

Fire Alarm Systems

Databook 2012



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Fire Alarm Systems

Databook 2012

Dear Customer,

We are proud to present you the 2012 edition of our Fire Data Book. It offers highly innovative products, among them the addressable Local SecurityNetwork improved version (LSNi) components such as the Smoke Detector 520 Series and Automatic Fire Detector 420 Series including the Dual Ray series with a blue and red LED providing the earliest detection, a complete range of Fire Interface Modules also complying with EN54-13 requirements, Manual Call Points, and improved Automatic Special Detectors.



We have extended our fire alarm systems portfolio with a new affordable easy-to-use range for higher safety in small installations. The FPC-500 product range deliver great image quality and long-lasting performance at a competitive price. They are ideal for a broad range of small applications including retail and schools.



In our broadening portfolio of audible notification appliances we have added the model series FNM-420U to its existing range. The new devices feature built-in high-performance power sources and thus guarantees a safe and uninterrupted alarm signal, even when the power supply is disrupted simultaneously on both sides of the device. This technical innovation also allows for an uninterrupted alarm signal for transmission lines – even if the transmission path has been permanently destroyed by, for example, fire. Thanks to an extremely low consumption of power, up to 100 notification appliances can be connected to the LSN-Ring, which saves loop modules.

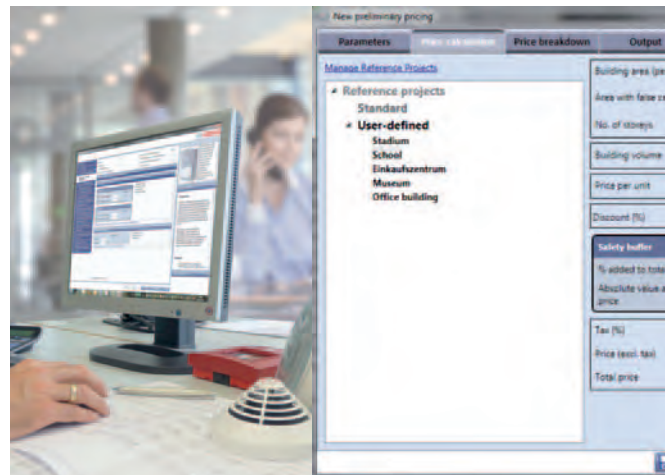


Last but not least we have released the new version of our Planning Software for Fire Detection Systems with a performance improvement of 30% and an entirely revised look and feel including a larger number of customization options.

The updated version of our popular Windows-based Planning Software, supporting architects, planners and consultants in developing all types of fire detection projects offers 16 languages to choose from and imports customer bases directly from Microsoft Outlook. The update is offered worldwide and can be downloaded free of charge from the corresponding country website. Future updates will be provided online.

In addition to an extensive range of superior products, Bosch also offers you top-notch support so that you can always offer your customers ideal solutions. A key element is training. Under the expert guidance of our product specialists, you can learn all about the products and systems available from Bosch.

For more information on our products, sales support or training, please visit our website www.boschsecurity.com or contact your local Bosch representative. The book includes a list of addresses in different countries. Bosch Security Systems will help you to grow your business by working closely with you to win, support and maintain top quality communication and security installations. We are confident that our unique combination of innovative, top-quality products and 80 years of experience serving the market will let you offer ideal solutions for all of your customers' needs.



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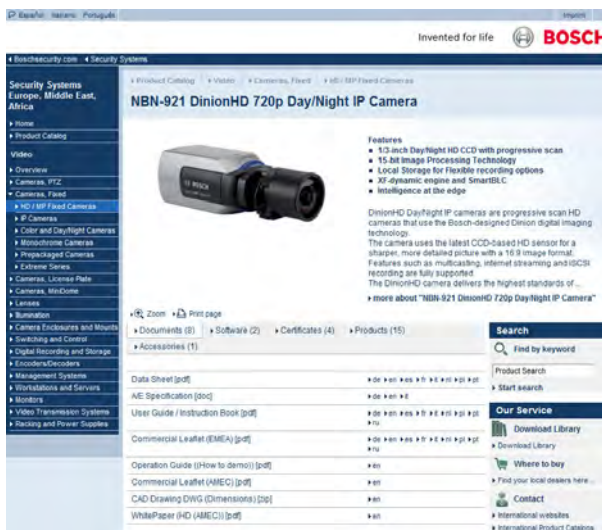
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Advantage Line

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FPC-500 Conventional Fire Panel



The Conventional Fire Panel 500 Series ideally meets the needs and expectations of small shops, warehouses, office buildings, schools, and kindergartens. The series comprises three different panel types for up to eight zones and 256 detectors. The modern, attractive design and small size of these robust panels make them blend discreetly into the decor. The fire panels of the 500 Series are exceptionally easy to install, custom-configure, and maintain with little or no training. The panels are also self-explanatory and intuitive, making it quick and easy to teach end users how to operate them.

Features

- ▶ LCD with backlight screen and status indication for all detector zones
- ▶ Self-explanatory icons for intuitive operation
- ▶ Two history functions with 1,000 entries each, one for events and the other for walk tests
- ▶ Fully certified according to EN 54, featuring outstanding quality and reliability from Bosch
- ▶ Autoscroll function for easy checking of the overall panel configuration

Certifications and Approvals

Region	Certification	
Europe	CE	FPC-500
	CPD	0786-CPD-21105 FPC-500
Germany	VdS	VdS-G211100 FPC-500

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 ² 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%

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

Order number **FPC-500-2**

FPC-500-4 Conventional Fire Panel

Order number **FPC-500-4**

FPC-500-8 Conventional Fire Panel

Order number **FPC-500-8**

FLM-320-EOL2W Conventional EOL Module 2-Wire

for EN 54-13 compliant termination of conventional lines

Order number **FLM-320-EOL2W**

FLM-320-EOL4W-S Conventional EOL Module 4-Wire
for EN 54-13 compliant termination of conventional lines
Order number **FLM-320-EOL4W-S**

Accessories

Relay Extension Module
Order number **FPC-500-RLYEXT**

OC Extension Module
Order number **FPC-500-OCEXT**

Access Key
Order number **FPC-500-KEY**

FCP-500 Conventional Automatic Fire Detectors



The FCP-O 500 smoke detector is specially designed for installation in highly esthetic and very dusty environments. It is flush-mounted on the ceiling so that only the smooth, sealed faceplate is visible from below. The faceplate can also be color-matched to the ceiling using a unique system of insertable color rings. The FCP-O 500 uses virtual smoke detection areas with Bosch signal processing technology developed on the basis of years of research and experience. The FCP-500 OC includes a CO detection feature for even greater immunity to false alarms and faster smoke detection.

Features

- ▶ Modern, ultra-flat design that blends into the decor
- ▶ Range of color rings for nearly invisible installation
- ▶ Smooth, easy-to-clean surface even in dusty environments
- ▶ False alarms minimized by continuous monitoring of detector pollution
- ▶ Easy to replace and service

Certifications and Approvals

Comply with:

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

Region	Certification	
Europe	CE	FCP 500 series
	CPD	0786-CPD-20203 FCP-O 500 / 500-P
Germany	VdS	G 205124 FCP-O 500/500-P
	VdS	G 205118 FCP-OC 500/500-P

Technical Specifications

Electrical

Operating voltage	8.5 V DC bis 33 V DC
Standby current	
• FCA-500-EU	3 mA
• FCA-500-E-EU	24 mA
Alarm current	47 mA
Fault current	
• FCA-500-EU	52 mA
• FCA-500-E-EU	58 mA
Alarm resistance	0 Ω (UL application) or 680 Ω
Fault relay output	NC / C
Indicator output	Relay connects 0 V over 1.5 kΩ

Mechanics

Individual display	Two-color LED, red (alarm), green (test mode)
Dimensions	
Detector	Ø 113 x 55 mm
Detector with trim ring	Ø 150 x 55 mm
Detector with cover, base and ceiling mount back box	Ø 150 x 110 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Front plate color	
FCP-O 500/ FCP-OC 500	Signal white matt
FCP-O 500-P/ FCP-OC 500-P	Transparent/silver-gray
Weight	Without / with packaging
FCP-OC 500(-P)	180 g / 370 g
FCP-O 500(-P)	170 g / 360 g
Trim Ring	30 g / 60 g

Environmental conditions

Protection class as per EN 60529	
FCP-O 500 (-P)	IP 53
FCP-OC 500 (-P)	IP 33
Permissible operating temperature	
FCP-O 500 (-P)	-20 °C bis +65 °C
FCP-OC 500 (-P)	-10 °C bis +50 °C

Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Planning	
Monitoring area	Max. 120 m ² (Heed local guidelines!)
Maximum installation height	Max. 16 m (Heed local guidelines!)
Minimum installation height	Out of arm's reach Minimum installation height recommended by BOSCH: 2.70 m
In the case of flush ceiling mounting with ceiling mount back box	
Thickness of the false ceiling	Max. 32 mm
Required bored hole	Ø 130 mm (-1 mm bis +5 mm)
Installation depth	110 mm Note: Above the false ceiling, a free height of at least 110 mm is required.
Minimum distance to lamps	0.5 m

Special features

Detection principle	
• FCP-O 500 (-P)	Scattered light measurement
• FCP-OC 500 (-P)	Combination of scattered light measurement and combustion gas measurement
Features	
• All FCP-500 detectors	Contamination detection Drift compensation (optical section)
• In addition, for FCP-OC 500(-P)	Drift compensation in the gas sensor section
Response sensitivity	
• FCP-O 500 (-P)	< 0.18 dB/m (EN 54-7)
• FCP-OC 500 (-P)	Optical section: < 0.36 dB/m (EN 54-7) Gas sensor section: in ppm range

Ordering Information**FCP-O 500 Optical Smoke Detector, White**

ultra-flat design, conventional technology
Order number **FCP-O 500**

FCP-O 500-P Optical Smoke Detector, Transparent with Color Inserts

ultra-flat design, conventional technology
Order number **FCP-O 500-P**

FCP-OC 500 Multisensor Detector Optical/Chemical, White

ultra-flat design, conventional technology
Order number **FCP-OC 500**

FCP-OC 500-P Multisensor Detector Optical/Chemical, Transparent with Color Inserts

ultra-flat design, conventional technology
Order number **FCP-OC 500-P**

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, Transparent with Color Inserts

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

FCA-500-EU Conventional Base

for the FCP--500 Series detectors
Order number **FCA-500-EU**

FCA-500-E-EU Conventional Base EOL

for the FCP-500 Series detectors, with integrated EOL resistor
Order number **FCA-500-E-EU**

FAA-500-BB Ceiling Mount Back Box

for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors
Order number **FAA-500-BB**

FCP-320/FCH-320 Conventional Automatic Fire Detectors



The FCP-320/FCH-320 Series conventional automatic fire detectors set new standards in fire detection with a combination of optical, thermal, and chemical (gas) sensors and intelligent evaluation electronics. They excel with their ability to prevent false alarms, in addition to fast, accurate detection. An extended operating voltage range from 8.5 to 30 V DC and 820-ohm alarm resistors let these products be used with nearly all conventional fire panels.

Features

- ▶ Evaluation electronics for highly reliable detection
- ▶ Automatic threshold adjustment (drift compensation) for pollution soiling of the optical sensor
- ▶ Mechanical lock to prevent removal/theft (can be activated and deactivated)
- ▶ Dust-proof labyrinth and cap design
- ▶ All detectors have a “chamber-maid plug” at the bottom for cleaning the optical chamber with compressed air (not required for the FCH-T320 heat detector)

Certifications and Approvals

The detectors comply with:

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

Region	Certification	
Europe	CE	FCP-/FCH-320 000018/01 FCP-O320

Region	Certification	
Europe	CPD	0786-CPD-20353 FCH-T320_FCH-T320-R470
	CPD	0786-CPD-20351 FCP-O320_FCP-O320-R470
	CPD	0786-CPD-20355 FCP-OC320_FCP-OC320-R470
	CPD	0786-CPD-20352 FCP-OT320_FCP-OT320-R470
Germany	VdS	G 208003 FCH-T320_-R470
	VdS	G 208001 FCP-O320_-R470
	VdS	G 208002 FCP-OT320_-R470
	VdS	G 208005 FCP-OC320_-R470

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
• FCP-OC320	Approx. 85 g / approx 130 g
• FCP-OT320 / FCP-O320 / FCH-T320 / FCH-T320-FSA	Approx. 80 g / approx. 120 g

Environmental conditions

Protection class as per EN 60529	IP 40, IP 43 with detector base with damp room seal
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Permissible operating temperature	
• FCP-OC320	-10 °C to +50 °C
• FCP-OT320	-20 °C to +50 °C
• FCP-O320	-20 °C to +65 °C
• FCH-T320 / T320-FSA	-20 °C to +50 °C

Planning

Monitoring area	
<ul style="list-style-type: none"> FCP-OC320, FCP-OT320, FCP-O320 	Max. 120 m ² (Heed local guidelines!)
<ul style="list-style-type: none"> FCH-T320 	Max. 40 m ² (Heed local guidelines!)
Maximum installation height	16 m (Heed local guidelines!)
<ul style="list-style-type: none"> FCP-OC320, FCP-OT320, FCP-O320 	16 m (Heed local guidelines!)
<ul style="list-style-type: none"> FCH-T320 	6 m (Heed local guidelines!)

Special features

Response sensitivity	
<ul style="list-style-type: none"> Optical part 	< 0.2 dB/m, in line with EN 54 T7
<ul style="list-style-type: none"> Thermal maximum part 	>54 °C
<ul style="list-style-type: none"> Thermal rate-of-rise part (in line with prEN 54-5) 	FCH-T320: A2R FCH-T320-FSA: A1R
<ul style="list-style-type: none"> Chemical part 	In ppm range
Color code	
<ul style="list-style-type: none"> FCP-OC320 	Blue ring
<ul style="list-style-type: none"> FCP-OT320 	Black ring
<ul style="list-style-type: none"> FCP-O320 	No marking
<ul style="list-style-type: none"> FCH-T320 / T320-FSA 	Red ring

Ordering Information

FCP-OC320 Multisensor Detector Optical/Chemical
conventional technology, with 820 Ohm alarm resistor
Order number **FCP-OC320**

FCP-OT320 Multisensor Detector Optical/Thermal
conventional technology, with 820 Ohm alarm resistor
Order number **FCP-OT320**

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

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

MS 400 Detector Base
Order number **MS 400**

MSS 300 Detector Base Sounder White
Control via C-point of the detector
Order number **MSS 300**

MSS 300-WH-EC Detector Base Sounder White
Control through fire panel via interface
Order number **MSS300-WH-EC**

FAA-420-RI Remote Indicator

required if the detector is not directly visible or has been mounted in false ceilings or false floors
Order number **FAA-420-RI**

FMC-300RW Single Action Call Points



These single-action, resettable products are for manually triggering an alarm in the event of fire. The series includes two types: Glass-break versions with a glass pane (covered with plastic sheet to prevent injury). Resettable versions without a glass pane, which are reset simply by inserting and turning a key. Activation of the call points can be heard, felt, and seen – thus leaving no doubt that they have been successfully triggered. An activated call point's address appears on the fire panel so its location can be quickly pinpointed. The units also come with a variety of accessories such as bezels, keys, and spacers for installation in different conditions.

Features

- ▶ Alarm triggering by pressing the black marking or breaking the glass pane
- ▶ Protection against injury by plastic sheet-covered glass pane
- ▶ LED display for evaluating triggered alarms and inspection
- ▶ Highly reliable and flexibly deployable
- ▶ EN 54-11 approved

Certifications and Approvals

Applies to EN 54-11:2001/A1:2005

Region	Certification	
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

Parts Included

Quantity	Components
1	FMC-300RW-GSGBU Manual Call Point with Glass Pane, Blue
1	FMC-300RW-GSRBU Manual Call Point Resettable, Blue
1	FMC-300RW-GSGRD Manual Call Point with Glass Pane, Red
1	FMC-300RW-GSRRD Manual Call Point Resettable, Red
1	FMC-300RW-GSGYE Manual Call Point with Glass Pane, Yellow
1	FMC-300RW-GSRYE Manual Call Point Resettable, Yellow



Notice

The FMC-KEY-RW Test Key is not included in the scope of delivery and must be ordered separately.

Technical Specifications

Electrical

Operating voltage	20 VDC (8.5 VDC to 30 VDC)
Current consumption	specified by the respective security system
Alarm resistor	820 Ω +/- 10% (8.5 VDC to 30 VDC)

Mechanical components

Dimensions (H x W x D)	87 mm x 87 mm x 56 mm (3.4 in. x 3.4 in. x 2.2 in.)
Housing material	Plastic, ASA
Colors	
• Red	RAL 3001
• Blue	RAL 5005
• Yellow	RAL 1003

Environmental conditions

Protection category according to EN 60529	IP 54
Permissible operating temperature	-25 °C to +70 °C

Ordering Information

FMC-300RW-GSGBU Manual Call Point with Glass Pane, Blue

for indoor use, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSGBU**

FMC-300RW-GSRBU Manual Call Point Resettable, Blue

for indoor use, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSRBU**

FMC-300RW-GSGRD Manual Call Point with Glass Pane, Red

for indoor use, surface-mounted, direct alarm triggering (type A), conventional technology
Order number **FMC-300RW-GSGRD**

FMC-300RW-GSRRD Manual Call Point Resettable, Red

for indoor use, surface-mounted, direct alarm triggering (type A), conventional technology
Order number **FMC-300RW-GSRRD**

FMC-300RW-GSGYE Manual Call Point with Glass Pane, Yellow

for indoor use in interior areas, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSGYE**

FMC-300RW-GSRYE Manual Call Point Resettable, Yellow

for indoor use in interior areas, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSRYE**

FMC-SPGL-RW Spare Glasses

Spare glasses for all RW call points.
1 unit = 5 spare glasses
Order number **FMC-SPGL-RW**

Accessories**FMC-SIGN-RW Out of Order Sign**

Used instead of the glass pane when a call point is not ready for use.
1 unit = 5 signs
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 Clear Hinged Flap

To protect against accidental triggering; with seal.
1 unit = 5 flaps
Order number **FMC-FLAP-RW**

FNM-320 Sounders Conventional



This integrated sound transducer offers a selection of 32 distinct tones, including various wailing tones, fire alarm signals (e.g. the DIN tones defined in EN 457 and DIN 33404), etc. The tones are set using a 5-pin DIP switch in the sounder. A second tone can be set for two-stage alarms; it is activated via the second input. An integrated potentiometer permits flexible adjustment of the volume. Depending on the operating voltage and the set tone and volume, the maximum sound pressure level is 112 dB(A). A monitored connection to a fire panel is possible. A bayonet lock simplifies mounting.

Features

- ▶ Maximum volume of 112 dB(A)
- ▶ Compact, robust, and maintenance-free
- ▶ Suitable for adverse environmental conditions
- ▶ Available as combined solution sounder with integrated LED
- ▶ Available in versions for surface- and flush-mount feed cables

Certifications and Approvals

Region	Certification	
Europe	CE	FNM-320-SRD, FNM-320-FRD, FNM-320-SWH, FNM-320-FWH
	CE	FNM-320-LEDSRD
	CPD	0832-CPD-1374 FNM-320-SRD, FNM-320-SWH, FNM-320-FRD, FNM-320-FWH
	CPD	0832-CPD-1375 FNM-320LED-SRD
Germany	VdS	G 210036 FNM-320-Serie
	VdS	G 210037 FNM-320-LEDSRD
Poland	CNBOP	1182/2012 FNM-320

Parts Included

Qty.	Components
1	Acoustic Signaling Device, red or white
1	Base, surface or flush mounting

Technical Specifications

Electrical

Operating voltage	9 V DC to 30 V DC
Max. current consumption	<ul style="list-style-type: none"> • FNM-320-SRD /-FRD/-SWH/-FWH 33 mA • FNM-320-LEDSRD 36 mA
Monitoring	Reverse polarity

Mechanics

Dimensions (W x H)	<ul style="list-style-type: none"> • FNM-320-FWH/-FRD Ø 93 mm x 63 mm • FNM-320-SWH/-SRD Ø 93 mm x 91 mm • FNM-320-LEDSRD Ø 93 mm x 107 mm • Weight <ul style="list-style-type: none"> • FNM-320-SWH/-SRD FWH/-FRD 250 g • FNM-320-LEDSRD 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"> • FNM-320-SWH/-SRD FWH/-FRD -25 °C to +70 °C • FNM-320-LEDSRD -10 °C to +55 °C
Permissible rel. humidity	Complies with EN 54-3
Protection class as per EN 60529	<ul style="list-style-type: none"> • FNM-320-FWH/-FRD IP 54 * • FNM-320-SWH/-SRD IP 65 * • FNM-320-LEDSRD IP 65 *

* Manufacturers specification, not third party verified

Special features

Max. sound pressure	<ul style="list-style-type: none"> • At 12 V 105 dB(A) ±3 dB(A) • At 24 V 112 dB(A) ±3 dB(A)
FNM-320-LEDSRD	

• Light output	> 0.5 cd
• Flash rate	1 Hz

Ordering Information

FNM-320-SRD Sounder Red, Surface Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-SRD**

FNM-320-FRD Sounder Red, Flush Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-FRD**

FNM-320-SWH Sounder White, Surface Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-SWH**

FNM-320-FWH Sounder White, Flush Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-FWH**

FNM-320-LEDSRD Sounder Red with LED, Surface Mounting

for connection to fire alarm systems, with sound transducer and integrated LED, suitable for use in adverse environmental conditions

Order number **FNM-320-LEDSRD**

MSS-300 Base Sounder



This sounder comes in two different versions: a base sounder and a standalone model. The integrated electronic tone generator can output 11 different tones (including DIN tones conforming to DIN 33404 and EN 457). They include various wailing tones, fire alarm signals, etc. Depending on the operating voltage and the set tone and volume, the sound intensity varies between 87 and 100 dB(A). The tone and volume are set using an integrated DIP switch and a flexibly adjustable potentiometer.

Features

- ▶ Maximum volume of 100 dB(A)
- ▶ Integrated electronic tone generator
- ▶ 11 distinct tones (incl. DIN tone)
- ▶ High reliability and long service life
- ▶ For surface- and flush-mount feed cables

Certifications and Approvals

Region	Certification	
Europe	CE	MSS 300 SA
	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

Technical Specifications

Electrical

MSS 300-SA

Operating voltage	9 V DC to 30 V DC
Current consumption from external source	Standby: 1 mA Alarm: max. 20 mA

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 MSS 300SA

Connections (inputs/outputs)	0.28 mm ² to 2.5mm ²
Dimensions (W x H)	128 x 40.5 mm
Weight	
• Without packaging	Approx. 230 g
• With packaging	Approx. 275 g
• Housing	
• Material	Plastic, ABS (Novodur)
• Color	Red, similar to RAL 3001 White, similar to RAL 9010

MSS 300

Connections (inputs/outputs)	0.28 mm ² to 2.5 mm ²
Dimensions (W x H)	128 x 40.5 mm
Weight	
• Without packaging	Approx. 220 g
• With packaging	Approx. 260 g
Housing	
• Material	Plastic, ABS (Novodur)
• Color	White, similar to RAL 9010

Environmental conditions MSS 300SA

Protection class as per EN 60529	IP 54
Permissible operating temperature	-10 °C to +55 °C
Permissible storage temperature	-25 °C to +85 °C

MSS 300

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 Detector Base Sounder White
Control via C-point of the detector
Order number **MSS 300**

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MSS 300-SA Red, Conventional Technology

Stand-alone Signaling Device triggered via an FLM-420-NAC or NZM 0002 A, tone type set via DIP switch, volume set via potentiometer

Order number **MSS300-SA**

FNS-320 Beacons Conventional



The FNS-320 Beacons are universally employable signaling devices for optical alarms and designed for connection to fire panels. The beacon lamp is mounted in the upper, clear part of the device. When activated via the fire panel, it flashes at a rate of once a second. The connections are protected against reverse polarity. The upper part is attached to the base by a bayonet lock. The strobe lens has screw threads and is additionally secured against removal by a safety screw.

Features

- ▶ Compact, robust and maintenance-free
- ▶ Xenon flash tubes for reliability, bright light, and long service life
- ▶ For two operating voltages: 12 and 24 V DC
- ▶ Can be used in adverse environmental conditions
- ▶ Suitable for indoor and outdoor use

Certifications and Approvals

Region	Certification	
Europe	CE	FNS-320-SRD, FNS-320-SYE, FNS-320-SWH, FNS-320-SGR
Germany	VdS	G 210038 FNS-320 Serie
Poland	CNBOP	1229/2012 FNS-320-SRD

Parts Included

Quant.	Component
1	Signaling device in red, clear, amber or green
1	Mounting base, red, surface mounting

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	Complies with EN 54-3

*Manufacturers specification, not third party verified

Special features

Light output	10 cd (1.25 J)
Flash rate	1Hz

Ordering Information

FNS-320-SRD Beacon Red, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SRD**

FNS-320-SGR Beacon Green, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SGR**

FNS-320-SYE Beacon Amber, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SYE**

FNS-320-SWH Beacon Clear, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SWH**

FPA-5000 Modular Fire Panel

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Modular Fire Panel FPA-5000	30
Panel Rails FPA-5000	60
Panel Controller FPA-5000	62
Housings for Frame Installation FPA-5000	70
Accessories - Frame Installation FPA-5000	80
Housings for Wall Mounting FPA-5000	91
Accessories - Wall Mounting FPA-5000	99
Power Supplies FPA-5000	105
Cable Sets and Accessories FPA-5000	108
Software FPA-5000	117

FPA-5000 With Functional Modules

2



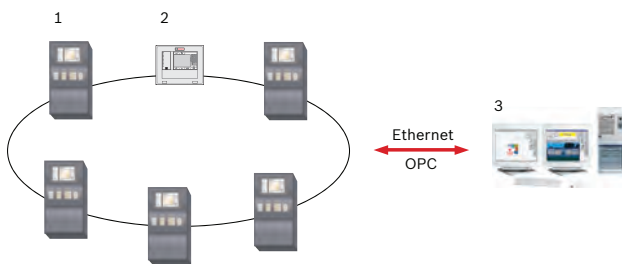
Thanks to the modular configuration, the innovative FPA-5000 Modular Fire Panel easily adapts to local circumstances and regulations. Due to the different functional modules, country-specific characteristics are accommodated in the connection just as quickly as the respective alarm handling.

The fire panel is available with two different housings:

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

With the aid of special mounting kits, the housings can be mounted in 482.6 mm (19") cabinets. All housings can be extended with various additional housings for all conceivable applications.

The FMR-5000 Remote Keypad offers the decentralized operation of a control panel or control panel network. Thanks to the external CAN, several Panel Controllers and Remote Keypads can be interconnected. With single-loop structure or multiple-loop structures, the network adapts to nearly every application conditions. Additionally, the Ethernet interface allows for the connection to a Building Management System (BIS Bosch Building Integration System) via an OPC server.



- 1 Fire Panel
- 2 Remote Keypad
- 3 Building Integration System (BIS)

FPA-5000 systems can be connected to the Bosch UGM 2040 Universal Security System and thus, be integrated into a large network system.

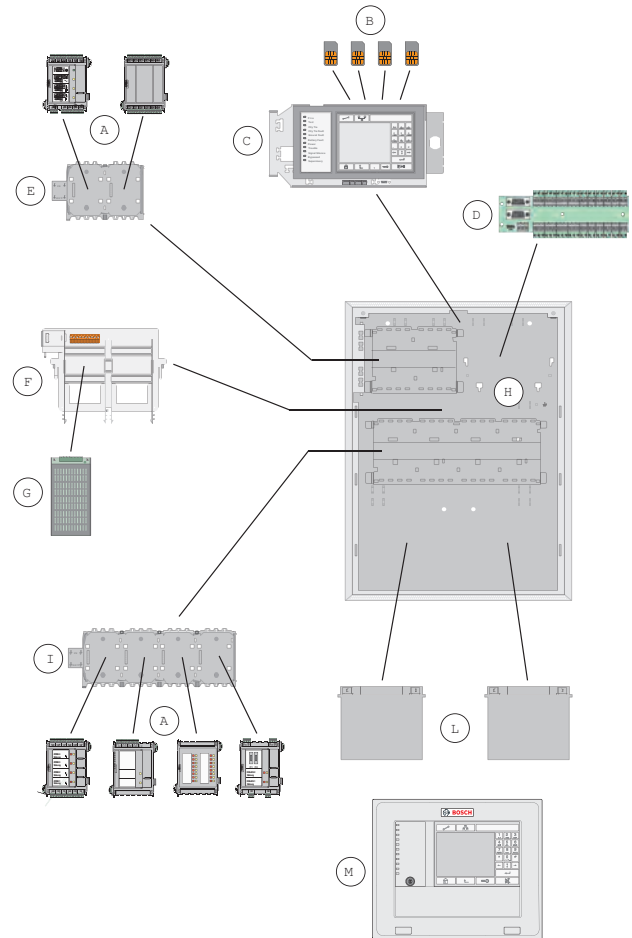
The entire fire detection system is configured via a laptop using the FSP-5000-RPS programming software.

Features

- ▶ Modular configuration allowing for easy extension
- ▶ Easy adaptation to country-specific regulations and conditions
- ▶ Complete set-up with up to 46 modules per control panel

- ▶ Interconnection of up to 32 Panel Controllers, Remote Keypads, and OPC servers
- ▶ Large LCD display with touch screen

System Overview



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

Functions

Modular Structure of the FPA-5000 Modular Fire Panel

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

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

1. Housing type: Frame installation or wall-mount
 - Selection of a basic housing
 - Optional Extension Housings
 - Optional Power Supply Housings
 - Optional kits for installation in 482.6 mm (19") racks
2. Operating and Display Unit with Panel Controller
 - Selection from the various language variants
3. Panel Rail
 - Selection according to housing type and/or number of required functional modules
4. Functional modules
 - Selection based on planning and country-specific requirements
5. Power supply
 - Batteries
 - Additional power supply facilities
 - Power Supply Brackets are preinstalled ex-works for Frame Installation Housings
 - For Wall-mount Housings, Power Supply Brackets are selected as needed
6. Additional accessories
 - Front Doors
 - Printer with Frame Installation Housing
 - Cable Sets for special applications

Modules

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

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

Module	Description
BCM-0000-B	Battery Controller Module <ul style="list-style-type: none"> • module that controls batteries and power supply
ANI 0016 A	Annunciator Module <ul style="list-style-type: none"> • with 16 red and 16 yellow LEDs, freely programmable
LSN 0300 A	LSN improved Module 300 mA <ul style="list-style-type: none"> • for the connection of an LSN loop with up to 254 LSN improved elements or 127 standard LSN elements, maximum line current 300 mA
LSN 1500 A	LSN improved Modul 1500 mA <ul style="list-style-type: none"> • for the connection of an LSN loop with up to 254 LSN improved elements, maximum line current 1500 mA, or with up to 127 standard LSN elements, maximum line current 300 mA

FPE-5000-UGM	Interface Module <ul style="list-style-type: none"> • for the connection to a UGM-2020 System
CZM 0004 A	4 Zone Conventional Module <ul style="list-style-type: none"> • for the connection of existing conventional peripherals, with four monitored conventional lines
IOS 0020 A	20 mA Communication Module <ul style="list-style-type: none"> • sports an S20 interface, an RS232 interface and an S1 interface • for a connection with a voice alarm system Plena via RS232
IOS 0232 A	RS232 Communication Module <ul style="list-style-type: none"> • with two RS323 interfaces • for a connection with a voice alarm system Plena, a printer or laptop
ENO 0000 B	Fire Service Interface Module <ul style="list-style-type: none"> • for the connection to fire service equipment according to DIN 14675
IOP 0008 A	Input/Output Module <ul style="list-style-type: none"> • with 8 digital inputs and 8 open collector outputs
RML 0008 A	Relay Module <ul style="list-style-type: none"> • with 8 relays for low voltage applications
RMH 0002 A	Relay Module <ul style="list-style-type: none"> • with 2 relays for mains power (250 V) and with feedback inputs (can also be used as an interface to extinguishing systems)
NZM 0002 A	Notification Appliance Zone Module <ul style="list-style-type: none"> • with two monitored primary lines

Networking

Up to 32 Panel Controllers, Remote Keypads, and OPC server can be connected to a single FPA-5000 network. Depending on the usage, Panel Controllers and Remote Keypads can either be defined as a group or as a network or as a local node. Within a group, only the conditions of the control panels belonging to the defined group can be displayed. From the network nodes, the conditions of all control panels, regardless of their classification as a group, can be displayed and edited.

