000 fire extension) to the ENO 0000 B Fire Service Interface Module

### Technical specifications

Cable to connect the AT 2000 Transmission Unit to the MPC Panel Controller	250 cm
Cable to connect the AT 2000 Transmission Unit (with the AT 2000 fire extension) to the ENO 0000 B Fire Service Interface Module	250 / 270 cm

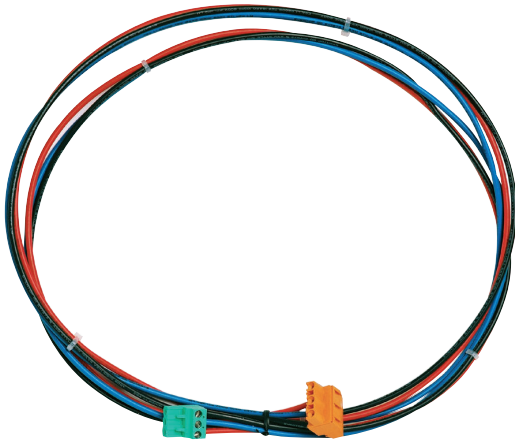
### Ordering information

#### CPA 0000 A Cable set panel control to analog transm

Used to connect an AT 2000 to the MPC and the ENO 0000 B.

Order number **CPA 0000 A**

## CPB 0000 A Cable set, power supp to battery control



The CPB 0000 A Cable is required for connecting the BCM-0000-B Battery Controller Module to the UPS Power Supply.

### Parts included

Quantity	Component
1	Cable for connecting the BCM-0000-B Battery Controller Module to a UPS Power Supply (cable length 150 cm)

### Ordering information

#### CPB 0000 A Cable set, power supp to battery control

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

1

# Legacy system

<b>Panel Controller</b>	<b>87</b>
<b>Remote Keypad</b>	<b>89</b>
<b>FPA-1200-C Fire Panel</b>	<b>92</b>

## Panel Controller



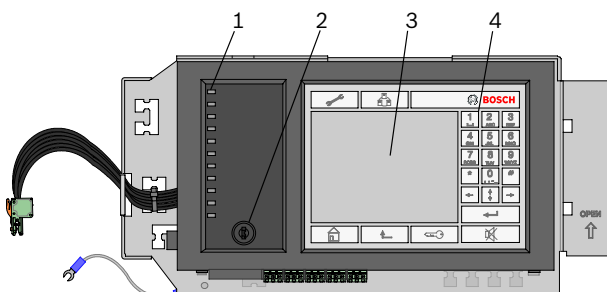
### Features

- ▶ Interconnection of up to 32 panel controllers, remote keypads and OPC servers
- ▶ Ethernet interfaces for networking and OPC connection
- ▶ Multi-color TFT touch-screen of 14.5 cm (5.7") with 22 fixed keys for standard input
- ▶ High ease of use 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.

### System overview



Pos.	Description
1	Status LEDs
2	Key switch

- 3 LCD touch display
- 4 Membrane keys

### Functions

#### Networking

Up to 32 Panel Controllers, Remote Keypads and OPC server can be interconnected within a network. Depending on the application requirements, Panel Controllers and Remote Keypads can be grouped, defined as network node or local node. Within a group, only panel conditions of the same group can be displayed. Regardless of the groups, network nodes allow for the display and handling of all panel conditions. Local nodes display the conditions of the related panel.

When networking via CAN and/or Ethernet interfaces, the following connection topologies are optional:

- Redundant loop via CAN1 and CAN2 (max. 32 nodes)
- Ethernet loop (max. 32 nodes)
- Multiple CAN loops with Ethernet backbone and up to 32 nodes

For networking with optical fibers, you can use various converters. For detailed information on suitable converter types and maximum line lengths, refer to the FPA-5000 Networking Guide (available for download).

#### Alarm indication

The indication element is a high-resolution TFT touch-screen (320 x 240 px) with automatically activated backlight. 12 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 and the processing of all messages are easy and intuitive thanks to the ergonomically-designed control panel with its TFT touch-screen offering a menu-driven handling and multi-color display. 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

The 2 port Ethernet interface allows for the IP panel networking or the implementation of the BIS software to the local network. There is also a USB interface which allows, in addition to the Ethernet interface, to load the desired configuration.

#### 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.

## Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FPA-5000
	CPR	0786-CPR-20818 FPA 5000
Germany	VdS-S	S205106 BS FPA
	VdS	G 205106 FPA-5000_G205106

## 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.

## Technical specifications

### Electrical

Operating voltage	20 V DC to 30 V DC
Max. current consumption	
• Standby operation	136 mA @ 24 V DC
• In the event of an alarm	226 mA @ 24 V DC
Max. cable length	
• CAN networking	1000 m depending on configuration, topology and cable type
• Ethernet/IP networking with fibre	24 to 40 km

### Mechanics

Display element	14.5 cm (5.7") multi-color TFT display with 320 x 240 pixels
Operating element	Touch screen

Permanent operating elements	22 keys, 1 key switch, 1 reboot button
Permanent display elements	12 LEDs
Interfaces	CAN1, CAN2, ETH1, ETH2, USB, RS232
Signal inputs	IN1/IN2
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-C Panel controller, German

Central control element of the system with multi-color LCD touch-screen. German version.

Order number **MPC-0000-C**

### EWE-FPA5MPC-IW 12 mths wrty ext FPA-5000 Main Panel Con

12 months warranty extension

Order number **EWE-FPA5MPC-IW**

### MPC-5000-C Panel controller, Dutch/French

Central control element of the system with multi-color LCD touch-screen. French/Dutch version.

Order number **MPC-5000-C**

### EWE-FPA5MPC-IW 12 mths wrty ext FPA-5000 Main Panel Con

12 months warranty extension

Order number **EWE-FPA5MPC-IW**

## Remote Keypad



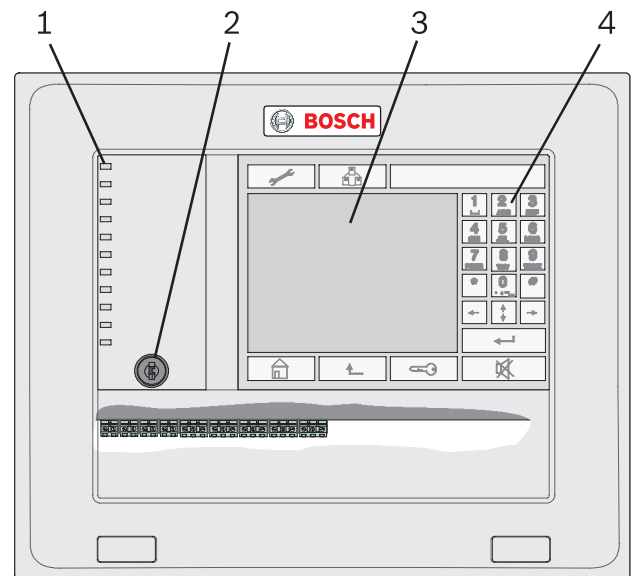
### Features

- ▶ Convenient remote operation of fire panel identical to Panel Controller
- ▶ Multi-color display
- ▶ 12 LEDs displaying the operating status of the system
- ▶ Surface and flush mounting

The 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, Remote Keypads and OPC server can be interconnected.

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

Up to 32 Panel Controllers, Remote Keypads and OPC server can be interconnected within a network. Depending on the application requirements, Panel Controllers and Remote Keypads can be grouped, defined as network node or local node. Within a group, only panel conditions of the same group can be displayed. Regardless of the groups, network nodes allow for the display and handling of all panel conditions. Local nodes display the conditions of the related panel.

When networking via CAN and/or Ethernet interfaces, the following connection topologies are optional:

- Redundant loop via CAN1 and CAN2 (max. 32 nodes)
- Ethernet loop (max. 32 nodes)
- Multiple CAN loops with Ethernet backbone and up to 32 nodes

For networking with optical fibers, you can use various converters. For detailed information on suitable converter types and maximum line lengths, refer to the FPA-5000 Networking Guide (available for download).

#### Alarm indication

The indication element is a high-resolution TFT touch-screen (320 x 240 px) with automatically activated backlight. 12 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 and the processing of all messages are easy and intuitive thanks to the ergonomically-designed control panel with its TFT touch-screen offering a menu-driven handling and multi-color display. 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

The 2 port Ethernet interface allows for the IP panel networking or the implementation of the BIS software to the local network. There is also a USB interface which allows, in addition to the Ethernet interface, to load the desired configuration.

### 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Germany	VdS	G 208161 FMR-5000
Poland	CNBOP	063-UWB-0121 FMR-5000-C-03
	CNBOP	3391/2018 FMR-5000-C-03

### Technical specifications

#### Electrical

Operating voltage	12 V DC to 30 V DC
Max. current consumption	
• Standby	141 mA @ 24 V DC
• Alarm	231 mA @ 24 V DC
Max. resistance	18 Ω
Max. cable length	
• CAN networking	1000 m depending on configuration, topology and cable type
• Ethernet/IP networking with fibre	24 to 40 km

### Mechanical

Display element	14.5 cm (5.7") multi-color TFT display with 320 x 240 pixels
Operating elements	Touch screen with 127.5 mm x 170 mm active surface
Fixed operating elements	22 keys, 1 key switch, 1 Reboot button
Fixed display elements	12 LEDs
Interfaces	CAN1, CAN2, ETH1, ETH2, USB, RS232
Signal inputs	IN1/IN2
Dimensions (H x W x T)	280 mm x 340 mm x 87 mm
LCD display (H x W)	86 mm x 116 mm
Housing material and color	ABS plastic, light gray (similar RAL 7035)
Weight	ca. 3 kg

### Environmental conditions

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

### Ordering information

#### FMR-5000-C-00 Remote keypad, German

Remote operation of the panel mimicking the panel controller. German version.

Order number **FMR-5000-C-00**

#### EWE-FPA5FMR-IW 12 mths wrty ext FPA-5000 Remote Keypad

12 months warranty extension

Order number **EWE-FPA5FMR-IW**

#### FMR-5000-C-03 Remote keypad, Polish

Remote operation of the panel mimicking the panel controller. Polish version.

Order number **FMR-5000-C-03**

#### EWE-FPA5FMR-IW 12 mths wrty ext FPA-5000 Remote Keypad

12 months warranty extension

Order number **EWE-FPA5FMR-IW**

#### FMR-5000-C-05 Remote keypad, Dutch/French

Remote operation of the panel mimicking the panel controller. French/Dutch version.

Order number **FMR-5000-C-05**

#### EWE-FPA5FMR-IW 12 mths wrty ext FPA-5000 Remote Keypad

12 months warranty extension

Order number **EWE-FPA5FMR-IW**

**FMR-5000-C-08 Remote keypad, Russian**

Remote operation of the panel mimicking the panel controller. Russian version.

Order number **FMR-5000-C-08**

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**EWE-FPA5FMR-IW 12 mths wrty ext FPA-5000 Remote Keypad**

12 months warranty extension

Order number **EWE-FPA5FMR-IW**

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## FPA-1200-C 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 (via CAN or Ethernet)
- ▶ Auto-detection of modules and Plug-in of modules during operation
- ▶ Serial interface to Bosch Voice Evacuation System (EVAC)

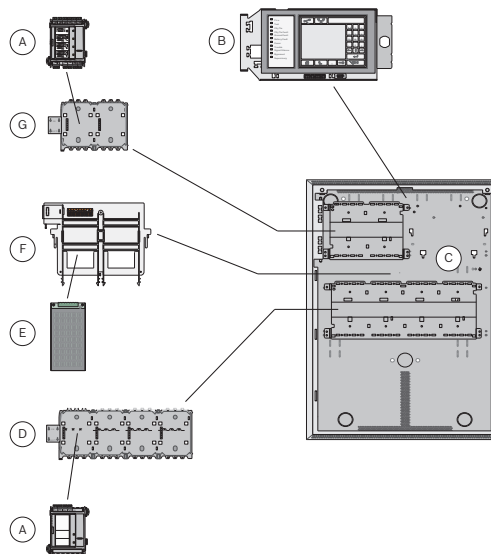
Using the well-known LSN bus technology, the FPA-1200 Fire Panel offers efficient protection for small and medium-sized objects and is the ideal solution for 1- and 2-loop applications. It comes as standard with housing, controller, functional modules, power supply and additional accessories according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

Apart from connecting up to 3 Remote Keypads, the Ethernet interface allows for the connection to a Building Management System (BIS Bosch Building Integration System) via an OPC server. Additionally, an ADC-5000-OPC License Key is required to access the OPC server. Another serial interface provides the option to use the FPA-1200 with the Bosch Voice Evacuation System (EVAC). For detailed information about the connection, refer to the data sheets on IOS 0020 and IOS 0232 Communication Modules.

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



#### Po s. 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 14,5 cm (5.7") multi-color touch display. 12 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 TFT 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"> <li>module that controls batteries and power supply</li> </ul>
LSN 0300 A	LSN Module 300 mA <ul style="list-style-type: none"> <li>for the connection of an LSN loop with up to 127 elements, maximum line current 300 mA</li> </ul>
RML 0008 A (Poland only)	Relay Module <ul style="list-style-type: none"> <li>with 8 relays for low voltage applications</li> </ul>

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FPA-1200
	CPR	0786-CPR-20819 FPA 1200 1142/DT/2011 FPA 1200
Germany	VdS	G 209154 FPA-1200
Switzerland	VKF	AEAI 19197 FPA-1200_FPA-5000 Brandmeldesystem
Austria	PFB	007/BM-PSys/019 FPA-1200/5000 Brandmeldesystem
	PFB	007/BM-PSys/020 FPA-1200/5000 Brandfallsteuerzentrale
Belgium	BOSEC	TCC2-894 FPA 1200_FPA 5000
Poland	CNBOP	3354/2018 FPA-1200
Hungary	TMT	TMT-46/2009 FPA-1200
Ukraine	MOE	UA1.016.0070208-11 FPA-1200
	MOE	UA1.016.0137807-13 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

### Technical specifications

#### Electrical

Operating voltage	20 V DC to 30 V DC
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### Mechanics

Display element	14.5 cm (5.7") multi-color TFT display
Operating element	Touch screen
Interfaces	<ul style="list-style-type: none"> <li>Ethernet</li> <li>USB</li> <li>RS232</li> </ul>
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-C-BE Fire panel, Belgium

monitors small and medium-sized objects while offering all benefits of the well-known LSN bus technology. Based on our proven panel concept, it is state-of-the-art in 1- and 2-loop applications. Lettering and user documentation in Dutch and French  
Order number **FPA-1200-C-BE**

#### EWE-FPA1200-IW 12 mths wrty ext FPA-1200

12 months warranty extension  
Order number **EWE-FPA1200-IW**

#### FPA-1200-C-DE Fire panel, Germany

monitors small and medium-sized objects while offering all benefits of the well-known LSN bus technology. Based on our proven panel concept, it is state-of-the-art in 1- and 2-loop applications. Lettering and user documentation in German  
Order number **FPA-1200-C-DE**

#### EWE-FPA1200-IW 12 mths wrty ext FPA-1200

12 months warranty extension  
Order number **EWE-FPA1200-IW**

1

## Section Info AVENAR panel

Addressable system solution suitable for all sizes and types of applications. The modular set-up allows you to configure a system according to your specific needs.



# Conventional Fire Panel

2

<b>FPC-500</b>	<b>96</b>
<b>Accessories</b>	<b>101</b>

# FPC-500

FPC-500 Conventional Fire Panel

97

# FPC-500 Conventional Fire Panel



## Features

- ▶ High-value modern optics – suitable for public access areas
- ▶ Plain text LCD
- ▶ Available for 2, 4 or 8 detector zones for up to 64, 128 or 256 detectors
- ▶ Optional use of EOL module (EN 54-13 requirement)
- ▶ Strong 3 A power supply

The FPC-500-x Conventional Fire Panel is the ideal solution for small and medium-sized objects. Thanks to the proven conventional line technology a cost-saving fire alarm system can be set up.

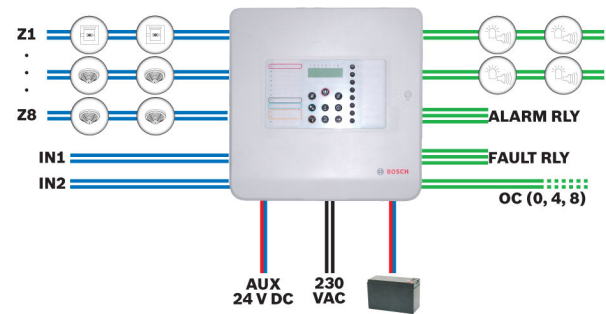
Three types are available:

- FPC-500-2: 2 zones for up to 64 detectors
- FPC-500-4: 4 zones for up to 128 detectors
- FPC-500-8: 8 zones for up to 256 detectors

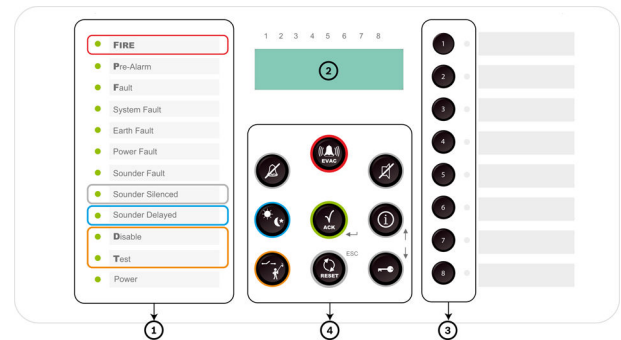
With the integrated LCD display, the panel can be programmed and operated.

The optional extensions such as relay modules, open collector modules and key switches allow further tailoring to user needs.

## System overview



- Z1...Z8 Up to 8 zones
- IN1, IN2 Up to 2 inputs (FPC-500-2 and FPC-500 4 one input)
- Two NAC outputs (500 mA each)
- ALARM RLY, FAULT RLY Alarm and fault relay
- AUX AUX power supply (500 mA)
- Emergency power supply, up to 2 x 7.2 Ah



- 1 LEDs
- 2 LCD display with zone numbers
- 3 Zone keys and zone status LEDs
- 4 Operating panel

## Functions

The fire panels of FPC-500 series have the following features available:

- Alarm verification
- Dual-detector dependency
- Dual-zone dependency
- Intermediate alarm storage
- Programmable delays
- Switching between day and night mode (AV)
- Event and test history
- Alarm counter

### Operating levels

The fire panels have three different operating levels. No access code is required for level 1. Access to level 2 and 3 requires four-digit codes (level 2 also accessible with optional key switch). The access codes for level 2 and 3 can be changed.

Different test functions are available. On level 1 LED, buzzer and LCD tests can be run. On level 2 and 3 additional tests for zones, outputs and NACs can be run.

### Programming

You can program the panel easily via the keypad and LCD display. The zones can be configured independently allowing for a perfect tailoring to individual customer needs. The default programming helps getting acquainted quickly with the system and must be modified slightly to fit many applications.

### Regulatory information

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

- Alarm counter
- Test condition
- Output to fire alarm devices
- Delays to outputs
- Dependencies on more than one alarm signal
  - Type A dependency
  - Type B dependency

Region	Regulatory compliance/quality marks	
Europe	CE	FPC-500
	CPD	0786-CPD-21105 FPC-500
Germany	VdS	G 211100 FPC-500
Belgium	BOSEC	FPC-500 EN54-13
Hungary	TMT	TMT-15/2012 FPC-500
Croatia	ELTEH	145-SF/12 FPC 500

### Installation/configuration notes

- The fire panel must be mounted indoors in a dry, maintained place, note environmental conditions (see Technical Data).
- Mount the fire panel to the wall with the LCD at eye level.
- For optimum battery life, the fire panel should only be operated at permissible operating temperatures (0°C to +40°C).
- Country-specific standards and guidelines must be observed when planning.
- Note the requirements of your local authorities and institutions (police, fire service).
- For an operation of the fire detection system according to EN 54-13, it is required to terminate every zone with an EOL module.

### Maintenance

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

### Specifications according to EN 54-4 chapter 7.1

a) It is a power supply equipment, used in the fire alarm system FPC-500. It supplies the fire alarm system and the connected peripherals, and charges the two connectable batteries.

b) Technical specifications

1) Recommended load	61 W
2) Input voltage	230 VAC +10%/-15%, 50-60 Hz
Operating voltage	26 VDC – 29 VDC
3) Communication parameter	none
4) Fuse ratings	3.15A / 250 V
5) Batteries	2 x 7.0 – 7.2 Ah (max.) Lead-Acid Battery
6) Current consumption, max	2.3 A
7) Battery, max. internal resistance	800 mOhm
$I_{\min}$	70 mA
$I_{\max, a}$	0.7 A
$I_{\max, b}$	2.3 A
9) Line parameter	
Battery	Cable comes standard
PCB power supply	factory-made wiring
230 V power supply	1.5 mm <sup>2</sup> standard cable (max.)

c) The power supply equipment is a pre-assembled part of the FPC-500 Conventional Fire Panel. No additional installation information is required.

1) For environmental conditions see technical specifications beneath.

2) The power supply equipment is a pre-assembled part of the FPC-500 Conventional Fire Panel. No additional mounting instructions are required.

3) Refer to installation guide FPC-500 for connecting instructions.

d) The power supply equipment is a pre-assembled part of the FPC-500 Conventional Fire Panel. No additional commissioning instructions are required.

e) The power supply equipment is a pre-assembled part of the FPC-500 Conventional Fire Panel. No additional operating instructions are required.

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

Change the batteries regularly. Country-specific standards and guidelines must be considered.

### Parts included

Qty.	Components
1	Fire panel FPC-500-2/FPC-500-4/FPC-500-8

- 1 Labeling strips for zones
- 1 Labeling strips for LEDs
- 1 Quick Installation Guide
- 1 Quick Operation Guide
- 1 CD with Installation and User Guide, battery calculator and software flashing tool
- 1 EOL resistors for zones and inputs
- 1 Battery cable set
- 1 Cable ties for strain relief on power supply feeder
- 2 Rubber pads to fix batteries

**Technical specifications**

	FPC-500-2	FPC-500-4	FPC-500-8
Detector zones	2	4	8
Max. number of detectors in accordance with EN 54-2	64	128	256
Max. number of detectors per zone in accordance with EN 54-2	32		
Max. extension modules	0	1	2
Prog. inputs	1		2
AUX output	1		
NAC output	2		
Relays	2		
Alarm counter	999 alarms		
Event history	1000 events		
Test history	1000 test events		

**Electrical**

	FPC-500-2	FPC-500-4	FPC-500-8
Input voltage	230 VAC +10%/-15%, 50-60 Hz		
Max. current consumption AC	275 mA	312 mA	375 mA
Power consumption	80 W		
Operating voltage	21.4 VDC to 29 VDC		
$I_{min}$	70 mA		

$I_{max, a}$	0.7 A
$I_{max, b}$	2.3 A
Zones	
• voltage	20 VDC ±1VDC
• current	max. 100 mA ±5 mA
• max. cable resistance	22.5 Ω
AUX	
• voltage	21 VDC to 29 VDC
• current	500 mA ±10%
• max. cable resistance	22.5 Ω
• fuse	0.75 A @ 60 V
NAC	
• voltage	21 VDC to 29 VDC
• current	500 mA ±10% each
• fuse	0.75 A @ 60 V
• max. cable resistance	22.5 Ω
Relay outputs	
• contact rating	1 A @ 30 VDC
• max. cable resistance	22.5 Ω
OC outputs	No inductive load.
• contact rating	20 mA @ 24 VDC
• max. cable resistance	22.5 Ω
recommended cable type	Unshielded cable, 0.8 mm cable diameter to 1.5 mm <sup>2</sup> cable cross section
Batteries	2 x 7.2 Ah (max.)
• max. internal resistance	800 mΩ
• current consumption	2.3 A
• fuse	5 A @ 60 V
Discharge voltage threshold	21.4 V

**Communication parameters**

NAC	
Normal	
• A-	10 – 15 V

• B+	0 – 0,5 V
Alarm	
• A-	0 – 1 V
• B+	21 – 29 V

**Inputs**

• Alarm resistor	820 Ω ±5%
• End of line resistor	3.9 kΩ ±1%

**Zone (with resistors)**

• Alarm resistor	820 Ω ±5% 910 Ω ±5% No dual-detector dependency: 680 Ω ±5%
• End of line resistor	3.9 kΩ ±1%

**Zone (with EOL-Module)**

• Alarm resistor	820 Ω ±5% 910 Ω ±5% No dual-detector dependency: 680 Ω ±5%
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**Mechanics**

	FPC-500-2	FPC-500-4	FPC-500-8
Dimensions ( H x W x D)	351 x 351 x 90 mm		
Weight	2200 g, without batteries		
Housing material			
• Front	ABS+PC		
• Back	ABS-FR		
Housing color			
• Front	RAL 9003 (signal white)		
• Back	PANTONE 10 C (cool grey)		

**Environmental conditions**

	FPC-500-2	FPC-500-4	FPC-500-8
Protection class as per IEC 60529	IP 30		
Protection class as per EN 60950	II		

EMC emission	EN 61000-6-3
EMC immunity	EN 50130-4
Vibrations	EN 60068-2-6
Permissible operating temperature	0°C to +40°C
Permissible storage temperature	-10°C to +55°C
Permitted relative humidity	95% non-condensing

**Ordering information****FPC-500-2 Conventional fire panel, 2-zone**

Conventional Fire Panel, using proven conventional line technology, for monitoring of small and medium-sized objects.

Order number **FPC-500-2**

**EWE-FPC500-IW 12 mths wrty ext Conventional Fire panel**

12 months warranty extension

Order number **EWE-FPC500-IW**

**FPC-500-4 Conventional fire panel, 4-zone**

Conventional Fire Panel, using proven conventional line technology, for monitoring of small and medium-sized objects.

Order number **FPC-500-4**

**EWE-FPC500-IW 12 mths wrty ext Conventional Fire panel**

12 months warranty extension

Order number **EWE-FPC500-IW**

**FPC-500-8 Conventional fire panel, 8-zone**

Conventional Fire Panel, using proven conventional line technology, for monitoring of small and medium-sized objects.

Order number **FPC-500-8**

**EWE-FPC500-IW 12 mths wrty ext Conventional Fire panel**

12 months warranty extension

Order number **EWE-FPC500-IW**

**Accessories****FPC-500-OCEXT Open collector extension module**

Order number **FPC-500-OCEXT**

**FPC-500-KEY Access key**

Order number **FPC-500-KEY**

**FPC-500-RLYEXT Relay extension module**

Order number **FPC-500-RLYEXT**

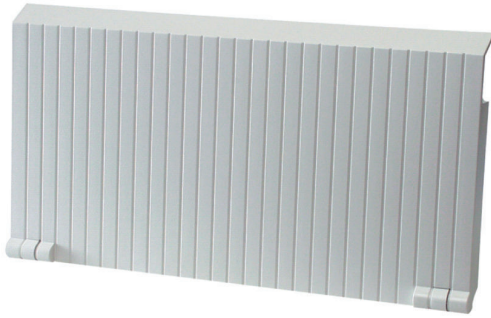
# Accessories

**Fire Department Action Card Box** 102

**ATE 100 LSN Parallel Display** 103

## Fire Department Action Card Box

2



Box (without lock), DIN A4 horizontal, for max. 35 action cards  
If necessary, observe DIN 14675!

### Ordering information

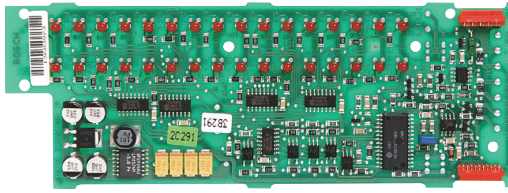
#### **Fire Department Action Card Box**

DIN A4 horizontal (without lock), for max. 35 action cards

Order number

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## ATE 100 LSN Parallel Display



Parallel Display of 32 detector zones

### Ordering information

#### **ATE 100 LSN Parallel Display**

Parallel Display of 32 detector zones

Order number **ICP-ATE100-LSN**



<b>Point-type Detectors</b>	<b>106</b>
<b>Linear Beam Detectors</b>	<b>133</b>
<b>Aspiration Smoke Detectors</b>	<b>147</b>
<b>Linear Heat Detectors</b>	<b>168</b>
<b>Duct Smoke Detectors</b>	<b>173</b>
<b>Flame Detectors</b>	<b>176</b>
<b>Remote Indicators</b>	<b>181</b>
<b>Detector Accessories</b>	<b>185</b>

# Point-type Detectors

<b>AVENAR detector 4000</b>	<b>107</b>
<b>FAP-520 Automatic Fire Detectors LSN improved version</b>	<b>112</b>
<b>FCP-500 Conventional Automatic Fire Detectors</b>	<b>117</b>
<b>FCP-320/FCH-320 Conventional Automatic Fire Detectors</b>	<b>121</b>
<b>OOH740-A9-EX Dual-optical detector, explosive area</b>	<b>125</b>
<b>Wireless Fire Detection System</b>	<b>129</b>

## AVENAR detector 4000



### Features

- ▶ Highly reliable and accurate thanks to Intelligent Signal Processing (ISP)
- ▶ Earliest detection of lightest smoke with dual-optical versions (Dual-Ray technology)
- ▶ Monitors environment for electromagnetic influence for fast root-cause analysis
- ▶ Automatic and manual address setting

AVENAR detector 4000 is a new range of automatic fire detectors featuring a superb accuracy and swiftness in detection. The versions with two optical sensors (dual-optical) are able to detect the lightest smoke. The range includes versions with rotaries, manually and automatically addressable, and versions without rotaries for automatic address setting.

### Functions

#### Sensor technology and signal processing

The individual sensors can be configured in the FSP-5000-RPS programming software.

All sensor signals are analysed continuously by the internal evaluation electronics (ISP - Intelligent Signal Processing) 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 the characteristics of the application site, selected during the programming, the alarm is triggered automatically. This results in less false alarms.

In addition, the time of the sensor signals on fire and fault detection is analysed, which leads to high detection reliability 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 possible 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.

The dual-optical versions use two optical sensors with different wavelengths. The Dual-Ray technology works with an infrared and a blue LED so that lightest smoke is detected fast and reliably (TF1 and TF9 detection).

#### 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.

Since the service life of the gas sensor is limited, the C sensor shuts down automatically after a maximum of 6 years of operation. The detector will then still operate as a multi-sensor detector with dual-optical and thermal sensor. It is recommended to exchange the detector immediately in order to keep the higher detection reliability of the version with C sensor.

#### Improved LSN features

AVENAR detector 4000 offers all the features of the improved LSN technology:

- Flexible network structures, including T-tapping without additional elements (no T-tapping feasible for versions without rotaries)
- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing, with or without auto-detection
- Power supply for connected elements via LSN bus
- Unshielded fire detection cable can be used
- Cable length up to 3000 m (with LSN 1500 A)
- Backwards compatibility to existing LSN systems and central units
- Monitoring of environmental electromagnetic impact for fast root-cause analysis (EMC values are displayed on the panel)

In addition, the range offers all the established benefits of LSN technology. The panel programming software can be used to change the detection characteristics of the respective room utilization. Each configured detector can provide the following data:

- Serial number
- Contamination level of the optical section
- Operating hours
- Current analog values
  - Optical system values: current measured value of the scattered light sensor; the measuring range is linear and shows different degrees of pollution, from slight to heavy.
  - Contamination: the contamination value shows how much the current contamination value has increased relative to the original condition.
  - CO value: display of the currently measured value.

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 (instead of triggering a false alarm)

In the event of wire interruption or short-circuit, integrated isolators maintain the functional security of the LSN loop.

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

**Further characteristics**

- A red flashing LED visible 360° indicates the alarm.
- Connection to a remote indicator is possible.
- The strain relief for cables in false ceilings prevents the cables from being unplugged accidentally from the terminals after installation. The terminals for cable cross-sections up to 2.5 mm<sup>2</sup> are very easily accessible.
- The detectors have a dust-repellent labyrinth and cap construction. The chamber maid plug (an opening with closing plug) on the bottom is used to clean the optical chamber with compressed air (not required for the heat detector).
- The detector bases no longer have to be directed due to the centralized position of the individual display. They also have a mechanical removal lock (can be activated and deactivated).

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FAP/FAH/FAD-425
	CPR	0786-CPR-21402 FAH-425-T-R
	CPR	0786-CPR-21403 FAP-425-DO-R
	CPR	0786-CPR-21405 FAP-425-DOTC-R
	CPR	0786-CPR-21404 FAP-425-DOT-R
	CPR	0786-CPR-21398 FAP-425-O
	CPR	0786-CPR-21399 FAP-425-O-R
	CPR	0786-CPR-21400 FAP-425-OT
	CPR	0786-CPR-21401 FAP-425-OT-R
Germany	CE	FAP-425
	VdS	G214100 FAP-425-O
	VdS	G214099 FAP-425-O-R

Region	Regulatory compliance/quality marks	
	VdS	G214098 FAP-425-OT
	VdS	G214097 FAP-425-OT-R
	VdS	G214101 FAH-425-T-R
	VdS	G214104 FAP-425-DO-R
	VdS	G214103 FAP-425-DOT-R
	VdS	G214102 FAP-425-DOTC-R
	VdS	G119016 FAP-425-DOTC-R
	VdS	G119017 FAP-425-O-R
	VdS	G119018 FAP-425-OT-R
	VdS	G119019 FAH-425-T-R

**Installation/configuration notes**

- Connectable to Bosch fire panels with the improved LSN system parameters.
- You can use the DO detectors only with the Panel Controller MPC version B and higher. The Panel Controller MPC version A cannot be connected.
- In LSN classic mode connectable 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.
- The detector can be painted (cap and base) and thereby adapted to the surrounding colour scheme. Note the information in the Painting Instructions.
- Detectors of the 420 series can be replaced by all versions of the AVENAR detector 4000 without re-configuring the panel.

**Installation/configuration notes in accordance with VdS/VDE**

- The FAP-425-DOTC-R, FAP-425-DOT-R, FAP-425-OT-R, and FAP-425-OT versions 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 deactivation 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 heat detector (FAH-425-T-R) must be configured in accordance with class A1R.

**Technical specifications**

**Electrical**

Operating voltage	15 V DC to 33 V DC
Current consumption	< 0.55 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-425-DOTC-R	Approx. 85 g / Approx. 130 g
• FAP-425-DO-R, FAP-425-DOT-R	Approx. 80 g / Approx. 120 g
• FAP-425-O-R, FAP-425-OT-R, FAH-425-T-R	Approx. 80 g / Approx. 120 g
• FAP-425-O, FAP-425-OT	Approx. 75 g / Approx. 115 g

### Environmental conditions

Permissible operating temperature	
• FAP-425-DOTC-R	-10°C to +50°C
• FAP-425-DOT-R, FAP-425-OT-R, FAH-425-T-R, FAP-425-OT	-20°C to +50°C
• FAP-425-DO-R, FAP-425-O-R, FAP-425-O	-20°C to +65°C
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s.
Degree of protection (IEC 60529)	IP41 , IP43 with detector base and FAA-420-SEAL or MSC 420

### Further characteristics

Response sensitivity	
• Optical part	In accordance with EN 54-7 (programmable)

• Thermal maximum part	> 54°C / > 69°C
• Thermal differential part: • FAH-425-T-R	A2S / A2R / A1 / A1R / BS / BR, in line with EN 54-5 (programmable)
• Thermal differential part: • FAP-425-DOTC-R, FAP-425-DOT-R, FAP-425-OT-R, FAP-425-OT	A2S / A2R / BS / BR, in line with EN 54-5 (programmable)
• Gas sensor	In ppm range
Individual display	LED red and green
Color code	
• FAP-425-O-R, FAP-425-O	No marking
• FAP-425-OT-R, FAP-425-OT	Black loop
• FAH-425-T-R	Red loop
• FAP-425-DO-R	2 gray concentric loops
• FAP-425-DOT-R	2 black concentric loops
• FAP-425-DOTC-R	2 yellow concentric loops

### Limits

Heed local guidelines. They overrule the following limits.

Monitoring area	
• All versions (except for FAH-425-T-R)	Max. 120 m <sup>2</sup>
• FAH-425-T-R	Max. 40 m <sup>2</sup>
Maximum installation height	
• All versions (except for FAH-425-T-R)	Max. 16 m
• FAH-425-T-R	Max. 7.5 m

### Ordering information

#### FAP-425-O Smoke detector, optical auto-addressable

Analog addressable detector with one optical sensor, automatic address setting.  
Order number **FAP-425-O**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

#### FAP-425-O-R Smoke detector, optical

Analog addressable detector with one optical sensor, manually and automatically addressable.  
Order number **FAP-425-O-R**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FAP-425-OT Detector optic/thermal auto-addressable**

Analog addressable detector with one optical and one thermal sensor, automatic address setting.  
Order number **FAP-425-OT**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FAP-425-OT-R Multisensor detector, optical/thermal**

Analog addressable detector with one optical and one thermal sensor, manually and automatically addressable.  
Order number **FAP-425-OT-R**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FAP-425-DO-R Smoke detector, dual-optical**

Analog addressable detector with two optical sensors, manually and automatically addressable.  
Order number **FAP-425-DO-R**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FAP-425-DOT-R Multisensor detector, dual-optic/thermal**

Analog addressable detector with two optical sensors and one thermal sensor, manually and automatically addressable.  
Order number **FAP-425-DOT-R**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FAP-425-DOTC-R Detector dual-optical/thermal/chemical**

Analog addressable detector with two optical sensors, one thermal and one chemical sensor, manually and automatically addressable.  
Order number **FAP-425-DOTC-R**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FAH-425-T-R Heat detector**

Analog addressable heat detector with one thermal sensor, manually and automatically addressable.  
Order number **FAH-425-T-R**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**Accessories****MS 400 B Detector base with Bosch logo**

Bosch-branded detector base for surface mounted and flush-mounted cable feed  
Order number **MS 400 B**

**MS 400 Detector base**

Detector base for surface mounted and flush-mounted cable feed, not branded.  
Order number **MS 400**

**FAA-420-SEAL Damp room seal, 10 pcs**

Damp room seal  
Delivery unit is 10.  
Order number **FAA-420-SEAL**

**MSC 420 Base extension with damp room sealing**

Extension for detector bases with surface-mounted cable feed  
Order number **MSC 420**

**FAA-MSR420 Detector base with relay**

with a change-over relay (Form C)  
Order number **FAA-MSR420**

**FNM-420-A-BS-WH Base sounder indoor, white**

analog addressable base sounder for indoor use, white, delivered without cover  
Order number **FNM-420-A-BS-WH**

**FNM-420-A-BS-RD Base sounder indoor, red**

analog addressable base sounder for indoor use, red, delivered with cover  
Order number **FNM-420-A-BS-RD**

**FNM-420U-A-BSWH Base sounder uninterruptible, white**

uninterruptible analog addressable base sounder for indoor use, white, delivered without cover  
Order number **FNM-420U-A-BSWH**

**FNM-420U-A-BSRD Base sounder uninterruptible indoor, red**

uninterruptible analog addressable base sounder for indoor use, red, delivered with cover  
Order number **FNM-420U-A-BSRD**

**FAA-420-RI-DIN Remote indicator for DIN application**

For applications where the automatic detector is not visible, or mounted in false ceilings/floors. This version complies with DIN 14623.  
Order number **FAA-420-RI-DIN**

**FAA-420-RI-ROW Remote indicator**

For applications where the automatic detector is not visible, or mounted in false ceilings/floors.  
Order number **FAA-420-RI-ROW**

**WA400 Wall bracket**

Console for DIBt compliant mounting of detectors above doors etc., including detector base  
Order number **WA400**

**MH 400 Heating element**

usable at locations where the functional safety of the detector might be impaired by condensation  
Order number **MH 400**

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**FMX-DET-MB Mounting bracket**

Mounting bracket for installation in false floors  
Order number **FMX-DET-MB**

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**SK 400 Protective cage**

prevents damage  
Order number **SK 400**

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**SSK400 Dust protection, 10pcs**

Protective dust cover for automatic point type detectors.

Delivery unit is 10.

Order number **SSK400**

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**TP4 400 Label plate small**

Support plate for detector identification.

Delivery unit is 50.

Order number **TP4 400**

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**TP8 400 Label plate large**

Support plate for detector identification, large.

Delivery unit is 50.

Order number **TP8 400**

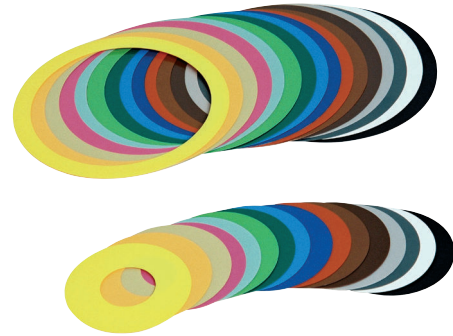
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## FAP-520 Automatic Fire Detectors LSN improved version



### Notice

Consider that the following images are not to be used for reliable color determination. For reliable color determination use original RAL color guides.



### 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

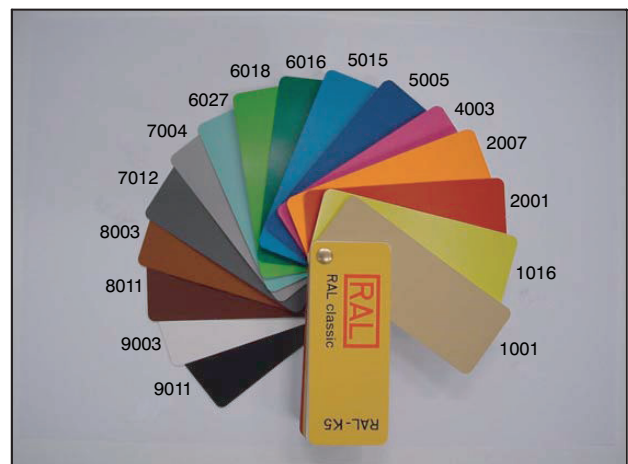
The FAP-520 Automatic Fire Detectors combine the advantages of the improved LSN technology with the aesthetic benefits of flush-mounted installation and the option to choose the color. The detectors are specially designed for connection to the Local SecurityNetwork LSN improved version with the significantly 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 detectors can be installed in areas with high aesthetic requirements. In addition, the detectors are suitable for areas with heightened dust exposure.

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.



### 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.

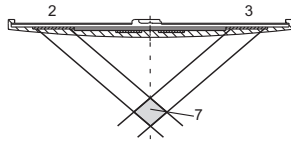
The alarm will only be triggered automatically if the signal combination corresponds with the characteristic diagram of the installation location that was selected during configuring. Consequently, a very high reliability against false alarms is obtained.

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

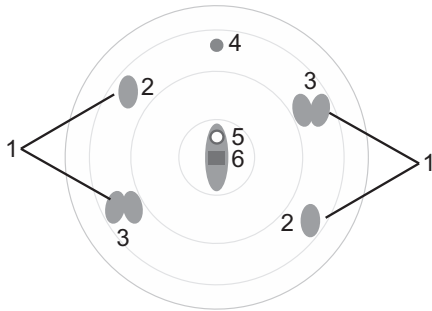
### Optical sensor (smoke sensor)

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 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
- Unscreened fire detection cable can be used
- Cable length up to 3000 m (with LSN 1500 A)
- Downwards compatibility to existing LSN systems and control panels.

In addition, the 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 (if present).

### 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.

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.

### Regulatory information

Complies with

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

Region	Regulatory compliance/quality marks	
Europe	CE	FAP-520/FAA-500-R
	CPR	0786-CPR-20201 FAP-O 520 / 520-P
	CPR	0786-CPR-20202 FAP-OC 520 / 520-P
Germany	VdS	G 205125 FAP-O 520/520-P_G205125
	VdS	G 205119 FAP-OC 520/520-P_G205119
Poland	CNBOP	2565/2007 FAP-O 520, FAP-O 520-P
	CNBOP	2566/2007 FAP-OC 520, FAP-OC 520-P
Hungary	TMT	TMT-20/2006-2011 FAP-O 520, FAP-O 520-P
	TMT	TMT-21/2006-2011 FAP-OC 520, FAP-OC 520-P
Ukraine	MOE	UA1.016.0002820-10 FAP-O520 -P_FAA-500 -R

**Installation/configuration notes**

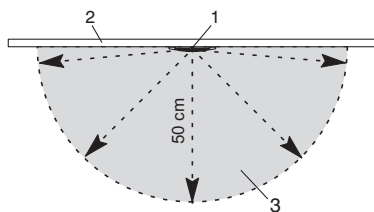
- Can be connected to the fire panels FPA-5000 and FPA-1200 with the improved LSN system parameters.
- With classic mode, can be connected to the LSN fire panels BZ 500 LSN, UEZ 2000 LSN, UGM 2020 and to other panels or their receiver modules with identical connection conditions, although with the previous LSN system parameters.
- The detectors 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.



**Notice**

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.
- By default, the bases are equipped with a spring for mounting the detector in concrete and wooden ceilings. This spring is identifiable by the red marking. When mounting a detector in a false ceiling panel you can use the additional, softer spring in the package. In this use case, the detector must not be subjected to strong vibrations (> 350 m/s).
- 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**

**Technical specifications**

**Electrical**

Operating voltage	15 V DC to 33 V DC
Current consumption	< 3.25 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 Tim 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	Without / with packaging
• 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

### Planning

Monitoring area	Max. 120 m <sup>2</sup> (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

#### FAP-O 520 Smoke detector optical, white

analog addressable detector with optical sensor, ultra-flat design  
Order number **FAP-O 520**

#### EWE-FAP520-IW 12 mths wrty ext FAP520 detector 12 months warranty extension

Order number **EWE-FAP520-IW**

#### FAP-O 520-P Smoke detector, optical, color inserts

analog addressable detector with optical sensor and ultra-flat design, transparent with color inserts  
Order number **FAP-O 520-P**

#### EWE-FAP520-IW 12 mths wrty ext FAP520 detector 12 months warranty extension

Order number **EWE-FAP520-IW**

#### FAP-OC 520 Detector, optical/chemical, white

analog addressable detector with optical and chemical sensor, ultra-flat design  
Order number **FAP-OC 520**

#### EWE-FAP520-IW 12 mths wrty ext FAP520 detector 12 months warranty extension

Order number **EWE-FAP520-IW**

#### FAP-OC 520-P Detector optical/chemical, color inserts

analog addressable detector with optical and chemical sensor, ultra-flat design, transparent with color inserts  
Order number **FAP-OC 520-P**

#### EWE-FAP520-IW 12 mths wrty ext FAP520 detector 12 months warranty extension

Order number **EWE-FAP520-IW**

### Accessories

#### FAA-500-TR-W Trim ring, white

for 500 and 520 Series Fire Detectors  
Order number **FAA-500-TR-W**

#### FAA-500-TR-P Trim ring, colored

for 500 and 520 Series Fire Detectors  
Order number **FAA-500-TR-P**

#### FAA-500 Detector base

for installation of the FAP-520 Fire Detector  
Order number **FAA-500**

**FAA-500-R Base with relay**

Only used in conjunction with the 5000 Series Modular Fire Panel.

Order number **FAA-500-R**

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**FAA-500-BB Back box ceiling-mount**

for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors

Order number **FAA-500-BB**

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**FAA-500-CB Housing for concrete ceilings**

for installing 500 and 520 Series Fire Detectors in concrete ceilings. In addition, you need to order a FAA-500-BB Back box ceiling-mount.

Order number **FAA-500-CB**

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**FAA-500-SB-H Back box for damp rooms, surface-mount**

for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling

Order number **FAA-500-SB-H**

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**FAA-500-SPRING Spring for wooden/concrete ceilings**

(DU = 10 units)

Order number **FAA-500-SPRING**

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## FCP-500 Conventional Automatic Fire Detectors



Vds

### 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.

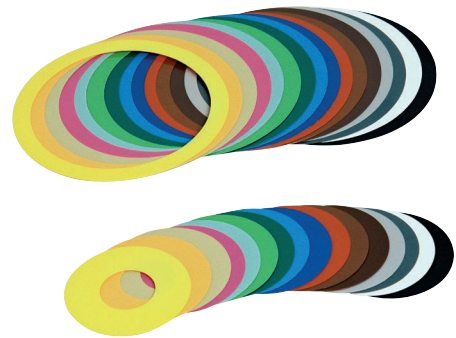
### Functions

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

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.

#### **i** Notice

Consider that the following images are not to be used for reliable color determination. For reliable color determination use original RAL color guides.



### 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.

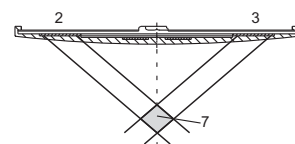
By linking the optical sensors and the gas sensor, the OC detector can also be used in places where the work carried out gives rise to small amounts of smoke, steam or dust.

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.

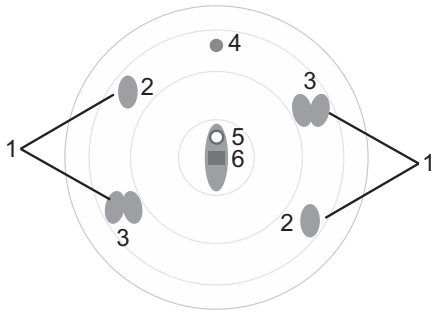
### Optical sensor (smoke sensor)

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.

#### 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.

#### Regulatory information

Comply with:

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

Region	Regulatory compliance/quality marks	
Europe	CE	FCP 500 series
	CPD	0786-CPR-20203 FCP-O 500 / 500-P
	CPD	0786-CPR-20204 FCP-OC500 / 500-P
Germany	VdS	G 205124 FCP-O 500/500-P
	VdS	G 205118 FCP-OC 500/500-P

#### 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 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.



#### Notice

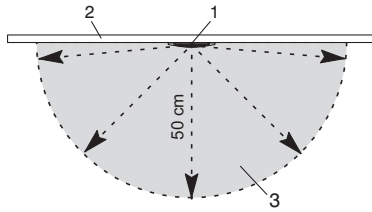
For flush ceiling mounting with FAA-500-BB: The false ceiling may have a maximum thickness of



#### Notice

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.
- By default, the bases are equipped with a spring for mounting the detector in concrete and wooden ceilings. This spring is identifiable by the red marking. When mounting a detector in a false ceiling panel you can use the additional, softer spring in the package. In this use case, the detector must not be subjected to strong vibrations (> 350 m/s).
- Maximum permitted air speed: 20 m/s.
- Country-specific standards and guidelines must be observed during the planning phase.

### Parts included

### 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 <sup>2</sup> (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	
<ul style="list-style-type: none"> <li>FCP-O 500 (-P)</li> </ul>	Scattered light measurement
<ul style="list-style-type: none"> <li>FCP-OC 500 (-P)</li> </ul>	Combination of scattered light measurement and combustion gas measurement
Features	
<ul style="list-style-type: none"> <li>All FCP-500 detectors</li> </ul>	Contamination detection Drift compensation (optical section)
<ul style="list-style-type: none"> <li>In addition, for FCP-OC 500(-P)</li> </ul>	Drift compensation in the gas sensor section
Response sensitivity	
<ul style="list-style-type: none"> <li>FCP-O 500 (-P)</li> </ul>	< 0.18 dB/m ( EN 54-7)
<ul style="list-style-type: none"> <li>FCP-OC 500 (-P)</li> </ul>	Optical section: < 0.36 dB/m (EN 54-7) Gas sensor section: in ppm range

### Ordering information

#### FCP-O 500 Smoke detector optical, white

conventional detector with optical sensor, ultra-flat design

Order number **FCP-O 500**

#### EWE-FCP500-IW 12 mths wrty ext FAP500 detector

12 months warranty extension

Order number **EWE-FCP500-IW**

#### FCP-O 500-P Smoke detector, optical, color inserts

conventional detector with optical sensor and ultra-flat design, transparent with color inserts

Order number **FCP-O 500-P**

#### EWE-FCP500-IW 12 mths wrty ext FAP500 detector

12 months warranty extension

Order number **EWE-FCP500-IW**

#### FCP-OC 500 Detector, optical/chemical, white

conventional detector with optical and chemical sensor, ultra-flat design

Order number **FCP-OC 500**

#### EWE-FCP500-IW 12 mths wrty ext FAP500 detector

12 months warranty extension

Order number **EWE-FCP500-IW**

#### FCP-OC 500-P Detector optical/chemical, color inserts

conventional detector with optical and chemical sensor, ultra-flat design, transparent with color inserts

Order number **FCP-OC 500-P**

#### EWE-FCP500-IW 12 mths wrty ext FAP500 detector

12 months warranty extension

Order number **EWE-FCP500-IW**

#### Accessories

##### FAA-500-TR-W Trim ring, white

for 500 and 520 Series Fire Detectors

Order number **FAA-500-TR-W**

##### FAA-500-TR-P Trim ring, colored

for 500 and 520 Series Fire Detectors

Order number **FAA-500-TR-P**

##### FCA-500-EU Detector base, conventional

for the FCP-500 Series detectors

Order number **FCA-500-EU**

##### FCA-500-E-EU Detector base, conventional, end-of-line

for the FCP-500 Series detectors, with integrated EOL resistor

Order number **FCA-500-E-EU**

##### FAA-500-BB Back box ceiling-mount

for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors

Order number **FAA-500-BB**

##### FAA-500-CB Housing for concrete ceilings

for installing 500 and 520 Series Fire Detectors in concrete ceilings. In addition, you need to order a

FAA-500-BB Back box ceiling-mount.

Order number **FAA-500-CB**

##### FAA-500-SB-H Back box for damp rooms, surface-mount

for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling

Order number **FAA-500-SB-H**

##### FAA-500-SPRING Spring for wooden/concrete ceilings

(DU = 10 units)

Order number **FAA-500-SPRING**

## FCP-320/FCH-320 Conventional Automatic Fire Detectors



### 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

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-OC32 0 / FCP-OC32 0- R470	FCP-OT320 / FCP-OT320 -R470	FCP-O320 / FCP-O320 -	FCH-T320 / FCH-T320- FSA /
			R470	

				FCH-T320-R470
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 320 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	Drift compensation	
	Optical unit	Gas sensor

FCP-OC320 FCP-OC320-R470	x	x
FCP-OT320 FCP-OT320-R470	x	--
FCP-O320 FCP-O320-R470	x	--
FCH-T320 FCH-T320-R470 FCH-T320-FSA	--	--

**Regulatory information**

The detectors comply with:

Detector type	EN54-5:2000/ A1:2002	EN54-7:2000/ A1:2002/ A2:2006
FCP-OC320		•
FCP-OC320-R470		•
FCP-OT320	•	•
FCP-OT320-R470	•	•
FCP-O320		•
FCP-O320-R470		•
FCH-T320	•	
FCH-T320-R470	•	
FCH-T320-FSA	•	

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-20351 FCP-O320 FCP-O320-R470
	CPR	0786-CPR-20352 FCP-OT320 FCPOT320-R470
	CPR	0786-CPR-20353 FCH-T320 FCH-T320-R470
	CPR	0786-CPR-20355 FCP-OC320 FCPOC320-R470
Germany	VdS	G 208001 FCP-O320 FCP-O230-R470
	VdS	G 208002 FCP-OT320 FCP-OT320-R470
	VdS	G 208003 FCH-T320 FCH-T320-R470
	VdS	G 208004 FCH-T320-FSA
	VdS	G 208005 FCP-OC320 FCP-OC320-R470
Europe	CE	FCP-320 FCH-320

Region	Regulatory compliance/quality marks	
	CE	MSR 320
	CE	CPD 0786-CPD-20354 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
- The detector can be painted (cap and base) and thereby adapted to the surrounding colour scheme; note the information in the Painting Instructions (Document Number F.01U.089.231)

**Installation/configuration notes in accordance with VdS/VDE/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; its characteristic curve corresponds to class A1R

**Parts included**

**Technical specifications**

**Electrical**

Operating voltage	8.5 V DC to 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	Approx. 80 g / approx. 120 g
<ul style="list-style-type: none"> <li>FCP-OC320 / FCP-OC320-R470</li> </ul>	Approx. 85 g / approx 130 g

### Environmental conditions

Protection class as per EN 60529	IP 41, IP 43 with FAA-420-SEAL or MSC 420
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Permissible operating temperature	-20 °C to +50 °C
<ul style="list-style-type: none"> <li>FCP-O320 / FCP-O320-R470</li> </ul>	-20 °C to +65 °C
<ul style="list-style-type: none"> <li>FCP-OC320 / FCP-OC320-R470</li> </ul>	-10 °C to +50 °C

### Limits

Heed local guidelines. They overrule the following limits.

Monitoring area	Max. 120 m <sup>2</sup> (Heed local guidelines!)
<ul style="list-style-type: none"> <li>FCH-T320 / -R470 / -FSA</li> </ul>	Max. 40 m <sup>2</sup> (Heed local guidelines!)
Maximum installation height	16 m (Heed local guidelines!)
<ul style="list-style-type: none"> <li>FCH-T320 / -R470 / -FSA</li> </ul>	6 m (Heed local guidelines!)

### Special features

Response sensitivity	
<ul style="list-style-type: none"> <li>Optical part (in line with EN 54-7)</li> </ul>	FCP-OC320 / FCP-OC320-R470 < 0.23 dB/m FCP-OT320 / FCP-OT320-R470 < 0.19 dB/m FCP-O320 / FCP-O320-R470 < 0.16 dB/m
<ul style="list-style-type: none"> <li>Thermal maximum part</li> </ul>	>54 °C
<ul style="list-style-type: none"> <li>Thermal rate-of-rise part (in line with EN 54-5)</li> </ul>	FCH-T320 / FCH-T320-R470: A2R FCH-T320-FSA: A1R
<ul style="list-style-type: none"> <li>Chemical part</li> </ul>	In ppm range
Color code	
<ul style="list-style-type: none"> <li>FCP-OC320 / FCP-OC320-R470</li> </ul>	Blue ring
<ul style="list-style-type: none"> <li>FCP-OT320 / FCP-OT320-R470</li> </ul>	Black ring

<ul style="list-style-type: none"> <li>FCP-O320 / FCP-O320-R470</li> </ul>	No marking
<ul style="list-style-type: none"> <li>FCH-T320 / FCH-T320-R470 / -FSA</li> </ul>	Red ring

### Ordering information

#### FCP-O320 Smoke detector optical

conventional technology, with 820 Ohm alarm resistor  
Order number **FCP-O320**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

#### FCP-OT320 Multisensor detector optical/thermal

conventional technology, with 820 Ohm alarm resistor  
Order number **FCP-OT320**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

#### FCP-OC320 Multisensor detector optical/chemical

conventional technology, with 820 Ohm alarm resistor  
Order number **FCP-OC320**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

#### FCP-OC320-R470 Multisensor detector optical/chemical

conventional technology, with 470 Ohm alarm resistor  
Order number **FCP-OC320-R470**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

#### FCP-OT320-R470 Multisensor detector optical/thermal

conventional technology, with 470 Ohm alarm resistor  
Order number **FCP-OT320-R470**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

#### FCP-O320-R470 Smoke detector, optical

conventional technology, with 470 Ohm alarm resistor  
Order number **FCP-O320-R470**

#### EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FCH-T320 Heat detector, rate-of-rise**

conventional technology, thermal differential/thermal maximum detector, with 820 Ohm alarm resistor  
Order number **FCH-T320**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FCH-T320-R470 Heat detector**

thermal differential/thermal maximum detector, conventional technology, with 470 Ohm alarm resistor  
Order number **FCH-T320-R470**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**FCH-T320-FSA Heat detector, DIBt protection closures**

thermal differential/thermal maximum detector, conventional technology, with 820 Ohm alarm resistor  
Order number **FCH-T320-FSA**

**EWE-FPTDT-IW 12 mths wrty ext Fire Point Detector**

12 months warranty extension  
Order number **EWE-FPTDT-IW**

**Accessories****MS 400 B Detector base with Bosch logo**

Bosch-branded detector base for surface mounted and flush-mounted cable feed  
Order number **MS 400 B**

**MS 400 Detector base**

Detector base for surface mounted and flush-mounted cable feed, not branded.  
Order number **MS 400**

**FAA-420-SEAL Damp room seal, 10 pcs**

Damp room seal  
Delivery unit is 10.  
Order number **FAA-420-SEAL**

**MSR 320 Base with relay, conventional**

with a change-over relay (Form C)  
Order number **MSR 320**

**MSC 420 Base extension with damp room sealing**

Extension for detector bases with surface-mounted cable feed  
Order number **MSC 420**

**MSS 300 Base sounder white**

Control via C-point of the detector  
Order number **MSS 300**

**MSS300-WH-EC Base sounder, white**

Control through fire panel via interface  
Order number **MSS300-WH-EC**

**FAA-420-RI-DIN Remote indicator for DIN application**

For applications where the automatic detector is not visible, or mounted in false ceilings/floors. This version complies with DIN 14623.  
Order number **FAA-420-RI-DIN**

**FAA-420-RI-ROW Remote indicator**

For applications where the automatic detector is not visible, or mounted in false ceilings/floors.  
Order number **FAA-420-RI-ROW**

**FMX-DET-MB Mounting bracket**

Mounting bracket for installation in false floors  
Order number **FMX-DET-MB**

**WA400 Wall bracket**

Console for DIBt compliant mounting of detectors above doors etc., including detector base  
Order number **WA400**

**MH 400 Heating element**

usable at locations where the functional safety of the detector might be impaired by condensation  
Order number **MH 400**

**SK 400 Protective cage**

prevents damage  
Order number **SK 400**

**SSK400 Dust protection, 10pcs**

Protective dust cover for automatic point type detectors.  
Delivery unit is 10.  
Order number **SSK400**

**TP4 400 Label plate small**

Support plate for detector identification.  
Delivery unit is 50.  
Order number **TP4 400**

**TP8 400 Label plate large**

Support plate for detector identification, large.  
Delivery unit is 50.  
Order number **TP8 400**

## OOH740-A9-EX Dual-optical detector, explosive area

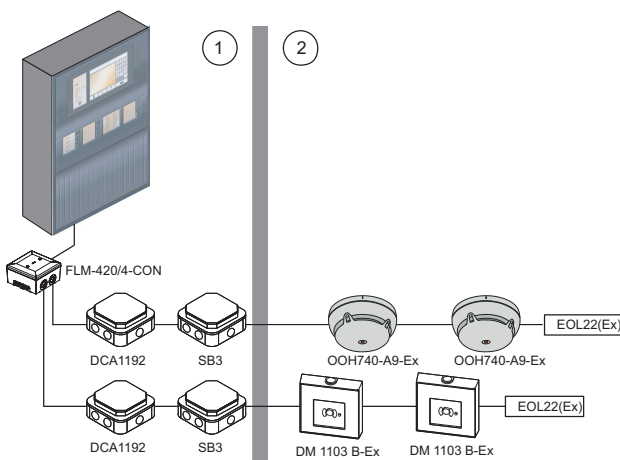


### Features

- ▶ Compact and robust design
- ▶ Earliest detection of lightest smoke with dual-optical or thermal detection
- ▶ Highly reliable and accurate
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination
- ▶ High resistance to interference

The OOH740-A9-Ex is an Dual-Optical Detector for fire detection in potentially explosive areas in zones 0, 1 and 2. It can be programmed either as a dual-optical or as a thermal detector by inserting defined resistors.

### System overview



### Thermal sensor (temperature sensor)

The following table shows the properties of the parameter sets for the thermal detector:

1 Non-Ex area

2 Ex area:

zone 0, 1 or 2 for OOH740-A9-Ex

zone 1 or 2 for DM 1103 B-Ex

### Functions

The following parameter sets can be selected in the point detector:

- Sensitive (dual optical/DO)
- A1R (thermal)
- BR (thermal)

A parameter set is selected by omitting (DO) or installing a resistor with a specified value (A1R or BR). The resistor is installed at the connection terminals for the external alarm indicator in the detector base.