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

1. Redundant loop via CAN1 and CAN2 (max. 32 nodes)
2. Redundant bus via CAN1 and CAN2

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 System Information (available online for download).

Detection Points

The Address Cards activate detection points. The FPA-5000 governs up to 4096 detection points. Each element and input which, after the programming, is able to set off an alarm requires a detection point. Inputs are considered as detection points if they are programmed accordingly in the FSP-5000-RPS Programming Software.

This applies to all manual call points and automatic detectors as well as to the following modules and interfaces because of their inputs:

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

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

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

Signaling devices and outputs have no detection points!

Certifications and Approvals

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

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

Region	Certification	
Europe	CE	FPA-5000
		4620/DT/2010 FPA-5000
Europe	CPD	0786-CPD-20818 FPA 5000
Germany	VdS-S	S205106 BS FPA
	VdS	G 205106 FPA-5000_G205106
	DIBt	Z-6.5-2027 (B) FSA 5000 LSN

Region	Certification	
	DIBt	Z-6.5-2027 (E) FSA 5000 LSN
Switzerland	VKF	AEAI 19197 FPA-1200_FPA-5000 Brandmeldesystem
Austria	PFB	007/BM-PSys/019/1 FPA-1200/5000 Brandmeldesystem
	PFB	007/BM-PSys/020/1 FPA-1200/5000 Brandfallsteuerzentrale
	PFB	007/BM-PSys/021 FPA-5000 Hierarchie
Belgium	BOSEC	TCC2-894/a FPA 1200_FPA 5000
Poland	CNBOP	2662/2008 FPA-5000
	CNBOP	0400/2008 FPA-5000
Czech Republic	TZÚS	080-011414 FPA-5000
Hungary	TMT	TMT-32/2005 FPA-5000
	MOE	UA1.016.0008784-11 FPA 5000
Singapore	PSB	022767 FPA-5000

Installation/Configuration Notes

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

General System Limits

	Max. number
Control Panels/Remote Keypads/OPC server in network	
• loop topology	32
• bus topology	8
Addresses	
• Stand-alone	4096 stand-alone
• In network	32512
• In network, per control panel	2032

Detection points / detector zones	
• Stand-alone	4096 stand-alone
• In network	32512
• In network, per control panel	2032

Limits per Fire Panel

Sets, e.g. bypass group	128
Total number of modules, per control panel	46
Printer	4
Alarm counter (external, internal, revision)	3
Number of entries in the event database	10000
FSP-5000-RPS programming interface	1
Time control channel	20
Time control programs	19
Programming defined days	365
User	200
Access level	4

System Limits Functional Modules

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

System Limits for Each LSN 0300 A Module

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



Notice

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

Installation Notes

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

Ordering Information

BCM-0000-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

displays the status of 16 individually programmable detection points
Order number **ANI 0016 A**

LSN 0300 A LSN improved Module 300 mA

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

FLM-420-EOL2W-W EOL Module LSN

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

LSN 1500 A LSN improved Module 1500 mA

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

Order number **LSN 1500 A**

FLM-420-EOL2W-W EOL Module LSN

for EN 54-13 compliant termination of LSN stubs or T-taps

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

FPE-5000-UGM Interface Module

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

Order number **FPE-5000-UGM**

CZM 0004 A 4 Zone Conventional Module

for connecting conventional peripherals; provides four monitored conventional lines

Order number **CZM 0004 A**

FLM-320-EOL2W Conventional EOL Module 2-Wire

for EN 54-13 compliant termination of conventional lines

Order number **FLM-320-EOL2W**

IOS 0020 A 20 mA Communication Module

provides one interface each of S20, RS232 and S1

Order number **IOS 0020 A**

IOS 0232 A RS232 Communication Module

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

Order number **IOS 0232 A**

ENO 0000 B Fire Service Interface Module

for connecting fire service equipment in compliance with DIN 14675

Order number **ENO 0000 B**

CPA 0000 A Cable Set AT 2000

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

Order number **CPA 0000 A**

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

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

Order number **RML 0008 A**

RMH 0002 A Relay Module

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

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

Order number **NZM 0002 A**

Accessories**FLM-320-EOL2W Conventional EOL Module 2-Wire**

for EN 54-13 compliant termination of conventional lines

Order number **FLM-320-EOL2W**

FLM-420-EOL2W-W EOL Module LSN

for EN 54-13 compliant termination of LSN stubs or T-taps

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

FDP 0001 A Dummy Cover Plate

For available module slots

Order number **FDP 0001 A**

PSK 0001 A Labelling Strips, Wide

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

Order number **PSK 0001 A**

PSL 0001 A Labelling Strips, Small

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

Order number **PSL 0001 A**

BCM-0000-B Battery Controller Module



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.

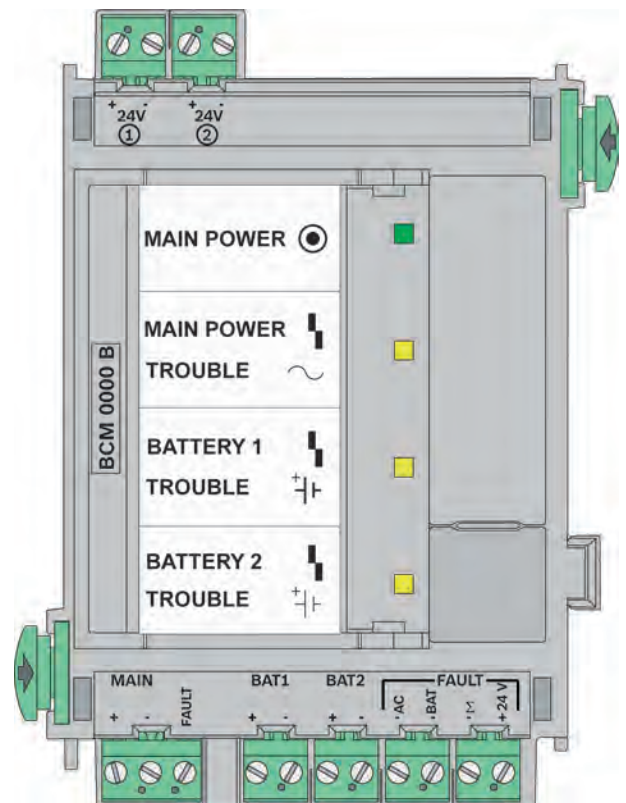
The key has three functions, depending on the state of the battery controller module:

- 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.

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
- ▶ Ready to go thanks to plug-and-play technology and pluggable terminal blocks

System Overview



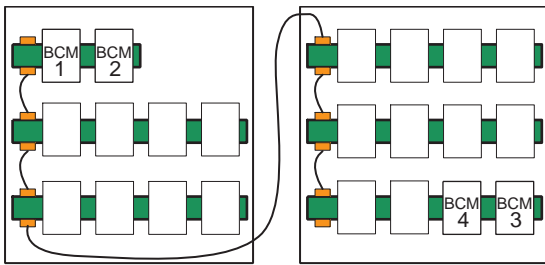
Description	Connector
24V +/-	Output max. 2.8 A (battery buffered)
24V +/-	Output max. 2.8 A (battery buffered)
MAIN +/-	Power supply unit UPS
MAIN FAULT	Input fault, mains
BAT1 +/-	Battery pair 1
BAT2 +/-	Battery pair 2
FAULT AC -	Main power fault signal output
FAULT BAT-	Battery fault signal output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

Installation/Configuration Notes

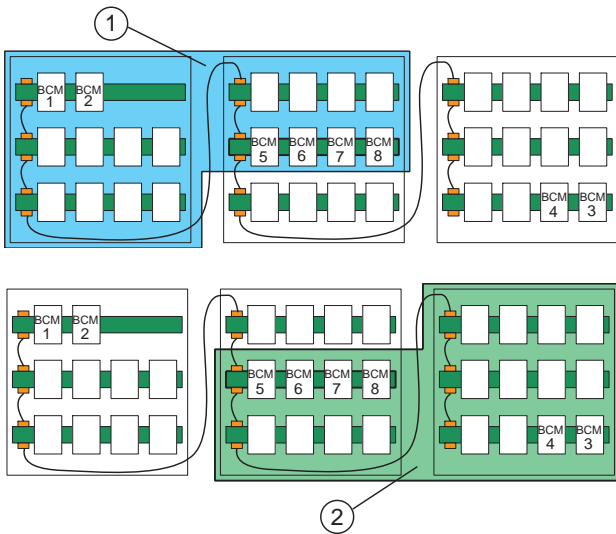
- Do not use the 24V outputs in parallel wiring.
- For FPA-5000 systems with the MPC xxxx A Panel Controller, the BCM 0000 A Battery Controller Module must be employed.

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

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

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

Formula (1) gives the maximum panel current required to provide a specific buffering time ($I_{max, Standby}$).
 Formula (2) gives the maximum panel current with simultaneous consideration of the battery charge ($I_{max, A}$).
 According to formula (3), the required standby current of the panel (I_{nom}) is based on the smaller value of the two maximum current values of the panel.
 Parameter:

- $t_{Standby}$ = buffering time in hour
- I_{Alarm} = maximum alarm current ($I_{max, B}$)
- C_{Batt} = battery capacity in Ah

- The following capacities are feasible:
- 24 – 26 Ah and 36 – 45 Ah for 2 batteries
 - 48 – 52 Ah and 72 – 90 Ah for 4 batteries

Parts Included

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

i 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	<ul style="list-style-type: none"> • Standby 25 mA • Fault 40 mA
Voltage outputs	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • to the panel rails (PRS 0002 A/ PRD 0004 A) • of the outputs 	<ul style="list-style-type: none"> Max. 6 A Max. 5.6 A (2 x 2.8 A, not in parallel wiring)
Maximum battery resistance (fault threshold)	430 mΩ
Permitted battery capacity	<ul style="list-style-type: none"> • 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"> • 1 green LED Power ON • 3 yellow LEDs Trouble mains/batt. 1/batt. 2 • 1 key Batteries charge at $V < 21 V$ and central units start with battery current
Housing material	ABS plastic, 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. 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

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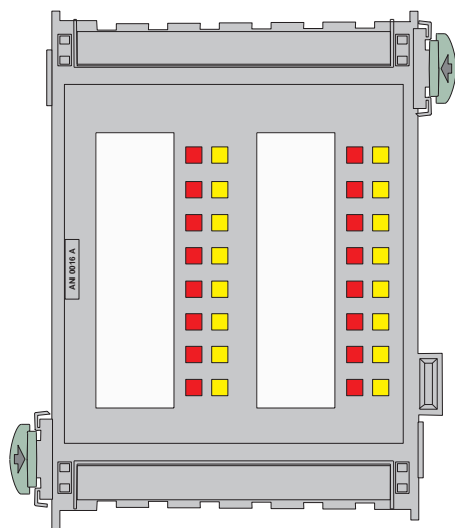


The module, with 16 red and 16 yellow LEDs, can display the status of 16 individually programmable detection points.

Features

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

System Overview



Functions

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

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

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

Parts Included

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

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC \pm 5%
Max. current consumption	<ul style="list-style-type: none"> • Standby (all LEDs off) 6 mA (at 24 V DC) • All LEDs on 26 mA (at 24 V DC)

Mechanics

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

Environmental conditions

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

Ordering Information

ANI 0016 A Annunciator Module

displays the status of 16 individually programmable detection points

Order number **ANI 0016 A**

LSN 0300 A

LSN improved Module 300 mA

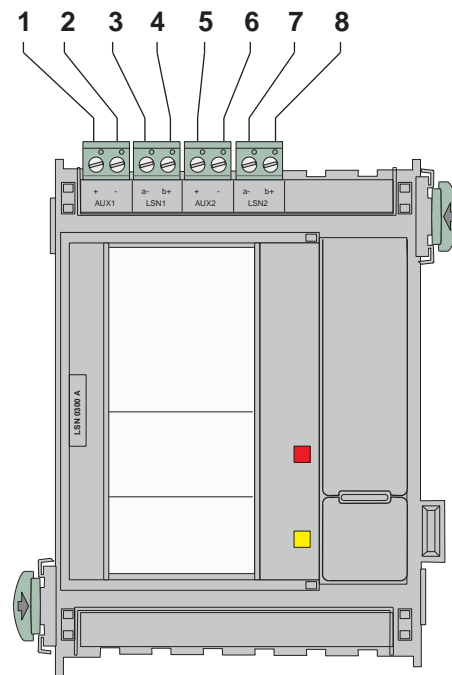


This module allows the connection of an LSN loop with up to 254 LSN improved elements or 127 classic LSN elements, with a maximum line current of 300 mA.

Features

- ▶ Up to 254 LSN improved elements
- ▶ Line length up to 1600 m, depending on configuration and cable type
- ▶ Unshielded cable can be used
- ▶ Line current up to 300 mA, depending on configuration and cable type
- ▶ Additional voltage output (ERT-capable)

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+

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

Installation/Configuration Notes



Notice

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

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

Parts Included

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

Technical Specifications**Electrical systems**

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

Mechanical systems

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

System limits

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

Environmental conditions

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

Ordering Information**LSN 0300 A LSN improved Module 300 mA**

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

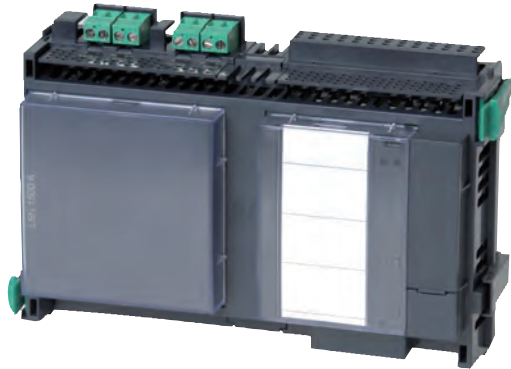
Order number **LSN 0300 A**

Accessories**FLM-420-EOL2W-W EOL Module LSN**

for EN 54-13 compliant termination of LSN stubs or T-taps

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

LSN 1500 A LSN improved Module 1500 mA

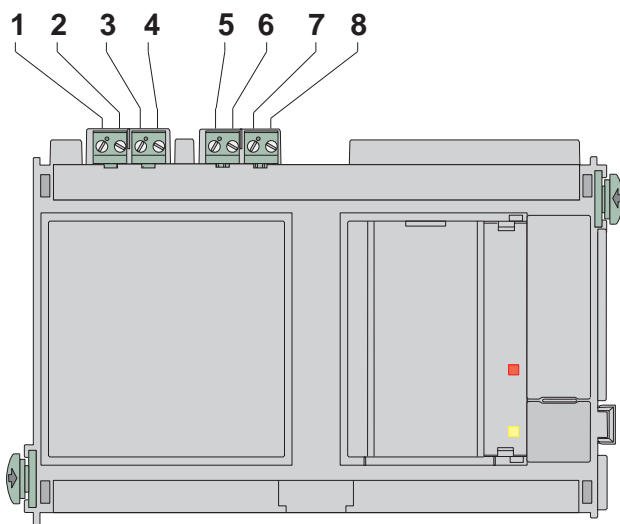


This module allows the connection of an LSN loop with up to 254 LSN improved elements with a maximum line current of 1500 mA or with up to 127 classic LSN elements, with a maximum line current of 300 mA.

Features

- ▶ Up to 254 LSN improved elements
- ▶ Line length up to 3000 m, depending on configuration and cable type
- ▶ Unshielded cable can be used
- ▶ Line current up to 1500 mA, depending on configuration and cable type
- ▶ Additional voltage output (ERT-capable)

System Overview



Item	Description	Connection LSN loop	Connection 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+

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

Installation/Configuration Notes

System limits for each LSN 1500 A LSN improved Module

- i Notice**
Current consumption of the connected devices and cable length can be calculated with the Fire System Designer (FSD).
- Country-specific standards and guidelines must be considered during planning.
 - It can only be plugged in on the left side of a PRD 0004 A panel rail and requires two slots!
 - For operation of the fire detection system according to EN 54-13, it is necessary to terminate every stub and T-tap with EOL-modules.

Parts Included

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

- i Notice**
Ready for delivery on request.

Technical Specifications

Electrical systems

Input voltage	20 V DC to 30 V DC / 5 V DC ± 5 %
Output voltage:	
• LSN	30 ± 0.85 V DC
• Aux auxiliary power	28 ± 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 VDC)	Max. 500 mA in an LSN loop (ERT system) or 2 x max. 500 mA in 2 stubs

Mechanical systems

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

System limits

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

Environmental conditions

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

Ordering Information**LSN 1500 A LSN improved Module 1500 mA**

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 EOL Module LSN**

for EN 54-13 compliant termination of LSN stubs or T-taps

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

FPE-5000-UGM Interface Module

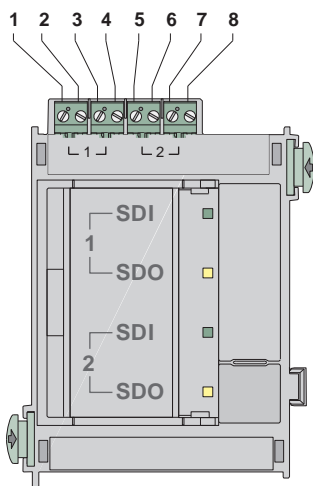


The Communication Module is used to connect the fire panels FPA-5000 and FPA-1200 to a superordinate system like the UGM 2020, FAT 2002/RE and FSM-2000. The module provides two bi-directional transmission paths.

Features

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

System Overview



Pos	Labeling	Connection	
1	SDI 1 +	Transmission path 1	Data input +
2	SDI 1 -		Data input -
3	SDO 1 +	Transmission path 2	Data input +
4	SDO 1 -		Data input -

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

Functions

Quant.	Component
1	FPE-5000-UGM Interface Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC
Maximum current consumption	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 4 Bi-colorLEDs: Green = transmission / Yellow = fault • 1 key switch: LED test
Housing material	ABS plastic (UL94 V-0)
Housing color	satın finish, anthracite, RAL 7016
Dimensions	110 x 90 x 60 mm
Weight	150 g

Environmental conditions

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

Ordering Information

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

CZM 0004 A 4 Zone Conventional Module

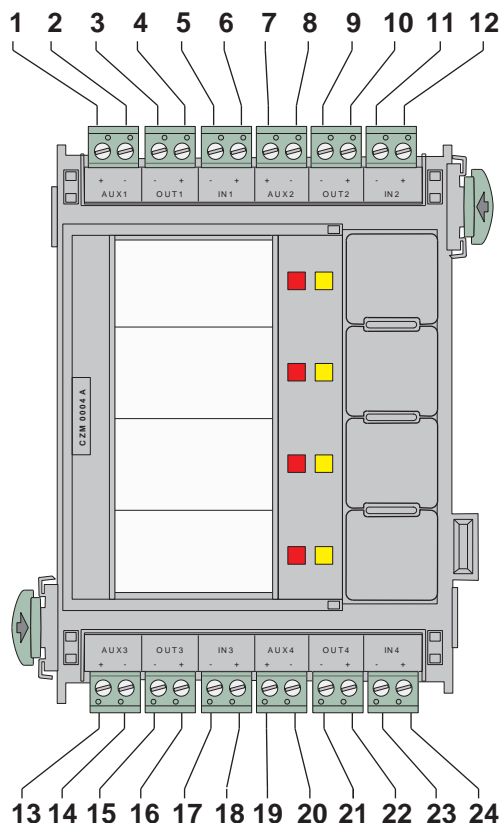


The CZM 0004 A is used to connect conventional peripherals and provides four monitored conventional lines.

Features

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

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

Qty.	Components
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"> • Standby (all 4 zones) 65 mA (at 24 V DC) • Alarm (all 4 zones) 65 mA + 100 mA per zone (at 24 V DC)
Outputs OUT1- OUT4	

• Max. output voltage	20 V DC \pm 5%
• Max. output current	100 mA per zone \pm 10%
• Max. line resistance	2 x 25 Ω per zone

Auxiliary power supply AUX1 - AUX4

• Max. output current (all 4 outputs in total)	230 mA
--	--------

Mechanics

Operating/display elements	8 LEDs (4 x red, 4 x yellow) 4 keys
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. 135 g (4.8 ounces)
• With packaging	Approx. 270 g (9.5 ounces)

Environmental conditions

Permitted operating temperature	-5 °C to 50 °C (23 °F to 122 °F)
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**CZM 0004 A 4 Zone Conventional Module**

for connecting conventional peripherals; provides four monitored conventional lines

Order number **CZM 0004 A**

IOS 0020 A 20 mA Communication Module



The IOS 0020 A Communication Module has the following interfaces:

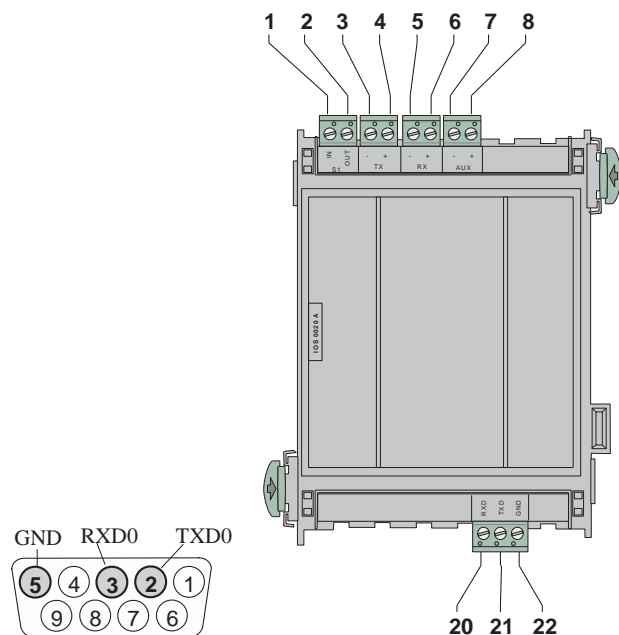
- An S20 interface
- An RS232 interface
- An S1 interface.

The voice alarm system Plena can be connected via RS232.

Features

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

System Overview



Pos.	Description	Connector
1/2	S1 IN/OUT	S1 interface

3/4	TX - / +	20 mA interface
5/6	RX + / -	20 mA interface
7/8	AUX - / +	Power supply, +24 V DC/max. 1.3 A
20/ 21/22	RXD/TXD/GND	RS232 interface

Parts Included

Qty.	Components
1	IOS 0020 A 20 mA Communication Module

Technical Specifications

Electrical

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

Mechanics

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

Environmental conditions

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

Ordering Information

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

IOS 0232 A RS232 Communication Module

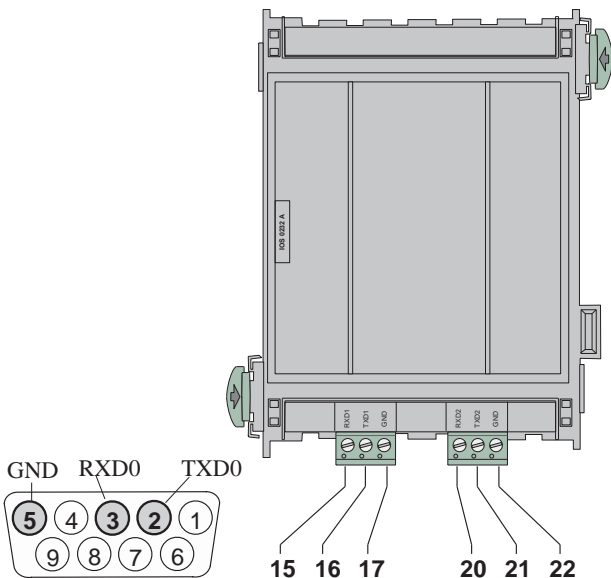


The RS232 Communication Module can be used to connect two devices, e.g. voice alarm system Plena, a laptop or a printer, via two independent serial interfaces.

Features

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

System Overview



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

Parts Included

Qty.	Components
1	IOS 0232 A RS232 Communication Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC (min...max) 5 V DC ± 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 RS232 Communication Module

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 Fire Service Interface Module



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

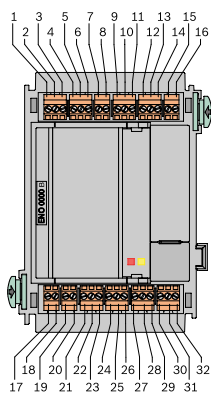
- Transmission unit to fire service (AT 2000)
- SD key deposit
- Signal light (BEGA light, BL 200)
- Monitoring of a release device
- 4 freely-programmable relays.

The ENO 0000 B module is only used in Germany.

Features

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

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

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

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC ± 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 Ω
Max. cable length key deposit	10 m
Cable type key deposit	LiYY 10 x 0.5 mm ²

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
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 Fire Service Interface Module

for connecting fire service equipment in compliance with DIN 14675

Order number **ENO 0000 B**

Accessories

CPA 0000 A Cable Set AT 2000

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

Order number **CPA 0000 A**

IOP 0008 A Input/Output Module

2

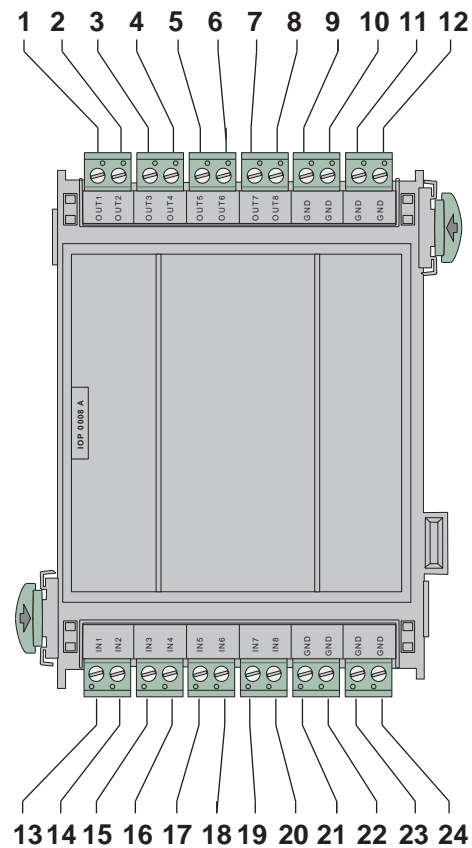


The IOP 0008 A Input/Output Module has eight independent digital inputs and eight open collector outputs for individual displays or flexible connection of various electrical devices.

Features

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

System Overview



Pos.	Description	Connector
1-8	OUT1-OUT8	8 outputs with a max. voltage of 35 V DC, nominal 700 mA
9-10	GND	Ground
11-12	GND	Ground
13-20	IN1-IN8	8 inputs with a max. voltage of 5 V DC at 0.1 mA per input
21-22	GND	Ground

Parts Included

Qty.	Components
1	IOP 0008 A Input/Output Module

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC ± 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

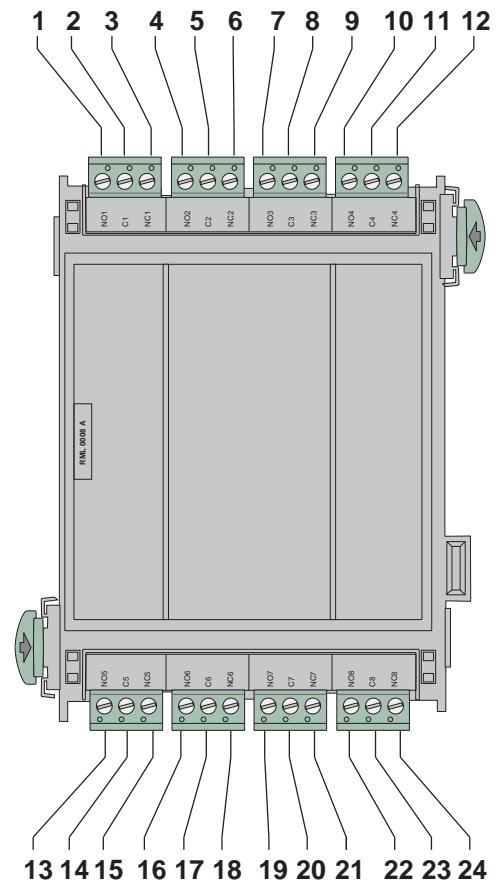


The module has eight change-over contact relays (type C) to provide potential-free output contacts. Each of the eight relays has an NO (normally open) and an NC (normally closed) contact. The maximum relay contact load is 30 V DC/1 A.

Features

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

System Overview



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

Parts Included

Qty.	Components
1	RML 0008 A Relay Module Low Voltage

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC \pm 5%
Max. current consumption	<ul style="list-style-type: none"> 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, 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

RML 0008 A Relay Module

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

Order number **RML 0008 A**

RMH 0002 A Relay Module



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.

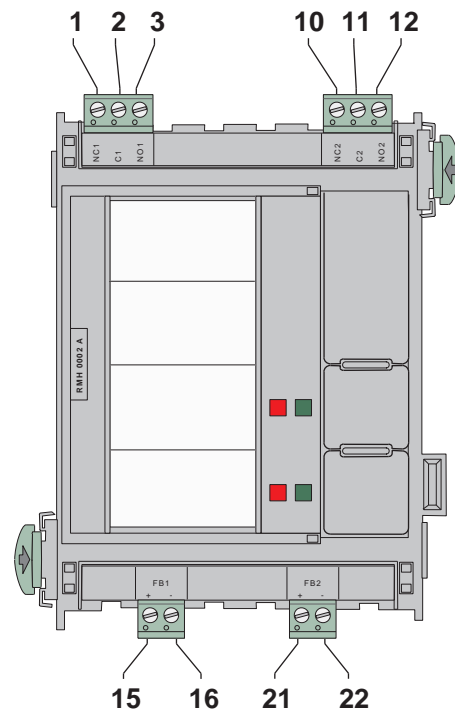
The maximum relay contact load is 5 A at 120 V/230 V AC and 5 A at 30 V DC.

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

Features

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

System Overview



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

Parts Included

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

Technical Specifications

Electrical

Input voltage	20 V DC to 30 V DC 5 V DC \pm 5%
Max. current consumption	
• Standby	10 mA (at 24 V DC)
• Both relays triggered	50 mA (at 24 V DC)
Max. contact load	5 A at 120/230 V AC 5 A at 30 V DC
Feedback current	Max. 4.5 mA per relay
Feedback voltage	Max. 30 V DC
Maximum line resistance of the feedback lines	2 x 25 Ω
Fuses	F1 = T 6.3 A, F2 = T 6.3 A

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**

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

2



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:

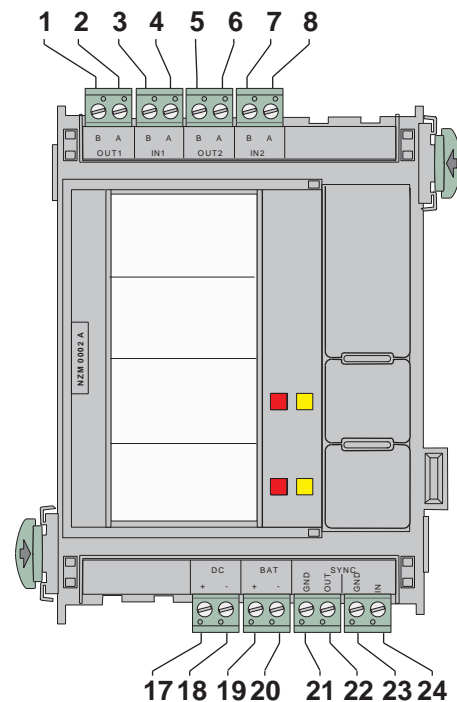
- Sirens
- Strobes
- Horns

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

Features

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

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 + / -	24 V DC input, battery voltage
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 EN 54-13 the signaling device lines must be designed in loop topology.

Parts Included

Qty.	Components
1	NZM 0002 A Notification Appliance Zone Module
2	Labelling 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	
• Standby (2 zones)	40 mA (at 24 V DC)
• Alarm (2 zones)	65 mA (at 24 V DC)
Max. output voltage	29.5 V DC
Max. output current for	
• Power supply via rail	500 mA per notification appliance zone line (in the event of an alarm)
• External power supply	3 A per notification appliance zone line (in the event of an alarm)
• Max. cable length	Dependent on type and number of connected signaling devices

Mechanics

Operating/display elements	4 LEDs (2 x red, 2 x yellow) 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

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**

ENO 0000 A Fire Service Interface Module

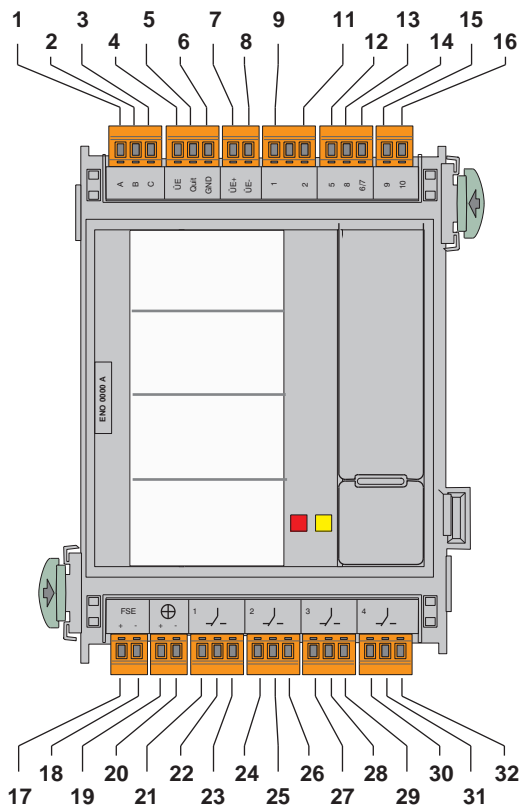


The ENO 0000 A enables the connection of fire service equipment in compliance with DIN 14675:

- 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 A 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
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

Parts Included

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

Technical Specifications

Electrical

Input voltage	20 V DC ... 30 V DC (min...max) 5 V DC ± 5%
Max. current consumption	<ul style="list-style-type: none"> • 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 Ω
Max. cable length key deposit	10 m (33 ft.)
Cable type key deposit	LiYY 10 x 0.5 mm ²

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

Ordering Information

ENO 0000 A Fire Service Interface Module

Order number **ENO 0000 A**

Accessories

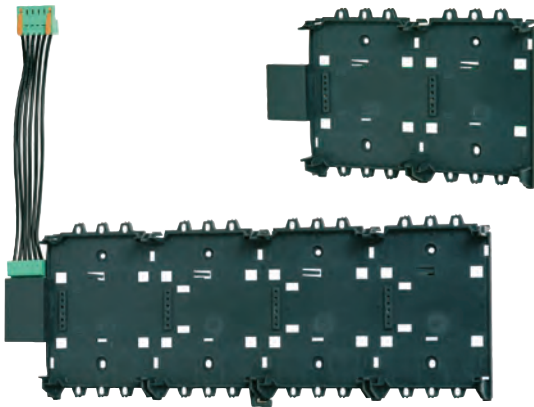
CPA 0000 A Cable Set AT 2000

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

Order number **CPA 0000 A**

Panel Rails

2



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

Features

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

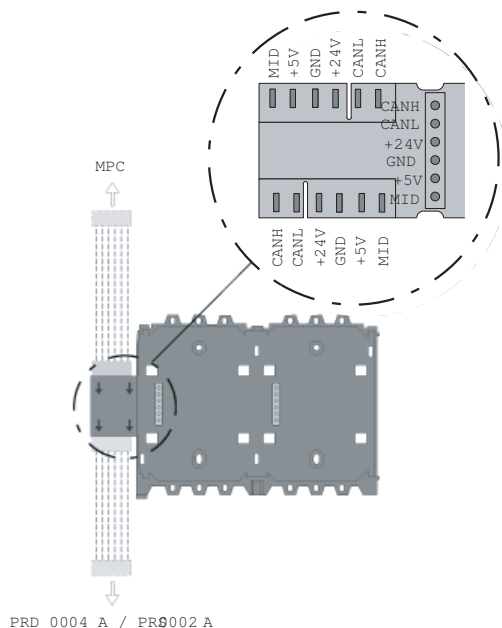
Functions

PRS 0002 A Panel Rail Short

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

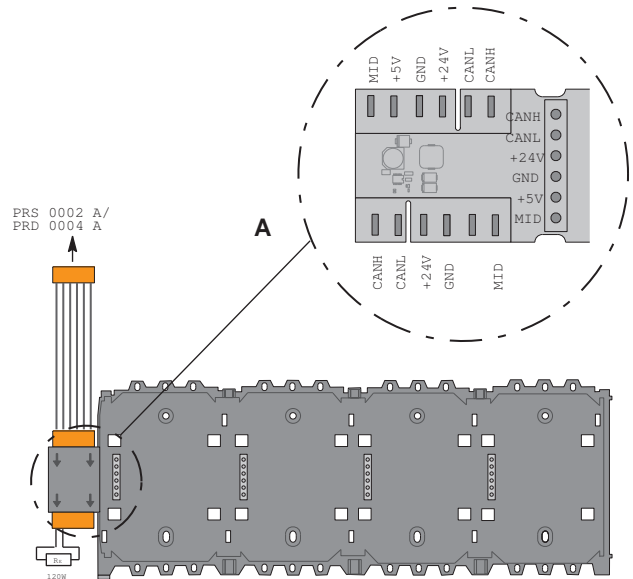
- BCM-0000-B Battery Controller Module
- IOS 0020 A and IOS 0232 A Communication Modules

The two modules on the short rail are supplied with voltage (+5 V/GND) directly from the Panel Controller.



PRD 0004 A Panel Rail Long

The PRD 0004 A Panel Rail Long has four module slots. The panel rails are supplied with voltage via the BCM-0000-B Battery Controller Module and have an integrated DC/DC voltage converter for the 5 V module operating voltage.



Parts Included

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

Technical Specifications

Electrical

Input voltage	+5 V DC via MPC +24 V DC via BCM-0000-B
Output voltage	
• PRS 0002 A	+5 V DC via DC/DC converter +24 V DC via BCM-0000-B
• PRD 0004 A	+5 V DC via BCM-0000-B +24 V DC via BCM-0000-B

Mechanics

Material	ABS plastic, Poly lac PA-766 (UL94 V-0)
Color	Satin finish, anthracite, RAL 7016
Dimensions	
• PRS 0002 A	Approx. 146 x 216 x 35 mm (5.7 x 8.5 x 1.4 inches)
• PRD 0004 A	Approx. 146 x 396 x 35 mm (5.7 x 15.6 x 1.4 inches)
Weight	

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

Environmental conditions

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

Ordering Information

PRS 0002 A Panel Rail Short

for up to 2 modules

Order number **PRS 0002 A**

PRD 0004 A Panel Rail Long

for up to 4 modules

Order number **PRD 0004 A**

Panel Controller

2

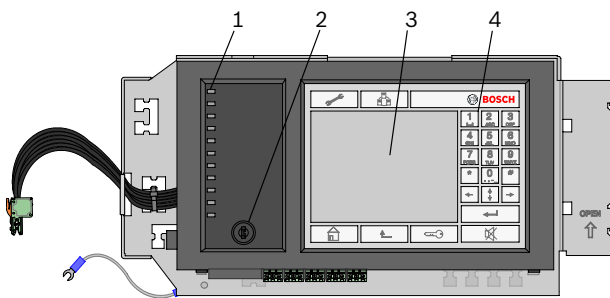


The Panel Controller is the central element of the system, which shows all messages on the display. The complete system is operated via a touch panel above the display. The user-friendly user interface adapts to the various situations. This allows correct operation that is simple, targeted and intuitive. The FSP-5000-RPS programming software enables adaptation to country-specific circumstances.

Features

- ▶ Interconnection of up to 54 Panel Controllers, Remote Keypads and OPC server
- ▶ Ethernet interface for OPC connection
- ▶ Ergonomic design
- ▶ 14.5 cm (5.7") touch-screen with 22 fixed keys for the standard entries
- ▶ 11 LEDs for displaying the operating status of the system

System Overview



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

Functions

Networking

Up to 54 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:

1. Redundant loop via CAN1 and CAN2 (max. 32 nodes)
2. Ethernet loop (max. 16 nodes)
3. Multiple CAN loops with Ethernet backbone and up to 54 nodes (max. 20 nodes per CAN loop)

Alarm indication

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

Operation / processing of messages

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

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

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

Interfaces

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

Saving and printing messages

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

Language variants

The language of the menu can be selected arbitrarily.

Installation/Configuration Notes

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

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

Parts Included

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

Technical Specifications

Electrical

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

Mechanics

Display element	14.5 cm (5.7") LCD display
Operating element	Touch screen
Permanent operating elements	22 keys
Permanent display elements	11 LEDs
Interfaces	CAN1, CAN2, Ethernet, USB, RS232, 2 signal inputs
Dimensions (H x W x D)	190 mm x 404 mm x 60 mm
Active surface (H x W)	127,5 mm x 170 mm
Weight	ca. 2 kg

Environmental conditions

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

Ordering Information

MPC-0000-B Panel Controller DE

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, German version.
Order number **MPC-0000-B**

MPC-2000-B Panel Controller ES

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Spanish version.
Order number **MPC-2000-B**

MPC-3000-B Panel Controller PL

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Polish version.
Order number **MPC-3000-B**

MPC-5000-B Panel Controller FR-NL

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, French / Dutch version.
Order number **MPC-5000-B**

MPC-6000-B Panel Controller EL

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Greek version.
Order number **MPC-6000-B**

MPC-7000-B Panel Controller RO-EN

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Romanian / English version.
Order number **MPC-7000-B**

MPC-8000-B Panel Controller RU

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Russian version.
Order number **MPC-8000-B**

MPC-9000-B Panel Controller TR

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Turkish version.
Order number **MPC-9000-B**

MPC-1300-B Panel Controller EN

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, English version.
Order number **MPC-1300-B**

MPC-1400-B Panel Controller PT

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Portuguese version.
Order number **MPC-1400-B**

MPC-1500-B Panel Controller CS

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Czech version.
Order number **MPC-1500-B**

MPC-1600-B Panel Controller HU

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Hungarian version.
Order number **MPC-1600-B**

MPC-1700-B Panel Controller IT-DE

central element of the system with a user-friendly user interface and an integrated high-resolution LCD touch-screen, Italian / German version.
Order number **MPC-1700-B**

Accessories

ADC 0064 A 64 Point Address Card

for MPC Panel Controller
Order number **ADC 0064 A**

ADC 0128 A 128 Point Address Card

for MPC Panel Controller
Order number **ADC 0128 A**

ADC 0512 A 512 Point Address Card

for MPC Panel Controller
Order number **ADC 0512 A**

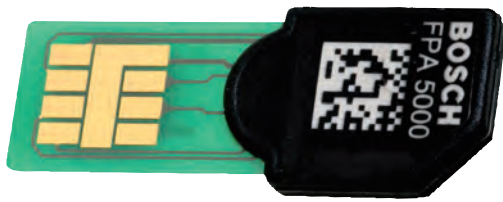
ADC 1024 A 1024 Point Address Card

for MPC Panel Controller
Order number **ADC 1024 A**

ADC-2048-A 2048 Point Address Card

for MPC Panel Controller
Order number **ADC-2048-A**

Address Cards

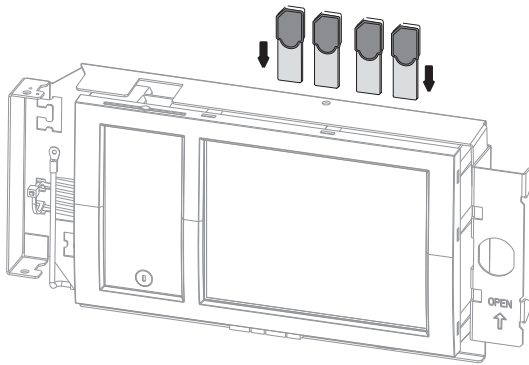


A control panel can be equipped with up to four optional Address Cards each containing 64, 128, 512, 1024 or 2048 addresses depending on requirements.

Features

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

System Overview



Installation/Configuration Notes

- The Address Cards activate detection points. The FPA-5000 governs up to 4096 detection points.
- Each element and input which, after the programming, is able to set off an alarm requires a detection point. Inputs are considered as detection points if they are programmed accordingly in the FSP-5000-RPS Programming Software.
- Detection points are required for:
 - manual call points and automatic detectors
 - inputs of LSN elements
 - inputs of functional modules
- Signaling devices and outputs have no detection points!
- Examples for required detection points:
 - The CZM 0004 A 4 Zone Conventional Module is allocated to 4 detection points, one per zone.
 - The IOP 0008 A Input/Output Module is allocated to up to 8 detection points, one for every single supervised input.

Parts Included

Type	Count	Components
ADC 0064 A	1	SIM card with 64 addresses

ADC 0128 A	1	SIM card with 128 addresses
ADC 0512 A	1	SIM card with 512 addresses
ADC 1024 A	1	SIM card with 1024 addresses
ADC 2048 A	1	SIM card with 2048 addresses

Ordering Information

ADC 0064 A 64 Point Address Card

for MPC Panel Controller
Order number **ADC 0064 A**

ADC 0128 A 128 Point Address Card

for MPC Panel Controller
Order number **ADC 0128 A**

ADC 0512 A 512 Point Address Card

for MPC Panel Controller
Order number **ADC 0512 A**

ADC 1024 A 1024 Point Address Card

for MPC Panel Controller
Order number **ADC 1024 A**

ADC-2048-A 2048 Point Address Card

for MPC Panel Controller
Order number **ADC-2048-A**

FMR-5000 Remote Keypad

2

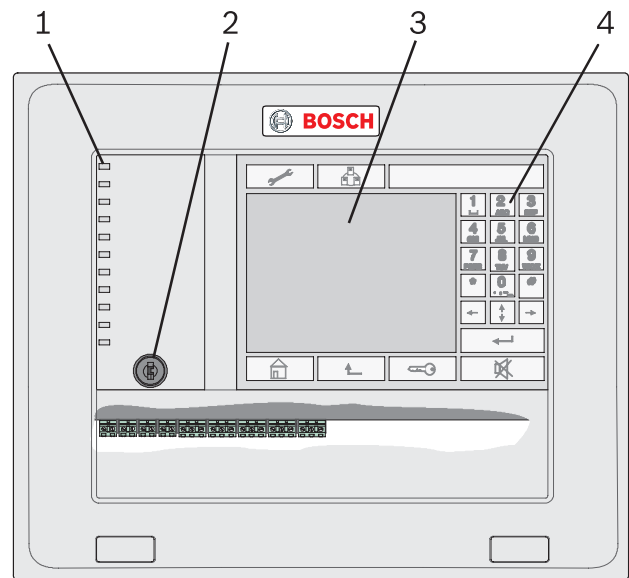


The FMR-5000 Remote Keypad is a convenient solution for the remote operation of the FPA-1200 Fire Panel, the FPA-5000 Modular Fire Panel or a complete network. The design of the user interface is identical with that of the FPA-1200 and FPA-5000 Panel Controllers and therefore enables an intuitive and quick operation. In a network of FPA-5000 fire panels, up to 32 Panel Controllers, Remote Keypads and OPC server can be connected. The FPA-1200 Fire Panel can be networked with up to three FMR-5000 Remote Keypads.

Features

- ▶ Identical user interface like Panel Controller
- ▶ Convenient solution for remote operation of fire panel
- ▶ Up to 32 Panel Controllers, Remote Keypads and OPC server in a network of FPA-5000 fire panels
- ▶ Surface and flush mounting possible
- ▶ 14.5 cm (5.7") touch-screen with 22 fixed keys for the standard entries

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 connected to a single FPA-5000 network. Depending on usage, various Panel Controllers and Remote Keypads can be grouped, defined as network or local node. Within a group, conditions of panels can be shown which also belong to the defined group. Independent of groups, via network nodes conditions of all panels can be displayed and be edited. Local nodes display conditions of the associated panel. For networking via CAN1 and CAN2 interfaces the following three connection topologies are possible:

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

Alarm indication

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

Operation / processing of messages

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

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

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

Interfaces

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

Saving and printing messages

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

Language variants

The language of the menu can be selected arbitrarily.

Certifications and Approvals

Region	Certification	
Germany	VdS	G 208161 FMR-5000
Poland	CNBOP	2663/2008 FMR-5000
	CNBOP	0401/2008 FMR-5000

Parts Included

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

Technical Specifications

Elektrical

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

Mechanical

Display element	14.5 cm (5.7") LCD display
Operating element	Touch screen
Fixed operating elements	22 keys
Fixed display elements	11 LEDs
Interfaces	CAN1, CAN2, Ethernet, 100BaseTX, USB, RS232
Dimensions (H x W x T)	280 mm x 340 mm x 87,2 mm
LCD display (H x W)	86 mm x 116 mm
Weight	ca. 3 kg

Environmental

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

Ordering Information

FMR-5000-00 Remote Keypad DE

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, German version.

Order number **FMR-5000-00**

FMR-5000-02 Remote Keypad ES

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Spanish version.

Order number **FMR-5000-02**

FMR-5000-03 Remote Keypad PL

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Polish version.

Order number **FMR-5000-03**

FMR-5000-05 Remote Keypad FR-NL

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, French / Dutch version.

Order number **FMR-5000-05**

FMR-5000-06 Remote Keypad EL

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Greek version.

Order number **FMR-5000-06**

FMR-5000-07 Remote Keypad RO-EN

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Romanian / English version.

Order number **FMR-5000-07**

FMR-5000-08 Remote Keypad RU

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Russian version.

Order number **FMR-5000-08**

FMR-5000-09 Remote Keypad TR

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Turkish version.

Order number **FMR-5000-09**

FMR-5000-13 Remote Keypad EN

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, English version.

Order number **FMR-5000-13**

FMR-5000-14 Remote Keypad PT

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Portuguese version.

Order number **FMR-5000-14**

FMR-5000-15 Remote Keypad CS

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Czech version.

Order number **FMR-5000-15**

FMR-5000-16 Remote Keypad HU

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Hungarian version.

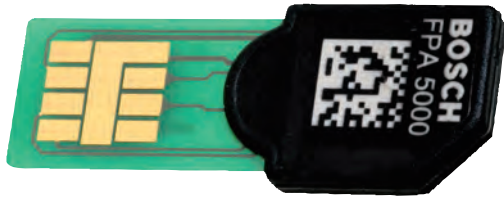
Order number **FMR-5000-16**

FMR-5000-17 Remote Keypad IT-DE

is a convenient solution for a remote and easy operation of the fire panels FPA-1200 and FPA-5000, Italian / German version.

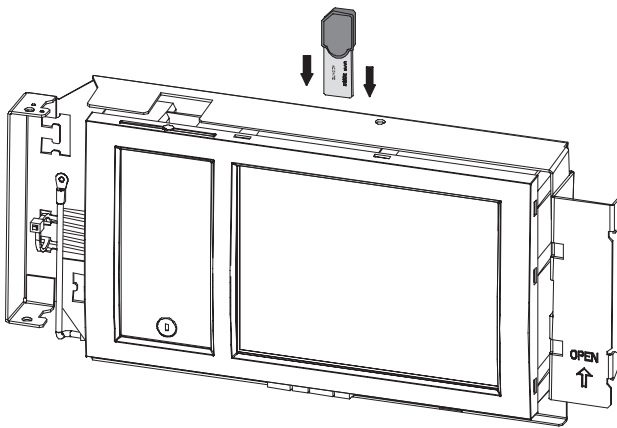
Order number **FMR-5000-17**

ADC-5000-OPC License Key



The ADC-5000-OPC License Key enables reliable communication between the BIS software and the fire panels FPA-1200 or FPA-5000 or networks. For each OPC server only one license key is required. The OPC server can monitor several fire panels or networks. The OPC server software can be found on the FSP-5000-RPS CD (2.0.49 and higher).

System Overview



Parts Included

Quant.	Component
1	ADC-5000-OPC License Key

Ordering Information

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

Housings for Frame Installation

2



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-cabling.

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.

Features

- ▶ Surface-mount or installation in 482.6 mm (19") racks
- ▶ Modular system

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.



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

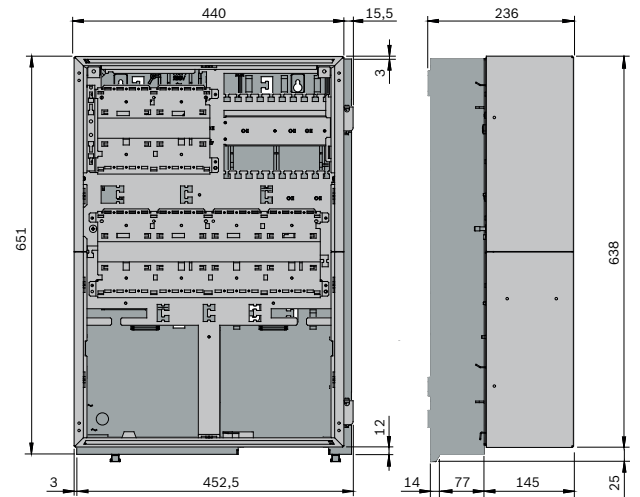
Alternatively, the housings CPH 0006 A, MPH 0010 A and EPH 0012 A can be equipped with transparent front doors made from impact resistant plastic with each door each having a lock on the left or right:

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

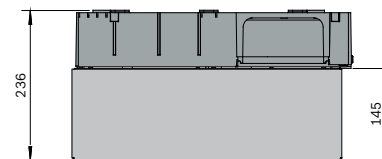
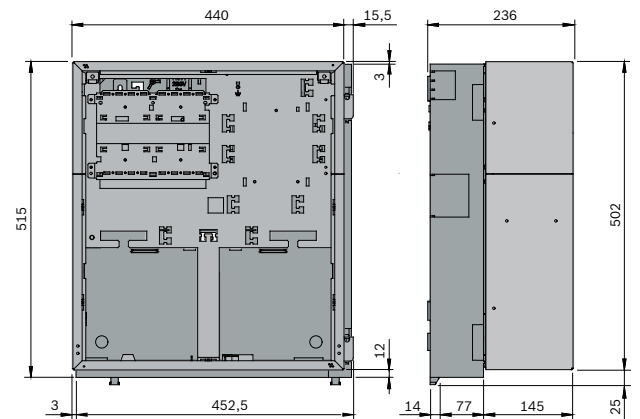
Installation/Configuration Notes

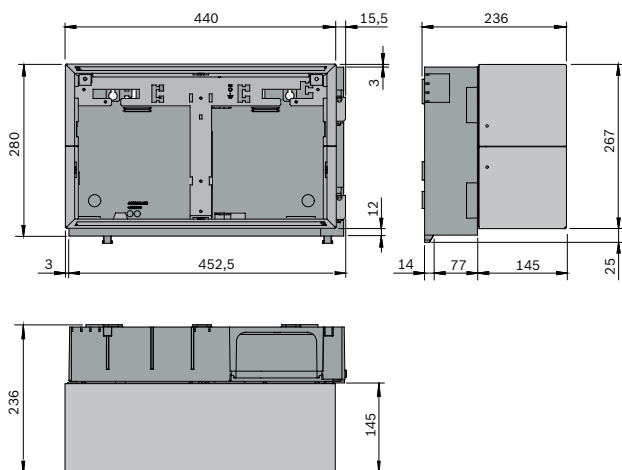
- All mounting frames have an opening for cable bushings; the opening is closed with an insert. Pre-formed cable routes can be created from the insert.
- At least 230 mm free space is required on the right next to the last housing; this space is for swiveling out the attached housing for connection, 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.

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**

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

Technical Specifications**Mechanics**

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015 Front: anthracite gray, RAL 7016
Dimensions	
• CPH 0006 A, MPH 0010 A and EPH 0012 A	Approx. 638 x 440 x 145 mm
• PMF 0004 A	Approx. 502 x 440 x 145 mm
• PSF 0002 A and USF 0000 A	Approx. 267 x 440 x 145 mm
Dimensions, incl. mounting frame	
• CPH 0006 A, MPH 0010 A and EPH 0012 A	Approx. 653 x 456 x 236 mm
• PMF 0004 A	Approx. 527 x 456 x 236 mm

• PSF 0002 A and USF 0000 A	Approx. 292 x 456 x 236 mm
Weight	
• CPH 0006 A and MPH 0010 A	Approx. 12.5 kg
• EPH 0012 A	Approx. 13.2 kg
• PMF 0004 A	Approx. 11.4 kg
• PSF 0002 A and USF 0000 A	Approx. 6.4 kg

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

for surface-mounting or installation in 482.6 mm (19") racks

Order number **CPH 0006 A**

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

for surface-mounting or installation in 482.6 mm (19") racks

Order number **MPH 0010 A**

EPH 0012 A Extension Housing for 12 Modules, Frame Installation

for surface-mounting or installation in 482.6 mm (19") racks

Order number **EPH 0012 A**

USF 0000 A Universal Housing Small, Frame Installation

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 Small, Frame Installation

for surface-mounting or installation in 482.6 mm (19") racks

Order number **PSF 0002 A**

PMF 0004 A Power Supply Big, Frame Installation

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 0000A

Order number **FSH 0000 A**

FHS 0000 A Mounting Frame Large with Distributor Rail

as per EN 60715, usable for housing CPH 0006 A, MPH 0010 A and EPH 0012 A

Order number **FHS 0000 A**

HMP 0003 A Mounting Plate for Mounting Frame

usable with FBH 0000 A and FHS 0000 A
Order number **HMP 0003 A**

RLE 0000 A Junction Board EU

Comes with 2 D-SUB connectors, 9-pin
Order number **RLE 0000 A**

FRB 0019 A 19" Rack Installation Kit, 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 19" Rack Installation Kit, Medium

used for the PMF 0004 A Power Supply Medium, Frame
Installation
Order number **FRM 0019 A**

FRS 0019 A 19" Rack Installation Kit, Small

used for Frame Installation Housings PSF 0002 A and
USF 0000 A
Order number **FRS 0019 A**

FDT 0000 A Front Door Transparent

Lock right side
Order number **FDT 0000 A**

FDT 0003 A Front Door Transparent

Lock left side
Order number **FDT 0003 A**

FDP 0001 A Dummy Cover Plate

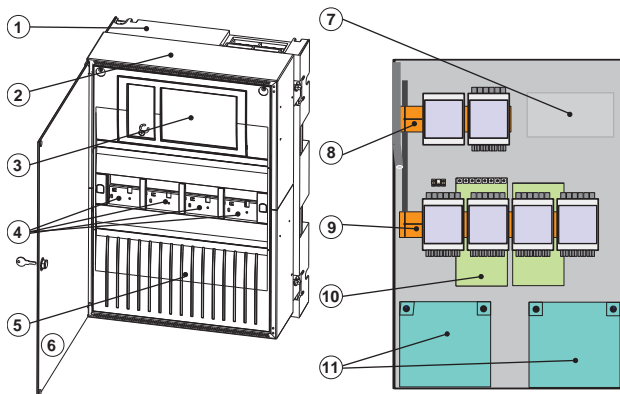
For available module slots
Order number **FDP 0001 A**

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



The CPH 0006 A can accommodate an MPC Operating and Display Unit with Panel Controller, up to six modules, two 12 V/45 Ah batteries, and a Power Supply. The Power Supply Bracket is fitted ex-works. The modular configuration means easy extension.

System Overview



Pos.	Description
1	Mounting frame
2	Housing
3	MPC Operating and Display Unit with Panel Controller
4	Modules 3-6
5	Space for 2 batteries
6	Front Door Transparent (optional)
7	Junction Board (optional)
8	Panel Rail for modules 1-2 (behind the MPC)
9	Panel Rail for modules 3-6
10	Power Supply Bracket for 1 Power Supply
11	2 x 12 V/45 Ah batteries

Installation/Configuration Notes

- The following are required for the CPH 0006 A Modular Panel Housing, Frame Installation:
 - An FBH 0000 A Mounting Frame Large or alternatively
 - An FRB 0019 A Rack Installation Kit for installation in a 482.6 mm (19") rack.
- A Power Supply Bracket for a UPS Power Supply is fitted ex-works.
- Can be equipped with:
 - 1 MPC Operating and Display Unit with Panel Controller
 - 1 PRS 0002 A Panel Rail Short, for 2 modules
 - 1 PRD 0004 A Panel Rail Long, for 4 modules
 - 1 UPS Power Supply
 - 2 x 12 V/45 Ah batteries
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 Front Door Transparent, lock left side

Parts Included

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

Ordering Information

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

for surface-mounting or installation in 482.6 mm (19") racks

Order number **CPH 0006 A**

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

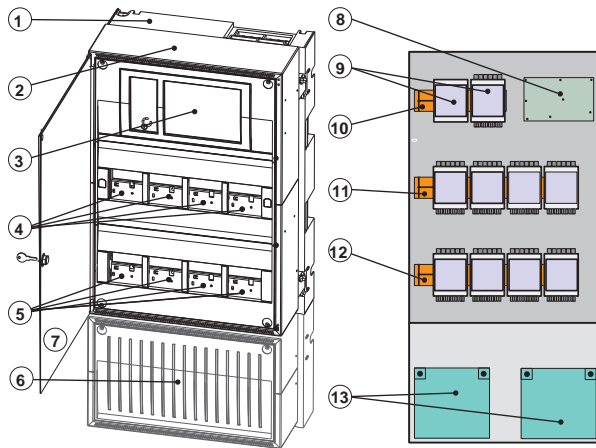


The MPH 0010 A can accommodate an MPC Operating and Display Unit with Panel Controller as well as up to 10 modules.