### Dual optical sensor (smoke sensor)

The two optical sensors in the smoke detector use the scattered-light method. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light. One sensor is used for forward scattering, the other for backscattering. The smoke particles will be illuminated from different angles. A photo diode acts as receiver. The amount of light hitting the photo diode is converted into a proportional electrical signal.

	Operating temperature typ. / max. (°C)	Static activation Temperature* (°C)	Differential activation Temperature** ΔT (K)	Differential activation possible from (°C)
A1R 60 °C rate of rise	25 / 50	60	25	3
BR 80 °C rate of rise	40 / 65	80	29	30

\*Applicable with slow temperature increases <1 K/min

\*\* Applicable with fast temperature increases of >10 K/min. When there is a slow temperature increase of <10 K/min, this value rises by a few degrees.

**Visual indication of parameter set**

When the detector line is being commissioned, the LED for the internal alarm indicator in the point detector flashes for a period of 3 minutes to show the set parameter set. The following table provides an overview of the flashing patterns:

	Resistance value R	Flashing pattern of internal alarm indicator after commissioning
DO	no resistor installed	once / 6 s
A1R	18 kΩ, min. 200 mW	twice / 6 s
BR	10 kΩ, min. 200 mW	3 / 8 s

**Detector base**

The entire electronic system is protected inside the detector. The base is used for the detector contact. The detector base is secured with a snap fastener.

**Application in Ex area**

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 be installed outside the explosive area.

The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier. The OOH740-A9-Ex detectors must be connected to the detector line established by the SB3 Safety Barrier.

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	OOH740-A9-Ex
	Ex	IECex 1411 OOH740-A9-Ex
	Ex	106_FDOOT241-A9-Ex_FDOOT241-A9-ExCN_OOH740-A9-Ex_ATEX_EX-AM1309 106_FDOOT241-A9-Ex_FDOOT241-A9-ExCN_OOH740-A9-Ex_ATEX_EXAM1309
	CPR	0786-CPR-21369 OOH740-A9-Ex
Germany	VdS	G 214047 OOH740-A9-Ex

**Installation/configuration notes**

- The detector base must be ordered separately.
- For installation in potentially explosive areas in zones 0, 1 or 2 use SB3 Safety Barrier and DCA1192. The SB3 Safety Barrier can be connected to the conventional line via the interface module FLM-420/4-CON.
- The directive 1999/92/EC standard contains important information on planning and installation in areas with a potential risk from explosive atmospheres.
- During planning works, it is essential to adhere to national standards and guidelines.
- The detector can be configured as either a dual optical detector (no additional steps necessary) or as a thermal detector (installing a resistor necessary, see installation guide).
- For planning an intrinsically safe detector line for Ex areas, you have to consider:
  - the number n of devices connected to the SB3 Safety Barrier’s detector line
  - the cable length l of the SB3 Safety Barrier’s detector line

The following inequation must be fulfilled to achieve an intrinsically safe detector line:

$$C_i \text{ (nF)}$$

resulting

$$C_0 > (n \times C_i) + (l \times C_c)$$

$$L_0 \text{ (SB3)} > L_i$$

resulting

$$L_0 > (n \times L_i) + (l \times L_c)$$

Abbreviation (unit)	Description
C <sub>0</sub> (nF)	maximum external capacity
C <sub>i</sub> (nF)	maximum internal capacity
C <sub>c</sub> (nF)	cable capacitance
l (km)	length of entire detector line

Abbreviation (unit)	Description
$L_0$ (mH)	maximum external inductivity
$L_i$ (mH)	maximum internal inductivity
$L_c$ (mH)	cable inductance
n	total number of detectors

**DANGER! Risk of explosion: Testing equipment must only be operated in the area not at risk of explosion.**

### Parts included

Quantity	Component
1	OOH740-A9-Ex Smoke Detector for Ex areas 0, 1, and 2 (FDB201 Detector Base not included)

### Technical specifications

#### Electrical

Standby current consumption ( $\mu$ A)	200 - 280
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#### Characteristics for intrinsically safety

Input voltage $U_i$ (V)	$\leq 28$
Input current $I_i$ (mA)	$\leq 100$
Input power $P_i$ (mW)	$\leq 700$
Internal inductivity $L_i$	Negligible
Internal capacity $C_i$ (nF)	$\leq 0.2$

#### Mechanics

Dimensions ( $\varnothing$ x H, mm)	100 x 45.7
Color	Similar to RAL 9010, pure white
Weight (g)	116

#### Environmental conditions

Operating temperature ( $^{\circ}$ C)	-25 to +70
Storage temperature ( $^{\circ}$ C)	-30 to +75
Relative humidity (%)	$\leq 95$
Degree of protection (EN 60529)	IP43/IP44

OOH740-A9-Ex and FDB201 achieve IP44 for:

- flush mounted cables with 1 FDBZ295 (no designation plate possible)
- surface mounted cables with 1 FDBZ295, 2 FDB295M (compatible with designation plate DOW1171-IDENT)

### Ex classification

IECEX	Ex ia IIC T4 Ga, Ta = -35 - +70 $^{\circ}$ C
94/9/EC	II 1 G Ex ia IIC T4 Ga, Ta = -35 - +70 $^{\circ}$ C
Ex approvals	BVS 12 ATEX E 087 X BVS 12.0076 X

### Ordering information

#### OOH740-A9-EX Dual-optical detector, explosive area

Dual-optical detector for potentially explosive areas. Order number **OOH740-A9-EX**

#### Accessories

##### FDB201 Base for Dual-Optical Detector for Ex Ar

Base for OOH740-A9-Ex Dual-Optical detector for Ex Area, secured with a snap fastener. Base suitable for recess supply wiring, for surface supply wiring, cable diameter up to 6 mm.

Delivery unit is 1.

Order number **FDB201**

##### FDB291 Base attachment

Base attachment for OOH740-A9-Ex. For routing surface mounted cables, cable diameter larger than 6 mm. Also for recess supply wiring.

Delivery unit is 1.

Order number **FDB291**

##### FDB295 Base attachment wet

Base Attachment Wet for OOH740-A9-Ex with integrated additional rubber seal for surface-mounted cabling for applications in cold or wet environments. Mounted between detector base and ceiling. The detector base FDB201 simply clicks into place in FDB295. 6 breakout plugs for cable glands.

To achieve IP44 for surface mounted cables additional 2 FDB295M cable glands are required. The Base Attachment Wet is compatible with designation plate DOW1171-IDENT.

Delivery unit is 1.

Order number **FDB295**

##### FDBZ293 Detector locking device

Threaded pin M3 x 6 prevents the point detector being unscrewed from the detector base. The point detector can only be removed with the appropriate Allen key. Delivery is 100. Additionally 2 Allen keys are included.

Order number **FDBZ293**

##### FDBZ295 Sealing element

Sealing element for OOH740-A9-Ex to achieve IP44 for flush mounted cables. The use of a designation plate is not possible.

Delivery unit is 1.

Order number **FDBZ295**

**FDZ291 Detector dust cap**

Detector Dust Cap for covering detectors as protection against dust during the construction phase.

Delivery unit is 10.

Order number **FDZ291**

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**FDUD291 Detector exchanger**

for insertion and removal of detector OOH740-A9-Ex. A universal joint enables detector removal and replacement even if the detector cannot be accessed from directly underneath. The exchanger can only be used for detectors without sealing element FDBZ295.

Delivery unit is 1.

Order number **FDUD291**

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**FDBZ291 Designation plate**

for labelling FDB201 with the location address.

Delivery unit is 10.

Order number **FDBZ291**

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**DOW1171-IDENT Detector marking**

for labelling FDB295 with the location address.

Delivery unit is 10.

Order number **DOW1171-IDENT**

---

**FDB295M Metal cable gland**

for M20 cable feed-through and complementary to Base Attachment Wet FDB295. 2 pieces of FDB295M are necessary per FDB295 Base Attachment Wet to achieve IP44 with surface mounted cables.

Delivery unit is 10.

Order number **FDB295M**

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**SB3 Safety barrier**

limits the electrical energy between non-inherently safe and inherently safe circuits

Order number **SB3**

---

## Wireless Fire Detection System

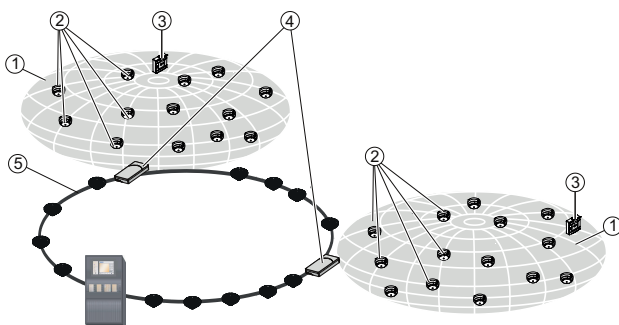


### Features

- ▶ Multihop mesh technology
- ▶ High communication reliability due to redundant transmission paths and to a dual band (433MHz, 868MHz)
- ▶ Long range thanks to an extended transmission path as every radio devices is used as a signal repeater (up to 3 hops)

### System overview

Wireless fire detection system



FWI-270 on a LSN loop

- |  |                         |
|--|-------------------------|
| 1 Radio cell                                 | 4 Radio gateway FWI-270 |
| 2 Radio fire detector FDOOT271-O             | 5 LSN line              |
| 3 Radio manual call point FDM273-O, FDM275-O |                         |

### Functions

The Wireless Fire Detection System consists of a radio gateway FWI-270, radio fire detectors FDOOT271-O, radio manual call points FDM273-O and FDM275-O. A dual-band system with two frequency ranges (433, 868 MHz) and with numerous channels is used for the communication between the radio gateway and the radio devices to improve communication stability. Thanks to the mesh topology, all radio devices communicate with their neighbors and therefore redundant transmission paths are available to communicate to the gateway.

#### FWI-270 radio gateway

The radio gateway communicates with the control panel via the LSN line.

Power is supplied via AUX power supply, BCM-0000-B and via a battery pack. This ensures a permanent power supply for the radio gateway.

The areas that radio cells cover may overlap. The radio cell may occupy a maximum of 31 LSN addresses (30 addresses for radio devices and 1 address for the radio gateway).

The radio gateway monitors its operation autonomously. If a radio gateway fails, a fault is signaled and displayed on the fire panel controller.

#### FDOOT271-O Radio Fire Detector

The battery-powered radio fire detector has a sophisticated opto-electronic measuring chamber with two optical transmitters, an optical receiver and two thermal sensors.

The radio fire detector can be used purely as an optical smoke detector or purely as a heat detector. The combination of optical and thermal sensor signals optimizes detection reliability and leads to:

- Early detection of all types of fire, whether they generate light or dark smoke, or no smoke at all.
- The neural fire detector can be operated at a lower sensitivity level and thus achieves a higher immunity against false alarms

#### FDM275-O, FDM273-O Radio Manual Call Point

The radio manual call point is used to trigger an alarm in the event of a fire or other emergency and consists of a housing and a switching unit including radio electronics and dual-band antenna.

FDM273-O has an indirect alarm activation by smashing the glass insert and pressing the alarm button.

FDM275-O has a direct alarm activation by pressing the plastic insert.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21670 FWI-270
	CPR	0786-CPR-21528 FDM273-O
	CPR	0786-CPR-21529 FDM275-O
	CPR	0786-CPR-21527 FDOOT271-O
	CE	FWI-270
	CE	FDM273-O
	CE	FDM275-O

Region	Regulatory compliance/quality marks	
	CE	FDOOT271-0
Germany	VdS	G 219069 FWI-270
	VdS	G 216095 FDM273-0
	VdS	G 216096 FDM275-0
	VdS	G 216094 FDOOT271-0

**Installation/configuration notes**

**Compatibility**

Compatible with fire alarm control panels that support LSN improved. Consider that the different LSN fire panel controller may have varying performance features, e.g. maximum number of supported LSN elements. You will find an overview in the following table:

	Fire alarm panel (LSN improved)	BZ 500 LSN UGM 2020 UEZ 2000 LSN
Automatic addressing (LSN improved), T-Tap not possible	yes	no
Compatible with manual addressing	no	no
LSN classic operation, T-Tap not possible, do not use FWI-270 as first element	yes	no

**System limitations**

- Max. 30 radio devices per radio gateway. Observe national guidelines and regulations
- Sum of LSN manual call points and radio gateways max. 21 per LSN line
- Max. 10 FWI-270 radio gateways per LSN line

Maximum of 127 LSN elements (LSN classic), 254 LSN elements (LSN improved) is allowed per LSN processing assembly. Each radio gateway and each radio fire detector or radio manual call point is counted as an LSN element, e. g. with the maximum number of radio fire detectors:


1 FWI-270 + 30 FDOOT271-O = 31 LSN elements.

**Connection and power supply**

**Power supply via the AUX supply voltage**

In normal operation the gateway is powered via the LSN AUX supply voltage (LSN 0300 A or LSN 1500 A). Auxiliary power supply from the battery controller module (BCM-0000-B) is also possible.

**Power supply from battery pack BAT3.6-10**



When the battery pack is supplying power, the radio network remains active even if the auxiliary power supply is switched off.


- For commissioning the radio cell for the first time

- If the power supply via the LSN AUX line is interrupted
  - If the LSN AUX line is temporarily switched off
- When the battery is full, the operating life is around one week if no power is supplied via the LSN AUX line.

**Planning specifications**

The installation must be dimensioned so that the expected fire characteristics can be detected reliably. The following planning specifications must be taken into account during planning:


- Network size
- Ranges
- Network density



The planning specifications of your system manufacturer remain unchanged. Please observe the documentation from your system manufacturer.

**Network size**

Up to 30 radio devices may be connected to each radio gateway.



The maximum number of devices permitted depends on your fire control panel, national guidelines and regulations.

**Range**

Range criteria:

- In buildings with small rooms and several walls, such as hotels and offices, a radio cell may be distributed over a maximum distance of 120 m.



*Radio gateways and radio devices in a multi-story building with intermediate walls*

A radio link may not exceed 20 m in length. The connection to other radio devices in the same radio cell should not penetrate more than one wall.

- A radio cell may be operated over a maximum of 5 stories, with the radio gateway positioned at the middle story.

Maximum permissible distribution for cross-story planning:

		●	●	●			Floor +2	40 m
	●	●	●	●	●		Floor +1	80 m
●	●	●	●	●	●	●	Floor 0	120 m
	●	●	●	●	●		Floor -1	80 m
		●	●	●			Floor -2	40 m

*Radio gateways and radio devices over five stories with intermediate walls*

- In buildings without obstructions, such as large halls, a radio cell may be distributed over a maximum distance of 180 m.



Radio gateways and radio devices in a multi-story building without intermediate walls

### Network density

Each radio device can have multiple connections to its surrounding neighbors. The distance to the surrounding neighbors must be at least 1.5 m.

#### **i** Notice

Follow the relevant national planning guidelines. If these provide that due to an error (interruption, short circuit or error having equivalent effect) occurring in a transmission path, no more than one reporting range may fail, then more than one reporting area may be assigned to a radio gateway only if it is ensured that the radio gateway is operated in a temperature range between 15°C and 25°C.

Alternatively, a radio gateway, to which more than one reporting area is assigned, can be operated with a power supply according to EN54-4, which is mounted directly next to the radio gateway. The temperature range then corresponds to the specifications in the technical data.

## Technical specifications

### Radio transmission

Frequency range	433.05...434.79 MHz in band 44b and 45b <sup>1</sup> 868...870 MHz in band 48, 49, 50, 55, and 56b <sup>1</sup>
Channel grid	50 kHz
Number of channels	27 in 868-MHz band 20 in 433-MHz band
Transmitting power	≤10 mW ERP in band 44b, 45b, and 49 <sup>1</sup> Type 10 (max. ≤25) mW ERP in band 48, 50, 55, and 56b <sup>1</sup>

<sup>1</sup> 2013/752/EU: according Official Journal of the European Union, COMMISSION IMPLEMENTING DECISION of 11 December 2013 amending Decision 2006/771/EC on harmonization of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC (notified under document C(2013) 8776) (Text with EEA relevance)

### FWI-270 Radio gateway

#### Electrical

Operating voltage LSN (VDC)	15 to 33
Operating voltage AUX (VDC)	15 to 30

Max. LSN current consumption (mA)	3.45
Average auxiliary current consumption (mA)	10
Max. auxiliary current consumption (mA)	30
Battery service life	5 years in normal operation*

\*= up to 5 years at standard climate. This value may vary, depending on the actual climate and the actual conditions. If the system is operated regularly or continuously at temperatures within the limit range (<15°C or >35°C), a maintenance interval of 3 years is recommended.

### Environmental

Protection class as per EN 60529	IP40
Permissible operating temperature (°C)	-10 to +55
Permissible storage temperature (°C)	-20 to +70
Relative humidity (%)	<96 (non-condensing)

### Mechanical

Housing material	Acrylonitrile-butadiene-styrene (ABS)
Color	Pure white, ~RAL 9010
Weight (without/with packaging) (g)	Approx. 155/327
Dimensions H x W x D (mm)	Approx. 167 x 89 x 28

### FDOOT271-O Radio fire detector

#### Electrical

Battery life cycle	> 3 years*
--------------------	------------

\*3 years corresponds to a typical battery life. The operating time of the batteries depends on the application behaviour, the application temperature and other ambient conditions. The service life may vary if the batteries are handled improperly. Information on typical handling can be obtained from the manufacturer on request.

### Environmental

Protection class as per EN 60529	IP 44
Permissible operating temperature (°C)	-10 to +55
Permissible storage temperature (°C)	-30 to +75
Relative humidity (%)	≤95 (non-condensing)

**Mechanical**

Color	~ RAL 9010 pure white
Dimensions (mm)	Ø 117 x 64 with FDB271

**FDME273-O Radio manual call point switching unit****Electrical**

Battery life cycle	> 3 years*
--------------------	------------

\*3 years corresponds to a typical battery life. The operating time of the batteries depends on the application behaviour, the application temperature and other ambient conditions. The service life may vary if the batteries are handled improperly. Information on typical handling can be obtained from the manufacturer on request.

**Environmental**

Protection class as per EN 60529	IP 44
Permissible operating temperature (°C)	-10 to +55
Permissible storage temperature (°C)	-30 to +75
Relative humidity (%)	≤95 (non-condensing)

**Mechanical**

Color	~ RAL 3000 flame red
Dimensions (mm)	135 x 135 x 58

**FDM275-O Radio manual call point****Electrical**

Battery life cycle	> 3 years*
--------------------	------------

\*3 years corresponds to a typical battery life. The operating time of the batteries depends on the application behaviour, the application temperature and other ambient conditions. The service life may vary if the batteries are handled improperly. Information on typical handling can be obtained from the manufacturer on request.

**Environmental**

Protection class as per EN 60529	IP24D
Permissible operating temperature (°C)	-10 to +55
Permissible storage temperature (°C)	-30 to +75
Relative humidity (%)	≤95 (non-condensing)

**Mechanical**

Color	~ RAL 3000 flame red
Dimensions (mm)	87 x 87 x 63

**Ordering information****FWI-270 Radio gateway**

Wireless gateway for up to 30 radio devices. Order separately: 1x BAT3.6-10 Li-SOCI2 battery pack 3.6V, 10 Ah  
Order number **FWI-270**

**FDOOT271-O Radio fire detector**

For connecting to the FWI-270 Radio gateway. Order separately: 1x FDB271 Base radio fire detector, 1x BAT3.6-10 Li-SOCI2 battery pack 3.6V, 10 Ah  
Order number **FDOOT271-O**

**FDM275-O Radio manual call point**

For connecting to the FWI-270 Radio gateway. Order separately: 1x BAT3.6-10 Li-SOCI2 battery pack 3.6V, 10 Ah  
Order number **FDM275-O**

**FDME273-O Radio manual call point switching unit**

For connecting to the FWI-270 Radio gateway. Order separately: 1x FDMH273-R Radio manual call point housing, 1x BAT3.6-10 Li-SOCI2 battery pack 3.6V, 10 Ah  
Order number **FDME273-O**

**Accessories****FDUZ227 MCL-USB adapter radio**

Needed for maintenance purpose together with the Wireless diagnostic tool Software FXS2061-O.  
Order number **FDUZ227**

**BAT3.6-10 Li-SOCI2 battery pack 3.6V, 10 Ah**

Battery Pack for supplying radio devices with power.  
Order number **BAT3.6-10**

**FDB271 Base radio fire detector**

for installation of the FDOOT271-O Radio fire detector  
Order number **FDB271**

**FDMG295 Spare glass FDM275-O**

Spare glass for Radio manual call point  
Order number **FDMG295**

**FDMP295 Spare plastic FDM275-O**

Spare Plastic for radio manual call point  
Order number **FDMP295**

**DMZ1196-AC Spare glass FDM273-O**

Spare glass for Radio manual call point  
Order number **DMZ1196-AC**

**FDMH273-R Radio manual call point housing**

Housing for Radio manual call point, mandatory for ordering the manual call point FDME273-O  
Order number **FDMH273-R**

# Linear Beam Detectors

<b>FIRERAY3000 Linear beam detector</b>	<b>134</b>
<b>FIRERAY5000-EN Linear beam detector</b>	<b>137</b>
<b>FRAY-ONE-EN Linear beam detector, stand-alone</b>	<b>141</b>
<b>Fireray 50/100RV Linear beam detectors</b>	<b>143</b>

## FIRERAY3000 Linear beam detector



3

### Features

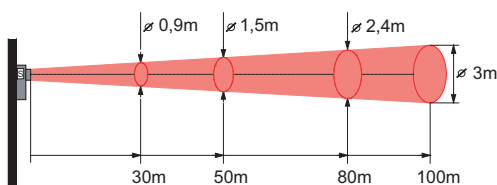
- ▶ Monitoring range of 5 m to 120 m
- ▶ Up to 2 detectors per system controller
- ▶ Two pairs of fire and fault relays (one per detector)
- ▶ Transmitter and receiver integrated into a compact housing
- ▶ Integral LASER alignment

The Fireray3000 Linear beam detector is for the detection of light and dark smoke across an area of 5 m to 120 m.

Preferred areas of application are very large and high halls, e. g. airplane hangars, factory buildings and similar buildings where the use of point detectors are not possible.

### Functions

The transmitter transmits an invisible infrared light beam bundled through a lens to the receiver.



#### Beam detection

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.

### Regulatory information

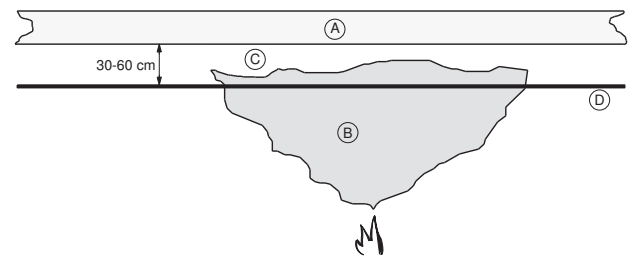
Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21162 Fireray3000
	CE	Fireray3000
Germany	VdS	G 212034 Fireray3000

### Installation/configuration notes

#### General installation/configuration notes

- A FLM-420/4-CON Conventional Interface Module is required for connection of the Fireray3000 to the LSN.
- Between the transmitter and receiver 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.
- 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.

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.



installation\_for\_smoke\_plume

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

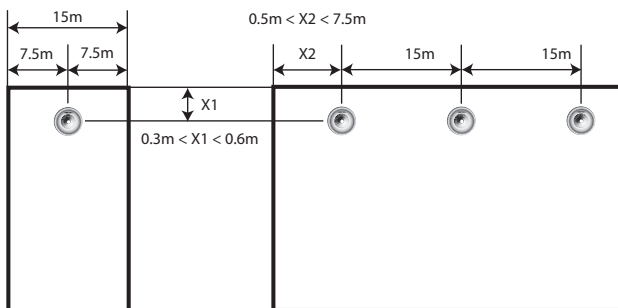
$X3 = 7.5 \text{ m} + (7.5 \text{ m} \times 10\%)$

$X3 = 7.5 \text{ m} + 0.75 \text{ m}$

$X3 = 8.25 \text{ m}$

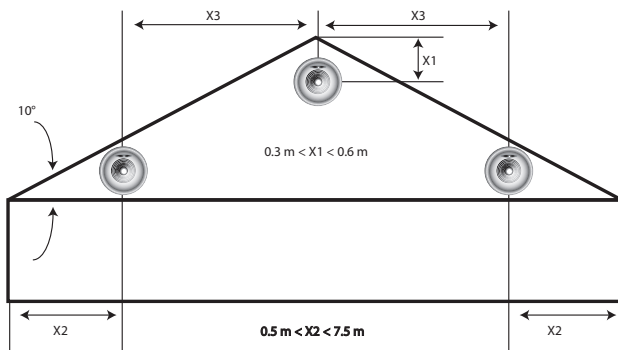
- The maximum distance between two detectors with parallel IR beams is 15 m.
- The centre line of the monitoring beam may not be closer than 0.5 m to walls, furniture or stored goods.
- The receivers allow an angle deviation of up to 5° from the centre line without causing a weakening of the signal.

**Positioning the detectors on flat ceilings**



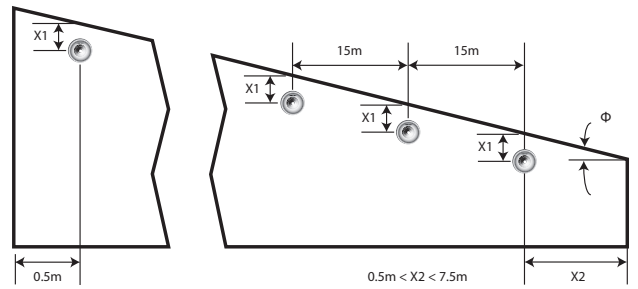
Mounting flat ceiling

**Positioning the detectors under a gable roof**



Mounting gable roof

**Positioning the detectors under a shed roof**



Mounting shed 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 RH	X2	A	X1 at $\alpha < 20^\circ$	X1 at $\alpha > 20^\circ$
Up to 6 m	6 m	1200 m <sup>2</sup>	0.3 m to 0.5 m	0.3 m to 0.5 m
6 m to 12 m	6,5 m	1300 m <sup>2</sup>	0.4 m to 0.7 m	0.4 m to 0.9 m
12 m to 16 m *)**)	7 m*)	1400 m <sup>2</sup> *	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 DH and the highest allowable distance between transmitter and receiver)

X1 = distance between the detector and the ceiling  
 $\alpha$  = 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 receiver must be arranged according to the roof pitch  $\alpha$  and the room height RH so that the light beam runs along the roof in a distance DL (see table).

### Parts included

Quantity	Component
1	Control Unit, Fireray3000 Linear Smoke Detector
1	Infrared transmitter
1	Infrared receiver

### Technical specifications

#### Electrical

Operating voltage	12 V DC to 36 V DC (±10%)
Current consumption	
• Control Unit in standby (with 1 or 2 receivers)	14 mA @ 36 V DC
• Transmitter in standby	8 mA @ 36 V DC
Reset control by power disruption	> 20 s
Fire and fault relay (contact load)	Resistive VFCO 2 A @ 30 V

#### Mechanics

LED indicators:	
• Control Unit	Red = Fire Amber = Fault Green = System OK
• Receiver	Red = Fire Alignment LEDs for single person alignment
Dimensions (W x H x D)	
• Transmitter & Receiver	78 x 77 x 161 mm
• Control unit	203 x 124 x 72 mm

Housing	
• Color	Light gray/black
• Material	C6600, non-flammable
Weight	
• Detector	500 g
• Prism reflector	100 g
• Control unit	1000 g

#### Environmental conditions

Protection class as per EN 60529	IP 54
Permissible operating temperature	-10 °C to 55°C

#### Planning

Permissible distance transmitter-receiver	Min. 5 m - max. 100 m
Connectable detectors per system controller	2 Transmitter and 2 Receiver

#### Special features

Optical wavelength	850 nm
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### Ordering information

#### FIRERAY3000 Linear beam detector

End-to-End Linear Smoke Detector for ranges between 5 m - 120 m

Order number **FIRERAY3000**

#### Accessories

#### FIRERAY3000-HD Linear beam detector head

Additional detector head

Order number **FIRERAY3000-HD**

## FIRERAY5000-EN Linear beam detector



### Features

- ▶ Extended monitoring range
- ▶ Up to 2 detectors per system controller
- ▶ Two pairs of fire and fault relays (one per detector)
- ▶ Transmitter and receiver integrated into a compact housing
- ▶ Integral LASER alignment

The Fireray5000-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 Fireray5000-EN Linear Smoke Detector is suitable for use in areas where point-type detectors are not effective

The Fireray5000-EN Linear Smoke Detector can be upgraded with one additional FRAY5000-HEAD-EN Detector Heads. The system controller can control up to two detectors. Each head can be programmed separately.

### 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%. Each detector can be adjusted individually. The standard setting is 35%.

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 system controller and LCD display for each detector head.

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.

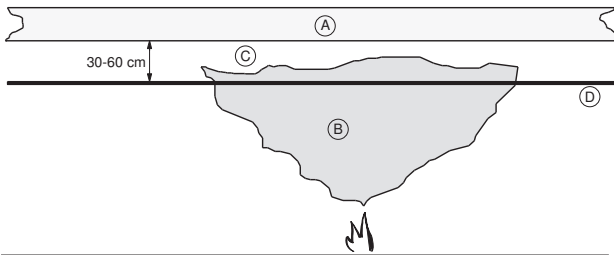
### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	Fireray5000-EN
	CPR	2831-CPR-F0390 Fireray 5000
	CPD	0832-CPD-0565 FireRay5000 Multi-head
Germany	VdS	G 208017 FRAY5000-EN
Belgium	BOSEC	TCC2-K803/c Fireray5000-EN

### 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



Installation (smoke plume)

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

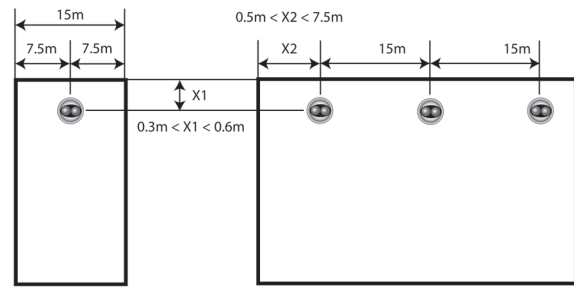
$X3 = 7.5 \text{ m} + (7.5 \text{ m} \times 10\%)$

$X3 = 7.5 \text{ m} + 0.75 \text{ m}$

$X3 = 8.25 \text{ m}$

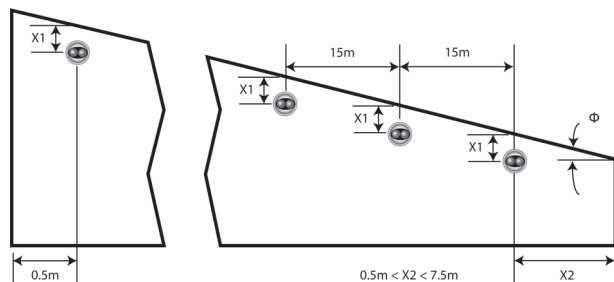
- The maximum distance between two detectors with parallel IR beams is 15 m.
- The centre line of the monitoring beam may not be closer than 0.5 m to walls, furniture or stored goods.
- The reflectors allow an angle deviation of up to 5° from the centre line without causing a weakening of the signal..

**Positioning the detectors on flat ceilings**



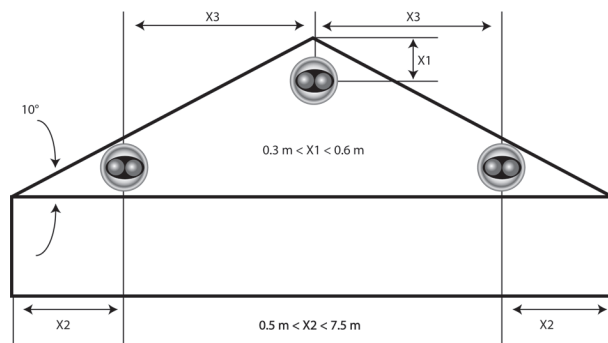
Mounting (flat ceiling)

**Positioning the detectors under a shed roof**



Mounting (shed roof)

**Positioning the detectors under a gable roof**



Mounting (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 RH	X2	A	X1 at $\alpha < 20^\circ$	X1 at $\alpha > 20^\circ$
Up to 6 m	6 m	1200 m <sup>2</sup>	0.3 m to 0.5 m	0.3 m to 0.5 m
6 m to 12 m	6,5 m	1300 m <sup>2</sup>	0.4 m to 0.7 m	0.4 m to 0.9 m
12 m to 16 m <sup>*)</sup>	7 m <sup>*)</sup>	1400 m <sup>2)</sup>	0.6 m to 0.9 m <sup>**</sup>	0.8 m to 1.2 m <sup>**</sup>

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 DH and the highest allowable detector/reflector distance)  
 X1 = distance between the detector and the ceiling  
 $\alpha$  = 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  $\alpha$  and the room height RH so that the light beam runs along the roof in a distance DL (see table).

### Parts included

Quantity	Component
1	Fireray5000-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 to 36 V DC
Current consumption	
• In standby, alarm or trouble (1 detector head)	5.5 mA
• In standby, alarm or trouble (2 detector heads)	8 mA
• In alignment mode (with 1 or 2 detector heads)	36mA (HiA) 5.5mA / 8mA (LoA)
Reset control by power disruption	> 5 s
Alarm relay (contact load)	100 mA @ 36 V
Fault relay (contact load)	100 mA @ 36 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	134 x 131 x 134 mm
• Prism reflector	100 x 100 x 10 mm
• Control unit	202 x 230 x 87 mm
Housing	
• Color	Light gray/black
• Material	C6600, non-flammable
Weight	
• Detector	500 g
• Prism reflector	100 g
• Control unit	1000 g

### Environmental conditions

Protection class as per EN 60529	IP 54
Permissible operating temperature	-10 °C to 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!)
Connectable detectors per system controller	1 to 2

### Special features

Optical wavelength	850 nm
Tolerance of the axial deviation	
• Detector	$\pm 0.3^\circ$
• Reflective prism	$\pm 5.0^\circ$

### Ordering information

#### FIRERAY5000-EN Linear beam detector

Reflective linear smoke detector with one detector head and one prism, range min. 8m - max. 50m (for ranges between 50m and 100m four prisms are required), comply with EN54-12:2002

Order number **FIRERAY5000-EN**

#### Accessories

**FRAY5000-HEAD-EN Additional head, EN application** additional detector head for Fireray5000-EN

Order number **FRAY5000-HEAD-EN**

**FRAY5000-1PRISM Prism plate, 1 prism**

prism plate for 1 prism, for use with universal bracket  
FRAY5000-BR  
Order number **FRAY5000-1PRISM**

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**FRAY5000-4PRISM Prism plate, 4 prisms**

prism plate for 4 prisms, for use with universal bracket  
FRAY5000-BR  
Order number **FRAY5000-4PRISM**

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**FRAY5000-BR Universal bracket**

universal bracket for Fireray5000 detector head or  
prism plate (FRAY5000-1PRISM or FRAY5000-4PRISM)  
Order number **FRAY5000-BR**

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**FRAY5000-LR-KIT Extension kit, long-range**

3 additional prisms for Fireray5000-EN and Fireray5000-  
UL, for ranges between 164 ft and 328 ft (50 m and  
100 m)  
Order number **FRAY5000-LR-KIT**

---

## FRAY-ONE-EN Linear beam detector, standalone



### Features

- ▶ Standalone product with integrated control unit
- ▶ Auto-Alignment with motorized detector head
- ▶ Light Cancellation Technology
- ▶ Building Movement Tracking
- ▶ Detection range up to 120 m

The FRAY-ONE-EN is an easy to mount and cost-effective linear beam detector. It covers distances between 5 m and 120 m. A reflective prism allows for the accurate detection of smoke particles within the given distance range.

For ranges between 5 m and 50 m, one prism is sufficient. For ranges between 50 m and 120 m, four prisms are required. The additional prisms are included in the FRAY5000-LR-KIT.

Key application areas are large halls such as historical buildings, churches, museums, shopping centers, factory halls, warehouses, etc.

The FRAY-ONE-EN is suitable for use in areas where point-type detectors are not effective.

### Functions

#### Detection performance

- Alignment method: Laser assisted, Auto-Alignment. Manual alignment - optional setting
- Building Movement Tracking: Compensates for natural shifts in alignment from building movement
- Contamination Compensation: Compensates for gradual build-up of contamination on the optical surfaces
- Light Cancellation Technology: Compensates for high levels of sunlight and artificial lighting
- Optical wavelength - smoke detection: 850 nm near infrared (invisible)
- Integrated laser - laser alignment: 650 nm visible. Class IIIa <5 mW

- Dynamic Beam Phasing: Allows beam detectors to be mounted facing each other with the reflectors in the middle. Eliminates false alarms caused by cross-talk between beams
- Signal output: Individual Alarm and Fault relays (VFCO) 0.5 A @ 30 VDC

#### Programmable user settings

- Alarm response threshold levels:
  - 25% (1.25 dB) - Fastest response to smoke (EN 54-12 approved)
  - 35% (1.87 dB) - Default value (EN 54-12 approved)
  - 55% (3.46 dB) - High immunity to false alarms, slow response to smoke
  - 85% (8.23 dB) - Highest immunity to false alarms, slowest response to smoke
  - Configured via the integrated user interface
- Delay to alarm: 10 seconds, for momentary partial obstruction of the beam path
- Delay to fault: 10 seconds, for momentary obstruction of the beam path

#### User features

- Integrated user interface: Alignment mode switch, alignment directional buttons and configuration switches for alarm response threshold
- Alignment status indication: 2 Green LEDs and 1 Yellow LED
- System status indication:
  - Normal operation - Green LED flashing every 10 seconds
  - Alarm condition - Red LED flashing every 10 seconds
  - Fault condition - Yellow LED flashing every 10 seconds for obscuration or every 5 seconds for contamination
- Cleaning: Flat front face with enclosed optics. Cleaning the optics does not affect alignment.

#### Design parameters

- Beam path clearance: 1 m in diameter from center line between detector and reflector
- Detector location: Within the ceiling jet flow (top 10% of the floor to ceiling height) unless otherwise stipulated

#### Field wiring

- Cable gauge and type:
  - 2 core, dedicated, 0.5 to 1.6 mm
  - System compatible with fireproof and non-fireproof cable meeting local installation standards
- Cable entry:
  - 3 knock-out locations capable of accepting M20, 12.7 mm or 19 mm glands
  - 4 drill-out locations capable of accepting glands up to 21 mm diameter

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	EU_CE FRAY-ONE-EN
	CPR	EU-CPR 2831-CPR-F2237
Germany	VdS	G 218070 FRAY-ONE-EN
Belgium	BOSEC	B-9223-FD-K1066

### Parts included

Quantity	Component
1	FRAY-ONE-EN base
1	FRAY-ONE-EN detector head
1	Reflector
1	Short range mask

### Technical specifications

#### Electrical

	FRAY-ONE-EN Linear beam detector, standalone
Auxiliary current (mA)	4.5 mA – 5.5 mA
Auxiliary current - Alignment modes (mA)	31 mA - 35 mA
Operating voltage (VDC)	14 VDC – 36 VDC

#### Environmental

	FRAY-ONE-EN Linear beam detector, standalone
Operating relative humidity, non-condensing (%)	0% – 93%
Operating temperature (°C)	-20 °C – 55 °C
Storage temperature (°C)	-40 °C – 85 °C
Weather rating (IEC 60529)	IP55

#### Mechanical

	FRAY-ONE-EN Linear beam detector, standalone
Weight (kg)	0.70 kg
Weight reflector (kg)	0.1 kg
Color in RAL	RAL 9016 Traffic white
Dimension (H x W x D) (mm)	181 mm x 130 mm x 134 mm
Dimension reflector (H x W x D) (mm)	Up to 50 m separation distance - 1 prism: 100 mm x 100 mm x 9 mm

	FRAY-ONE-EN Linear beam detector, standalone
	Up to 120 m separation distance - 4 prisms: Four reflectors 200 mm x 200 mm x 9 mm
LED color	Red; Yellow; Green
Material	Plastic

#### Optical

	FRAY-ONE-EN Linear beam detector, standalone
Fault level / Rapid obscuration ( $\Delta \leq 2$ seconds)	$\geq 85\%$
Maximum angular alignment of reflective detector	$\pm 4.5^\circ$ ( $\pm 70^\circ$ with adjustment bracket accessory)
Maximum angular misalignment of reflective detector	$\pm 0.5^\circ$
Maximum angular misalignment of reflector	$\pm 5.0^\circ$

### Ordering information

#### FRAY-ONE-EN Linear beam detector, standalone

Reflective linear beam detector with one prism, range 5 m - 120 m

Order number **FRAY-ONE-EN**

#### Accessories

##### FRAY5000-BR Universal bracket

Universal bracket

Order number **FRAY5000-BR**

##### FRAY5000-1PRISM Prism plate, 1 prism

prism plate for 1 prism, for use with universal bracket

FRAY5000-BR

Order number **FRAY5000-1PRISM**

##### FRAY5000-4PRISM Prism plate, 4 prisms

prism plate for 4 prisms, for use with universal bracket

FRAY5000-BR

Order number **FRAY5000-4PRISM**

##### FRAY5000-LR-KIT Extension kit, long-range

3 additional prisms

Order number **FRAY5000-LR-KIT**

## Fireray 50/100RV Linear beam detectors



### 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

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.

### Regulatory information

Meets the following regulations:

- BS 5839 Part 5
- EN54-12:2002

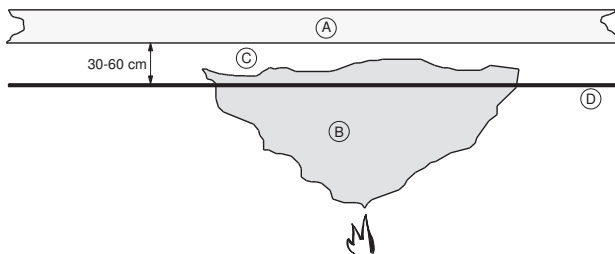
Region	Regulatory compliance/quality marks	
Europe	CE	Fireray 50/100RV
	CPR	0786-CPR-20045 Fireray 50R/50RV/100R/100RV
Germany	VdS	G 203070 Fireray 50RV/100RV
Switzerland	VKF	AEAI 19200 Fireray 50RV_Fireray 100RV
Russia	GOST	POCC.YII001.B07219 Fireray2000 & Fireray 50-100RV
	GOST	POCC GB.bb02.H04311 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**

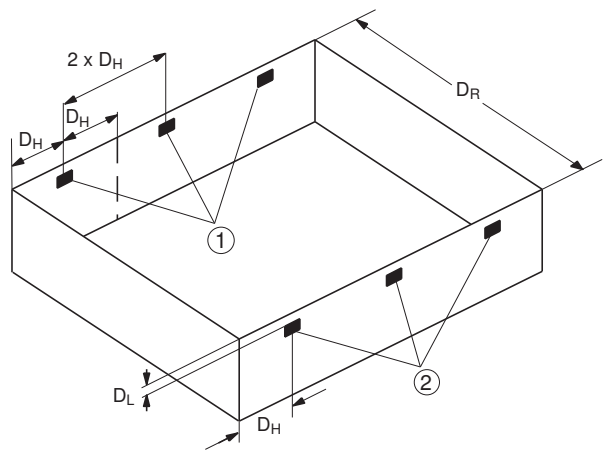
The detectors must be divided up so that the following distances are adhered to:

$D_H$	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 detector-reflector.	over 5 m to 100 m
	- Fireray 50RV:	50 m
	- Fireray 100RV:	over 50 m to 100 m

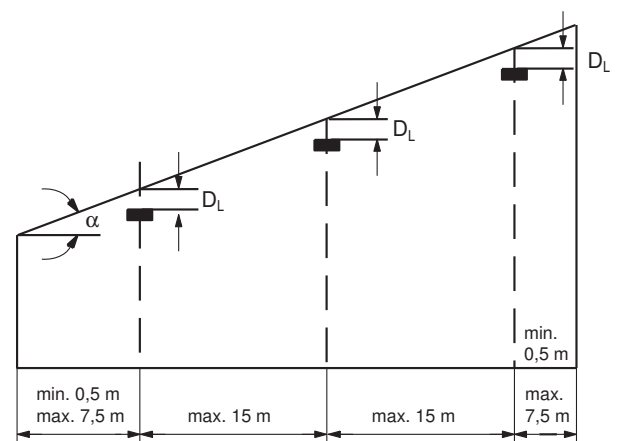
- The center line of the monitoring beam may not be closer than 0.5 m to walls, equipment or stored goods.
- The prism reflectors permit angle deviations up to 5° from the center line without signal weakening.

**Positioning detectors on flat ceilings**

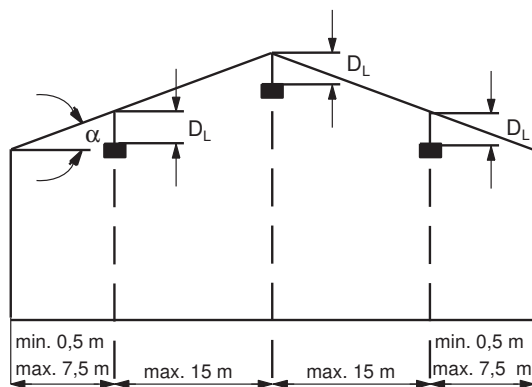


Pos.	Description
1	Fireray 50/100RV
2	Prism reflectors
$D_H, D_L,$	see table above
$D_R$	

**Positioning the detectors in a tilted roof**



## Positioning the detectors in a saddleback roof

**i Notice**

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 <sup>2</sup>	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 <sup>2</sup>	0.4 m to 0.7 m	0.4 m to 0.9 m
more than 12 m to 16 m <sup>*)**)</sup>	7 m <sup>*)</sup>	1400 m <sup>2</sup> <sup>**) )</sup>	0.6 m to 0.9 m <sup>**) )</sup>	0.8 m to 1.2 m <sup>**) )</sup>

$D_H$  = 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

$\alpha$  = 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  $\alpha$  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 guidelines!)

### 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	± 0.8°
• Prism reflector	± 5.0°

### Ordering information

**FIRERAY 50 RV Linear smoke detector, 50m**  
conventional reflective linear smoke detector for ranges between 5 m to 50 m  
Order number **FIRERAY 50 RV**

**FIRERAY 100 RV Linear smoke detector, 100m**  
conventional reflective linear smoke detector for ranges between 50 to 100m  
Order number **FIRERAY 100 RV**

### Accessories

**Mini Distributor a.P. 6 DA, gray**  
12 solder flags for the connection of 6 double wires  
Order number

# Aspiration Smoke Detectors

<b>FAS-420-TM Aspiration smoke detector series LSN improved</b>	<b>148</b>
<b>FAS-420 Aspiration smoke detector series LSN improved</b>	<b>153</b>
<b>Components for Smoke Aspiration Systems</b>	<b>158</b>
<b>FCS-320-TP Conventional aspiration smoke detector series</b>	<b>159</b>
<b>FCS-320-TM Conventional aspiration smoke detector series</b>	<b>164</b>

## FAS-420-TM Aspiration smoke detector series LSN improved

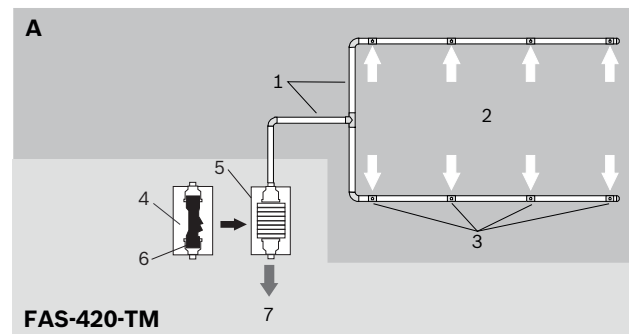


### Features

- ▶ For connecting to the fire panels FPA-5000 and FPA-1200 with LSN improved technology
- ▶ High deceptive alarm immunity with intelligent signal processing *LOGIC-SENS*
- ▶ 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

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 aspiring 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 Aspiring 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 Aspiring 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 Aspiring 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 Aspiring 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.

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FAS-420-TM Series
	CPD	0786-CPD-20879 FCS-320-TM_FAS-420-TM
Germany	VdS	G209144 FCS-320-TM_FAS-420-TM
Switzerland	VKF	AEAI 21137 FCS-320-TM_FAS-420-TM
Hungary	TMT	TMT-55/2009 FAS-420-TM

**Installation/configuration notes**

- You can use this device only with the Panel Controller MPC-xxxx-B or the FPA-1200. The Panel Controller MPC-xxxx-A cannot be used.

- 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**

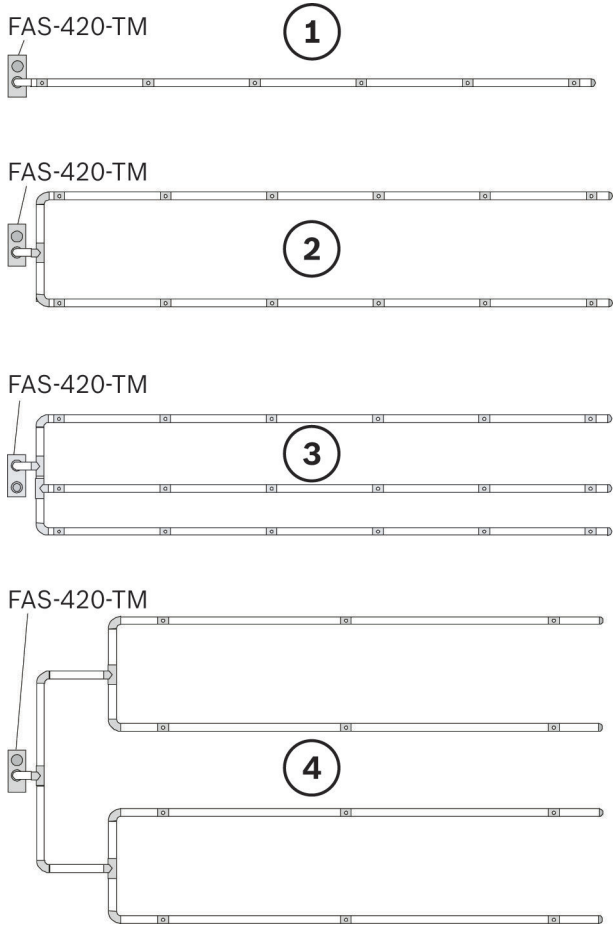
For faster detection, it is best to select several short branches rather than a few long branches (U and double-U pipe systems preferable).

**Pipe configuration**

Depending on the geometry of the area, the aspiration pipe is planned as an I, U, M or double-U pipe system.

**Notice**

Planning with fire source identification requires I pipe configuration.



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 Aspiration 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 Aspiration Smoke Detector unit with LED displays for operating mode, malfunction and alarm

FAS-420-TM-R	1	Standard Aspiration Smoke Detector unit with LED displays for operating mode, malfunction, alarm and fire source identification
FAS-420-TM-R VB	1	Standard Aspiration Smoke Detector unit with LED displays for operating mode, malfunction, pre-alarm, main alarm, fire source identification and 10-segment smoke level display

**i Notice**  
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	6.25 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 Aspiration smoke detector

analog addressable aspirating smoke detector with LED displays for operating mode, malfunction and alarm  
Order number **FAS-420-TM**

#### FAS-420-TM-R Aspiration smoke detector, room-ident

analog addressable aspirating smoke detector with LED displays for operating mode, malfunction, alarm and fire source identification  
Order number **FAS-420-TM-R**

#### FAS-420-TM-RVB Aspiration smoke detector, bar graph

analog addressable aspirating smoke detector with LED displays for operating mode, malfunction, alarm, fire source identification and smoke level display  
Order number **FAS-420-TM-RVB**

#### FAS-420-TM-HB Housing base

housing base for aspirating smoke detector series FAS-420-TM  
Order number **FAS-420-TM-HB**

### Accessories

#### 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.

Order number **FAS-ASD-DIAG**

#### RAS TEST-PIPE Test pipe for smoke aspiration system

Pipe with three different suction openings to make the functional test easier to carry out.

Order number **RAS TEST-PIPE**

#### RAS TEST ADAPTER Test adapter for smoke aspiration system

The Test Adapter is recommended for applications where the suction pipe system has to be fixed.

Order number **RAS TEST ADAPTER**

#### TITANUS AF-BR Marking tape suction-reducing film sheet

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR**

#### TITANUS AF-2.0 Suction-reducing film sheets, 2.0mm

Price per piece, DU 10 pieces

Order number **TITANUS AF-2.0**

#### TITANUS AF-2.5 Suction-reducing film sheets, 2.5mm

Price per piece, DU 10 pieces

Order number **TITANUS AF-2.5**

#### TITANUS AF-3.0 Suction-reducing film sheets, 3.0mm

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.0**

**TITANUS AF-3.2 Suction-reducing film sheets,  
3.2mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.2**

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**TITANUS AF-3.4 Suction-reducing film sheets,  
3.4mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.4**

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**TITANUS AF-3.6 Suction-reducing film sheets,  
3.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.6**

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**TITANUS AF-3.8 Suction-reducing film sheets,  
3.8mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.8**

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**TITANUS AF-4.0 Suction-reducing film sheets,  
4.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.0**

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**TITANUS AF-4.2 Suction-reducing film sheets,  
4.2mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.2**

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**TITANUS AF-4.4 Suction-reducing film sheets,  
4.4mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.4**

---

**TITANUS AF-4.6 Suction-reducing film sheets,  
4.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.6**

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**TITANUS AF-5.0 Suction-reducing film sheets,  
5.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.0**

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**TITANUS AF-5.2 Suction-reducing film sheets,  
5.2mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.2**

---

**TITANUS AF-5.6 Suction-reducing film sheets,  
5.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.6**

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**TITANUS AF-6.0 Suction-reducing film sheets,  
6.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-6.0**

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**TITANUS AF-6.8 Suction-reducing film sheets,  
6.8mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-6.8**

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**TITANUS AF-7.0 Suction-reducing film sheets,  
7.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-7.0**

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## FAS-420 Aspiration smoke detector series LSN improved



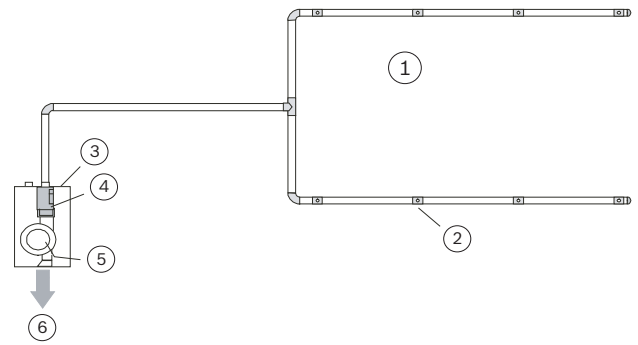
### Features

- ▶ 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
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators
- ▶ SL-versions: Noise reduction to 38 dB(A) by extremely quiet fan and up to 34 dB(A) with additional sound absorber

The FAS-420 Series Aspiration 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.

The SL-versions with extremely quiet fan are applicable for noise sensitive areas, for example hotel rooms, hospitals and bureaus. The noise was reduced to 38 dB(A) and up to 34 dB(A) with additional sound absorber.

### System overview



### Pos. Description

- | 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 Aspiration 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 Aspiration 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



**Notice**

The sensitivity is based on the measurements during Standard Test Fires (previous measurement in brackets).

The FAS-420-TP2, FAS-420-TT2, FAS-420-TP2-SL and the FAS-420-TT2-SL 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 AVENAR panel series, FPA-5000 or 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 Aspiration 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 Aspiration Smoke Detectors for universal use with LED displays for operation, malfunction, and alarm (two alarm indications on the FAS-420-TP2). They are also available as silent versions FAS-420-TP1-SL and FAS-420-TP2-SL.

The FAS-420-TT1 and FAS-420-TT2 (FAS-420-TT1-SL and FAS-420-TT2-SL) 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.

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FAS-420-TP1/-TP2
	CE	FAS-420-TT1/-TT2
	CPR	0786-CPR-20790 FCS-320-TPx_FCS-320-TTx_FAS-420-TPx_FAS-420-TTx
Germany	VdS	G 208046 FCS-320 TT_TPSeries / FAS-420 TT_TPSeries
Switzerland	VKF	AEAI 19207 FAS-420 LSNi

**Installation/configuration notes**

- For connection to the addressable fire panels 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 Aspiration Smoke Detectors can be ordered separately.

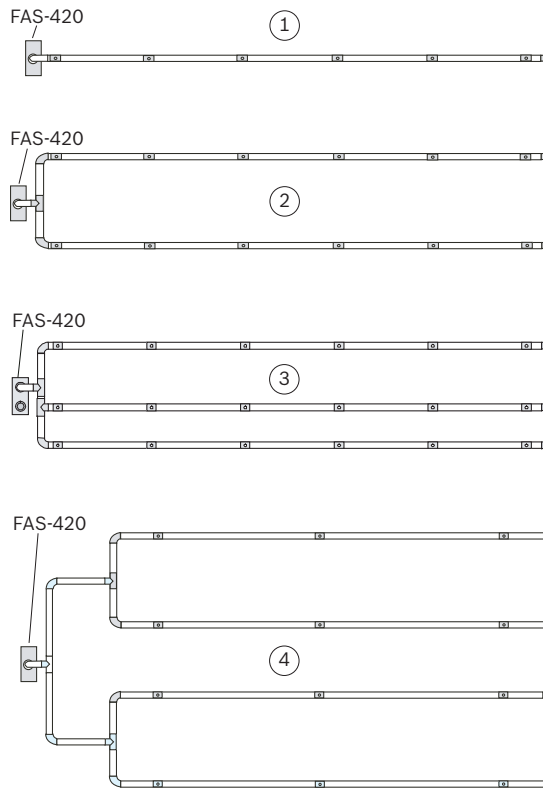
**Planning of the pipe system**

- 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 (±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 ± 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 Aspiration 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.



**Notice**

Take notice when planning that the fans of the Aspiration 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 m<sup>2</sup> (VdS-compliant)
  - With two Detector Modules: 2\*280 m / 5760 m<sup>2</sup>

#### 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.



#### Notice

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, refer to the operation guide (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

#### Technical specifications

	Auxiliary current (mA)
FAS-420-TP1 Aspiration smoke detector, 1 pipe system	285 mA
FAS-420-TP2 Aspiration smoke detector 2 pipe systems	325 mA
FAS-420-TT1 Aspiration smoke detector, 1 pipe system	290 mA – 305 mA
FAS-420-TT2 Aspiration smoke detector 2 pipe systems	330 mA – 360 mA
FAS-420-TP1-SL Aspiration smoke detector silent 1 pipe	170 mA – 190 mA
FAS-420-TP2-SL Aspiration smoke detector silent 2 pipes	210 mA – 230 mA
FAS-420-TT1-SL Aspiration smoke detector silent 1 pipe	170 mA – 190 mA
FAS-420-TT2-SL Aspiration smoke detector silent 2 pipes	210 mA – 230 mA

### Ordering information

#### FAS-420-TP1 Aspiration smoke detector, 1 pipe system

Basic unit without Detector Module, for connecting one pipe system  
Order number **FAS-420-TP1**

#### FAS-420-TP2 Aspiration smoke detector 2 pipe systems

Basic unit without Detector Modules, for connecting two pipe systems  
Order number **FAS-420-TP2**

#### FAS-420-TT1 Aspiration smoke detector, 1 pipe system

Basic unit without Detector Module, for connecting one pipe system  
Order number **FAS-420-TT1**

#### FAS-420-TT2 Aspiration smoke detector 2 pipe systems

Basic unit without Detector Modules, for connecting two pipe systems  
Order number **FAS-420-TT2**

#### FAS-420-TP1-SL Aspiration smoke detector silent 1 pipe

Basic unit without Detector Module, for connecting one pipe system  
Order number **FAS-420-TP1-SL**

#### FAS-420-TP2-SL Aspiration smoke detector silent 2 pipes

Basic unit without Detector Module, for connecting two pipe systems  
Order number **FAS-420-TP2-SL**

#### FAS-420-TT1-SL Aspiration smoke detector silent 1 pipe

Basic unit without Detector Module, for connecting one pipe system  
Order number **FAS-420-TT1-SL**

#### FAS-420-TT2-SL Aspiration smoke detector silent 2 pipes

Basic unit without Detector Module, for connecting two pipe systems  
Order number **FAS-420-TT2-SL**

#### Accessories

##### DM-TT-50(80) Detector module max. sensitivity 0.5%/m

Detector module for Aspiration Smoke Detectors Series FAS-420, with max. sensitivity of 0,5 %/m (0.8 %/m) light obscuration  
Order number **DM-TT-50(80)**

##### DM-TT-10(25) Detector module max. sensitivity 0.1%/m

Detector module for Aspiration Smoke Detectors Series FAS-420, with max. sensitivity of 0,1 %/m (0.25 %/m) light obscuration  
Order number **DM-TT-10(25)**

##### DM-TT-01(05) Detect. module max. sensitivity 0.015%/m

Detector module for Aspiration Smoke Detector Series FAS-420, with max. sensitivity of 0,015 %/m (0.05 %/m) light obscuration  
Order number **DM-TT-01(05)**

##### FAS-ASD-SL Sound absorber smoke aspiration detector

Noise reduction up to 10 dB(A).  
Order number **FAS-ASD-SL**

##### 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.  
Order number **FAS-ASD-DIAG**

##### MT-1 Device Mounting

Bracket (two parts) for mounting TITANUS devices on racks or similar equipment  
Order number **TITANUS MT-1 mount**

##### RAS TEST-PIPE Test pipe for smoke aspiration system

Pipe with three different suction openings to make the functional test easier to carry out.  
Order number **RAS TEST-PIPE**

##### Test Adapter

The Test Adapter is recommended for applications where the suction pipe system has to be fixed.  
Order number **RAS test adapter**

##### TITANUS AF-2.0 Suction-reducing film sheets, 2.0mm

Price per piece, DU 10 pieces  
Order number **TITANUS AF-2.0**

##### TITANUS AF-2.5 Suction-reducing film sheets, 2.5mm

Price per piece, DU 10 pieces  
Order number **TITANUS AF-2.5**

##### TITANUS AF-3.0 Suction-reducing film sheets, 3.0mm

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.0**

##### TITANUS AF-3.2 Suction-reducing film sheets, 3.2mm

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.2**

##### TITANUS AF-3.4 Suction-reducing film sheets, 3.4mm

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.4**

##### TITANUS AF-3.6 Suction-reducing film sheets, 3.6mm

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.6**

**TITANUS AF-3.8 Suction-reducing film sheets,  
3.8mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.8**

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**TITANUS AF-4.0 Suction-reducing film sheets,  
4.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.0**

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**TITANUS AF-4.2 Suction-reducing film sheets,  
4.2mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.2**

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**TITANUS AF-4.4 Suction-reducing film sheets,  
4.4mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.4**

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**TITANUS AF-4.6 Suction-reducing film sheets,  
4.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.6**

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**TITANUS AF-5.0 Suction-reducing film sheets,  
5.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.0**

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**TITANUS AF-5.2 Suction-reducing film sheets,  
5.2mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.2**

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**TITANUS AF-5.6 Suction-reducing film sheets,  
5.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.6**

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**TITANUS AF-6.0 Suction-reducing film sheets,  
6.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-6.0**

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**TITANUS AF-6.8 Suction-reducing film sheets,  
6.8mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-6.8**

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**TITANUS AF-7.0 Suction-reducing film sheets,  
7.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-7.0**

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**TITANUS AF-BR Marking tape suction-reducing film  
sheet**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-BR**

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## Components for Smoke Aspiration Systems

3



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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	hd-75426B3E Deto Protego DA-G

### Ordering information

#### FAS-ASD-PHF16 Polywell hose flexible, PG 16

50 m roll, flexible, black, non halogen  
Order number **FAS-ASD-PHF16**

#### FAS-ASD-TRPG16 Threaded ring, PG 16

including PG16 internal threads, 5 units  
Order number **FAS-ASD-TRPG16**

#### FAS-ASD-CSL Connection, straight line

connection between aspiration hose and aspiration pipe, including PG16 internal thread  
Order number **FAS-ASD-CSL**

#### FAS-ASD-3WT Three-way tap

including fittings, for 25 mm pipe system  
Order number **FAS-ASD-3WT**

#### FAS-ASD-F Flange

for ventilation duct  
Order number **FAS-ASD-F**

#### FAS-ASD-AR Aspiration reduction

includes a 10 mm bore for adding a suction reducing film sheet, 10 units  
Order number **FAS-ASD-AR**

#### FAS-ASD-CLT Ceiling lead-through

white, ABS, 10 units  
Order number **FAS-ASD-CLT**

#### FAS-ASD-AHC Aspiration hose for ceiling lead-through

50 m roll, white, PE  
Order number **FAS-ASD-AHC**

#### FAS-ASD-DSB Detonation safety barrier

type PROTEGO EG IIA  
Order number **FAS-ASD-DSB**

#### 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  
Order number **FAS-ASD-WS**

#### FAS-ASD-FL Filterbox, large

for 25 mm pipe system, including filter set and two PG29 screw joints  
Order number **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)  
Order number **FAS-ASD-RFL**

## FCS-320-TP Conventional aspiration smoke detector series

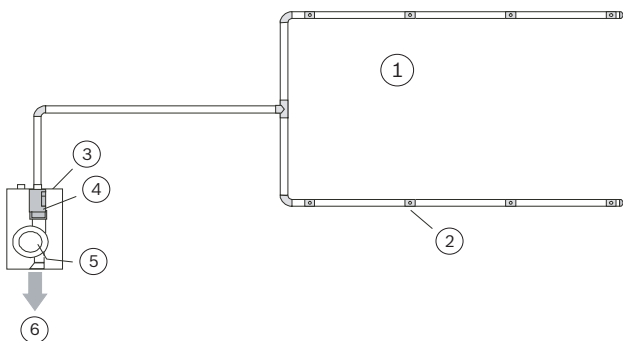


### Features

- ▶ For connecting to conventional fire panels
- ▶ 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

The FCS-320-TP Series Aspiring Smoke Detectors 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 Aspiring 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. Fault messages are reset via the connected fire panel and the reset input or the Reset Module FCA-320-Reset. There are three different Detector Modules available for the FCS-320-TP Series Aspiring Smoke Detectors. These modules have different response sensitivities:

Detector Module	Max. sensitivity (light obscuration)	Levels for selection
DM-TP-50(80)	0.5 %/m (0.8 %/m)	2
DM-TP-10(25)	0.1 %/m (0.25 %/m)	4
DM-TP-01(05)	0.015 %/m (0.05 %/m)	4



#### Notice

The sensitivity is based on the measurements during Standard Test Fires (previous measurement in brackets).

The FCS-320-TP2 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.

**Model variants FCS-320-TP Series**

The variants FCS-320-TP1 and FCS-320-TP2 are the cost-effective Aspirating Smoke Detectors for universal use with LED displays for operation, malfunction, and alarm (two alarm indications on the FCS-320-TP2).

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FCS-320-TP
	CPR	0786-CPR-20790 FCS-320-TPx_FCS-320-TTx_FAS-420-TPx_FAS-420-TTx
Germany	VdS	G 208046 FCS-320 TT_TPSeries / FAS-420 TT_TPSeries

**Installation/configuration notes**

- For connection to conventional fire panels

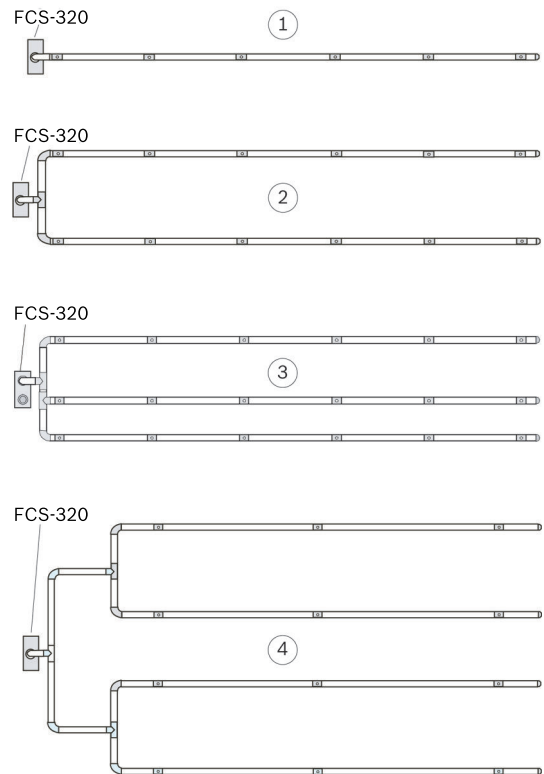
**Planning of the pipe system**

- 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 1:2.
  - 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.



**Notice**

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 m<sup>2</sup> (VdS-compliant)
  - With two Detector Modules: 2\*280 m / 5760 m<sup>2</sup>

**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.

**i Notice**

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 FCS-320 planning, please refer to the operation guide “FCS-320 Series Aspirating Smoke Detectors LSN improved version” (product ID F.01U.130.926):

- 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	Quantity	Components
FCS-320-TP1	1	Aspirating Smoke Detector basic unit, with LED displays for operation, malfunction, and alarm, for one Detector Module, for connecting one pipe system
FCS-320-TP2	1	Aspirating Smoke Detector basic unit, with LED displays for operation, malfunction, and alarm, for two Detector Modules, for connecting two pipe systems

**i Notice**

One or two Detector Modules must be ordered separately for the basic units (see table).

For type of device	Quantity	Required Detector Modules
FCS-320-TP1	1	Either DM-TP-50(80), DM-TP-10(25) or DM-TP-01(05)
FCS-320-TP2	2	DM-TP-50(80), DM-TP-10(25) and/or DM-TP-01(05)

**Technical specifications****Electrical**

Operating voltage	14 V DC to 30 V DC	
Current consumption from auxiliary power supply (at 24 V)	FCS-320-TP1	FCS-320-TP2
• 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	
FCS-320-TP1 / FCS-320-TP2	
• In operation	Green LED
• Malfunction	Yellow LED
• Alarm	1 red LED / 2 red LEDs
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	
<ul style="list-style-type: none"> <li>FCS-320-TP Series Aspirating Smoke Detectors</li> </ul>	-20 °C to +60 °C
<ul style="list-style-type: none"> <li>Pipe system PVC</li> </ul>	00 °C to +60 °C
<ul style="list-style-type: none"> <li>Pipe system ABS</li> </ul>	-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
<ul style="list-style-type: none"> <li>Detector Module DM-TP-50(80)</li> </ul>	0.5 %/m (0.8 %/m)
<ul style="list-style-type: none"> <li>Detector Module DM-TP-10(25)</li> </ul>	0.1 %/m (0.25 %/m)
<ul style="list-style-type: none"> <li>Detector Module DM-TP-01(05)</li> </ul>	0.015 %/m (0.05 %/m)
Service life of the fan (12 V)	43,000 hrs at 24 °C

**Ordering information****FCS-320-TP1 Aspiration smoke detector, 1 pipe system**Order number **FCS-320-TP1****EWE-FCS320-IW 12 mths wrty ext FCS-320**

12 months warranty extension

Order number **EWE-FCS320-IW****FCS-320-TP2 Aspiration smoke detector 2 pipe systems**Order number **FCS-320-TP2****EWE-FCS320-IW 12 mths wrty ext FCS-320**

12 months warranty extension

Order number **EWE-FCS320-IW****Accessories****DM-TP-50(80) Detector module max. sensitivity 0.5%/m**for TITANUS Basic Devices *PRO-SENS*® TP-1 A and TP-2 A, with max. sensitivity of 0.5 %/m (0.8 %/m) light obscurationOrder number **DM-TP-50(80)****DM-TP-10(25) Detector module max. sensitivity 0.01%/m**for TITANUS Basic Devices *PRO-SENS*® TP-1 A and TP-2 A, with max. sensitivity of 0.10 %/m (0.25 %/m) light obscurationOrder number **DM-TP-10(25)****DM-TP-01(05) Detect. module max. sensitivity 0.015%/m**for TITANUS Basic Devices *PRO-SENS*® TP-1 A and TP-2 A, with max. sensitivity of 0.015 %/m (0.05 %/m) light obscurationOrder number **DM-TP-01(05)****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.

Order number **FAS-ASD-DIAG****FCA-320-RESET Reset module**

Reset module for FCS-320-TP1, FCS-320-TP2 or FCS-320-TM

Order number **FCA-320-RESET****TITANUS MT-1 MOUNT Device mounting**

Bracket (two parts) for mounting TITANUS devices on racks or similar equipment

Order number **TITANUS MT-1 MOUNT****FCS-320-IK Installation kit**

installation kit for mounting of FCA-320-Reset modules into FCS-320-TP1 or FCS-320-TP1

Order number **FCS-320-IK****RAS TEST-PIPE Test pipe for smoke aspiration system**

Pipe with three different suction openings to make the functional test easier to carry out.

Order number **RAS TEST-PIPE****RAS TEST ADAPTER Test adapter for smoke aspiration system**

The Test Adapter is recommended for applications where the suction pipe system has to be fixed.

Order number **RAS TEST ADAPTER****TITANUS AF-BR Marking tape suction-reducing film sheet**

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR****TITANUS AF-2.0 Suction-reducing film sheets, 2.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-2.0****TITANUS AF-2.5 Suction-reducing film sheets, 2.5mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-2.5****TITANUS AF-3.0 Suction-reducing film sheets, 3.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.0****TITANUS AF-3.2 Suction-reducing film sheets, 3.2mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.2**

**TITANUS AF-3.4 Suction-reducing film sheets, 3.4mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.4**

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**TITANUS AF-3.6 Suction-reducing film sheets, 3.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.6**

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**TITANUS AF-3.8 Suction-reducing film sheets, 3.8mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-3.8**

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**TITANUS AF-4.0 Suction-reducing film sheets, 4.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.0**

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**TITANUS AF-4.2 Suction-reducing film sheets, 4.2mm**

Price per piece, DU 10 pieces  
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**TITANUS AF-4.4 Suction-reducing film sheets, 4.4mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.4**

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**TITANUS AF-4.6 Suction-reducing film sheets, 4.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-4.6**

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**TITANUS AF-5.0 Suction-reducing film sheets, 5.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.0**

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**TITANUS AF-5.2 Suction-reducing film sheets, 5.2mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.2**

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**TITANUS AF-5.6 Suction-reducing film sheets, 5.6mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-5.6**

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**TITANUS AF-6.0 Suction-reducing film sheets, 6.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-6.0**

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**TITANUS AF-6.8 Suction-reducing film sheets, 6.8mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-6.8**

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**TITANUS AF-7.0 Suction-reducing film sheets, 7.0mm**

Price per piece, DU 10 pieces  
Order number **TITANUS AF-7.0**

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## FCS-320-TM Conventional aspiration smoke detector series



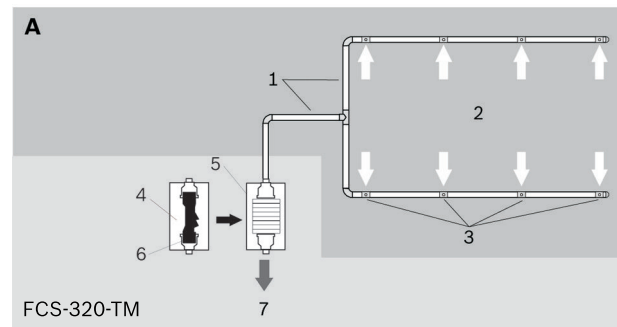
### Features

- ▶ For connecting to conventional fire panels
- ▶ High deceptive alarm immunity with intelligent signal processing *LOGIC-SENS*
- ▶ 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

The FCS-320-TM Series Aspiring Smoke Detectors are active fire detection systems 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 aspiring 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
FCS-320-TM series	Aspiring smoke detector series
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 FCS-320-TM Aspiring Smoke Detector triggers the alarm when the appropriate light obscuration level is reached. The alarm is displayed via the 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.

Malfunction messages are reset via the connected fire panel and the Reset Module FCA-320-Reset.

#### 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

FCS-320-TM series Aspiring 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.

**FCS-320-TM series variant models**

All FCS-320-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 FCS-320-TM-R variant offer an optical fire location display for up to five zones.

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FCS-320-TM
	CPD	0786-CPD-20879 FCS-320-TM_FAS-420-TM
Germany	VdS	G209144 FCS-320-TM_FAS-420-TM
Switzerland	VKF	AEAI 21137 FCS-320-TM_FAS-420-TM

**Installation/configuration notes****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**

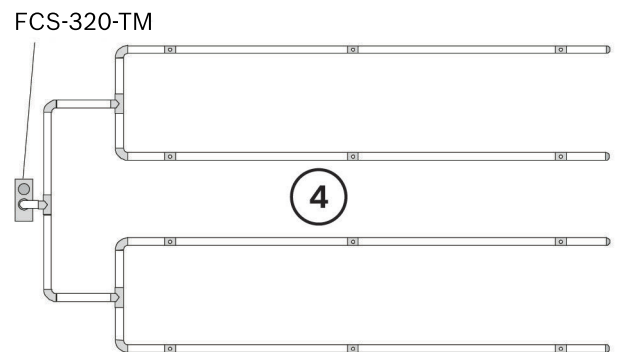
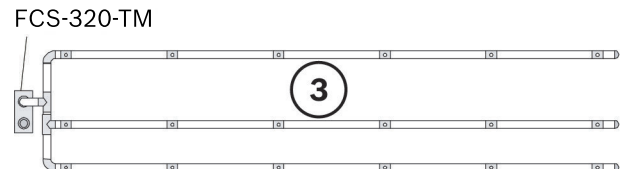
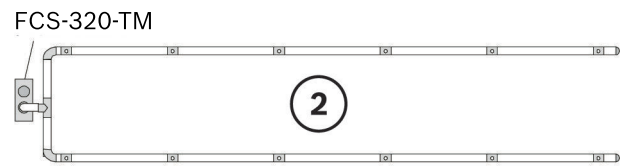
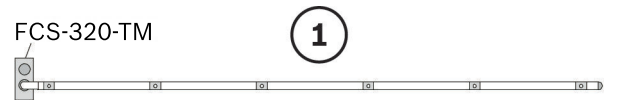
For faster detection, it is best to select several short branches rather than a few long branches (U and double-U pipe systems preferable).

**Pipe configuration**

Depending on the geometry of the area, the aspiration pipe is planned as an I, U, M or double-U pipe system.

**Notice**

Planning with fire source identification requires I pipe configuration.



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 FCS-320-TM planning, please refer to the operation guide "FCS-320-TM Series Aspirating Smoke Detectors LSN improved version" (Product ID F.01U.130.928):

- 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
FCS-320-TM	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction and alarm
FCS-320-TM-R	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction, alarm and fire source identification



**Notice**

The FAS-420-TM-HB Housing Base must be ordered separately for standard units.

**Technical specifications**

**Electrical**

Power supply	15 V DC . . 30 V DC		
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	90 mA	110 mA	130 mA
- With alarm	125 mA	135 mA	150 mA

**Displays on the device**

	FCS-320-TM	FCS-320-TM-R
Operation	Green LED	Green LED
Malfunction	Yellow LED	Yellow LED
Alarm	Red LED	Red LED
Fire location display	-	5 red LEDs (zones A-E)
Smoke level display	-	-
Infrared port	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**

**FCS-320-TM Aspiration smoke detector**

conventional aspirating smoke detector with LED displays for operating mode, malfunction and alarm  
Order number **FCS-320-TM**

**EWE-FCS320-IW 12 mths wrty ext FCS-320**

12 months warranty extension  
Order number **EWE-FCS320-IW**

**FCS-320-TM-R Aspiration smoke detector, room-ident**

conventional aspirating smoke detector with LED displays for operating mode, malfunction, alarm and fire source identification  
Order number **FCS-320-TM-R**

**EWE-FCS320-IW 12 mths wrty ext FCS-320**

12 months warranty extension  
Order number **EWE-FCS320-IW**

**FAS-420-TM-HB Housing base**

housing base for aspirating smoke detector series FAS-420-TM  
Order number **FAS-420-TM-HB**

**Accessories****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.

Order number **FAS-ASD-DIAG**

**FCA-320-RELAY Relay module**

relay module for aspirating smoke detector FCS-320-TM or FCS-320-TM-R

Order number **FCA-320-RELAY**

**FCA-320-RESET Reset module**

Reset module for FCS-320-TP1, FCS-320-TP2 or FCS-320-TM

Order number **FCA-320-RESET**

**RAS TEST-PIPE Test pipe for smoke aspiration system**

Order number **RAS TEST-PIPE**

**RAS TEST ADAPTER Test adapter for smoke aspiration system**

Order number **RAS TEST ADAPTER**

**TITANUS AF-BR Marking tape suction-reducing film sheet**

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR**

**TITANUS AF-2.0 Suction-reducing film sheets, 2.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-2.0**

**TITANUS AF-2.5 Suction-reducing film sheets, 2.5mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-2.5**

**TITANUS AF-3.0 Suction-reducing film sheets, 3.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.0**

**TITANUS AF-3.2 Suction-reducing film sheets, 3.2mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.2**

**TITANUS AF-3.4 Suction-reducing film sheets, 3.4mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.4**

**TITANUS AF-3.6 Suction-reducing film sheets, 3.6mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.6**

**TITANUS AF-3.8 Suction-reducing film sheets, 3.8mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.8**

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Order number **TITANUS AF-4.4**

**TITANUS AF-4.6 Suction-reducing film sheets, 4.6mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-4.6**

**TITANUS AF-5.0 Suction-reducing film sheets, 5.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-5.0**

**TITANUS AF-5.2 Suction-reducing film sheets, 5.2mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-5.2**

**TITANUS AF-5.6 Suction-reducing film sheets, 5.6mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-5.6**

**TITANUS AF-6.0 Suction-reducing film sheets, 6.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-6.0**

**TITANUS AF-6.8 Suction-reducing film sheets, 6.8mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-6.8**

**TITANUS AF-7.0 Suction-reducing film sheets, 7.0mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-7.0**

# Linear Heat Detectors

<b>FCS-LHD-2EN Linear heat detector, VdS</b>	<b>169</b>
<b>FCS-LWM-1 Linear heat detector</b>	<b>171</b>

## FCS-LHD-2EN Linear heat detector, VdS



VdS

### Features

- ▶ Applicable in constricted spaces and under extreme environmental conditions.
- ▶ IP 65 rated enclosure
- ▶ Minimal maintenance costs through continual self-monitoring of the sensor cable
- ▶ Commissioning via built in LCD display
- ▶ Rate-of-rise and configurable fixed heat alarm detection

The Linear heat detector is suitable for protecting a wide range of commercial and industrial applications.

### System overview

A rise in temperature causes the change in resistance of an electrical conductor.

The control unit provides monitoring of the sensor cable, configuration of alarm and pre-alarm temperatures. Fitted with its own internal temperature monitor, the device raises an alarm if the temperature within the enclosure reaches 100°C.

Each control unit can have up to 500m of sensor cable connected to it acting as a single detection zone. Where the sensor cable and the control unit are installed in different areas a suitable interposing cable can be used to make the electrical connection between them.

The sensor cable is a 4 core cable which senses temperature variations by continuously monitoring the resistance of the specially doped Negative Temperature Coefficient (NTC) polymeric insulation. A change in the ambient temperature produces a relative change in resistance which is monitored by the control unit.

Initial set-up is done by measuring and entering the calibration resistance of the sensor cable.

### Functions

Pre-alarm and alarm thresholds are set by menu options. Volt free changeover contacts for pre-alarm and alarm signaling and a failsafe opto-isolated phototransistor fault output are provided.

An isolated input enables resetting the device.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FCS-LHD-2EN
Germany	VdS	G220035 FCS-LHD-2EN

### Installation/configuration notes

- The following equipment is required: multimeter for the resistance measurement of the sensor cable
- The commissioning of the control unit can be completely done by using the LCD display. If required the commissioning can also be done by using the laptop and the appropriate software. Contact your support partner to obtain the latest version of the software. For commissioning with laptop a USB cable (5-pin mini-USB plug) is needed to connect to the control unit.
- For connecting two sensor cables use a 4-wire-junction box of suitable class of equipment. Use minimum 30m and maximum 500m of sensor cable per control unit. For installations in accordance with VdS the minimum cable length is 50m.
- 54°C alarm setting is intended for areas with controlled environmental conditions. For the VdS approved alarm setting class A1I/A2I the alarm temperature is 66°C. For class BI the alarm temperature is 80°C.



#### Notice

For connecting the device follow the instructions in the Wiring Guide (document number F.01U.378.911, F.01U.009.201).

### Parts included

Quantity	Component
1	Analogue control unit
1	End of line element

### Technical specifications

#### Electrical

	FCS-LHD-2EN Linear heat detector, VdS
Operating voltage (VDC)	20 VDC – 30 VDC

**Maximum current consumptions**

Quiescent state, without LCD backlight	31mA @ 20Vdc to 20mA @ 30Vdc
Alarm and no LCD backlight (mA)	61mA @ 20Vdc to 39mA @ 30Vdc
Alarm and LCD backlight (mA)	85mA @ 20Vdc to 59mA @ 30Vdc

**Outputs**

Pre-alarm relay output	form C changeover contact
Maximum load, resistive	2 A 30 VDC / 0.25 A @ 250 VAC
Alarm relay output	Form C changeover contact
Maximum load, resistive	2 A 30 VDC / 0.25 A @ 250 VAC
Fault	Opto-isolated phototransistor output
Maximum load	Max. voltage 35 Vdc, Max. current 80mA, Max. power 150mW

**Inputs**

Reset	Isolated input for resetting module 5 to 28 VDC pulse for 3s
Maximum zone length (m)	500
Minimum zone length (m)	50 (installation according VdS) 30 (installation not according VdS)

**Mechanical**

	FCS-LHD-2EN Linear heat detector, VdS
Material	Plastic
Color	Gray
Weight (g)	860 g
Dimension (H x W x D) (mm)	180 mm x 182 mm x 90 mm

**Environmental**

	FCS-LHD-2EN Linear heat detector, VdS
Operating temperature (°C)	-20 °C – 50 °C
Operating relative humidity, non-condensing (%) (ambient temperature -20°C to +30°C)	0% – 95%

	FCS-LHD-2EN Linear heat detector, VdS
Operating relative humidity, non-condensing (%) (ambient temperature > 30°C)	0 - 75%
Weather rating (IEC 60529)	IP65
Environmental class (EN 50130-5)	II

**Sensor cable PVC red**

Exterior diameter (mm)	4.83 +/- 0.2mm
Weight per 100m	2560g

	FCS-LHDSC-EN Sensor cable PVC, VdS, red
Operating temperature (°C)	-40 °C – 125 °C
Operating relative humidity, non-condensing (%)	0% – 99%
Environmental class (EN 50130-5)	II

**Ordering information****FCS-LHD-2EN Linear heat detector, VdS**

Conventional linear heat detector with LCD display.  
Order number **FCS-LHD-2EN**

**Accessories****FCS-LHDSC-EN Sensor cable PVC, VdS, red**

Sensor cable red, PVC outer sheath, resistant to dust and water. Price is per 1 m, delivery on reel. Minimum order quantity is 30 m. A multiple of 10 m sensor cable to be ordered (order quantity 1 = 1 m).  
Order number **FCS-LHDSC-EN**

**FCS-LHD2EN-CONN Connection module, VdS**

Junction box to connect two sensor cables.  
Order number **FCS-LHD2EN-CONN**

**FCS-LHD2EN-EOL End-of-line module, VdS**

Spare part, required for terminating sensor cable line.  
Order number **FCS-LHD2EN-EOL**

**FCS-LHD2EN-FIX Fixing base, 20mm**

Fixing base for sensor cable, the package includes 200 pieces.  
Order number **FCS-LHD2EN-FIX**

**FCS-LHD2EN-DOW Dowel collar**

Dowel collar for Fixing base, the package includes 200 pieces.  
Order number **FCS-LHD2EN-DOW**

## FCS-LWM-1 Linear heat detector



### Features

- ▶ Usable in constricted spaces and under extreme environmental conditions
- ▶ Usable in Ex-zones 1,2, 21, 22
- ▶ Resistant to mechanical and chemical influences, corrosion, humidity and dust
- ▶ Usable for DIN EN 54-5:2000 classes A1, A2, B, C
- ▶ Simple installation and initial set-up

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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FCS-LWM-1
Switzerland	VKF	AEAI 19204 LWM1

### Installation/configuration notes

- Ceiling joists with a height of more than 20 cm are calculated as walls. In this case, the distance from sensor cable to joist must be between 1.5 m and 3 m. With ceiling panels measuring less than 3 m in width, it may not be possible to keep these distances. In such a case, the sensor cable must be installed in the centre of the ceiling panel.
- If ceiling joists are between 20 cm and 80 cm high and the overall ceiling area is under 18 m<sup>2</sup>, at least 1 sensor cable of at least 10 m length must be installed overall. (Where possible it is recommended to install 1 sensor cable of at least 10 m length for each of the ceiling segments.)
- If ceiling joists are between 20 cm and 80 cm high and the overall ceiling area is between 18 m<sup>2</sup> and 36 m<sup>2</sup>, the sensor cable must be distributed over the two ceiling segments so that each ceiling segment is outfitted with a sensor cable of at least 10 m length.

### Parts included

Quantity	Component
1	Detector box with control unit

### Technical specifications

#### Electrical

Voltage	10 to 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
Norm applied	DIN EN 54-5:2000

**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 (with polyester coating)
• Lines 2 + 4 (white + blue)	Copper (blank)
Coating material	
• Lines 1 + 3 (orange + red)	Non-conductive polymer
• Lines 2 + 4 (white + blue)	Special NTC polymer

**Ordering information****FCS-LWM-1 Linear heat detector**

conventional linear heat detector, dependent on the application and environmental condition three different sensor cables can be ordered separately  
Order number **FCS-LWM-1**

**Accessories****LHD4-SC-BLUE Sensor cable blue (1pc = 1m)**

suitable for use in non-aggressive atmosphere with high humidity  
Order number **LHD4-SC-BLUE**

**LHD4-SC-BLACK Sensor cable nylon coating**

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)  
Order number **LHD4-SC-BLACK**

**LHD4-SC-STEEL Sensor cable woven steel cover**

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)  
Order number **LHD4-SC-STEEL**

**LHD4-TERMINAL Terminal connector**

Terminal connector  
Order number **LHD4-terminal**

**LHD4-CONNECTOR Intermediate connector**

Intermediate connector  
Order number **LHD4-connector**

# Duct Smoke Detectors

**FAD-420-HS-EN Duct detector housing with base 174**

## FAD-420-HS-EN Duct detector housing with base



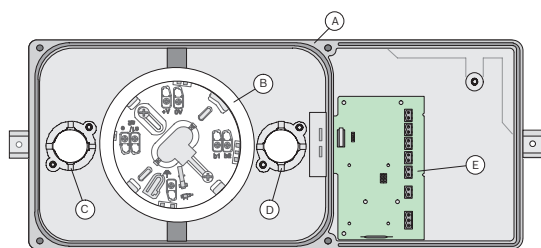
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### Features

- ▶ Use in ventilation systems with air velocities from 1 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-425-O-R Detector
- ▶ Control to prevent unwanted removal of the cover
- ▶ Easy installation of the FAD-425-O-R Detector

The FAD-420-HS-EN Duct detector housing with base with integrated FAD-425-O-R 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-425-O-R 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-425-O-R Detector.

Smoke particles in the air are reliably detected and reported to the fire panel by the LSN improved bus system.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21151 FAD-420-HS-EN
	CE	FAD-420-HS-EN, FAD-425-OR, FAD-RB-DIBT
Germany	VdS	G 211088 FAD-420-HS-EN
Poland	CNBOP	063-UWB-0144 FAD-420-HS-EN

### Installation/configuration notes

- Air velocities from 1 m/s to 20 m/s
- Horizontal or vertical mount of housing
- If a remote indicator is connected, the FAD-RB-DIBT Relay Board **must not** be used!

### Parts included

Quantity	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



#### Notice

Please note that the FAD-420-HS-EN does not come with the required FAD-425-O-R Detector. The FAD-425-O-R Detector has to be ordered in addition.

### Technical specifications

#### FAD-420-HS-EN Duct detector housing with base

##### Electrical

Operating voltage	24 V DC (15 ... 33 V DC)
Maximum current consumption	Approx. 0.55 mA (approx. 0.75 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	

• 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 m/s ... 20 m/s
Permissible operating temperature	0 °C ... 50 °C
Permissible storage temperature	-20 °C ... 60 °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 detector housing with base**  
air sampling housing with connection board and detector base for FAD-425-O-R. The detector must be ordered in addition.  
Order number **FAD-420-HS-EN**

#### Accessories

**FAD-425-O-R Duct detector, optical**  
Analog addressable optical detector for use in air sampling housing FAD-420-HS-EN  
Order number **FAD-425-O-R**

**FAD-RB-DIBT Relay board for DIBT application**  
relay board for DIBT applications  
Order number **FAD-RB-DIBT**

**D344-1.5 Sample tube, duct 1.5'/45.7cm**  
length 45.7 cm (1.5 ft)  
Order number **D344-1.5**

**D344-3 Sample tube, duct 3'/91.4cm**  
length 91.4 cm (3 ft)  
Order number **D344-3**

**D344-5 Sample tube, duct 5'/152cm**  
length 1.52 m (5 ft)  
Order number **D344-5**

**D344-TF Duct tube filters, 20pcs**  
Replaceable filters for duct detector sampling tubes, available in packages of 20  
Order number **D344-TF**

**FAA-420-RI-DIN Remote indicator for DIN application**  
For applications where the automatic detector is not visible, or mounted in false ceilings/floors.  
This version complies with DIN 14623.  
Order number **FAA-420-RI-DIN**

**FAA-420-RI-ROW Remote indicator**  
For applications where the automatic detector is not visible, or mounted in false ceilings/floors.  
Order number **FAA-420-RI-ROW**

**FAD-RB-DIBT Relay board for DIBT application**  
relay board for DIBT applications  
Order number **FAD-RB-DIBT**

# Flame Detectors

<b>016589 Flame detector, IR3</b>	<b>177</b>
<b>016519 Flame detector flameproof Ex d, IR3</b>	<b>179</b>

## 016589 Flame detector, IR3



### Features

- ▶ Sensitivity according to EN 54-10 Class 1: 0.1 m<sup>2</sup> flames at 25m
- ▶ Low risk of false alarms due to different IR wavelengths and a combination of filters and signal processing techniques
- ▶ Reliable operation, even if the lens is contaminated by a layer of oil, dust, water-vapour, or ice
- ▶ Selectable response time
- ▶ 2-wire or 4-wire configuration via DIP switch settings

Flame detectors are used to detect open flames indoor and outdoor. They respond to the light emitted from flames during combustion.

Flame detectors are especially suitable for smokeless liquid and gas fires not visible for the naked eye as well as for fires of materials that contain carbon with strong smoke emission.

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.

### Functions

Most IR flame sensors respond to 4.3 μm light, emitted by hydrocarbon flames. By responding to 0.75 to 2.7 μm light emissions from fires almost all flickering flames can be detected.

The flame detector has three IR sensors. The detector discriminates between flames and other light sources by responding only to particular optical wavelengths and flame flicker frequencies. False alarms due to factors as flickering sunlight are avoided by a combination of filters and signal processing techniques. Low-frequency detection enables the sensor to operate through a layer of oil, dust, water vapour, or ice.

An alarm is transmitted via current amplification (2-wire) or relay contact (4-wire). The alarm is also indicated with the integrated alarm LED.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	0165XX IR3 Flame Detector
	CPR	0832-CPR-F0583 IR3 Flame Detector
Germany	VdS	G 212189 IR3FlameDetector

### Installation/configuration notes

- The device complies with EN 54-10 Class 1.
- Applications and locations to avoid:
  - ambient temperatures above +55 °C
  - close proximity to radio frequency sources
  - exposure to severe rain and ice
  - large amounts of flickering reflections
  - large IR sources for instance heaters, burners, flares
  - obstructions to field of view
  - sunlight falling directly on the detector optics
  - spot lighting directly on the detector optics
- Latching mode is recommended (factory setting). Different alarm signalling modes can be set via DIP switches: current amplification (for 2-wire configuration) or relay contact (for 4-wire configuration).
- The device can be connected using an FLM-420/4-CON Conventional Interface Module to the Local Security Network LSN. The device can also be used in conjunction with a CZM 0004 A module. For connecting more than one IR3 Flame Detector use a four-wire connection with end of line element. Extended line monitoring is necessary for EN 54-13 compliant operation.
- The device cannot be used with an FPC-500 Conventional Fire Panel.
- Detector replacement cycle: 10 years

### Parts included

Quantity	Component
1	IR3 Flame Detector, Blue

### Technical specifications

#### Dimensions

Detector (W x H x D)	108 x 142 x 82 mm
Cable gland entries	2 x 20 mm

#### Electrics

Terminal functions	
1 – 2	Supply in connections or 2-Wire connections +IN and -IN
3 – 4	Remote test input connections +R and -R
5 – 6	Alarm Relay RL1 connections

7 – 8	Fault Relay RL2 connections
Operating voltage	14 to 30 V DC
Current consumption, 2-Wire configuration	
Standby	4 mA
Alarm	20 mA
Current consumption, 4-Wire configuration	
Standby	8 mA
Alarm	20 mA

### Mechanics

Housing material	Die Cast Zinc Alloy (ZA12)
Housing color	Blue
Weight	2 kg
Protection category (EN 60529)	IP65

### Environmental conditions

Permissible operating temperature	-10 to +55°C
Permissible storage temperature	-20 to +65°C
Relative humidity	95%, no condensation

### Special features

Detection principle	Detection of low frequency (1 to 15 Hz) flickering infrared radiation
Operating wavelength band	0.75 to 2.7 µm
Detection area	90° cone
Sensitivity	High (Class 1 ) and Low (Class 3 )
Range	Class 1: 0.1 m <sup>2</sup> n-heptane at 25m Class 3: 0.1 m <sup>2</sup> n-heptane at 12m

### Ordering information

#### 016589 Flame detector, IR3

016589 IR3 Detector for open flames, for indoor and outdoor areas, Blue  
Order number **016589**

#### Accessories

#### 007127 Mounting bracket for IR3 flame detector

Mounting bracket for IR3 flame detector  
Order number **007127**

#### 016091 Test unit for IR3 flame detector

Test unit for IR3 flame detector  
Order number **016091**

## 016519 Flame detector flameproof Ex d, IR3



### Features

- ▶ Suitable for explosive areas of the zones 1, 21, 2 and 22 (ATEX and IECEx certified)
- ▶ Sensitivity according to EN 54-10 Class 1: 0.1 m<sup>2</sup> flames at 25m
- ▶ Low risk of false alarms due to different IR wavelengths and a combination of filters and signal processing techniques
- ▶ Reliable operation, even if the lens is contaminated by a layer of oil, dust, water-vapour, or ice
- ▶ Selectable response time

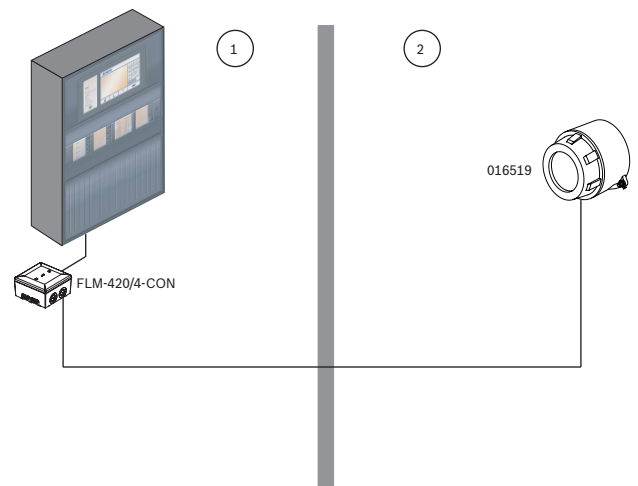
Flame detectors are used to detect open flames indoor and outdoor. They respond to the light emitted from flames during combustion.

Flame detectors are especially suitable for smokeless liquid and gas fires not visible for the naked eye as well as for fires of materials that contain carbon with strong smoke emission.

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.

Flameproof equipment is contained in an enclosure so strong that an internal explosion will neither damage the enclosure nor be transmitted outside of it. The surface remains cool enough not to ignite the explosive mixture.

### System overview



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Pos.	Description
1	Non-Ex area
2	Ex area zone 1, 2, 21 or 22

### Functions

Most IR flame sensors respond to 4.3 μm light, emitted by hydrocarbon flames. By responding to 0.75 to 2.7 μm light emissions from fires almost all flickering flames can be detected.

The flame detector has three IR sensors. The detector discriminates between flames and other light sources by responding only to particular optical wavelengths and flame flicker frequencies. False alarms due to factors as flickering sunlight are avoided by a combination of filters and signal processing techniques. Low-frequency detection enables the sensor to operate through a layer of oil, dust, water vapour, or ice.

An alarm is transmitted via current amplification (2-wire) or relay contact (4-wire). The alarm is also indicated with the integrated alarm LED.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	0165XX IR3 Flame Detector
	CPR	2831-CPR-F0578 IR3 Exd
Germany	VdS	G 212189 IR3FlameDetector

### Installation/configuration notes

- The device complies with EN 54-10 Class 1.
- Applications and locations to avoid:
  - ambient temperatures above +55 °C
  - close proximity to radio frequency sources
  - exposure to severe rain and ice
  - large amounts of flickering reflections
  - large IR sources for instance heaters, burners, flares
  - obstructions to field of view
  - sunlight falling directly on the detector optics
  - spot lighting directly on the detector optics

- Latching mode is recommended (factory setting). Different alarm signalling modes can be set via DIP switches: current amplification (for 2-wire configuration) or relay contact (for 4-wire configuration).
- The device can be connected using an FLM-420/4-CON Conventional Interface Module to the Local Security Network LSN. The device can also be used in conjunction with a CZM 0004 A module. For connecting more than one IR3 Flame Detector use a four-wire connection with end of line element. Extended line monitoring is necessary for EN 54-13 compliant operation.
- The device cannot be used with an FPC-500 Conventional Fire Panel.
- No safety barrier is needed with this device.
- Detector replacement cycle: 10 years

### Parts included

Quantity	Component
1	IR3 Flame Detector, flameproof, Red

### Technical specifications

#### Dimensions

Detector (W x H x D)	146 x 150 x 137 mm
Cable gland entries	3 x 20 mm

#### Electrics

Terminal functions	
1 – 2	Supply in connections or 2-Wire connections +IN and -IN
3 – 4	Remote test input connections +R and -R
5 – 6	Alarm Relay RL1 connections
7 – 8	Fault Relay RL2 connections
Operating voltage	14 to 30 V DC
Current consumption, 2-Wire configuration	
Standby	4 mA
Alarm	20 mA
Current consumption, 4-Wire configuration	

Standby	8 mA
Alarm	20 mA

#### Mechanics

Housing material	Copper Free Aluminium Alloy (LM25)
Housing color	Red
Weight	2.5 kg
Protection category (EN 60529)	IP66

#### Equipment markings

ATEX	Ex II 2GD Ex d IIC T4 Gb Ex tb IIIC T135°C Db IP66 A21
IECEX	Ex d IIC T4 Gb Ex tb IIIC T135°C Db IP66 A21

#### Environmental conditions

Permissible operating temperature	-10 to +55°C
Permissible storage temperature	-20 to +65°C
Relative humidity	95%, no condensation

#### Special features

Detection principle	Detection of low frequency (1 to 15 Hz) flickering infrared radiation
Operating wavelength band	0.75 to 2.7 µm
Detection area	90° cone
Sensitivity	High (Class 1 ) and Low (Class 3 )
Range	Class 1: 0.1 m <sup>2</sup> n-heptane at 25m Class 3: 0.1 m <sup>2</sup> n-heptane at 12m

#### Ordering information

**016519 Flame detector flameproof Ex d, IR3**  
016519 IR3 Flame Detector, flameproof, Red  
Order number **016519**

#### Accessories

**007127 Mounting bracket for IR3 flame detector**  
Mounting bracket for IR3 flame detector  
Order number **007127**

**016091 Test unit for IR3 flame detector**  
Test unit for IR3 flame detector  
Order number **016091**

# Remote Indicators

<b>FAA-420-RI-DIN Remote indicator for DIN application</b>	<b>182</b>
<b>FAA-420-RI-ROW Remote indicator</b>	<b>184</b>

## FAA-420-RI-DIN Remote indicator for DIN application

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### Features

- ▶ 360° view, for both wall mount and ceiling mount
- ▶ Easy plug in installation
- ▶ Easy cabling thanks to cable ties bracket and all direction knock-out holes
- ▶ Long life and robust construction housing
- ▶ Efficient LED

The remote indicator is used when the automatic detector is installed in a place hidden or not visible, like in closed rooms, false ceilings or walls. It is recommended to mount the remote indicator in corridors or access pathways of the corresponding building sections or rooms.

The DIN version has a transparently red alarm display. The design of the remote indicator complies with the requirements of DIN 14623. Additionally, it features three operating modes:

- Operating Mode 1 with the indicator showing steady red light (please see note on current limitation).
- Operating Mode 2 with the indicator showing steady red light with internal current limitation.
- Operating Mode 3 with the indicator showing flashing red light.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FAA-420-RI-DIN/-ROW
	CPR	0786-CPR-21481 FAA-420-RI-DIN/ FAA-420-RI-ROW

Region	Regulatory compliance/quality marks	
Poland	ITB	020-UWB-2643/W FAA-420-RI-DIN / FAA-420-RI-ROW
Germany	VdS	G 215079 FAA-420-RI-DIN

### Installation/configuration notes

- You can connect only one detector per remote indicator. However, it is possible to indicate an alarm from more than one detector on an LSN bus via configuring the panel with the Remote Programming Software FSP-5000-RPS respectively.
- In LSN periphery the sum of all cable lengths between LSN devices and remote indicators as well as between LSN interface modules and conventional devices must not exceed 500 m.
- If you use unshielded cables, the cable length between LSN device (e.g. detector) and remote indicator is restricted to a maximum of 3 m.
- When connected to LSN detectors operate either in mode 1 or 3.
- If connected to a non-LSN detector, in operating mode 1 current has to be externally limited to max. 30 mA.

### Parts included

Quantity	Component
1	Remote indicator

### Technical specifications

Operating voltage	
• Operating mode 1	depends on current feed
• Operating mode 2	8.5 to 33 V DC
• Operating mode 3	11 to 33 V DC
Current feed for display	
• Operating mode 1	3 to 30 mA
• Operating mode 2	11 to 14 mA
• Operating mode 3	3 mA
Permissible wire gauge	0.6 to 1.0 mm
Dimensions	85 x 85 x 35 mm
Weight	65 g
Operating temperature	0 to +65°C
Permissible relative humidity	< 95% (non-condensing)
Degree of protection (IEC 60529)	IP40

**Ordering information**

**FAA-420-RI-DIN Remote indicator for DIN applica-  
tion**

For applications where the automatic detector is not visible, or mounted in false ceilings/floors. This version complies with DIN 14623.  
Order number **FAA-420-RI-DIN**

---

## FAA-420-RI-ROW Remote indicator

3



### Features

- ▶ 360° view, for both wall mount and ceiling mount
- ▶ Easy cabling thanks to cable ties bracket and all direction knock-out holes
- ▶ Long life and robust construction housing
- ▶ Efficient LED

The remote indicator is used when the automatic detector is installed in a place hidden or not visible, like in closed rooms, false ceilings or walls. It is recommended to mount the remote indicator in corridors or access pathways of the corresponding building sections or rooms.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FAA-420-RI-DIN/-ROW
	CPR	0786-CPR-21481 FAA-420-RI-DIN/ FAA-420-RI-ROW
Poland	ITB	020-UWB-2643/W FAA-420-RI-DIN / FAA-420-RI-ROW

### Installation/configuration notes

- You can connect only one detector per remote indicator. However, it is possible to indicate an alarm from more than one detector on an LSN bus via configuring the panel with the Remote Programming Software FSP-5000-RPS respectively.
- In LSN periphery the sum of all cable lengths between LSN devices and remote indicators as well as between LSN interface modules and conventional devices must not exceed 500 m.
- If you use unshielded cables, the cable length between LSN device (e.g. detector) and remote indicator is restricted to a maximum of 3 m.
- If connected to a non-LSN detector, then the current has to be externally limited to maximum 30 mA.

### Parts included

Quantity	Component
1	Remote indicator

### Technical specifications

Operating voltage	depends on current feed
Current feed	3 to 30 mA
Permissible wire gauge	0.4 to 1.3 mm
Dimensions	85 x 85 x 28 mm
Weight	45 g
Operating temperature	-20 to +65°C
Permissible relative humidity	< 95% (non-condensing)
Degree of protection (IEC 60529)	IP40

### Ordering information

#### FAA-420-RI-ROW Remote indicator

For applications where the automatic detector is not visible, or mounted in false ceilings/floors.

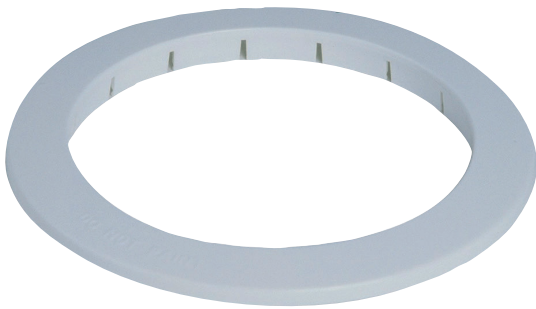
Order number **FAA-420-RI-ROW**

# Detector Accessories

<b>FAA-500-TR-W Trim ring, white</b>	<b>187</b>
<b>FAA-500-TR-P Trim ring, colored</b>	<b>188</b>
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## FAA-500-TR-W Trim ring, white



### Features

- ▶ Easy to install

- ▶ No additional mounting material needed

White Trim Ring for 500 und 520 Series Fire Detectors

### Parts included

Quantity	Component
1	Trim ring, white

### Technical specifications

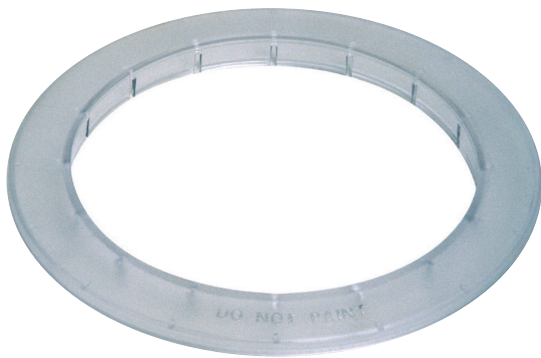
Weight without packaging	30 g
Weight with packaging	60 g

### Ordering information

**FAA-500-TR-W Trim ring, white**  
for 500 and 520 Series Fire Detectors  
Order number **FAA-500-TR-W**

## FAA-500-TR-P Trim ring, colored

3



### Features

- ▶ Easy to install
- ▶ No additional mounting material needed

Trim Ring for the 500 and 520 series fire detectors with color inserts



### Parts included

Quantity	Component
1	Trim ring, transparent
8	Color inserts (two different colors on two sides)

### Technical specifications

Weight without packaging	30 g
Weight with packaging	60 g

### Ordering information

**FAA-500-TR-P Trim ring, colored**  
for 500 and 520 Series Fire Detectors  
Order number **FAA-500-TR-P**

## FAA-500 Detector base



### Features

- ▶ Screw terminals for safe and secure electrical connection
- ▶ Easy to install

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.

### Parts included

Quantity	Component
1	Detector base

### 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 <sup>2</sup> – 3.3 mm <sup>2</sup>
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 Detector base

for installation of the FAP-520 Fire Detector  
Order number **FAA-500**

## FAA-500-R Base with relay

3



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.



### Notice

FAA-500 R Bases can only be used in conjunction with the 5000 Series Modular Fire Panel.

### Regulatory information

Region	Regulatory compliance/quality marks
Europe	CE FAP-520/FAA-500-R

### 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 <sup>2</sup> – 3.3 mm <sup>2</sup>
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)

### Ordering information

#### FAA-500-R Base with relay

Only used in conjunction with the 5000 Series Modular Fire Panel.

Order number **FAA-500-R**

## FAA-500-CB Housing for concrete ceilings

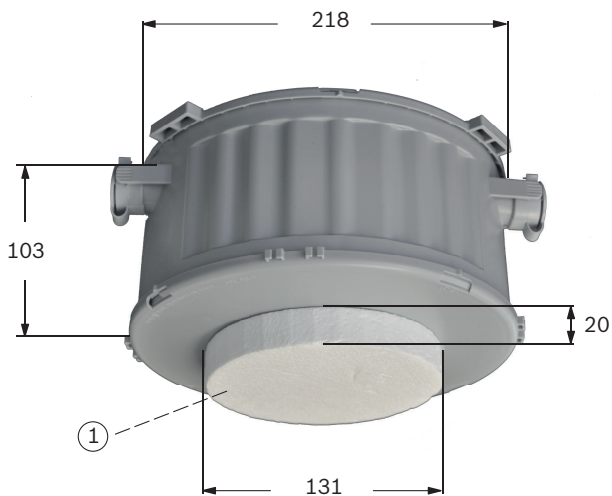


### Features

- ▶ Installation in concrete ceilings
- ▶ Easy to install

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.

### System overview



Pos.	Description
1	Front part

### Parts included

Quantity	Component
1	Built-in housing

### Technical specifications

Material	Plastic / polystyrene
Color	Gray
Dimensions (Ø x H)	
• Housing	218 x 103 mm
• Polystyrene component (front part)	131 x 20 mm
Weight approx.	340 g

### Ordering information

**FAA-500-CB Housing for concrete ceilings** for installing 500 and 520 Series Fire Detectors in concrete ceilings. In addition, you need to order a FAA-500-BB Back box ceiling-mount. Order number **FAA-500-CB**

## FAA-500-BB Back box ceiling-mount



3

### Features

- ▶ Installation in false ceilings
- ▶ Easy to install

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.

### Parts included

Quantity	Component
1	Back box

### Technical specifications

Mounting dimensions	
<ul style="list-style-type: none"> <li>• Maximum thickness of the false ceiling</li> </ul>	32 mm
<ul style="list-style-type: none"> <li>• Mounting height</li> </ul>	11 cm
<ul style="list-style-type: none"> <li>• Required bore hole</li> </ul>	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 Back box ceiling-mount** for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors  
Order number **FAA-500-BB**

## FAA-500-SB-H Back box for damp rooms, surface-mount



### Features

- ▶ Damp room sealing for installation in humid areas
- ▶ Optional flush or surface cabling

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.

### Parts included

Quantity	Component
1	Back box

### Technical specifications

Dimensions (Ø x H)	150 mm x 82 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight approx. (with-out/with packaging)	225 g/330 g

### Ordering information

#### **FAA-500-SB-H Back box for damp rooms, surface-mount**

for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling  
Order number **FAA-500-SB-H**

## FAA-500-SPRING Spring for wooden/concrete ceilings



3

### Features

- For installation in concrete and wooden ceilings

- Easy to install

DU = 10 units

The bases of the 500 Series are fitted with this spring as standard.

When the detector is installed in false ceilings, the spring may be replaced by the softer one included in the detector base packaging.

### Parts included

Quantity	Component
1	Spring

### Technical specifications

Material	Steel
Color	Silver with red marking
Thickness	2.2 mm

### Ordering information

#### FAA-500-SPRING Spring for wooden/concrete ceilings

(DU = 10 units)

Order number **FAA-500-SPRING**

## MS 400 Detector Bases



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.

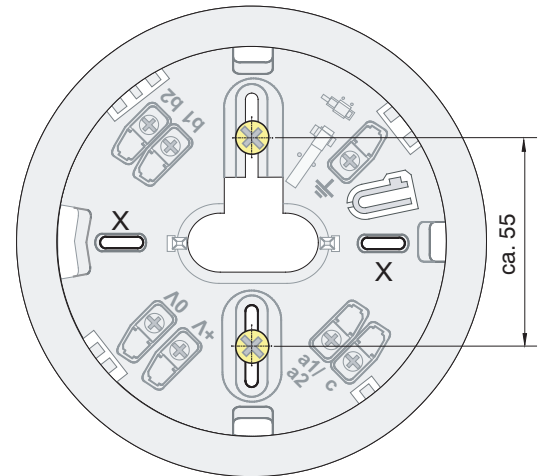
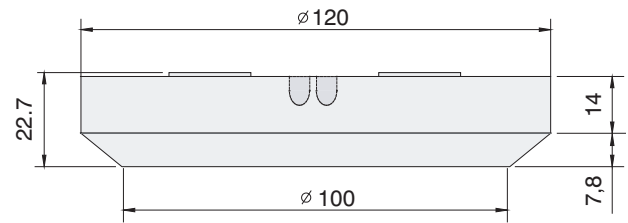
Contacts connected to the terminals guarantee a secure electric connection when the detector module is installed. Cables up to 2.5 mm<sup>2</sup> in diameter can be used.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

### 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.



### 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

### Ordering information

#### MS 400 B Detector base with Bosch logo

Bosch-branded detector base for surface mounted and flush-mounted cable feed  
Order number **MS 400 B**

#### MS 400 Detector base

Detector base for surface mounted and flush-mounted cable feed, not branded.  
Order number **MS 400**

#### Accessories

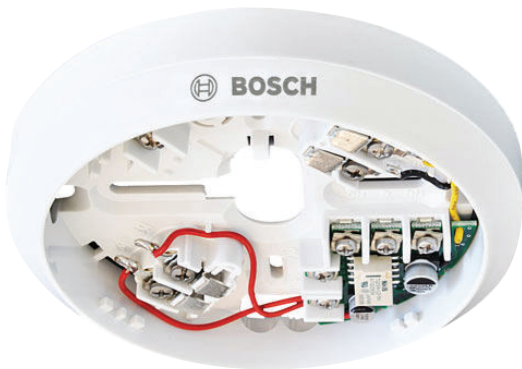
##### FAA-420-SEAL Damp room seal, 10 pcs

1 package = 10 pieces

Order number **FAA-420-SEAL**

## FAA-MSR420 Detector base with relay

3



### Features

- ▶ Equipped with change-over relay



#### Notice

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.

### Functions

If the line is on standby, the relay contact is closed.

The relay contact is open

- if there is no voltage, or
- if there is an alarm.

### Connections

Power supply	0V, +V
LSN terminals	a1/a2, b1, b2
C point	
Shielding	
Relay contacts	NO, C, NC

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FAP-/FAH-420/FAA-MSR420/FAA-MS-R-SP

### Parts included

Quantity	Component
1	Detector base

### Technical specifications

Relay contact capacity (A @ 30 V DC)	1
Maximum current consumption (LSN, mA)	0.2
Material	Plastic (ABS Novodur®)
Color	White (similar RAL 9010)
Dimension (Ø x H, mm)	120 x 22.7
Weight (g)	82

### Ordering information

**FAA-MSR420 Detector base with relay**  
with a change-over relay (Form C)  
Order number **FAA-MSR420**

## MSC 420 Base extension with damp room sealing



### Features

- ▶ Damp room sealing for installation in humid areas
- ▶ Easy to install
- ▶ Surface mounting

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.

### Parts included

Quantity	Component
1	Extension with damp room sealing for detector base

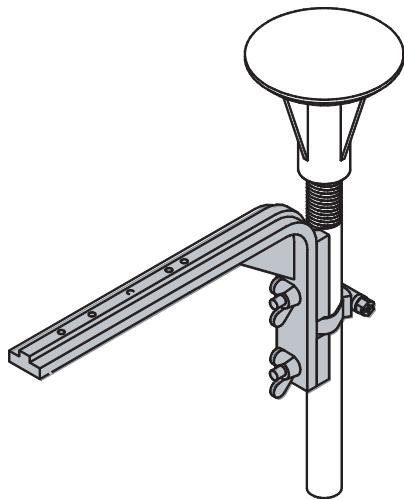
### Technical specifications

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 Base extension with damp room sealing**  
 Extension for detector bases with surface-mounted cable feed  
 Order number **MSC 420**

## FMX-DET-MB Mounting bracket



3

### Features

- ▶ Use in false floors
- ▶ Easy to install

Mounting Bracket to mount the detector in floor cavities. The detector base is **not** included in the scope of delivery.

### Parts included

Quantity	Component
1	Mounting bracket, without detector base
2	Mounting clamps
2	Screws

### Technical specifications

Material	Dorethan BKV 30 H
Weight	90g
Color	Black
Dimensions (W x H x D)	188 x 103.5 x 20mm

### Ordering information

#### FMX-DET-MB Mounting bracket

Mounting bracket for installation in false floors  
Order number **FMX-DET-MB**

## WA400 Wall bracket



### Features

- ▶ Installation above door frames in compliance with DiBT
- ▶ Comes with pre-mounted detector base

Console for DiBt compliant mounting of detectors above doors etc.

The detector base is included in the scope of delivery.

### Parts included

Quantity	Component
1	Wall bracket with pre-mounted detector base

### Technical specifications

Dimensions (W x H x D)	185 x 129 x 29 mm
------------------------	-------------------

### Ordering information

#### **WA400 Wall bracket**

Console for DiBt compliant mounting of detectors above doors etc., including detector base

Order number **WA400**

## MH 400 Heating element



3

### Features

- ▶ For applications where condensation is likely
- ▶ Power-supplied by panel or separate power supply unit

The Detector Heating Element MH 400 is usable 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.

### 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.

### Parts included

Quantity	Component
1	Heating element

### Technical specifications

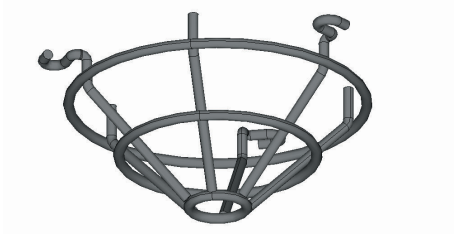
Operating voltage	24 V DC
Power consumption	3 W
Resistor	1 kΩ

### Ordering information

#### MH 400 Heating element

usable at locations where the functional safety of the detector might be impaired by condensation  
Order number **MH 400**

## SK 400 Protective cage



### Features

- ▶ Protection against damage from hits or other heavy impacts
- ▶ Easily mounted and removed

The Protective Basket prevents e. g. in a sports hall that balls hit and damage the detector.

### Parts included

Quantity	Component
1	Protective cage

### Technical specifications

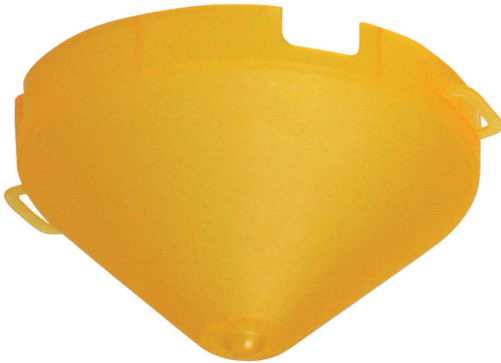
Material	5 mm round steel
Color	Aluminum gray (RAL 9007).
Dimensions (Ø x H)	148 x 75 mm

### Ordering information

**SK 400 Protective cage**  
prevents damage  
Order number **SK 400**

## SSK400 Dust protection, 10pcs

3



### Features

- ▶ Protection against dust or other dusty particles before operation

- ▶ Easily mounted and removed

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.

### Parts included

Quantity	Component
1	Dust protection cover

### Technical specifications

Material	Polypropylene (PP)
Color	Yellow

### Ordering information

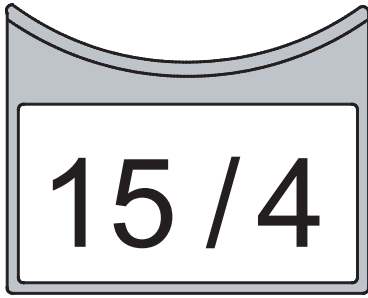
#### SSK400 Dust protection, 10pcs

Protective dust cover for automatic point type detectors.

Delivery unit is 10.

Order number **SSK400**

## TP4 400 Label plate small



### Features

- ▶ Easy detector marking and identification
- ▶ Self-adhesive labels can be used

Packing unit = 50 units

The plate 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.

### **i** Notice

Labels by Zweckform have proven practical. The self-adhesive labels are made of white polyester film and can be labeled with a laser printer.

### Parts included

Quantity	Component
1	Label plate small

### Technical specifications

Material	ABS plastic (Novodur)
Color	white, similar to RAL 9010
Thickness	1.8 mm

### Ordering information

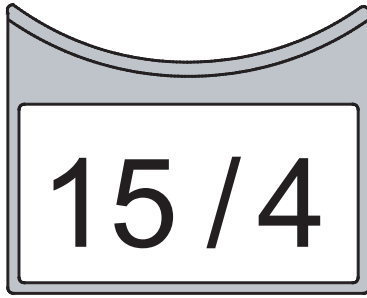
#### TP4 400 Label plate small

Support plate for detector identification.

Delivery unit is 50.

Order number **TP4 400**

## TP8 400 Label plate large



3

### Features

- ▶ Easy detector marking and identification
- ▶ Self-adhesive labels can be used

Packing unit = 50 units

The plate 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.



### Notice

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.

### Parts included

Quantity	Component
1	Label plate large

### Technical specifications

Material	ABS plastic (Novodur)
Color	white, similar to RAL 9010
Thickness	1.8 mm

### Ordering information

#### TP8 400 Label plate large

Support plate for detector identification, large.

Delivery unit is 50.