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

The modular configuration means easy extension.

System Overview



Pos.	Description
1	Mounting Frame
2	Housing
3	MPC Operating and Display Unit with Panel Controller
4	Modules 3-6
5	Modules 7-10
6	Power Supply (in a separate housing)
7	Front Door Transparent (optional)
8	Junction Board (optional)
9	Modules 1-2 (behind the MPC)

10	Panel Rail for modules 1-2
11	Panel Rail for modules 3-6
12	Panel Rail for modules 7-10
13	2 x 12 V/45 Ah batteries (in a separate Power Supply housing)

Installation/Configuration Notes

- The following are required for the MPH 0010 A Modular Panel Housing, Frame Installation:
 - An FBH 0000 A Mounting Frame Large or alternatively
 - An FRB 0019 A Rack Installation Kit for installation in a 482.6 mm (19") rack.
- Can be equipped with:
 - 1 MPC Operating and Display Unit with Panel Controller
 - 1 PRS 0002 A Panel Rail Short, for 2 modules
 - 2 PRD 0004 A Panel Rails Long, each for 4 modules
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 Front Door Transparent, lock left side

Parts Included

Pos.	Description
1	Housing

Ordering Information

MPH 0010 A Modular Panel Housing for 10 Modules, Frame Installation
 for surface-mounting or installation in 482.6 mm (19") racks
 Order number **MPH 0010 A**

EPH 0012 A Extension Housing for 12 Modules, Frame Installation



- Can be equipped with:
 - 3 PRD 0004 A Panel Rails Long, each for 4 modules
- Can be extended with:
 - FDT 0000 A Front Door Transparent, lock right side
 - FDT 0003 A Front Door Transparent, lock left side

Parts Included

Pos.	Description
1	Housing
1	CAN bus connection cable, cable length 190 cm

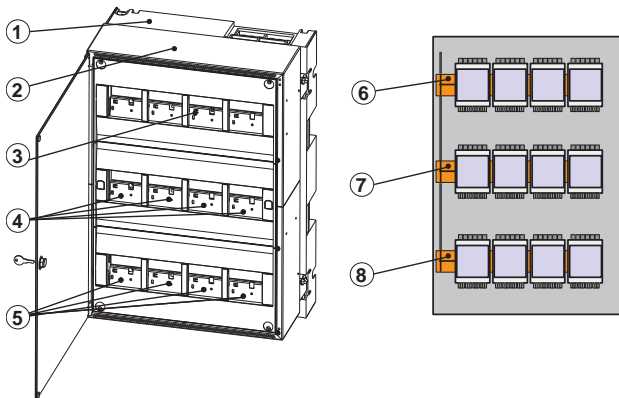
Ordering Information

EPH 0012 A Extension Housing for 12 Modules, Frame Installation

for surface-mounting or installation in 482.6 mm (19") racks

Order number **EPH 0012 A**

System Overview



Pos.	Description
1	Mounting Frame
2	Housing
3	Modules 1-4
4	Modules 5-8
5	Modules 9-12
6	Panel Rail for modules 1-4
7	Panel Rail for modules 5-8
8	Panel Rail for modules 9-12

The transparent front door is optional.

Installation/Configuration Notes

- The following are required for the EPH 0012 A Extension Housing, Frame Installation:
 - An FBH 0000 A Mounting Frame Large or alternatively
 - An FRB 0019 A Rack Installation Kit for installation in a 482.6 mm (19") rack.

USF 0000 A Universal Housing Small, Frame Installation



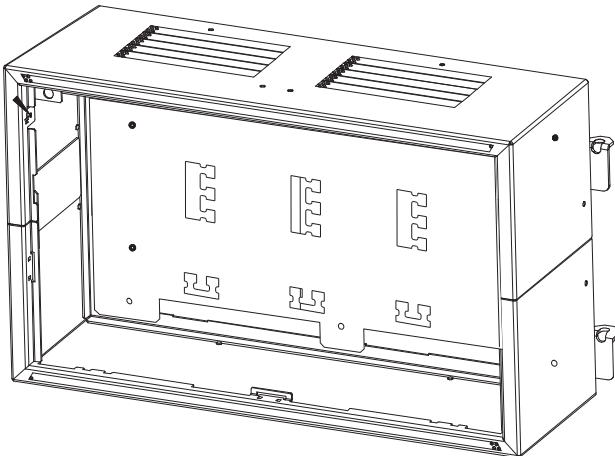
The USF 0000 A Universal Housing Small, Frame Installation is fitted with a mounting plate ex works, which can be equipped as required. It contains fixing holes for two distributor rails.



Notice

The distributor rails are not included in the scope of delivery.

System Overview



Installation/Configuration Notes

- The following are required for the USF 0000 A Universal Housing Small, Frame Installation:
 - An FSH 0000 A Mounting Frame Small or alternatively
 - An FRS 0019 A Rack Installation Kit for installation in a 482.6 mm (19") rack.

Parts Included

Pos.	Description
1	Housing
1	Mounting plate

Ordering Information

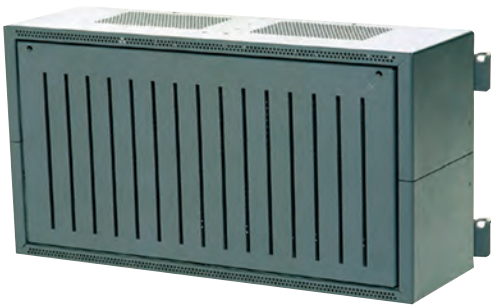
USF 0000 A Universal Housing Small, Frame Installation

comes with mounting plate, for surface-mounting or installation in 482.6 mm (19") racks

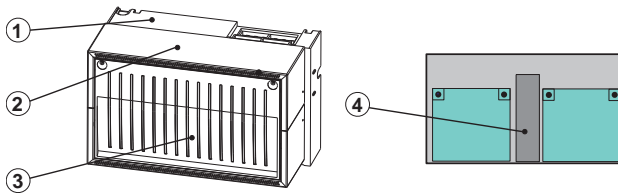
Order number **USF 0000 A**

PSF 0002 A Power Supply Small, Frame Installation

2



System Overview



Pos.	Description
1	Mounting Frame
2	Housing
3	Space for 2 x 12 V/45 Ah batteries and 1 UPS Power Supply
4	Power Supply Bracket for 1 UPS Power Supply

Installation/Configuration Notes

- The following are required for the PSF 0002 A Power Supply Small, Frame Installation:
 - An FSH 0000 A Mounting Frame Small or alternatively
 - An FRS 0019 A Rack Installation Kit for installation in a 482.6 mm (19") rack.

Parts Included

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

Ordering Information

PSF 0002 A Power Supply Small, Frame Installation
for surface-mounting or installation in 482.6 mm (19")
racks
Order number **PSF 0002 A**

PMF 0004 A Power Supply Big, Frame Installation

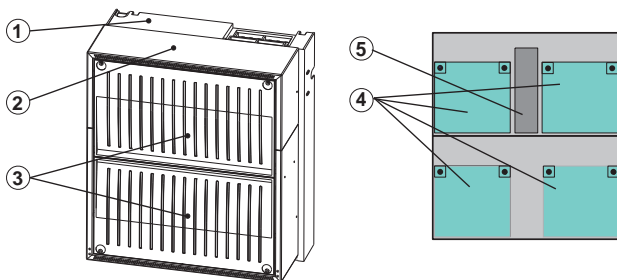


Ordering Information

PMF 0004 A Power Supply Big, Frame Installation
for surface-mounting or installation in 482.6 mm (19")
racks
Order number **PMF 0004 A**

2

System Overview



Pos.	Description
1	Mounting Frame
2	Housing
3	Space for 4 x 12 V/45 Ah batteries and 1 UPS Power Supply
4	4 x 12 V/45 Ah batteries
5	Power Supply Bracket for 1 UPS Power Supply

Installation/Configuration Notes

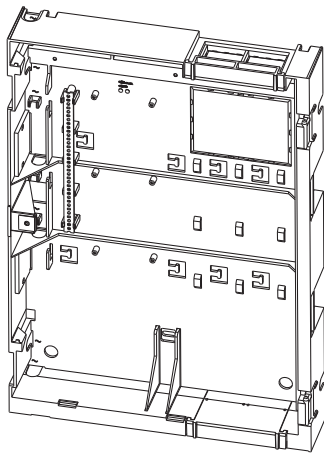
- The following are required for the PMF 0004 A Power Supply Small, Frame Installation:
 - An FMH 0000 A Mounting Frame Medium or alternatively
 - An FRM 0019 A Rack Installation Kit for installation in a 482.6 mm (19") rack.

Parts Included

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

FBH 0000 A Mounting Frame Large

2



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

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

Parts Included

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

Technical Specifications

Mechanics

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

Ordering Information

FBH 0000 A Mounting Frame Large

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



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

Technical Specifications

Mechanics

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

Ordering Information

FMH 0000 A Mounting Frame Medium

required for housing PMF 0004 A

Order number **FMH 0000 A**

Accessories

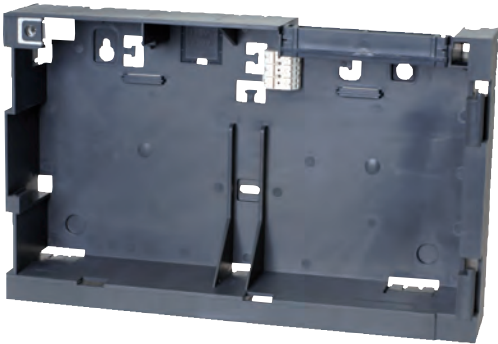
FPO-5000-EB Earth Bar

For housing earth connection

Order number **FPO-5000-EB**

FSH 0000 A Mounting Frame Small

2



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

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

Technical Specifications

Mechanics

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

Ordering Information

FSH 0000 A Mounting Frame Small

required for housing PSF 0002 A and USF 0000A
Order number **FSH 0000 A**

FHS 0000 A Mounting Frame Large with Distributor Rail



The large mounting frame is equipped with a distributor rail in accordance with EN 60715 for attaching series terminals.

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

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

Parts Included

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

Technical Specifications

Mechanics

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

Ordering Information

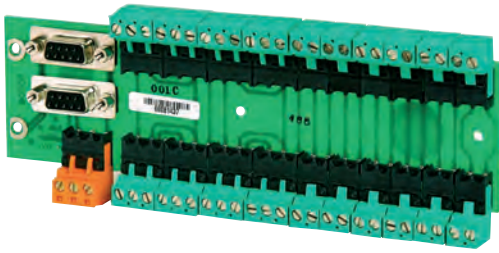
FHS 0000 A Mounting Frame Large with Distributor Rail

as per EN 60715, usable for housing CPH 0006 A, MPH 0010 A and EPH 0012 A

Order number **FHS 0000 A**

RLE 0000 A Junction Board EU

2



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

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

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

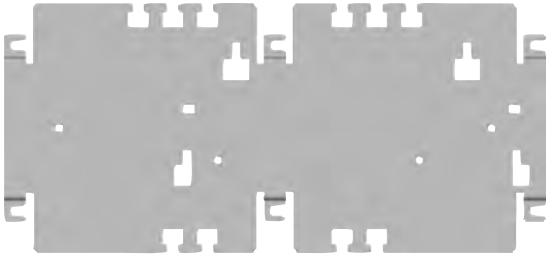
Ordering Information

RLE 0000 A Junction Board EU

Comes with 2 D-SUB connectors, 9-pin

Order number **RLE 0000 A**

HMP 0003 A Mounting Plate for Mounting Frame



The HMP 0003 A Mounting Plate is used in both the large FBH 0000 A and FHS 0000 A mounting frames. The mounting plate is required to install interface modules, external device controllers, relays and other components. It can be fitted with a distributor rail.



Notice

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

Technical Specifications

Mechanics

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

Ordering Information

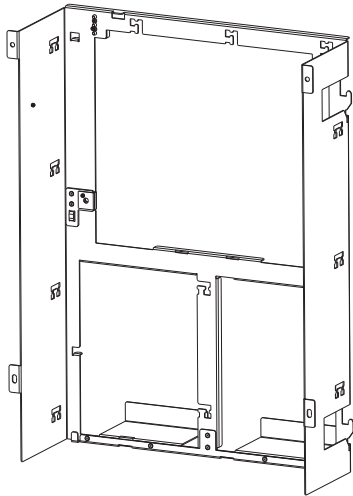
HMP 0003 A Mounting Plate for Mounting Frame

usable with FBH 0000 A and FHS 0000 A

Order number **HMP 0003 A**

FRB 0019 A 19" Rack Installation Kit, Large

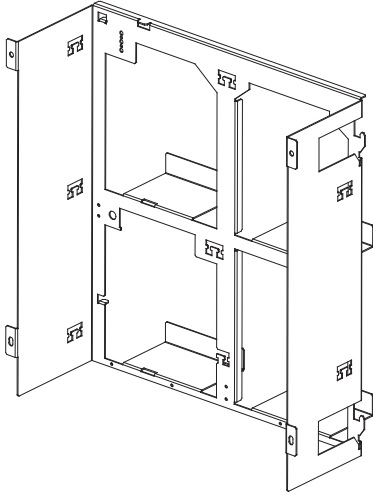
2



Ordering Information

FRB 0019 A 19" Rack Installation Kit, 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 19" Rack Installation Kit, Medium



Ordering Information

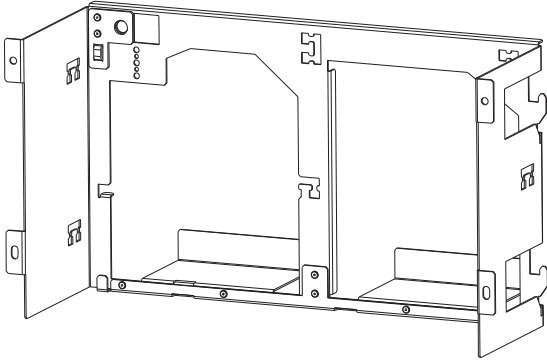
FRM 0019 A 19" Rack Installation Kit, Medium

used for the PMF 0004 A Power Supply Medium, Frame Installation

Order number **FRM 0019 A**

FRS 0019 A 19" Rack Installation Kit, Small

2



Ordering Information

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

FDT 0000 A Front Door Transparent

Technical Specifications

Mechanics

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

Ordering Information

FDT 0000 A Front Door Transparent

Lock right side

Order number **FDT 0000 A**

FDT 0003 A Front Door Transparent

2

Technical Specifications

Mechanics

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

Ordering Information

FDT 0003 A Front Door Transparent

Lock left side

Order number **FDT 0003 A**

Housings for Wall Mounting



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.

Features

- ▶ Surface-mount, flush-mount or installation in 482.6 mm (19") racks
- ▶ Modular system

Functions

Housing designs and combinations

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

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

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

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

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

Equipment limits

Installation option and maximum number of:

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

Housing type	Modules	PRS 0002 A	PRD 0004 A
HCP 0006 A	6	1	1
HBC 0010 A	10	1	2
HBE 0012 A	12	-	3
PSS 0002 A	-	-	-
PSB 0004 A	-	-	-
DIB 0000 A	-	-	-

Installation option and maximum number of:

- MPC Operating and Display Unit with Panel Controller

- UPS Power Supplies
- Batteries

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

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

Installation types

Various types of installation are possible:

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

Front doors

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

Housing type	Front Door, lock right side	Front Door, lock left side
HCP 0006 A	FDT 0000 A	FDT 0003 A
HBC 0010 A	FDT 0001 A	FDT 0002 A
HBE 0012 A	FDT 0001 A	FDT 0002 A

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.

Parts Included

Qty.	Components
1	Housing, painted sheet steel

Technical Specifications

Mechanics

Housing material	Sheet steel, painted
Housing color	Slate gray, RAL 7015 Front: anthracite gray, RAL 7016
Dimensions	
• HCP 0006 A	Approx. 638 x 440 x 149 mm
• 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 Modular Panel Housing for 6 Modules

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **HCP 0006 A**

HBC 0010 A Modular Panel Housing for 10 Modules

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **HBC 0010 A**

HBE 0012 A Modular Extension Housing for 12 Modules

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **HBE 0012 A**

PSS 0002 A Power Supply Small

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **PSS 0002 A**

PSB 0004 A Power Supply

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **PSB 0004 A**

DIB 0000 A Distribution Box

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **DIB 0000 A**

Accessories

RLU 0000 A Junction Board

Comes with 2 D-SUB connectors, 9-pin

Order number **RLU 0000 A**

FRK 0019 A 19" Rack Installation Kit

For wall-mount housing

Order number **FRK 0019 A**

FDT 0000 A Front Door Transparent

Lock right side

Order number **FDT 0000 A**

FDT 0003 A Front Door Transparent

Lock left side

Order number **FDT 0003 A**

FDT 0001 A Large Front Door Transparent

Lock right side

Order number **FDT 0001 A**

FDT 0002 A Large Front Door Transparent

Lock left side

Order number **FDT 0002 A**

HCP 0006 A Modular Panel Housing for 6 Modules



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

Installation/Configuration Notes

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

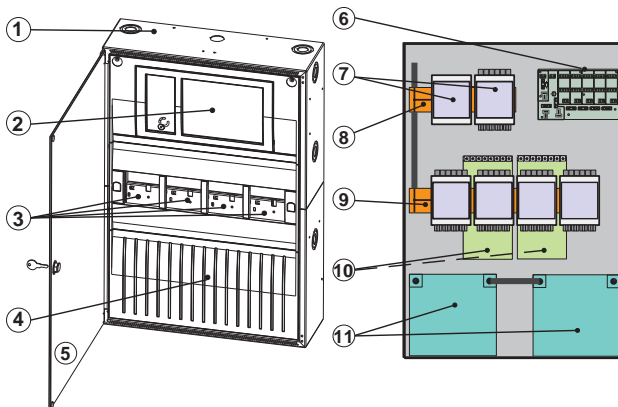
Parts Included

Pos.	Description
1	Housing

Ordering Information

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

System Overview



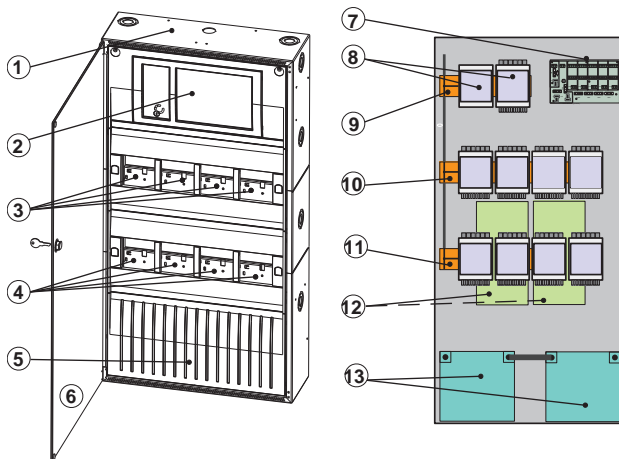
Pos.	Description
1	Housing
2	MPC Operating and Display Unit
3	Modules 3-6
4	Space for 2 batteries
5	Front Door Transparent (optional)
6	HPD 0000 A Power Distributor (optional)
7	Modules 1-2
8	Panel Rail for modules 1-2
9	Panel Rail for modules 3-6
10	Power Supply
11	2 x 12 V/28 Ah batteries

HBC 0010 A Modular Panel Housing for 10 Modules



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

System Overview



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

12	Power Supply
13	2 x 12 V/28 Ah batteries

Installation/Configuration Notes

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

Parts Included

Pos.	Description
1	Housing

Ordering Information

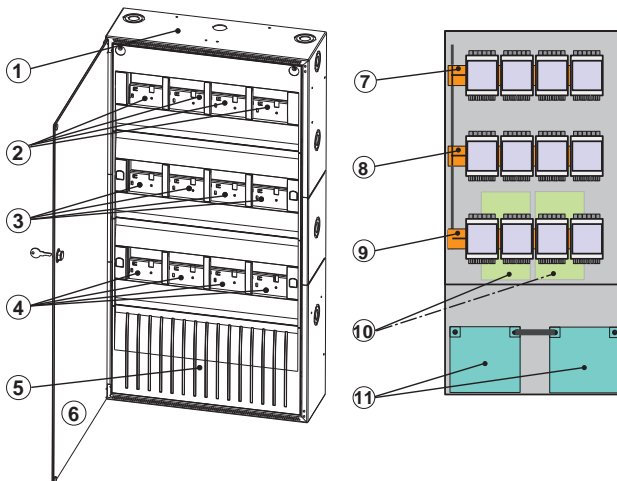
HBC 0010 A Modular Panel Housing for 10 Modules
for surface-mounting, flush-mounting or installation in
482.6 mm (19") racks
Order number **HBC 0010 A**

HBE 0012 A Modular Extension Housing for 12 Modules



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

System Overview



Pos.	Description
1	Housing
2	Modules 1-4
3	Modules 5-8
4	Modules 9-12
5	Space for 2 batteries or 1 Power Distributor
6	Front Door Transparent (optional)
7	Panel Rail for modules 1-4
8	Panel Rail for modules 5-8
9	Panel Rail for modules 9-12
10	Power Supply
11	2 x 12 V/28 Ah batteries or alternatively 1 Power Distributor

Installation/Configuration Notes

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

Parts Included

Pos	Description
.	
1	Housing
1	CAN bus connection cable, cable length 190 cm

Ordering Information

HBE 0012 A Modular Extension Housing for 12 Modules
 for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks
 Order number **HBE 0012 A**

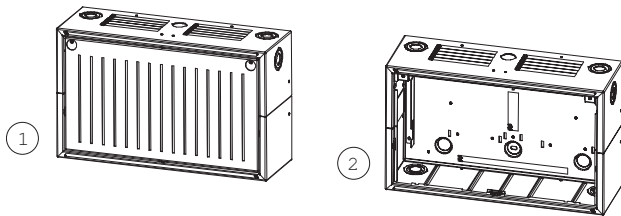
PSS 0002 A Power Supply Small

2



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

System Overview



Pos	Description
1	Housing
2	Housing without front panel

Installation/Configuration Notes

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



Notice

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

Parts Included

Pos.	Description
1	Housing

Ordering Information

PSS 0002 A Power Supply Small

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

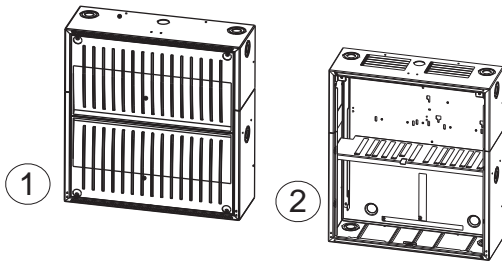
Order number **PSS 0002 A**

PSB 0004 A Power Supply



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

System Overview



Pos. Description

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

Installation/Configuration Notes

- Equipment variants:
 - 4 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket
 - 2 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket
 - 2 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket and 1 HPD 0000 A Power Distributor
 - 2 x 12 V/28 Ah batteries and 1 FPO-5000-PSB1 Power Supply Bracket and 1 HMP 0001 A Mounting Plate Short



Notice

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

Parts Included

Pos.	Description
1	Housing

Ordering Information

PSB 0004 A Power Supply

for surface-mounting, flush-mounting or installation in 482.6 mm (19") racks

Order number **PSB 0004 A**

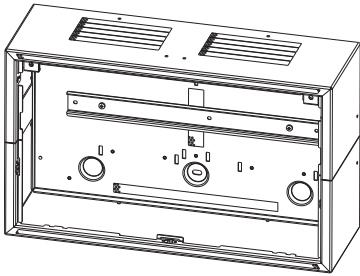
DIB 0000 A Distribution Box

2



The DIB 0000 A Distribution Box is equipped with a distributor rail compliant with EN 60715 and is used to install series terminals.

System Overview



Parts Included

Pos.	Description
1	Housing with distributor rail installed compliant with EN 60715

Ordering Information

DIB 0000 A Distribution Box
for surface-mounting, flush-mounting or installation in
482.6 mm (19") racks
Order number **DIB 0000 A**

RLU 0000 A Junction Board



Ordering Information

RLU 0000 A Junction Board

Comes with 2 D-SUB connectors, 9-pin

Order number **RLU 0000 A**

FRK 0019 A 19" Rack Installation Kit

2

Ordering Information

FRK 0019 A 19" Rack Installation Kit

For wall-mount housing

Order number **FRK 0019 A**

FDT 0000 A Front Door Transparent

Technical Specifications

Mechanics

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

Ordering Information

FDT 0000 A Front Door Transparent

Lock right side

Order number **FDT 0000 A**

FDT 0001 A Large Front Door Transparent

2

Technical Specifications

Mechanics

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

Ordering Information

FDT 0001 A Large Front Door Transparent

Lock right side

Order number **FDT 0001 A**

FDT 0002 A Large Front Door Transparent

Technical Specifications

Mechanics

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

Ordering Information

FDT 0002 A Large Front Door Transparent

Lock left side

Order number **FDT 0002 A**

FDT 0003 A Front Door Transparent

2

Technical Specifications

Mechanics

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

Ordering Information

FDT 0003 A Front Door Transparent

Lock left side

Order number **FDT 0003 A**

Battery 12 V / 38 Ah

Battery can be deployed as follows:

- UEV 1000 Universal Power Supply
- FPA-5000 Modular Fire Panel
- FPA-1200 Fire Panel

Dimensions (B x H x T): 523 x 261 x 258 mm

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06299

Parts Included

Qty.	Components
1	12 V/38 Ah Battery with connection accessories

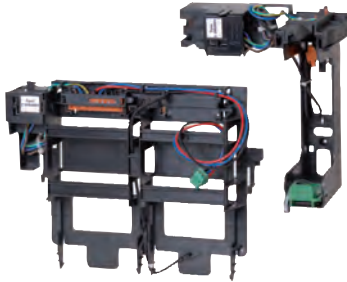
Technical Specifications

Battery type	Dry battery
Rated voltage	12 V DC
Nominal capacity	38 Ah
Recommended load voltage	13.8 V DC at 20 °C
Recommended load current	0.1 to 0.2 A
Dimensions (W x H x D)	175 x 174 x 199 mm
Connector	Flat pole

Ordering Information

Battery 12 V / 38 Ah
 (Delivery unit = 2 units)
 Order number **IPP-12V-38Ah**

Power Supply Brackets



The Power Supply Brackets are installed in wall-mount housings and accommodate one Power Supply. The Power Supply Unit is immediately ready for operation via the pre-wired plug connection. The brackets are made of glass-fiber-reinforced plastic and have a thermal sensor as well as a T10A mains fuse.

Installation/Configuration Notes

FPO-5000-PSB-CH Power Supply Bracket

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

FPO-5000-PSB1 Power Supply Bracket

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

Overview

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

x = Installation possible
- = Installation not possible

Parts Included

Qty.	Components
1	Power Supply Bracket

Technical Specifications

Mechanics

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

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

Environmental conditions

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

Ordering Information

FPO-5000-PSB1 Power Supply Bracket

for PSS 0002 A and PSB 0004 A

Order number **FPO-5000-PSB1**

FPO-5000-PSB-CH Power Supply Bracket

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

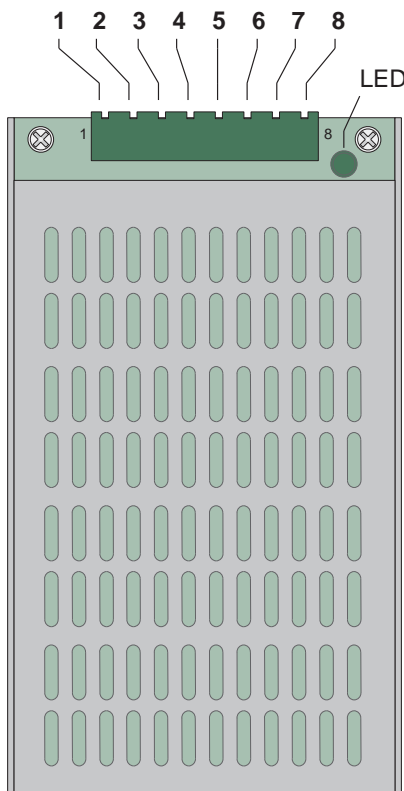
Order number **FPO-5000-PSB-CH**

UPS 2416 A Universal Power Supply



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

System Overview



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

Functions

The Power Supply is protected against pole reversal and overvoltage. The output voltage is monitored and regulated via the thermal sensor. If there is a fault, the FAULT output drops to 0 V. A green LED on the Universal Power Supply indicates operativeness.

Installation/Configuration Notes

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

Parts Included

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

Technical Specifications

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

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

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

Ordering Information

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

Cables



CPA 0000 A Cable Set AT 2000

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

Order number **CPA 0000 A**

2

Functions

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

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

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

The Cable set CBB 0000 A is required if the power supply is located in a separate Power Supply Housing. This set has a longer connection cable to the battery than the standard cable set supplied with the unit.

Ordering Information

CPR 0001 A Printer Cable

used to connect the MPC Panel Controller and a Junction Board RLE/RLU, cable length 100 cm

Order number **CPR 0001 A**

CRP 0000 A Cable Set Redundant Panel Controller

used to redundantly connect one Panel Controller to an additional MPC Panel Controller

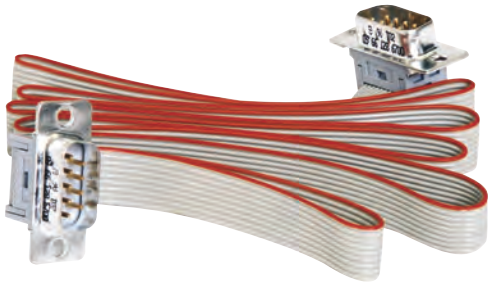
Order number **CRP 0000 A**

CBB 0000 A Cable Set BCM/Battery

Used to connect a battery pair and a Power Supply Housing to the BCM-0000-B Battery Controller Module

Order number **CBB 0000 A**

CPR 0001 A Printer Cable



The flexible CPR 0001 A Printer Cable is used to connect the MPC Panel Controller to an RLE 0000 A Junction Board EU/RLU 0000 A Junction Board US. A printer and/or modem is connected to the Junction Board via standard cable.

Parts Included

- 1 Cable to connect the MPC Panel Controller to an RLE 0000 A Junction Board EU/RLU 0000 A Junction Board US, cable length 100 cm



Notice

The CPR 0001 A is not necessary for the THP 2020 A Thermal Printer.

Ordering Information

CPR 0001 A Printer Cable

used to connect the MPC Panel Controller and a Junction Board RLE/RLU, cable length 100 cm

Order number **CPR 0001 A**

CRP 0000 A Cable Set Redundant Panel Controller



Cable Set CRP 0000 A is used to redundantly connect a Panel Controller to an additional MPC Panel Controller in accordance with EN 54 Part 2 for systems with more than 512 elements.

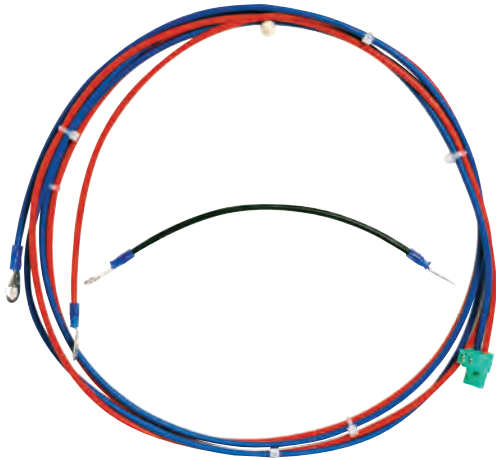
Parts Included

- 1 Cable (white) for MPC/MPC redundant connection, cable length 280 cm
- 1 CAN bus connection cable (black), cable length 320 cm

Ordering Information

CRP 0000 A Cable Set Redundant Panel Controller
used to redundantly connect one Panel Controller to an additional MPC Panel Controller
Order number **CRP 0000 A**

CBB 0000 A Cable Set BCM/ 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

Ordering Information

CBB 0000 A Cable Set BCM/Battery

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

CPA 0000 A Cable Set AT 2000



The CPA 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

- 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

Ordering Information

CPA 0000 A Cable Set AT 2000

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

Order number **CPA 0000 A**

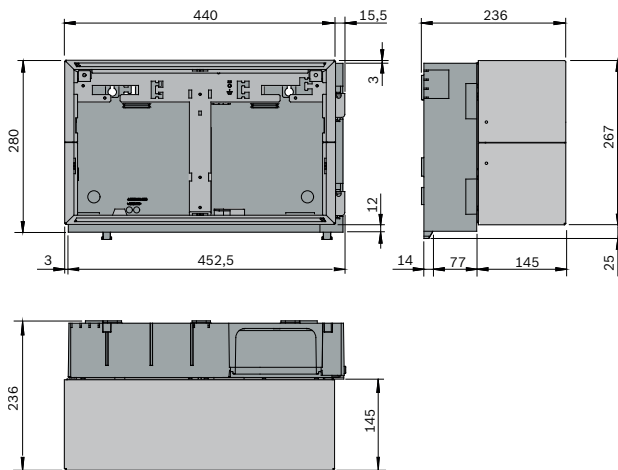
THP 2020 A Thermal Printer



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

Installation/Configuration Notes

Installation dimensions



Parts Included

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



Notice

The Thermal Printer requires either an FSH 0000 A Mounting Frame Small (for surface-mounted installation) or an FRS 0002 A 19" Rack Installation Kit, Small (for installation in 482.6 mm (19") racks).
The CPR 0001 A Printer Cable is not necessary.

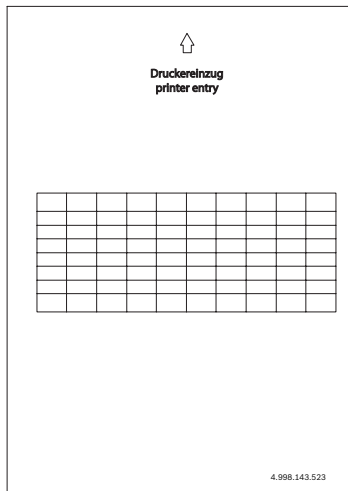
Ordering Information

THP 2020 A Thermal Printer

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

PSL 0001 A Labelling Strips, Small

2



The PSL 0001 A Labelling Strips can only be used for the ANI 0016 A Annunciator Module. The strips can be printed individually with a customary laser printer. A dot file is available on the CD that came with the MPC Panel Controller.

Parts Included

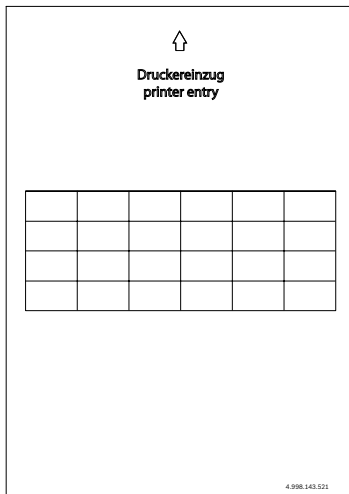
Qty.	Components
20	Each sheet has 10 strips, printable

Ordering Information

PSL 0001 A Labelling Strips, Small

20 sheets each with 10 strips, printable, for the ANI 0016 A Annunciator Module
Order number **PSL 0001 A**

PSK 0001 A Labelling Strips, Wide



The PSK 0001 A Labelling Strips for Modules are suitable in the following functional modules: BCM-0000-B, LSN 0300 A, LSN 1500 A, CZM 0004 A, NZM0002 A, RMH 0002 A, CTM 0002 A and ENO 0000 B. The strips can be printed individually with a customary laser printer. A dot file is available on the CD that came with the MPC Panel Controller.

Parts Included

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

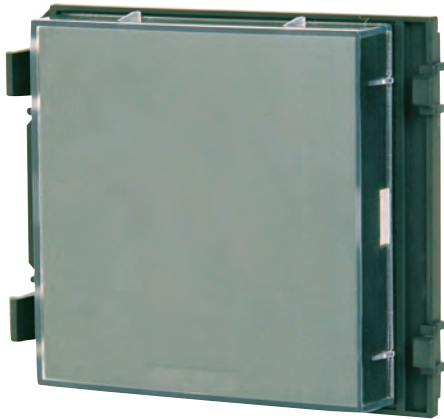
Ordering Information

PSK 0001 A Labelling Strips, Wide

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

FDP 0001 A Dummy Cover Plate

2



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

Parts Included

Qty.	Components
1	FDP 0001 A Dummy Cover Plate

Ordering Information

FDP 0001 A Dummy Cover Plate

For available module slots

Order number **FDP 0001 A**

FSM-2000 Fire Monitoring System



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

Features

- ▶ Easy installation and operation
- ▶ Importing floor plans from AutoCAD
- ▶ Zoom and pan
- ▶ Automatic allocation of detection points in floor plan
- ▶ Comprehensive event logging

Functions

Installation and Operation

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

Importing Floor Plans of AutoCAD

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

Authorizations

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

Zoom and Pan

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

Event Logging

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

Connectivity

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

Language Versions

The FSM-2000 Fire Monitoring System is in different language versions available:

- German/English
- Spanish/English
- Italian/English
- Dutch/English
- Polish/English
- Russian/English

Installation/Configuration Notes

Hardware Preconditions:

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

Software Preconditions:

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

Parts Included

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

Ordering Information

FSM-2000-ES Fire Monitoring System ES/EN

Additionally order:

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

Order number **FSM-2000-ES**

FSM-2000-IT Fire Monitoring System IT/EN

Additionally order:

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

Order number **FSM-2000-IT**

FSM-2000-NL Fire Monitoring System NL/EN

Additionally order:

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

Order number **FSM-2000-NL****FSM-2000-PL Fire Monitoring System PL/EN**

Additionally order:

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

Order number **FSM-2000-PL****FSM-2000-RU Fire Monitoring System RU/EN**

Additionally order:

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

Order number **FSM-2000-RU****Accessories****IOS 0020 A 20 mA Communication Module**

provides one interface each of S20, RS232 and S1

Order number **IOS 0020 A****Connection Cable DSUB 9F-9M**Order number **DB EK 822 9F-9M**

FPA-1200 Fire Panel

3

FPA-1200 Fire Panel

120

FPA-1200 Fire Panel



3

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

The configuration of the FPA-1200 is set using the FSP-5000-RPS programming software (included in the delivery) on a laptop connected to the panel. An Ethernet interface allows for the connection to a Building Management System (BIS Bosch Building Integration System) via an OPC server. Additionally, an ADC-5000-OPC License Key is required to access the OPC server.

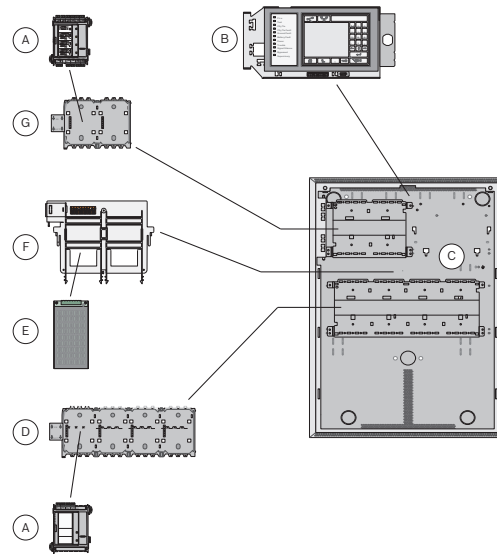
Another serial interface provides the option to use the FPA-1200 with the new Bosch Voice Evacuation System (EVAC). For detailed information about the connection, refer to the data sheets on IOS 0020 and IOS 0232 Communication Modules.

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.

Features

- ▶ Easy upgrade to 2 loops by second LSN 0300 A module
- ▶ Connection of up to 254 elements (127 per loop)
- ▶ Remote operation by up to 3 Remote Keypads
- ▶ Accommodates up to 6 functional modules for easy adaptation to different local requirements
- ▶ Auto-detection of modules

System Overview



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

Functions

Panel controller

The Panel Controller is the core of the system and shows all messages on the 14,5 cm (5.7") touch display. 11 LEDs provide continuous information about the operating status of the control panel and / or system. The operation of the panel controller and the processing of all messages are performed on the LCD touch display as well. Messages and events are saved internally and can be viewed on the display at any time. A log printer for printing incoming messages can be connected. The configuration is set and transmitted using the FSP-5000-RPS programming software on a laptop connected to the USB interface of the panel controller.

Modules

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

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

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

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

Certifications and Approvals

Region	Certification	
Europe	CE	FPA-1200 1142/DT/2011 FPA 1200
Europe	CPD	0786-CPD-20819 FPA 1200
Germany	VdS	G 209154 FPA-1200
Switzerland	VKF	AEAI 19197 FPA-1200_FPA-5000 Brandmeldesystem
Austria	PFB	007/BM-PSys/019/1 FPA-1200/5000 Brandmeldesystem
	PFB	007/BM-PSys/020/1 FPA-1200/5000 Brandfallsteuerzentrale
Belgium	BOSEC	TCC2-894/a FPA 1200_FPA 5000
Poland	CNBOP	2719/2009 FPA-1200
	CNBOP	0673/2009 FPA-1200
	MOE	UA1.016.0070208-11 FPA-1200

Installation/Configuration Notes

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

Parts Included

Quant.	Component
1	FPA-1200-MPC Panel Controller
1	LSN 0300 A Module 300 mA
1	BCM 0000 B Battery Controller Module
1	PRS 0002 A Panel Rail Short
1	PRD 0004 A Panel Rail Long
1	FPO-5000-PSB-CH Power Supply Bracket
1	UPS 2416 A Universal Power Supply
1	HCP 0006 A Panel Housing
3	FDP 0001 A Dummy Cover Plate

- 1 RML 0008 A Relay Module (Poland only)
- 1 CD with FSP-5000-RPS Programming Software

Technical Specifications

Electrical

Operating voltage	20 V DC to 30 V DC
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Mechanics

Display element	14,5 cm (5.7") LCD display
-----------------	----------------------------

Operating element	Touch screen
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Interfaces	<ul style="list-style-type: none"> Ethernet USB RS232
------------	--

Signal inputs	2
---------------	---

Dimensions (H x W x D)	638 mm x 440 mm x 149 mm (25.1 x 17.2 x 5.87 inch)
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Weight	Approx. 20 kg (44 lb)
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Environmental conditions

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

FPA-1200 Fire Panel, BE

lettering and user documentation in Dutch and French
Order number **FPA-1200-BE**

FPA-1200 Fire Panel, CZ

lettering and user documentation in Czech
Order number **FPA-1200-CZ**

FPA-1200 Fire Panel, DE

lettering and user documentation in German
Order number **FPA-1200-DE**

FPA-1200 Fire Panel, ES

lettering and user documentation in Spanish
Order number **FPA-1200-ES**

FPA-1200 Fire Panel, GR

lettering and user documentation in Greek
Order number **FPA-1200-GR**

FPA-1200 Fire Panel, HU

lettering and user documentation in Hungarian
Order number **FPA-1200-HU**

FPA-1200 Fire Panel, IT

lettering and user documentation in Italian and German
Order number **FPA-1200-IT**

FPA-1200 Fire Panel, PL

lettering and user documentation in Polish
Order number **FPA-1200-PL**

FPA-1200 Fire Panel, PT

lettering and user documentation in Portuguese
Order number **FPA-1200-PT**

FPA-1200 Fire Panel, NL

lettering and user documentation in Dutch
Order number **FPA-1200-NL**

FPA-1200 Fire Panel, RO

lettering and user documentation in Romanian and English
Order number **FPA-1200-RO**

FPA-1200 Fire Panel, RU

lettering and user documentation in Russian
Order number **FPA-1200-RU**

FPA-1200 Fire Panel, TR

lettering and user documentation in Turkish
Order number **FPA-1200-TR**

FPA-1200 Fire Panel, ZA

lettering and user documentation in English
Order number **FPA-1200-ZA**

FPA-1200 Fire Panel, APR

lettering and user documentation in English
Order number **FPA-1200-APR**

FPA-1200 Fire Panel, Export

lettering and user documentation in English
Order number **FPA-1200-Export**

Accessories**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

displays the status of 16 individually programmable detection points
Order number **ANI 0016 A**

LSN 0300 A LSN improved Module 300 mA

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

CZM 0004 A 4 Zone Conventional Module

for connecting conventional peripherals; provides four monitored conventional lines
Order number **CZM 0004 A**

IOS 0020 A 20 mA Communication Module

provides one interface each of S20, RS232 and S1
Order number **IOS 0020 A**

IOS 0232 A RS232 Communication Module

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

ENO 0000 B Fire Service Interface Module

for connecting fire service equipment in compliance with DIN 14675
Order number **ENO 0000 B**

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

provides 8 change-over contact relays (type C) for low voltage
Order number **RML 0008 A**

RMH 0002 A Relay Module

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

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

FPE-5000-UGM Interface Module

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

PSL 0001 A Labelling Strips, Small

20 sheets each with 10 strips, printable, for the ANI I0016 A Annunciator Module
Order number **PSL 0001 A**

PSK 0001 A Labelling Strips, Wide

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

FLM-420-EOL2W-W EOL Module LSN

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

FLM-320-EOL2W Conventional EOL Module 2-Wire

for EN 54-13 compliant termination of conventional lines
Order number **FLM-320-EOL2W**

ADC-5000-OPC License Key

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

THP 2020 A Thermal Printer

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

CPA 0000 A Cable Set AT 2000

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

LSN Panels

4

Accessories - BZ 500 LSN	124
Accessories - UEZ 2000 LSN	160

ERWE 10 voltage converter



4

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

Required for connecting the following expansion modules:

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

Can be plugged into the NEV 300 LSN connector board

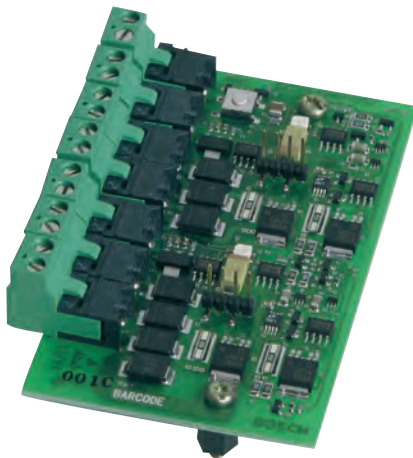
Ordering Information

ERWE 10 voltage converter

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

Order number **ERWE 10**

ERT100 Module for Loop System Power Supply



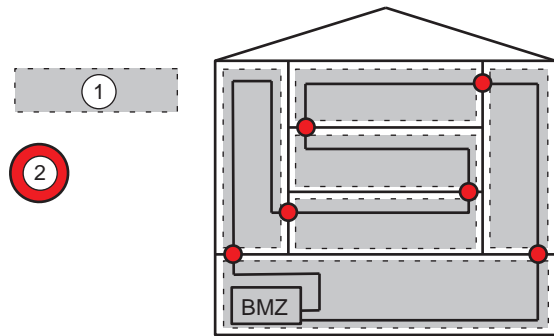
The ERT100 Module is designed for retrofitting the fire panel with the loop system power supply.

Features

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

Functions

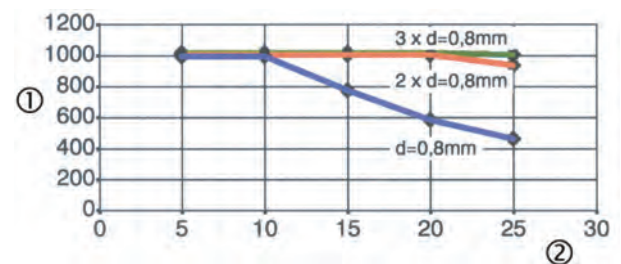
The ERT100 Module monitors the supply voltage of MSS 401 LSN signaling devices in loop lines, and in combination with isolators (type YBO-R/SCI) makes it possible to maintain the power supply of the unaffected fire sectors in the event of a short-circuit or wire interruption. Two loop lines can be monitored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



Pos. Description

- 1 Fire sector
- 2 Isolator

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



Pos. Description

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

A wire gauge of 0.8 mm corresponds to a wire diameter of 0.5 mm². The range is dependent upon the wire gauge and the number of sounders MSS 401 LSN.

Certifications and Approvals

Region	Certification	
Europe	CE	ERT 100

Installation/Configuration Notes

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

BZ 500 LSN:

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

UEZ 2000 LSN:

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

Technical Specifications**Electrical**

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

Mechanics

Dimensions	56 x 95 mm
------------	------------

Environmental conditions

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

Further characteristics

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

Ordering Information**ERT100 Module for Loop System Power Supply**

Module for retrofitting the fire panel with the loop system power supply

Order number **BS ERT 100**

Isolator Type YBO-R/SCI



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

Features

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

Functions

Isolators are configured in such a way that the fire sectors or, insofar as these are smaller, alarm sectors are confined. This configuration means that in the event of a short circuit, all elements are kept supplied with voltage before and after the separating isolators. During isolation, the LED on the isolator is illuminated. Once the short circuit has been rectified, the elements return automatically to normal operating condition and restore the connection.

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

Certifications and Approvals

Complies with EN 54-17:2005

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

Technical Specifications

Operating voltage	17 - 41 V DC
Current consumption in standby mode	50 μ A
Current consumption in the event of short circuit	< 10 mA

Max. current consumption in the event of short circuit	1 A
Max. wire diameter	2.5 mm ² (\varnothing 1.8 mm)
Permitted operating temperature	-10 °C ... + 50 °C
Permitted rel. humidity	95% (without condensation)
Housing	Surface-mount, ivory colored
Dimensions (including cover)	\varnothing 100 mm, 13 mm high
Weight	85 g

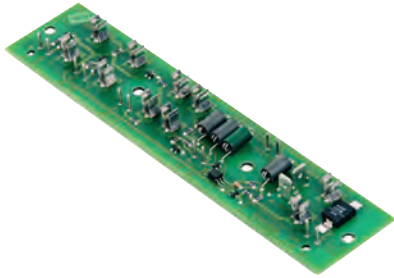
Ordering Information

Isolator Type YBO-R/SCI

Positive isolator, recognizes wire interruption and short circuit

Order number **ERT-Isolator**

SIV 28 Fuse Distributor 28 V



4

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

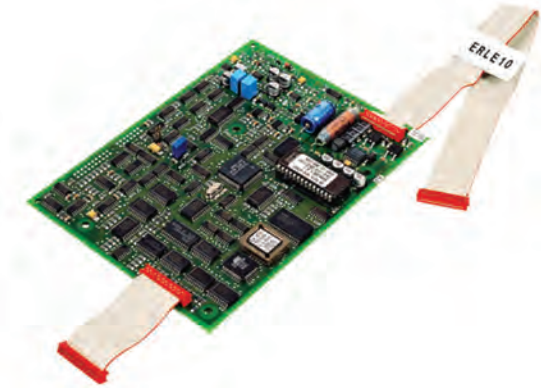
Ordering Information

SIV 28 Fuse Distributor 28 V

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

Order number **SIV 28**

ERLE 10 Line Extension



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

Ordering Information

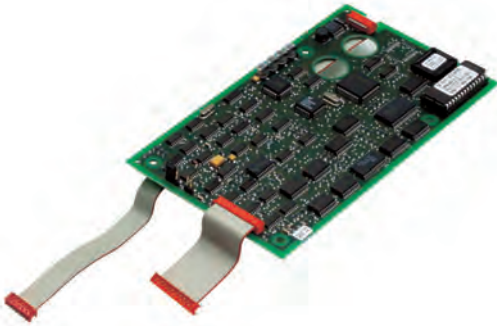
ERLE 10 Line Extension

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

Order number **ERLE 10**

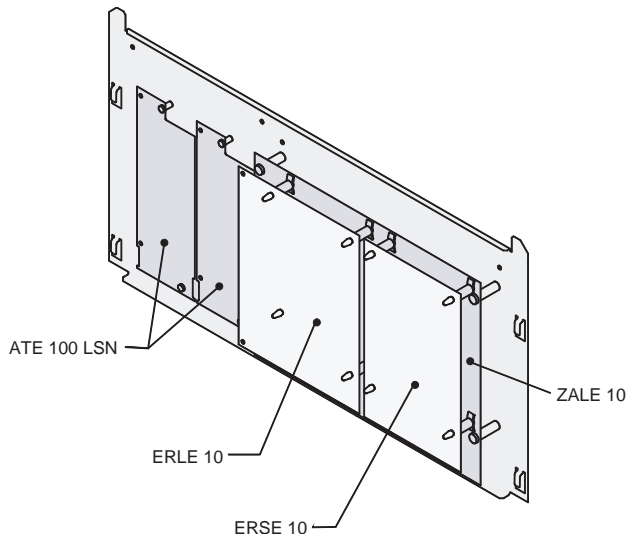
ERSE 10 Interface Extension

4



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

Configuration of extensions on the reverse side of the operating panel



Ordering Information

ERSE 10 Interface Extension

(2 x serial)

Order number **ERSE 10**

SM 20 Interface Module



- 20 mA interface
- Maximum range of 1000 m

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

The ANNE 10 has three slots for the SM 20 or SM 24.
The UEZ 2000 LSN can be extended with up to five SM 20s.

Ordering Information

SM 20 Interface Module

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

Order number **SM 20**

SM 24 Interface Module

4



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

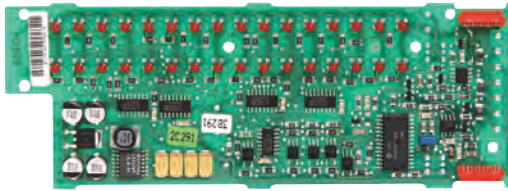
Ordering Information

SM 24 Interface Module

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

Order number **SM 24**

BS ATE 100 LSN Primary Extension Kit, Red



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

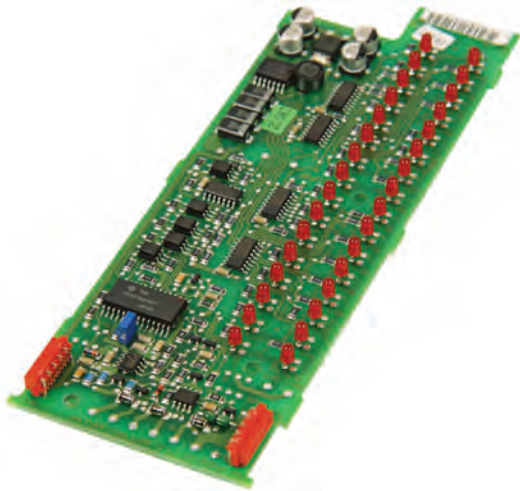
Certifications and Approvals

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

Ordering Information

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

ATE 100 LSN red Extension Kit, Red



Kit with 32 red LEDs for extension of an existing alarm display (alarm indication). This means the alarm indication can comprise a total of 64 detector zones.

Certifications and Approvals

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

Ordering Information

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

Key Switch



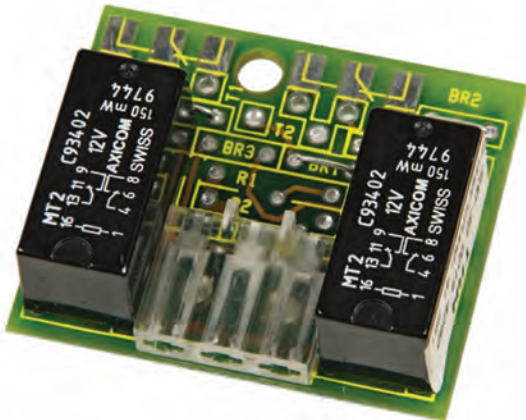
Up to two key switches can be deployed on the operating panel of the fire panel.
The function is freely programmable, e. g. day/night operation.

Ordering Information

Key Switch

for the BZ 500 LSN operating panel
Order number **BZ500-KEY-SWITCH**

TRN Panel Relay Module



Panel Relay Module TRN with two relays, each relay with a double-throw contact for potential-free outputs. The AVM 100 can be extended with up to six TRNs.

Ordering Information

TRN Panel Relay Module

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

Order number **TRN**

RTP Panel Relay Module



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

Ordering Information

RTP Panel Relay Module

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

Order number **RTP**

BS NRK-N Network Relay Card



4

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

Ordering Information

BS NRK-N Network Relay Card

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

Order number **BS NRK-N**

MOD 300 Modem

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

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

Ordering Information

MOD 300 Modem

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

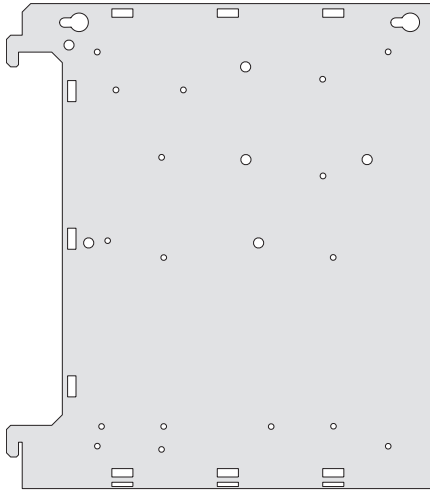
Order number **MOD 300**

Options Plate

Ordering Information

Options Plate

required for the installation of an AT 2000
Order number **BZ-500-PLATE**



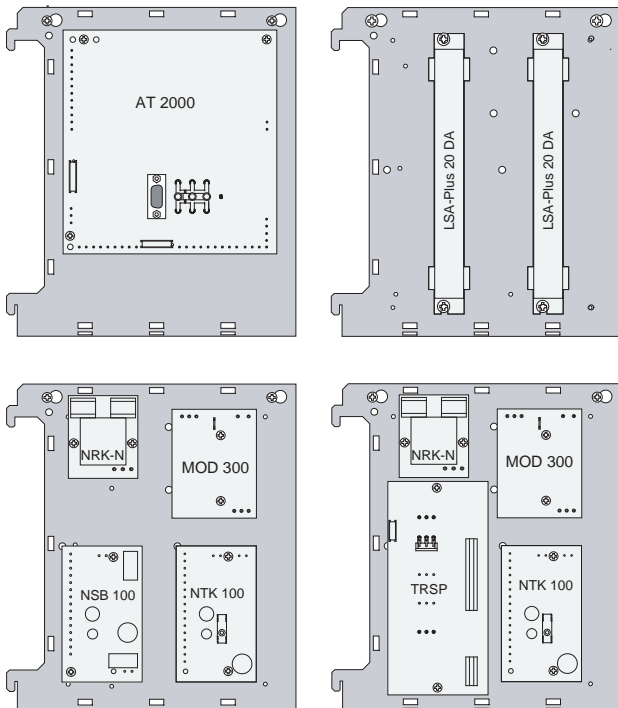
Essential requirements for the installation of an AT 2000!

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

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

Up to four interface kits are deployable.

Configuration of extensions on option plate



Mounting Kit 19" for BZ 500 LSN



For installing the BZ 500 LSN in a 19" frame

Installation/Configuration Notes

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

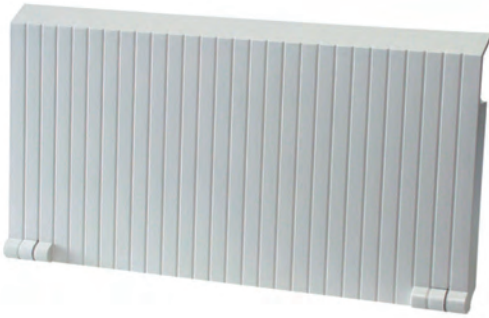
Ordering Information

Mounting Kit 19" for BZ 500 LSN

Order number **BZ-500-19"-KIT**

Fire Department Action Card Box

4



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

DR 500 T/AV Tabletop Printer



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

Certifications and Approvals

Region	Certification	
Europe	CE	DR 2020/2000/500 T

Ordering Information

DR 500 T/AV Tabletop Printer

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

Service Switch for Extinguishing Systems



Key switch for deactivating extinguishing systems for maintenance purposes

Ordering Information

Service Switch for Extinguishing Systems

for deactivating extinguishing systems for maintenance purposes

Order number **FME-KL-EXT**

ICP-BS-TRSP Panel Relay Plug-in Board

For installation and free switching of up to five TRN panel relay modules.

Ordering Information

ICP-BS-TRSP Panel Relay Plug-in Board

Order number **ICP-BS-TRSP**

ICP-LSA--20 Connection Strip



Maximum two ICP-LSA-20 can be deployed in the BZ 500 LSN.

4

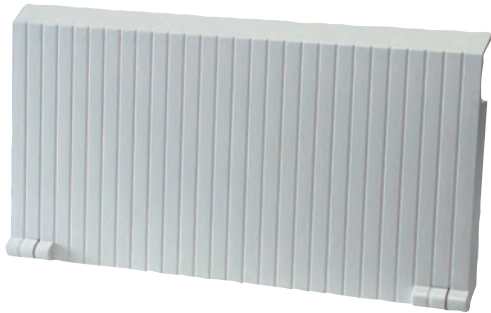
Ordering Information

ICP-LSA--20 Connection Strip

max. 2 x deployable in the BZ 500 LSN

Order number **ICP-LSA-20**

Document Bag



Flap with two pockets (DIN A5), storage for operating manual, operating instructions, etc.

Ordering Information

Document Bag

Flap with two pockets (DIN A5), storage for operating manual, operating instructions, etc.

Order number

Thermal Paper for Printer

5 rolls, for the printer DR 500 T/AV, DR 2020 T/AV,
DR 2020 T, THP 0000 A

Ordering Information

Thermal Paper for Printer

5 rolls, for DR 500 T/AV, DR 2020 T/AV, DR 2020 T,
THP 0000 A
Order number

TeleService

Kit with assembly and connection accessories for the installation of a transmission unit (analog modem or AT 2000 ISDN) for TeleService.

In addition, the software package TeleService is required for this purpose.

The transmission unit is installed in the fire panel casing, and requires a TAE box for connection to the local public telephone network.

Ordering Information

TeleService

Software package TeleService required for the installation of a transmission unit

Order number

TeleService Software Package

Ordering Information

TeleService Software Package

Order number

Control for Transmission Units

Ordering Information

Control for Transmission Units

Order number

Control for Key Deposit

Ordering Information

Control for Key Deposit

Order number

Switching the Detector Zones to Daytime Operation

Ordering Information

Switching the Detector Zones to Daytime Operation
Order number

System Interface for Networking the BZ 500 LSN

Networking with primary systems or peripheral equipment, range 1000 m.