Order number **TP8 400**

## DOW1171-IDENT Detector marking



### Features

- ▶ To identify the location

- ▶ Designation plate for FDB295

### Parts included

Quantity	Component
	DBZ1193A Designation Plate for FDBZ293 and FDB295

### Technical specifications

Color	Transparent
Dimensions (W x H, mm)	62 x 52

### Ordering information

**DOW1171-IDENT Detector marking** for labelling FDB295 with the location address. Delivery unit is 10.  
Order number **DOW1171-IDENT**

## SB3 Safety barrier



3

### Features

- ▶ Suitable for applications with Ex detectors
- ▶ Input/Output Module included
- ▶ Impact-proof and scratch-resistant synthetic material
- ▶ Large opening for reuse of existing boreholes
- ▶ Screwless connection terminals

### 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	DC 1192
	Ex	01 ATEX 2088 SB 3
	CE	SB 3
	CPD	0786-CPD-20512 DC 1192
Germany	VdS	G 298021 DC 1192

### Installation/configuration notes

- The directive 1999/92/EC standard contains important information on planning and installation in areas with a potential risk from explosive atmospheres.
- During planning works, it is essential to adhere to national standards and guidelines.
- For planning an intrinsically safe detector line for Ex areas, you have to consider:
  - the number  $n$  of devices connected to the SB3 Safety Barrier's detector line
  - the cable length  $l$  of the SB3 Safety Barrier's detector line

The following inequation must be fulfilled to achieve an intrinsically safe detector line:

$C_i$  (nF)

resulting

$$C_0 > (n \times C_i) + (l \times C_c)$$

$L_0$  (SB3) >  $L_i$

resulting

$$L_0 > (n \times L_i) + (l \times L_c)$$

Abbreviation (unit)	Description
$C_0$ (nF)	maximum external capacity
$C_i$ (nF)	maximum internal capacity
$C_c$ (nF)	cable capacitance
$l$ (km)	length of entire detector line
$L_0$ (mH)	maximum external inductivity
$L_i$ (mH)	maximum internal inductivity
$L_c$ (mH)	cable inductance
$n$	total number of detectors

**DANGER! Risk of explosion: Testing equipment must only be operated in the area not at risk of explosion.**

### Parts included

Quantity	Component
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 <sup>2</sup> . . . 2.5 mm <sup>2</sup>
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
• Standby current	≤45 mA
• Operating current	≤150 mA
• Line resistance	50 Ω . . . 250 Ω
• Line termination	EOL22(Ex)
Line termination	
• Operating voltage	18 V DC . . . 22 V DC
• Current consumption	Max. 5 mA
• Line resistance	50 Ω . . . 250 Ω

• Line termination	EOL22(Ex)
Wire gauge	0.2 mm <sup>2</sup> . . . 2.5 mm <sup>2</sup>
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

#### Characteristics for intrinsically safety

Output voltage (V)	≤ 28
Output current (mA)	≤ 100
Output power (mW)	≤ 700
External inductivity (mH)	≤ 1.6
External capacity (nF)	≤ 83

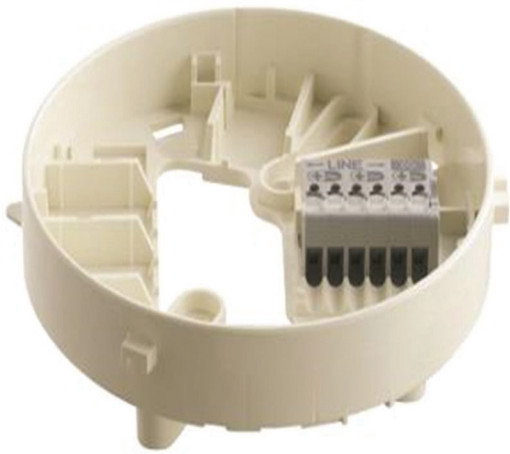
#### Ordering information

##### SB3 Safety barrier

limits the electrical energy between non-inherently safe and inherently safe circuits  
Order number **SB3**

## FDB201 Base for Dual-Optical Detector for Ex Ar

3



### Features

- ▶ Compact and robust design
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination

- ▶ Safe insertion of an designation plate

### Parts included

Quantity	Component
1	FDB201 Detector Base for OOH740-A9-Ex Dual-Optical Detector for Ex Areas 0, 1, and 2

### Technical specifications

Cable cross section (mm <sup>2</sup> )	0.2 – 1.5
Housing material	Synthetic
Housing color	Pure white, similar to RAL 9010
Dimensions (Ø x H mm)	100 x 22

### Ordering information

**FDB201 Base for Dual-Optical Detector for Ex Ar**  
 Base for OOH740-A9-Ex Dual-Optical detector for Ex Area, secured with a snap fastener. Base suitable for recess supply wiring, for surface supply wiring, cable diameter up to 6 mm.  
 Delivery unit is 1.  
 Order number **FDB201**

## FDB291 Base attachment



### Features

- ▶ Base attachment for OOH740-A9-Ex
- ▶ Compact and robust design
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination

### Parts included

Quantity	Component
1	FDB291 Base Attachment for OOH740-A9-Ex Dual-Optical Detector for Ex Areas 0, 1, and 2

### Technical specifications

Color	Pure white, similar to RAL 9010
Dimensions (Ø x H, mm)	120 x 25
Cable cross section (Ø, mm)	≥ 6
Mounting slots (mm)	46 to 90

### Ordering information

#### FDB291 Base attachment

Base attachment for OOH740-A9-Ex. For routing surface mounted cables, cable diameter larger than 6 mm. Also for recess supply wiring.

Delivery unit is 1.

Order number **FDB291**

## FDB295 Base attachment wet

### Features

- ▶ Base attachment for OOH740-A9-Ex
- ▶ Integrated additional rubber seal for applications in cold or wet environments
- ▶ Compact and robust design
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination

### Parts included

Quantity	Component
1	FDBZ295 Base Attachment Wet for OOH740-A9-Ex Dual-Optical Detector for Ex Areas 0, 1, and 2

To achieve IP44 for surface mounted cables additional 2 FDB295M cable glands are required. The Base Attachment Wet is compatible with designation plate DOW1171-IDENT.

### Technical specifications

Color	Pure white, similar to RAL 9010
Dimensions (W x H x D, mm)	135 x 135 x 35
Cable cross section (Ø, mm)	≥ 6
Mounting slots (mm)	46 to 90

### Ordering information

#### FDB295 Base attachment wet

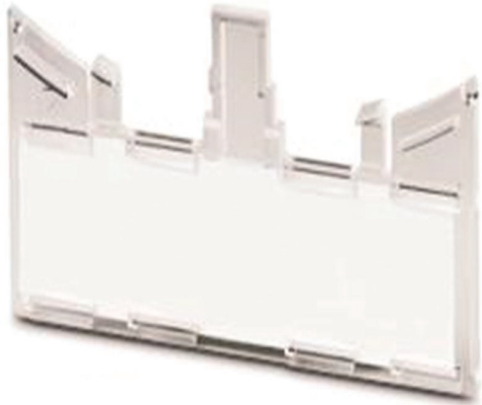
Base Attachment Wet for OOH740-A9-Ex with integrated additional rubber seal for surface-mounted cabling for applications in cold or wet environments. Mounted between detector base and ceiling. The detector base FDB201 simply clicks into place in FDB295. 6 breakout plugs for cable glands.

To achieve IP44 for surface mounted cables additional 2 FDB295M cable glands are required. The Base Attachment Wet is compatible with designation plate DOW1171-IDENT.

Delivery unit is 1.

Order number **FDB295**

## FDBZ291 Designation plate



### Features

- Designation plate for FDB201

- To identify the location

### Parts included

Quantity	Component
10	FDBZ291 Designation Plate for FDB201

### Technical specifications

Color	Transparent
Dimensions (W x H, mm)	62 x 35

### Ordering information

**FDBZ291 Designation plate**  
for labelling FDB201 with the location address.  
Delivery unit is 10.  
Order number **FDBZ291**

## FDBZ293 Detector locking device

### Features

- ▶ To protect the detector against theft
- ▶ Locking device for OOH740-A9-Ex

### Parts included

Quantity	Component
1	FDBZ293 Detector Locking Device

### Technical specifications

Weight (g)	1
------------	---

### Ordering information

#### **FDBZ293 Detector locking device**

Threaded pin M3 x 6 prevents the point detector being unscrewed from the detector base. The point detector can only be removed with the appropriate Allen key. Delivery is 100. Additionally 2 Allen keys are included. Order number **FDBZ293**

3

## FDBZ295 Sealing element



### Features

- ▶ Sealing element for OOH740-A9-Ex
- ▶ Protection from dirt and splash water for detector screwed into the detector base
- ▶ With sealing element, flush mounted detector achieves IP44

### Parts included

Quantity	Component
	FDBZ295 Sealing Element

### Technical specifications

Weight (g) of FDBZ295	62
Color	Pure white, close to RAL 9010
Dimensions (Ø x H, mm)	107 x 30

### Ordering information

#### **FDBZ295 Sealing element**

Sealing element for OOH740-A9-Ex to achieve IP44 for flush mounted cables. The use of a designation plate is not possible.

Delivery unit is 1.

Order number **FDBZ295**

## FDZ291 Detector dust cap

3



### Features

- ▶ to protect OOH740-A9-Ex detector against dust during the construction phase

### Parts included

Quantity	Component
10	FDZ291 Detector Dust Cup

### Technical specifications

Color	Red
-------	-----

### Ordering information

#### **FDZ291 Detector dust cap**

Detector Dust Cap for covering detectors as protection against dust during the construction phase.

Delivery unit is 10.

Order number **FDZ291**

## FDB295M Metal cable gland



### Technical specifications

Outer diameter (mm)	20
Pitch (mm)	1.5

### Ordering information

#### **FDB295M Metal cable gland**

for M20 cable feed-through and complementary to Base Attachment Wet FDB295. 2 pieces of FDB295M are necessary per FDB295 Base Attachment Wet to achieve IP44 with surface mounted cables.

Delivery unit is 10.

Order number **FDB295M**

**3**

### Parts included

Quantity	Component
10	M20 x 1.5 Metal Cable Gland



# Manual Call Points

4

<b>Addressable</b>	<b>218</b>
<b>Conventional</b>	<b>227</b>
<b>Accessories</b>	<b>236</b>

# Addressable

<b>FMC-420RW Single Action Call Points LSN improved</b>	<b>219</b>
<b>FMC-210-DM Double Action Call Points</b>	<b>222</b>
<b>FMC-210-SM Single Action Call Points</b>	<b>225</b>

## FMC-420RW Single Action Call Points LSN improved



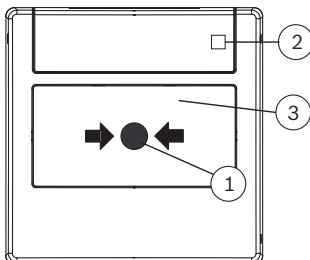
### Features

- ▶ 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

FMC-420RW Single Action Call Points are used for manual triggering and can be employed in both the Local SecurityNetwork (LSN) and the LSN improved version.

### Functions

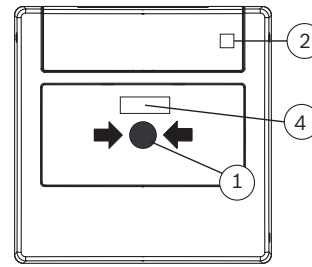
#### Single action call points with glass pane:



Pressing the black marking (1) breaks the glass pane (3), which triggers the alarm and causes the LED (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) switches off.

#### Resettable single action call points:



Pressing the black marking (1) triggers the alarm. The alarm status is indicated by the red window color (4) and the flashing LED (2).

Single action call points can be reset using the test key. The LED display (2) switches off.

The standby mode is indicated by the white window color (4).

#### 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMC-420RW-GSGBU/-GSRBU/-GSGYE/-GSRYE
	CE	FMC-420RW-GSGRD/-GSRRD/-GFGRD/-GFRRD
	CE	FMC-420RW-HSGRD/-HSRRD
	CPD	0786-CPD-20333 FMC-420RW
	CPD	0786-CPD-20942 FMC-420RW-HSGRD
Germany	CPD	0786-CPD-20943 FMC-420RW-HSRRD
	VdS	G 207087 FMC-420RW
Ukraine	VdS	G210017 FMC-420-RW-HSGRD/-HSRRD
	MOE	UA1.016.0091994-09 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.

### Technical specifications

#### Mechanical components

Dimensions (H x W x D)	
<ul style="list-style-type: none"> <li>FMC-420RW-GFGRD, FMC-420RW-GFRRD</li> </ul>	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"> <li>FMC-420RW-GSGRD, FMC-420RW-GSGBU, FMC-420RW-GSGYE</li> </ul>	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"> <li>FMC-420RW-GSRRD, FMC-420RW-GSRBU, FMC-420RW-GSRYE</li> </ul>	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"> <li>FMC-420RW-HSGRD, FMC-420RW-HSRRD</li> </ul>	108 mm x 108 mm x 66 mm (4.25 in. X 4.25 in. X 2.6 in.)
Housing material	Plastic, ASA
Colors	
<ul style="list-style-type: none"> <li>Red</li> </ul>	RAL 3001
<ul style="list-style-type: none"> <li>Blue</li> </ul>	RAL 5005
<ul style="list-style-type: none"> <li>Yellow</li> </ul>	RAL 1003
<ul style="list-style-type: none"> <li>Red/white</li> </ul>	RAL 3001 / RAL 9003

#### Environmental conditions

Protection category according to EN 60529	IP 54
Protection category according to EN 60529 for FMC-420RW-HSGRD FMC-420RW-HSRRD	IP 67
Permissible operating temperature	-25 °C to +70 °C
Permissible rel. humidity	< 96 %

### Ordering information

#### FMC-420RW-GSGRD Manual call point glass surface-mnt, red

analog addressable manual call point with glass pane for indoor use, direct alarm triggering (type A), surface-mounted, red

Order number **FMC-420RW-GSGRD**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FMC-420RW-GSRRD Manual call point reset surface-mnt, red

resettable analog addressable manual call point for indoor use, direct alarm triggering (type A), surface-mounted, red

Order number **FMC-420RW-GSRRD**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FMC-420RW-GFGRD Manual call point glass flush-mount, red

analog addressable manual call point with glass pane for indoor use, direct alarm triggering (type A), flush-mounted, red. In addition, you need to order FMC-BEZEL.

Order number **FMC-420RW-GFGRD**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FMC-420RW-GFRRD Manual call point reset flush-mount, red

resettable analog addressable manual call point for indoor use, direct alarm triggering (type A), flush-mounted, red. In addition, you need to order FMC-BEZEL.

Order number **FMC-420RW-GFRRD**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FMC-420RW-GSGYE Manual call point, glass, yellow

analog addressable manual call point with glass pane for indoor use, direct alarm triggering (type A), surface-mounted, yellow

Order number **FMC-420RW-GSGYE**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FMC-420RW-GSRYE Manual call point, resettable, yellow

resettable analog addressable manual call point for indoor use, direct alarm triggering (type A), surface-mounted, yellow

Order number **FMC-420RW-GSRYE**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FMC-420RW-GSGBU Manual call point, glass, blue

analog addressable manual call point with glass pane for indoor use, direct alarm triggering (type A), surface-mounted, blue

Order number **FMC-420RW-GSGBU**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FMC-420RW-GSRBU Manual call point, resettable, blue**

resettable analog addressable manual call point for indoor use, direct alarm triggering (type A), surface-mounted, blue  
Order number **FMC-420RW-GSRBU**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FMC-420RW-HSGRD Manual call point, outdoor, glass, red**

analog addressable manual call point with glass pane for outdoor use, direct alarm triggering (type A), surface-mounted, red/ white  
Order number **FMC-420RW-HSGRD**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FMC-420RW-HSRRD Manual call point outdoor resettable red**

resettable analog addressable manual call point for outdoor use, direct alarm triggering (type A), surface-mounted, red/ white  
Order number **FMC-420RW-HSRRD**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

**Accessories**

**FMC-BEZEL-RD Bezel for manual call point, red**  
Frame for the flush-mounted variant of the RW call points.

1 unit = 4 bezels

Order number **FMC-BEZEL-RD**

**FMC-BEZEL-WH Bezel for manual call point, white**  
Frame for the flush-mounted variant of the RW call points.

1 unit = 4 bezels

Order number **FMC-BEZEL-WH**

**FMC-SEAL-RW Seal for manual call point**

Seal for clear hinged flap

1 unit = 100 seals

Order number **FMC-SEAL-RW**

**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

Order number **FMC-SPACER-RWRD**

**FMC-SPGL-RW Spare glass**

Spare glasses for all RW call points.

1 unit = 5 spare glasses

Order number **FMC-SPGL-RW**

**FMC-SIGN-RW Sign, out-of-order**

Used instead of the glass pane when a call point is not ready for use.

1 unit = 5 signs

Order number **FMC-SIGN-RW**

**FMC-KEY-RW Test key**

The key can open, check, and reset manual call points.

1 unit = 1 key

Order number **FMC-KEY-RW**

**FMC-FLAP-RW Flap, transparent**

To protect against accidental triggering; with seal.

1 unit = 5 flaps

Order number **FMC-FLAP-RW**

## FMC-210-DM Double Action Call Points

4

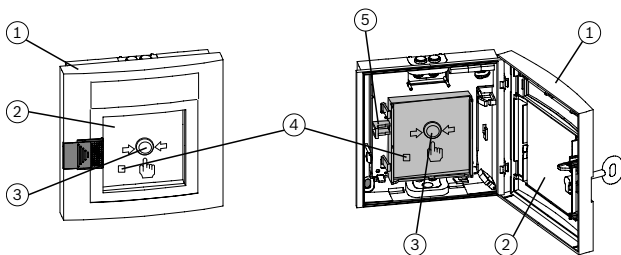


### Features

- ▶ Adjustment after alarm triggering
- ▶ Individual identification thanks to automatic or manual detector addressing
- ▶ Indicator LED for alarm or for inspection evaluation
- ▶ 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

The FMC-210-DM Double-action Call Points are used for manual triggering, and can be used 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, yellow, and green. 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.



### Notice

The key must be ordered separately.

### 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
- Shielded and unshielded cables can be used
- Cable length up to 3000 m (with LSN 1500 A module)
- Downwards compatibility to existing LSN systems and control panels

### Regulatory information

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

Region	Regulatory compliance/quality marks
Europe	CE FMC-210-DM-G-B/-H-B/-SM-G-B
	CE FMC-210_DM-G-R/-H-R/-SM-G-R
	CE FMC-210-DM-G-Y / EST-G-B
	CPD 0786-CPD-20293 FMC-210-DM-G/H-R
	CPD 0786-CPD-20244 FMC-210-DM-G-Y
Germany	VdS G 206098 FMC-210_DM-G-R/-H-R_G206098
	VdS G 206099 FMC-210_DM-G-Y_G206099
Poland	CNBOP 1505/2013 FMC-210 DM-G-R, FMC-210 DM-H-R

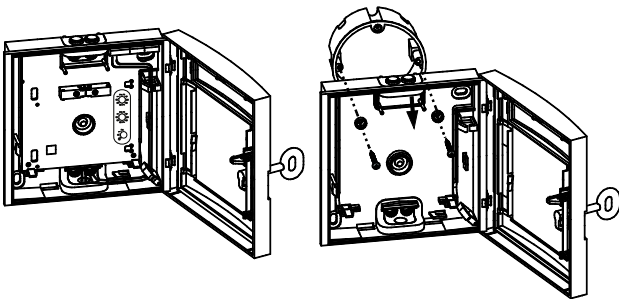
Region	Regulatory compliance/quality marks	
Ukraine	MOE	UA1.016.0070338-11 FMC-210-DM-G-R_FMC-210-DM-H-R_FMC-210-DM-G-R-A
Slovakia	EVPÚ	SK08-ZSV-0071 FMC-210-DM, FMC-210-EST

### Installation/configuration notes

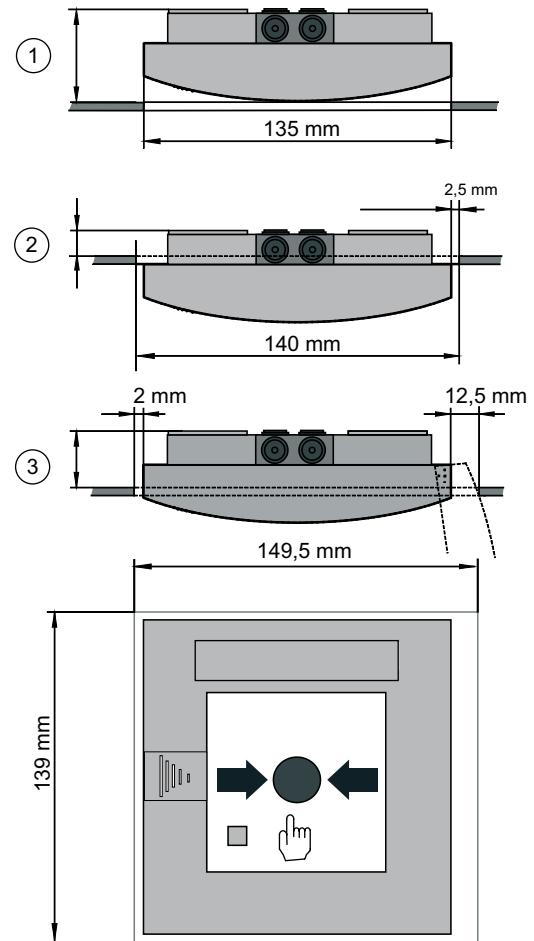
- The device must be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm  $\pm$ 200 mm, measured from the middle of the device to the floor, must be maintained.
- The device must be adequately illuminated by 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:



Installation depth

- |   |            |
|---|------------|
| 1 | ca. 40 mm  |
| 2 | 14 mm      |
| 3 | min. 30 mm |

### Technical specifications

#### Electrical

Operating voltage (VDC)	24 (15 to 33)
Current consumption (mA)	0.26

#### Mechanics

Dimensions W x H x D (mm)	135 x 135 x 40
Housing material	Plastic ASA
Colors	Red RAL 3001 Blue RAL 5005 Yellow RAL 1003 Green close to RAL 6002
Weight (g)	Approx. 235

**Environmental**

Degree of protection (IEC 60529) Form H	IP 54
Degree of protection (IEC 60529) Form G	IP 52
FMC-210-DM-G-R	EN 54-11
FMC-210-DM-H-R	EN 54-11
FMC-210-DM-G-Y	EN 12094-3
Operating temperature Form H (°C)	-25 to 70
Operating temperature Form G (°C)	-10 to 55

**Ordering information**

**FMC-210-DM-G-B Manual call point indoor, blue**  
Analog addressable manual call point with glass pane for indoor use, indirect alarm triggering (type B), blue  
Order number **FMC-210-DM-G-B**

**FMC-210-DM-G-GR Manual call point indoor, green**  
Analog addressable manual call point with glass pane for indoor use, indirect alarm triggering (type B), green  
Order number **FMC-210-DM-G-GR**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**  
12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FMC-210-DM-G-R Manual call point indoor, red**  
Analog addressable manual call point with glass pane for indoor use, indirect alarm triggering (type B), red  
Order number **FMC-210-DM-G-R**

**FMC-210-DM-G-Y Manual call point indoor, yellow**  
Analog addressable manual call point with glass pane for indoor use, indirect alarm triggering (type B), yellow  
Order number **FMC-210-DM-G-Y**

**FMC-210-DM-H-B Manual call point outdoor, blue**  
Analog addressable manual call point with glass pane for outdoor use, indirect alarm triggering (type B), blue  
Order number **FMC-210-DM-H-B**

**FMC-210-DM-H-R Manual call point outdoor, red**  
Analog addressable manual call point with glass pane for outdoor use, indirect alarm triggering (type B), red  
Order number **FMC-210-DM-H-R**

**Accessories**

**FMC-FST-DE Foil set, transparent**  
For yellow and blue manual call points of the series FMC-120 and FMC-210, 1 unit = 5 sheets  
Order number **FMC-FST-DE**

**FMC-SPGL-DEIL Spare glass**  
For manual call points of series DM, DKM, SKM, FMC-120 and FMC-210, 1 unit = 5 spare glasses  
Order number **FMC-SPGL-DEIL**

**FMM-KEY-FORM G/H Key for manual call point**  
made of red plastic (ASA)  
Order number **FMM-KEY-FORM G/H**

## FMC-210-SM Single Action Call Points

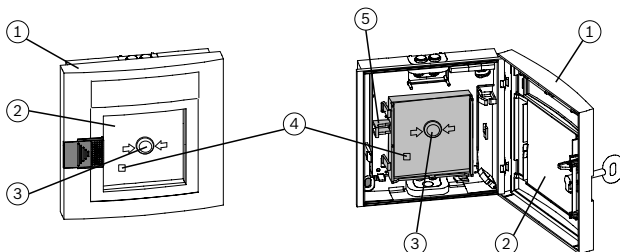


### Features

- ▶ Alarm triggering by breaking of the glass pane
- ▶ Automatic address setting and manual setting via rotary switches possible
- ▶ Indicator LED for alarm or for inspection evaluation
- ▶ Call point query routines with evaluation and multiple transmission
- ▶ Individual call point identification

The FMC-210-SM Single Action Call Points are used for manual triggering, 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.

### Regulatory information

- FMC-210-SM-G-R applies to
- EN 54-11:2001/A1:2005
  - EN 54-17:2005

Region	Regulatory compliance/quality marks	
Europe	CPD	0786-CPD-20316 FMC-210-SM-G-R
Germany	VdS	G 207008 FMC-210-SM-G-R_G207008

### Installation/configuration notes

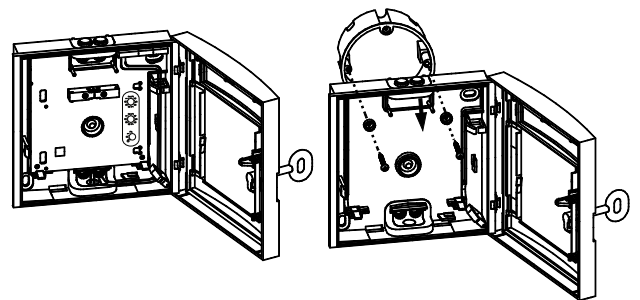
- Manual call points must be mounted visibly along escape and rescue routes (e. g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm  $\pm$ 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must 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

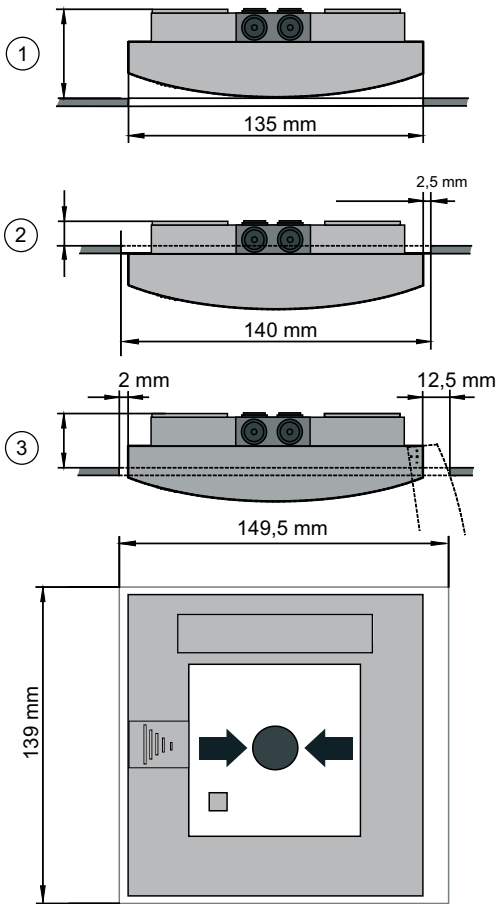
- The distance between manual call points should not be more than 100 m according to DIN 14675 or 80 m according to VdS.
- In high risk areas, manual call points should be installed at a distance of max. 40 m (VDE 0833 Part 2, Point 7.2.6).

### 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

**Technical specifications**

**Electrical**

	LSN current consumption (mA)	Operating voltage (VDC)
FMC-210-SM-G-B Manual call point, single action, blue	0.26 mA	15 VDC – 33 VDC
FMC-210-SM-G-R Manual call point, single action, red	0.26 mA	15 VDC – 33 VDC

**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

**Environmental Considerations**

Protection class as per EN 60529	IP 52
Permissible operating temperature	-10 °C. . . +55 °

**Ordering information**

**FMC-210-SM-G-R Manual call point, single action, red**

analog addressable manual call point with glass pane for indoor use, direct alarm triggering (type A), red  
Order number **FMC-210-SM-G-R**

**FMC-210-SM-G-B Manual call point, single action, blue**

analog addressable manual call point with glass pane for indoor use, direct alarm triggering (type A), blue  
Order number **FMC-210-SM-G-B**

**Accessories**

**FMC-FST-DE Foil set, transparent**

For yellow and blue manual call points of the series FMC-120 and FMC-210, 1 unit = 5 sheets  
Order number **FMC-FST-DE**

**FMC-SPGL-DEIL Spare glass**

For manual call points of series DM, DKM, SKM, FMC-120 and FMC-210, 1 unit = 5 spare glasses  
Order number **FMC-SPGL-DEIL**

**FMM-KEY-FORM G/H Key for manual call point**

made of red plastic (ASA)  
Order number **FMM-KEY-Form G/H**

# Conventional

<b>FMC-300RW Single Action Call Points</b>	<b>228</b>
<b>FMC-120-DKM Manual Call Points</b>	<b>230</b>
<b>Conventional Manual Call Points for Ex Areas</b>	<b>233</b>

## FMC-300RW Single Action Call Points



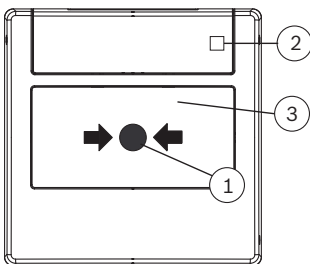
### Features

- ▶ 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

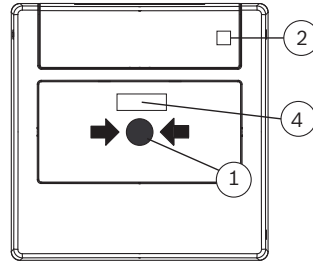
#### Single action call points with glass pane:



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) switches off.

#### Resettable single action call points:



Pressing the black marking (1) triggers the alarm. The alarm status is displayed by the red window color (4) and the flashing LED display (2).

Single action call points can be reset using the test key. The LED display (2) switches off.

The standby mode is indicated by the white window color (4).

### Regulatory information

Applies to EN 54-11:2001/A1:2005

Region	Regulatory compliance/quality marks	
Europe	CE	FMC-300RW-GSGRD, -GSRRD
	CE	FMC-300RW-GSGYE/BU, -GSRYE/BU
	CPD	0786-CPD-20332 FMC-300RW
Germany	VdS	G 207086 FMC-300RW

### 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.
- Regulations of local fire departments must be observed.

### Technical specifications

#### Electrical

Operating voltage	20 VDC (8.5 VDC to 30 VDC)
Current consumption	specified by the respective security system
Alarm resistor	820 $\Omega$ +/- 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 60529	IP 54
Permissible operating temperature	-25 °C to +70 °C

**Ordering information**

**FMC-300RW-GSGBU Manual call point, glass, blue**  
conventional manual call point with glass pane for indoor use, direct alarm triggering (type A), surface-mounted, blue  
Order number **FMC-300RW-GSGBU**

**FMC-300RW-GSRBU Manual call point, resettable, blue**  
resettable conventional manual call point for indoor use, direct alarm triggering (type A), surface-mounted, blue  
Order number **FMC-300RW-GSRBU**

**FMC-300RW-GSGRD Manual call point glass surface-mnt, red**  
conventional manual call point with glass pane for indoor use, direct alarm triggering (type A), surface-mounted, red  
Order number **FMC-300RW-GSGRD**

**FMC-300RW-GSRRD Manual call point reset surface-mnt, red**  
resettable conventional manual call point for indoor use, direct alarm triggering (type A), surface-mounted, red  
Order number **FMC-300RW-GSRRD**

**FMC-300RW-GSGYE Manual call point, glass, yellow**  
conventional manual call point with glass pane for indoor use, direct alarm triggering (type A), surface-mounted, yellow  
Order number **FMC-300RW-GSGYE**

**FMC-300RW-GSRYE Manual call point, resettable, yellow**  
resettable conventional manual call point for indoor use, direct alarm triggering (type A), surface-mounted, yellow  
Order number **FMC-300RW-GSRYE**

**Accessories**

**FMC-BEZEL-RD Bezel for manual call point, red**  
Frame for the flush-mounted variant of the RW call points.  
1 unit = 4 bezels  
Order number **FMC-BEZEL-RD**

**FMC-BEZEL-WH Bezel for manual call point, white**  
Frame for the flush-mounted variant of the RW call points.  
1 unit = 4 bezels  
Order number **FMC-BEZEL-WH**

**FMC-SEAL-RW Seal for manual call point**  
Seal for clear hinged flap  
1 unit = 100 seals  
Order number **FMC-SEAL-RW**

**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  
Order number **FMC-SPACER-RWRD**

**FMC-SPGL-RW Spare glass**  
Spare glasses for all RW call points.  
1 unit = 5 spare glasses  
Order number **FMC-SPGL-RW**

**FMC-SIGN-RW Sign, out-of-order**  
Used instead of the glass pane when a call point is not ready for use.  
1 unit = 5 signs  
Order number **FMC-SIGN-RW**

**FMC-KEY-RW Test key**  
The key can open, check, and reset manual call points.  
1 unit = 1 key  
Order number **FMC-KEY-RW**

**FMC-FLAP-RW Flap, transparent**  
To protect against accidental triggering; with seal.  
1 unit = 5 flaps  
Order number **FMC-FLAP-RW**

## FMC-120-DKM Manual Call Points

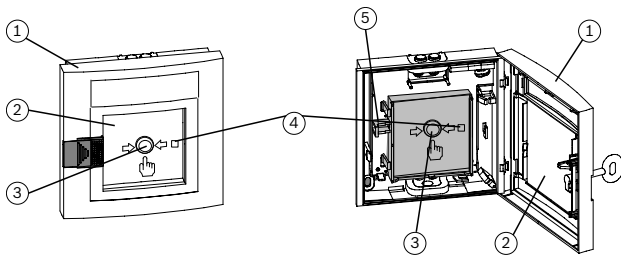


### Features

- ▶ 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.

### Regulatory information

Type Number	Complies with
FMC-120-DKM-G-R	EN54-11:2001/A1:2005
FMC-120-DKM-H-R	EN54-11:2001/A1:2005
FMC-120-DKM-G-Y	EN12094-3:2003
FMC-120-EST-G-B	EN12094-3:2003

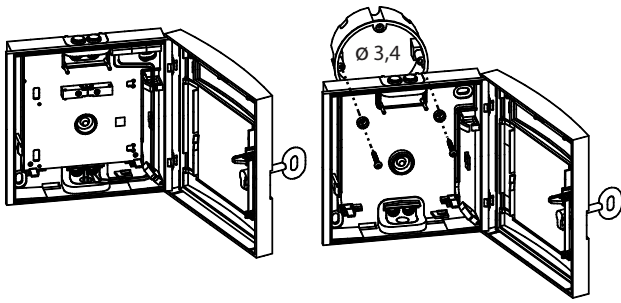
Region	Regulatory compliance/quality marks	
Europe	Ex	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA_01 ATEX 2163 X
	Ex	01 ATEX 2163 X FMC-120-DKM
	CE	FMC-120-EST-G-B/ -DKM-G-Y
	CE	FMC-120-DKM-G-R/-H-R
	CE	FMC-120-DKM-G-B/ -H-B
	CPD	0786-CPD-20294 FMC-120-DKM-G/H-R
Germany	CPD	0786-CPD-20231 FMC-120-DKM-G-Y
	CPD	0786-CPD-20232 FMC-120-EST-G-B/-H-HE
	VdS	G 298061 FMC-120-DKM-G-R/-H-R_G298061
	VdS	G 206079 FMC-120-DKM-G-Y_G206079
	VdS	G 206080 FMC-120-EST-G-B/-H-HE_G206080

### Installation/configuration notes

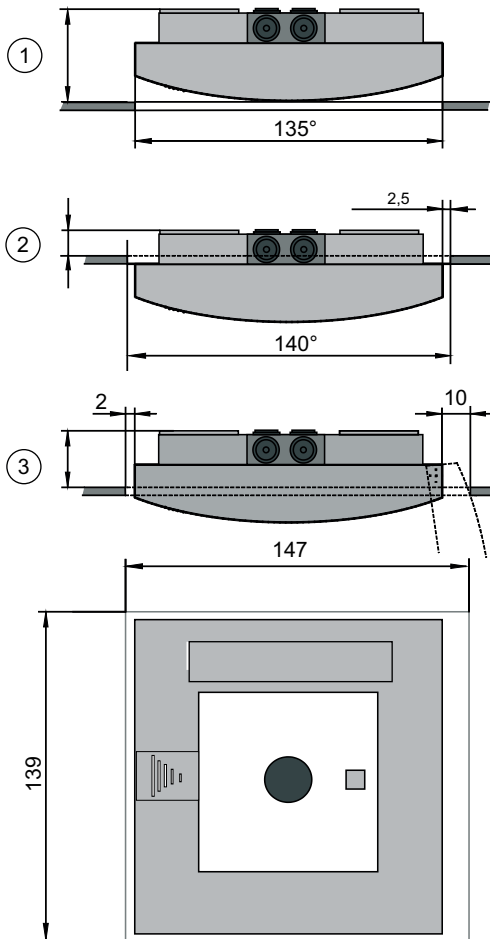
- Manual call points have to be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm  $\pm$ 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must 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.
Housing material	Plastic (ASA)
Colors	Red, RAL 3001 Blue, RAL 5005 Yellow, RAL 1003
Weight	Approx. 224 g

#### Environmental conditions

Protection class as per EN 60529	
Form G (indoor area)	IP 52
Form H (outdoor area)	IP 54
Norm	
FMC-120-DKM-G-R, FMC-120-DKM-H-R	EN 54-11
FMC-120-DKM-G-Y, FMC-120-EST-G-B	EN 12094-3
Permissible operating temperature	
Form G (indoor area)	-10 °C . . . +55 °C / 14 °F . . . 131 °F
Form H (outdoor area)	-25 °C . . . +70 °C / -13 °F . . . 158 °F

#### Ordering information

##### FMC-120-DKM-G-B Manual call point indoor, blue

Manual Call Point for indoor use, indirect triggering (type B), conventional technology  
Order number **FMC-120-DKM-G-B**

##### FMC-120-DKM-G-R Manual call point indoor, red

Manual Call Point for indoor use, indirect alarm triggering (type B), conventional technology  
Order number **FMC-120-DKM-G-R**

##### FMC-120-DKM-G-Y Manual call point indoor, yellow

Manual Call Point for indoor use, indirect triggering (type B), conventional technology  
Order number **FMC-120-DKM-G-Y**

##### FMC-120-DKM-H-B Manual call point outdoor, blue

Manual Call Point for outdoor use, indirect triggering (type B), conventional technology  
Order number **FMC-120-DKM-H-B**

##### FMC-120-DKM-H-R Manual call point outdoor, red

Manual Call Point for outdoor use, indirect alarm triggering (type B), conventional technology  
Order number **FMC-120-DKM-H-R**

##### FMC-120-EST-G-B Manual stop device, indoor, blue

Electronic Stop Device for indoor use, indirect triggering (type B), conventional technology  
Order number **FMC-120-EST-G-B**

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**Accessories**

**FMC-FST-DE Foil set, transparent**

For yellow and blue manual call points of the series FMC-120 and FMC-210, 1 unit = 5 sheets  
Order number **FMC-FST-DE**

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**FMC-SPGL-DEIL Spare glass**

For manual call points of series DM, DKM, SKM, FMC-120 and FMC-210, 1 unit = 5 spare glasses  
Order number **FMC-SPGL-DEIL**

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**FMM-KEY-FORM G/H Key for manual call point**

made of red plastic (ASA)  
Order number **FMM-KEY-FORM G/H**

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## Conventional Manual Call Points for Ex Areas



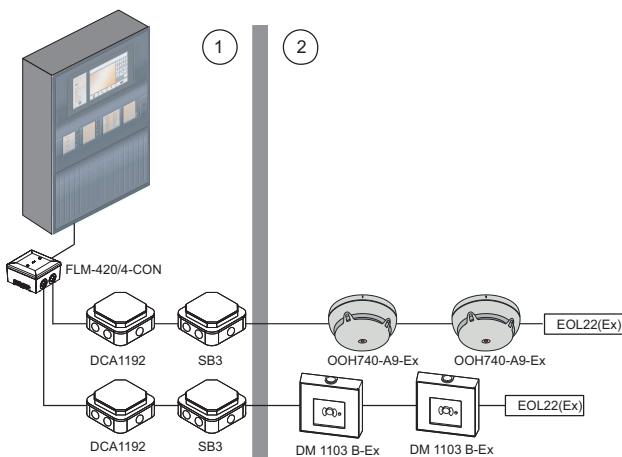
### Features

- ▶ For manually activating the alarm in zones 1 and 2 at risk of explosion
- ▶ Suitable for applications with Ex detectors
- ▶ Especially robust, weatherproof housing
- ▶ Adjustment of the manual call point after alarm triggering

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



### Pos Description

- 1 Non-Ex area
- 2 Ex area: zone 0, 1 or 2 for OOH740-A9-Ex | zone 1 or 2 for DM 1103 B-Ex

### 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	DM 1103
	CE	DKM2014
	Ex	97 ATEX 3197 DKM 2014/2 / DKM 2014/2-GLU
	BASEE-FA	Ex 98E2304 DM 1103 B-Ex
Germany	VdS	G 297060 DKM 2014/2-ex/-GLU
	VdS	G 295036 DM 1103 B-Ex

### 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.

### 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
- For planning an intrinsically safe detector line for Ex areas, you have to consider:
  - the number  $n$  of devices connected to the SB3 Safety Barrier's detector line
  - the cable length  $l$  of the SB3 Safety Barrier's detector line

The following inequation must be fulfilled to achieve an intrinsically safe detector line:

$C_i$  (nF)

resulting

$$C_0 > (n \times C_i) + (l \times C_c)$$

$L_0$  (SB3) >  $L_i$

resulting

$$L_0 > (n \times L_i) + (l \times L_c)$$

Abbreviation (unit)	Description
$C_0$ (nF)	maximum external capacity
$C_i$ (nF)	maximum internal capacity
$C_c$ (nF)	cable capacitance
$l$ (km)	length of entire detector line
$L_0$ (mH)	maximum external inductivity
$L_i$ (mH)	maximum internal inductivity
$L_c$ (mH)	cable inductance
$n$	total number of detectors

#### Technical specifications

##### 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	20 - 26.5 V DC
Switch contact	Type 366 (encapsulated), II 2 G EEx d II C
Maximum contact load	5 A / 250 V AC 0,25 A / 250 V DC
Cable entry	<ul style="list-style-type: none"> <li>• 1x M16 x 1.5 tightening diameter 4-8 mm, EEx e II</li> <li>• Blind plug: 1x M16 x 1.5 EEx e II</li> </ul>
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

**DM 1103 B-Ex Characteristics for intrinsically safety**

Input voltage $U_i$ (V)	$\leq 28$
Input current $I_i$ (mA)	$\leq 100$
Input power $P_i$ (mW)	$\leq 700$
Internal inductivity $L_i$ (mH)	0
Internal capacity $C_i$ (nF)	0

**Ordering information****2014/2 Manual call point ex area**

for ex area, surface-mounted, indirect alarm triggering, conventional technology

Order number **2014/2**

**DKM 2014/2-EX-UGM Manual call point ex area UGM**

for ex area, surface-mounted, indirect alarm triggering

Order number **DKM 2014/2-EX-UGM**

**DM1103B-EX Manual call point ex area**

for zone 1 and 2 areas at risk of explosion, conventional technology

Order number **DM1103B-EX**

**SB3 Safety barrier**

limits the electrical energy between non-inherently safe and inherently safe circuits

Order number **SB3**

**Accessories****FMC-SPGL-DEIL Spare glass**

For manual call points of series DM, DKM, SKM, FMC-120 and FMC-210, 1 unit = 5 spare glasses

Order number **FMC-SPGL-DEIL**

**FMX-7743.0.0500 Key for manual call point**

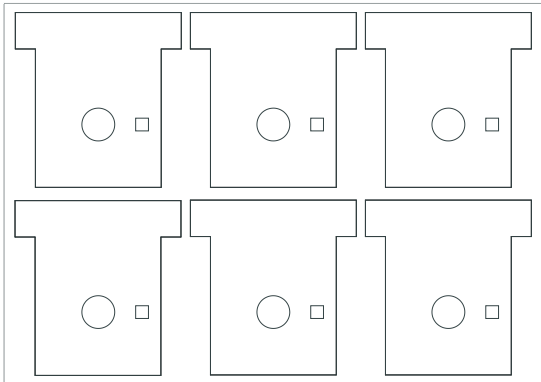
Three-square socket wrench for opening the Manual Call Point Type K

Order number **FMX-7743.0.0500**

# Accessories

<b>DKM120-LABEL Labels for manual call point</b>	<b>237</b>
<b>FMC-FST-DE Foil set, transparent</b>	<b>238</b>
<b>FMC-SPGL-DEIL Spare glass</b>	<b>239</b>
<b>SB3 Safety barrier</b>	<b>240</b>

## DKM120-LABEL Labels for manual call point



### Features

- For printing at standard laser printers

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.

### Parts included

Quantity	Component
10	Punched foil sets

### Technical specifications

#### Mechanics

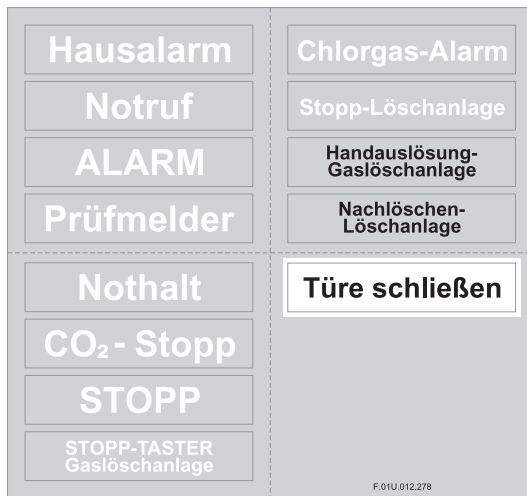
Material	Polyester foil
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### Ordering information

#### DKM120-LABEL Labels for manual call point

10 units, for DM/DKM/SM/SKM, for individual printing  
Order number **DKM120-LABEL**

## FMC-FST-DE Foil set, transparent



### Features

- Appropriate for use in gas extinguishing system EN 12094-3

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).

### Parts included

Quantity	Component
5	sheet

### Technical specifications

#### Mechanics

Material	Polyester foil
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### Ordering information

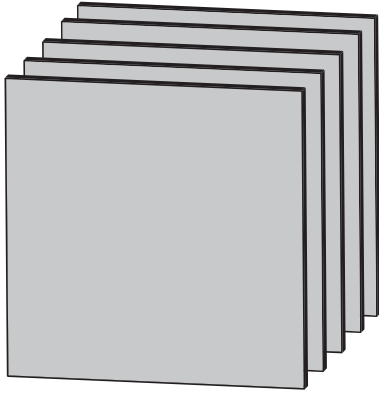
#### FMC-FST-DE Foil set, transparent

For yellow and blue manual call points of the series

FMC-120 and FMC-210, 1 unit = 5 sheets

Order number **FMC-FST-DE**

## FMC-SPGL-DEIL Spare glass



### Features

- ▶ glass pane
- ▶ easy to install

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.  
1 unit = 5 spare glasses

### Parts included

Quantity	Component
5	glass pane

### Technical specifications

#### Mechanics

Material	Glass
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### Ordering information

#### FMC-SPGL-DEIL Spare glass

For manual call points of series DM, DKM, SKM, FMC-120 and FMC-210, 1 unit = 5 spare glasses  
Order number **FMC-SPGL-DEIL**

## SB3 Safety barrier



4

### Features

- ▶ Suitable for applications with Ex detectors
- ▶ Input/Output Module included
- ▶ Impact-proof and scratch-resistant synthetic material
- ▶ Large opening for reuse of existing boreholes
- ▶ Screwless connection terminals

### 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	DC 1192
	Ex	01 ATEX 2088 SB 3
	CE	SB 3
	CPD	0786-CPD-20512 DC 1192
Germany	VdS	G 298021 DC 1192

### Installation/configuration notes

- The directive 1999/92/EC standard contains important information on planning and installation in areas with a potential risk from explosive atmospheres.
- During planning works, it is essential to adhere to national standards and guidelines.
- For planning an intrinsically safe detector line for Ex areas, you have to consider:
  - the number  $n$  of devices connected to the SB3 Safety Barrier's detector line
  - the cable length  $l$  of the SB3 Safety Barrier's detector line

The following inequation must be fulfilled to achieve an intrinsically safe detector line:

$C_i$  (nF)

resulting

$$C_0 > (n \times C_i) + (l \times C_c)$$

$L_0$  (SB3) >  $L_i$

resulting

$$L_0 > (n \times L_i) + (l \times L_c)$$

Abbreviation (unit)	Description
$C_0$ (nF)	maximum external capacity
$C_i$ (nF)	maximum internal capacity
$C_c$ (nF)	cable capacitance
$l$ (km)	length of entire detector line
$L_0$ (mH)	maximum external inductivity
$L_i$ (mH)	maximum internal inductivity
$L_c$ (mH)	cable inductance
$n$	total number of detectors

**DANGER! Risk of explosion: Testing equipment must only be operated in the area not at risk of explosion.**

### Parts included

Quantity	Component
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 <sup>2</sup> . . . 2.5 mm <sup>2</sup>
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
• Standby current	≤45 mA
• Operating current	≤150 mA
• Line resistance	50 Ω . . . 250 Ω
• Line termination	EOL22(Ex)
Line termination	
• Operating voltage	18 V DC . . . 22 V DC
• Current consumption	Max. 5 mA
• Line resistance	50 Ω . . . 250 Ω

• Line termination	EOL22(Ex)
Wire gauge	0.2 mm <sup>2</sup> . . . 2.5 mm <sup>2</sup>
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

#### Characteristics for intrinsically safety

Output voltage (V)	≤ 28
Output current (mA)	≤ 100
Output power (mW)	≤ 700
External inductivity (mH)	≤ 1.6
External capacity (nF)	≤ 83

#### Ordering information

##### SB3 Safety barrier

limits the electrical energy between non-inherently safe and inherently safe circuits  
Order number **SB3**



# Interface Modules

5

<b>Interface Modules</b>	<b>244</b>
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# Interface Modules

<b>FLM-420/4-CON Conventional Interface Modules 4-wire LSN</b>	<b>245</b>
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<b>FLM-420-RLV1 Relay Interface Modules Low Voltage</b>	<b>252</b>
<b>FLM-420-RLV8-S Octo-relay interface module, low-voltage</b>	<b>255</b>
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## FLM-420/4-CON Conventional Interface Modules 4-wire LSN

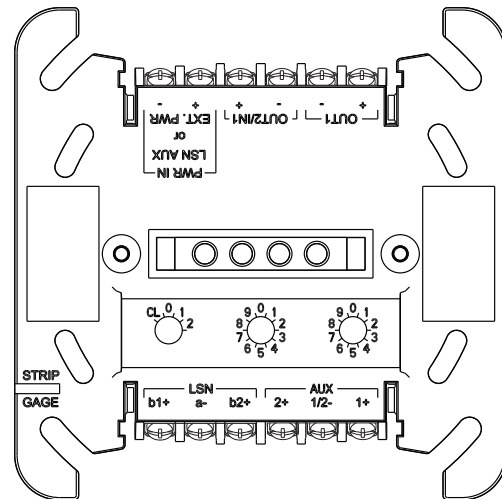


### Features

- ▶ 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

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	Connection
LSN b1+   a-   b2+	LSN (in/out)
AUX 2+   1/2-   1+	Output power supply 4-wire detectors
OUT1 +   -	Stub 1 or loop out
OUT2/IN1 -   +	Stub 2 or loop in
PWR IN LSN AUX or EXT.PWR +   -	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**

A red flashing LED on the device indicates the alarm of one or both primary lines.

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:

Addresses	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

**Regulatory information**

Complies with

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

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420_4-CON/-S/-D
	CPD	0786-CPD-20399 FLM-420/4-CON-S,-D

Region	Regulatory compliance/quality marks	
Germany	VdS	G 208010 FLM-420/4-CON; FLM-420/4CON-D
Ukraine	MOE	UA1.016.0070268-11 FLM-420- CON-S_FLM-420-CON-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](http://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. stand-by 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 auxiliary LSN power supply 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 operating the fire alarm system according to EN 54-13:
  - it is necessary to terminate every conventional zone with EOL modules
  - conventional 4-wire detectors must be supplied by an external power supply. The FLM-420/4-CON Conventional Interface Module must be supplied by the auxiliary LSN power supply
- 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 60715, light pipe, cable with EOL resistor (3k92)
	2	2.2 kOhm resistors

## 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 V DC (21.5 V DC typ. ±0.5 V DC)
• Max. current supply 2-wire sensor	6 mA
• Max. line current	80 mA per line (±10% at 25 °C)
• Max. line resistance	50 Ω per line (max. 2 x 25 Ω)
• Galvanic isolation from LSN	Yes
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

The following figures include the power consumption of the internal module hardware and the conventional line(s) supervision. The power consumption of the connected devices is excluded:

Max. current consumption (PWR IN)	1 x 2.2k Ω*	2 x 2.2k Ω*	1 x 3.9k Ω*	2 x 3.9k Ω*
• Standby	36 mA	50 mA	31 mA	40 mA
• Lines open or short	25 mA	28 mA	25 mA	28 mA
• 1 device on alarm at the line (820 Ω alarm res.)	69 mA	112 mA	65 mA	103 mA
• Multiple devices on alarm at the line	138 mA	250 mA	138 mA	250 mA

\* number of zones used x EOL resistor applied on the zone(s)

### Additional current consumption (PWR IN)

Safety buffer to consider. Only when 4-wire sensors are used and powered through the power output (AUX 2+ 1/2 1+) of the FLM-420/4-CON.	Add the following figures one time only to the total power consumption for each power supply output:
• no parallel switched 4-wire power output	325 mA
• with parallel switched 4-wire power output	650 mA

### 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 mm <sup>2</sup>
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 Interface module conventional use, surf.**

with 2 primary lines for 2- or 4-wire conventional detectors, with surface-mounted housing

Order number **FLM-420/4-CON-S**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension

Order number **EWE-FPDVC-IW**

**FLM-420/4-CON-D Interface module conventional use, rail**

with 2 primary lines for 2- or 4-wire conventional detectors, type DIN rail

Order number **FLM-420/4-CON-D**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension

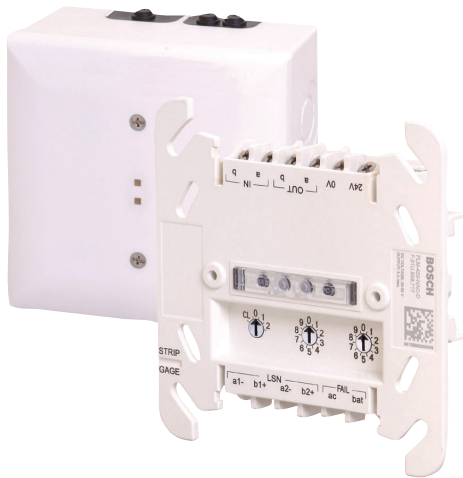
Order number **EWE-FPDVC-IW**

**Accessories****FLM-IFB126-S Surface mount box**

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)

Order number **FLM-IFB126-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

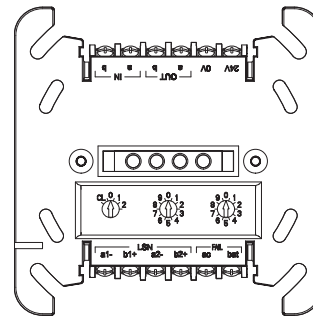
FLM-420-NAC Signaling Device Interface Modules make it possible to monitor and activate a group of signaling devices (NAC = Notification Appliance Circuit) in the Local SecurityNetwork LSN.

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	Connector
b IN / a IN	NAC zone input
b OUT / a OUT	NAC zone output
0 V / 24 V	Ext. power supply
a1- / b1+	LSN in
a2- / b2+	LSN out
FAIL ac	Trouble ext. voltage
FAIL bat	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.

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**Regulatory information**

Complies with

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

Region	Regulatory compliance/quality marks	
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-24/2006-2011 FLM-420-NAC, FLM-I 420-S
Ukraine	MOE	UA1.016.0070266-11 FLM-420-NAC-S_FLM-420-NAC-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.
- 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.
- For operating the fire alarm system according to EN 54-13 the signaling device line must be designed in loop topology.

**Parts included****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	Normal operation: 15 mA Alarm: 50 mA + 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 <sup>2</sup> (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
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### 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 Interface module, notific. app., surface

with 1 supervised output line for conventional signaling devices, with surface-mounted housing  
Order number **FLM-420-NAC-S**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FLM-420-NAC-D Interface module, notific. app., rail

with 1 supervised output line for conventional signaling devices, for installation on a DIN rail with adapter  
Order number **FLM-420-NAC-D**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

# FLM-420-RLV1 Relay Interface Modules Low Voltage



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## Features

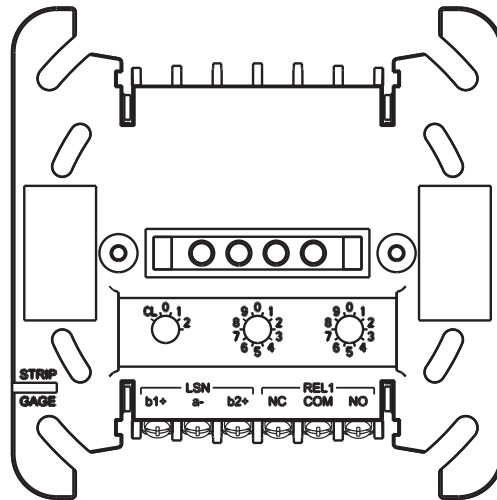
- ▶ Maximum switching current of 5 A/30 V DC (type DIN rail), 1 A/30 V DC (type in-built), 0.5 A/ 42.4 V AC (both variants)
- ▶ Low current consumption
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

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.

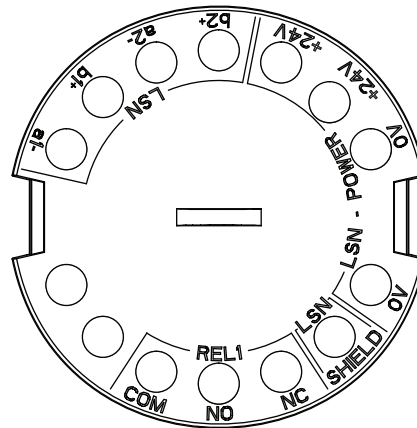
## System overview

### FLM-420-RLV1-D



Description	Connection
REL1 NC   COM   NO	Relay (NC, COM and NO contact)
LSN b1+   a-   b2+	LSN (in/out)

### FLM-420-RLV1-E



Description	Connection
REL1 COM   NO   NC	Relay (COM, NO and NC contact)
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)

## 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 60715 with included adapter
  - Can be built in to a FLM-IFB126-S surface-mounted housing.

### Regulatory information

Complies with

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

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-RLV1-D
	CE	FLM-420-RLV1-D
	CPD	0786-CPD-20291 FLM-420-RLV1
	CPD	0786-CPD-20292 FLM-420-RLV1-W, -E

Region	Regulatory compliance/quality marks	
Germany	VdS	G 207077 FLM-420-RLV1-D; FLM-420-RLV1-E
Ukraine	MOE	UA1.016.0070271-11 FLM-420-RLV1-W_FLM-420-RLV1-E_FLM-420-RLV1-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.
- 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)
Contact load (ohm resistive load) FLM-420-RLV1-E	
• Max. switching current and voltage	• 1 A / 30 V DC • 0.5 A / 42.4 V AC
• Min. switching current and voltage	• 0.01 mA / 10 mV DC • 0.01 mA / 10 mV AC
• Max. frequency AC	100 Hz

Contact load (ohm resistive load) FLM-420-RLV1-D	
• Max. switching current and voltage	• 5 A / 30 V DC • 0.5 A / 42.4 V AC
• Min. switching current and voltage	• 0.1 mA / 100 mV DC • 0.1 mA / 100 mV AC
• Max. AC frequency	100 Hz
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 <sup>2</sup>
• FLM-420-RLV1-D	0.6 to 3.3 mm <sup>2</sup>
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
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

## Ordering information

### FLM-420-RLV1-E Relay interface module low-volt in-built

with 1 relay output, type in-built  
Order number **FLM-420-RLV1-E**

### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

### FLM-420-RLV1-D Relay interf. module low-volt rail-mount

with 1 relay output, DIN rail type  
Order number **FLM-420-RLV1-D**

### FLM-IFB126-S Surface mount box

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)  
Order number **FLM-IFB126-S**

### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

## FLM-420-RLV8-S Octo-relay interface module, low-voltage



### Features

- ▶ Maximum switching capacity of the relays  
2 A / 30 V DC or 0.5 A / 42.4 V AC
- ▶ 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 or 0.5 A / 42.4 V AC.

#### Address switches

The addresses of the interface modules are set by rotary switches.

In case of a connection to the Local Security Network 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.

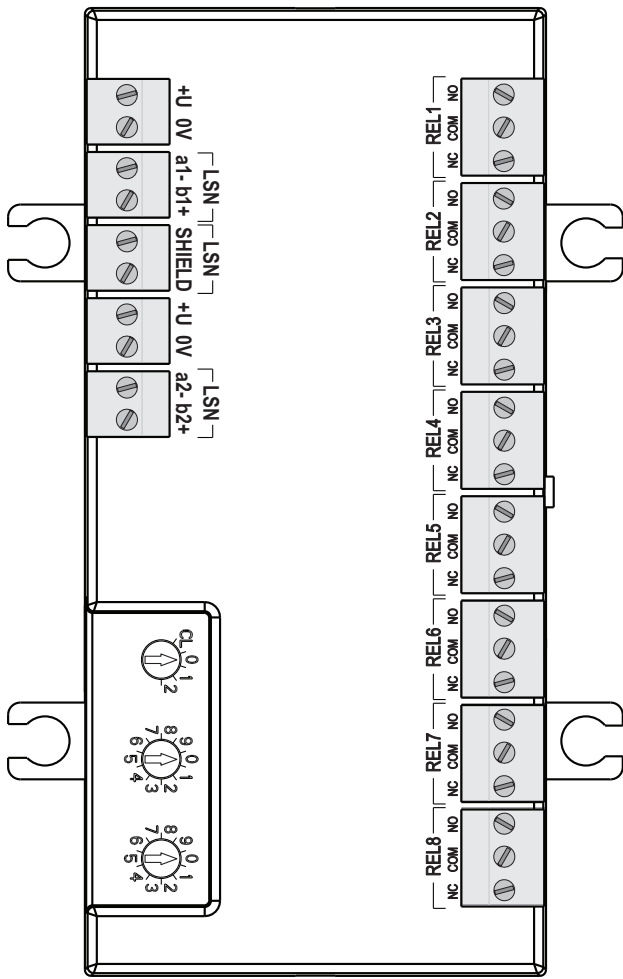
### Regulatory information

Complies with

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

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-RLV8-S
	CPD	0786-CPD-20559 FLM-420-RLV8-S
Germany	VdS	G 208183 FLM-420-RLV8-S
Ukraine	MOE	UA1.016.0070264-11 FLM-420-RLV8-S

Installation/configuration notes



Description	Connection	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 terminal 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

Quantity	Component
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 and voltage	• 2 A / 30 VDC • 0.5 A / 42.4 VAC
• Min. switching current and voltage	• 0.01mA / 10 mV DC • 0.01 mA / 10 mV AC
• Max. AC frequency	100 Hz

Mechanical

Connections	Screw terminals
Wire diameter	0.6 to 3.3 mm <sup>2</sup>
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 54

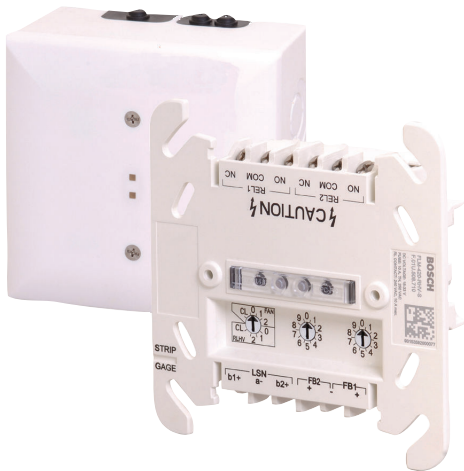
**Ordering information****FLM-420-RLV8-S Octo-relay interface module, low-voltage**

2-wire LSN element with eight changeover contact relays for providing potential-free output contacts, in housing for surface mounting  
Order number **FLM-420-RLV8-S**

**Services****EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

## FLM-420-RHV Relay High Voltage Interface Modules



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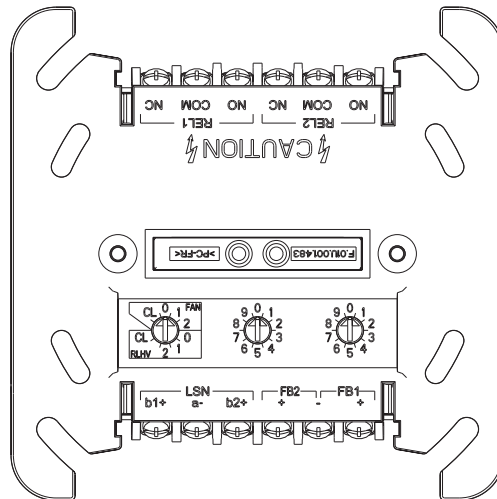


### Features

- ▶ 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

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	Connector
NO / C / NC	Relay 1
NO / C / NC	Relay 2
b1+ / a- / b2+	LSN
FB2+	Relay 2, feedback +
FB1/FB2-	Relay 1 and 2, feedback -
FB1+	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.