Ordering Information

System Interface for Networking the BZ 500 LSN

Range 1000 m

Order number

Event Database

For recording up to 250 events

Ordering Information

Event Database
max. 250 events
Order number

Input per Text Line

Ordering Information

Input per Text Line

Order number

Panel Points of the Central Functions

e.g. buzz alarm, buzz malfunction, buzz emergency alarm

Ordering Information

Panel Points of the Central Functions

e.g. buzz alarm, buzz malfunction, buzz emergency alarm

Order number

Hardware accessories and changes to existing security systems

Ordering Information

Hardware accessories and changes to existing security systems

Order number

4

Instruction on the basis of the user guide, per commenced 15 minutes

Ordering Information

Instruction on the basis of the user guide, per commenced 15 minutes

Order number

LVM 100 Line Extension Module

4



For additional connection of up to 4 loop or 8 stub lines
UEZ 2000 LSN: Can be expanded with 1 LVM
UEZ 2000/6 LSN: Can be expanded with 1 LVM
UEZ 2000/1 LSN: Cannot be expanded.

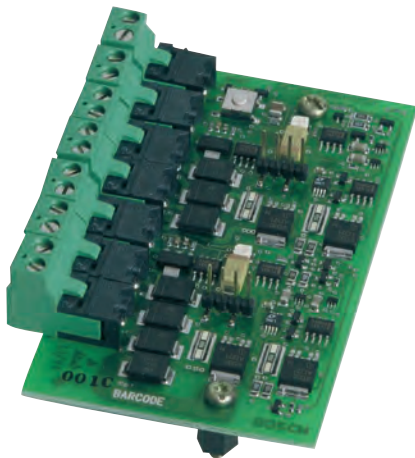
Ordering Information

LVM 100 Line Extension Module

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

Order number **LVM 100**

ERT100 Module for Loop System Power Supply



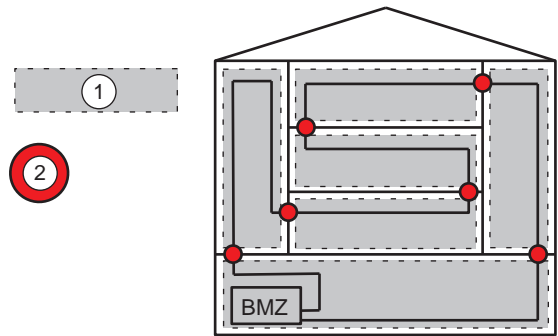
The ERT100 Module is designed for retrofitting the fire panel with the loop system power supply.

Features

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

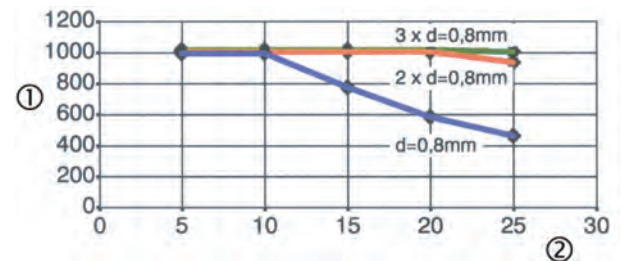
Functions

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



Pos.	Description
1	Fire sector
2	Isolator

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



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

A wire gauge of 0.8 mm corresponds to a wire diameter of 0.5 mm². The range is dependent upon the wire gauge and the number of sounders MSS 401 LSN.

Certifications and Approvals

Region	Certification
Europe	CE ERT 100

Installation/Configuration Notes

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

BZ 500 LSN:

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

UEZ 2000 LSN:

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

Technical Specifications**Electrical**

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

Mechanics

Dimensions	56 x 95 mm
------------	------------

Environmental conditions

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

Further characteristics

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

Ordering Information**ERT100 Module for Loop System Power Supply**

Module for retrofitting the fire panel with the loop system power supply

Order number **BS ERT 100**

SM 20 Interface Module



- 20 mA interface
- Maximum range of 1000 m

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

The ANNE 10 has three slots for the SM 20 or SM 24.
The UEZ 2000 LSN can be extended with up to five SM 20s.

Ordering Information

SM 20 Interface Module

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

Order number **SM 20**

SM 24 Interface Module



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

Ordering Information

SM 24 Interface Module

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

Order number **SM 24**

MOD 300 Modem

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

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

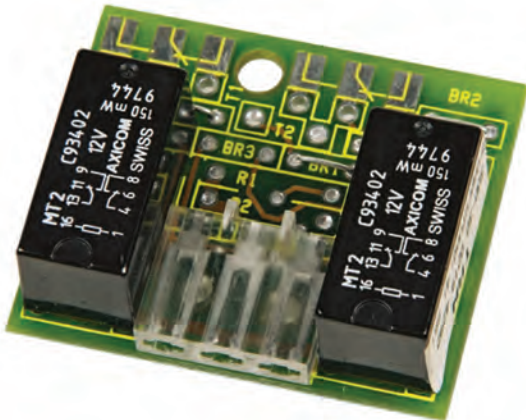
Ordering Information

MOD 300 Modem

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

Order number **MOD 300**

TRN Panel Relay Module



Panel Relay Module TRN with two relays, each relay with a double-throw contact for potential-free outputs. The AVM 100 can be extended with up to six TRNs.

Ordering Information

TRN Panel Relay Module

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

Order number **TRN**

RTP Panel Relay Module



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

Ordering Information

RTP Panel Relay Module

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

Order number **RTP**

Isolator Type YBO-R/SCI



4

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

Features

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

Functions

Isolators are configured in such a way that the fire sectors or, insofar as these are smaller, alarm sectors are confined. This configuration means that in the event of a short circuit, all elements are kept supplied with voltage before and after the separating isolators. During isolation, the LED on the isolator is illuminated. Once the short circuit has been rectified, the elements return automatically to normal operating condition and restore the connection.

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

Certifications and Approvals

Complies with EN 54-17:2005

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

Technical Specifications

Operating voltage	17 - 41 V DC
Current consumption in standby mode	50 μ A
Current consumption in the event of short circuit	< 10 mA

Max. current consumption in the event of short circuit	1 A
Max. wire diameter	2.5 mm ² (\varnothing 1.8 mm)
Permitted operating temperature	-10 °C . . . + 50 °C
Permitted rel. humidity	95% (without condensation)
Housing	Surface-mount, ivory colored
Dimensions (including cover)	\varnothing 100 mm, 13 mm high
Weight	85 g

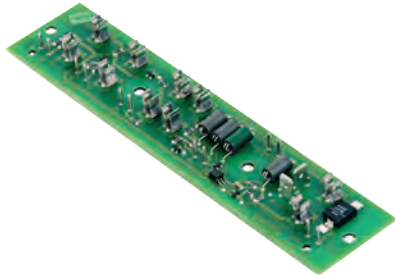
Ordering Information

Isolator Type YBO-R/SCI

Positive isolator, recognizes wire interruption and short circuit

Order number **ERT-Isolator**

SIV 28 Fuse Distributor 28 V



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

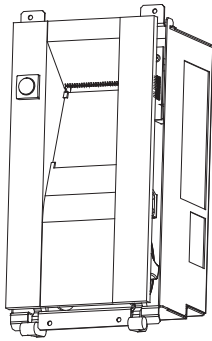
Ordering Information

SIV 28 Fuse Distributor 28 V

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

Order number **SIV 28**

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



For installation in the display carrier



Notice

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

Certifications and Approvals

Region	Certification	
Europe	CE	DR 2020/2000/500 T

Technical Specifications

Electrical

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

Mechanics

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

Environmental conditions

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

Special features

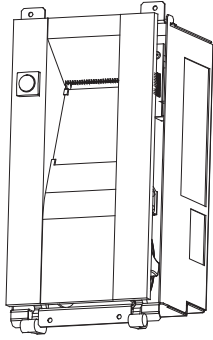
Construction type	Thermal printer
Printout	Alphanumeric
Character height	2.7 mm ± 0.2 mm
Number of lines per printout	Max. 3 lines, of these <ul style="list-style-type: none"> • 1 line standard output • 2 lines additional information
Number of characters / lines	Max. 40 characters
Print speed	At least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

Ordering Information

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

Installation of the printer can only occur in the factory, subsequent installation on location not possible
Order number **DR 2020 T/AV**

DR 2020 T Log Printer without Roll-up Equipment



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

Certifications and Approvals

Region	Certification
Europe	CE DR 2020/2000/500 T

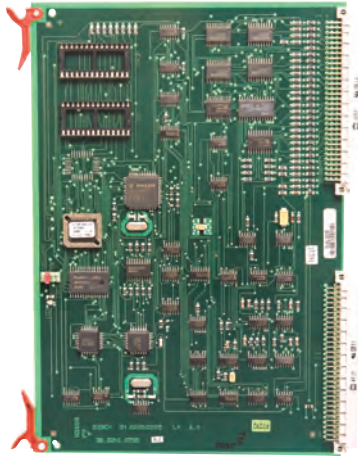
Technical Specifications

See model with roll-up equipment

Ordering Information

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

SEMO 1 Interface Card



Module for 2 serial interfaces, one SM 20 or SM 24 required per interface, required for SRT networking

**Notice**

Already included with the UEZ 2000/6 LSN!

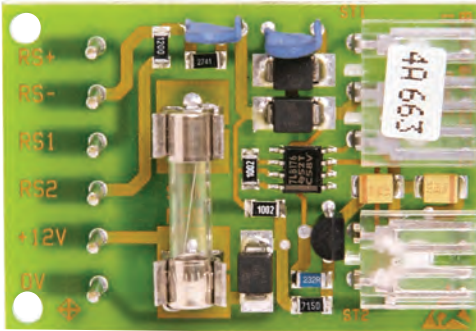
Ordering Information

SEMO 1 Interface Card

for 2 serial interfaces (one SM 20 or SM 24 required per interface)

Order number **ICP-BS-SEMO1**

SM 485 Interface Module



Plug module for RS 485 interface
for connecting up to 4 FMR-UEZ-BE1000s Remote
Keypads
The UEZ 2000 LSN can be extended with a maximum of
one SM 485.

Ordering Information

SM 485 Interface Module

for RS 485 interface, for connecting
4 x FMR-UEZ-BE1000s
Order number **ICP-SM485**

TD-32DC Telemodem



4

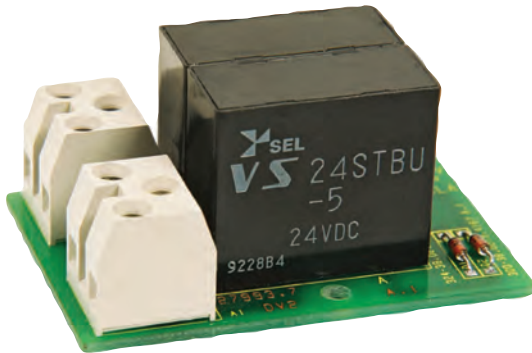
Interface module for control panel networking on the SRT network via a dedicated line modem

Ordering Information

TD-32DC Telemodem

for control panel networking on the SRT network
Order number

BS NRK-N Network Relay Card



Plug-in board with 2 relays for potential-free outputs
(per relay, one NO contact 220 V~)

Ordering Information

BS NRK-N Network Relay Card

for potential-free outputs (per relay a NO contact
220 V~)

Order number **ICP-BS-NRK**

ICP-LSA-20 Connection Strip

Wire distributor for max. 20 double wires

Ordering Information

ICP-LSA-20 Connection Strip

for max. 20 double wires

Order number **ICP-LSA-20**

Additional Key Switch



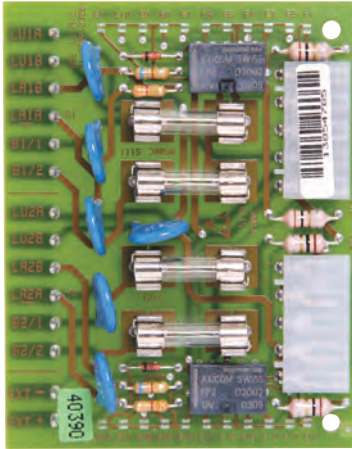
With 3 switch settings (1-0-2), free assignment to release of control panel functions
An additional key switch can be integrated into the operating panel.

Ordering Information

Additional Key Switch

with 3 switch settings (1-0-2)
Order number **ICP-BS-KS**

ASE for Monitored Activation of External Signaling Devices



For monitored activation of external signaling devices, with 2 primary lines with 2 outputs apiece, can be plugged into AVM.

Maximum current consumption per output: 500 mA

External signaling devices can be activated independently.

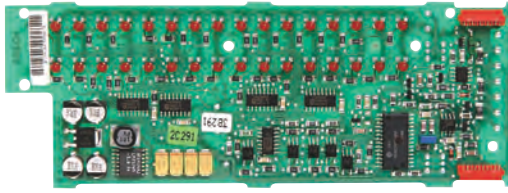
Ordering Information

ASE for Monitored Activation of External Signaling Devices

For connecting 2 x 2 BES external signaling device in parallel, can be plugged into AVM 100

Order number **ICP-BS-ASE**

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**

Service Switch for Exstinguishing Systems



4

Ordering Information

Service Switch for Exstinguishing Systems
Order number **FME-KL-EXT**

ATBL-EA Panel Control



For connecting max. eight remote display panels, with 64 potential-free transistor outputs per ATBL, prepared to accommodate a RTBL Relay

Ordering Information

ATBL-EA Panel Control

For connecting max. eight remote display panels
Order number

RTBL Relay

Two relays with one double-throw contact apiece,
optional for ATBL-EA.

Ordering Information

RTBL Relay

Two relays with one double-throw contact apiece,
optional for ATBL-EA
Order number

EV FUEM2 Power Supply Filter

Required for ATBL-EA

Ordering Information

EV FUEM2 Power Supply Filter

required for ATBL-EA

Order number

Conventional Panels

5

Conventional Panels

186

FPC-500 Conventional Fire Panel



5

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

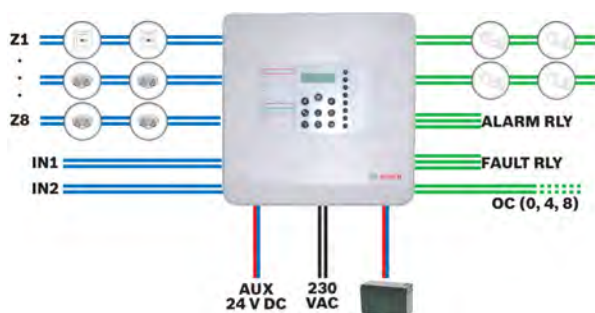
With the integrated LCD display, the panel can be programmed and operated.

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

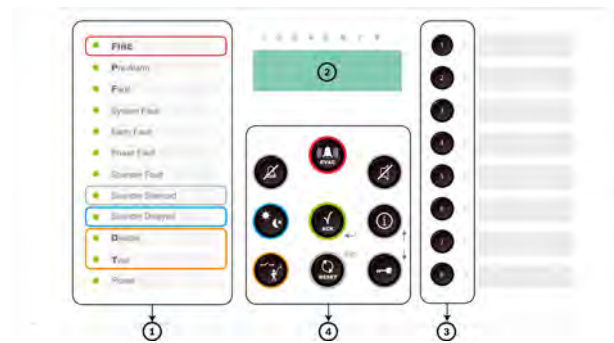
Features

- ▶ 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

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.

Certifications and Approvals

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	Certification	
Europe	CE	FPC-500
	CPD	0786-CPD-21105 FPC-500
Germany	VdS	VdS-G211100 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 ² 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 \pm 1VDC		
• current	max. 100 mA \pm 5 mA		
• max. cable resistance	22.5 Ω		
AUX			
• voltage	21 VDC to 29 VDC		
• current	500 mA \pm 10%		
• max. cable resistance	22.5 Ω		
• fuse	0.75 A @ 60 V		
NAC			
• voltage	21 VDC to 29 VDC		
• current	500 mA \pm 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 ² cable cross section		
Batteries	2 x 7.2 Ah (max.)		

• max. internal resistance	800 m Ω
• 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 \pm 5%
• End of line resistor	3.9 k Ω \pm 1%

Zone (with resistors)

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

Zone (with EOL-Module)

• Alarm resistor	820 Ω \pm 5% 910 Ω \pm 5% No dual-detector dependency: 680 Ω \pm 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

Order number **FPC-500-2**

FPC-500-4 Conventional Fire Panel

Order number **FPC-500-4**

FPC-500-8 Conventional Fire Panel

Order number **FPC-500-8**

Accessories

Relay Extension Module

Order number **FPC-500-RLYEXT**

OC Extension Module

Order number **FPC-500-OCEXT**

Access Key

Order number **FPC-500-KEY**

FLM-320-EOL2W Conventional EOL Module 2-Wire

for EN 54-13 compliant termination of conventional lines
Order number **FLM-320-EOL2W**

FLM-320-EOL4W-S Conventional EOL Module 4-Wire

for EN 54-13 compliant termination of conventional lines
Order number **FLM-320-EOL4W-S**

Display Panels

6

LSN Display Panels

192

BAT 100 LSN Display Panel



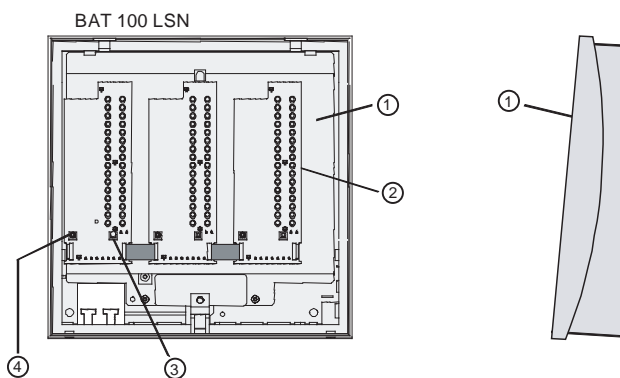
6

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).

Features

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

System Overview



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

Functions

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

Up to three ATG 100 LSN kits can be installed in the BAT 100 LSN housing. An ATG 100 LSN includes 32 red LEDs for alarm indications or 32 yellow LEDs for fault indications. Mixed equipment (red and yellow LEDs) of the display panel with different ATG 100 LSNs is possible. LED displays can be labeled using a printer. The panel has a buzzer and a reset button for the buzzer. If there is no alarm, the reset button for the LED test can be used.

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

Certifications and Approvals

ATG 100 LSN and ATB 100 LSN complied

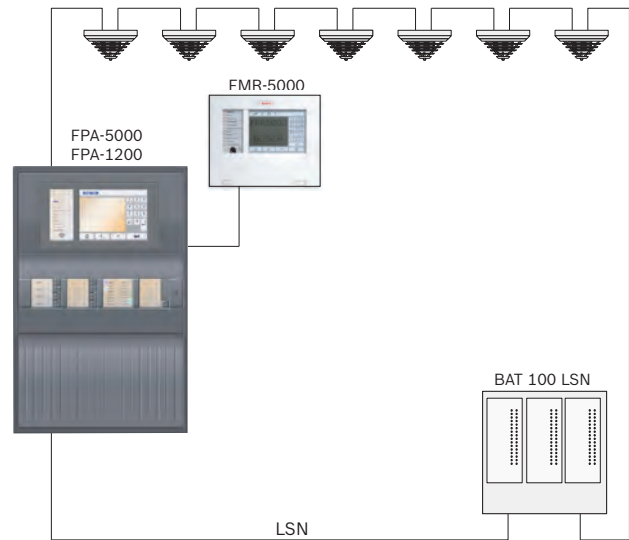
- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	BAT 100 LSN
	CE	BS ATE/ATG/ATB 100 LSN
	CPD	0786-CPD-20596 ATG100_ATB 100
Germany	VdS	G 298030 BAT 100 LSN_G298030
	VdS	G 297040 ATG 100_G297040

Installation/Configuration Notes

- BAT 100 LSN Display Panels can be incorporated at any point on LSN loops or LSN stubs.

Planning example



Parts Included

Qty.	Component
1	BAT 100 LSN Display Panel

Technical Specifications

Electrics

ATG 100 LSN module

Operating voltage

• LSN part	+12 VDC to +30 VDC
• other functions	+8 VDC to +30 VDC
Current consumption	
• LSN part	3 mA
• other functions	- all 32 LEDs off: max. 6 mA - all 32 LEDs on: max. 160 mA

Mechanics

BAT 100 LSN housing

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

Environmental conditions

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

Special features

LED flash frequency	0.8 Hz
LED colors	Red, yellow

Ordering Information

BAT 100 LSN Display Panel

Universally-usable remote parallel display with up to 96 LEDs

Order number **BAT 100**

Accessories

ATG 100 LSN red LED Kit, Red

Kit for display panel with 32 red LEDs

Order number **ATG 100 LSN red**

ATG 100 LSN ye LED Kit, Yellow

Kit for display panel with 32 yellow LEDs

Order number **ATG 100 LSN ye**

ATG100-16red-16ye LED Kit, Red/Yellow

Kit for display panel with 16 red and 16 yellow LEDs

Order number **ATG100-16red-16ye**

Labeling Strips

PU = 10 units

Order number **BAT100-LABELS**

ATB 100 LSN for Incorporation into Location Map Panels

Order number **ATB 100 LSN**

Power Supplies and Batteries

7

Power Supplies	196
Batteries	204

Type 519, 24 V/0.35 A Power Supply Unit

Certifications and Approvals

Region	Certification
Europe	CE NG 519

Parts Included

Qty.	Components
1	Type 519, 24 V / 0.35 A Power Supply Unit

Technical Specifications

Mains voltage	230 V AC, 50 Hz
Rated output voltage	24 V DC (± 1.5 V DC)
Max. output current	0.35 A
Residual	< 5%
Permitted ambient temperature	0 °C . . . 40 °C
Relay	1 change-over
• Max switching voltage	60 V DC / 125 V AC
• Max switching current	1 A
• Max switching power	30 W / 60 VA
Protection class as per EN 60529	IP 20
Mounting type	Surface-mounted
Housing	
• Dimensions (W x H x D)	78 x 150 x 55 mm
• Material	Sheet steel
• Color	Gray
Weight	900 g

Ordering Information

Type 519, 24 V/0.35 A Power Supply Unit
Order number **FPP-519**

NAG 03, 24 V/0.9 A Power Supply Unit

Certifications and Approvals

Region	Certification
Europe	CE NAG 03

Parts Included

Qty.	Components
1	NAG 03, 24 V / 0.9 A Power Supply Unit

Technical Specifications

Mains voltage	230 V AC, 50/60 Hz
Rated output voltage	24 V DC
Power consumption	26.5 W (46 VA)
Max. output current	0.9 A
Power output	Max. 21 W
Relays	1 change-over, potential-free
• Switching voltage	Max. 250 V AC
• Switching current	Max. 5 A
• Switching voltage	Max. 30 V DC
• Switching current at 30 V DC	Max. 3 A
• Switching current at 24 V DC	Max. 5 A
Transmission unit specification category 1	II (as per DIN VDE 0110-1)
Contamination level	2 (P2) as per DIN VDE 0110-1
Permitted ambient temperature	5 °C . . . 40 °C
Protection class as per EN 60529	IP 30
Classes of equipment as per EN 60950	Class II equipment
Mounting type	Surface mounting
Housing	
• Dimensions (W x H x D)	87 x 163 x 61 mm
• Material	Plastic, polycarbonate
• Color	Light gray, similar to RAL 9002
Weight	1,200 g

Ordering Information

NAG 03, 24 V/0.9 A Power Supply Unit
Order number **NAG03**

FPP-5000-TI Trouble Interface for FPP-5000



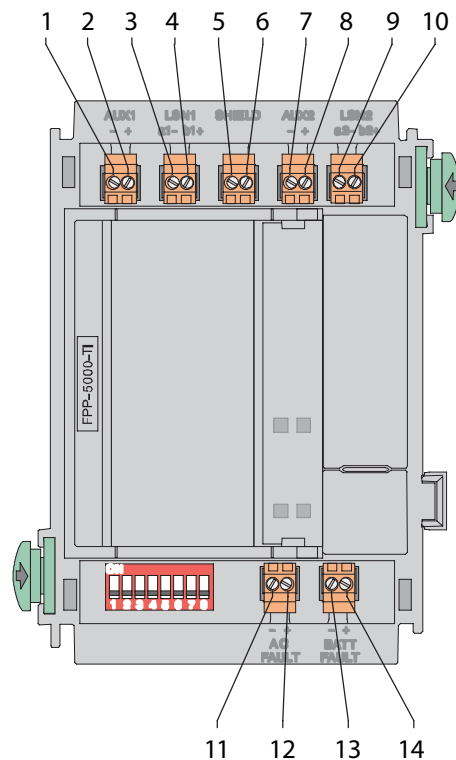
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The FPP-5000-TI is an extension for the FPP-5000 External Power Supply Unit Kit 24 V/6 A. It provides the fault message transfer of the mains fault signal and the battery fault signal to the fire panel via the Local SecurityNetwork LSN. The two fault 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.

Features

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

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 +	

Certifications and Approvals

Region	Certification	
Europe	CE	FPP-5000

Technical Specifications**Electrical**

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

Mechanical

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

Environmental conditions

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

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

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

Order number **FPP-5000-TI**

FPP-5000-TI13 LSN Communication Interface for FPP-5000

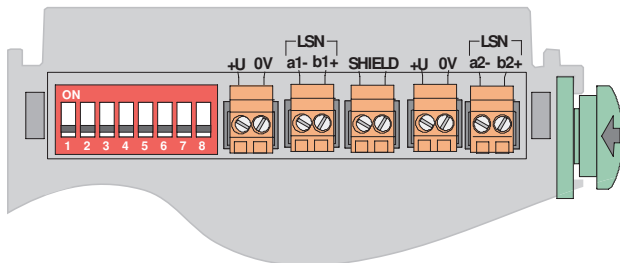


The module is an extension for the External Power Supply Unit Kit. It is the communication interface between the kit and the panel.

Features

- ▶ FPP-5000 functions when using the module:
- ▶ Line monitoring of all voltage outputs according to EN54-13
- ▶ Distinct fault detection, diagnosis and transmission to the panel
- ▶ Programmable voltage outputs

System Overview



Terminals	Description
+U/0V	Auxiliary power 1x incoming und 1x outgoing (support for looping through)
a1-/b1+	LSN incoming
SHIELD	Shield wire
a2-/b2+	LSN outgoing

Functions

The module is plugged next to the BCM-0000-B Battery Controller Module on the PRS 0002 A 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.

The module transmits the following faults to the panel:

- Mains fault

- Battery fault
- Battery internal resistance fault
- BCM Battery Controller Module fault
- Ground fault

Additionally, with the programming software, the switching outputs can be programmed and the settings for the line monitoring according to EN54-13 can be done.

Certifications and Approvals

Region	Certification
Europe	CE FPP-5000

Installation/Configuration Notes

- Note that for compliance with EN54-2, the maximum of LSN Communication Interfaces per LSN loop is 10.

Parts Included

Quant.	Component
1	Module
2	Termination element

Technical Specifications

Electrical

Input voltage	15 V DC to 33 V DC
Current consumption	<ul style="list-style-type: none"> • From rail 24 V DC 13.2 mA • From LSN 3.25 mA
Max. wire gauge	0.2 mm ² to 1.5mm ²

Mechanics

Address setting	with 8 DIP switches
Housing material	ABS plastic (UL94 V-0)
Housing color	semi-gloss anthracite, RAL 7016
Weight	approx. 154 g
Dimensions (W x H x D)	approx. 127 x 96 x 60 mm

Environmental conditions

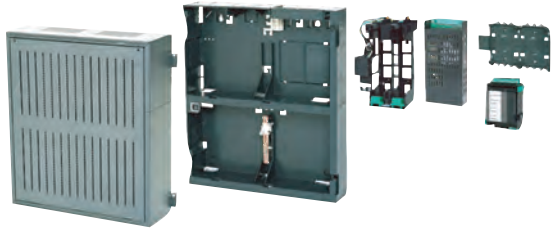
Protection category IEC 60529	IP 20
Permissible operating temperature	-5 °C to 50 °C
Permissible storage temperature	-20 °C to +85 °C
Max. relative humidity	95 % (non-condensing)

Ordering Information**FPP-5000-TI13 LSN Communication Interface for FPP-5000**

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 External Power Supply Unit Kit 24 V/6 A

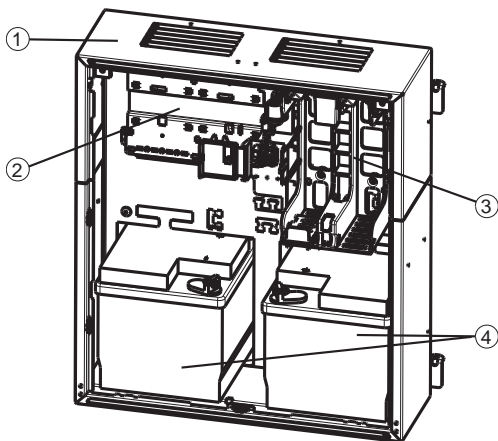


The FPP-5000 External Power Supply Unit Kit is designed for universal power supply, and has space for two 12 V/45 Ah batteries. This is configured using components of the Modular Fire Panel FPA-5000.

Features

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

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.

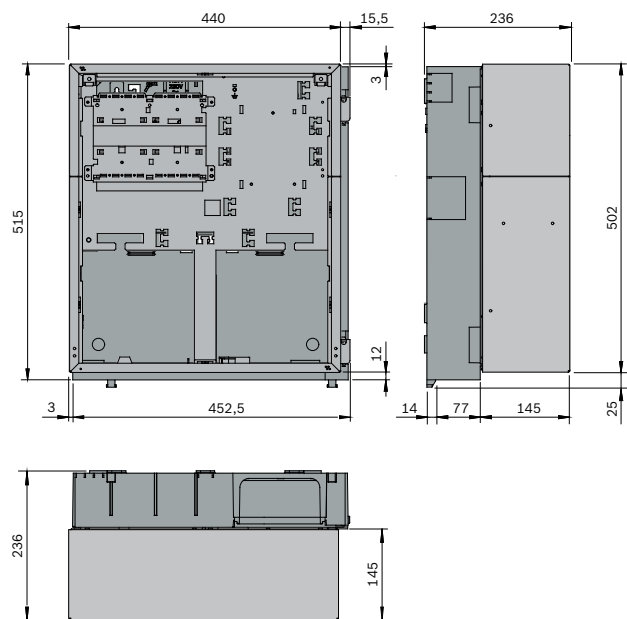
Certifications and Approvals

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

Region	Certification	
Europe	CE	FPP-5000
	CPD	0786-CPD-20357 FPP-5000
Germany	VdS	G 205050 FPP-5000

Installation/Configuration Notes

Installation dimensions



Parts Included

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

- 1 Battery pole connection cable for Frame Installation Housing
- 1 Supplementary package

**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
Cooling	Ventilation without ventilator

Ordering Information

FPP-5000 External Power Supply Unit Kit 24 V/6 A
for universal power supply
Order number **FPP 5000**

Accessories

FPP-5000-TI13 LSN Communication Interface for FPP-5000

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 for FPP-5000

Use with FPP-5000 External Power Supply Unit Kit 24 V/6 A.
Order number **FPP-5000-TI**

Battery 12 V / 6.5 Ah

Certifications and Approvals

Region	Certification
Germany	VdS G 104055, C Batterie 7,2 Ah
	VdS G 105021, C Batterie 7 Ah

Ordering Information

Battery 12 V / 6.5 Ah
Order number **IPS-BAT12V-6AH5**

Gel Battery 12 V / 7.2 Ah



Notice

Two gel batteries are required for each conventional fire panel.