### Regulatory information

Complies with

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

Region	Regulatory compliance/quality marks	
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
Ukraine	MOE	UA1.016.0070267-11 FLM-420-RHV-S_FLM-420-RHV-D

### Installation/configuration notes

- Can be connected to the fire panels of LSN improved bus technology 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.

### 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"> <li>• FAN/RLHV function</li> <li>• Mode LSN classic or LSN improved version</li> <li>• Automatic or manual addressing</li> </ul>
Connections	12 threaded clamps
Housing material	<ul style="list-style-type: none"> <li>• Interface module: PPO (Noryl)</li> <li>• Surface-mount housing: ABS/PC-Blend</li> </ul>
Housing color	<ul style="list-style-type: none"> <li>• Interface module: Off-white, similar to RAL 9002</li> <li>• Surface-mount housing: Signal white, RAL 9003</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>• FLM-420-RHV-S: Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)</li> </ul>

• 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)
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 II equipment
Protection class as per IEC 60529	

• FLM-420-RHV-S	IP 54
• FLM-420-RHV-D	IP 30

**Ordering information****FLM-420-RHV-S Interface module relay high-volt surface**

with 2 relay outputs (230 V), with surface-mounted housing  
Order number **FLM-420-RHV-S**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FLM-420-RHV-D Interface module relay high-volt, rail**

with 2 relay outputs (230 V), for installation on a DIN rail with adapter  
Order number **FLM-420-RHV-D**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
Order number **EWE-FPDVC-IW**

## FLM-420-I8R1-S Octo-input interface module with relay



### Features

- ▶ Individually selectable monitoring functions (EOL or contact) for the eight inputs each
- ▶ Maximum switching capacity 2 A / 30 V DC or 0.5 A / 42.4 V AC
- ▶ 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.

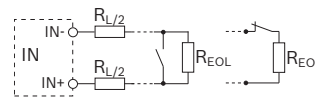
#### Line monitoring with EOL resistor

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

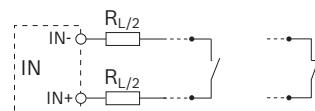
$R_{\Sigma}$  Overall line resistance with  $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$

$R_{L/2}$  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 $R_{\Sigma}$
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 or 0.5 A / 42.4 V AC.

#### 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 (A)	Operating mode
0 0 0	Loop/stub in LSN improved version mode with automatic addressing (T-taps not possible)
0 0 1 - 2 5 4	Loop/stub/T-taps in LSN improved version mode with manual addressing
CL 0 0	Loop/stub in LSN classic 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**

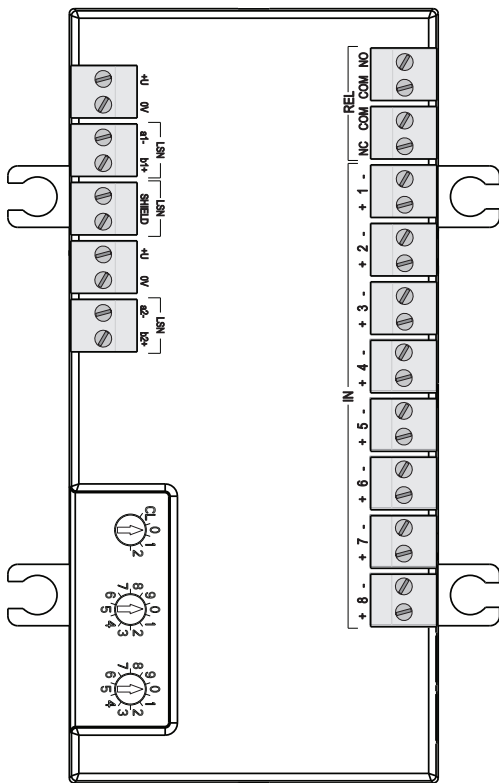
The product have the following features of the improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Downwards compatible with existing LSN systems and control panels.

**Regulatory information**

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-I8R1-S
	CPD	0786-CPD-20560 FLM-420-I8R1-S
Germany	VdS	G 208184 FLM-420-I8R1-S
Ukraine	MOE	UA1.016.0070265-11 FLM-420-I8R1-S

**Installation/configuration notes**



Description	Connection
+U   0V	Auxiliary power supply (support points to loop through)
LS a1-   b1+ N	LSN incoming
LS SHIELD N	Cable shielding
+U   0V	Auxiliary power supply (support points to loop through)

LS N	a2-   b2+	LSN outgoing
IN	1 ... 8: +   -	Input 1 to input 8
RE L	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.
- In order to comply with EN50130-4:2011, shielded cable is required for the installation. The shielded cable needs to be applied for:
  - all loops and stubs which are equipped with one or more modules.
  - all inputs which are connected on the module
 The cable shield wire for the LSN cable has to be connected properly according LSN specifications.

**Parts included**

Quantity	Component
1	Octo-input Interface Module with Relay, in housing for surface mounting

**Technical specifications**

**Electrical**

LSN input voltage (V DC)	15 ... 33
Max. current consumption from LSN (mA)	5.5
Inputs, independent	8
Line monitoring: EOL resistor, nominal (kΩ) Detected line conditions (Ω) with overall line resistance $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$	3.9 Standby: 1500 ... 6000 Interruption: > 12000 Short circuit: < 800
Contact monitoring: Max. current consumption (mA)	8
Min. activation time of the inputs IN 1...8 (s)	3.2
Change-over relay, low voltage	NC / COM, COM / NO
Contact load: Max. switching capacity (A / V DC; A / V AC) Min. switching capacity (mA / mV DC; mA / mV AC) Max. frequency (Hz)	2 / 30; 0.5 / 42.4 0.01 / 10; 0.01 / 10 100

### Mechanical

Connections	Screw terminals
Rotary switches, number	3
Weight, without/with packing (g)	480 / 800
Dimensions W x H x D (mm)	140 x 200 x 48
Wire gauge (mm <sup>2</sup> )	0.6...3.3
Housing material, housing color (RAL)	ABS+PC-FR, RAL 9003

### Environmental

Operating temperature (°C)	-20 ...+65
Storage temperature (°C)	-25 ...+80
Rel. humidity (%), non-condensing	< 96 %
Class of equipment (IEC 60950)	III
Degree of protection (IEC 60529)	IP 54

### System limits

Max. cable length, not electrically isolated from LSN in total (m)	500
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### Ordering information

#### FLM-420-I8R1-S Octo-input interface 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

Order number **FLM-420-I8R1-S**

### Services

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension

Order number **EWE-FPDVC-IW**

# FLM-420-I2 Input Interface Modules



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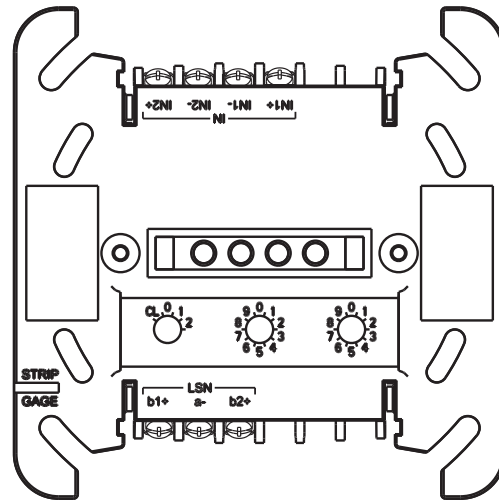
## Features

- ▶ 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.

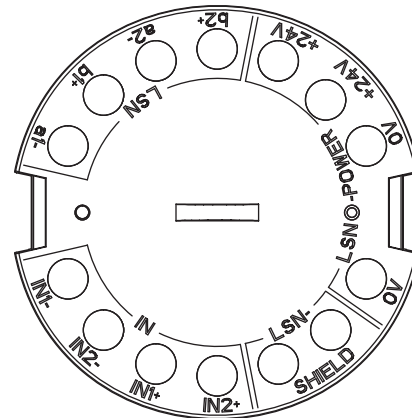
## System overview

### FLM-420-I2-D



Description	Connection
IN1+   IN1-	Input 1
IN2+   IN2-	Input 2
LSN b1+   a-   b2+	LSN (in/out)

### FLM-420-I2-E / FLM-420-I2-W



Description	Connection
IN1-   IN1+	Input 1
IN2-   IN2+	Input 2
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)

## Functions

### Monitoring functions

The FLM-420-I2 Input Interface Modules offer three monitoring functions:

1. Monitoring of a line with EOL resistor

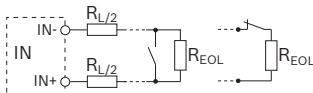
2. Monitoring of a potential-free contact
  3. Voltage monitoring
- The monitoring functions can be selected for the two inputs individually by address setting via the programming software.

### Line monitoring with EOL resistor

Operation with EOL resistor can be programmed for each input individually. The standard EOL resistor is 3.9 k $\Omega$ .

The interface module detects

- Standby
- Triggering in the event of line interruption
- Triggering in the event of a short circuit.



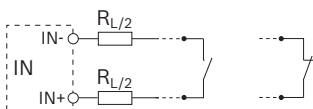
Position	Description
$R_{\Sigma}$	Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be definitely detected if the overall line resistance is within the specified ranges:

The following line conditions will be definitely detected if the overall line resistance is within the specified ranges:

Line condition	Overall line resistance $R_{\Sigma}$
Standby	1500 $\Omega$ to 6000 $\Omega$
Interruption	> 12.000 $\Omega$
Short circuit	< 800 $\Omega$

### Contact monitoring

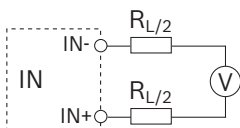


Position	Description
$R_{L/2}$	Line resistance with $R_{L/2} + R_{L/2} \leq 50 \Omega$

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.

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.

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 60715 with included adapter
  - Can be built in to a FLM-IFB126-S surface-mounted housing.

### Regulatory information

Complies with

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

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-I2-D
	CE	FLM-420-I2-E+W
	CPD	0786-CPD-20288 FLM-420-I2-D

Region	Regulatory compliance/quality marks	
	CPD	0786-CPD-20287 FLM-420-I2-W, -E
Germany	VdS	G 207076 FLM-420-I2-D; FLM-420-I2-E; FLM-420-I2-W
Ukraine	MOE	UA1.016.0070269-11 FLM-420-I2-W_FLM-420-I2-E_FLM-420-I2-D

### 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 k $\Omega$
• Overall line resistance	<ul style="list-style-type: none"> <li>• During standby: 1500 to 6000 <math>\Omega</math></li> <li>• Interruption: &gt; 12.000 <math>\Omega</math></li> <li>• Short circuit: &lt; 800 <math>\Omega</math></li> </ul>
Contact monitoring	

• Max. current (current peak)	8 mA
Voltage monitoring	
• Voltage range	0 to 30 V DC
• Input resistance	$\geq 50$ k $\Omega$
• Selectable threshold values	<ul style="list-style-type: none"> <li>• 0.8 VDC (<math>\pm 0.3</math> VDC)</li> <li>• 3.3 VDC (<math>\pm 0.3</math> VDC)</li> <li>• 10.2 VDC (<math>\pm 0.5</math> VDC)</li> <li>• 21.2 VDC (<math>\pm 0.5</math> VDC)</li> </ul>

#### 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 mm <sup>2</sup>
• FLM-420-I2-D	0.6 to 3.3 mm <sup>2</sup>
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 ( $\varnothing$ x H)
• FLM-420-I2-W	Approx. 76 mm x 30 mm ( $\varnothing$ 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, in-built**  
with 2 monitored inputs, flush-mount type  
Order number **FLM-420-I2-E**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**  
12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FLM-420-I2-W Input interface module, wall-mount**  
with 2 monitored inputs, wall-mount type, with cover  
Order number **FLM-420-I2-W**

**FMX-IFB55-S Interface module housing, surface-mount**  
for interface modules of wall mount type in the 420 series, surface-mount  
Order number **FMX-IFB55-S**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**  
12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FLM-420-I2-D Input Interface module, rail-mount**  
with 2 monitored inputs, DIN rail type  
Order number **FLM-420-I2-D**

**FLM-IFB126-S Surface mount box**  
as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)  
Order number **FLM-IFB126-S**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**  
12 months warranty extension  
Order number **EWE-FPDVC-IW**

## FLM-420-O8I2-S Octo-output interface module, 2-input



### Features

- ▶ Eight individually switchable semi-conductor outputs
- ▶ Outputs are electrically isolated from LSN loop and short-circuit proof
- ▶ Max. switchable current per output 700 mA
- ▶ Individually selectable monitoring functions (EOL or contact) for the two inputs each
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

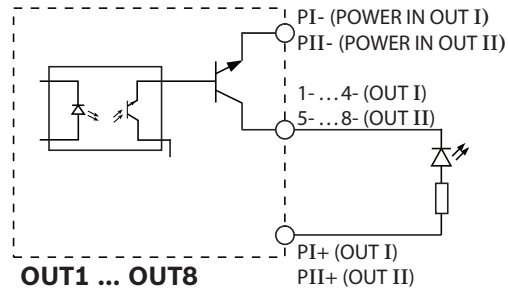
The FLM-420-O8I2-S Octo-output Interface Module is fitted with eight outputs to control external devices and with two monitored inputs.

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

#### Semi-conductor outputs

The outputs can be switched independently. They are electrically isolated from the LSN loop and protected against short circuits.



Functionality of the semi-conductor outputs

#### Output power supply

The power supply for connected loads can be selected individually for blocs of four outputs each:

- Auxiliary power supply (AUX) from the fire panel
- External power supply units.

#### Monitoring functions of the inputs

The FLM-420-O8I2-S Octo-output Interface Module provides two monitoring functions:

1. Monitoring of a line by an EOL resistor
2. Monitoring of a potential-free contact

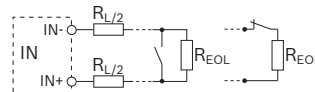
The monitoring functions of the two inputs can be selected individually by setting the corresponding addresses.

#### 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 k $\Omega$ .

The interface module detects

- Standby
- Triggering in the event of a short circuit
- Triggering in the event of line interruption.

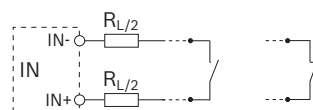


Position	Description
$R_{\Sigma}$	Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be reliably detected if the overall line resistance is within the specified range:

Line condition	Overall line resistance $R_{\Sigma}$
Standby	1500 $\Omega$ to 6000 $\Omega$
Short circuit	< 800 $\Omega$
Interruption	> 12.000 $\Omega$

#### 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 addresses of the interface modules are set by rotary switches.

In case of 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:

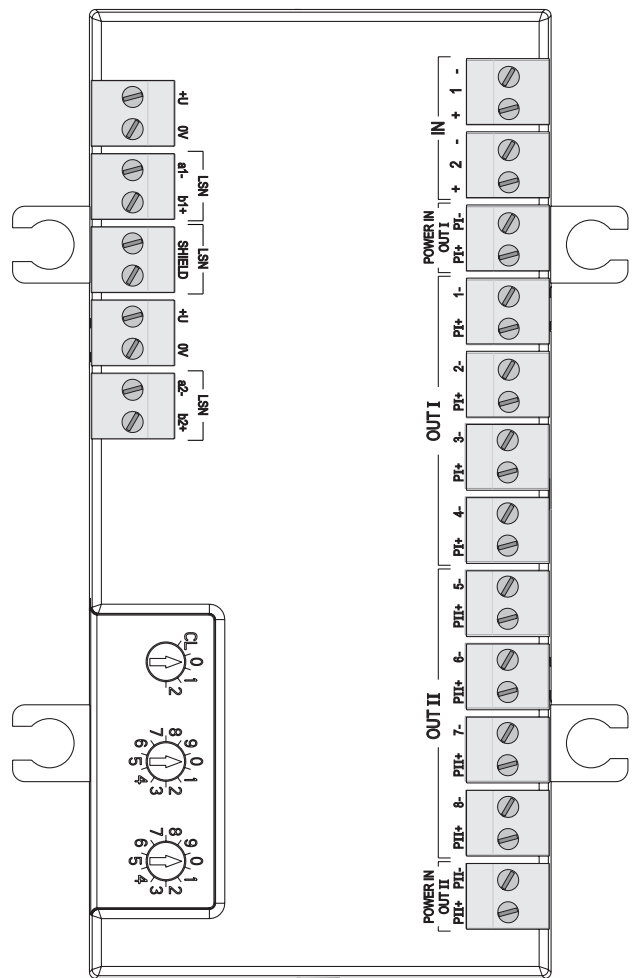
- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

**Regulatory information**

- Complies with
- EN 54-17: 2005
  - EN 54-18: 2005 + AC: 2007

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-08I2-S
	CPD	0786-CPD20795 FLM-420-08I2-S
Germany	VdS	G 209147 FLM-420-08I2-S
Hungary	TMT	TMT-36/2010 szamu FLM-420-08I2-S, FLM-420-01I1-E, FLM-420-01I1-D, FLM-420-RLE-S
Ukraine	MOE	UA1.016.0070230-11 FLM-420-08I2-S

**Installation/configuration notes**



Description	Connection	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
POWER IN OUT II	PII+   PII-	Power supply output 5 to 8
OUT II	PII+   8- ... PII+   5-	Reference potential (PII+), switched negative potential output 5 to 8
OUT I	PI+   4- ... PI+   1-	Reference potential (PII+), switched negative potential output 1 to 4

POWER IN OUT <sub>I</sub>	P <sub>I+</sub>   P <sub>I-</sub>	Power supply output 1 to 4
IN	+   2   - +   1   -	Input 2 Input 1

- 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 outputs OUT<sub>I</sub>/1- to 4- and OUT<sub>II</sub>/5- to 8- are switched against the negative potential of the interface module (POWER IN OUT<sub>I</sub>/ P<sub>I-</sub> and POWER IN OUT<sub>II</sub>/ P<sub>II-</sub>). The positive potential for OUT<sub>I</sub>/P<sub>I+</sub> and OUT<sub>II</sub>/P<sub>II+</sub> is either supplied by the auxiliary power (AUX) from the fire panel or by one or two external power supply units or a combination of both. OUT<sub>I</sub>/P<sub>I+</sub> and POWER IN OUT<sub>I</sub>/P<sub>I+</sub> as well as OUT<sub>II</sub>/P<sub>II+</sub> and POWER IN OUT<sub>II</sub>/P<sub>II+</sub> are linked internally.
- External power supplies must be free-of-ground.
- The maximum switchable voltage of the semi-conductor outputs is 30 V DC. The maximum switchable current is 700 mA for each of the outputs (depending on the external power supply).
- The activation of the inputs IN 1 and 2 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 terminal 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

Quantity	Component
1	Octo-output Interface Module, 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
Outputs	
• Max. switchable voltage of semi-conductor outputs	30 V DC
• Max. switchable output current	700 mA per output (depending on external power supply)
• External power supply	5 V DC to 30 V DC
Inputs	
2, independent	
Line monitoring with EOL	
• EOL resistor	Nominal 3.9 kΩ
• Overall line resistance $R_{\Sigma}$ with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$	<ul style="list-style-type: none"> <li>• Standby: 1500 Ω to 6000 Ω</li> <li>• Short circuit: &lt; 800 Ω</li> <li>• Line interruption: &gt; 12.000 Ω</li> </ul>
Contact monitoring	
• Max. current strength (current pulse)	8 mA
Minimum activation time of the inputs IN 1... 2	3.2 s

#### Mechanical

Connections	30 screw terminals
Permissible wire diameter	0.6 mm <sup>2</sup> to 3.3 mm <sup>2</sup>
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 54

**System limiting values**

Maximum cable length of all inputs and outputs which are connec-	500 m in total
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ted to the loop or stub and not electrically isolated from LSN

**Ordering information****FLM-420-08I2-S Octo-output interface module, 2-input**

in housing for surface mounting

Order number **FLM-420-08I2-S**

# FLM-420-O111 Output-input Interface Modules



5



## Features

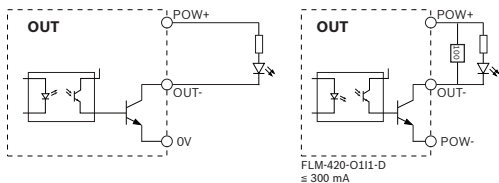
- ▶ Semi-conductor output electrically isolated from LSN loop and short-circuit proof
- ▶ Max. switchable current per output 700 mA
- ▶ Individually selectable input monitoring functions (EOL or contact)
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

The FLM-420-O111 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

- Or, for FLM-420-O111-D only: External power supply units

### Input monitoring functions

The FLM-420-O111 Output-input-Interface Module provides two monitoring functions:

1. Monitoring of a line by an EOL resistor
2. Monitoring of a potential-free contact

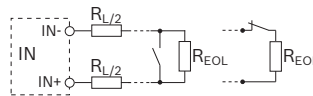
The input monitoring functions can be selected by setting the corresponding addresses.

### 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

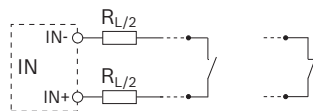


Position	Description
$R_{\Sigma}$	Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be reliably detected if the overall line resistance is within the specified range:

Line condition	Overall line resistance $R_{\Sigma}$
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-O111-E
- Rotary switches in case of the FLM-420-O111-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-O111-E in-built version:
  - Suitable for standard device boxes according to EN 60670 and
  - For a space-saving installation in all devices
- FLM-420-O111-D DIN-rail version:
  - Suitable for installation on a DIN-rail according to EN 60715 with included adapter and
  - For the FLM-IFB126-S surface-mounted housing

### Regulatory information

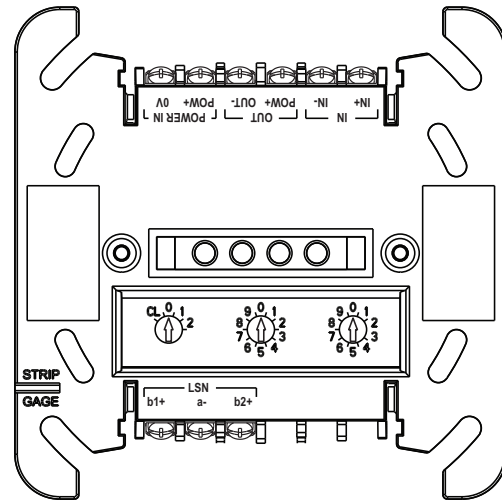
Complies with

- EN 54-17: 2005
- EN 54-18: 2005 + AC:2007

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-O111-E
	CE	FLM-420-O111-D
	CPD	0786-CPD-20714 FLM-420-O111-E
	CPD	0786-CPD-20715 FLM-420-O111-D
Germany	VdS	G 209070 FLM-420-O111-E
	VdS	G 209069 FLM-420-O111-D
Hungary	TMT	TMT-36/2010 szamu FLM-420-O8I2-S, FLM-420-O111-E, FLM-420-O111-D, FLM-420-RLE-S
Ukraine	MOE	UA1.016.0070232-11 FLM-420-O111-E
	MOE	UA1.016.0070263-11 FLM-420-O111-D

### Installation/configuration notes

#### FLM-420-O111-D



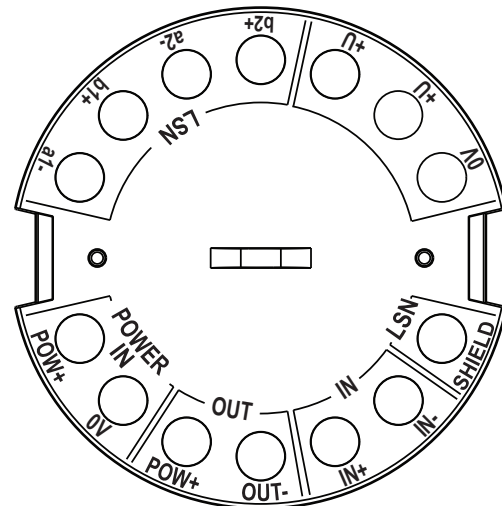
#### Description

IN	IN-   IN+
OUT	POW+ OUT-
POWER IN	POW+   0V
LSN	b1+   a-   b2+

#### Connection

Input 1
Reference potential (+)
Output (switched negative potential)
Power supply output
LSN (incoming / outgoing)

#### FLM-420-O111-E



#### Description

POWER IN	POW+   0V-
OUT	POW+ OUT-
IN	-   +

#### Connection

Power supply (interface module and output)
Reference potential (+)
Output (switched negative potential)
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 fire panels of LSN improved bus technology.
- 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, for FLM-420-0111-D only, must be free-of-ground.
- The outputs OUT/OUT- are switched against the negative potential of the interface module (POWER IN/0V). 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 semiconductor 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.
- For FLM-420-0111-D applies: A maximum cable length of 3 m is permitted per input and output. FLM-420-0111-E must be mounted flush with the connected device.
- 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.

### 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 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 $R_{\Sigma}$ with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$	<ul style="list-style-type: none"> <li>• Standby: 1500 Ω to 6000 Ω</li> <li>• Short circuit: &lt; 800 Ω</li> <li>• Line interruption: &gt; 12.000 Ω</li> </ul>
Contact monitoring	
• Max. current strength (current pulse)	8 mA
Minimum activation time of the input	3.2 s

#### Mechanical

Connections	
• FLM-420-0111-E	14 screw terminals
• FLM-420-0111-D	12 screw terminals
Permissible wire diameter	
• FLM-420-0111-E	0.6 mm <sup>2</sup> to 2.0 mm <sup>2</sup>
• FLM-420-0111-D	0.6 mm <sup>2</sup> to 3.3 mm <sup>2</sup>
Address setting	
• FLM-420-0111-E	8 DIP switches
• FLM-420-0111-D	3 rotary switches
Housing material	
• FLM-420-0111-E	ABS/PC blend
• FLM-420-0111-D incl. adapter	PPO (Noryl)
Housing color	
• FLM-420-0111-E	Signal white, RAL 9003
• FLM-420-0111-D incl. adapter	Gray white, similar to RAL 9002
Dimensions	
• FLM-420-0111-E	Approx. 50 mm x 22 mm (Ø x H)

• FLM-420-0111-D incl. adapter	Approx. 110 x 110 x 48 mm (W x H x D)
Weight	Without/with packing
• FLM-420-0111-E	Approx. 35 g / 170 g
• FLM-420-0111-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	
• FLM-420-0111-D	3 m
• FLM-420-0111-E	Flush mounted

Maximum cable length output	
• FLM-420-0111-D	3 m
• FLM-420-0111-E	Flush mounted

#### Ordering information

**FLM-420-0111-E Output-input interface module in-built**  
with 1 open collector output and 1 monitored input, in-built version  
Order number **FLM-420-0111-E**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**  
12 months warranty extension  
Order number **EWE-FPDVC-IW**

**FLM-420-0111-D Output-input interface module rail-mount**  
with 1 open collector output and 1 monitored input, DIN-rail version  
Order number **FLM-420-0111-D**

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**  
12 months warranty extension  
Order number **EWE-FPDVC-IW**

## FLM-420-RLE-S Extinguishing module



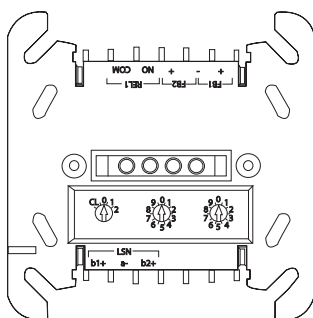
5

### Features

- ▶ Rotary switches for automatic or manual address setting
- ▶ 2 input lines usable as independent inputs
- ▶ LED display for status indication
- ▶ Power supply via LSN
- ▶ Surface or DIN rail mounting

The FLM-420-RLE-S is used for the supervised monitoring and activation of extinguishing systems connected to the Local SecurityNetwork.

### System overview



Designation	Connection
NO / COM	Relay
FB2+	Feedback +
FB1- / FB2-	Feedback -

FB1+	Feedback +
b1+ / a- / b2+	LSN

### Functions

The FLM-420-RLE-S is fitted with a low voltage relay for connecting one extinguishing system to one LSN fire panel. Two feedback lines allow the FLM-420-RLE-S to signal a fault or the activation of the extinguishing system. These are indicated by a yellow and red LED.

The feedback lines can also be used as independent input lines for the supervised monitoring of different peripherals.

The address of the interface module is defined by setting the rotary switches accordingly.

### 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 LSN classic mode

### Features of LSN improved version

The interface modules in the 420 series offer all the features of LSN improved technology:

- Flexible network structures including T-taps without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cables can be used
- Downwards compatible with existing LSN systems and control panels

### Short circuit isolators

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.

### Regulatory information

Complies with EN 54-17:2005, EN 54-18:2005 and VdS 2496

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-RLE-S
	CPD	0786-CPD-20725 FLM-420-RLE-S
Germany	VdS	G 209085 FLM-420-RLE-S
Hungary	TMT	TMT-36/2010 szamu FLM-420-O8I2-S, FLM-420-O111-E, FLM-420-O111-D, FLM-420-RLE-S
Ukraine	MOE	UA1.016.0120702-11 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

Quantity	Component
1	FLM-420-RLE-S Extinguishing Interface Module
1	Surface-mount housing
1	DIN rail adapter
2	3.3 kOhm resistors
2	680 Ohm resistors

### Technical specifications

#### Electrical

Input voltage	15 V DC to 33 V DC
Max. current consumption	7.9 mA
Activation extinguishing system	
<ul style="list-style-type: none"> <li>• after initialization / during standby</li> </ul>	3.3 kOhm
<ul style="list-style-type: none"> <li>• during alarm</li> </ul>	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 <ul style="list-style-type: none"> <li>• LSN classic mode or LSN improved version</li> <li>• Automatic or manual addressing</li> </ul>
Connection	8 screw terminals

Material	
<ul style="list-style-type: none"> <li>• Interface module</li> </ul>	PPO (Noryl)
<ul style="list-style-type: none"> <li>• Surface-mount housing</li> </ul>	ABS/PC blend
Color	
<ul style="list-style-type: none"> <li>• Interface module</li> </ul>	Gray white, similar to RAL 9002
<ul style="list-style-type: none"> <li>• Housing</li> </ul>	Signal white, RAL 9003
Dimensions	
<ul style="list-style-type: none"> <li>• with housing</li> </ul>	Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)
<ul style="list-style-type: none"> <li>• without housing (with DIN rail adapter)</li> </ul>	Approx. 110 x 110 x 48 mm (4.33 x 4.33 x 1.89 in.)
Weight	
<ul style="list-style-type: none"> <li>• with housing</li> </ul>	Approx. 390 g (13.8 ounces)
<ul style="list-style-type: none"> <li>• without housing</li> </ul>	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-420-RLE-S Extinguishing module

The FLM-420-RLE-S is used for the supervised monitoring and activation of extinguishing systems.

Order number **FLM-420-RLE-S**

##### Services

##### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension

Order number **EWE-FPDVC-IW**

## FLM-IFB126-S Surface mount box



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 4 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 mount box

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)

Order number **FLM-IFB126-S**

## FLM-I 420-S Short-circuit isolator

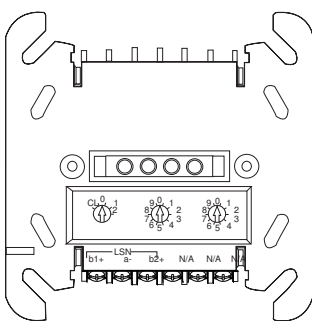


### Features

- ▶ Rotary switches for automatic or 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.

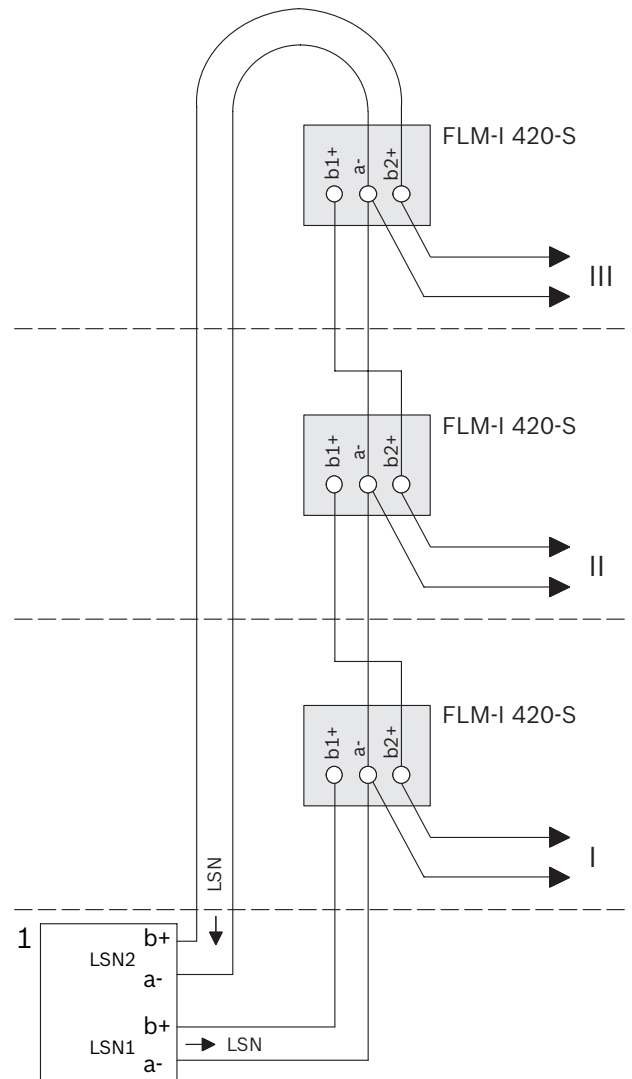
The following settings are possible:

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

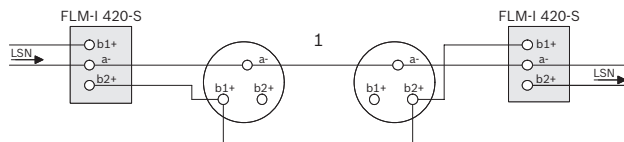
The Short Circuit Isolator isolates alarm zones in which a short circuit has occurred. The following illustrations show typical configurations of the isolator module.

#### 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

**Regulatory information**

Complies with EN54-17:2005

Region	Regulatory compliance/quality marks	
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-24/2006-2011 FLM-I 420-NAC, FLM-I 420-S

**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**

Quantity	Component
1	Short Circuit Isolator with surface-mounted housing
1	DIN rail adapter

**Notice**

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	
<ul style="list-style-type: none"> <li>During initialization</li> </ul>	< 0.4 mA
<ul style="list-style-type: none"> <li>Following the initialization</li> </ul>	< 0.25 mA

**Mechanics**

LSN/Address setting	3 rotary switches for
	<ul style="list-style-type: none"> <li>Mode LSN classic or LSN improved version</li> <li>Automatic or manual addressing</li> </ul>
Connections	6 threaded clamps
Housing material	
<ul style="list-style-type: none"> <li>Isolator module</li> <li>Surface-mount housing</li> </ul>	PPO (Noryl) ABS/PC-Blend
Housing color	
<ul style="list-style-type: none"> <li>Isolator module</li> <li>Surface-mount housing</li> </ul>	Off-white, similar to RAL 9002 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**

for the isolation of alarm zones in which a short circuit has occurred.

Order number **FLM-I 420-S**

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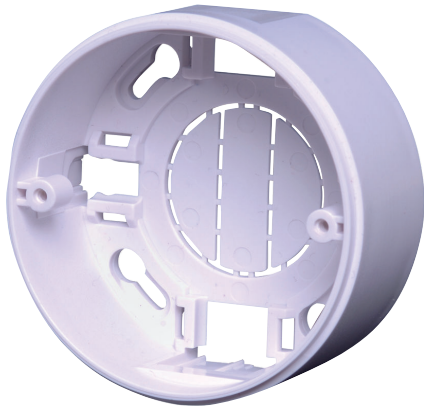
**Accessories****FLM-IFB126-S Surface mount box**

as retainer for the interface modules series 420 type  
DIN rail (-D) or spare housing for type surface-mount (-  
S)

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Order number **FLM-IFB126-S**

## FMX-IFB55-S Interface module housing, surface-mount



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### Features

- ▶ Surface mount box for FLM-420-I2-W, FLM-420-EOL2W-W
- ▶ Wall mount installation
- ▶ RAL 9003

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

Quantity	Component
1	Interface module housing, surface-mount



#### Notice

A compatible cover is not included. A compatible cover is included in the delivery of wall mount type interface modules of the 420 series (FLM-420-I2-W, FLM-420-EOL2W-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 module housing, surface-mount

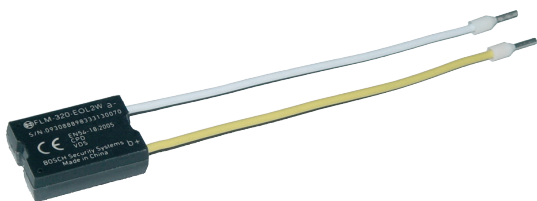
for interface modules of wall mount type in the 420 series, surface-mount

Order number **FMX-IFB55-S**

# EOL Modules

<b>FLM-320-EOL2W End-of-line module, 2-wire</b>	<b>284</b>
<b>FLM-320-EOL4W-S End-of-line module, 4-wire surface-mount</b>	<b>285</b>
<b>FLM-420-EOL2W-W End-of-line module 2-wire LSN wall-mount</b>	<b>286</b>
<b>FLM-420-EOL4W EOL Module LSN</b>	<b>287</b>

## FLM-320-EOL2W End-of-line module, 2-wire



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### Features

- For installations with Extended Line Supervision (ELS)

The EOL module terminates conventional lines for creeping open monitoring (ELS, formerly EN 54-13 requirement).

It detects primary line faults and reports them to the fire panel.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-320-EOL2W
	CPD	0786-CPD-20926 FLM-320-EOL2W
Germany	VdS	G 210007 FLM-320-EOL2W

### Parts included

Quantity	Component
1	FLM-320-EOL2W Conventional EOL Module

### 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

### Ordering information

**FLM-320-EOL2W End-of-line module, 2-wire**  
for termination of 2-wire conventional line with Extended Line Supervision (ELS)  
Order number **FLM-320-EOL2W**

## FLM-320-EOL4W-S End-of-line module, 4-wire surface-mount



### Features

- For installations with Extended Line Supervision (ELS)

The EOL module terminates conventional lines for creeping open monitoring (ELS, formerly EN 54-13 requirement). It detects primary line faults and AUX line faults and reports them to the fire panel.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-320-EOL4W-S
	CPD	0786-CPD-21028 FLM-320-EOL4W-S
Germany	VdS	G 211008 FLM-320-EOL4W-S

### Parts included

Quantity	Component
1	FLM-320-EOL4W-S Conventional EOL-Module 4-Wire

### Technical specifications

#### Electrical

Operating voltage AUX	8 V DC to 30 V DC
Operating voltage conventional line	9 V DC to 30 V DC
Current consumption conventional line	< 2.0 mA
Current consumption AUX	< 5.5 mA

#### Mechanics

Housing material	ABS + PC Blend
Housing color	Signal white (RAL 9003)
Dimensions (W x H x D)	ca. 126 x 126 x 71 mm
Weight	342 g

#### 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 54

### Ordering information

#### FLM-320-EOL4W-S End-of-line module, 4-wire surface-mount

for termination of 4-wire conventional line with Extended Line Supervision (ELS), for surface-mounting  
Order number **FLM-320-EOL4W-S**

#### Services

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

## FLM-420-EOL2W-W End-of-line module 2-wire LSN wall-mount



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### Features

- For installations with Extended Line Supervision (ELS)

The EOL module terminates LSN lines for creeping open monitoring (ELS, formerly EN 54-13 requirement). It detects primary line faults and reports them to the fire panel.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-EOL2W-W
	CPD	0786-CPD-20927 FLM-420-EOL2W-W
Germany	VdS	G 210008 FLM-420-EOL2W-W

### Parts included

Quantity	Component
1	FLM-420-EOL2W-W EOL Module LSN

### 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 (Øx D)	76 x 30 mm
Weight	50 g

#### 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 End-of-line module 2-wire LSN wall-mount

for termination of 2-wire LSN line with Extended Line Supervision (ELS), for wall-mounting  
Order number **FLM-420-EOL2W-W**

## FLM-420-EOL4W EOL Module LSN



### Features

- For installations with Extended Line Supervision (ELS)

The EOL module terminates LSN lines for creeping open monitoring (ELS, formerly EN 54-13 requirement). It detects primary line faults and AUX line faults and reports them to the fire panel.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FLM-420-EOL4W-S/-D
	CPD	0786-CPD-210027 FLM-420-EOL4W-S, -D
Germany	VdS	G 211007 FLM-420-EOL4W-S, FLM-420-EOL4W-D

### Technical specifications

#### Electrical

Operating voltage AUX	8 V DC to 30 V DC
Operating voltage LSN	15 V DC to 33 V DC
Current consumption AUX	< 5.0 mA
Current consumption LSN	< 2.0 mA

### Mechanics

Housing material	ABS + PC Blend
Housing color	Signal white (RAL 9003)
Dimensions (W x H x D)	
• FLM-420-EOL4W-D	approx. 77 x 86 x 44 mm
• FLM-420-EOL4W-S	approx. 126 x 126 x 71 mm
Weight	
• FLM-420-EOL4W-D	85 g
• FLM-420-EOL4W-S	346 g

### 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	
• FLM-420-EOL4W-D	IP 30
• FLM-420-EOL4W-S	IP 54

### Ordering information

#### FLM-420-EOL4W-S End-of-line module, 4-wire surface-mount

for termination of 4-wire LSN line with Extended Line Supervision (ELS), for surface-mounting  
Order number **FLM-420-EOL4W-S**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**

#### FLM-420-EOL4W-D End-of-line module, 4-wire rail-mount

for termination of 4-wire LSN line with Extended Line Supervision (ELS), for rail-mounting  
Order number **FLM-420-EOL4W-D**

#### EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device

12 months warranty extension  
Order number **EWE-FPDVC-IW**



# Notification Appliances

6

<b>Audible Notification</b>	<b>290</b>
<b>Visual Notification</b>	<b>328</b>
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# Audible Notification

<b>LX Sounder Beacons Conventional</b>	<b>291</b>
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<b>FNM-420-A-BS Base Sounder, Indoor</b>	<b>301</b>
<b>FNM-420-B-RD Sounder outdoor, red</b>	<b>304</b>
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<b>FNM-420V-A-RD/WH Voice Sounder Indoor</b>	<b>317</b>
<b>Industrial sounders</b>	<b>321</b>

## LX Sounder Beacons Conventional



### Features

- ▶ Complies with EN54-3 and EN54-23
- ▶ Up to 7.5 m coverage / DIN tone 102 dB(A)
- ▶ Variable flash rate
- ▶ Low current consumption
- ▶ LED technology

The LX Sounder Beacons are for dual use applications where a visual alarm device is required in addition to an audible alarm.

### Functions

The device has a unique lens design to achieve the required illumination specified by EN54-23. The flash rate as well as a reduced coverage volume can be set via DIP switch.

The light is distributed in a cubical shape for wall application.

The integrated sound transducer offers a selection of 32 tone variants, including various wailing tones, diverse signals for fire alarm (e. g. the DIN tone according to DIN 33404) and other special modulations.

The tones and volume are set with a 6-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.

Depending on the tone type, volume set, and operating voltage, the sound pressure varies.

The device is designed for a variety of applications.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	RoLP LX Wall Base
	CPD	0333-CPD-075444 LX_Beacon_Wall_Base_EN
Germany	VdS	G 214070 LX Sounder Beacon Wall Base
Poland	CNBOP	2801/2016 ROLP

### Installation/configuration notes

- Can be connected to
  - LSN fire panels with NZM 0002 A or FLM-420-NAC
  - FPC-500 Conventional Fire Panel
- The device is suitable for wall applications.
- The device is suitable for indoor and outdoor use. (Outdoor use only with appropriate cable fittings. Not included in delivery.)
- The coverage of the device depends on the ambient light level. Consider also the maximum mounting height of the device.
- The current consumption depends on the tone type of the audible device and the flash rate and the coverage of the optical signaling device. Add up both current consumption values to calculate the total current consumption of the sounder beacon.

								24 V DC		EN54-3
								mA	dB(A)	15/28 V DC
1	14	11111		800 & 970Hz	2Hz (250ms ~ 250ms)		BS	13	101	
2	14	11110		800 & 970Hz	7Hz (7/s)		BS	12	100	
3	14	11101		800 & 970Hz	1Hz (1/s)		BS	12	102	92/95
4	14	11100		2850Hz				32	105	
5	4	11011		2400 ~ 2850Hz	7Hz			32	109	
6	4	11010		2400 ~ 2850Hz	1Hz			32	112	
7	14	11001		300 ~ 1200Hz	3s   0.5s    3s   0.5s ...		NEN	12	103	93/97
8	14	11000		1200 ~ 500Hz	1Hz		DIN	15	102	93/94
9	4	10111		2400 & 2850Hz	2Hz (250ms ~ 250ms)			31	105	
10	14	10110	- - -	970Hz	0.5Hz (1s    1s )			8	101	
11	4	10101		800 & 970Hz	1Hz (500ms ~ 500ms)		BS	12	101	
12	4	10100	- - -	2850Hz	0.5Hz (1s    1s )			17	105	
13	14	10011	- - -	970Hz	0.8Hz (250ms    1s )			5	101	
14	14	10010		970Hz			BS	14	101	93/95
15	14	10001		554 & 440Hz	100ms ~ 400ms		NFS	17	102	
16	16	10000	- - -	660Hz	3.3Hz (150ms    150ms )			6	100	
17	17	01111	- - -	660Hz	0.28Hz (1.8s    1.8s )			7	101	
18	18	01110	- - -	660Hz	0.05Hz (6.5s    13s )			6	101	
19	19	01101		660Hz				10	101	
20	20	01100		554 & 440Hz	0.5Hz (1s    1s )			16	102	
21	21	01011	- - -	660Hz	1Hz (500ms ~ 500ms)			6	101	
22	14	01010	- - -	2850Hz	4Hz (150ms    100ms )			27	104	
23	14	01001		800 ~ 970Hz	50Hz		BS	12	100	
24	4	01000		2400 ~ 2850Hz	50Hz			32	108	
25	25	00111	- - - - -	970Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201		7	101	
26	26	00110		800 ~ 970Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201		6	102	
27	27	00101		970 & 800Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201		6	101	
28	10	00100		800 & 970Hz	2Hz (250ms ~ 250ms)		BS	12	101	
29	988Hz	00011		990 & 650Hz	2Hz (250ms ~ 250ms)		BS	20	105	93/96
30	510Hz	00010		510 & 610Hz	2Hz (250ms ~ 250ms)		BS	16	100	91/92
31	14	00001		300 ~ 1200Hz	1Hz			14	103	
32	510Hz	00000		510 & 610Hz	1Hz (500ms ~ 500ms)		BS	16	100	

	Operating Voltage	Current consumption (visual notification)			
		High power 1 Hz	High power 0.5 Hz	Low power 1 Hz	Low power 0.5 Hz
Coverage		7.5 m (135 m <sup>3</sup> )		2.5 m (15 m <sup>3</sup> )	
White flash	24 V DC	25 mA	16 mA	16 mA	10 mA
Red flash	24 V DC	25 mA	16 mA	16 mA	10 mA

- Use the Bosch Safety Systems Designer for reliable planning.

### Technical specifications

#### Mechanics

Housing and base color	Red similar to RAL 3031 White similar to RAL 9003
Weight	200 g
Dimensions (Ø x H x D)	95 mm x 135 mm x 95 mm

#### Electrical

Operating voltage	18 - 30 V DC / 9 - 15 V DC
Current consumption	dependent on flash rate setting, coverage setting and sounder setting
Monitoring	Reverse polarity

**Environmental conditions**

Protection class	IP65 *
Permissible operating temperature	-25°C - +70°C
Permissible rel. humidity	Complies with EN54-23

\*Manufacturers specification, not third party verified

**Special features**

Maximum mounting height (x)	2.4 m
Coverage (y)	7.5 m (switchable to 2.5 m)
Coverage volume	135 m <sup>3</sup> (15 m <sup>3</sup> )
Coverage volume code (C-x-y / W-x-y)	W-2.4-7.5
Flash rate	1Hz (switchable to 0.5 Hz)
Flash color	White or red
Maximum sound pressure level	112 dB(A)

Luminous intensity red flash:

	ROLP-W-LX-W-RF Red-flash sounder beacon, white
Luminous intensity (cd)	23 cd
	ROLP-R-LX-W-RF Red-flash sounder beacon, red
Luminous intensity (cd)	23 cd

Luminous intensity white flash:

	ROLP-W-LX-W-WF White-flash sounder beacon, white
Luminous intensity (cd)	42 cd
	ROLP-R-LX-W-WF White-flash sounder beacon, red
Luminous intensity (cd)	42 cd

**Ordering information****ROLP-W-LX-W-WF White-flash sounder beacon, white**

Beacon Sounder for local audible and visual alarm notification

Order number **ROLP-W-LX-W-WF**

**ROLP-W-LX-W-RF Red-flash sounder beacon, white**

Beacon Sounder for local audible and visual alarm notification

Order number **ROLP-W-LX-W-RF**

**ROLP-R-LX-W-WF White-flash sounder beacon, red**

Beacon Sounder for local audible and visual alarm notification

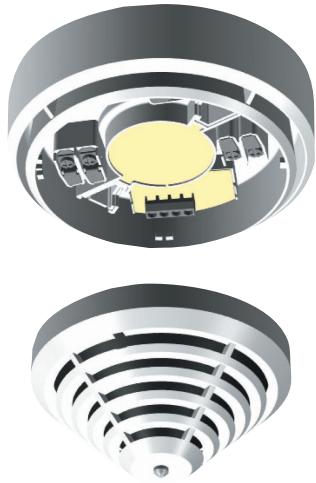
Order number **ROLP-R-LX-W-WF**

**ROLP-R-LX-W-RF Red-flash sounder beacon, red**

Beacon Sounder for local audible and visual alarm notification

Order number **ROLP-R-LX-W-RF**

## MSS Detector Base Sounders



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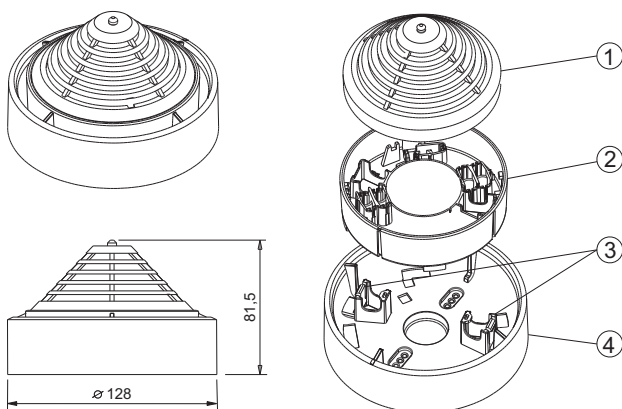


### Features

- ▶ 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 and flush-mounted cable feed

Detector Base Sounders are used when the acoustic signaling of an alarm is required directly at the site of the fire.

### System overview



Po	Description
s.	
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 / MSS 300-WH-EC via integrated DIP switch and potentiometer (continuously).

### Regulatory information

- MSS 300/MSS 300-WH-EC comply with:
- EN54-3:2001/A1:2002

Region	Regulatory compliance/quality marks	
Europe	CE	MSS 300 ws
Hungary	BMF	618/73/2002 OTC 410 LSN, OC 410 LSN, OC 310 GLT, MSS 300/400
Europe	CPD	0786-CPD-20185 MSS 300
Germany	VdS	G 204067 MSS 300/-EC/ SA_G204067

### Installation/configuration notes

- MSS 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 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-WH-EC Detector Base Sounder White

- The Detector Base Sounder is externally controlled, e.g. via FLM-420-NAC or NZM 0002 A (not via the C point of the deployed detector).

### Tone type table

No.	Signal type (sound type)	Frequency / modulation	SPL 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

MSS 300 / MSS 300-WH-EC

Operating voltage	9 V DC to 30 V DC
Current consumption from external source	Standby: 1 mA Alarm: max. 20 mA

### Mechanics

Connections (inputs/ outputs)	0.28 mm <sup>2</sup> to 2.5 mm <sup>2</sup>
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 Base sounder white

Control via C-point of the detector  
Order number **MSS 300**

#### MSS300-WH-EC Base sounder, white

Control through fire panel via interface  
Order number **MSS300-WH-EC**

## DS 10 Sounders



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VdS

### 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

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.

### Regulatory information

VdS ID number: **G 28 609**  
 CE DS 10  
 EN54-3: 2006

Region	Regulatory compliance/quality marks	
Europe	CE	DS 10
	CPD	0786-CPD-20005 DS10
Germany	VdS	G 28609 DS 10

### Installation/configuration notes

- For surface-mounted cable feed.
- Can be connected to LSN fire panels.
- The DS 10 sounders can be directly connected to monitored control lines.

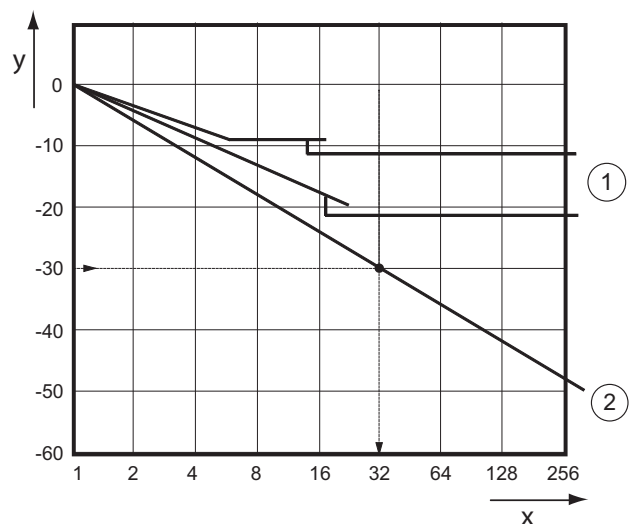
### Tone type table

N	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

Maximum DS 10 sound pressure level	<b>110 dB</b>
less 10 dB for unique audibility	<b>-10 dB</b>
less environmental sound level	<b>-70 dB</b>
resulting attenuation through distance from siren	<b>30 dB</b>

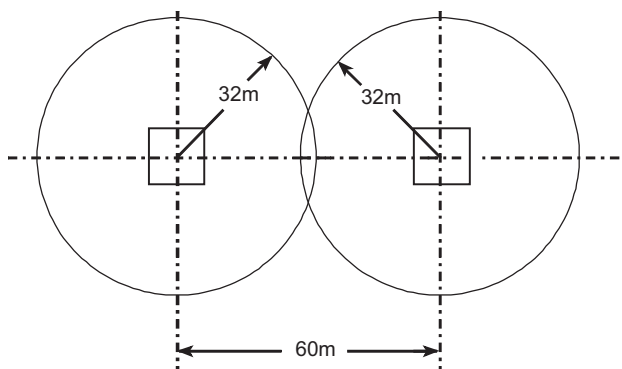
### Sound Pressure Level Drop



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

Sound pressure level at a distance of 1 m (dB (A))	≤ 110
Frequency range (Hz)	500 up to 1200
Permissible operating temperature (°C)	-25 to +55
Permissible relative humidity (%)	95
Protection class as per EN 60529	IP 66/67
Dimensions (W x H x D, mm)	133.5 x 133.5 x 143

Housing material	Cast aluminum
Housing color	Red, similar to RAL 2002

#### DS 10 Red, 230 V

Operating voltage (V AC)	230
Current consumption (mA)	≤ 60
Weight (g)	2150

#### DS 10 Red, 24 V

Operating voltage (V DC)	24 (12 to 30)
Current consumption (mA)	≤ 420
Weight (g)	1950

#### Ordering information

##### DS10-230V Sounder red, 230V

for connection to fire panels, available for operating voltage 230 V, usable in adverse environmental conditions

Order number **DS10-230V**

##### EWE-DS10-IW 12 mths wrty ext DS10 DIN tone sounder

12 months warranty extension

Order number **EWE-DS10-IW**

##### DS10-24V Sounder red, 24V

for connection to fire panels, available for operating voltage 24 V DC, usable in adverse environmental conditions

Order number **DS10-24V**

##### EWE-DS10-IW 12 mths wrty ext DS10 DIN tone sounder

12 months warranty extension

Order number **EWE-DS10-IW**

## FNM-420-A Sounder Indoor



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### Features

- ▶ Volume of up to 101.3 dB(A)
- ▶ Maximum current consumption of less than 4.05 mA
- ▶ Up to 100 sounders per LSN loop
- ▶ Immediate synchronization
- ▶ 32 different tone types can be selected (incl. DIN tone)

The indoor sounders are used independently for signaling an alarm directly at the fire location.

### Functions

The device allows to select 32 types of alarm and evacuation tones (including DIN tone 33404, part 3) for different requirements.

#### Tone types

No.	Tone type	Frequency/modulation	Volume dB(A)	EN 54-3** dB(A)
1*	Decreasing = DIN tone	1200-500 Hz at 1 Hz, pause 10 ms	99.0	93.9
2	Increasing	2400-2900 Hz at 50 Hz	98.7	
3	Increasing	2400-2900 Hz at 7 Hz	99.6	
4	Increasing	800/1000 Hz at 7 Hz	99.0	
5	Pulse tone	1000 Hz at 1 Hz	101.2	
6	Pulse tone	1000 Hz/0.25 s on, 1s off	100.5	
7	Variable tone	800/1000 Hz at 1 Hz	101.3	
8	Continuous tone	970 Hz	99.1	94.7
9	Variable tone	800/1000 Hz at 2 Hz	101.0	

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(A) and 101dB(A).

Sounders of the same LSN loop and with the same tone type provide immediate synchronization. The device maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators.

Change of the device settings can be done in the FSP-5000-RPS programming software.

### Regulatory information

Complies with

- EN 54-3:2001
- EN 54-17:2005

Region	Regulatory compliance/quality marks	
Europe	CE	FNM-420-A-WH, FNM-420-A-RD
	CPR	0786-CPR-21617 FNM-420-A-RD_FNM-420-A-WH
Germany	VdS	G 210002 FNM-420-A-WH/-RD
Poland	CNBOP	0912/2011 FNM-420-A-RD -B-RD -A-WH
Hungary	TMT	TMT-54/2009 FNM-420-A, FNM-420-B
Ukraine	MOE	UA1.016.0113309-11 FNM-420-A-WH_FNM-420-A-RD

### Installation/configuration notes

- The device is intended for indoor use.
- The current consumption depends on the tone type selected and is maximum 4.05 mA.
- The maximum number of devices on each loop depends on the cable diameter and the total current of the loop.  
Use the Bosch Planning Software for reliable loop planning.
- This device cannot be used with the FPA-5000 type A panel controller.

No.	Tone type	Frequency/modulation	Volume dB(A)	EN 54-3** dB(A)
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	99.0	94.0
11	Pulse tone	2900 Hz/0.5 s on/off	100.1	
12	Pulse tone	1000 Hz/0.5 s on/off	101.2	
13	Increasing	800/1000 Hz at 1 Hz	100.3	
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	97.8	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	95.0	
16	Pulse tone	2900 Hz at 1 Hz	99.2	
17	Variable tone	2400/2900 Hz at 2 Hz	99.4	
18	Increasing	2400–2900 Hz at 1 Hz	101.2	
19	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	97.3	
20	Slowly increasing/decreasing	500–1200 Hz/0.5 s	98.5	
21	Continuous tone	2900 Hz	98.1	
22	Increasing	800/1000 Hz at 50 Hz	99.8	
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	95.7	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	100.1	96.0
25	Pulse tone	2900 Hz/150 ms on, 100 ms off	99.6	
26	Continuous tone	660 Hz	97.6	
27	Pulse tone	660 Hz/1.8 s on/off	97.6	
28	Pulse tone	660 Hz/150 ms on/off	96.4	
29	USA temporal 3 tone ISO 8201	610 Hz	97.7	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	95.8	
31	3. Hi/Lo	1000/800 Hz (0.25 s on/alternating)	100.7	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	96.5	

Sound pressure level specified with a tolerance of  $\pm 3$  dB(A), measured at a distance of 1 m. Constant sound pressure level between 22 V and 33 V operating voltage.

\* Default setting: tone in line with DIN 33404, part 3

\*\* Results from EN54-3 testing: lowest value at 15 V at maximum volume level, measured on the measurement axis with the highest results. All other measurements are taken 'on axis' and are not third party verified.

### Technical specifications

#### Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	
• Quiescent state	< 1 mA
• Alarm	$\leq 4.05$ mA

#### Mechanics

Connections (inputs/outputs)	0,28 mm <sup>2</sup> to 2,5 mm <sup>2</sup>
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 packaging	300 g

#### Environmental conditions

Permissible operating temperature	-10°C to +55°C (-25 °C to +70 °C)*
Permissible storage temperature	-25 °C to +85 °C
Protection class as per EN 60529	IP 21 C (IP 42 *)

\* Manufacturer's declaration, not third party approved

#### 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**

analog addressable stand-alone sounder for indoor use, white

Order number **FNM-420-A-WH**

##### **FNM-420-A-RD Sounder indoor, red**

analog addressable stand-alone sounder for indoor use, red

Order number **FNM-420-A-RD**

## FNM-420-A-BS Base Sounder, Indoor



### Features

- ▶ Volume of up to 92.1 dB(A)
- ▶ Maximum current consumption of less than 3.85 mA
- ▶ Up to 100 sounders per LSN loop
- ▶ Immediate synchronization
- ▶ 32 different tone types can be selected (incl. DIN tone)

The Base Sounders Indoor are used for signaling an alarm directly at the fire location. They can be employed either as base sounders or stand-alone sounders.

### Functions

The device allows to select 32 types of alarm and evacuation tones (including 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(A) and 92.1 dB(A).