Parts Included

DU = 1 unit

Technical Specifications

Battery type	Gel accumulator
Rated voltage	12 VDC
Nominal capacity (K)	7.2 Ah
Max. permitted charging voltage	13.5 VDC ... 13.8 VDC
Maximum permitted charging current	1.8 A
Connectors	4.8 mm flat contacts
Permitted operating temperature	0 °C ... +40 °C
Permitted storage temperature	-20 °C ... +40 °C
Housing material	Plastic, ABS
Dimensions (W x H x D)	150 x 100 x 65 mm
Weight	Approx. 2.7 kg

Ordering Information

Gel Battery 12 V / 7.2 Ah

(DU = 1 unit)

Order number **IPP-12V-7.2Ah**

Battery 12 V / 10 Ah

Certifications and Approvals

VdS-Approval number: **G 189 231, G 189 170, G 193 064**

Region	Certification	
Germany	VdS	G 104057, C Batterie 12 Ah
	VdS	G 193064, C Batterie 12 Ah

Parts Included

Qty.	Components
1	12 V / 10 Ah battery, with connection accessories

Technical Specifications

12 V / 10 Ah dry batteries

Rated voltage	12 V DC
Rated capacity (K ₂₀)	10 Ah
Recommended charge voltage	13.8 V DC at 20°C
Recommended charge current	0.1 A
Dimensions (W x H x D)	151 x 94 x 102 mm
Connection	Flat pole

Ordering Information

Battery 12 V / 10 Ah
Order number **IPP-12V-10Ah**

Battery 12 V / 24 Ah

Certifications and Approvals

VdS-Approval number: **G 196 025, G 182 026, G 196 022, G 102 004**

Region	Certification	
Germany	VdS	G 104059, C Batterie 26 Ah
	VdS	G 196022, C Batterie 27 Ah

Parts Included

Qty.	Components
2	12 V / 24 Ah battery

Technical Specifications

12V / 24 Ah dry batteries

Rated voltage	13,8 VDC
Rated capacity (K ₂₀)	24 Ah
Recommended charge current	0.1 to 0.2 A
Weight	9.6 kg
Dimensions (W x H x D)	167 x 127 x 176 mm
Connection	Flat pole

Ordering Information

Battery 12 V / 24 Ah
Order number **IPP-12V-24Ah**

Battery 12 V / 38 Ah

Battery can be deployed as follows:

- UEV 1000 Universal Power Supply
- FPA-5000 Modular Fire Panel
- FPA-1200 Fire Panel

Dimensions (B x H x T): 523 x 261 x 258 mm

Certifications and Approvals

Region	Certification	
Russia	GOST	POCC DE.C313B06299

Parts Included

Qty.	Components
1	12 V/38 Ah Battery with connection accessories

Technical Specifications

Battery type	Dry battery
Rated voltage	12 V DC
Nominal capacity	38 Ah
Recommended load voltage	13.8 V DC at 20 °C
Recommended load current	0.1 to 0.2 A
Dimensions (W x H x D)	175 x 174 x 199 mm
Connector	Flat pole

Ordering Information

Battery 12 V / 38 Ah
 (Delivery unit = 2 units)
 Order number **IPP-12V-38Ah**

Lithium Block Battery 9 V for Optical RF Smoke Detector DOW 1171

**Notice**

Two batteries per detector are required!

Ordering Information

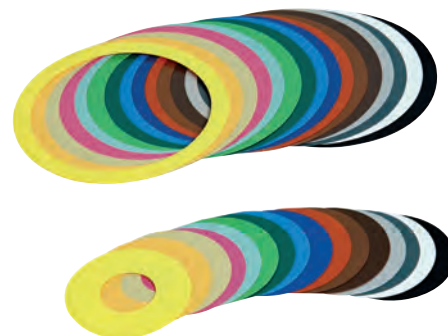
Lithium Block Battery 9 V for Optical RF Smoke Detector DOW 1171

DU = 1 unit

Order number **IPP-9V-Block**

LSN Detectors	212
Accessories - Series 500 LSN and 520 LSN	222
Accessories - Series 420 LSN improved version	231
LSN RF Fire Detection Systems	244
Accessories - LSN RF Fire Detection System	249
Conventional Detectors	253
Accessories - Series 500 Conventional	262
Accessories - Series 320 Conventional	273
Accessories - DO1101A-Ex	285
Specialty Detectors	290

FAP-520 Automatic Fire Detectors LSN improved version



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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.

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

Functions

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

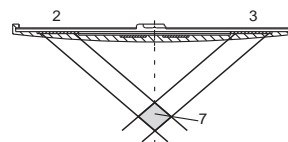
By linking the optical sensors and the gas sensor, the OC detector can also be used in places where the work carried out gives rise to small amounts of smoke, steam or dust. The alarm will only be triggered automatically if the signal combination corresponds with the characteristic diagram of the installation 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).

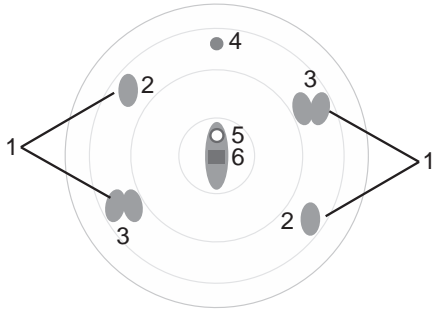
Optical sensor (smoke sensor)

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

- Flexible network structures, including "T-tapping" without additional elements

- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing selectable via rotary switch, in each case with or without auto-detection
- Power supply for connected elements via LSN bus
- 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 FAP-520 Fire Detectors offer all the established benefits of LSN technology. The following data can be read out for each configured detector:

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

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

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

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

Further performance characteristics

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

The control of an external detector alarm display is possible.

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

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

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

Certifications and Approvals

Complies with

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

Region	Certification	
Europe	CE	FAP-520/FAA-500-R
	CPD	0786-CPD-20201 FAP-O 520 / 520-P
Germany	CPD	0786-CPD-20202 FAP-OC 520 / 520-P
	VdS	G 205125 FAP-O 520/520-P_G205125
Poland	VdS	G 205119 FAP-OC 520/520-P_G205119
	CNBOP	2565/2007 FAP-O 520, FAP-O 520-P

Region	Certification	
	CNBOP	2566/2007 FAP-OC 520, FAP-OC 520-P
Hungary	TMT	TMT-20/2006 FAP-O 520, FAP-O 520-P
	TMT	TMT-21/2006 FAP-OC 520, FAP-OC 520-P
	MOE	UA1.016-0002820-10 FAP-O520 -P _FAA-500 -R

Installation/Configuration Notes

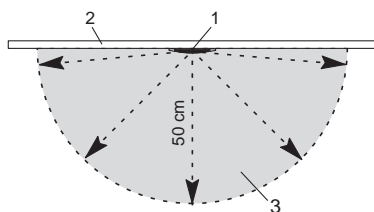
- Can be connected to the fire panels FPA-5000 and FPA-1200 with the improved LSN system parameters
- in "Classic Mode" can be connected to the LSN fire panels BZ 500 LSN, UEZ 2000 LSN, UGM 2020 and to other panels or their receiver modules with identical connection conditions, although with the previous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



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.
- The bases are equipped as standard with a spring which is suitable for installation of the detector in false ceilings. When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger springs FAA-500-SPRING with red markings.
- Maximum permitted air speed: 20 m/s
- Country-specific standards and guidelines must be observed during the planning phase.

Installation/configuration notes in accordance with VdS/VDE

- The FAP-OC 520, like the FAP-O 520, is planned according to the guidelines for optical detectors (see DIN VDE 0833 Part 2 and VDS 2095).

Parts Included

Detector type	Qty.	Components
FAP-O 520	1	Optical Smoke Detector, White
FAP-O 520-P	1	Optical Smoke Detector, Transparent with Color Inserts
FAP-OC 520	1	Multisensor Detector Optical/Chemical, White
FAP-OC 520-P	1	Multisensor Detector Optical/Chemical, Transparent with Color Inserts

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	< 3.25 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 Trim Ring	Ø 150 x 55 mm
• Detector with Trim Ring, Base and Ceiling Mount Back Box	Ø 150 x 110 mm
Housing material	Polycarbonate
Color	
• Detector housing	Signal white, RAL 9003
• Detector front plate FAP-O 520/ FAP-OC 520	signal white matt

• Detector front plate FAP-O 520(-P)/ FAP-OC 520-P	transparent/silver-gray
Weight	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 ² (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 Optical Smoke Detector, White
for LSN improved version, ultra-flat design
Order number **FAP-O 520**

FAP-O 520-P Optical Smoke Detector, Transparent with Color Inserts
for LSN improved version, ultra-flat design
Order number **FAP-O 520-P**

FAP-OC 520 Multisensor Detector Optical/Chemical, White
for LSN improved version, ultra-flat design
Order number **FAP-OC 520**

FAP-OC 520-P Multisensor Detector Optical/Chemical, Transparent with Color Inserts
for LSN improved version, ultra-flat design
Order number **FAP-OC 520-P**

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, Transparent with Color Inserts
for 500 and 520 Series Fire Detectors
Order number **FAA-500-TR-P**

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

FAA-500-R LSN Base with Relay
Only used in conjunction with the 5000 Series Modular Fire Panel.
Order number **FAA-500-R**

FAA-500-BB Ceiling Mount Back Box
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 Built-in 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 Ceiling Mount Back Box, which contains the base and the detector.
Order number **FAA-500-CB**

FAA-500-SB Surface Mount Back Box
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**

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal
for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling
Order number **FAA-500-SB-H**

FAA-500-SPRING for Concrete/Wooden Ceilings

(DU = 10 units)

Order number **FAA-500-SPRING**

FAP-420/FAH-420 Automatic Fire Detectors LSN improved version



The 420 Series Automatic Fire Detectors offer a superb accuracy as well as detection speed and precision. The versions with dual-optical sensor (DO-detectors: FAP-DO420, FAP-DOT420, FAP-DOTC420) are able to detect lightest smoke (TF1 and TF9). These detectors provide all advantages of LSN improved version. The addressing of the detectors can be configured with the integrated turning switches.

Features

- ▶ Combination of optical, thermal and chemical sensors with intelligent evaluation electronics.
- ▶ Earliest detection of lightest smoke (TF1 & TF9) with the double-optical smoke detectors featuring Dual-Ray technology
- ▶ Detector properties adapted to cater for room usage
- ▶ Drift compensation in optical and gas measurement section
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

System Overview

Operating mode	Detector type		
	FAP-DOTC420	FAP-DOT420	FAP-DO420
Combined	x	x	-
Optical	x	x	x
Dual-Optical	x	x	x
Thermo-max.	x	x	-

Thermal differential	x	x	-	-
Chemical (+ optical)	x	-	-	-
Operating mode	Detector type			
	FAP-OTC 420	FAP-OT 420	FAP-O 420 (KKW)	FAH-T 420 (KKW)
Combined	x	x	-	-
Optical	x	x	x	-
Dual-Optical	-	-	-	-
Thermo-max.	x	x	-	x
Thermal differential	x	x	-	x
Chemical (+ optical)	x	-	-	-

Functions

Sensor technology and signal processing

The individual sensors can be configured manually or timer-based via the LSN network.

All sensor signals are analyzed continually by the internal evaluation electronics (Intelligent Signal Processing – ISP) and are linked with each other via an inbuilt microprocessor. The link between the sensors means that the combined detectors can also be used where light smoke, steam or dust must be expected during the course of normal operation.

Only if the signal combination corresponds to that for the programming of the selected usage site field code will the alarm be triggered automatically. This results in a higher level of security against false alarms.

In addition, the time of the sensor signals on fire and fault detection is analyzed, resulting in an increased 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 required for adjustment to extreme interference factors.

Optical sensor (smoke sensor)

The optical sensor uses the scattered-light method. An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

The DO detectors use two optical sensors with different wavelength. The Dual Ray Technology works with an infrared and a blue LED, so that light smoke can be detected 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 of the FAP-DOTC420 detector shuts down automatically after 6 years of operation, and the C sensor of the FAP-OTC 420 detector after 5 years of operation. The FAP-DOTC420 detector will then still operate as a DOT detector and the FAP-OTC 420 detector as an OT detector. The detectors should be exchanged immediately in order to keep the higher detection reliability of the DOTC/OTC versions.

Improved LSN features

The 420 Series Fire Detectors offer all the features of the improved LSN technology:

- Flexible network structures, including "T-tapping" without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing selectable via rotary switch, in each case with or without auto-detection
- Power supply for connected elements via LSN bus
- Unscreened fire detection cable can be used
- Cable length up to 3000 m (with LSN 1500 A)
- Downwards compatibility to existing LSN systems and central units

LSN features

Operating data display

In addition, the FAP/FAH-420 detectors offer all the established benefits of LSN technology. The RPS programming software can be used to change the detection characteristics of the respective room utilization. In addition, each configured detector, with the exception of the KKW, can provide the following data:

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

Analog values:

- Optical system values: current measured value of the scattered light sensor; the measuring range is linear and covers from 170 (new) to 700 (dirty).
- Contamination: the contamination value shows how much the current contamination value has increased relative to the original condition.
- CO value: display of the current measured value (max. 550).

Self-monitoring of sensor technology

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

- Fault indication in the event of the failure of the detector electronics
- Continuous display of contamination level during service
- Fault indication if heavy contamination is detected (in place of false alarms)

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

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

Further performance characteristics

The detector alarm indication takes the form of a red flashing LED that is easily visible 360°.

It is possible to activate a remote external detector alarm display. The detector base no longer has to be directed due to the centralized position of the individual display.

The integrated strain relief for interfloor cables prevents the removal of cables from the terminal after installation. The terminals for cable cross-sections up to 2.5 mm² are very easily accessible.

The detector bases have a mechanical removal lock (can be activated/deactivated).

The detectors have a dust-repellent labyrinth and cap construction.

Certifications and Approvals

The detectors comply with:

- EN 54-7: 2000/A2 (2006)
- EN 54-5: 03/2001 only detectors with thermal sensor
- EN 54-17:2005
- prEN 54-29: 2008 only FAP-DOT420, FAP-DOTC420
- CEA 4021:07:2003

Region	Certification	
Europe	CE	FAP-/FAH-420 KKW
	CE	FAP-/FAH-420/FAA-MSR420/FAA-MS-R-SP
	CE	FAP-DO420/FAP-DOT420/FAP-DOTC420 000017/01 FAP-O420
Europe	CPD	0786-CPD-20117 FAP-O 420
	CPD	0786-CPD-20118 FAP-OT 420
	CPD	0786-CPD-20119 FAP-OT 420
	CPD	0786-CPD-20120 FAP-OTC 420
	CPD	0786-CPD-20121 FAP-OTC 420
	CPD	0786-CPD-20125 FAP-O 420 KKW
	CPD	0786-CPD-20126 FAP-OT 420 KKW
	CPD	0786-CPD-20127 FAP-OT 420 KKW
	CPD	0786-CPD-20128 FAH-T 420 KKW
	CPD	0786-CPD-20129 FAH-T 420
CPD	0786-CPD-20973 FAP-DOTC420	

Region	Certification	
	CPD	0786-CPD-20974 FAP-DOT420
	CPD	0786-CPD-20975 FAP-DO420
Germany	VdS	G 205080 FAP-OTC 420_G205080
	VdS	G 205081 FAP-OT 420_G205081
	VdS	G 205082 FAP-O 420_G205082
	VdS	G 205083 FAH-T 420_G205083
	VdS	G 205088 FAP-O 420 KKW_G205088
	VdS	G 205089 FAH-T 420 KKW_G205089
	VdS	G 210055 FAP-DOTC420
	VdS	G 210056 FAP-DO420
	VdS	G 210057 FAP-DOT420
Poland	CNBOP	2567/2007 FAP-O420
	CNBOP	2568/2007 FAH-T420
	CNBOP	2587/2007 FAP-OT420
	CNBOP	2588/2007 FAP-OTC420
Hungary	TMT	TMT-17/2006 FAP-O 420, FAP-O 420 KKW
	TMT	TMT-18/2006 FAH-T 420, FAH-T 420 KKW
	TMT	TMT-19/2006 FAP-OT 420, FAP-OT 420 KKW, FAP-OTC 420
	MOE	UA1.016.0070213-11 FAP-OTC420
	MOE	UA1.016-0070210-11 FAP-OT420
	MOE	UA1.016-0070215-11 FAP-DO420
	MOE	UA1.016-0070218-11 FAP-DOT
	MOE	UA1.016-0070221-11 FAP-DOTC
	MOE	UA1.016-0091995-09 FAP-O420_MS400_MS400_FAA-420-RI
	MOE	UA1.016-0091997-09 FAH-T420_MS400_MS400

Installation/Configuration Notes

- Connectable to the fire panels FPA-5000 and FPA-1200 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-xxxx-A cannot be used.
- In "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 (Document Number F.01U.089.231).

Installation/configuration notes in accordance with VdS/VDE

- The FAP-DOTC420, FAP-DOT420, FAP-OTC 420, and FAP-OT 420 types are planned in accordance with the guidelines for optical detectors if operated as optical detectors or as combined optical/thermal detectors (see DIN VDE 0833 Part 2 and VDS 2095)
- If occasional disconnection of the optical unit (scattered light sensor) is required, planning must be based on the guidelines for heat detectors (see DIN VDE 0833 Part 2 and VDS 2095)
- When planning fire barriers according to DIBt, note that the FAH-T 420 (KKW) must be configured in accordance with class A1R.

Parts Included

Detector type	Qty	Components
FAP-DOTC420	1	Multisensor Detector Dual-Optical, Thermal, Chemical
FAP-OTC 420	1	Multisensor Detector Optical/Thermal/Chemical
FAP-DOT420	1	Multisensor Detector Dual-Optical, Thermal
FAP-OT 420	1	Multisensor Detector Optical/Thermal
FAP-DO420	1	Dual-Optical Smoke-Detector
FAP-O 420	1	Optical Smoke Detector
FAH-T 420	1	Heat Detector (Thermal Differential/Thermal Maximum)
FAP-O 420 KKW	1	Optical Smoke Detector *
FAH-T 420 KKW	1	Heat Detector (Thermal Differential/Thermal Maximum) *

* For use in areas with increased radioactive radiation

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	< 0.55 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	Without / With packaging

• FAP-DOTC 420	Approx. 80 g / Approx. 135 g
• FAP-DOT 420, FAP-DO 420	Approx. 75 g / Approx. 125 g
• FAP-OTC 420	Approx. 80 g / Approx. 125 g
• FAP-OT 420, FAP-O 420, FAP-O 420 KKW, FAH-T 420, FAH-T 420 KKW	Approx. 75 g / Approx. 115 g

Environmental conditions

Permissible operating temperature	
• FAP-DOTC420 • FAP-OTC 420	-10 °C to +50 °C
• FAP-DOT420 • FAP-OT 420 • FAH-T 420 • FAH-T 420 KKW	-20 °C to +50 °C
• FAP-DO420 • FAP-O 420 • FAP-O 420 KKW	-20 °C to +65 °C
Permissible storage temperature	
• FAP-DOTC420	-20 °C to +50 °C
• FAP-DOT420	-25 °C to +80 °C
• FAP-DO420	-25 °C to +80 °C
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s.
Protection class as per EN 60529	IP 40, IP 43 detector base with damp room seal

Further characteristics

Response sensitivity	
• Optical part	In accordance with EN 54 T7 (programmable)
• Thermal maximum part	> 54 °C / >69 °C
• Thermal differential part: FAH-T 420, FAH-T 420 KKW	A2S / A2R / A1 / A1R / BS / BR, in line with EN 54-5 (programmable)
• Thermal differential part: FAP-DOTC420, FAP-DOT420, FAP-OTC420, FAP-OT420	A2S / A2R / BS / BR, in line with EN 54-5 (programmable)
• Gas sensor	In ppm range
Individual display	LED red
Color code	
• FAP-DOTC420	2 yellow concentric loops
• FAP-OTC 420	Yellow loop
• FAP-DOT 420	2 black concentric loops

• FAP-OT 420	Black loop
• FAP-DO420	2 gray concentric loops
• FAP-O 420, FAP-O 420 KKW	No marking
• FAH-T 420, FAH-T 420 KKW	Red loop

Planning

Monitoring area	
• FAP-DOTC 420, FAP-DOT 420, FAP-DO 420, FAP-OTC 420, FAP-OT 420, FAP-O 420	Max. 120 m ² (Heed local guidelines!)
• FAH-T 420 FAH-T 420 KKW	Max. 40 m ² (Heed local guidelines!)
Maximum installation height	16 m (Heed local guidelines!)
• FAP-DOTC 420, FAP-DOT 420, FAP-DO 420, FAP-OTC 420, FAP-OT 420, FAP-O 420, FAP-O 420 KKW	Max. 16 m (Heed local guidelines!)
• FAH-T 420, FAH-T 420 KKW	Max. 7.5 m (Heed local guidelines!)

Ordering Information

FAP-O 420 Optical Smoke Detector

for LSN improved version
Order number **FAP-O 420**

FAP-OT 420 Multisensor Detector Optical/Thermal

for LSN improved version
Order number **FAP-OT 420**

FAP-OTC 420 Multisensor Detector Optical/Thermal/Chemical

for LSN improved version
Order number **FAP-OTC 420**

FAH-T 420 Heat Detector

thermal differential/thermal maximum, for LSN improved version
Order number **FAH-T 420**

FAP-O420 KKW Optical Smoke Detector

for use in areas with increased radioactive radiation, for LSN improved version
Order number **FAP-O420-KKW**

FAH-T420 KKW Heat Detector

thermal differential/thermal maximum, for use in areas with increased radioactive radiation, for LSN improved version
Order number **FAH-T420-KKW**

FAP-DO420 Dual-Optical Smoke Detector

for LSN improved version
Order number **FAP-DO420**

FAP-DOT420 Multisensor Detector Dual-Optical, Thermal

for LSN improved version
Order number **FAP-DOT420**

FAP-DOTC420 Multisensor Detector Dual-Optical, Thermal, Chemical

For LSN improved version
Order number **FAP-DOTC420**

Accessories**MS 400 Detector Base**

Order number **MS 400**

MSC 420 Additional Base with Damp Room Seal

for surface-mounted cable feed
Order number **MSC 420**

FAA-420-SEAL Damp Room Seal

1 package = 10 pieces
Order number **FAA-420-SEAL**

FAA-MSR 420 Detector Base with Relay

with a change-over relay (Form C)
Order number **FAA-MSR 420**

MS 420 LSN Detector Base with Spring

With integrated jumper elements that preserve the loop function if the detector is removed
Order number **MS 420**

FNM-420-A-BS-WH Base Sounder Indoor, white

for signaling an alarm directly at the fire location, can be employed either as base sounders or stand-alone sounders, for LSN improved technology
Order number **FNM-420-A-BS-WH**

SSK 400 Protective Dust Cover

(packing unit = 10 units)
Order number **SSK 400**

TP4 400 Support Plate for Detector Identification

(packing unit = 50 units)
Order number **TP4 400**

TP8 400 Support Plate for Detector Identification

(packing unit = 50 units)
Order number **TP8 400**

SK 400 Protective Basket

prevents damage
Order number **SK 400**

MH 400 Detector Heating Element

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

MK 400 Detector Console

Console for DIBt compliant mounting of detectors above doors etc., including detector base
Order number **MK 400**

Mounting Bracket for Fire Detectors on False Floor Stilts

Order number **FMX-DET-MB**

MPA External Detector Alarm Display according to DIN 14623

the transparent red alarm display conforms to DIN 14623
Order number **MPA**

FAA-420-RI Remote Indicator

required if the detector is not directly visible or has been mounted in false ceilings or false floors
Order number **FAA-420-RI**

FAA-500-TR-W Trim Ring, White

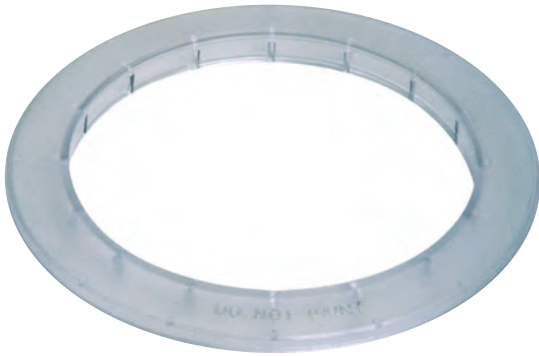


White Trim Ring for 500 und 520 Series Fire Detectors

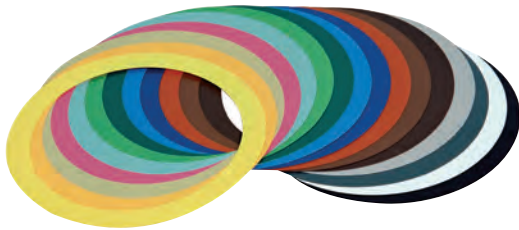
Ordering Information

FAA-500-TR-W Trim Ring, White
for 500 and 520 Series Fire Detectors
Order number **FAA-500-TR-W**

FAA-500-TR-P Trim Ring, Transparent with Color Inserts



Trim Ring for the "transparent with color inserts" Fire Detectors in the 500 and 520 Series



Ordering Information

FAA-500-TR-P Trim Ring, Transparent with Color Inserts
for 500 and 520 Series Fire Detectors
Order number **FAA-500-TR-P**

FAA-500 LSN Base



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.

8

Technical Specifications

Connections	Power supply (0 V, + V) LSN (a-in/out, b-in, b-out) C point Shielding
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight	185 g/270 g (without/with packaging)

Ordering Information

FAA-500 LSN Base

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

FAA-500-R LSN 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.

Certifications and Approvals

Region	Certification
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 ² – 3.3 mm ²
Dimensions	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight	210 g/290 g (without/with packaging)

Ordering Information

FAA-500-R LSN Base with Relay

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

Order number **FAA-500-R**

FAA-500-BB Ceiling Mount Back Box



The FAA-500-BB Ceiling Mount Back Box is necessary for flush ceiling installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors.

8

Technical Specifications

Mounting dimensions	
<ul style="list-style-type: none"> Maximum thickness of the false ceiling 	32 mm
<ul style="list-style-type: none"> Mounting height 	11 cm
<ul style="list-style-type: none"> Required bore hole 	Ø 130 mm (-1 mm/+5 mm)
Max. cable diameter	1.4 cm
Dimensions	Ø 140 x 104 mm
Housing material	Polycarbonate
Housing color	White
Weight (without/with packaging)	100 g/200 g

Ordering Information

FAA-500-BB Ceiling Mount Back Box

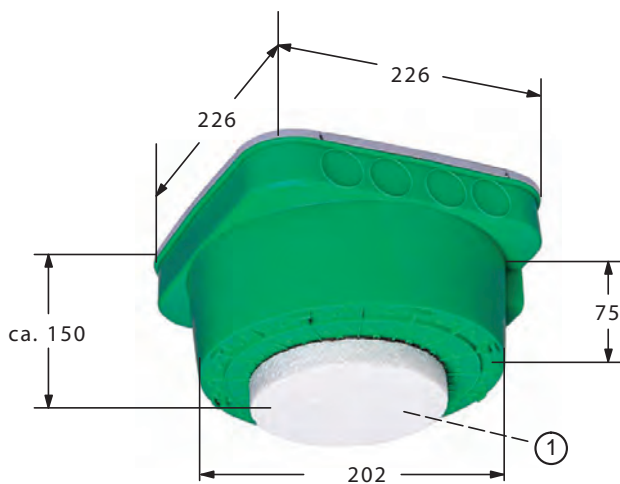
for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors
Order number **FAA-500-BB**

FAA-500-CB Built-in Housing for Concrete Ceilings



FAA-500-CB Built-in Housings are used to install 500 and 520 Series Fire Detectors in concrete ceilings. These make it possible to position cable ducts with ease and precision.

System Overview



Pos.	Description
1	Front part

Ordering Information

FAA-500-CB Built-in 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 Ceiling Mount Back Box, which contains the base and the detector.
Order number **FAA-500-CB**

FAA-500-SB Surface Mount Back Box



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.

8

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
- Each 25 mm (1.0 inch) for 3/4" cable protection conduit

In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 80 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight	Approx. 195 g/300 g (without/with packaging)

Ordering Information

FAA-500-SB Surface Mount Back Box

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**

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal



This is used as an alternative to the Ceiling Mount Back Box. The Surface Mount Back Boxes are designed for flush-mounted cable feed and surface-mounted cable feed with cable protection conduits.

The FAA-500-SB-H has an additional seal for damp rooms.

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
- Each 25 mm (1.0 inch) for 3/4" cable protection conduit

In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 82 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight (without/with packaging)	Approx. 225 g/330 g

Ordering Information

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal

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 for Concrete/ Wooden Ceilings



DU = 10 units

The bases of the 500 Series are fitted with spring as standard. This is suitable for installing the detector in false ceilings.

When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger FAA-500-SPRING springs with red markings.

Ordering Information

FAA-500-SPRING for Concrete/Wooden Ceilings

(DU = 10 units)

Order number **FAA-500-SPRING**

MS 400 Detector Bases



The detector head is installed in the Detector Base MS 400.

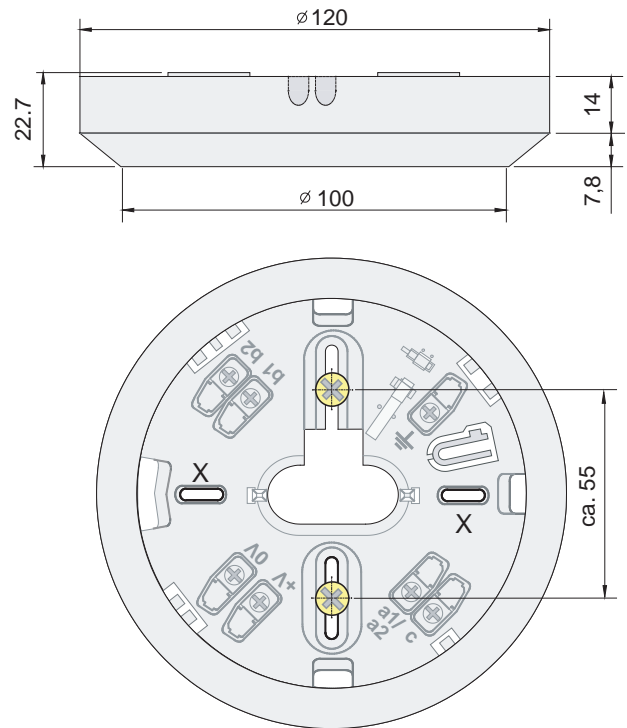
The base is suitable for surface-mounted cable feeds as well as for flush-mounted cable feeds, and has separate attachment points for ceiling mount/flush-mounted back boxes. In addition, it fits all standard bore patterns. The Detector Base made of white ABS plastic (Novodur, color similar to RAL 9010) 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 mm² 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 Detector Base

Order number **MS 400**

Accessories

FAA-420-SEAL Damp Room Seal

1 package = 10 pieces

Order number **FAA-420-SEAL**

MS 420 LSN Detector Base with Spring



The MS 420 can be used to mount detectors from the 420 Series, and has integrated jumper elements that preserve the loop function if the detector is removed. To protect against unauthorized removal, the detector head can be secured with a variable locking.