Sounders of the same LSN loop and with the same tone type provide immediate synchronization. The device maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators.

### Tone types

No.	Tone type	Frequency/modulation	Volume	EN 54-3**
1*	Decreasing = DIN tone	1200-500 Hz at 1 Hz, pause 10 ms	90.0	84.6
2	Increasing	2400-2900 Hz at 50 Hz	90.9	
3	Increasing	2400-2900 Hz at 7 Hz	91.9	
4	Increasing	800/1000 Hz at 7 Hz	89.7	
5	Pulse tone	1000 Hz at 1 Hz	84.6	
6	Pulse tone	1000 Hz/0.25 s on, 1s off	84.1	
7	Variable tone	800/1000 Hz at 1 Hz	87.5	

Change of the device settings can be done in the FSP-5000-RPS programming software.

### Regulatory information

Complies with

- EN 54-3:2001
- EN 54-17:2005

Region	Regulatory compliance/quality marks	
Europe	CE	FNM-420-A-BS-WH, FNM-420-A-BS-RD
	CPR	0786-CPR-21618 FNM-420-A-BS-RD_FNM-420-A-BS-WH
Germany	VdS	G 210003 FNM-420-A-BS-WH/-RD
Poland	CNBOP	0913/2011 FNM-420-A-BS-RD -A-BS-WH
Ukraine	MOE	UA1.016.0113307-11 FNM-420-A-BS-WH_FNM-420-A-BS-RD

### Installation/configuration notes

- The device is intended for indoor use.
- The current consumption depends on the tone type selected and is maximum 3.85 mA.
- Devices with different LSN settings (classic and improved) cannot be synchronized.
- The maximum number of devices on each loop depends on the cable diameter and the total current of the loop.  
Use the Bosch Planning Software for reliable loop planning.
- The base sounder can be operated with an FNS-420-R LSN Strobe or an automatic detector from the 420/425 series.
- For installation scenarios involving surface-mounted cable routing, an FNM-SPACER Mounting Base is required for surface cabling.
- The base sounder requires a cover when used without a detector or strobe.
- This device cannot be used with the FPA-5000 type A panel controller.
- The locking clip has to be mounted if the device is installed within reach. Consult the building operator or the specialist planners for the building infrastructure whether the removal lock has to be mounted.

No.	Tone type	Frequency/modulation	Volume	EN 54-3**
8	Continuous tone	970 Hz	87.7	86.0
9	Variable tone	800/1000 Hz at 2 Hz	87.2	
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	87.6	85.6
11	Pulse tone	2900 Hz/0.5 s on/off	88.9	
12	Pulse tone	1000 Hz/0.5 s on/off	84.6	
13	Increasing	800/1000 Hz at 1 Hz	91.1	
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	85.4	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	88.0	
16	Pulse tone	2900 Hz at 1 Hz	88.7	
17	Variable tone	2400/2900 Hz at 2 Hz	92.1	
18	Increasing	2400–2900 Hz at 1 Hz	91.4	
19	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	83.6	
20	Slowly increasing/decreasing	500–1200 Hz/0.5 s	89.5	
21	Continuous tone	2900 Hz	86.5	
22	Increasing	800/1000 Hz at 50 Hz	86.5	
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	87.4	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	91.2	86.3
25	Pulse tone	2900 Hz/150 ms on, 100 ms off	88.0	
26	Continuous tone	660 Hz	88.6	
27	Pulse tone	660 Hz/1.8 s on/off	88.6	
28	Pulse tone	660 Hz/150 ms on/off	87.3	
29	USA temporal 3 tone ISO 8201	610 Hz	85.2	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	88.5	
31	3. Hi/Lo	1000/800 Hz (0.25 s on/alternating)	87.3	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	87.1	

The sound levels were measured with the device mounted on a shallow mounting plate (supplied with the device). If mounted with FNM-SPACER the stated volumes must be reduced by 5 dB.

Sound pressure level specified with a tolerance of  $\pm 3$  dB(A), measured at a distance of 1 m. Constant sound pressure level between 22 V and 33 V operating voltage.

\* Default setting: tone in line with DIN 33404, part 3

\*\* Results from EN54-3 testing: lowest value at 15 V at maximum volume level, measured on the measurement axis with the highest results. All other measurements are taken 'on axis' and are not third party verified.

## Technical specifications

### Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	

• Quiescent state	< 1 mA
• Alarm	$\leq 3.85$ mA

**Mechanics**

Connections (inputs/outputs)	0,28 mm <sup>2</sup> to 2,5 mm <sup>2</sup>
Dimensions (Ø x H)	
<ul style="list-style-type: none"> <li>With mounting plate</li> </ul>	115 x 40 mm
<ul style="list-style-type: none"> <li>With spacer for surface cabling</li> </ul>	115 x 50 mm
Housing	
<ul style="list-style-type: none"> <li>Material</li> </ul>	Plastic, ABS
<ul style="list-style-type: none"> <li>Color</li> </ul>	red, similar to RAL 3001 white, similar to RAL 9010
Weight	
<ul style="list-style-type: none"> <li>Without packaging</li> </ul>	200 g
<ul style="list-style-type: none"> <li>With packageing</li> </ul>	245 g

**Environmental conditions**

Permissible operating temperature	-10 °C to +55 °C (-25 °C to +70 °C)*
Permissible storage temperature	-25 °C to +85 °C
Protection class as per EN 60529	IP 21 C (IP 43*)

\* Manufacturer's declaration, not third party approved

**Special features**

Sound pressure level at a distance of 1 m	max. 92.1 dB(A)
Frequency range	440 Hz up to 2,90 kHz

**Ordering information**

**FNM-420-A-BS-WH Base sounder indoor, white**  
analog addressable base sounder for indoor use, white, delivered without cover  
Order number **FNM-420-A-BS-WH**

**FNM-420-A-BS-RD Base sounder indoor, red**  
analog addressable base sounder for indoor use, red, delivered with cover  
Order number **FNM-420-A-BS-RD**

**Accessories**

**FNM-COVER-RD Cover for base sounder, red**  
1 order unit = 10 covers  
Order number **FNM-COVER-RD**

**FNM-COVER-WH Cover for base sounder, white**  
1 order unit = 10 covers  
Order number **FNM-COVER-WH**

**FNM-SPACER-WH Spacer for surface cabling, white**  
1 order unit = 10 mounting bases  
Order number **FNM-SPACER-WH**

**FNM-SPACER-RD Spacer for surface cabling, red**  
1 order unit = 10 mounting bases  
Order number **FNM-SPACER-RD**

## FNM-420-B-RD Sounder outdoor, red



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### Features

- ▶ Volume of up to 102.5 dB(A)
- ▶ Maximum current consumption of less than 4.05 mA
- ▶ Up to 75 sounders per LSN 0300 A loop and 100 per LSN 1500 A loop
- ▶ Immediate synchronization
- ▶ 32 different tone types can be selected (incl. DIN tone)

The outdoor sounder is used independently for signaling an alarm directly at the fire location at outside areas.

### Functions

The device allows to select 32 types of alarm and evacuation tones (including DIN tone 33404, part 3) for different requirements.

#### Tone types

No.	Tone type	Frequency/modulation	Volume (dB/A)	EN 54-3**
1*	Decreasing = DIN tone	1200-500 Hz at 1 Hz, pause 10 ms	99.3	92.1
2	Increasing	2400-2900 Hz at 50 Hz	99.9	
3	Increasing	2400-2900 Hz at 7 Hz	100.8	
4	Increasing	800/1000 Hz at 7 Hz	99.2	
5	Pulse tone	1000 Hz at 1 Hz	100.9	
6	Pulse tone	1000 Hz/0.25 s on, 1s off	100.4	
7	Variable tone	800/1000 Hz at 1 Hz	100.9	

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(A) and 102.5 dB(A).

Sounders of the same LSN loop and with the same tone type provide immediate synchronization. The device maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators.

Change of the device settings can be done in the FSP-5000-RPS programming software.

### Regulatory information

Complies with

- EN 54-3:2001
- EN 54-17:2005

Region	Regulatory compliance/quality marks	
Europe	CE	FNM-420-B-RD
	CPR	0786-CPR-21619 FNM-420-B-RD
Germany	VdS	G 210004 FNM-420-B-RD
Hungary	TMT	TMT-54/2009 FNM-420-A, FNM-420-B
Ukraine	MOE	UA1.016.0113311-11 FNM-420-B-RD

### Installation/configuration notes

- The device is intended for outdoor use.
- The current consumption depends on the tone type selected and is maximum 4.05 mA.
- The maximum number of devices on each loop depends on the cable diameter and the total current of the loop.  
Use the Bosch Planning Software for reliable loop planning.
- This device cannot be used with the FPA-5000 type A panel controller.

No.	Tone type	Frequency/modulation	Volume (dB/A)	EN 54-3**
8	Continuous tone	970 Hz	99.8	94.7
9	Variable tone	800/1000 Hz at 2 Hz	100.7	
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	99.7	94.0
11	Pulse tone	2900 Hz/0.5 s on/off	101.1	
12	Pulse tone	1000 Hz/0.5 s on/off	100.8	
13	Increasing	800/1000 Hz at 1 Hz	100.4	
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	97.5	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	95.0	
16	Pulse tone	2900 Hz at 1 Hz	100.7	
17	Variable tone	2400/2900 Hz at 2 Hz	100.6	
18	Increasing	2400–2900 Hz at 1 Hz	102.5	
19	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	97.5	
20	Slowly increasing/decreasing	500–1200 Hz/0.5 s	98.8	
21	Continuous tone	2900 Hz	99.2	
22	Increasing	800/1000 Hz at 50 Hz	99.7	
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	96.3	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	100.1	96.0
25	Pulse tone	2900 Hz/150 ms on, 100 ms off	100.7	
26	Continuous tone	660 Hz	98.0	
27	Pulse tone	660 Hz/1.8 s on/off	98.0	
28	Pulse tone	660 Hz/150 ms on/off	96.7	
29	USA temporal 3 tone ISO 8201	610 Hz	97.4	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	97.1	
31	3. Hi/Lo	1000/800 Hz (0.25 s on/alternating)	100.3	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	96.9	

Sound pressure level specified with a tolerance of  $\pm 3$  dB(A), measured at a distance of 1 m. Constant sound pressure level between 22 V and 33 V operating voltage.

\* Default setting: tone in line with DIN 33404, part 3

\*\* Results from EN54-3 testing: lowest value at 15 V at maximum volume level, measured on the measurement axis with the highest results. All other measurements are taken 'on axis' and are not third party verified.

### Parts included

Quantity	Component
1	Sounder Outdoor
4	Housing screws
1	Allen wrench

### Technical specifications

#### Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	
• Quiescent state	< 1 mA
• Alarm	≤ 4.05 mA

**Mechanics**

Connections (inputs/ outputs)	0,28 mm <sup>2</sup> to 2,5 mm <sup>2</sup>
Dimensions (H x W x D)	110 x 110 x 95 mm
Housing	
• Material	Plastic, ABS
• Color	red, similar to RAL 3001
Weight	
• Without packaging	250 g
• With packaging	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 33 C (IP 66 *)

\* Manufacturer's declaration, not third party approved

**Special features**

Sound pressure level at a distance of 1 m	max. 102.5 dB(A)
Frequency range	440 Hz up to 2,90 kHz

**Ordering information**

**FNM-420-B-RD Sounder outdoor, red**  
 analog addressable stand-alone sounder for outdoor use, red  
 Order number **FNM-420-B-RD**

## FNM-320 Sounders Conventional



### Features

- ▶ Volume up to 112 dB(A)
- ▶ Can be used in adverse environmental conditions
- ▶ For 12 V DC and 24 V DC
- ▶ Reverse polarity protection
- ▶ Available for surface and flush-mounted cable feed

The FNM-320 Sounders are acoustic signaling devices with a sound transducer.

### Functions

The integrated sound transducer offers a selection of 32 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 tones are set with a 5-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. An additional switch provides two settings, either full output or an attenuation of 10 dB(A).

Depending on the tone type, volume set, and operating voltage, the sound pressure varies up to a maximum of 112 dB(A).

Monitored connection to fire panels is possible. The bayonet lock enables simple mounting.























































































### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21625 FNM-320-SRD, FN-320-SWH, FNM-320-FRD, FNM-320-FWH
	CPR	0786-CPR-21624 FNM-320LED-SRD
	CE	FNM-320-SRD, FNM-320-FRD, FNM-320-SWH, FNM-320-FWH
	CE	FNM-320LED-SRD
Germany	VdS	G 210036 FNM-320-Serie
	VdS	G 210037 FNM-320LED-SRD
Poland	CNBOP	1182/2012 FNM-320

### Installation/configuration notes

- The device can be connected to the following panels:
  - FPA-5000 / FPA-1200 with NZM 0002 A or FLM-420-NAC
  - BZ 500 LSN, UEZ 1000 LSN, UEZ 2000 LSN, UGM 2020
- Doubled screw clips exist for looping-in of voltage.
- FNM-320LED-SRD is not certified to EN 54-23. The beacon is not suitable for fire alarm use within the EU.
- The tones certified according to EN 54-3 are shown in the last columns of the tone tables. The sound pressure levels (SPL) are measured at 28 or 15 V DC at maximum volume and at the loudest node. All other SPL measurements are taken on axis at 1 m and are not third party verified.

Tone Table FNM-320-SRD/-SWH/-FRD/-FWH

							12/24VDC		EN54-3
							mA	dB(A)	15/28VDC dB(A)
1	14	11111		800 & 970Hz	2Hz (250ms ~ 250ms)	  BS	6/13	95/101	*
2	14	11110		800 & 970Hz	7Hz (7/s)	  BS	8/12	94/100	*
3	14	11101		800 & 970Hz	1Hz (1/s)	  BS	6/12	95/102	92/95
4	14	11100		2850Hz			16/32	99/105	*
5	4	11011		2400 ~ 2850Hz	7Hz		16/32	103/109	*
6	4	11010		2400 ~ 2850Hz	1Hz		16/32	105/112	*
7	14	11001		500 ~ 1200Hz	3s   0.5s    3s   0.5s  ...	  NEN	6/12	97/103	93/97
8	14	11000		1200 ~ 500Hz	1Hz	  DIN	7/15	96/102	93/94
9	4	10111		2400 & 2850Hz	2Hz (250ms ~ 250ms)		15/31	99/105	*
10	14	10110	- - -	970Hz	0.5Hz (1s    1s 		5/8	95/101	*
11	4	10101		800 & 970Hz	1Hz (500ms ~ 500ms)	  BS	6/12	95/101	*
12	4	10100	- - -	2850Hz	0.5Hz (1s    1s 		9/17	99/105	*
13	14	10011	- - -	970Hz	0.8Hz (250ms    1s 		3/5	94/101	*
14	14	10010		970Hz		  BS	7/14	95/101	93/95
15	14	10001		554 & 440Hz	100ms ~ 400ms	  NFS	8/17	96/102	*
16	16	10000	- - -	660Hz	3.3Hz (150ms    150ms 	 	4/6	94/100	*
17	17	01111	- - -	660Hz	0.28Hz (1.8s    1.8s 	 	4/7	95/101	*
18	18	01110	- - -	660Hz	0.05Hz (6.5s    13s 	 	3/6	95/101	*
19	19	01101		660Hz		 	5/10	95/101	*
20	20	01100		554 & 440Hz	0.5Hz (1s    1s 	 	7/16	96/102	*
21	21	01011	- - -	660Hz	1Hz (500ms ~ 500ms)	 	4/6	94/101	*
22	14	01010	- - -	2850Hz	4Hz (150ms    100ms 		12/27	98/104	*
23	14	01001		800 ~ 970Hz	50Hz	  BS	6/12	93/100	*
24	4	01000		2400 ~ 2850Hz	50Hz		15/32	102/108	*
25	25	00111	- - - - -	970Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201	4/7	95/101	*
26	26	00110		800 ~ 970Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201	4/6	95/102	*
27	27	00101		970 & 800Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201	3/6	94/101	*
28	10	00100		800 & 970Hz	2Hz (250ms ~ 250ms)	  BS	6/12	95/101	*
29	988Hz	00011		990 & 650Hz	2Hz (250ms ~ 250ms)	  BS	10/20	99/105	93/96
30	510Hz	00010		510 & 610Hz	2Hz (250ms ~ 250ms)	  BS	8/16	94/100	91/92
31	14	00001		300 ~ 1200Hz	1Hz		10/14	98/103	*
32	510Hz	00000		510 & 610Hz	1Hz (500ms ~ 500ms)	  BS	8/16	95/100	*

Sound pressure level tolerance is  $\pm 3$  dB(A).

Tone Table FNM-320LED-SRD

							@20 °C		
							mA	dB(A)	EN54-3 @28VDC dB(A)
1	14	11111		800 & 970Hz	2Hz (250ms ~ 250ms)	BS	19	100	*
2	14	11110		800 & 970Hz	7Hz (7/s)	BS	19	101	*
3	14	11101		800 & 970Hz	1Hz (1/s)	BS	19	101	95
4	14	11100		2850Hz			33	110	*
5	4	11011		2400 ~ 2850Hz	7Hz		31	110	*
6	4	11010		2400 ~ 2850Hz	1Hz		31	110	*
7	14	11001		500 ~ 1200Hz	3s   0.5s    3s   0.5s ...	NEN	21	98	97
8	14	11000		1200 ~ 500Hz	1Hz	DIN	17	98	94
9	4	10111		2400 & 2850Hz	2Hz (250ms ~ 250ms)		31	109	*
10	14	10110		970Hz	0.5Hz (1s    1s )		13	100	*
11	4	10101		800 & 970Hz	1Hz (500ms ~ 500ms)	BS	19	100	*
12	4	10100		2850Hz	0.5Hz (1s    1s )		25	109	*
13	14	10011		970Hz	0.8Hz (250ms    1s )		9	96	*
14	14	10010		970Hz		BS	21	101	95
15	14	10001		554 & 440Hz	100ms ~ 400ms	NFS	13	93	*
16	16	10000		660Hz	3.3Hz (150ms    150ms )		10	86	*
17	17	01111		660Hz	0.28Hz (1.8s    1.8s )		13	88	*
18	18	01110		660Hz	0.05Hz (6.5s    13s )		15	88	*
19	19	01101		660Hz			15	89	*
20	20	01100		554 & 440Hz	0.5Hz (1s    1s )		14	96	*
21	21	01011		660Hz	1Hz (500ms ~ 500ms)		11	87	*
22	14	01010		2850Hz	4Hz (150ms    100ms )		23	109	*
23	14	01001		800 ~ 970Hz	50Hz	BS	19	101	*
24	4	01000		2400 ~ 2850Hz	50Hz		26	110	*
25	25	00111		970Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201	15	99	*
26	26	00110		2850Hz	3 x 500ms   1.5s    3 x 500ms...	ISO 8201	21	108	*
27	27	00101		4000Hz			36	83	*
28	10	00100		800 & 970Hz	2Hz (250ms ~ 250ms)	BS	18	100	*
29	33	00011		990 & 650Hz	2Hz (250ms ~ 250ms)	BS	22	99	96
30	35	00010		510 & 610Hz	2Hz (250ms ~ 250ms)	BS	16	96	92
31	31	00001		300 ~ 1200Hz	1Hz		22	96	*
32	32	00000		4000Hz			36	83	*

### Technical specifications

#### Electrical

Operating voltage	9 - 30 V DC
Max. current consumption	
<ul style="list-style-type: none"> <li>FNM-320-SRD/-SWH/-FRD/-FWH</li> </ul>	33 mA
<ul style="list-style-type: none"> <li>FNM-320LED-SRD</li> </ul>	36 mA
Monitoring	Reverse polarity

#### Mechanics

Dimensions (W x H)	
<ul style="list-style-type: none"> <li>FNM-320-FRD/-FWH</li> </ul>	Ø 93 x 63 mm
<ul style="list-style-type: none"> <li>FNM-320-SRD/-SWH</li> </ul>	Ø 93 x 91 mm

<ul style="list-style-type: none"> <li>FNM-320LED-SRD</li> </ul>	Ø 93 x 107 mm
Weight	
<ul style="list-style-type: none"> <li>FNM-320-SRD/-SWH/-FRD/-FWH</li> </ul>	250 g
<ul style="list-style-type: none"> <li>FNM-320LED-SRD</li> </ul>	300 g
Housing material	ABS V0, PC
Color	Red, RAL 3001 White, RAL 9010

#### Environmental conditions

Permissible operating temperature	
<ul style="list-style-type: none"> <li>FNM-320-SRD/-SWH/-FRD/-FWH</li> </ul>	-25 - 70 °C
<ul style="list-style-type: none"> <li>FNM-320LED-SRD</li> </ul>	-10 - 55 °C

Permissible rel. humidity	EN 54-3
Protection class as per EN 60529	
• FNM-320-FRD/-FWH	IP 54 *
• FNM-320-SRD/-SWH	IP 65 *
• FNM-320LED-SRD	IP 65 *

\* Manufacturers specification, not third party verified

### Special features

Max. sound pressure	
• At 12 V	105 ± 3 dB(A)
• At 24 V	112 ± 3 dB(A)
FNM-320LED-SRD	
• Light output	> 0.5 cd
• Flash rate	1 Hz

### Ordering information

**FNM-320-SRD Sounder, surface-mount, red**  
with sound transducer, suitable for use in adverse environmental conditions  
Order number **FNM-320-SRD**

**FNM-320-FRD Sounder, flush-mount, red**  
with sound transducer, suitable for use in adverse environmental conditions  
Order number **FNM-320-FRD**

**FNM-320-SWH Sounder, surface-mount, white**  
with sound transducer, suitable for use in adverse environmental conditions  
Order number **FNM-320-SWH**

**FNM-320-FWH Sounder, flush-mount, white**  
with sound transducer, suitable for use in adverse environmental conditions  
Order number **FNM-320-FWH**

**FNM-320LED-SRD Sounder with LED, surface-mount, red**  
with sound transducer and integrated LED, suitable for use in adverse environmental conditions  
Order number **FNM-320LED-SRD**

## FNM-420U Sounders, uninterruptible



### Features

- ▶ Uninterruptible alarm signaling, even in LSN stub
- ▶ Maximum current consumption of less than 4.35 mA
- ▶ Volume of up to 101.3 dB(A)
- ▶ Immediate synchronization
- ▶ Long life cycle and modern design

This device, if operated with an industrial, high-performance power source for bypassing the power supply ensures uninterruptible alarm signaling in line with VdS 3536, even if a stub line is broken or the bus system is permanently damaged (e.g. by fire).

The power source is laser-welded, making it leak proof. The gold contacts allow the devices to be used in adverse environmental conditions. The control panel enables continuous and reliable monitoring of the power source.

### Tone types

No.	Tone type	Frequency/modulation	Volume dB(A)	EN 54-3** dB(A)
1*	Decreasing = DIN tone	1200-500 Hz at 1 Hz, pause 10 ms	99.0	93.0
2	Increasing	2400-2900 Hz at 50 Hz	98.7	
3	Increasing	2400-2900 Hz at 7 Hz	99.6	
4	Increasing	800/1000 Hz at 7 Hz	99.0	
5	Pulse tone	1000 Hz at 1 Hz	101.2	
6	Pulse tone	1000 Hz/0.25 s on, 1s off	100.5	
7	Variable tone	800/1000 Hz at 1 Hz	101.3	
8	Continuous tone	970 Hz	99.1	93.1
9	Variable tone	800/1000 Hz at 2 Hz	101.0	

### Functions

There are 32 different tones available (including DIN tone 33404, part 3) and the sound level can be set to between 65 and 101 dB(A). Devices with the same tone type offer immediate synchronization within a loop. Change of the device settings can be done in the FSP-5000-RPS programming software.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FNM-420U-A/-B
	CPD	0786-CPD-21134 FNM-420U-A-WH_FNM-420U-A-RD_FNM-420U-B-RD
Germany	VdS	G 212006 FNM-420U-A-WH/-RD_FNM-420U-B-RD
	VdS	G212006 MLAR-Bestaetigung FNM-420U-A-WH/-RD_FNM-420U-B-RD
Poland	CNBOP	1572/2013 FNM-420U-A_-B

### Installation/configuration notes

- The current consumption depends on the tone type selected and is maximum 4.35 mA.
- Devices with different LSN settings (classic and improved) cannot be synchronized.
- The maximum number of devices on each loop depends on the cable diameter and the total current of the loop.  
Use the Bosch Planning Software for reliable loop planning.
- This device cannot be used with the FPA-5000 type A panel controller.

No.	Tone type	Frequency/modulation	Volume dB(A)	EN 54-3** dB(A)
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	99.0	92.6
11	Pulse tone	2900 Hz/0.5 s on/off	100.1	
12	Pulse tone	1000 Hz/0.5 s on/off	101.2	
13	Increasing	800/1000 Hz at 1 Hz	100.3	
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	97.8	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	95.0	
16	Pulse tone	2900 Hz at 1 Hz	99.2	
17	Variable tone	2400/2900 Hz at 2 Hz	99.4	
18	Increasing	2400–2900 Hz at 1 Hz	101.2	
19	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	97.3	
20	Slowly increasing/decreasing	500–1200 Hz/0.5 s	98.5	
21	Continuous tone	2900 Hz	98.1	
22	Increasing	800/1000 Hz at 50 Hz	99.8	
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	95.7	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	100.1	94.0
25	Pulse tone	2900 Hz/150 ms on, 100 ms off	99.6	
26	Continuous tone	660 Hz	97.6	
27	Pulse tone	660 Hz/1.8 s on/off	97.6	
28	Pulse tone	660 Hz/150 ms on/off	96.4	
29	USA temporal 3 tone ISO 8201	610 Hz	97.7	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	95.8	
31	3. Hi/Lo	1000/800 Hz (0.25 s on/alternating)	100.7	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	96.5	

Sound pressure level specified with a tolerance of  $\pm 3$  dB(A), measured at a distance of 1 m. Constant sound pressure level between 22 V and 33 V operating voltage.

\* Default setting: tone in line with DIN 33404, part 3

\*\* Results from EN54-3 testing: lowest value at 15 V at maximum volume level, measured on the measurement axis with the highest results. All other measurements are taken 'on axis' and are not third party verified.

## Technical specifications

### Dimensions

H x W x D	
• FNM-420U-A for indoor areas	105 x 105 x 95 mm
• FNM-420U-B for outdoor areas	110 x 110 x 95 mm

### Electrics

Operating voltage	15 V DC to 33 V DC
Current consumption	

• Standby	< 1 mA
• Alarm	≤ 4.35 mA

### Mechanics

Connections (inputs/outputs)	0.28 mm <sup>2</sup> to 2.5 mm <sup>2</sup>
Housing material	Plastic, ABS
Housing color	Red, similar to RAL 3001 White, RAL 9010
Weight	Approx. 295 g

**Environmental conditions**

Permissible operating temperature	FNM-420U-A for indoor areas -10°C to +55°C (-20°C to +70°C)* FNM-420U-B for outdoor areas -25°C to +70°C
Permissible storage temperature	-25°C to +85°C

**Special features**

Max. sound pressure level at a distance of 1 m away	101.3 dB(A)
Frequency range	440 Hz to 2.90 kHz

**Power source**

Type	3 V lithium
Capacity	2.6 Ah
Typical life cycle	> 10 years
Permissible operating temperature	-25 °C to +70°C
Permissible storage temperature	-25 °C to +85 °C

**Protection category (EN 60529)**

FNM-420U-A for indoor areas	IP 21 C (IP42*)
FNM-420U-B for outdoor areas	IP 33 C (IP66*)

\* Manufacturers specification, not third party verified

**Ordering information****FNM-420U-A-WH Sounder uninterruptible indoor, white**

uninterruptible analog addressable stand-alone sounder for indoor use, white  
Order number **FNM-420U-A-WH**

**FNM-420U-A-RD Sounder uninterruptible indoor, red**

uninterruptible analog addressable stand-alone sounder for indoor use, red  
Order number **FNM-420U-A-RD**

**FNM-420U-B-RD Sounder uninterruptible outdoor, red**

uninterruptible analog addressable stand-alone sounder for outdoor use, red  
Order number **FNM-420U-B-RD**

**Accessories****FNM-BATTERIES Batteries for uninterruptible sounders**

1 order unit = 20 batteries  
Order number **FNM-BATTERIES**

## FNM-420U-A-BS Base Sounders (Indoor), uninterruptible



6



### Features

- ▶ Uninterruptible alarm signaling – even in the LSN stub
- ▶ Maximum current consumption of less than 4.35 mA
- ▶ Volume of up to 93.1 dB(A)
- ▶ Immediate synchronization
- ▶ Long life cycle and modern design

This device, if operated with an industrial, high-performance power source for bypassing the power supply ensures uninterruptible alarm signaling in line with VdS 3536, even if a stub line is broken or the bus system is permanently damaged (e.g. by fire).

The power source is laser-welded, making it leak proof. The gold contacts allow the devices to be used in adverse environmental conditions. The control panel enables continuous and reliable monitoring of the power source.

### Tone types

No.	Tone type	Frequency/modulation	Volume dB(A)	EN 54-3** dB(A)
1*	Decreasing = DIN tone	1200-500 Hz at 1 Hz, pause 10 ms	91.0	86.8
2	Increasing	2400-2900 Hz at 50 Hz	91.9	
3	Increasing	2400-2900 Hz at 7 Hz	92.9	
4	Increasing	800/1000 Hz at 7 Hz	90.7	
5	Pulse tone	1000 Hz at 1 Hz	85.6	
6	Pulse tone	1000 Hz/0.25 s on, 1s off	85.1	
7	Variable tone	800/1000 Hz at 1 Hz	88.5	
8	Continuous tone	970 Hz	88.7	84.7

The base sounders can be installed in conjunction with an automatic detector from the 420 series or an FNS-420-R LSN Strobe.

### Functions

There are 32 different tones available (including DIN tone 33404, part 3) and the sound level can be set to between 65 and 93 dB(A). Devices with the same tone type offer immediate synchronization within a loop.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FNM-420U-A-BS
	CPD	0786-CPD-21133 FNM-420U-A-BSWH_FNM-420U-A-BSRD
Germany	VdS	G 212005 FNM-420U-A-BS
	VdS	G212005 MLAR-Bestaetigung FNM-420U-A-BSWH/-BSRD
Poland	CNBOP	1573/2013 FNM-420U-A-BS

### Installation/configuration notes

- The device is intended for indoor use.
- The current consumption depends on the tone type selected and is maximum 4.35 mA.
- Devices with different LSN settings (classic and improved) cannot be synchronized.
- The maximum number of devices on each loop depends on the cable diameter and the total current of the loop.  
Use the Bosch Planning Software for reliable loop planning.
- The base sounder can be operated with an FNS-420-R LSN Strobe or an automatic detector from the 420/425 series.
- For installation scenarios involving surface-mounted cable routing, an FNM-SPACER Mounting Base is required for surface cabling.
- This device cannot be used with the FPA-5000 type A panel controller.
- The locking clip has to be mounted if the device is installed within reach. Consult the building operator or the specialist planners for the building infrastructure whether the removal lock has to be mounted.

No.	Tone type	Frequency/modulation	Volume dB(A)	EN 54-3** dB(A)
9	Variable tone	800/1000 Hz at 2 Hz	88.2	
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	88.6	85.2
11	Pulse tone	2900 Hz/0.5 s on/off	89.9	
12	Pulse tone	1000 Hz/0.5 s on/off	85.6	
13	Increasing	800/1000 Hz at 1 Hz	92.1	
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	86.4	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	89.0	
16	Pulse tone	2900 Hz at 1 Hz	89.7	
17	Variable tone	2400/2900 Hz at 2 Hz	93.1	
18	Increasing	2400–2900 Hz at 1 Hz	92.4	
19	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	84.6	
20	Slowly increasing/decreasing	500–1200 Hz/0.5 s	90.5	
21	Continuous tone	2900 Hz	87.5	
22	Increasing	800/1000 Hz at 50 Hz	87.5	
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	88.4	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	92.2	87.4
25	Pulse tone	2900 Hz/150 ms on, 100 ms off	89.0	
26	Continuous tone	660 Hz	89.6	
27	Pulse tone	660 Hz/1.8 s on/off	89.6	
28	Pulse tone	660 Hz/150 ms on/off	88.3	
29	USA temporal 3 tone ISO 8201	610 Hz	86.2	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	89.5	
31	3. Hi/Lo	1000/800 Hz (0.25 s on/alternating)	88.3	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	88.1	

The sound levels were measured with the device mounted on a shallow mounting plate (supplied with the device). If mounted with FNM-SPACER the stated volumes must be reduced by 5 dB.

Sound pressure level specified with a tolerance of  $\pm 3$  dB(A), measured at a distance of 1 m. Constant sound pressure level between 22 V and 33 V operating voltage.

\* Default setting: tone in line with DIN 33404, part 3

\*\* Results from EN54-3 testing: lowest value at 15 V at maximum volume level, measured on the measurement axis with the highest results. All other measurements are taken 'on axis' and are not third party verified.

## Technical specifications

### Dimensions

$\emptyset$ x H	
• With mounting plate	115 x 40 mm
• With mounting base	115 x 50 mm

### Electrics

Operating voltage	15 V DC to 33 V DC
Current consumption	
• Standby	< 1 mA
• Alarm	$\leq 4.35$ mA

**Mechanics**

Connections (inputs/ outputs)	0.28 mm <sup>2</sup> to 2.5 mm <sup>2</sup>
Housing material	Plastic, ABS
Housing color	Red, similar to RAL 3001 White, similar to RAL 9010
Weight	Approx. 240 g

**Environmental conditions**

Permissible operating temperature	-10°C to +55°C (-20°C to +70°C)*
Permissible storage temperature	-20°C to +70°C

**Special features**

Max. sound pressure level at a distance of 1 m away	93.1 dB(A)
Frequency range	440 Hz to 2.90 kHz

**Power source**

Type	3 V lithium
Capacity	2.6 Ah
Typical life cycle	> 10 years
Permissible operating temperature	-25 °C to +70°C
Permissible storage temperature	-25 °C to +85 °C

**Protection category (EN 60529)**

FNM-420U-A-BS for indoor areas	IP 21 C (IP42*)
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\* Manufacturer's declaration, not third party approved

**Ordering information****FNM-420U-A-BSWH Base sounder uninterruptible, white**

uninterruptible analog addressable base sounder for indoor use, white, delivered without cover  
Order number **FNM-420U-A-BSWH**

**FNM-420U-A-BSRD Base sounder uninterruptible indoor, red**

uninterruptible analog addressable base sounder for indoor use, red, delivered with cover  
Order number **FNM-420U-A-BSRD**

**Accessories****FNM-BATTERIES Batteries for uninterruptible sounders**

1 order unit = 20 batteries  
Order number **FNM-BATTERIES**

**FNM-COVER-RD Cover for base sounder, red**

1 order unit = 10 covers  
Order number **FNM-COVER-RD**

**FNM-COVER-WH Cover for base sounder, white**

1 order unit = 10 covers  
Order number **FNM-COVER-WH**

**FNM-SPACER-WH Spacer for surface cabling, white**

1 order unit = 10 mounting bases  
Order number **FNM-SPACER-WH**

**FNM-SPACER-RD Spacer for surface cabling, red**

1 order unit = 10 mounting bases  
Order number **FNM-SPACER-RD**

## FNM-420V-A-RD/WH Voice Sounder Indoor



### Features

- ▶ Uninterruptible alarm signaling, even in LSN stub
- ▶ 32 tone types, 7 languages
- ▶ Synchronization of sounders
- ▶ Individually programmable with configuration software

This device, if operated with an industrial, high-performance power source for bypassing the power supply ensures uninterruptible alarm signaling in line with VdS 3536, even if a stub line is broken or the bus system is permanently damaged (e.g. by fire).

The power source is laser-welded, making it leak proof. The gold contacts allow the devices to be used in adverse environmental conditions. The control panel enables continuous and reliable monitoring of the power source.

### Tone types

No.	Tone type	Frequency/modulation	Volume (dB/A)
1	Decreasing = DIN tone	1200-500 Hz at 1 Hz, pause 10 ms	94.1
2	Increasing	2400-2900 Hz at 50 Hz	94.5
3	Increasing	2400-2900 Hz at 7 Hz	93.9
4	Increasing	800/1000 Hz at 7 Hz	93.6
5	Pulse tone	1000 Hz at 1 Hz	93.5
6*	Pulse tone	1000 Hz/0.25 s on, 1s off	93.0
7	Variable tone	800/1000 Hz at 1 Hz	93.6
8	Continuous tone	970 Hz	93.5
9	Variable tone	800/1000 Hz at 2 Hz	93.5
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	93.4
11	Pulse tone	2900 Hz/0.5 s on/off	93.9

### Functions

This sounder comes with 28 preprogrammed signals. Each signal is a sequence of a tone, a voice message, a tone, a voice message. There are 4 different voice messages in 7 languages and 32 different tones available (including DIN tone 33404, part 3). Sounders with the same signal offer synchronization within a loop. The 28 preprogrammed signals can be selected in the FSP-5000-RPS programming software.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FNM-420V-A-RD, FNM-420V-A-WH
	CPD	0786-CPD-21249 FNM-420V-A-WH, FNM-420V-RD
Germany	VdS	G 213029 FNM-420V-A-WH/-RD
	VdS	G213029 MLAR-Besteatigung FNM-420V-A-WH/-RD
Poland	CNBOP	3615/2019 FNM-420V

### Installation/configuration notes

- The battery is not included in delivery and must be ordered separately.
- This device can only be used with a panel controller of the type B or higher or with the FPA-1200-MPC Panel Controller. The type A panel controller cannot be used.
- The current consumption of the device is defined by the signal with the maximum current consumption.
- The maximum number of devices on each loop depends on the cable diameter and the total current of the loop.  
Use the Bosch Planning Software for reliable loop planning.

No.	Tone type	Frequency/modulation	Volume (dB/A)
12	Pulse tone	1000 Hz/0.5 s on/off	93.7
13	Increasing	800/1000 Hz at 1 Hz	93.7
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	91.5
15	Pulse tone	510 Hz/1 s on/off	91.2
16	Pulse tone	2900 Hz at 1 Hz	93.8
17	Variable tone	2400/2900 Hz at 2 Hz	94.0
18	Increasing	2400–2900 Hz at 1 Hz	93.1
19	Increasing/decreasing tone	1400-2000 Hz at 10 Hz	93.8
20	Slowly increasing/decreasing	500–1200 Hz/0.5 s	93.7
21	Continuous tone	2900 Hz	93.9
22	Increasing	800/1000 Hz at 50 Hz	94.0
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	91.4
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	95.4
25	Pulse tone	2900 Hz/150 ms on, 100 ms off	93.6
26	Continuous tone	660 Hz	92.9
27	Pulse tone	660 Hz/1.8 s on/off	92.9
28	Pulse tone	660 Hz/150 ms on/off	92.0
29	USA temporal 3 tone ISO 8201	610 Hz	91.7
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	92.6
31	3. Hi/Lo	1000/800 Hz (0.25 s on/alternating)	93.6
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	92.4

Sound pressure level specified with a tolerance of  $\pm 3$  dB(A), measured at a distance of 1 m.

\* Language independent fallback tone

### Signals

The preprogrammed signals S1 ... S28 use the tone types 1, 13, 21, 24 as defined in the table.

The sound level of the voice message is, in line with EN 54-3, not more than 6 dB below the sound level of the tone signal.

### Signals in German

S1	1	Achtung, Feueralarm! Bitte verlassen Sie umgehend das Gebäude durch den nächstgelegenen Ausgang.	1	Achtung, Feueralarm! Bitte verlassen Sie umgehend das Gebäude durch den nächstgelegenen Ausgang.
S2	1	Achtung, aufgrund einer Gefahrensituation bitten wir Sie, das Gebäude umgehend durch den nächstgelegenen Ausgang zu verlassen.	1	Achtung, aufgrund einer Gefahrensituation bitten wir Sie, das Gebäude umgehend durch den nächstgelegenen Ausgang zu verlassen.
S3	1	Achtung, Achtung! Dies ist eine Gefahrenmeldung. Bitte warten Sie auf weitere Anweisungen.	1	Achtung, Achtung! Dies ist eine Gefahrenmeldung. Bitte warten Sie auf weitere Anweisungen.
S4	1	Die Gefahrensituation ist jetzt behoben. Bitte entschuldigen Sie die Unannehmlichkeiten.	1	Die Gefahrensituation ist jetzt behoben. Bitte entschuldigen Sie die Unannehmlichkeiten.

**Signals in English**

S5	1	Attention, fire warning! Please evacuate the building immediately using the nearest exit.	1	Attention, fire warning! Please evacuate the building immediately using the nearest exit.
S6	1	Attention, due to an emergency it is necessary to evacuate the building immediately using the nearest exit.	1	Attention, due to an emergency it is necessary to evacuate the building immediately using the nearest exit.
S7	1	Attention, attention. An incident has been reported in the building, please await further instructions.	1	Attention, attention. An incident has been reported in the building, please await further instructions.
S8	1	The emergency is now cleared. We apologise for any inconvenience.	1	The emergency is now cleared. We apologise for any inconvenience.

**Signals in French**

S9	1	Attention, alarme incendie! Évacuez le bâtiment immédiatement en utilisant la sortie la plus proche.	1	Attention, alarme incendie! Évacuez le bâtiment immédiatement en utilisant la sortie la plus proche.
S10	1	Ceci est un test du système d'évacuation. Vous ne devez pas réagir.	1	Ceci est un test du système d'évacuation. Vous ne devez pas réagir.
S11	1	Attention, les membres de l'assistance sont invités à aller au central incendie.	1	Attention, les membres de l'assistance sont invités à aller au central incendie.
S12	1	L'urgence est levée. Veuillez nous excuser pour le désagrément.	1	L'urgence est levée. Veuillez nous excuser pour le désagrément.

**Signals in Spanish**

S13	1	¡Atención, esto es un aviso de incendio! Salgan del edificio urgentemente por la salida más próxima. Gracias.	1	¡Atención, esto es un aviso de incendio! Salgan del edificio urgentemente por la salida más próxima. Gracias.
S14	1	Atención, hay que salir del edificio urgentemente por la salida más próxima debido a una emergencia.	1	Atención, hay que salir del edificio urgentemente por la salida más próxima debido a una emergencia.
S15	1	Atención, atención. Se ha producido un incidente en el edificio, esperen más instrucciones. Gracias.	1	Atención, atención. Se ha producido un incidente en el edificio, esperen más instrucciones. Gracias.
S16	1	Se ha resuelto la emergencia. Rogamos disculpen cualquier molestia causada.	1	Se ha resuelto la emergencia. Rogamos disculpen cualquier molestia causada.

**Signals in Dutch**

S17	24	Attentie, brandalarm! Wij verzoeken u het gebouw onmiddellijk te verlaten via de dichtstbijzijnde uitgang.	24	Attentie, brandalarm! Wij verzoeken u het gebouw onmiddellijk te verlaten via de dichtstbijzijnde uitgang.
S18	24	Dit is een test van het evacuatiesysteem. U hoeft hierop niet te reageren.	24	Dit is een test van het evacuatiesysteem. U hoeft hierop niet te reageren.
S19	24	Attentie, de leden van de hulpverlening wordt gevraagd zich naar de brandcentrale te begeven.	24	Attentie, de leden van de hulpverlening wordt gevraagd zich naar de brandcentrale te begeven.
S20	24	De noodsituatie is opgeheven. Onze excuses voor het ongemak.	24	De noodsituatie is opgeheven. Onze excuses voor het ongemak.

**Signals in Polish**

S21	21	Uwaga, uwaga! W obiekcie wystąpiło zagrożenie pożarowe. Prosimy udać się do najbliższego wyjścia ewakuacyjnego!	21	Uwaga, uwaga! W obiekcie wystąpiło zagrożenie pożarowe. Prosimy udać się do najbliższego wyjścia ewakuacyjnego!
S22	21	Uwaga, uwaga! W budynku wykryto zagrożenie. Prosimy o natychmiastowe opuszczenie budynku najbliższym wyjściem ewakuacyjnym.	21	Uwaga, uwaga! W budynku wykryto zagrożenie. Prosimy o natychmiastowe opuszczenie budynku najbliższym wyjściem ewakuacyjnym.
S23	21	Uwaga, uwaga! W obiekcie wykryto zagrożenie. Prosimy oczekiwać na dalsze instrukcje.	21	Uwaga, uwaga! W obiekcie wykryto zagrożenie. Prosimy oczekiwać na dalsze instrukcje.
S24	21	Zagrożenie zostało wyeliminowane. Przepraszamy za wszelkie niedogodności.	21	Zagrożenie zostało wyeliminowane. Przepraszamy za wszelkie niedogodności.

## Signals in Portuguese

S25	13	Atenção, alerta de incêndio! Abandone imediatamente o edifício utilizando a saída mais próxima.	13	Atenção, alerta de incêndio! Abandone imediatamente o edifício utilizando a saída mais próxima.
S26	13	Atenção, devido a uma emergência é necessário abandonar imediatamente o edifício utilizando a saída mais próxima.	13	Atenção, devido a uma emergência é necessário abandonar imediatamente o edifício utilizando a saída mais próxima.
S27	13	Atenção, atenção. Foi comunicada a ocorrência de um incidente no edifício. Aguarde por favor, a indicação de mais informações.	13	Atenção, atenção. Foi comunicada a ocorrência de um incidente no edifício. Aguarde por favor, a indicação de mais informações.
S28	13	A emergência foi resolvida. Pedimos desculpa pelo incômodo.	13	A emergência foi resolvida. Pedimos desculpa pelo incômodo.

## Further signals

S29				
S30				
S31				
S32	BMW tone*			

\* Volume 97 dB(A) on average, measured at a distance of 1 m

## Technical specifications

## Electrics

Operating voltage	15 V DC to 33 V DC
Current consumption	
• Standby	< 2.3 mA
• Alarm	≤ 15mA

## Mechanics

Connections (inputs/ outputs)	0.6 mm <sup>2</sup> to 2.5 mm <sup>2</sup>
Dimensions (H x W x D)	105 x 105 x 95 mm
Housing material	Plastic, ABS
Housing color	Red, similar to RAL 3001
	White, RAL 9003
Weight	Approx. 295 g

## Environmental conditions

Permissible operating temperature	-10°C to +55°C
Permissible storage temperature	-25°C to +85°C

Relative humidity	Max. 95%
Protection category (EN60529)	IP42

## Special features

Max. sound pressure level at a distance of 1 m	95.4 dB(A)
Frequency range	440 Hz to 2.90 kHz

## Ordering information

**FNM-420V-A-RD Voice sounder, addressable, red**  
uninterruptible analog addressable voice sounder for indoor use, red  
Order number **FNM-420V-A-RD**

**FNM-420V-A-WH Voice sounder, addressable, white**  
uninterruptible analog addressable voice sounder for indoor use, white  
Order number **FNM-420V-A-WH**

## Accessories

**FNM-BATTERIES Batteries for uninterruptible sounders**  
1 order unit = 20 batteries  
Order number **FNM-BATTERIES**

## Industrial sounders



### Features

- ▶ Certified according to EN 54-3, type B
- ▶ High efficiency and good penetration of acoustic obstacles significantly reduce the number of sounders required
- ▶ High protection class ideally for industry applications

The industrial sounders PA 5 and PA 10-SSM are universally applicable acoustical devices for fire alarm and security technology, IP 66, 24 VDC, EN 54-3 compliant.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	PA 5
	CE	PA 10-SSM
	CPD	0786-CPD-21182 PA 5
	CPD	0786-CPD-21224 PA 10-SSM
Germany	VdS	G212115 PA 5
	VdS	G212192 PA 10-SSM
Poland	CNBOP	2848/2017 PA 10-SSM

### Installation/configuration notes

- Use the Bosch Safety Systems Designer for reliable planning.

#### Industrial sounder SSM, high

- Mounting options: wall, ceiling
- Wall mounting depending on background noise: 8,3 m
- Ceiling mounting depending on background noise: 23,2 m

#### Industrial sounder, low

- Mounting options: wall, ceiling
- Wall mounting depending on background noise: 7 m
- Ceiling mounting depending on background noise: 18,1 m

### Parts included

### Technical specifications

#### Electrical

	PA 10-SSM Industrial sounder SSM, high
Current consumption (mA)	60 mA – 485 mA
Operating voltage (VDC)	18 VDC – 30 VDC
Maximum DIN tone current consumption at 24 VDC	282 mA
Inrush current reduction	SSM module
	PA 5 Industrial sounder, low
Current consumption (mA)	6 mA – 80 mA
Operating voltage (VDC)	10 VDC – 57 VDC
Maximum DIN tone current consumption at 24 VDC	38 mA

#### Acoustic


















	PA 10-SSM Industrial sounder SSM, high
Maximum sound pressure level at a distance of 1 m (dBA)	117 dBA
Maximum DIN tone sound pressure level at a distance of 1 m (dBA)	115 dBA
Volume control	-10 dBA
Tones	80
Tone levels externally	4
	PA 5 Industrial sounder, low
Maximum sound pressure level at a distance of 1 m (dBA)	107 dBA
Maximum DIN tone sound pressure level at a distance of 1 m (dBA)	105 dBA
Volume control	-12 dBA
Tones	80
Tone levels externally	4





















**Environmental**

	PA 10-SSM Industrial sounder SSM, high
Operating temperature (°C)	-40 °C – 55 °C
Operating relative humidity, non-condensing (%)	0% – 90%
Weather rating (IEC 60529)	IP66
Impact protection (EN 50102)	IK08
	PA 5 Industrial sounder, low
Operating temperature (°C)	-40 °C – 55 °C
Operating relative humidity, non-condensing (%)	0% – 90%
Weather rating (IEC 60529)	IP66
Impact protection (EN 50102)	IK08

**Mechanical**

	PA 10-SSM Industrial sounder SSM, high
Material	Plastic
Color	Red
Dimension (H x W x D) (mm)	170 mm x 214 mm x 156.20 mm
	PA 5 Industrial sounder, low
Material	Plastic
Color	Red
Dimension (H x W x D) (mm)	135 mm x 163.40 mm x 132 mm

N o.	Tone tables		
	Tone type	Sound pattern	Frequency/modulation
1	No tone		
2	Sawtooth, DIN tone 33404-3 Germany (emergency signal), PFEER PTAP (EN 54-3)		500-1200 Hz/1 s
9	Slow whoop, fire alarm, UK BS5839-1		800-970 Hz/1 s
1 1	Interrupted tone (fast)		800-970 Hz/20 ms
1 3	Interrupted tone		700-900 Hz/0,3 s on/0,6 s off
1 5	Slow whoop, evacuation alarm Netherlands NEN 2575 (EN 54-3)		500-1200 Hz/3,5 s on, 0,5 s off
1 6	Slow whoop, evacuation alarm Australia AS2220		500-1200 Hz/3,75 s on/0,25 s off
1 8	Slow whoop, NFPA		422-775 Hz/0,85 s on/1 s off
2 2	Pulsating tone, Australien alert AS1670, ISO8201		500-1200 Hz/0,5 s on/off x 3/1,5 s off
2 3	Siren		500-2400 Hz/3 s rising, then constant
2 4	Siren		300-1200 Hz/3 rising, then constant
2 5	Siren		300-800 Hz/3 s rising, then constant
2 6	Siren, industrial alarm Germany		150-1000 Hz/10 s rising, then 40 s constant, then 10 s falling
2 7	Sweeping		2400-2900 Hz/0,5 s
2 9	Sweeping (fast)		2400-2900 Hz/10 ms
3 0	Sweeping		2400-2900 Hz/70 ms
3 1	Sweeping, France NFC48_265		1400-1600 Hz/1 s rising, 0,5 s falling
3 3	Sweeping (medium), UK BS5839-1		800-1000 Hz/0,5 s

N o.	Tone tables		
	Tone type	Sound pattern	Frequency/modulation
3 4	Sweeping (fast)		800-1000 Hz/10 ms
3 5	Sweeping (fast), UK BS5839-1		800-1000 Hz/70 ms
3 6	Sweeping		700-1500 Hz/1,5 s
4 3	Sweeping		500-1200 Hz/1,5 s
4 4	Sweeping, IMO 3d, Germany KTA3901 evacuation alarm		500-1200 Hz/1 s
4 5	Sweeping		500-1200 Hz/3 s
4 6	Sweeping, general alarm Finland		500-1500 Hz/7 s
5 2	Continuous tone		2400 Hz
5 3	Continuous tone		2000 Hz
5 4	Continuous tone, Finland (all-clear signal)		1500 Hz
5 5	Continuous tone, PFEER gas alarm		1200 Hz
5 6	Continuous tone		1000 Hz
5 7	Continuous tone, UK BS5839-1		950 Hz
5 9	Continuous tone		880 Hz
6 0	Continuous tone (EN 54-3)		825 Hz
6 1	Continuous tone		800 Hz
6 3	Continuous tone		725 Hz
6 5	Continuous tone, Sweden SS031711 (all-clear signal)		660 Hz
6 6	Continuous tone		554 Hz
6 7	Continuous tone, Germany KTA3901 (all-clear signal)		500 Hz

N o.	Tone tables		
	Tone type	Sound pattern	Frequency/modulation
68	Continuous tone	— — —	470 Hz
69	Continuous tone	— — —	440 Hz
71	Continuous tone	— — —	340 Hz
77	Interrupted tone	□	2200 Hz/0,5 s on/off
82	Interrupted tone, PFEER (general alarm), UK BS5839-1 (back-up alarm)	□	1000 Hz/0,5 s on/off
83	Interrupted tone, PFEER (general alarm)	□	1000 Hz/1 s on/off
88	Interrupted tone	□	950 Hz/1 s on/off
90	Interrupted tone	□	825 Hz/0,5 s on/off
91	Interrupted tone	□	800 Hz/0,25 s on/off
92	Interrupted tone	□	800 Hz/0,25 s on/1 s off
93	Interrupted tone (fast), Horn	□	800 Hz/4 ms on/off
97	Interrupted tone	□	725 Hz/0,7 s on/0,3 s off
98	Interrupted tone, Sweden SS031711 (emergency signal)	□	700 Hz/0,125 s on/off
100	Interrupted tone, industrial alarm Germany	□	680 Hz/0,875 s on/off
101	Interrupted tone, Sweden SS031711 (important message (pre-mess))	□	660 Hz/6,5 s on/13 s off
102	Interrupted tone, Sweden SS031711 (local warning)	□	660 Hz/0,5 s on/off
103	Interrupted tone, Sweden SS031711 (air raid warning)	□	660 Hz/1,8 s on/off

N o.	Tone tables		
	Tone type	Sound pattern	Frequency/modulation
104	Interrupted tone, Sweden SS031711 (emergency signal) (EN 54-3)	□	660 Hz/150 ms on/off
107	Interrupted tone, Germany KTA3901 (evacuation alarm)	□	500 Hz/0,25 s on/0,75 s off
109	Interrupted tone, Australia AS2220, AS1610, AS1670	□	420 Hz/0,625 s on/off
110	Interrupted tone, (fast variable), bell	□	1450 Hz/0,69 s on/off
111	Interrupted tone, ISO8201 (emergency evacuation signal), USA (evacuation alarm)	□	470 Hz/0,5 s on/off x 3/1,5 s off
112	Interrupted tone, ISO8201 (emergency evacuation signal)	□	950 Hz/0,5 s on/off x 3/1,5 s off
113	Interrupted tone, ISO8201 (emergency evacuation signal), sweeping	□	2850 Hz/0,5 s on/off x 3/1,5 s off
115	Interrupted tone, IMO (telephone call)	□	950 Hz/2 s on/0,5 s off/0,5 s on/1 s off
116	Interrupted tone, IMO (leave ship)	□	950 Hz/1 s on/off/3 s on/1 s off
117	Interrupted tone IMO SOLAS III/50 + SOLAS III/6.4 (general alarm)	□	825 Hz/2,5 s on/off x 6/7 s on
122	Alternating tone	□	2400s-2900 Hz/0,5 s
123	Alternating tone	□	2400s -2900 Hz/0,25 s
124	Alternating tone, Singapore	□	1000-2900 Hz/0,5 s
125	Alternating tone	□	1200-1400 Hz/20 ms

Tone tables			
N o.	Tone type	Sound pattern	Frequency/modulation
1 2 8	Alternating tone		825-1025 Hz/ 0,25 s
1 3 0	Alternating tone, UK BS5839-1 (fire alarm)		800-1000 Hz/0,5 s
1 3 1	Alternating tone, UK BS5839-1 (fire alarm, railway crossing)		800-1000 Hz/ 0,25 s
1 3 5	Alternating tone, UK BS5839-1 (fire alarm, increased urgency - railway crossing)		800-1000 Hz/ 0,125 s
1 4 2	Alternating tone		500-900 Hz/0,25 s
1 4 3	Alternating tone, industrial alarm Germany		440-660 Hz/ 0,125 s
1 4 4	Alternating tone		440-650 Hz/1 s
1 4 6	Alternating tone, France NFS 32-001 (fire alarm) (EN 54-3)		440-554 Hz/0,1 s/ 0,4 s
1 4 7	Alternating tone, Sweden SS031711		440-554 Hz/1 s
1 4 8	Alternating tone, Sweden SS031711		440-554 Hz/0,5 s
1 5 2	Alternating tone (two tone chime)		800-650 Hz/0,25 s on/off x 2/2 s off

Control of the tones									
DIP-Switch (Setting of basic tone)							External tone selection		
1	2	3	4	5	6	Basic tone	C1	C2	C1 + C2
							Tone number		
						1	2	88	57
O	n					2	128	112	57
	O	n				2	26	100	93
O	O	n				2	61	131	112

Control of the tones									
DIP-Switch (Setting of basic tone)							External tone selection		
1	2	3	4	5	6	Basic tone	C1	C2	C1 + C2
							Tone number		
			O	n		9	57	11	82
O	n		O	n		15	131	52	112
	O	n	O	n		16	109	52	56
O	O	n	O	n		18	111	57	68
			O	n		22	16	109	68
O	n		O	n		23	131	52	112
	O	n	O	n		24	131	52	131
O	O	n	O	n		25	131	52	92
		O	O	n		26	2	100	93
O	n		O	n		27	123	52	92
	O	n	O	n		29	35	52	61
O	O	n	O	n		30	27	52	77
				O	n	31	131	52	57
O	n			O	n	33	30	52	35
	O	n		O	n	34	35	52	93
O	O	n		O	n	35	27	52	110
		O	n	O	n	36	146	67	57
O	n		O	n		43	131	52	91
	O	n	O	n		45	2	57	93
O	O	n	O	n		52	15	65	82
			O	n		54	46	54	131

Control of the tones										
DIP-Switch (Setting of basic tone)							External tone selection			
1	2	3	4	5	6	Basic tone	C1	C2	C1 + C2	
							Tone number			
O	n		O	O		55	131	52	128	
	O		O	O		56	82	35	33	
O	O		O	O		59	143	59	101	
			O	O		60	131	52	125	
O		O	O	O		65	131	52	93	
	O	O	O	O		66	110	52	107	
O	O	O	O	O		69	131	52	110	
					O	71	131	52	93	
O					O	77	61	52	122	
	O				O	82	131	52	83	
O	O				O	83	56	2	82	
		O			O	88	2	57	128	
O		O			O	90	131	52	125	
	O	O			O	91	30	52	110	
O	O	O			O	92	33	52	57	
			O		O	93	2	128	57	
O			O		O	97	2	63	93	
	O		O		O	100	131	52	125	
O	O		O		O	101	98	102	65	
		O	O		O	103	131	65	147	
O		O	O		O	104	103	65	101	

Control of the tones										
DIP-Switch (Setting of basic tone)							External tone selection			
1	2	3	4	5	6	Basic tone	C1	C2	C1 + C2	
							Tone number			
	O	O	O		O	109	16	52	22	
O	O	O	O		O	110	131	61	91	
				O	O	112	2	57	128	
O				O	O	113	52	123	104	
	O			O	O	115	117	116	44	
O	O			O	O	116	117	93	125	
		O		O	O	117	93	116	125	
O		O		O	O	123	27	52	77	
	O	O		O	O	124	53	83	2	
O	O	O		O	O	130	2	107	67	
			O	O	O	131	2	112	57	
O			O	O	O	135	16	56	109	
	O		O	O	O	142	2	54	88	
O	O		O	O	O	143	59	93	33	
		O	O	O	O	144	110	61	2	
O		O	O	O	O	146	31	67	57	
	O	O	O	O	O	148	131	52	92	
O	O	O	O	O	O	152	110	61	13	

**Ordering information**

**PA 10-SSM Industrial sounder SSM, high**

Universally applicable acoustical signalling for fire alarm and security technology, 117 dBA, IP 66, 24 VDC, EN 54-3 compliant.

Order number **PA 10-SSM**

**PA 5 Industrial sounder, low**

Universally applicable acoustical signalling for fire alarm and security technology, 107 dBA, IP 66, 24 VDC, EN 54-3 compliant.  
Order number **PA 5**

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# Visual Notification

<b>LX Beacons Conventional</b>	<b>329</b>
<b>FNS-P400RTH Rotating Beacons</b>	<b>332</b>
<b>PB 2005 Strobe red, 24V</b>	<b>333</b>
<b>FNS-420-R Strobe for sounder base</b>	<b>335</b>
<b>FNS-320 Beacons Conventional</b>	<b>336</b>
<b>Industrial strobes</b>	<b>337</b>

## LX Beacons Conventional



VdS

### Features

- ▶ Complies with EN54-23
- ▶ Up to 7.5 m coverage
- ▶ Variable flash rate
- ▶ Low current consumption
- ▶ LED technology

The LX Beacons are signaling devices for optical alarm.

### Functions

The device has a unique lens design to achieve the required illumination specified by EN54-23. The flash rate as well as a reduced coverage volume can be set via DIP switch.

The ceiling device distributes the light in a cylindrical shape, the wall device in a cubical shape.

The device is designed for a variety of applications.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	DoC_solista-lx-ceiling
	CE	LX Beacon Wall
	CPD	0333-CPD-075443 LX_Beacon_Ceiling_EN
	CPD	0333-CPD-075441 LX_Beacon_Wall_EN
Germany	VdS	G214067 Solista LX wall
	VdS	G214069 Solista LX ceiling
Poland	CNBOP	2236/2014 Solista

### Installation/configuration notes

- Can be connected to
  - LSN fire panels with NZM 0002 A or FLM-420-NAC
  - FPC-500 Conventional Fire Panel

- The device is either available as version for wall application or as version for ceiling application.
- The device is suitable for indoor and outdoor use. (Outdoor use only with appropriate cable fittings. Not included in delivery.)
- The coverage of the device depends on the ambient light level. Consider also the maximum mounting height of the device.
- Use the Bosch Safety Systems Designer for reliable planning.
- Remind that current consumption differs:

	Operating Voltage	High power 1 Hz	High power 0.5 Hz	Low power 1 Hz	Low power 0.5 Hz
Coverage		7.5 m (135 m <sup>3</sup> )		2.5 m (15 m <sup>3</sup> ) / 3 m (21 m <sup>3</sup> )	
White flash	24 V DC	25 mA	16 mA	16 mA	10 mA
Red flash	24 V DC	25 mA	16 mA	16 mA	10 mA

### Technical specifications

#### Mechanics

Housing and base color	Red similar to RAL 3031 White similar to RAL 9003
Weight	100 g

#### Electrical

Operating voltage	9 - 60 V DC
Current consumption	10 - 25 mA, dependent on flash rate setting and coverage setting
Monitoring	Reverse polarity

#### Environmental conditions

Protection class	IP33C shallow base / IP65 deep base *
Permissible operating temperature	-25°C - +70°C
Permissible rel. humidity	Complies with EN54-23 (93% ±3%)

\*Manufacturers specification, not third party verified

#### Ceiling

Dimensions (Ø x H)	93 mm x 37 mm / 93 mm x 65 mm
Maximum mounting height (x)	3 m
Coverage (y)	7.5 m (switchable to 3 m)
Coverage volume	132 m <sup>3</sup> (21 m <sup>3</sup> )

Coverage volume code (C-x-y)	C-3-7.5
Flash rate	1Hz (switchable to 0.5 Hz)
Flash color	White or red

**Wall**

Dimensions (Ø x H)	93 mm x 38 mm / 93 mm x 66 mm
Maximum mounting height (x)	2.4 m
Coverage (y)	7.5 m (switchable to 2.5 m)
Coverage volume	135 m <sup>3</sup> (15 m <sup>3</sup> )
Coverage volume code (W-x-y)	W-2.4-7.5
Flash rate	1Hz (switchable to 0.5 Hz)
Flash color	White or red

Luminous intensity red flash, ceiling:

	SOL-LX-C-RF-W-D Red-flash beacon ceiling, deep
Luminous intensity (cd)	8 cd

	SOL-LX-C-RF-W-S Red-flash beacon ceiling, shallow
Luminous intensity (cd)	8 cd

Luminous intensity red flash, wall:

	SOL-LX-W-RF-W-S Red-flash beacon wall, shallow, white
Luminous intensity (cd)	23 cd

	SOL-LX-W-RF-W-D Red-flash beacon wall, deep, white
Luminous intensity (cd)	23 cd

	SOL-LX-W-RF-R-S Red-flash beacon wall, shallow, red
Luminous intensity (cd)	23 cd

	SOL-LX-W-RF-R-D Red-flash beacon wall, deep, red
Luminous intensity (cd)	23 cd

Luminous intensity white flash, ceiling:

	SOL-LX-C-WF-W-S White-flash beacon ceiling, shallow
Luminous intensity (cd)	14 cd

	SOL-LX-C-WF-W-D White-flash beacon ceiling, deep
Luminous intensity (cd)	14 cd

Luminous intensity white flash, wall:

	SOL-LX-W-WF-W-S White-flash beacon wall, shallow, white
Luminous intensity (cd)	42 cd

	SOL-LX-W-WF-W-D White-flash beacon wall, deep, white
Luminous intensity (cd)	42 cd

	SOL-LX-W-WF-R-S White-flash beacon wall, shallow, red
Luminous intensity (cd)	42 cd

	SOL-LX-W-WF-R-D White-flash beacon wall, deep, red
Luminous intensity (cd)	42 cd

**Ordering information****SOL-LX-C-WF-W-S White-flash beacon ceiling, shallow**

for local visual alarm notification

Order number **SOL-LX-C-WF-W-S**

**SOL-LX-C-RF-W-S Red-flash beacon ceiling, shallow**

for local visual alarm notification

Order number **SOL-LX-C-RF-W-S**

**SOL-LX-C-WF-W-D White-flash beacon ceiling, deep**

for local visual alarm notification

Order number **SOL-LX-C-WF-W-D**

**SOL-LX-C-RF-W-D Red-flash beacon ceiling, deep**

for local visual alarm notification

Order number **SOL-LX-C-RF-W-D**

**SOL-LX-W-WF-W-S White-flash beacon wall, shallow, white**

for local visual alarm notification

Order number **SOL-LX-W-WF-W-S**

**SOL-LX-W-RF-W-S Red-flash beacon wall, shallow, white**

for local visual alarm notification

Order number **SOL-LX-W-RF-W-S**

**SOL-LX-W-WF-W-D White-flash beacon wall, deep, white**

for local visual alarm notification

Order number **SOL-LX-W-WF-W-D**

**SOL-LX-W-RF-W-D Red-flash beacon wall, deep, white**

for local visual alarm notification

Order number **SOL-LX-W-RF-W-D**

**SOL-LX-W-WF-R-S White-flash beacon wall, shallow, red**

for local visual alarm notification

Order number **SOL-LX-W-WF-R-S**

**SOL-LX-W-RF-R-S Red-flash beacon wall, shallow, red**

for local visual alarm notification

Order number **SOL-LX-W-RF-R-S**

**SOL-LX-W-WF-R-D White-flash beacon wall, deep, red**  
for local visual alarm notification  
Order number **SOL-LX-W-WF-R-D**

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**SOL-LX-W-RF-R-D Red-flash beacon wall, deep, red**  
for local visual alarm notification  
Order number **SOL-LX-W-RF-R-D**

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## FNS-P400RTH Rotating Beacons



6

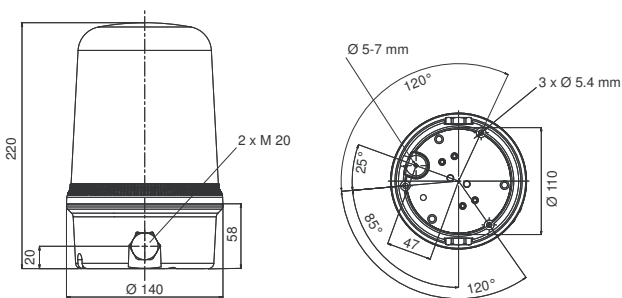
VdS

### 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FNS-P400RTH

### Installation/configuration notes

- A right-angle mounting bracket can be ordered separately for easy wall mounting

### 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 <sup>-1</sup>
Lifespan	> 5,000 h

### Ordering information

**FNS-P400RTH-Y Rotating beacon, amber**  
for an additional local alarm notification  
Order number **FNS-P400RTH-Y**

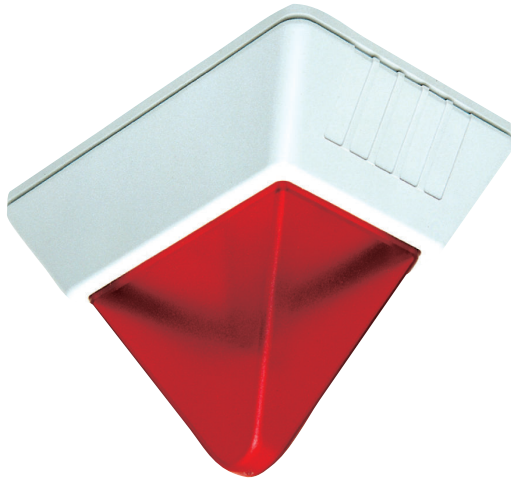
**FNS-P400RTH-R Rotating beacon, red**  
for an additional local alarm notification  
Order number **FNS-P400RTH-R**

#### Accessories

**FNA-P400RBA-MB Mounting bracket for rotating beacon**

for easy wall-mounting of the FNS-P400RTH Rotating Beacon; mounting bracket material: polycarbonate.  
Order number **FNA-P400RBA-MB**

## PB 2005 Strobe red, 24V

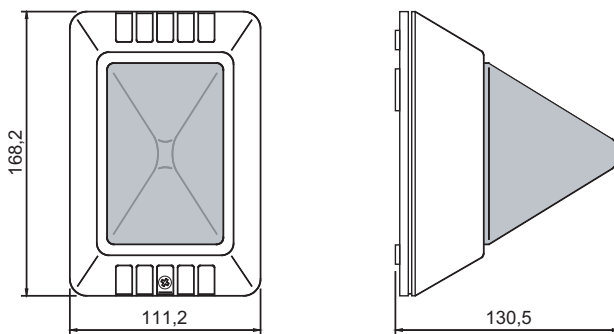


### Features

- ▶ 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.

### Regulatory information

Region	Regulatory compliance/quality marks	
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.



#### Notice

When connected to the BZ 1060, a resistance of 10  $\Omega$ /2 W in series is switched.

### Parts included

Quantity	Component
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, 24V**

Signaling device for visual alarm, for connection to fire panels

Order number **PB 2005**

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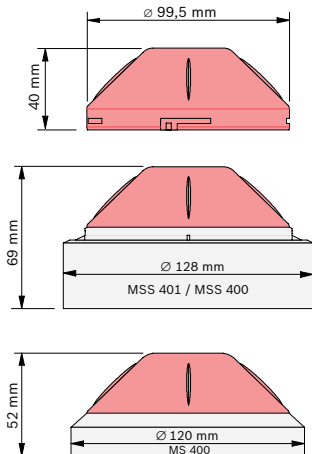
## FNS-420-R Strobe for sounder base



### Features

- ▶ Quick installation
- ▶ No additional cabling or power supply
- ▶ Low consumption thanks to LED-technology
- ▶ Synchronized flash rate of 1 Hz

### System overview



### Functions

The LSN Strobe can be used with the FNM-420-A-BS / FNM-420U-A-BS Base Sounders or the MSS 400 / 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 can easily be integrated into an existing Local SecurityNetwork (LSN).

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FNS-420-RLSN
	CPD	0786-CPD-20531 FNS-420-R
Germany	VdS	G 207145 FNS-420-R
Ukraine	MOE	UA1.016.0070272-11 FNS-420-R

### Installation/configuration notes

- The device is not certified to EN 54-23. It is not suitable for fire alarm use within the EU.
- The device can be connected exclusively to the fire panels FPA-5000 and FPA-1200.
- The device cannot be used with the MSS series stand-alone or conventional sounders.

### Parts included

Quantity	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 Strobe for sounder base**  
 analog addressable strobe, red  
 Order number **FNS-420-R**

#### Services

**EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension  
 Order number **EWE-FPDVC-IW**

## FNS-320 Beacons Conventional



- The device can be connected to the following panels:
  - FPA-5000 / FPA-1200 with NZM 0002 A or FLM-420-NAC
  - BZ 500 LSN, UEZ 1000 LSN, UEZ 2000 LSN, UGM 2020

### Technical specifications

#### Electrical

Operating voltage	9 V DC to 30 V DC
Current consumption	
• 24 V	88 mA
• 12 V	185 mA

#### Mechanics

Housing material	ABS V0 + PC
Base color	Red, RAL 3001
Dimensions (Ø x H)	93 mm x 121 mm
Weight	180 g

#### Environmental conditions

Protection class as per EN 60529	IP 21C (IP 65)*
Permissible operating temperature	-20 °C to +70 °C
Permissible rel. humidity	

\*Manufacturers specification, not third party verified

#### Special features

Light output	10 cd (1.25 J)
Flash rate	1Hz

### Ordering information

**FNS-320-SRD Beacon, surface-mount, red**  
for local visual signaling  
Order number **FNS-320-SRD**

**FNS-320-SGR Beacon, surface-mount, green**  
for local visual signaling  
Order number **FNS-320-SGR**

**FNS-320-SYE Beacon, surface-mount, amber**  
for local visual signaling  
Order number **FNS-320-SYE**

**FNS-320-SWH Beacon, surface-mount, white**  
for local visual signaling  
Order number **FNS-320-SWH**

6

### 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

The FNS-320 Beacons are universally employable optical signaling devices.

### Functions

The beacon lamp is mounted in the upper, clear part of the device. When activated via the fire panel, it flashes with a flash rate of once a second. The connections are protected against reverse polarity.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FNS-320-SRD, FNS-320-SYE, FNS-320-SWH, FNS-320-SGR
Poland	CNBOP	1229/2012 FNS-320-SRD

### Installation/configuration notes

- The device is not certified to EN 54-23. It is not suitable for fire alarm use within the EU.
- The device is suitable for indoor and outdoor use. (Outdoor use only with appropriate cable fittings. Not included in delivery.)
- The upper part is fixed to the base by a bayonet lock.
- The lens has screw threads and is also secured against removal by a security screw.

## Industrial strobes



### Features

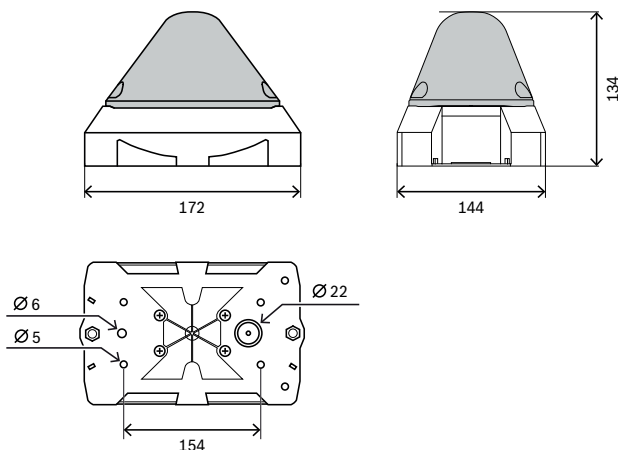
- ▶ Certified according to EN 54-23 O category, type B
- ▶ Economical, largest possible signalling area thanks to effective xenon technology
- ▶ Four different flash frequencies can be selected via DIP switch
- ▶ Light color in red or in white available
- ▶ Strobes can be operated synchronized with each other

The industrial strobes PY X-M-10-SSM color red and white are universally applicable optical and acoustical devices for fire alarm and security technology, 10 J, IP 66, 24 VDC, EN 54-23 compliant.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	PY X-M-10-SSM
	CPR	0786-CPR-21499 PY X-M-10-SSM
Germany	VdS	G216036 PY X-M-10-SSM

### Installation/configuration notes



- The device is certified regarding EN 54-23, category C (ceiling), category W (wall) and category O (open device).
- Use the Bosch Safety Systems Designer for reliable planning.

### Industrial strobe SSM, red

- Maximum mounting height:

- Wall: 5,6 m
- Ceiling: 7 m
- Illumination area:
  - Wall: 14 m x 7 m
  - Ceiling: 14 m x 11,2 m

### Industrial strobe SSM, white

- Maximum mounting height:
  - Wall: 9 m
  - Ceiling: 10 m
- Illumination area:
  - Wall: 22,5 m x 10 m
  - Ceiling: 22,5 m x 18 m

### Parts included

### Technical specifications

#### Electrical

	PY X-M-10-SSM R Industrial strobe SSM, red
Operating voltage (VDC)	18 VDC – 30 VDC
Rated current consumption	464 mA (at 24 VDC at 1 Hz) 282 mA (at 24 VDC at 0,5 Hz)
Inrush current reduction	SM module, limit to max. 4,5 A
	PY X-M-10-SSM W Industrial strobe SSM, white
Operating voltage (VDC)	18 VDC – 30 VDC
Rated current consumption	464 mA (at 24 VDC at 1 Hz) 282 mA (at 24 VDC at 0,5 Hz)
Inrush current reduction	SM module, limit to max. 4,5 A

#### Optical

	PY X-M-10-SSM R Industrial strobe SSM, red
Lightning energy (J)	10 J
Luminous intensity (cd)	54 cd
Flash follow-up frequency (Hz)	0,1 / 0,5 / 0,75 / 1 Hz
	PY X-M-10-SSM W Industrial strobe SSM, white
Lightning energy (J)	10 J
Luminous intensity (cd)	118 cd
Flash follow-up frequency (Hz)	0,1 / 0,5 / 0,75 / 1 Hz

**Environmental**

	PY X-M-10-SSM R Industrial strobe SSM, red
Operating temperature (°C)	-40 °C – 55 °C
Operating relative humidity, non-condensing (%)	0% – 90%
Weather rating (IEC 60529)	IP66
Impact protection (EN 50102)	IK08

	PY X-M-10-SSM W Industrial strobe SSM, white
Operating temperature (°C)	-40 °C – 55 °C
Operating relative humidity, non-condensing (%)	0% – 90%
Weather rating (IEC 60529)	IP66
Impact protection (EN 50102)	IK08

**Mechanical**

	PY X-M-10-SSM R Industrial strobe SSM, red
Material	Plastic
Housing color	Red

	PY X-M-10-SSM R Industrial strobe SSM, red
Cover color	Red
Dimension (H x W x D) (mm)	124 mm x 166 mm x 114 mm

	PY X-M-10-SSM W Industrial strobe SSM, white
Material	Plastic
Housing color	Red
Cover color	Clear
Dimension (H x W x D) (mm)	124 mm x 166 mm x 114 mm

**Ordering information****PY X-M-10-SSM R Industrial strobe SSM, red**

Universally applicable strobe for fire alarm and security technology, red, 10J, IP66, 24V DC, EN 54-23 compliant. Order number **PY X-M-10-SSM R**

**PY X-M-10-SSM W Industrial strobe SSM, white**

Universally applicable strobe for fire alarm and security technology, white, 10J, IP66, 24V DC, EN 54-23 compliant.

Order number **PY X-M-10-SSM W**

# Audible-visual Notification

AVENAR all-in-one 4000

340

## AVENAR all-in-one 4000



6

### Features

- ▶ Effective alarming: EN 54-3 and EN 54-23 certified
- ▶ Uninterruptible alarm signaling, even in LSN stub
- ▶ Easy and cost efficient installation and replacement
- ▶ Up to 84 elements per loop, up to 127 if operated without detector
- ▶ For combination with any detector of AVENAR detector 4000 series

AVENAR all-in-one 4000 is a single-point solution made in Germany for applications when both, visual alarm signaling and audible alarm signaling, is required. The device needs no additional external power supply. In standby mode it is powered by the loop and in alarm mode additional power is available by the inbuilt battery. The battery concept ensures a high amount of devices per loop.

### System overview

If fire detection is needed in addition, the device can be combined with any detector of the AVENAR detector 4000 series.



### Functions

- Addressable device can be used in different applications where visual alarming in addition to audible alarming is necessary (e.g. public buildings, hotels, hospitals).
- Installation on ceiling or on wall.
- 32 different tone types including DIN tone (DIN 33404, part 3).
- Sound pressure level amounts between 65 dB(A) for maintenance and maximum of 97 dB(A).
- Synchronization is ensured for visual alarm and audible alarm signaling of AVENAR all-in-one 4000 devices.
- With 12 LEDs and 360° visibility, the required illumination according to EN 54-23 is achieved. 2 fixed flash rates and 3 different coverage volumes can be set via FSP-5000-RPS.
- Provided that the device was already activated by the fire panel, the high-performance power source ensures uninterrupted alarm signaling in line with VdS 3536. Even if a stub line interrupts or the LSN bus is damaged permanently.
- Cost-efficient and easy installation and replacement (e.g. plug terminals). Due to the modular setup of the product, installation and replacement can be performed in steps (e.g. pre-mounting and wiring of the base).

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	AVENAR all-in-one 4000
Morocco	CMIM	AVENAR all-in-one 4000
Europe	CPD	1438-CPR-0744 AVENAR all-in-one 4000
Poland	CNBOP	4205/2020 AVENAR all-in-one 4000

### Installation/configuration notes






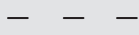
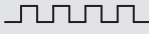
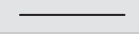

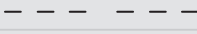
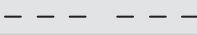




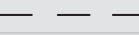



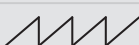
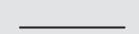

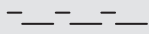


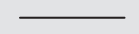
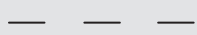

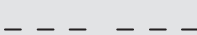
- The device is intended for indoor use. Due to the integrated base sealing it is IP42 certified.
- The device is certified regarding EN 54-23, category C (Ceiling) and category W (Wall).
- Surface and flush cabling is possible.
- For ceiling-mount installation, minimum distance from walls is 300 mm.
- 3 different intensity levels for sound and flash are certified.
- The current consumption on the LSN bus is independent from the sound and flash settings.
- If necessary, the device can be used exclusively for audible alarm signaling or for visual alarm signaling.
- The device can be used with any detector of the AVENAR detector 4000 series. When operated without detection function, the cover is required.
- To ensure that unauthorized persons have access to the device, the locking clip can be mounted optionally. Consult the building operator or the specialist planners for the building construction whether the locking clip has to be mounted.
- Use the Bosch Safety Systems Designer for reliable planning.

## Sound pressure levels tested according EN 54-3

	Decreasing (DIN tone) dB(A)@1m	Slowly increasing dB(A)@1m
High	94.3	97.9
Medium	86.9	88.2

	Decreasing (DIN tone) dB(A)@1m	Slowly increasing dB(A)@1m
Low	80.6	82.7

## Tone table

Tone table			
Number	Sound pattern	Tone type	Frequency/modulation
1		Decreasing DIN tone (DIN 33404 part 3)	1200-500 Hz at 1 Hz, pausing 10 ms
2		Increasing	2400-2900 Hz at 50 Hz
3		Increasing	2400-2900 Hz at 7 Hz
4		Increasing	800/1000 Hz at 7 Hz
5		Pulse tone	1000 Hz at 1 Hz
6		Pulse tone	1000 Hz / 0.25 s on, 1 s off
7		Variable tone	800/1000 Hz at 1 Hz
8		Continuous tone	970 Hz
9		Variable tone	800/1000 Hz at 2 Hz
10		Pulse tone	970 Hz / 0.5 s on/off, 3 tones in 4 cycles
11		Pulse tone	2900 Hz / 0.5 s on/off, 3 tones in 4 cycles
12		Pulse tone	1000 Hz / 0.5 s on/off, 3 tones in 4 cycles
13		Increasing	800/1000 Hz at 1 Hz
14		Variable tone	510 Hz / 610 Hz, 0.5 s on/off
15		BMW tone	800 Hz / 60 s on, 10 s off, 3 cycles
16		Pulse tone	2900 Hz at 1 Hz
17		Variable tone	2400/2900 Hz at 2 Hz
18		Increasing	2400-2900 Hz at 1 Hz
19		Increasing	1400-2000 Hz at 10 Hz
20		Slowly increasing	500 -1200 Hz / 0.5 s
21		Continuous tone	2900 Hz
22		Increasing, fast sweeping	800/1000 Hz at 50 Hz
23		Pulse tone	554 Hz / 100 ms + 440 Hz / 400 ms
24		Slowly increasing	500-1200 Hz in 3.5 s, pausing 0.5 s
25		Pulse tone	2900 Hz / 150 ms on, 100 ms off
26		Continuous tone	660 Hz
27		Pulse tone	660 Hz / 1.8 s on/off
28		Pulse tone	660 Hz / 150 ms on/off
29		USA temporal pattern	610 Hz / 0.5 s on/off x 3 then pausing 1.5 s

Tone table			
Number	Sound pattern	Tone type	Frequency/modulation
30	— — — — —	USA temporal pattern	950 Hz / 0.5 s on/off x 3 then pausing 1.5 s
31		3 x HF/LF	1000/800 Hz (0.25 s on / alternating)
32		Thyssen Krupp tone	450/650 Hz at 2 Hz

### White flash

	Ceiling	Wall
High	C-3-9.8	W-2.4-5.1
Medium	C-3-8.1	W-2.4-4.0
Low	C-3-4.9	W-2.4-3.2

### Red flash

	Ceiling	Wall
High	C-3-5.0	W-2.4-2.8
Medium	C-3-4.6	W-2.4-2.3
Low	C-3-2.8	W-2.4-2.0

## Technical specifications

### Dimensions

Ø x H, with cover	145 x 78 mm
Ø x H, with detector	145 x 111 mm

### Electrics

Operating voltage	15 to 33 V
Current consumption	max. 865 µA

### Mechanics

Wire gauge	0.14 to 1.5 mm <sup>2</sup>
Housing material	Plastic, ABS
Housing color	Red, similar to RAL 3001 White, similar to RAL 9010
Weight (without detector, with cover)	473 g

### Environmental conditions

Operating temperature	-10 to +55 °C
Storage temperature	-30 to +75 °C
Protection category (EN 60529)	IP42

### Power source

Battery	1 x Lithium battery pack
Battery life cycle* (years)	10

\* The typical battery life cycle depends on application behavior, operating temperature and environmental conditions. Incorrect handling leads to deviations. For more information about the typical battery life cycle, contact the manufacturer. Only use the device with Bosch battery pack (FNX-425U-BAT). Battery state shown on fire panel.

### Features

Sound pressure level at 1 m distance	Max. 97 dB(A)
Frequency range	440 to 2900 Hz
Flash rate	0.5 or 1.0 Hz
Flash color	white or red

## Ordering information

**FNX-425U-WFWH Acoustic/visual alarm wh, wh** uninterruptible analog addressable combination of base sounder (EN 54-3) and visual alarm (EN 54-23) for indoor use, white housing, white flash. A battery pack is included in the delivery. For use without detector, order the cover separately.  
Order number **FNX-425U-WFWH**

**FNX-425U-BAT Battery for AVENAR all-in-one 4000** Battery pack for AVENAR all-in-one 4000, 30 battery packs per order unit.  
Order number **FNX-425U-BAT**

**FNX-425U-COVWH Cover white for AVENAR all-in-one 4000** white cover for AVENAR all-in-one 4000, 10 covers per order unit.  
Order number **FNX-425U-COVWH**

**FNX-425U-RFWH Acoustic/visual alarm rd, wh** uninterruptible analog addressable combination of base sounder (EN 54-3) and visual alarm (EN 54-23) for indoor use, white housing, red flash. A battery pack is included in the delivery. For use without detector, order the cover separately.  
Order number **FNX-425U-RFWH**

**FNX-425U-BAT Battery for AVENAR all-in-one 4000** Battery pack for AVENAR all-in-one 4000, 30 battery packs per order unit.  
Order number **FNX-425U-BAT**

**FNX-425U-COVWH Cover white for AVENAR all-in-one 4000**

white cover for AVENAR all-in-one 4000, 10 covers per order unit.

Order number **FNX-425U-COVWH**

**FNX-425U-WFRD Acoustic/visual alarm wh, rd**

uninterruptible analog addressable combination of base sounder (EN 54-3) and visual alarm (EN 54-23) for indoor use, red housing, white flash. A red cover and a battery pack are included in the delivery.

Order number **FNX-425U-WFRD**

**FNX-425U-BAT Battery for AVENAR all-in-one 4000**

Battery pack for AVENAR all-in-one 4000, 30 battery packs per order unit.

Order number **FNX-425U-BAT**

**FNX-425U-COVRD Cover red for AVENAR all-in-one 4000**

red cover for AVENAR all-in-one 4000, 10 covers per order unit.

Order number **FNX-425U-COVRD**

**FNX-425U-RFRD Acoustic/visual alarm rd, rd**

uninterruptible analog addressable combination of base sounder (EN 54-3) and visual alarm (EN 54-23) for indoor use, red housing, red flash. A red cover and a battery pack are included in the delivery.

Order number **FNX-425U-RFRD**

**FNX-425U-BAT Battery for AVENAR all-in-one 4000**

Battery pack for AVENAR all-in-one 4000, 30 battery packs per order unit.

Order number **FNX-425U-BAT**

**FNX-425U-COVRD Cover red for AVENAR all-in-one 4000**

red cover for AVENAR all-in-one 4000, 10 covers per order unit.

Order number **FNX-425U-COVRD**

**Accessories****FNX-425U-BAT Battery for AVENAR all-in-one 4000**

Battery pack for AVENAR all-in-one 4000, 30 battery packs per order unit.

Order number **FNX-425U-BAT**

**FNX-425U-COVWH Cover white for AVENAR all-in-one 4000**

white cover for AVENAR all-in-one 4000, 10 covers per order unit.

Order number **FNX-425U-COVWH**

**FNX-425U-COVRD Cover red for AVENAR all-in-one 4000**

red cover for AVENAR all-in-one 4000, 10 covers per order unit.

Order number **FNX-425U-COVRD**



# Video-based Fire Detection

7

Aviotec IP starlight 8000

346

# Aviotec IP starlight 8000

FCS-8000-VFD-B Video-based fire detection 347

## FCS-8000-VFD-B Video-based fire detection



### Features

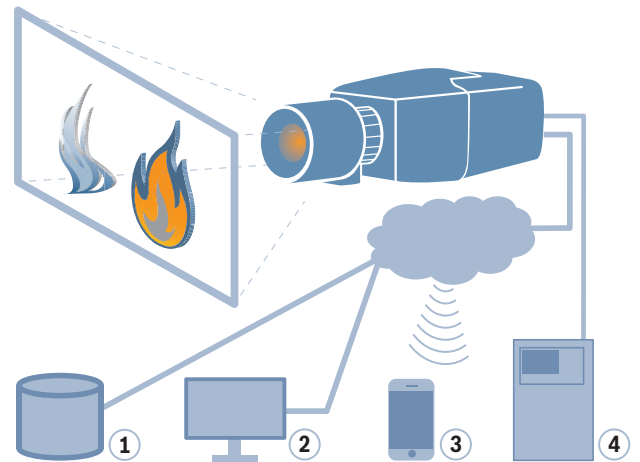
- ▶ Very fast fire and smoke detection
- ▶ Robust against false alarms
- ▶ Covers large monitoring area
- ▶ Outstanding performance under low-light conditions
- ▶ Resolution 1080p

AVIOTEC IP starlight 8000 sets new standards in visual fire detection by combining reliable smoke and flame detection with outstanding speed.

### System overview

The video-based fire detection is the system of choice when reliable video motion and fire detection is needed, e.g. applications which are not subjected to construction product regulation or a supplementation to existing fire detection systems. AVIOTEC IP starlight 8000 operates as stand-alone unit and doesn't need a separate evaluation unit. Furthermore, it contains all features of the Intelligent Video Analytics which allows analyzing and evaluating moving objects in parallel. Video-based fire detection and Intelligent Video Analytics operate independently from each other and are separately adjustable.

A 10/100 Base-T Fast Ethernet port on the back part of the device is available to connect the camera to Ethernet. This allows easy configuration and monitoring through network devices such as Client PCs or mobile devices. A video recording management system may be integrated optionally. Furthermore, there is a relay output to transmit alarm signals, e.g. to the AVENAR panel. In this case the camera acts as supervisory signal-initiating device. Alarms have to be verified by an operator in a monitoring center owing to non-existing standards. Automatic alarm-forwarding to fire services is not provided.



Pos.	Description
1	Video Recording Manager (VRM)
2	Client PC
3	Mobile Device
4	AVENAR panel

### Functions

#### Fast and reliable flame and smoke detection

A unique Bosch algorithm based on physical characteristics of fires detects flames and smoke within an incredibly short time span by analyzing video sequences. The video-based fire detection works under remarkable low-light performance (down to 2 lx) and detects test fires TF1 to TF8. In case of flame or smoke detection the video broadcast has the advantage to verify the alarm, speed up the rescue chain and give insights to rescue teams.

#### Monitoring large areas

Insensitive to dust and humidity thanks to the optical principle, it is possible to monitor large indoor areas that push conventional systems to their limits. AVIOTEC IP starlight 8000 is the innovative solution for:

- Industry
- Transportation
- Energy & Utilities
- Warehouses

#### Large application range

The video-based fire detection is suitable for a range of challenging applications in harsh environments with a high fire hazard like paper mills. Highly versatile in application, AVIOTEC IP starlight 8000 offers the possibility to complement existing systems or to tap into new application fields.

#### Individually adjustable and adaptable

Verification time, sensitivity, detection size and selective masking for smoke and flame are individually configurable to adjust them to the customer needs. Flame and smoke detection can be activated or deactivated separately.

### Root cause analysis

Connecting the camera to a video management system offers the possibility to find out the cause of fires. Based on video recordings, incidents can carefully be established and evaluated. This helps eliminating and preventing hazardous situations in the future.

### Easy installation

Power for the camera can be supplied via a Power-over-Ethernet compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source. The camera can also be supplied with power from +12 VDC power supplies. To increase system reliability, the camera can be simultaneously connected to both PoE and +12 VDC supplies. Additionally, uninterruptible power supplies (UPS) can be used to ensure continuous operation, even during a power failure. For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables.

### Regulatory information

Standards	Type
Emission	EN 55022 Class B (2010), +AC (2011) FCC: 47 CFR 15, class B (2012-10-1)
Immunity	EN 50130-4 (PoE, +12 VDC)* (2011) EN 50121-4 (2006), +AC: (2008)
Alarm	EN 50130-5 Class II (2011)
Safety	EN 60950-1 UL 60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with 500 g (1.1 lb) lens as per IEC 60068-2-6 (5 m/s <sup>2</sup> , operational)
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709
ONVIF conformance	EN 50132-5-2; IEC 62676-2-3

\* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

VdS certification only valid with the supplied lens.

Region	Regulatory compliance/quality marks	
Europe	CE	FCS-8000-VFD-B
Germany	VdS	G 217090 AVIOTEC IP starlight 8000

Region	Regulatory compliance/quality marks	
USA	FCC	FCS-8000-VFD-B
Australia	CSIRO	afp-3323 AVIOTEC IP starlight 8000

### Installation/configuration notes

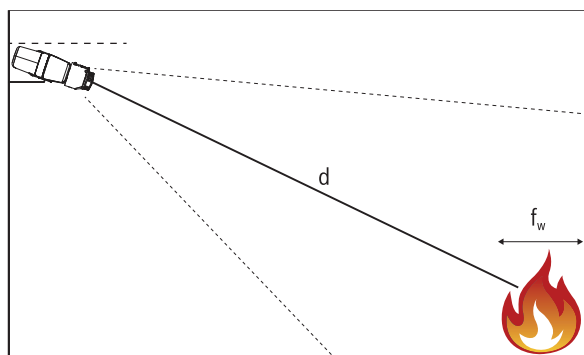
#### Disclaimer

**IMPORTANT:** Video fire indication systems are video content analysis systems. They give indications for possible fires and are designed to supplement fire detection systems and human guards in monitoring centers in order to recognize possible dangerous situations. Video fire indication systems are confronted with a higher amount of challenges considering scenery and background compared to conventional fire detection systems. They cannot ensure that fire will be detected reliably in all scenery settings. Thus, the video fire detection system shall be seen as a support system that enhances the probability of early fire detection, with the restriction that it shall not be seen as a system that ensures fire detection in all possible image scenarios and it might detect false alarms. Conventional fire alarm systems must in no way be replaced by video-based fire alarm systems.

In addition, and for the U.S. market only, Bosch Security Systems makes no representation that the video fire indication system will prevent any personal injury or property loss by fire or otherwise; or that such product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained fire indication system may only reduce the risk of a fire or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result.

**Consequently, Bosch Security Systems shall have no liability for any personal injury, property damage or other loss based on a claim the product failed to give warning.**

The camera must be mounted according to the following graphic:



d	Distance to fire
f <sub>w</sub>	Flame width

The maximum distance to fire depends on f<sub>w</sub> and the lens settings.

The tables below demonstrate exemplarily the maximum distances to a fire depending on fire size and opening angle of the camera lens:

**Maximum distance to fire in m (Flame detection)**

LVF-5005C-S4109 (standard lens)			
			Opening angle [°]
	100	60	45
Fire width [m]			
0.3	18.2	27.6	36
0.5	30.4	46.1	60
1	60.9	92.2	120
2	121.9	184.4	240.1

LVF-8008C-P0413			
			Opening angle [°]
	100	60	33
Fire width [m]			
0.3	18.4	27.6	48.4
0.5	30.7	46	80.7
1	61.5	92.1	161.4
2	123.1	184.3	322.8

LVF-5005N-S1250			
			Opening angle [°]
	33	20	8.5
Fire width [m]			
0.3	48.5	79.1	185.1
0.5	80.9	131.8	308.5
1	161.8	263.7	617
2	323.6	527.5	1234.1

**Maximum distance to fire in m (Smoke detection)**

LVF-5005C-S4109 (standard lens)			
			Opening angle [°]
	100	60	45
Smoke width [m]			
0.3	12.5	19.3	25.2
0.5	21.3	32.2	42
1	42.6	64.5	84
2	85.3	129	168.1

LVF-8008C-P0413			
			Opening angle [°]
	100	60	33
Smoke width [m]			

LVF-8008C-P0413			
0.3	12.9	19.3	33.8
0.5	21.5	32.2	56.4
1	43.1	64.5	112.9
2	86.2	129	225.9

LVF-5005N-S1250			
			Opening angle [°]
	33	20	8.5
Smoke width [m]			
0.3	33.9	55.3	129.5
0.5	56.6	92.3	215.9
1	113.2	184.6	431.9
2	226.5	369.2	863.9

**Parts included**

Quantity	Component
1	AVIOTEC IP starlight 8000
1	Varifocal SR Megapixel Lens (LVF-5005C-S4109   F.01U.297.770)
1	TC9208 bracket (TC9208   F.01U.143.919)

**Technical specifications**

Algorithm Overview	
Min. detection size for Smoke, standard setting (% of picture width)	1.6
Smoke speed (% of picture height /s)	0.7 - 16
Min. Smoke density (%)	40
Min. detection size for Flame, standard setting (% of picture width)	1.1
Min. illumination level (lx)	2
Min. illumination level with IR illumination (lx)	0

Audio streaming	
Standard	G.711, 8 kHz sampling rate L16, 16 kHz sampling rate AAC-LC, 48 kbps at 16 kHz sampling rate AAC-LC, 80 kbps at 16 kHz sampling rate
Signal-to-Noise Ratio	>50 dB
Audio Streaming	Full-duplex / half duplex
Environmental	
Operating Temperature	-20°C to +50°C (-4°F to 122°F)
Storage Temperature	-30°C to +70°C (-22°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH
Input/output	
Analog video out	SMB connector, CVBS (PAL/NTSC), 1 Vpp, 75 Ohm
Audio line in	1 Vrms max, 18 kOhm typical,
Audio line out	0.85 Vrms at 1.5 kOhm typical,
Audio connectors	3.5 mm mono jack
Alarm input	2 inputs
Alarm input activation	+5 VDC nominal; +40 VDC max. (DC-coupled with 50 kOhm pull-up resistor to +3.3 VDC) (< 0.5 V is low; > 1.4 V is high)
Alarm output	1 output
Alarm output voltage	30 VAC or +40 VDC max. Maximum 0.5 A continuous, 10VA (resistive load only)
Ethernet	RJ45
Data port	RS-232/422/485
Local storage	
Internal RAM	10 s pre-alarm recording
Memory card slot	Supports up to 32 GB microSDHC / 2 TB microSDXC card. (An SD card of Class 6 or higher is recommended for HD recording)
Recording	Continuous recording, ring recording, alarm/events/schedule recording

Mechanical	
Dimensions (W x H x L)	78 x 66 x 140 mm (3.07 x 2.6 x 5.52 inch) without lens
Weight	855 g (1.88 lb) without lens
Color	RAL 9006 Metallic Titanium
Tripod Mount	Bottom and top 1/4-inch 20 UNC
Sustainability	PVC free
Network	
Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP (V1, V3, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), Diff-Serv (QoS), LLDP, SOAP, Dropbox™, CHAP, digest authentication
Encryption	TLS1.0/1.2, AES128, AES256
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; ONVIF Profile G
Optical	
Lens mount	CS mount (C-mount with adapter ring)
Lens connector	Standard 4-pin DC-iris connector / P-iris* connector
Focus control	Motorized back-focus adjustment
Iris control	DC-iris and P-iris* control
Power	
Power Supply	12 VDC; Power-over-Ethernet 48 VDC nominal
Current Consumption	750 mA (12 VDC); 200 mA (PoE 48 VDC)
Power Consumption	9 W
PoE	IEEE 802.3af (802.3at Type 1) Class 3
Sensor	
Type	1/1.8" CMOS
Total sensor pixels	6.1 MP

Software	
Unit Configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewer	Web browser, Bosch Video Client, or third party software

Video resolution	
1080p HD	1920 X 1080
720p HD	1280 x 720
Upright 9:16 (cropped)	400 x 720
D1 4:3 (cropped)	704 x 480
480p SD	Encoding: 704 x 480; Displayed: 854 x 480
432p SD	768 x 432
288p SD	512 x 288
240p SD	Encoding: 352 x 240; Displayed: 432 x 240
144p SD	256 x 144

Video streaming	
Video compression	H.264 (MP); M-JPEG
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
Overall IP Delay	Min. 120 ms, Max. 340 ms
GOP structure	IP, IBP, IBBP
Encoding interval	1 to 30 [25] fps
Encoder regions	Up to 8 areas with encoder quality settings per area

LVF-5005C-S4109	
Maximum sensor format	1/1.8-inch
Optical resolution	5 Megapixels
Focal length	4.1 - 9 mm
Iris range	F1.6 to F8
Min object distance	0.3 m (1 ft)
Back focus distance (values in air)	12.72 mm (wide), 19.94 mm (tele)

LVF-5005C-S4109	
Weight	130 g (0.29 lb)
Dimensions	Ø 62.9 mm (excluding focus and zoom knobs) x 66.6 mm (excluding flange)
Lens mount	CS
Angle of view (HxV) 1/1.8-inch sensor 16:9	101 x 56° Wide 46 x 26° Tele
Iris control	4-pin, DC control
Focus ctrl	manual
Zoom ctrl	manual
IR corrected	yes
Environmental	
- Operating Temperature	-10°C to+50°C (+14°F to +122°F)
- Storage Temperature	-40°C to +70°C (-40°F to + 158°F)
- Operating Humidity	Up to 93% non-condensing
- Certification	CE

LVF-5005N-S1250	
Maximum sensor format	1/1.8-inch
Optical resolution	5 Megapixels
Focal length	12 - 50 mm
Iris range	F1.8 to T360
Min object distance	0.8 m (2.63 ft)
Back focus distance (values in air)	10.19 mm (wide), 10.12 mm (tele) values in air
Weight	175 g (0.386 lb)
Dimensions	Ø 52.4 mm x 89.3 mm
Lens mount	C
Angle of view (HxV) 4:3	33 x 25° Wide 8 x 6° Tele
Angle of view (HxV) 1/3-inch sensor 16:9	24 x 14° Wide 6 x 3° Tele

LVF-5005N-S1250	
<b>Angle of view (HxV)</b> <b>1/2.7-inch sensor</b> <b>16:9</b>	27 x 16° Wide; 6.7 x 3.8° Tele
<b>Angle of view (HxV)</b> <b>1/1.8-inch sensor</b> <b>16:9</b>	33 x 19° Wide; 8.3 x 4.7° Tele
<b>Iris control</b>	4-pin, DC control
<b>Focus ctrl</b>	manual
<b>Zoom ctrl</b>	manual
<b>IR corrected</b>	yes
<b>Environmental</b>	
- Operating Temperature	-10°C to +50°C (+14°F to +122°F)
- Storage Temperature	-20°C to +60°C (-4°F to + 140°F)
- Operating Humidity	35% to 90% non-condensing
- Certification	CE

**LVF-8008C-P0413**

<b>Environmental</b>	
Operating Temperature	-10°C to +50°C (+14°F to +122°F)
Storage Temperature	-40°C to +60°C (-40°F to + 140°F)
Operating Humidity	Up to 90% non-condensing

**Angle of view with DINION IP starlight 8000 MP (HxV)**

16:9 mode	Wide: 105x57°; Tele: 33x18.5°
4:3 mode	Wide: 94x70°; Tele: 30x22°

**Mechanical**

Weight	172 g (0.38 lb)
Dimensions	Ø 65 x 93 mm
Lens mount	CS-mount

**Optical**

Maximum sensor format	1/1.8-inch
Focal range	4 – 13 mm
Iris range	F1.5 to close
Min. object distance	0.3 m (1 ft)

<b>Optical</b>	
Back focus distance	15.24 mm (in air)
Iris control	P-iris stepping motor (120 steps)
Focus control	Rotational ring and locking screw
Zoom control	Rotational ring and locking screw
IR corrected	Yes

**Ordering information****FCS-8000-VFD-B Video-based fire detection**

Fast and secure identification of smoke and flames by video-based fire detection.

Order number **FCS-8000-VFD-B**

**Accessories****UHI-OG-0 Indoor camera housing**

Indoor camera housing

Order number **UHI-OG-0**

**UHI-OGS-0 Indoor housing with sunshield**

Indoor camera housing with sunshield.

Order number **UHI-OGS-0**

**UHO-POE-10 Outdoor housing, POE + power supply**

Outdoor camera housing with PoE+ power supply.

Order number **UHO-POE-10**

**UHO-HBGS-11 Outdoor housing, 24VAC, feed-through**

Outdoor housing for (24 VAC / 12 VDC) camera with 24 VAC power supply, blower and feed-through cabling.

Order number **UHO-HBGS-11**

**UHO-HBGS-51 Outdoor housing, blower, 230VAC/35W**

Outdoor housing for (230 VAC / 12 VDC) camera with 230 VAC power supply, blower and feed-through cabling.

Order number **UHO-HBGS-51**

**UHO-HBGS-61 Outdoor housing, blower, 120VAC/35W**

Outdoor housing for (120 VAC / 12 VDC) camera. 120 VAC power supply; blower; feed-through cabling

Order number **UHO-HBGS-61**

**HAC-TAMP01 Tamper switch kit for UHI/UHO Series**

Tamper switch kit for HSG and UHI/UHO series enclosures

Order number **HAC-TAMP01**

**LTC 9215/00 Wall mount with cable feed through, 12"**

Wall mount for camera housing, cable feed-through, 30 cm (12 in); for outdoor use.

Order number **LTC 9215/00**

**LTC 9215/00S Wall mount for UHI/UHO**

Wall mount for camera housing, cable feed-through, 18 cm (7 in); for indoor use.

Order number **LTC 9215/00S**

**LTC 9219/01 Feed through J mount**

J-mount for camera housing, 40 cm (15 in); for indoor use.

Order number **LTC 9219/01**

**LVF-5005N-S1250 Varifocal lens, 12-50mm, 5MP, C mount**

Varifocal megapixel IR corrected lens with 1/1.8" sensor max and C-mount

Order number **LVF-5005N-S1250**

**LVF-8008C-P0413 Varifocal lens, 4-13mm, 12MP, CS mount**

Varifocal megapixel lens; P-iris; CS-mount; 1/1.8" ; F1.5; 4-13mm

Order number **LVF-8008C-P0413**

**IIR-50850-SR Illuminator, 850nm, short range**

Short range IR illuminator

850 nm

Order number **IIR-50850-SR**

**IIR-50940-SR Illuminator, 940nm, short range**

Short range IR illuminator

940 nm

Order number **IIR-50940-SR**

**IIR-50850-MR Illuminator, 850nm, medium range**

Medium range IR illuminator

850 nm

Order number **IIR-50850-MR**

**IIR-50940-MR Illuminator, 940nm, medium range**

Medium range IR illuminator

940 nm

Order number **IIR-50940-MR**

**IIR-50850-LR Illuminator, 850nm, long range**

Long range IR illuminator

850 nm

Order number **IIR-50850-LR**

**IIR-50940-LR Illuminator, 940nm, long range**

Long range IR illuminator

940 nm

Order number **IIR-50940-LR**

**IIR-50850-XR Illuminator, 850nm, extra range**

Extra long range IR illuminator

850 nm

Order number **IIR-50850-XR**

**IIR-50940-XR Illuminator, 940nm, extra range**

Extra long range IR illuminator

940 nm

Order number **IIR-50940-XR**

**NIR-50850-MRP Illuminator, 850nm, medium range, PoE+**

Medium range IR illuminator powered by PoE+

850 nm

Order number **NIR-50850-MRP**

**NIR-50940-MRP Illuminator, 940nm, medium range, PoE+**

Medium range IR illuminator powered by PoE+

940 nm

Order number **NIR-50940-MRP**

**Services****EWE-AVIOTEC-IW 12 mths wrty ext Aviotec starlight 8000**

12 months warranty extension

Order number **EWE-AVIOTEC-IW**



# Accessories

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<b>Test Devices</b>	<b>356</b>
<b>Service Devices</b>	<b>366</b>
<b>LED Annunciator</b>	<b>373</b>
<b>Detector Bases</b>	<b>378</b>
<b>Power Supply</b>	<b>385</b>

# Test Devices

<b>FME-TEST-CO Test gas for detector with CO sensor</b>	<b>357</b>
<b>SOLO461 Heat detector test kit</b>	<b>358</b>
<b>SOLO330 Aerosol dispenser</b>	<b>360</b>
<b>SOLO100 Telescopic access pole</b>	<b>361</b>
<b>SOLO770 Spare battery baton</b>	<b>362</b>
<b>FME-420-LSN-TTL Test tool for LSN field bus</b>	<b>363</b>
<b>FME-SOLO-A10S Smoke testing aerosol, 250ml</b>	<b>365</b>

## FME-TEST-CO Test gas for detector with CO sensor



### Features

- ▶ Gas aerosol

- ▶ Non-flammable
- ▶ Silicone free

Spray with CO testing gas for multisensor detectors with C component.

Contents: approx. 250 ml compressed gas

### Parts included

Quantity	Component
1	Aerosol can

### Technical specifications

Contents per can	250 ml
Gross weight per can	71 g

### Ordering information

**FME-TEST-CO Test gas for detector with CO sensor**  
for multisensor detectors with C-sensor  
Order number **FME-TEST-CO**

## SOLO461 Heat detector test kit



- 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.

### **i** Notice

The SOLO727 charger can only be used with the SOLO770 battery baton. Older chargers (e.g. SOLO726) cannot be used with the SOLO770 battery baton. Older battery batons (e.g. SOLO760) cannot be used with the SOLO727 charger.

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### 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

The SOLO461 Heat detector test kit 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:

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	SOLO461
USA	UL	URRQ.S4994, URRQ.S7201 SOLO461

### Parts included

Quantity	Component
1	SOLO460 Heat detector tester
2	SOLO770 Battery baton
1	SOLO727 Charger 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, 0.6 A
• Direct voltage	13.8 V DC, 2.3 A

#### 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 (41 °F to 113 °F)
Storage temperature	-10 °C to 50 °C (14 °F to 120 °F)
Permissible relative humidity	90% (non-condensing)

**Trademarks**

CAT™ and SOLO™ are trademarks of No Climb Products, Ltd.

**Ordering information****SOLO461 Heat detector test kit**

Heat detector tester supplied with one SOLO727 charger and two SOLO 770 battery batons

Order number **SOLO461**

**Accessories****SOLO610 Carrying bag**

Robust bag made of sturdy woven polyester for carrying and storing test and service products.

Order number **SOLO610**

**SOLO100 Telescopic access pole**

Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed extension poles. In the Americas, the product is labelled SOLO100. Elsewhere, the product is labelled SOLO106-126.

Order number **SOLO100**

**SOLO101 Extension pole**

Enables the installation and replacement of fire detectors on ceilings. Expandable with other fixed extension poles. A SOLO101 is supplied in America, while a SOLO107 is supplied elsewhere.

Order number **SOLO101**

**SOLO770 Spare battery baton**

Rechargeable battery baton for SOLO460 heat detector tester

Order number **SOLO770**

## SOLO330 Aerosol dispenser



### Features

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- ▶ 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.



#### Notice

##### Testing requires smoke aerosol!

Use FME-SOLOGAS-A10 in the Americas. Use FME-TEST-SMOKE2 everywhere else.

### Regulatory information

Region	Regulatory compliance/quality marks	
USA	UL	URRQ.S24293 SOLO330
Canada	ULC	URRQ7.S7201 SOLO330

### Parts included

Quantity	Component
1	SOLO330 Smoke Detector Tester
1	Literature pack

### Technical specifications

#### Mechanical

Detector size range <sup>1</sup> (Ø)	99 mm (3.9 in)
Weight	567 g (1 lb 4 oz)
Working angle	0° to 90°

<sup>1</sup>Only the sensing chamber needs to be sealed within the tester cup.

#### Trademarks

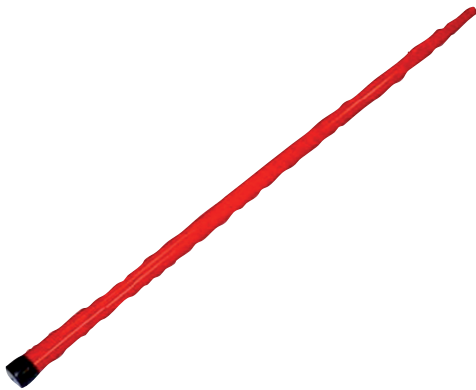
SOLO™ is a trademark of detector**testers** (testing technology from No Climb)

### Ordering information

#### SOLO330 Aerosol dispenser

Tests smoke detectors in place using an aerosol.  
Order number **SOLO330**

## SOLO100 Telescopic access pole



### Features

- ▶ Non-conductive at voltage of 20 kV
- ▶ Simple locking mechanism
- ▶ High strength to weight ratio
- ▶ Minimum whip or bend at height
- ▶ 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. It complies with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

### Parts included

Quantity	Component
1	SOLO100 Telescopic Access Pole
1	User Guide (vendor supplied)

### Technical specifications

#### Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

#### Mechanical

Color	Red
<b>Length*</b>	
Purchased in the Americas	1.26 m to 4.5 m (4.1 ft. to 14.8 ft.)
Purchased elsewhere	1 m to 3.4 m (3.3 ft. to 11.2 ft.)
Material	Pull-wound glass fiber

\* The length and labelling of the product varies with the region in which it is purchased. In the Americas, the product is labelled SOLO100. Elsewhere, the product is labelled SOLO106-126.

#### Trademarks

All hardware/software product names used in this document are likely to be registered trademarks and must be treated accordingly.

### Ordering information

#### SOLO100 Telescopic access pole

Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed extension poles. In the Americas, the product is labelled SOLO100. Elsewhere, the product is labelled SOLO106-126.

Order number **SOLO100**

#### Accessories

#### SOLO101 Extension pole

Enables the installation and replacement of fire detectors on ceilings. Expandable with other fixed extension poles. A SOLO101 is supplied in America, while a SOLO107 is supplied elsewhere.

Order number **SOLO101**

## SOLO770 Spare battery baton



8

### Features

- ▶ No need for power cables
- ▶ Improved 3.0Ah model
- ▶ Rechargeable

The replacement battery baton provides power to the SOLO461 cordless detector tester, allowing the head unit to operate without the need for cabling. Ideal for keeping as a spare or to replace an existing unit. Can be charged with the SOLO727 charger. Not compatible with the SOLO726 charger.

### Parts included

Quantity	Component
1	SOLO770 Battery baton
1	Literature pack

### Technical specifications

#### Electrical

Battery	NiMH
Capacity	3000 mAh / 7.2 V

#### Mechanical

Weight	500 g
Dimension (Ø x H)	28 mm x 490 mm

#### Environmental

Operating temperature	5 °C to 45 °C (41 °F to 113 °F)
Storage temperature	-10 °C to 50 °C (14 °F to 120 °F)
Permissible relative humidity	0-90% (non-condensing)

#### Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

### Ordering information

#### SOLO770 Spare battery baton

Rechargeable battery baton for SOLO460 heat detector tester

Order number **SOLO770**

## FME-420-LSN-TTL Test tool for LSN field bus



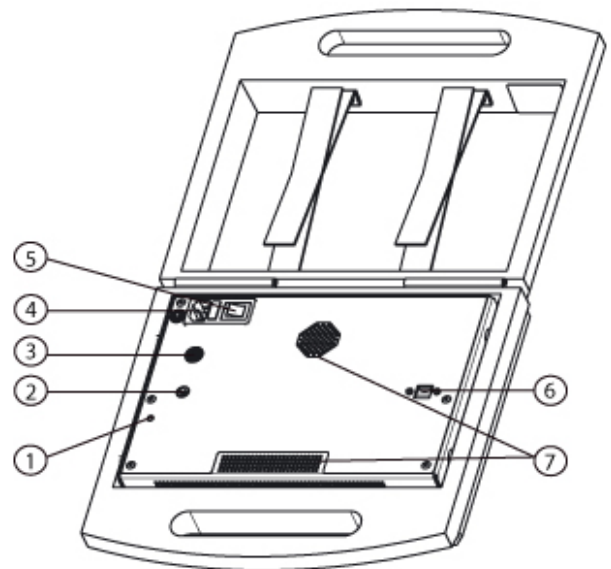
### Features

- ▶ Differentiated fault detection and localization on the LSN and LSN improved field bus
- ▶ Professional installation check for handover including documentation
- ▶ Basic functionality testing of peripherals (for sounders and beacons)

The Test Tool tests whether the field bus (LSN and LSN improved) and peripheral elements connected to the bus are set up and functioning correctly. LSN and peripheral elements in a loop, stub, or T-tap and faults in the wiring or in elements are identified and indicated. LSN field buses belonging to the following panels can be tested using the test device:

- FPA-5000 Modular Fire Panel
- FPA-1200 Fire Panel
- BZ 500 Fire Panel
- UEZ 2000 Hold-Up and Security System
- UEZ 1000 Fire, Hold-Up, and Security System
- NZ 300 Hold-Up and Security System
- MAP 5000 Hold-Up and Security System
- UGM-2020 Universal Security System

### System overview



- 1 Operating lights
- 2 Battery connection (max. 24 V)
- 3 LSN connection
- 4 Power supply (max. 230 V)
- 5 On/off switch
- 6 USB port
- 7 Ventilation

### Functions

The Test Tool has two main functions. First, the autodection detects all elements connected to the field bus and displays their properties. Second, the resistance measurements detects divergencies in line and contact resistances.

Note that the resistance measurements are restricted to loop topologies. Stubs cannot be measured.

#### Detected faults

- Short circuits
- Creeping shorts
- Interruptions
- Creeping interruptions
- Ground faults
- Defective and faulty elements
- Duplicate rotary switch addresses
- Incorrect LSN mode setting

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FME-420-LSN-TTL

### Parts included

Quantity	Component
1	LSN improved test device
1	Power cable with mains plug
1	USB interface cable
1	LSN adapter
5	LSN connection cables with plug-in terminals and alligator clips
1	Grounding cable
1	CD with software and driver

### Technical specifications

Voltage range	110 to 230 V AC (50 to 60 Hz)
Operating temperature	0 to +45 °C (+32 to +113 °F)

Storage temperature	-25 to +80 °C (-13 to +176 °F)
Protection category	IP30
Weight	Approx. 5.5 kg (12 lbs)

### Ordering information

#### **FME-420-LSN-TTL Test tool for LSN field bus**

For testing the LSN field bus and connected peripherals  
Order number **FME-420-LSN-TTL**

## FME-SOLO-A10S Smoke testing aerosol, 250ml



### Features

- ▶ Simple to use
- ▶ HFC and silicone free to protect the environment and the detector
- ▶ Non-flammable with no lasting residue

- ▶ Best used in combination with SOLO330

When used, the smoke aerosol for testing optical smoke detectors accomplishes a functional test. It introduces simulated smoke from the protected area through the vents of a detector to the sensor(s). This product needs to be inserted in SOLO330 to have the optimal test condition.

### Parts included

Quantity	Component
12	Cans each containing 250 ml of the testing aerosol
1	Literature - User guide

### Technical specifications

The product is sold in (carton) boxes containing 12 cans. Each can contains 250 ml of the testing aerosol. The mechanical specifications are for a box of 12 cans. SOLO™ is a trademark of No Climb Products, Ltd.

### Ordering information

**FME-SOLO-A10S Smoke testing aerosol, 250ml**  
Smoke aerosol for testing optical smoke detectors. Minimum order quantity is 12 cans delivered in one (carton) box.  
Order number **FME-SOLO-A10S**

# Service Devices

<b>SOLO200 Universal detector removal tool</b>	<b>367</b>
<b>FME-420-ADAP Tool adapter for MS420 base</b>	<b>368</b>
<b>SOLO100 Telescopic access pole</b>	<b>369</b>
<b>SOLO101 Extension pole</b>	<b>370</b>
<b>SOLO610 Carrying bag</b>	<b>371</b>
<b>FDUD291 Detector exchanger</b>	<b>372</b>

## SOLO200 Universal 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



#### Notice

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 Universal detector removal tool

Use to remove and replace detectors  
Order number **SOLO200**

#### Accessories

##### RTL-CAP Protective cap

Order number **RTL-CAP**

## FME-420-ADAP Tool adapter for MS420 base



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).



### Notice

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.

### Parts included

### Technical specifications

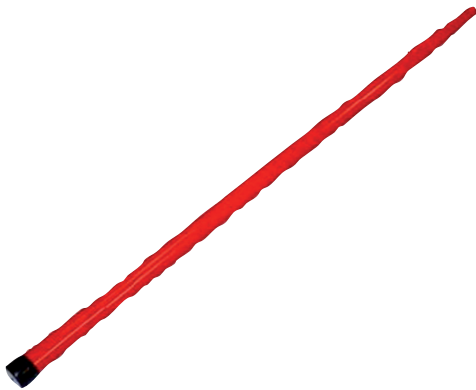
### Ordering information

#### **FME-420-ADAP Tool adapter for MS420 base**

optimize the insertion and removal of fire detectors

Order number **FME-420-ADAP**

## SOLO100 Telescopic access pole



### Features

- ▶ Non-conductive at voltage of 20 kV
- ▶ Simple locking mechanism
- ▶ High strength to weight ratio
- ▶ Minimum whip or bend at height
- ▶ 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. It complies with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

### Parts included

Quantity	Component
1	SOLO100 Telescopic Access Pole
1	User Guide (vendor supplied)

### Technical specifications

#### Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

#### Mechanical

Color	Red
<b>Length*</b>	
Purchased in the Americas	1.26 m to 4.5 m (4.1 ft. to 14.8 ft.)
Purchased elsewhere	1 m to 3.4 m (3.3 ft. to 11.2 ft.)
Material	Pull-wound glass fiber

\* The length and labelling of the product varies with the region in which it is purchased. In the Americas, the product is labelled SOLO100. Elsewhere, the product is labelled SOLO106-126.

#### Trademarks

All hardware/software product names used in this document are likely to be registered trademarks and must be treated accordingly.

### Ordering information

#### SOLO100 Telescopic access pole

Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed extension poles. In the Americas, the product is labelled SOLO100. Elsewhere, the product is labelled SOLO106-126.

Order number **SOLO100**

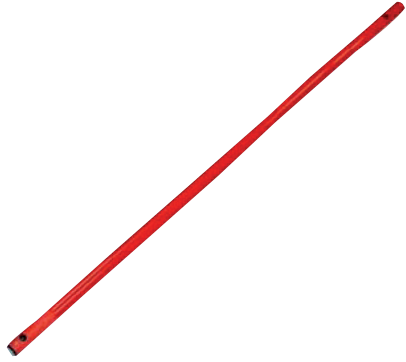
#### Accessories

#### SOLO101 Extension pole

Enables the installation and replacement of fire detectors on ceilings. Expandable with other fixed extension poles. A SOLO101 is supplied in America, while a SOLO107 is supplied elsewhere.

Order number **SOLO101**

## SOLO101 Extension pole



### Features

- ▶ Non-conductive at voltage of 20 kV
- ▶ Expandable with other fixed extension poles
- ▶ Extension for the SOLO100 Telescopic access pole

The SOLO101 Fixed extension pole enables the installation and replacement of fire detectors on ceilings. Use it individually or with up to three other fixed extension poles. Also use with the SOLO100 Telescopic access pole.

The fixed extension pole withstands high voltage situations. The pole complies with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

### Parts included

Quantity	Component
1	SOLO101 Fixed Extension Pole
1	User Guide (vendor supplied)

### Technical specifications

#### Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

#### Mechanical

Color	Red
<b>Length*</b> Purchased in the Americas Purchased elsewhere	1.13 m (3.7 ft.) 1 m (3.3 ft.)
Material	Pull-wound glass fiber

\* The length and labelling of the product varies with the region in which it is purchased. In the Americas, the product is labelled SOLO101. Elsewhere, the product is labelled SOLO107-126.

#### Trademarks

All hardware/software product names used in this document are likely to be registered trademarks and must be treated accordingly.

### Ordering information

#### SOLO101 Extension pole

Enables the installation and replacement of fire detectors on ceilings. Expandable with other fixed extension poles. A SOLO101 is supplied in America, while a SOLO107 is supplied elsewhere.

Order number **SOLO101**

## SOLO610 Carrying bag



### Features

- ▶ Made of sturdy woven polyester with a PVC coating

- ▶ Designed with special compartments to hold a full range of products
- ▶ Useful for carrying and storing test and service products

### Regulatory information

#### Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

### Parts included

Quantity	Component
1	SOLO610 Test Equipment Bag

### Technical specifications

#### Mechanical

Material	Woven polyester with a PVC coating
----------	------------------------------------

### Ordering information

#### SOLO610 Carrying bag

Robust bag made of sturdy woven polyester for carrying and storing test and service products.

Order number **SOLO610**

## FDUD291 Detector exchanger



- ▶ Detector exchange without a ladder or scaffolding thanks to telescope rods (room height of up to 5.5 m)
- ▶ Universal joint ensures tool remains parallel with ceiling, 4 rotational positions

### Parts included

Quantity	Component
1	FDUD291 Detector Exchanger

### Technical specifications

#### Mechanics

Weight (g)	594
------------	-----

### Ordering information

#### FDUD291 Detector exchanger

for insertion and removal of detector OOH740-A9-Ex. A universal joint enables detector removal and replacement even if the detector cannot be accessed from directly underneath. The exchanger can only be used for detectors without sealing element FDBZ295.

Delivery unit is 1.

Order number **FDUD291**

8

### Features

- ▶ Efficient insertion and removal of OOH740-A9-Ex detectors

# LED Annunciator

<b>BAT 100 LSN Display panel</b>	<b>374</b>
<b>ATB 420 LSNI Display module</b>	<b>376</b>
<b>ATG 420 LSNI Display module for BAT100 LSN</b>	<b>377</b>

## BAT 100 LSN Display panel

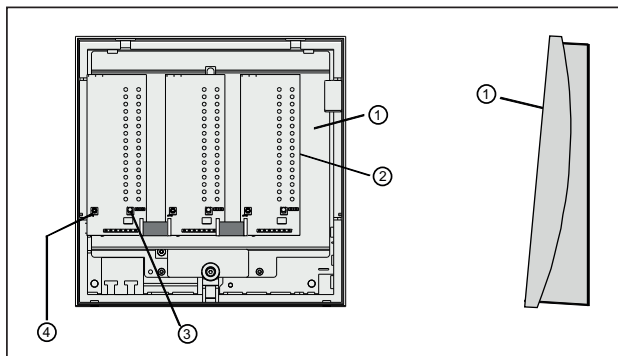


### Features

- ▶ Upgradeable with up to three ATG 420 LSNi kits
- ▶ 32, 64 or 96 multicolor 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 420 LSNi kits can be installed in the BAT 100 LSN housing. An ATG 420 LSNi 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 420 LSNi 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 420 LSNi kits have integrated isolators for maintaining the function of the elements on the LSN loop in the event of wire interruptions or short-circuits.

### Regulatory information

ATG 420 LSNi and ATB 420 LSNi complied

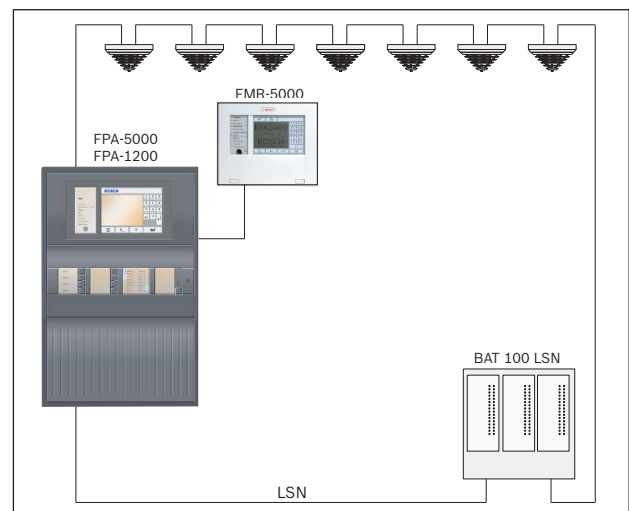
- EN54-17:2005
- EN54-18:2005

Region	Regulatory compliance/quality marks	
Europe	CPR	0786-CPR-21484 BAT 100 LSN
	CE	BAT 100 LSN
Germany	VdS	G 216008 BAT 100 LSN

### Installation/configuration notes

- BAT 100 LSN Display Panels can be incorporated at any point on LSN loops or LSN stubs.

### Planning example



### Parts included

Quantity	Component
1	BAT 100 LSN Display Panel
1	ATG 420 LSNi Display Module

**Technical specifications****Electrics****ATG 420 LSNi module**

Operating voltage	
• LSN part	+15 V DC to +33 V DC
• other functions	+8 V DC to +30 V DC
Current consumption	
• LSN part	3 mA
• other functions	- all 32 LEDs off: max. 10 mA@ 24 V DC or max. 15 mA@ 8 V DC - all 32 LEDs on: max. 25 mA@ 24 V DC or max. 60 mA@ 8 V DC

**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

**Environmental conditions**

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

**Special features**

LED flash frequency	1.25 Hz
LED colors	Multicolor

**Ordering information****BAT 100 LSN Display panel**

Universally-usable remote parallel display with up to 96 LEDs

Order number **BAT 100 LSN**

**Accessories****BAT100-LABELS Labeling strips, 10pcs**

PU = 10 units

Order number **BAT100-LABELS**

**ATG 420 LSNi Display module for BAT100 LSN**

Display Module with 32 LEDs

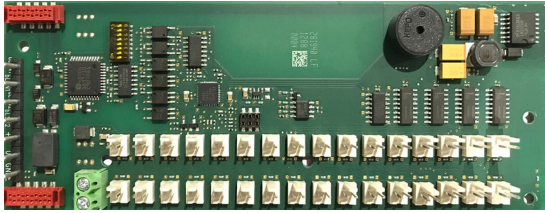
Order number **ATG 420 LSNi**

**Services****EWE-FPA5MPC-IW 12 mths wrty ext FPA-5000 Main Panel Con**

12 months warranty extension

Order number **EWE-FPA5MPC-IW**

## ATB 420 LSNI Display module



### Features

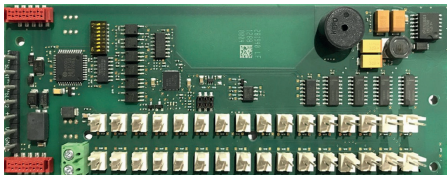
- ▶ 32 outputs with flashing capability
- ▶ Onboard alarm buzzer
- ▶ Contact for output test

### Functions

The ATB 420 LSNI may be used to drive LEDs or other low current consuming devices to display the status and events of field devices.

It is freely programmable according to application requirements.

The ATB 420 LSNI module has integrated isolators for maintaining the function of the elements on the LSN loop in the event of wire interruptions or shortcircuits.



LED 16 - LED 1  
LED 32 - LED 17



The display module has 32 outputs, each with

- 600 Ω resistor
- 5 V

And permanent ground, 5 V are switched.

### Regulatory information

EN54-17:2005

EN54-18:2005

Region	Regulatory compliance/quality marks	
Europe	CE	ATB 420

### Parts included

Quantity	Component
1	ATB 420 LSNI Display module
1	Accessory bag with terminals for crimping

### **i** Notice

For crimping the supplied terminals you need a crimp tool, an upper crimp die and a lower crimp die for conductor cross section 28 to 22 AWG or 22 to 18 AWG.

### Technical specifications

#### Electrics

Operating voltage	
• LSN part	+15 V DC to +33 V DC
• AUX power	+8 V DC to +30 V DC
Current consumption	
• LSN part	3 mA
• other functions	All outputs off: 10mA@24V, 15mA@8V All outputs on, max. load: 65mA@24V, 170mA@8V

#### Mechanics

Dimensions (H x W x D)	163 x 60 x 13.5 mm
Weight	50g

#### Environmental conditions

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

#### Special features

Output flashing frequency	1.25 Hz
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### Ordering information

#### ATB 420 LSNI Display module

Display module

Order number **ATB 420 LSNI**

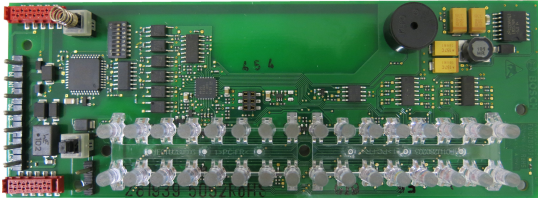
#### Services

#### EWE-FDMOD-IW 12 mths wrty ext Fire Display Module

12 months warranty extension

Order number **EWE-FDMOD-IW**

## ATG 420 LSNI Display module for BAT100 LSN



### Features

- ▶ 32 indicator points
- ▶ Lamp test button
- ▶ Multicolor LEDs
- ▶ Buzzer
- ▶ Temper detection switch

### Functions

The ATG 420 LSNI Display Module displays conditions of field devices or detection zones. The ATG 420 LSNI may be installed inside the BAT 100 LSN housing. To display the conditions, multicolour LEDs are used which may be programmed and labeled according to the application requirements in three different colours. The colours red, green and yellow can be used either in solid or blinking state.

The ATG 420 LSNI module has integrated isolators for maintaining the function of the elements on the LSN loop in the event of wire interruptions or shortcircuits.

### Regulatory information

EN54-17:2005

EN54-18:2005

Region	Regulatory compliance/quality marks	
Europe	CE	BAT 100 LSN

### Technical specifications

#### Electrics

Operating voltage	
• LSN part	+15 V DC to +33 V DC
• AUX power	+8 V DC to +30 V DC
Current consumption	
• LSN part	3 mA
• other functions	- all 32 LEDs off: max. 10 mA@ 24 V DC or max. 15 mA@ 8 V DC - all 32 LEDs on: max. 25 mA@ 24 V DC or max. 60 mA@ 8 V DC

#### Mechanics

Dimensions (H x W x D)	163 x 60 x 16.1 mm
Weight	55g

#### Environmental conditions

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

#### Special features

LED flash frequency	1.25Hz
LED colors	Multicolor (red, green, yellow)

### Ordering information

#### ATG 420 LSNI Display module for BAT100 LSN

Display Module with 32 LEDs  
Order number **ATG 420 LSNI**

#### Services

#### EWE-FDMOD-IW 12 mths wrty ext Fire Display Module

12 months warranty extension  
Order number **EWE-FDMOD-IW**

# Detector Bases

<b>FAA-500 Detector base</b>	<b>379</b>
<b>FAA-500-R Base with relay</b>	<b>380</b>
<b>MS 400 Detector Bases</b>	<b>381</b>
<b>FAA-MSR420 Detector base with relay</b>	<b>382</b>
<b>MSC 420 Base extension with damp room sealing</b>	<b>383</b>
<b>FDB201 Base for Dual-Optical Detector for Ex Ar</b>	<b>384</b>

## FAA-500 Detector base



### Features

- ▶ Screw terminals for safe and secure electrical connection
- ▶ Easy to install

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.

### Parts included

Quantity	Component
1	Detector base

### 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 <sup>2</sup> – 3.3 mm <sup>2</sup>
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 Detector base**  
for installation of the FAP-520 Fire Detector  
Order number **FAA-500**

## FAA-500-R Base with relay



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.



### Notice

FAA-500 R Bases can only be used in conjunction with the 5000 Series Modular Fire Panel.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FAP-520/FAA-500-R

### 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 <sup>2</sup> – 3.3 mm <sup>2</sup>
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)

### Ordering information

#### FAA-500-R Base with relay

Only used in conjunction with the 5000 Series Modular Fire Panel.

Order number **FAA-500-R**

## MS 400 Detector Bases



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.

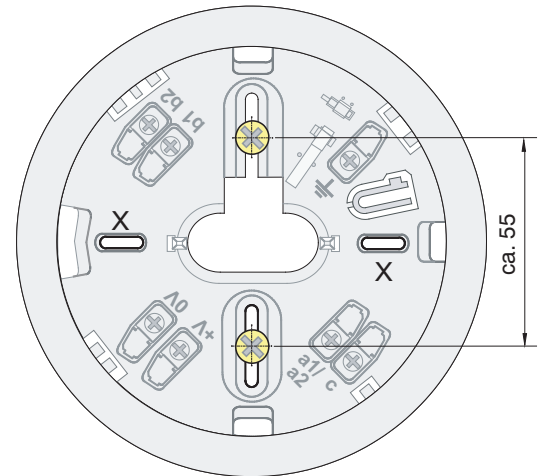
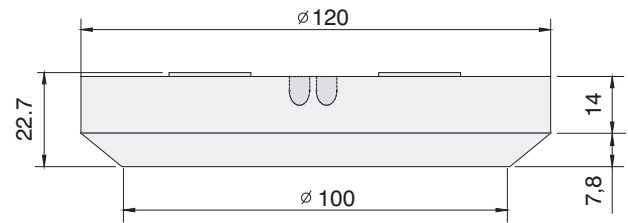
Contacts connected to the terminals guarantee a secure electric connection when the detector module is installed. Cables up to 2.5 mm<sup>2</sup> in diameter can be used.

To protect against unauthorized removal, the detector head can be secured with a variable locking.

### 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.



### 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

### Ordering information

#### MS 400 B Detector base with Bosch logo

Bosch-branded detector base for surface mounted and flush-mounted cable feed  
Order number **MS 400 B**

#### MS 400 Detector base

Detector base for surface mounted and flush-mounted cable feed, not branded.  
Order number **MS 400**

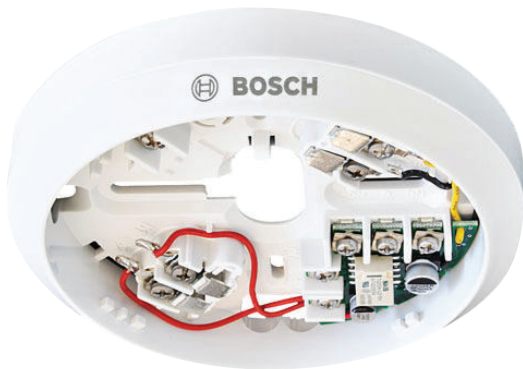
#### Accessories

##### FAA-420-SEAL Damp room seal, 10 pcs

1 package = 10 pieces

Order number **FAA-420-SEAL**

## FAA-MSR420 Detector base with relay



8

### Features

- ▶ Equipped with change-over relay



#### Notice

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.

### Functions

If the line is on standby, the relay contact is closed. The relay contact is open

- if there is no voltage, or
- if there is an alarm.

### Connections

Power supply	0V, +V
LSN terminals	a1/a2, b1, b2
C point	
Shielding	
Relay contacts	NO, C, NC

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FAP-/FAH-420/FAA-MSR420/FAA-MS-R-SP

### Parts included

Quantity	Component
1	Detector base

### Technical specifications

Relay contact capacity (A @ 30 V DC)	1
Maximum current consumption (LSN, mA)	0.2
Material	Plastic (ABS Novodur®)
Color	White (similar RAL 9010)
Dimension (Ø x H, mm)	120 x 22.7
Weight (g)	82

### Ordering information

**FAA-MSR420 Detector base with relay**  
with a change-over relay (Form C)  
Order number **FAA-MSR420**

## MSC 420 Base extension with damp room sealing



### Features

- ▶ Damp room sealing for installation in humid areas
- ▶ Easy to install
- ▶ Surface mounting

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.

### Parts included

Quantity	Component
1	Extension with damp room sealing for detector base

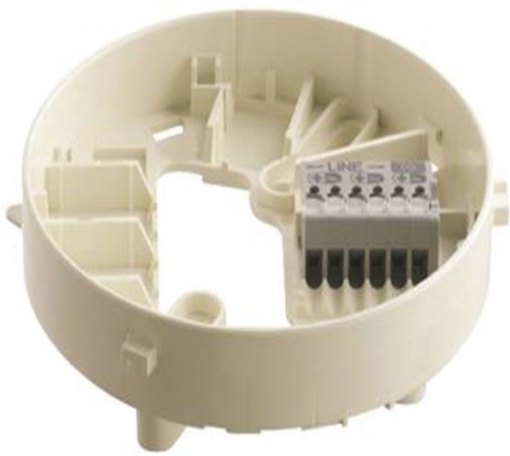
### Technical specifications

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 Base extension with damp room sealing**  
 Extension for detector bases with surface-mounted cable feed  
 Order number **MSC 420**

## FDB201 Base for Dual-Optical Detector for Ex Ar



8

### Features

- ▶ Compact and robust design
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination

- ▶ Safe insertion of an designation plate

### Parts included

Quantity	Component
1	FDB201 Detector Base for OOH740-A9-Ex Dual-Optical Detector for Ex Areas 0, 1, and 2

### Technical specifications

Cable cross section (mm <sup>2</sup> )	0.2 – 1.5
Housing material	Synthetic
Housing color	Pure white, similar to RAL 9010
Dimensions (Ø x H mm)	100 x 22

### Ordering information

**FDB201 Base for Dual-Optical Detector for Ex Ar**  
 Base for OOH740-A9-Ex Dual-Optical detector for Ex Area, secured with a snap fastener. Base suitable for recess supply wiring, for surface supply wiring, cable diameter up to 6 mm.  
 Delivery unit is 1.  
 Order number **FDB201**

# Power Supply

<b>FPP-5000-TI Trouble interface</b>	<b>386</b>
<b>FPP-5000-TI13 Communication interface</b>	<b>388</b>
<b>FPP 5000 External power supply kit</b>	<b>390</b>
<b>FPP-3000 Power supply</b>	<b>392</b>

## FPP-5000-TI Trouble interface



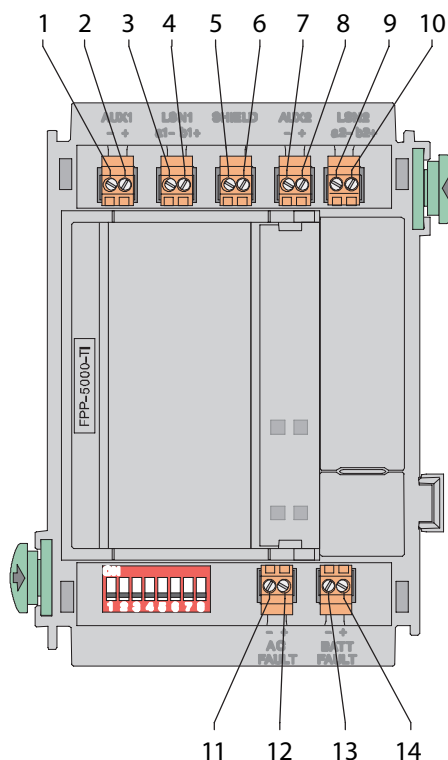
### Features

8

- ▶ 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 +	

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FPP-5000

**Parts included**

Quantity	Component
1	Module

**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**

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

Order number **FPP-5000-TI**

## FPP-5000-TI13 Communication interface

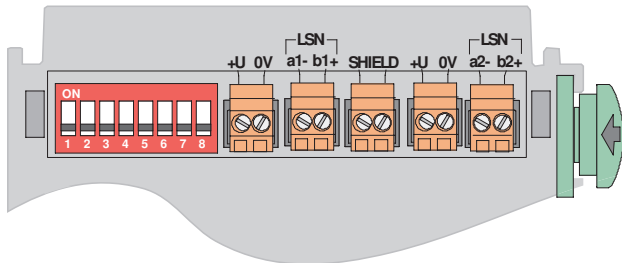


### Features

- ▶ Extends FPP-5000 functionality
- ▶ Line monitoring of all voltage outputs according to EN 54-13
- ▶ Distinct fault detection, diagnosis and transmission to the panel
- ▶ Programmable voltage outputs

The module is an extension for the External Power Supply Unit Kit. It is the communication interface between the kit and the panel.

### System overview



Labeling	Connection
+U/0V	1x auxiliary power supply incoming (connection terminals for looping through) 1x auxiliary power supply outgoing (connection terminals for looping through)
a1-/b1+	LSN incoming
SHIELD	Shield wire
a2-/b2+	LSN outgoing

### Functions

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

- Mains fault
- Battery fault
- Battery internal resistance fault
- BCM-0000-B Battery Controller Module fault
- Short 24 V outputs
- Ground fault

Additionally, with the FSP-5000-RPS programming software, the switching outputs can be programmed and the settings for the line monitoring according to EN 54-13 can be done.

The module is plugged next to the BCM-0000-B on the PRS-0002-C Panel Rail Short and is power-supplied by the panel rail via the module bus (MOB). The module's front side shows 4 LEDs, which indicate the operation and fault status.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FPP-5000
	CPD	0786-CPR-20357 FPP-5000
Germany	VdS	G 205050 FPP-5000

### Installation/configuration notes

- Note that for compliance with EN 54-2, the maximum of FPP-5000-TI13 per LSN loop is 10.

### Parts included

Quantity	Component
1	Module
2	EOL

### Technical specifications

Input voltage LSN	15 V DC to 33 V DC
Current consumption	13.2 mA 3.25 mA
Maximum wire gauge	0.2 mm <sup>2</sup> bis 1.5 mm <sup>2</sup>
Permissible operating temperature	-5 °C to +50 °C
Permissible storage temperature	-20 °C to +85 °C
Protection category (IEC 60529)	IP 20
Maximum relative humidity	95 % (non-condensing)
Housing material	ABS plastic, (UL94 V-0)

Housing color	semi-gloss anthracite, RAL 7016
Weight	approx. 154 g
Dimensions	approx. 127 x 96 x 60 mm
Address setting	8 DIP switches

### Ordering information

#### **FPP-5000-TI13 Communication interface**

Use with External Power Supply Unit Kit as communication interface between kit and panel (FPA-5000/FPA-1200 EN54-13).

Order number **FPP-5000-TI13**

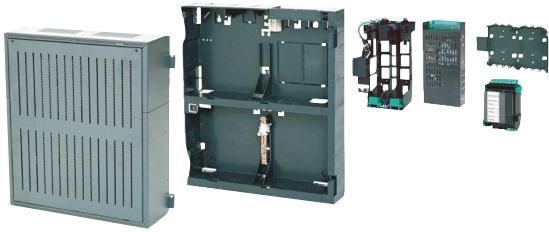
### Services

#### **EWE-FPDVC-IW 12 mths wrty ext Fire Peripheral Device**

12 months warranty extension

Order number **EWE-FPDVC-IW**

## FPP 5000 External power supply kit

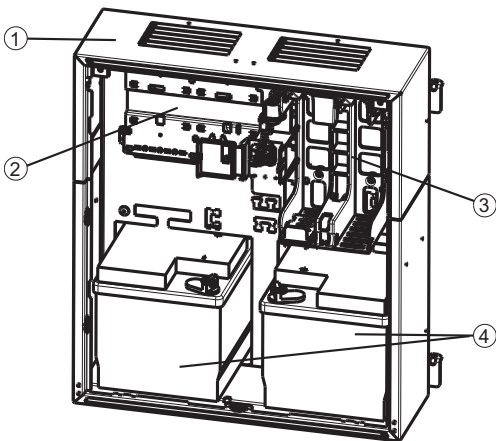


### Features

- ▶ Charging process controlled by temperature and time
- ▶ Voltage outputs each electronically fused
- ▶ 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.

### Regulatory information

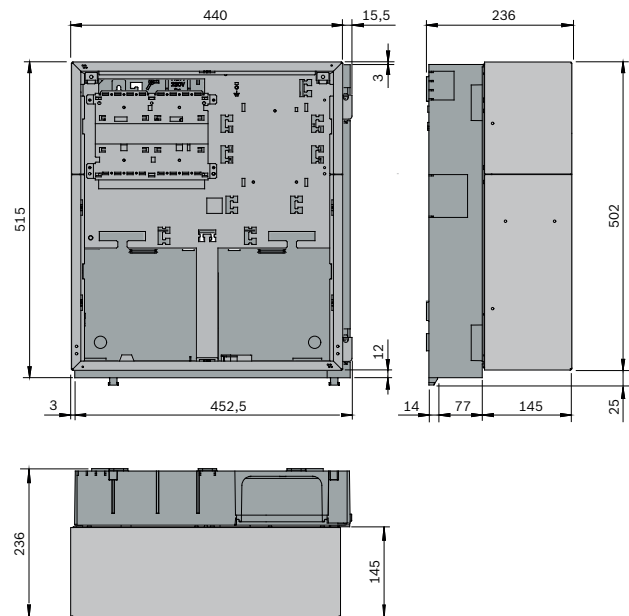
Complies with:

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

Region	Regulatory compliance/quality marks	
Europe	CE	FPP-5000
	CPD	0786-CPR-20357 FPP-5000
Germany	VdS	G 205050 FPP-5000

### Installation/configuration notes

#### Installation dimensions



**Parts included**

Quantity	Component
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

**Notice**

Optional: Earth Bar FPO-5000-EB

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

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. 527 x 456 x 236 mm

**Environmental Considerations**

Classes of equipment as per EN 60950	Class I equipment
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to 60 °C
Relative humidity	Max. 95% non-condensing
Degree of protection (IEC 60529)	IP 30
Cooling	Ventilation without ventilator

**Ordering information****FPP 5000 External power supply kit**

for universal power supply  
Order number **FPP 5000**

**Accessories****FPP-5000-TI13 Communication interface**

Use with External Power Supply Unit Kit as communication interface between kit and panel (FPA-5000/ FPA-1200 EN54-13).  
Order number **FPP-5000-TI13**

**FPP-5000-TI Trouble interface**

Use with FPP-5000 External Power Supply Unit Kit 24 V/ 6 A.  
Order number **FPP-5000-TI**

## FPP-3000 Power supply



### Features

- ▶ VdS certified
- ▶ EN 54-4 compliant
- ▶ 5.0 A power supply
- ▶ 2 x 40 Ah batteries
- ▶ 7 AUX outputs separately fused

The FPP-3000 external power supply complies with:

- EN 54-4
- EN 12101-10

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	EU-DoC FPP-3000
	CPD	1438/CPD/0163 FPP-3000
Germany	VdS	G 511007 FPP-3000
Poland	CNBOP	3647/2019 FPP-3000

### Installation/configuration notes

RS232/RS485 interface should not be used.

### Parts included

Quantity	Component
1	Power supply*
1	Supplementary package*

\* FPP-3000 = Merawex ZSP135-DR-5A-3 / ZSP135-OUT6

MERAWEX Sp. z o. o.  
Torunska 8  
PL-44-122 GLIWICE

### Technical specifications

#### Electrical

	FPP-3000 Power supply
Input voltage (VAC)	230 VAC (+10%/-15%)
Input voltage frequency (Hz)	50 Hz
Output voltage (VDC)	1 AUX output: 20.8 - 28.3 VDC and 6 AUX outputs: 20.5 - 28.3 VDC
Nominal voltage (VDC)	27.10 VDC
Efficiency of power supply (%)	81%
Voltage outputs	1 AUX output: 5.0 A and 6 AUX outputs: 0.5 A

#### Environmental

	FPP-3000 Power supply
Operating temperature (°C)	-5 °C – 55 °C
Operating relative humidity, non-condensing (%)	20% – 95%
Weather rating (IEC 60529)	IP44

#### Mechanical

	FPP-3000 Power supply
Dimension (H x W x D) (mm)	356 mm x 455 mm x 186 mm
Weight (kg)	11 kg
Mounting type	Wall-mounted
Color	Cream white (RAL 7035)

#### EN 54-4 additional information

I min	0 A
I max a	3.0 A
I max b	5.0 A
Fuse rating (fast)	1 AUX output: 10.0 A and 6 AUX outputs: 0.5 A
Battery capacity	40 Ah
Max. battery resistance (fault threshold)	250 mΩ

### Ordering information

#### FPP-3000 Power supply

External power supply  
Order number **FPP-3000**

# Door Control

9

Door Retaining Units according to DIBt

394

# Door Retaining Units according to DIBt

<b>TSZ 0400 Door Control Unit</b>	<b>395</b>
<b>Type 432 Push Buttons</b>	<b>398</b>
<b>Electromagnetic Door Holders 24 V</b>	<b>399</b>

## TSZ 0400 Door Control Unit



### Features

- ▶ Up to 10 limit value detectors can be connected per TSZ 0400 Door Control Unit
- ▶ All standard, permitted 24 V automatic door controls can be activated
- ▶ Up to 3 TSZ 0400 Door Control Units can be linked together
- ▶ The detector group is monitored for interruption, short circuit and triggered alarms

The TSZ 0400 Door Control Unit controls the triggering of 24 V automatic door control devices such as those used in fire doors, dampers etc. in conjunction with connected fire detectors in the event of a fire.

### System overview

Pos.	Designation
1	Hand trigger (push button)
2	Door closer
3	Smoke switch O 300 or thermal switch T 300/FSA
4	Electromagnetic door holder
5	TSZ 0400 Door Control Unit

### Functions

- Automatic limit value detectors and buttons for manual triggering are connected to the TSZ 0400 Door Control Unit.
- If a connected detector identifies a fire, the door control device is triggered and the door closes.
- In the event of a fault, connected door control devices are triggered and the integrated buzzer or a connected horn sounds.
- When the alarm or fault is reset, the control unit automatically returns to normal operational status.
- A potential-free changeover contact is available.

- The TSZ 0400 Door Control Unit can be connected to an LSN control unit using an integratable NSB 100 LSN.

#### Features:

- When the door control device is triggered, a message stating this appears on the display on the LSN control unit.
- If a smoke or thermal detector connected to the fire detection control unit issues an alarm, the door control device is triggered from the TSZ 0400.

### Regulatory information

The TSZ 0400 door control unit conforms to relevant regulations and guidelines.

Region	Regulatory compliance/quality marks	
Europe	CE	TSZ 0400
Germany	DIBt	Z-6.510-2425 TSZ0400

### Installation/configuration notes

- The TSZ 0400 is designed for the connection of the O 300 GLT smoke switch and the T 300/ FSA thermal switch.
- Up to 10 smoke and/or thermal switches can be connected.
- The TSZ 0400 can be connected to the LSN using the integratable NSB 100 LSN Control Interface.
- Alarm line and trigger line carry low voltage!
- Cable duct can be both surface-mounted and flush-mounted.
- Permitted installation types:
  - surface-mounted, with nailed, adhesive or spacer sleeves
  - in open or closed pipes
  - in cable ducts
  - in profile rails
  - flush-mounted in slots or pipes
- Recommended cables:
  - Alarm line: J-Y(St) Y 1 x 2 x 0.8 mm
  - Trigger line: J-Y(St) Y 1 x 2 x 0.8 mm or NYM-O 2 x 1.5 mm<sup>2</sup>
  - Mains line: NYM-J 3 x 1.5 mm<sup>2</sup>
- The following door closing devices can be connected:

Manufacturer	Type	Power [W]	Amount
Foot	837	1,8	10
	838	2,1	9
	858	6,0	3
Hahn	GT40R	1,8	10
	GT50R	1,5	12
	GT60R	1,6	11
	GT70R	1,5	12
	GT50R EX	3,0	6
	GT42R	3,0	6

Dictator	EMGD60F26T	1,6	11
	EMGD60S175	1,6	11
	EMGD60W26	1,6	11
Binder	171XX05A/ B000	1,7	10
BKS	Cyclostabil 87 FE	0,9	21
Dorma	TS 73 EMF	2,0	9
	TS 73 EMF/S	2,0	9
	TS 93 EMF	1,9	10
	TS 93 GSR/ EMF1	1,9	10
	TS 93 GSR/ EMF2	1,9	10
	BTS 80 EMB	2,3	8
	BTS 80 FLB	2,3	8
	SR391	1,6	11
	SR393	1,6	11
Geze	TS4000E	1,0	18
	TS5000E	2,2	8
	TS550E	3,0	6

### Parts included

Quantity	Component
1	Housing
1	Module with power unit and control
1	Operating and display panel

### Technical specifications

Operating voltage	230 V AC, +/-15%
Mains frequency	50 Hz
Current consumption	50 mA approx.
Permitted contact load	
<ul style="list-style-type: none"> <li>Door control device and buzzer</li> </ul>	24 V DC / max. 0.8 A
<ul style="list-style-type: none"> <li>Potential-free change-over</li> </ul>	30 V DC / max. 1.0 A
Standby line voltage	22 V approx.
Standby line current	4 mA

End of line resistor R <sub>E</sub> (when connected to Bosch detectors)	3k92
Maximum line resistance	100 Ω
Fault emission	DIN EN 61000-6-3
Fault influence	DIN EN 50082-1 DIN EN 50082-2 DIN EN 50130-4 VdS 2110, prEN 54-2
Climatic test	DIN IEC 68-2-3
NSR 73/23 EWG device safety	DIN EN 60950 A4
Protection class as per EN 60529	IP 42
Permitted ambient tem- perature	0 °C . . . 40 °C
Permitted storage tem- perature	-40 °C . . . +70 °C
Connectable detectors	10 max.
Housing material	Polystyrol (PS)
Housing color	Grey, RAL 9002
Weight	1,500 g approx.

### Ordering information

#### TSZ 0400 LSN Door control unit

for controlling the triggering of 24 V automatic door control devices in the event of a fire

Order number **TSZ 0400 LSN**

#### Accessories

##### FCH-T320-FSA Heat detector, DIBt protection closures

thermal differential/thermal maximum detector, conventional technology, with 820 Ohm alarm resistor

Order number **FCH-T320-FSA**

##### FCP-O320 Smoke detector optical

conventional technology, with 820 Ohm alarm resistor

Order number **FCP-O320**

##### FLM-420/4-CON-D Interface module conventional use, rail

with 2 primary lines for 2- or 4-wire conventional detectors, type DIN rail

Order number **FLM-420/4-CON-D**

##### FLM-420-I2-E Input interface module, in-built

with 2 monitored inputs, flush-mount type

Order number **FLM-420-I2-E**

##### FLM-420-O111-E Output-input interface module in-built

with 1 open collector output and 1 monitored input, in-built version

Order number **FLM-420-O111-E**

**MS 400 Detector base**

Detector base for surface mounted and flush-mounted cable feed, not branded.  
Order number **MS 400**

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**MS 400 B Detector base with Bosch logo**

Bosch-branded detector base for surface mounted and flush-mounted cable feed  
Order number **MS 400 B**

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**WA400 Wall bracket**

Console for DIBt compliant mounting of detectors above doors etc., including detector base  
Order number **WA400**

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**FAA-420-SEAL Damp room seal, 10 pcs**

Damp room seal  
Delivery unit is 10.  
Order number **FAA-420-SEAL**

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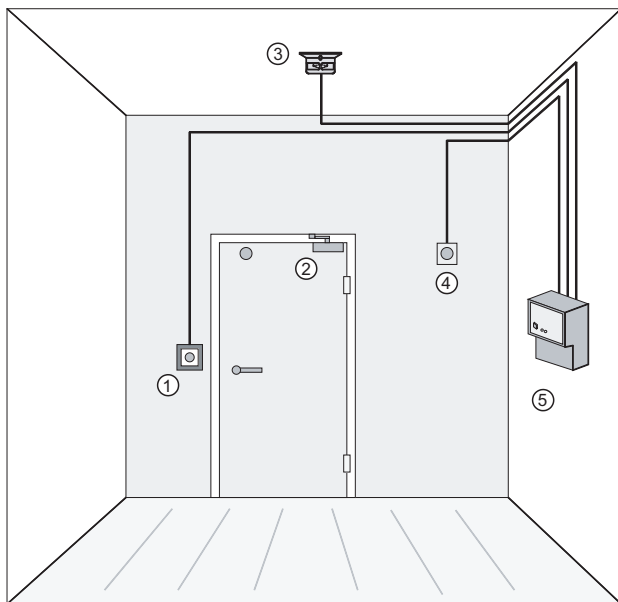
## Type 432 Push Buttons

### Features

- ▶ Attractive modern design, similar to light switch.
- ▶ Available in surface- and flush-mount versions.
- ▶ Flush-mount version fits standardized flush-mount box.

Push buttons are required to manually trigger fire barriers (closing fire doors).

### System overview



Po	Designation
s.	
1	'Close door' push button
2	Door closer

- Smoke switch O 300/FSA or thermal switch T 300/FSA
- Electromagnetic door holding magnet
- TSZ 0400 door control unit

### Technical specifications

Mounting	
• Surface-mount version	On wall surface
• Flush-mount version	On standardized flush-mount box
Contact type	1 change-over
Permitted contact load	30 W
Permitted ambient temperature	-20°C . . . +40°C
Protection class as per EN 60529	IP 20
Housing and key material	Plastic
Housing color	White
Key color	Red
Labeling	White, on red key
Dimensions (W x H x D)	
• Surface-mount version	81 x 81 x 53mm
• Flush-mount version	81 x 81 x 20mm

### Ordering information

**FMD-432 Push button, flush-mount**  
for manually triggering of fire barriers  
Order number **FMD-432**

**FMD-432-S Push button, surface-mount**  
for manually triggering of fire barriers  
Order number **FMD-432-S**

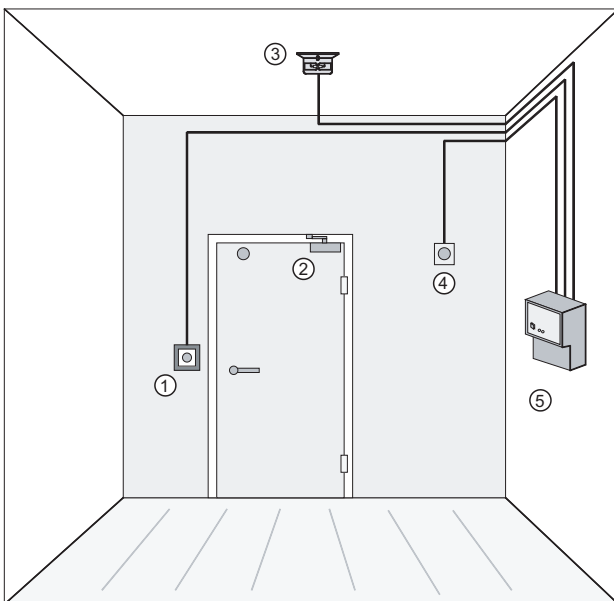
## Electromagnetic Door Holders 24 V



### Features

- ▶ Integrated free-running diode with protection against reversed polarity.
- ▶ The corresponding anchor plate is included in the scope of delivery.

### System overview



Po	Designation
s.	
1	'Close door' push button
2	Door closer

- 3 Smoke switch O 300/FSA or thermal switch T 300/FSA
- 4 Electromagnetic door holding magnet
- 5 TSZ 0400 door control unit

### Functions

Door holding magnets are used as automatic door control devices to keep movable doors such as fire doors and other doors open. They must be coupled to a smoke detector system that disconnects the power to the holding unit in the event of a fire, shutting the doors and thus preventing the spread of fire and smoke.

### Regulatory information

- Complies with
- EN1155:1997/A1:2002

Region	Regulatory compliance/quality marks	
Europe	CE	GT 50 R
	CPD	0786-CPD-20249 GT050R
	CPD	0786-CPD-20400 GT060R
Germany	VdS	G 212043 GT50R
	VdS	G 212042 GT60R

### Technical specifications

#### Ordering information

**FMD-GT60 Door-hold magnet, wall-mount**  
with an integrated free-running diode, for use as automatic door control devices, surface mounting  
Order number **FMD-GT60**

**FMD-GT50-SPACE Door-hold magnet, universal**  
with an integrated free-running diode, for wall, floor or ceiling mounting, with trigger key and 45 cm spacer pipe, magnet head swivels through 90°Introduction  
Order number **FMD-GT50-SPACE**

**FMD-GT50 Door-hold magnet, floor-mount**  
with an integrated free-running diode, with trigger key  
Order number **FMD-GT50**

#### Accessories

**FMD-F.GT50 Anchor plate, 55mm**  
Standard anchor plate (flexible anchor) of FMD-GT50 Door-hold magnet  
Order number **FMD-F.GT50**

**FMD-F.GT60 Anchor plate, 65mm**  
Standard anchor plate of FMD-GT60 Door-hold magnet  
Order number **FMD-F.GT60**



# Fire Service Appliances

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# Operating and Display Panels

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## FMF-ADP-TTY Fire brigade peripheral TTY bus module



### Features

- ▶ Fire brigade peripheral ring bus module for FPA-5000/1200/1100
- ▶ TTY/MTS-4A interface for connection to IOS 0020 A or FPE-5000-UGM module
- ▶ Common protocol for FBF and FAT peripherals
- ▶ ESPA interface (optional)

The ring bus module FMF-ADP-TTY connects fire brigade peripherals (FBF and FAT) to the fire panel FPA-5000/1200/1100.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMF-ADP-TTY
	CE	FMF-ESPA
	CE	System4000

### Installation/configuration notes

For systems with more than 50 activations (for example transmission units, elevator control, smoke dampers, notification appliances) we recommend to use the FPE-5000-UGM module due to performance reasons. For smaller systems the usage of the IOS 0020 A communication module is sufficient.

### Parts included

Quantity	Component
1	Ring bus module FMF-ADP-TTY in plastic housing for surface mounting
1	Programming software including OSS license texts

Quantity	Component
1	Set of cable glands
1	USB cable
1	Product information
1	Additional product label for attachment on housing

### Technical specifications

#### Electrical

Operating voltage	10 V DC to 30 V DC
Current consumption	
• in standby	Approx. 30 mA @ 12V

#### Mechanics

Dimensions (W x H x D)	182 x 180 x 63 mm
Weight	
• Without packaging	546 g
• With packaging	929 g

#### Environmental conditions

Permissible operating temperature	-20°C to +60°C
Permissible storage temperature	-20°C to +60°C
Permissible relative humidity	<96% non-condensing
Protection class as per EN 60529	IP66

### Ordering information

#### FMF-ADP-TTY Fire brigade peripheral TTY bus module

FMF-ADP-TTY for FPA-5000/1200/1100  
Order number **FMF-ADP-TTY**

#### Accessories

##### FMF-ESPA Fire brigade ESPA interface

module with RS232 interface for the FMF-FAT, FMF-FBF-FAT, FMF-FIBS, FMF-ADP-RS232  
Order number **FMF-ESPA**

## FMF-ADP-FBF Fire brigade peripherals module



### Features

- ▶ Fire brigade peripheral ring bus module for connecting UEZ-2000 or BZ-500
- ▶ Parallel FBF interface
- ▶ RS-232 FAT interface
- ▶ ESPA interface (optional)

The ring bus module FMF-ADP-FBF is intended to integrate legacy fire alarm systems (UEZ-2000 and BZ-500) to an FPA-5000/1200/1100 system to provide one common access point to the fire brigade.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMF-ADP-FBF
	CE	FMF-ESPA
	CE	System4000

### Parts included

Quantity	Component
1	Ring bus module FMF-ADP-FBF in plastic housing for surface mounting
1	Programming software including OSS license texts

Quantity	Component
1	Set of cable glands
1	USB cable
1	Product information
1	Additional product label for attachment on housing

### Technical specifications

#### Electrical

Operating voltage	10 V DC to 30 V DC
Current consumption	
• in standby	Approx. 30 mA @ 24V

#### Mechanics

Dimensions (W x H x D)	182 x 180 x 63 mm
Weight	
• With packaging	955 g
• Without packaging	572 g

#### Environmental conditions

Permissible operating temperature	-20°C to +60°C
Permissible storage temperature	-20°C to +60°C
Permissible relative humidity	<96% non-condensing
Protection class as per EN 60529	IP66

### Ordering information

#### FMF-ADP-FBF Fire brigade peripherals module

FMF-ADP-FBF for UEZ-2000 and BZ-500

Order number **FMF-ADP-FBF**

#### Accessories

#### FMF-ESPA Fire brigade ESPA interface

module with RS232 interface for the FMF-FAT, FMF-FBF-FAT, FMF-FIBS, FMF-ADP-RS232

Order number **FMF-ESPA**

## FBF 100 LSN Operating panel fire service



The fire service operating panel (FBF) is an additional standardized facility for fire detection systems equipped with a transmission device linked to the fire service.

### Regulatory information

Complies with EN54-17:2005

Region	Regulatory compliance/quality marks	
Europe	CE	FBF 100 LSN
	CPD	0786-CPD-20597 FBF 100 LSN
Germany	VdS	G 203081 FBF 100 LSN

### Parts included

Quantity	Component
1	Operating panel for fire services

### Ordering information

#### FBF 100 LSN Operating panel fire service

additional standardized facilities for fire detection systems equipped with a transmission device linked to the fire service

Order number **FBF 100 LSN**

## FMF-FAT Fire brigade peripheral FAT



### Features

- ▶ Compliant to DIN 14662
- ▶ Freely programmable display texts
- ▶ Lockable sheet steel housing
- ▶ Capacitive touch buttons

The fire brigade indicator panel FMF-FAT according to DIN 14662, as a means of first information for the fire brigade.

It displays certain operating states of the fire alarm control system (alarm, fault, disabled) as a group message by means of LED as well as a plain text on an alphanumeric display.

### Functions

The fire brigade indicator panel FMF-FAT stores the operating states „alarm“, „fault“ and „disconnection of elements of the fire alarm system“ as a group message and displays it. With the configuration software package the display texts of the individual detectors or detector groups are programmable.

#### Operating and displaying elements:

- Four LEDs for:
  - Operation (green)
  - Alarm (red)
  - Fault (yellow)
  - Disabled (yellow)
- Four touch buttons:
  - Scroll up
  - Scroll down
  - Buzzer off/ Test
  - Level/ History
- Messages are stored in FMF-FAT and indicated according to DIN 14662:
  - Alarm messages immediately by a flashing LED and a text message on the display
  - Faults and disabled device message by a flashing LED and by pushing a button as text message as well

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMF-FAT
	CE	FMF-ESPA
	CE	System4000
Germany	VdS	G213058 FMF-FAT

### Installation/configuration notes

- For wall mounting with surface and flush mounting cable entry
- The FMF-FAT housing is locked with a key (fire brigade closure)
- The additional texts have to be programmed by the installer. Messages without deposited additional texts are displayed in a standard format.
- The FMF-FAT is powered by the Fire Panel.

### Installation Guidelines

- The fire brigade indicator panel FMF-FAT has to be mounted in consultation with the responsible fire department.

### Parts included

Quantity	Component
1	Fire brigade indicator panel FMF-FAT

### Technical specifications

#### Electrical

Operating voltage	24V DC (10 V DC to 30 V DC)
Current consumption	
• in standby	40 mA @ 12 V DC 16 mA @ 24 V DC
• in alarm	45 mA @ 12 V DC 23 mA @ 24 V DC

#### Mechanics

Dimensions (W x H x D)	255 x 185 x 58 mm
Housing for surface mounting	
• Color	Light grey, RAL 7032
• Material	Sheet steel
Weight	Approx. 3,5kg

**Environmental conditions**

Protection class as per EN 60529	IP 30
Permissible operating temperature	0°C to +50°C
Permissible storage temperature	-10°C to +60°C

**Special features**

Type of lock	Boxlock/ for profile semi cylinder as per DIN 18525
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**Ordering information****FMF-FAT Fire brigade peripheral FAT**

fire brigade indicator panel in accordance with DIN 14662

Order number **FMF-FAT**

**Accessories****FMF-ESPA Fire brigade ESPA interface**

module with RS232 interface for the FMF-FAT, FMF-FBF-FAT, FMF-FIBS, FMF-ADP-RS232

Order number **FMF-ESPA**

## FMF-FBF-FAT Fire brigade peripheral FAT/FBF



### Features

- ▶ Compliant to DIN 14661 and 14662
- ▶ Door prepared for fire brigade closure (profile semi cylinder)
- ▶ Lockable sheet steel housing
- ▶ Capacitive touch buttons

The fire brigade information and control system FMF-FAT-FBF is a lockable sheet steel housing with a fire indicator panel and a fire control panel. The design and arrangement of the operating and displaying elements comply with DIN 14661 and DIN 14662.

### Functions

The responsible fire department has a key to the control panel. The design of the indicating and operating elements allows fire men to identify the state of the fire site quickly and to operate immediately.

#### Operating and displaying elements of the fire brigade control panel:

- Seven LEDs for:
  - Control pad in operation [LED green]
  - Transmission device/ path triggered [LED red]
  - Extinguishing system triggered [LED red]
  - Fire control disabled [LED yellow]
  - Acoustic signals disabled [LED yellow]
  - Reset fire alarm control panel [LED red]
  - Transmission disabled [LED yellow]
- Three buttons for:
  - Disable acoustic signals
  - Disable transmission unit
  - Switch off fire alarm control
- Two switches for:
  - Reset fire alarm control panel
  - Check transmission device

A deactivation of the transmission path is indicated by the fire brigade control panel.

#### Operating and displaying elements of the fire brigade indicator panel:

- Four LEDs for:
  - Operation (green)
  - Alarm (red)
  - Fault (yellow)
  - Disabled (yellow)
- Four touch buttons:
  - Scroll up
  - Scroll down
  - Buzzer off/ Test
  - Level/ History
- Messages are stored in FMF-FAT and indicated according to DIN 14662:
  - Alarm messages immediately by a flashing LED and a text message on the display
  - Faults and disabled device message by a flashing LED and by pushing a button as text message as well

The fire brigade indicator panel stores the operating states 'alarm', 'fault' and 'deactivation of transmission paths' as a group message and displays it. With the configuration software package the display texts of the individual detectors or detector groups are programmable.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMF-FBF-FAT
	CE	FMF-ESPA
	CE	System4000
Germany	VdS	G213057 FMF-FBF-FAT

### Installation/configuration notes

- The fire brigade information and control system FMF-FAT-FBF has to be mounted in consultation with the responsible fire department.

### Parts included

Quantity	Component
1	Sheet steel housing with fire brigade indicator and control panel

### Technical specifications

#### Electrical

Operating voltage	28V DC (10 V DC to 30 V DC), fire brigade control panel supplies power from the fire brigade indicator panel
Current consumption fire brigade indicator panel	
• in standby	Approx. 40 mA @ 12 V DC Approx. 16 mA @ 24 V DC

• in alarm	Approx. 45 mA @ 12 V DC Approx. 23 mA @ 24 V DC
Current consumption fire brigade control panel	
• in standby	Approx. 2 mA @ 12 V Approx. 1 mA @ 24 V
• in alarm	Approx. 14 mA @ 12 V Approx. 7 mA @ 24 V

### Mechanics

Dimensions (W x H x D)	255 x 380 x 60 mm
Housing for surface mounting	
• Color	Flame red, RAL 3000
• Material	Sheet steel, painted
Weight	Approx. 3,5kg

### Environmental conditions

Protection class as per EN 60529	IP 30
Protection class as per EN 60950	II

Permissible operating temperature	0°C to +50°C
Permissible storage temperature	-10°C to +60°C

### Special features

Type of lock	Boxlock for profile semi cylinder as per DIN 18525
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### Ordering information

#### FMF-FBF-FAT Fire brigade peripheral FAT/BBF

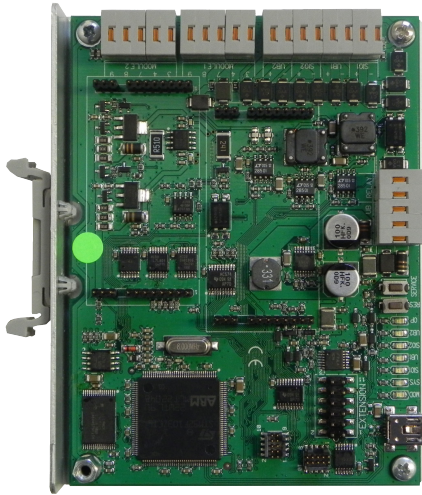
Fire brigade information and control system - a sheet steel housing with fire brigade indicator panel and fire brigade control panel  
Order number **FMF-FBF-FAT**

#### Accessories

#### FMF-ESPA Fire brigade ESPA interface

module with RS232 interface for the FMF-FAT, FMF-FBF-FAT, FMF-FIBS, FMF-ADP-RS232  
Order number **FMF-ESPA**

## FMF-ADP-RS232 Fire brigade peripheral RS232 bus module



### Features

- ▶ Ring bus module for connection of fire brigade peripherals to the fire alarm control panel
- ▶ RS-232 interface
- ▶ Redundant bus system
- ▶ 7 diagnostic LEDs for quick status indication

Ring bus module for redundant connection of the fire brigade panels FMF-FAT, FMF-FBF-FAT and FMF-FIBS to the UGM 2040.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMF-ADP-RS232
	CE	FMF-ESPA
	CE	System4000

### Parts included

Quantity	Component
1	Ring bus module FMF-ADP-RS232
1	USB cable
1	Programming software

### Technical specifications

#### Electrical

Operating voltage	28 V DC (10 V DC to 30 V DC)
Current consumption	
• in standby/ alarm	Approx. 40 mA @ 12V Approx. 30 mA @ 24V

#### Mechanics

Dimensions (W x H x D)	25 x 115 x 90 mm
Weight	Approx. 0,2kg

### Ordering information

#### FMF-ADP-RS232 Fire brigade peripheral RS232 bus module

ring bus module FMF-ADP-RS232 for UGM 2040 connection

Order number **FMF-ADP-RS232**

#### Accessories

#### FMF-ESPA Fire brigade ESPA interface

module with RS232 interface for the FMF-FAT, FMF-FBF-FAT, FMF-FIBS, FMF-ADP-RS232

Order number **FMF-ESPA**

## FMF-FIBS Fire Brigade Information and Control Center



### Features

- ▶ Compliant to DIN 14661 and 14662
- ▶ Lockable, two door housing made from robust sheet steel, painted inside and outside (RAL 3000, flame red)
- ▶ Available in two versions (FMF-FIBS-A4 and FMF-FIBS-A3)
- ▶ Prepared section for the optional installation of a manual call point
- ▶ Includes all features of the fire brigade indicator and control panel

The fire brigade information and control center FMF-FIBS as a means of first information for the fire department. It is a lockable housing with two doors including a fire brigade indicator panel and a fire brigade control panel.

### Functions

The fire brigade indicator and control panel is a standard auxiliary device for the fire department. This standardized indication and operating elements allows the fire men to identify the state of the fire site quickly and to operate immediately irrespectively of the kind of fire alarm control panel. The optional installation of a manual call point is possible by a removable segment in the left door. The left door is prepared for a fire brigade closure (profile semi cylinder). The right door has its own closure (Dohm-CL1) but is also unlocked and opened by opening the left door. In the right part of the FMF-FIBS either up to 150 fire brigade route cards in A4 format (portrait or landscape) or 100 fire brigade route cards in A3 format (portrait) can be stored in special compartments.

For functional description of the optional manual call point look at the datasheet of FMC-210-DM-G-R.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FMF-FIBS-A3
	CE	FMF-FIBS-A4
	CE	FMF-ESPA
	CE	System4000
Germany	VdS	G213057 FMF-FBF-FAT

### Installation/configuration notes

- The fire brigade information and control center FMF-FIBS has to be mounted in consultation with the responsible fire department.
- The fire indicator panel is powered by the fire panel.
- The FMF-FIBS housing is prepared for an optional installation of a manual call point.

### Technical specifications

#### Electrical

Operating voltage	28 V DC (10 V DC to 30 V DC)
Current consumption	
• in standby	Approx. 50 mA
• in alarm	Approx. 180 mA

#### Mechanics

Dimensions (W x H x D)	
FMF-FIBS-A4	710 x 560 x 100 mm
FMF-FIBS-A3	830 x 560 x 100 mm
Housing	
• Color	Flame red, RAL 3000
• Material	Sheet steel, painted
Weight	Approx. 15kg

#### Environmental conditions

Protection class as per EN 60529	IP 30
Protection class as per EN 60950	II
Permissible operating temperature	0°C to +50°C
Permissible storage temperature	-10°C to +60°C

**Special features**

Type of Lock	
• Left door	Boxlock for profile semi cylinder as per DIN18252
• Right door	Dohm-CL1

**Ordering information****FMF-FIBS-A4 Information center A4**

fire brigade information and control system with 2 compartments for 150 firefighter run/route cards in A4 format

Order number **FMF-FIBS-A4**

**FMF-FIBS-A3 Information center A3**

fire brigade information and control system with one compartment for 100 firefighter run/route cards in A3 format

Order number **FMF-FIBS-A3**

**Accessories****FMF-ESPA Fire brigade ESPA interface**

module with RS232 interface for the FMF-FAT, FMF-FBF-FAT, FMF-FIBS, FMF-ADP-RS232

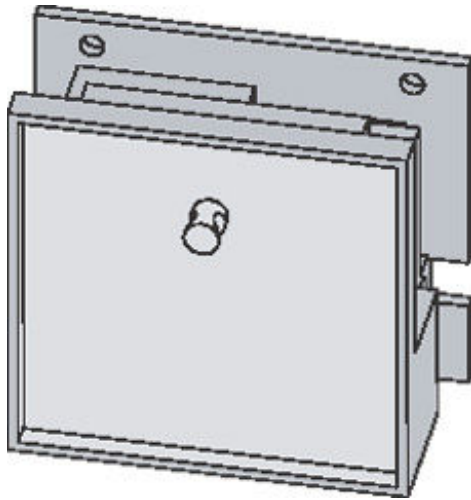
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## **FMF-420-FBF-CH Fire brigade operating panel Switzerland**

# Key Deposits and Accessories

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## Key Deposits

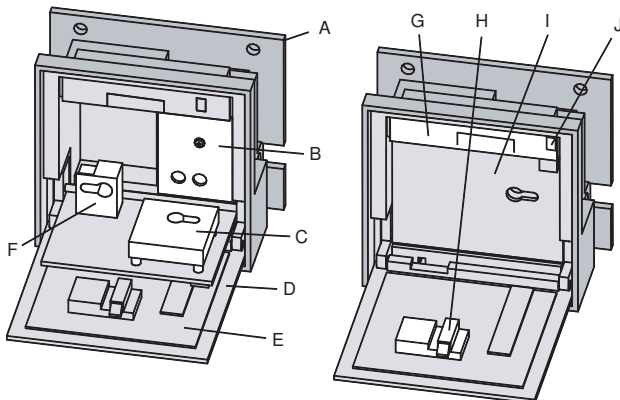


### Features

- ▶ Robust housing made of injection-moulded aluminium.
- ▶ Water-resistant outer door made of 5mm-thick corrosion-proof sheet steel.
- ▶ Door strip not visible or assailable from outside.
- ▶ Doorknob with predetermined breaking point.
- ▶ Cover contact (microswitch)

Safe-like key depository (SD) with general lock, for storing the key to a building.

### System overview



Pos	Description
.	
A	Mounting plate
B	Connecting strip cover
C	Closure by the fire service responsible
D	Outer door

E	Protected surfaces (drill and intrusion protection).
F	Object key depository with removal contact
G	Electromechanical door opener
H	Closing bolt
I	Inner door
J	Cover contact

### Functions

An electric locking device keeps the outer door closed. The building key is in the key depository behind the inner door, which can only be opened with a fire service master key. When an alarm is issued by the fire panel, the outer door is released and can be opened by the notified fire department. The leader of the response team opens the inner door using the fire service master key, retrieves the building key and so gains access to the buildings. If the fire panel does not unlock the outer door, the object key cannot be accessed, even with the fire service master key.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	KEY-SAFE-12/24V-LE
	CE	FSD Key deposit
Germany	VdS	G 103133 FMS-KR-BASIC / FMS-KR-BASIC-RPF

### Installation/configuration notes

- Intended for flush mounting.
- The mounting location must be easily accessible and be directly along the building/site access path intended for the fire services.
- Mounting in accordance with the security guidelines of the VdS:
  - Key depository lower edge at least 0.8m above the ground
  - Key depository upper edge no more than 1.4m above the ground
  - Housing must be flush with the wall
- Can only be mounted on the following masonry with a minimum wall thickness of 230 mm:
  - Masonry conforming to DIN 1053
  - Bricks conforming to DIN 105
  - DIN 106 limestone
  - B120 reinforced concrete conforming to DIN 1045
- The connection cable must be laid in an empty pipe into the security system to protect it from sabotage.
- The 4 mm<sup>2</sup> earthing cable should be linked with the earth from the fire panels.
- If there is likely to be water condensation at the mounting site, the heating device must be connected
- The key depository can be connected directly to the following fire panels:
  - BZ 500 LSN
  - UEZ 2000 LSN

- The FSK-A fire services key depository adapter can be used to connect the key depository to the following fire panels:
  - BZ 1060
  - UEZ 1000
  - UGM 2020
  - FPA-5000/FPA-1200

### Technical specifications

#### 12V DC type

Current consumption - release mechanism if duty cycle = 100% (ED) - heating	200mA 460 - 590mA
Maximum switching output of the feedback contacts	10W (830mA)

#### 24V DC type

Current consumption - release mechanism if duty cycle = 100% (ED) - heating	110mA 230 -300mA
Maximum switching output of the feedback contacts	10W (415mA)

#### General data (12V/24V)

Heat output	5.1 - 8.1W
Protection class as per EN 60529	IP 44
Environmental category EN 54-2.	III
Permitted ambient temperature	-25 °C . . . +70 °C
Housing material-	Injection-moulded aluminium/ steel 5 mm
Color	Silver
Dimensions (W x H x D)	251.5 x 242 x 151.5 mm
Mounting dimensions (wall cavity)	300 x 300 x 150 mm
Weight	9 kg

### Ordering information

#### FMS-KR-BASIC Key deposit

Order number **FMS-KR-BASIC**

#### FMS-KR-BASIC-RPF Key deposit with rain protection

Order number **FMS-KR-BASIC-RPF**

## SD-A Adapter key deposit



### Features

- ▶ Can be connected to all common fire alarm systems
- ▶ Activation of all approved key depositories
- ▶ Alarm can be forwarded by relay or potential-free output
- ▶ Monitors the alarm line to the key deposit for interruption, sabotage and short circuits, and forwards a corresponding message to the control unit
- ▶ An integrated door contact reports the opening of the housing to the control unit

The SD-A key deposit adapter is a control device and is needed to connect a VdS-approved fire services key depository to Bosch fire panels.

### Functions

The key deposit adapter controls the release mechanism of the key deposit outer door. After a fire alarm is triggered by the fire detection control unit, the key depository adapter releases the key depository outer door and allows fire services access to the object key. 2 display LEDs allow monitoring of the operating status. 2 internal control buttons can be used to reset alarms and for tests of the key deposit alarm line.

### Regulatory information

Region	Regulatory compliance/quality marks	
Europe	CE	FSK Adapter
Germany	VdS	G194010 FSK-A 0750

### Installation/configuration notes

- Mount the key deposit adapter in the same area as the fire panel.

- Flush-mount the cable if possible.

### Parts included

Quantity	Component
1	Fire service key deposit adapter for connecting a VdS-approved fire service key deposit to Bosch fire panels

### Technical specifications

#### SD-A

Operating voltage	10V DC. . . 35V DC
Current consumption	
- Operating	8mA approx.
- Standby	30mA approx.
Current consumed in event of an alarm, door released (when connected on the operating current principle and without door opener current)	80mA approx.
Current consumption	
- Door magnet	500mA max. (protected)
- SD alarm line	1mA min.
Termination resistance $R_E$	2.2k $\Omega$ $\pm$ 5%
Trigger criterion	1.1k $\Omega$ (50% of $R_E$ )
Time restriction on alarm trigger	1.2 sec. approx.
Load capacity of the relay contacts	60V / 1A max.
Key depository alarm parallel output	30V / 500mA max. switched against ground
EN 60529 protection category	IP 40
Permitted ambient temperature	0°C . . +70°C
Permitted storage temperature	-10°C . . . +70°C
Housing	
- Colour	Grey, RAL 7032
- Material	Sheet steel
Dimensions (W x H x D)	148 x 158 x 30mm
Weight	900g

### Ordering information

#### SD-A Adapter key deposit

The SD-A key deposit adapter is a control device and is needed to connect a VdS-approved fire services key depository to Bosch fire panels.

Order number **SD-A**



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 0

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