8

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding
Housing material	ABS (Novodur)
Housing color	Similar RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	72 g

Ordering Information

MS 420 LSN Detector Base with Spring

With integrated jumper elements that preserve the loop function if the detector is removed

Order number **MS 420**

FAA-MSR 420 Detector Base with 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.

Certifications and Approvals

Region	Certification
Europe	CE FAP-/FAH-420/FAA-MSR420/FAA-MS-R-SP

Technical Specifications

Connections	Power supply (0 V, +V) LSN (a1/a2, b1, b2) C-point Shielding Relay (NO, C, NC)
Relay contact load capacity	1 A @ 30 V DC
Housing material	ABS (Novodur)
Housing color	Similar RAL 9010
Dimensions	Ø 120 x 22.7 mm
Weight	82 g

Ordering Information

FAA-MSR 420 Detector Base with Relay
with a change-over relay (Form C)
Order number **FAA-MSR 420**

MSC 420 Additional Base with Damp Room Seal



The Additional Base MSC 420 was conceived specially for surface-mounted cable feeds with cable protection conduits and has 2 opposing pre-cut inlets of 20 mm diameter and 2 additional opposing and prepared inlets for up to 28 mm diameter.

To protect against condensation water penetration, a seal made of TPE is situated on the base of the MSC 420.

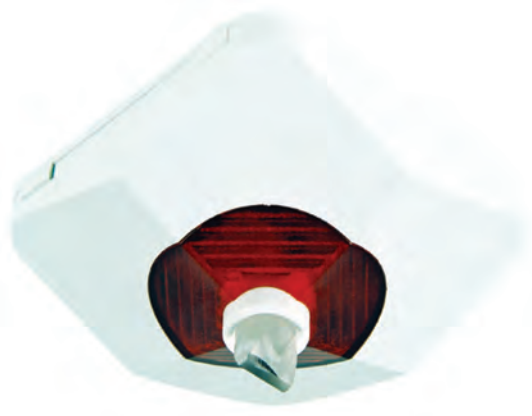
Technical Specifications

Base material	ABS (Novodur)
Seal material	TPE
Base color	Similar to RAL 9010
Dimensions	Ø 120 x 36.7 mm
Weight	74 g

Ordering Information

MSC 420 Additional Base with Damp Room Seal
for surface-mounted cable feed
Order number **MSC 420**

MPA External Detector Alarm Display according to DIN 14623



The External Detector Alarm Display is required if the detector is not directly visible or has been mounted in false ceilings or false floors. The External Detector Alarm Display should be mounted in corridors or access pathways to the corresponding building sections or rooms.

Certifications and Approvals

Region	Certification	
Europe	CE	MPA
	CPD	0786-CPD-20765 MPA
Germany	VdS	G 294052 MPA_G294052
	PTB	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA_01 ATEX 2163 X
Poland	CNBOP	2095/2006 MPA

Installation/Configuration Notes



Notice

If unshielded cables are used, the cable length between a LSN detector and an External Detector Alarm Display is restricted to a maximum of 3 m.

If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the External Detector Alarm Display within one loop or stub).

Technical Specifications

Operating voltage	9 V DC ... 30 V DC
Current consumption for display	
• T.2	Approx. 2 mA
• T.3	Limited to approx. 13 mA
• T.4	Limited to 20 mA maximum

Display medium	1 LED via a light guide
Permissible wire gauge	0.6 mm ... 0.8 mm
Dimensions	85 x 85 x 50 mm
Weight	65 g
Protection class as per IEC 60529	IP 40

Ordering Information

MPA External Detector Alarm Display according to DIN 14623

the transparent red alarm display conforms to DIN 14623

Order number **MPA**

FAA-420-RI Remote Indicator



The external detector alarm display should be mounted in corridors or access pathways of the corresponding building sections or rooms.

Certifications and Approvals

8

Region	Certification
Europe	CE FAA-420-RI

Installation/Configuration Notes



Notice

If unshielded cables are used, the cable length between an LSN detector and an external detector alarm display is restricted to a maximum of 3 m.

If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the external detector alarm display within one loop or stub).

Technical Specifications

Operating voltage	5 V DC ... 30 V DC
Maximum current consumption	20 mA
Display medium	2 LEDs
Permissible wire gauge	0.6 mm – 2.0 mm
Dimensions	84 x 84 x 35 mm
Weight	45 g
Protection class as per IEC 60529	IP 40

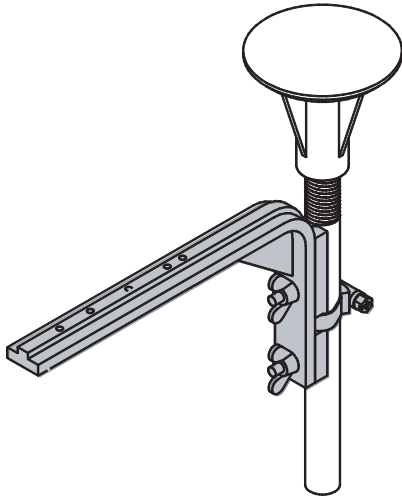
Ordering Information

FAA-420-RI Remote Indicator

required if the detector is not directly visible or has been mounted in false ceilings or false floors

Order number **FAA-420-RI**

Mounting Bracket for Fire Detectors on False Floor Stilts



Mounting Bracket to mount the detector in floor cavities.
The detector base is **not** included in the scope of delivery.

Ordering Information

Mounting Bracket for Fire Detectors on False Floor Stilts

Order number **FMX-DET-MB**

MK 400 Detector Console



Console for DIBt compliant mounting of detectors above doors etc.

The detector base is included in the scope of delivery.

Installation/Configuration Notes

Dimensions (L x B x H): 185 x 129 x 29 mm (without base)

Ordering Information

8

MK 400 Detector Console

Console for DIBt compliant mounting of detectors above doors etc., including detector base

Order number **MK 400**

MH 400 Detector Heating Element



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.

Ordering Information

MH 400 Detector Heating Element

usable at locations where the functional safety of the detector might be impaired by condensation

Order number **MH 400**

SK 400 Protective Basket



The Protective Basket prevents e. g. in a sports hall that balls hit and damage the detector.

The robust Protective Basket consists of 5 mm round steel, and is painted aluminum gray (RAL 9007).

Diameter (max.): 148 mm

Height: 75 mm

Ordering Information

SK 400 Protective Basket

prevents damage

Order number **SK 400**

SSK 400 Protective Dust Cover



Packing unit = 10 units

The Protective Dust Cover SSK 400 protects a mounted detector base – with or without detector head – against dirt during building work.

The Protective Dust Cover made of polypropylene (PP) is pushed onto the installed detector base.

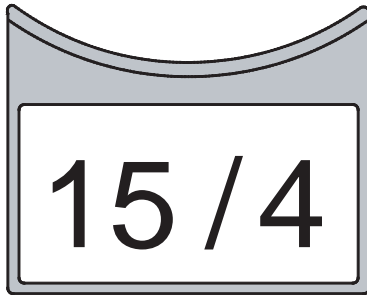
Ordering Information

SSK 400 Protective Dust Cover

(packing unit = 10 units)

Order number **SSK 400**

TP4 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 4 m and is configured for a self-adhesive label with dimensions of up to 65 x 34 mm.

8



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.

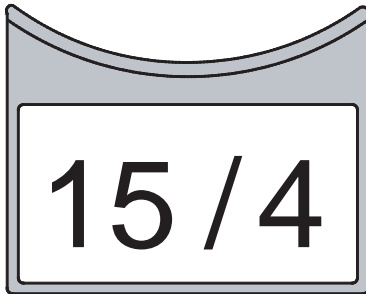
Ordering Information

TP4 400 Support Plate for Detector Identification

(packing unit = 50 units)

Order number **TP4 400**

TP8 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 8 m and is configured for a self-adhesive label with dimensions of up to 97 x 44 mm.



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.

Ordering Information

TP8 400 Support Plate for Detector Identification

(packing unit = 50 units)

Order number **TP8 400**

LSN RF Fire Detection System



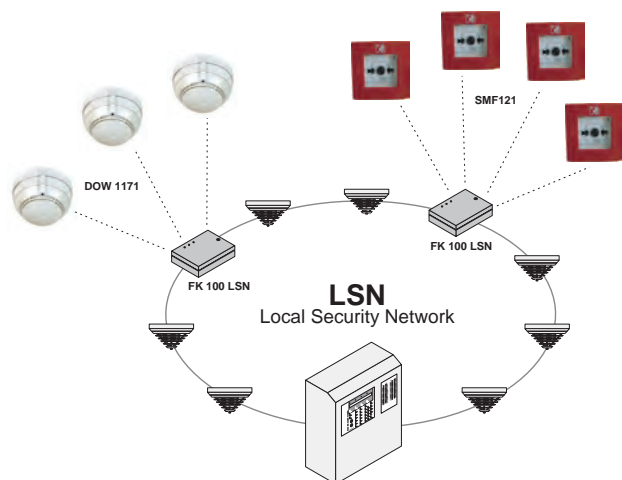
The LSN RF Fire Detection System operates in the new 868-870 MHz SRD (Short Range Devices) band, released exclusively for security technology. The SRD band does not interfere with long-range industrial, scientific and medical applications with high transmission power.

Features

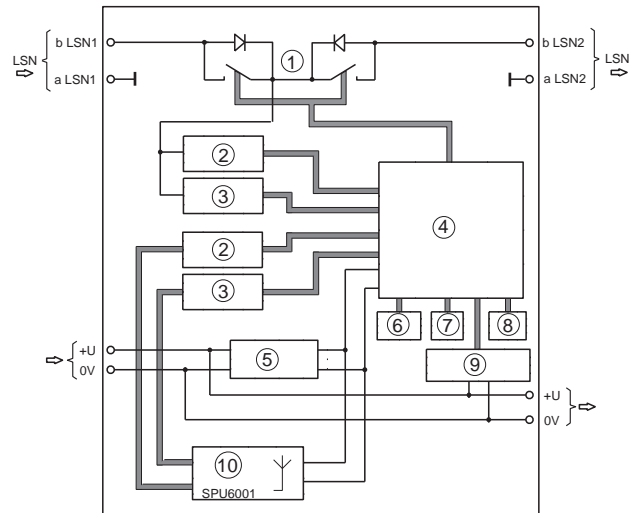
- ▶ Highly efficient thanks to simple installation, flexible expandability and automatic configuration
- ▶ High level of transmission and functional reliability
- ▶ Transmission path monitoring
- ▶ Optical RF Smoke Detector with outstanding interference immunity
- ▶ Up to 30 Optical RF Smoke Detectors or up to 10 RF Manual Call Points per RF Expansion Module can be connected

System Overview

LSN RF Fire Detection System



FK 100 LSN RF Expansion Module



Pos.	Description
1	FET switch
2	Receiving data
3	Transmitting data
4	Microprocessor for data processing/data transfer
5	Voltage supply
6	Reed contact
7	LEDs
8	Tamper contact
9	Monitoring of external voltage supply
10	SPU6001 Radio module

Functions

The LSN RF Fire Detection System (the radio cell) consists of an FK 100 LSN RF Expansion Module and up to 30 DOW 1171 Optical RF Smoke Detectors or up to 10 SMF121 RF Manual Call Points. The RF Expansion Module is installed as an LSN element in a loop or stub line and is the interface between the RF Smoke Detectors and the fire panel.

The information transfer between the detector and the Expansion Module is bi-directional. If a base channel is occupied by an external system, this is recognized immediately and the radio cell switches to a secondary channel to guarantee alarm transmission.

FK 100 LSN RF Expansion Module

The LSN part in the RF Expansion Module is supplied with voltage via the LSN cable. The radio module connected requires a separate power supply. The integrated microcontroller drives interfaces and user elements and is responsible for data transfer between the RF Smoke Detector and the fire panel. The FK 100 LSN has a tamper contact, a reed switch for manually activating the configuration mode and three LEDs for displaying the operating status. The RF Expansion Module meets the standard regulations and guidelines for security systems: EN 54; DIN VDE 0833; VdS.

DOW 1171 Optical RF Smoke Detector

The battery-powered, configurable RF Smoke Detector operates using the reliable scattered light principle with side scattering. In conjunction with the modern detection algorithm it achieves uniform response behavior, while providing outstanding interference immunity. The same radio module is integrated into the detector and the RF Expansion Module for bidirectional information transfer.

SMF121 RF Manual Call Point

The SMF121 RF Manual Call Point is used to trigger an alarm in the event of a fire or other emergency. Via a wireless connection, the SMF121 and the required SMF6120 RF Base (battery-powered) easily connect to the FK 100 LSN RF Expansion Module.

Certifications and Approvals

The FK 100 LSN complies with

- EN54-17:2005
- EN54-18:2005
- EN54-25:2008

The DOW 1171 complies with:

- EN54-7:2000/A1:2002/A2:2006
- EN54-25:2008/AC:2010

The radio module used in the FK 100 LSN RF Expansion Module, the DOW 1171 Optical RF Smoke Detector and in the SMF6120 RF Base is certified in the following countries (radio licensing in line with ANNEX4, Directive 99/5EC Radio recognition, CE 0123 (!)): Austria (A), Belgium (B), Croatia (HR), Denmark (DK), Germany (D), Italy (I), Luxembourg (L), The Netherlands (NL), Norway (N), Portugal (P), Spain (E), Slovakia (SK), Slovenia (SLO), Sweden (S), Switzerland (CH), Great Britain (GB).

Region	Certification	
Europe	CE	DOW 1171
	CE	FK 100 LSN
	CPD	0786-CPD-21077 DOW 1171
	CPD	0786-CPD-21080 FK 100 LSN
Germany	VdS	G 211065 DOW 1171
	VdS	G 211071 FK 100 LSN

Installation/Configuration Notes**Boundary values**

- Up to 30 DOW 1171 Optical RF Smoke Detectors can be connected per FK 100 LSN RF Expansion Module.
- A maximum of 127 LSN elements is allowed per LSN processing assembly. Each RF Expansion Module and each RF Smoke Detector or RF Manual Call Point is counted as an LSN element, e. g. with the maximum number of smoke detectors:
1 FK 100 LSN + 30 DOW 1171 = 31 LSN elements.
- When several FK 100 LSNs are installed in the same area, a minimum distance of 2 m must be maintained between the individual RF Expansion Modules.
- In addition, the maximum distance of 40 m and an attenuation of 90 dB must be adhered to between the RF Expansion Modules and the RF Smoke Detectors (see Planning a Radio Cell).

- 16 radio channels are available. The RF Expansion Modules automatically search for a free channel within the permitted range. The basic radio channels can be displayed using WinPara or FSP-5000-RPS.

This means that a maximum of 16 RF Expansion Modules (recommended is a maximum of 10) may be installed within one area (max. distance 40 m/max. attenuation 90 dB). The installation of additional RF Expansion Modules has to be checked on a case-by-case basis depending on whether the radio range does affect that of the first RF Expansion Module group (with a max. of 16 RF Expansion Modules).

- The RF Expansion Modules and the RF Smoke Detectors must not be installed in a metal cabinet.
- The necessary room for servicing (e. g. replacing batteries) and repair must be taken into account.

Connection and Power Supply

- An FK 100 LSN must not be connected to an NAK 100 LSN Branch Interface.
- A separate power supply is necessary for the module, the microprocessor and the peripherals.
- Power is supplied to the LSN components in the FK 100 LSN via two wires in the LSN line.
- The wire pair of the separate power supply can be looped through to provide power to the downstream LSN elements.

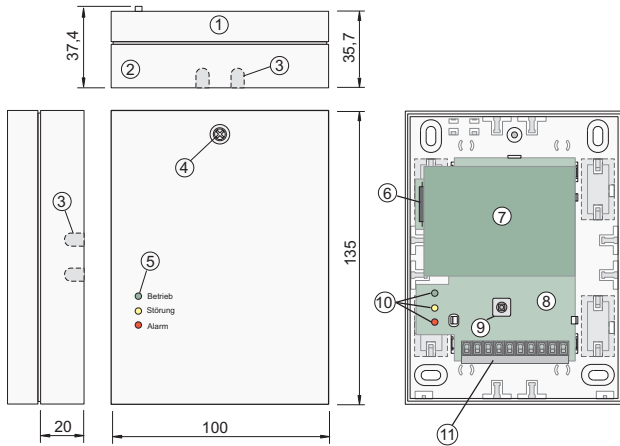
**Notice**

If the power supply to the FK 100 LSN is disconnected, the batteries must be removed from the RF Smoke Detectors!

Accessories

- If wall structures or other structural properties of a building are not known, field strength measurements are taken using the DZW 1171 wireless test unit to ensure more reliable planning.
- The Radiospy software with field strength measurement unit is a convenient tool for checking the planning for a radio cell and displaying it graphically using a PC/laptop.
- The DBZ 1193A detector identification for the DOW 1171 is a polycarbonate holder with cover for holding an identifier plate.
- The exchanger device ensures convenient detector replacement for the DOW 1171 RF Smoke Detector.
- For commissioning a wireless system without a fire panel (FACP), a magnet is needed to activate the reed contact in the RF Expansion Module.

FK 100 LSN device construction



- | Pos. | Description |
|------|--|
| 1 | Cover with embedded fibre-optic cables |
| 2 | Lower part of housing |
| 3 | Pre-prepared inputs/outputs for surface-mounting cable ducts |
| 4 | Cover screw |
| 5 | Optical fibers for LED display indicating operating state |
| 6 | Reed contact |
| 7 | Radio module |
| 8 | Interface board |
| 9 | Tamper contact |
| 10 | LED display indicating operating state |
| 11 | Terminal block |

Planning a wireless cell

- The range that can be achieved by a radio system in a building is generally dependent on the reflection and absorption responses of the materials used and on the design of the ceilings and walls!
- Line of sight visibility between the wireless components is not necessary.
- The RF Expansion Module should always be positioned right between the RF Smoke Detectors/ Manual Call Points. Since radio propagation is spherical, the connection is not restricted to a single floor.
- To determine the actual attenuation at the installation site, the attenuation given by distance must be added to the attenuation values of each construction element (walls, ceilings). The total attenuation of the transmission path must not exceed 90 dB.**
- The limiting values and calculation examples apply both to the RF Expansion Module - RF Smoke Detector radio link and to the RF Expansion Module - RF Expansion Module radio link.

Attenuation of the transmission path from distance with line of sight

- In buildings, doubling of the distance between RF Expansion Module and RF detector raises the attenuation figure by 16 to 17 dB.

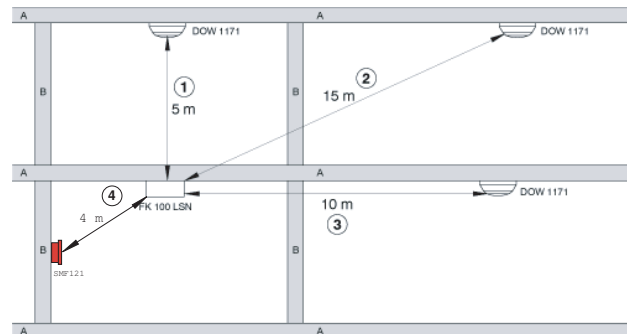
Distance [m]	5	10	15	20	25	30	40
Attenuation [dB]	40	57	67	74	79	83	90

Attenuation from construction elements in buildings

Construction element	Attenuation values	
Room dividers	very low	1 dB
Dry brick walls or concrete walls/ceilings	low	6 dB
Limestone brick	average	-10 dB
Limestone building blocks	average	-10 dB
Wood framed or wood panelled walls	average	-10 dB
Damp brick walls	average	-10 dB
Coated plasterboard, double walls	high	15 dB
Steel-reinforced concrete	high	-30 dB
Thick damp brick walls	very high	40 dB

Calculation example

The FK 100 LSN RF Expansion Module is mounted under a reinforced concrete ceiling. The dividing walls are made from concrete.



- | Pos. | Description |
|------|---|
| 1-3 | Transmission paths, see calculation example |
| A | Reinforced concrete ceiling |
| B | Concrete wall |

Transmission Path 1:
5 m distance + reinforced concrete ceiling = 40 dB + 30 dB = **70 dB**

Transmission Path 2:
15 m distance + reinforced concrete ceiling + concrete wall = 67 dB + 30 dB + 6 dB = **103 dB**

Transmission Path 3:
10 m distance + concrete wall = 57 dB + 6 dB = **63 dB**

Transmission Path 4:
4 m distance = **35 dB**

Transmission paths 1, 3 and 4 can be operated:
total attenuation < 90 dB.

The detector for transmission path 2 can no longer be reached:

total attenuation 103 dB > 90 dB permissible total attenuation.

Parts Included

FK 100 LSN RF Expansion Module

Qty Components

- 1 FK 100 LSN RF Expansion Module, incl. connection terminals

DOW 1171 Optical RF Smoke Detector

Qty Components

- 1 Optical RF Smoke Detector
- 2 9 V lithium battery
- 1 Detector base

SMF121 RF Manual Call Point

Qty Components

- 1 SMF121 RF Manual Call Point



Notice

With the SMF121 RF Manual Call Point, one SMF6120 RF Base as well as two HFM-BAT Lithium Batteries 3.6 V have to be ordered in addition.

Technical Specifications

FK 100 LSN RF Expansion Module

Electrical

Operating voltage	
• LSN components	+10 V ... +33 V DC
• Other components	+20 V ... +30 V DC
Current consumption	
• LSN components	6 mA
• Other components	< 20 mA

Mechanical

Dimensions (W x H x D)	135 x 100 x 35.7 mm
Housing material	Plastic ABS, Terluran
Color	Light gray, RAL 9002
Weight	Approx. 200 g

Ambient conditions

Protection class as per EN 60529	IP 30
Permissible operating temperature	-10 °C ... +55 °C

Planning

Maximum range in buildings	40 m
Max. number of FK 100 LSN	16
Max. number of DOW 1171	30 per FK 100 LSN
Max. number of SMF121	10 per FK 100 LSN

Special features

Frequency range	868 to 870 MHz (SRD band)
Channel spacing	25 kHz
Transmitting power	Max. 5 mW

DOW 1171 RF Smoke Detector

Electrical

Voltage supply	Two 9 V lithium batteries
Battery life cycle	Approx. 5 years
Average current consumption	0.07 mA

Mechanical

Dimensions (W x H x D)	Ø119 x 73 mm
Housing material	Plastic PC/ABS
Housing color	White, similar to RAL 9002
Weight	Approx. 335 g

Ambient conditions

Protection class according to EN 60529	IP 44
Permissible operating temperature	-10 °C ... +55 °C
Permitted relative humidity	< 95% at T < 34 °C

Planning

Range in buildings	40 m
Maximum number of DOW 1171	30 per FK 100 LSN

Special features

Detection principle	Scattered light measurement
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SMF121 RF Manual Call Point with SMF6120 RF Base

Electrical

Voltage supply	Two 3.6 V lithium batteries
Battery life cycle	Approx. 5 years
Current consumption	0.06 mA

Mechanical

Dimensions (W x H x D)	
• SMF121	125 mm x 125 mm x 36,5 mm
• SMF6120	116,3 mm x 116,3 mm x 42 mm

• SMF121 incl. SMF6120	125 mm x 125 mm x 56,5 mm
Housing material	ABS
LED	red
Housing color	red, RAL 3000
Weight	
• SMF121	ca. 200 g
• SMF6120	ca. 185 g
• HFM-BAT	ca. 20 g

Ambient conditions

Permissible operating temperature	-10 °C ... 55 °C
Permitted relative humidity	Max. 95 %
Protection class according to EN 60529	IP 43

Planning

Max. range in buildings	30 m
Max. number of SMF121	10 per FK 100 LSN

Ordering Information

FK 100 LSN RF Expansion Module

RF Expansion Module for up to 30 Optical RF Smoke Detectors or 10 RF Manual Call Points
Order number **FK 100 LSN RF**

DOW 1171 Optical RF Smoke Detector

for connecting to the FK 100 LSN RF Expansion Module
Order number **DOW1171 RF**

DZW 1171 Radio Test Unit

for planning and checking the maximum reach of a RF Fire Detection System
Order number **DZW 1171**

Radio Spy 1 Field Strength Measuring Unit and Software

for PC-based planning and graphic representation of a RF Fire Detection System
Order number **RADIO SPY 1**

DBZ 1193A Detector identification

Order number **DOW1171-ident**

Exchanger Device for DO1101A-Ex and DOW 1171

fits only on Siemens service poles
Order number **FAA-RTL-SIEMENS**

Lithium Block Battery 9 V for Optical RF Smoke Detector DOW 1171

DU = 1 unit
Order number **IPP-9V-Block**

SMF121 RF Manual Call Point

for connecting to the FK 100 LSN RF Expansion Module
Please order separately: 1 x SMF6120 RF Base, 2 x HFM-BAT Lithium Battery 3.6 V for SMF6120
Order number **SMF121**

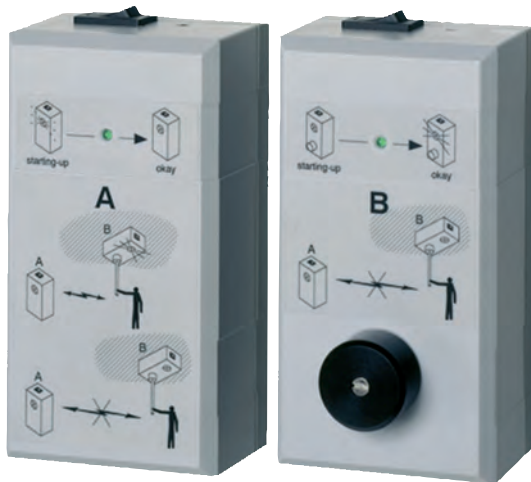
SMF6120 RF Base

Order number **SMF6120**

HFM-BAT Lithium Battery 3.6 V for SMF6120

Order number **HFM-BAT**

DZW 1171 Radio Test Unit



Field strength measuring device for planning and checking the maximum reach of a RF Fire Detection System in unknown building structures.

Device A is fixed in position at the predetermined installation location of the RF Interface Module.

Device B is taken to the intended place of installation of the RF Smoke Detector DOW 1171 and checks whether the permitted attenuation of the radio signal is not exceeded.

Ordering Information

DZW 1171 Radio Test Unit

for planning and checking the maximum reach of a RF Fire Detection System

Order number **DZW 1171**

Radio Spy 1 Field Strength Measuring Unit and Software



Field Strength Measuring Unit and Software, for easy PC-based planning and graphic representation of a RF Fire Detection System.

The Radio Spy 1 functions in a manner similar to the Radio Test Unit, although the field strength and configuration of the RF Fire Detection System are shown graphically on the screen.

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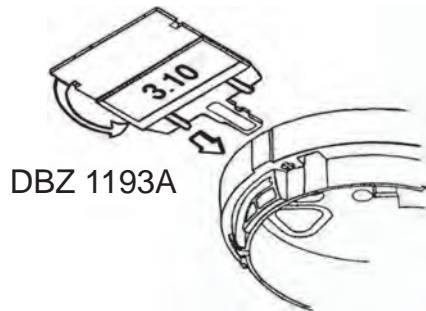
Ordering Information

Radio Spy 1 Field Strength Measuring Unit and Software

for PC-based planning and graphic representation of a RF Fire Detection System

Order number **RADIO SPY 1**

DBZ 1193A Detector identification



Holder made of polycarbonate with hinged lid, for safe insertion of a identifier plate size 58 mm x 19 mm

Ordering Information

DBZ 1193A Detector identification
Order number **DOW1171-ident**

Exchanger device for the DOW 1171 RF smoke detector



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Notice

The detector exchanger fits only on Siemens service poles.
The service pole is not included in the scope of delivery.

Ordering Information

Exchanger device for the DOW 1171 RF smoke detector

for Siemens service poles
Order number **FAA-RTL-Siemens**

FCP-500 Conventional Automatic Fire Detectors



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.

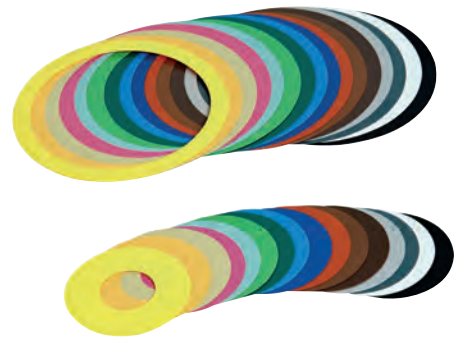
The FCP-500 is available as a scattered light smoke detector or as a multi-sensor detector with an additional gas sensor. The respective versions of the detectors are available in white or transparent with color inserts.

Features

- ▶ Modern, ultra-flat design
- ▶ Matches the surrounding decor by using color toning inserts
- ▶ Smooth, easily-cleaned detector surface
- ▶ Innovative fastening mechanism
- ▶ High reliability

Functions

The smooth, flush-installation surface means the FCP-500 detectors can be installed in areas with high aesthetic requirements. In addition, the fire detectors are suitable for areas with heightened dust exposure. The detectors and trim rings in the "transparent with color inserts" version are always supplied complete with reversible printed color rings, which offer a choice of 16 colors for individual color matching.



Sensor technology and signal processing

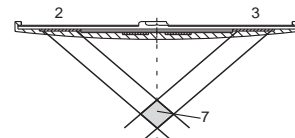
All detectors in the FCP-500 series are equipped with two optical sensors and a pollution sensor. The FCP-OC 500 multisensor detector contains a gas sensor as an additional detection channel.

All sensor signals are constantly analyzed by the internal signal evaluation electronics and are linked with each other through algorithms.

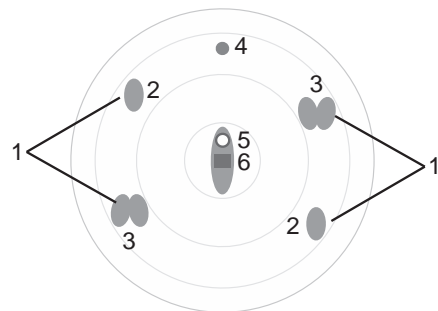
By linking the optical sensors and the gas sensor, the OC detector can also be used in places where the work carried out gives rise to small amounts of smoke, steam or dust. The alarm will only be triggered automatically if the signal combination corresponds with the detector's characteristic diagram.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

Optical sensor (smoke sensor)

The optical sensor (1) operates according to the scattered light method. The LEDs (3) transmit light at a defined angle into the scattered light area (7).



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



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

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

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

Chemical sensor (CO gas sensor)

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

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

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

Depending on the service life of the gas sensor, the FCP-OC 500 detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Pollution sensor

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

Contamination of the detector surface leads to active adaptation of the threshold value (closed-circuit value correction).

Further performance characteristics

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

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

To allow convenient detector testing, the FAA-500-TTL test adapter with magnet and additional service accessories is available.

Certifications and Approvals

Comply with:

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

Region	Certification	
Europe	CE	FCP 500 series
	CPD	0786-CPD-20203 FCP-O 500 / 500-P
	CPD	0786-CPD-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 detectors and detector bases can be used together with the „Rotaris” lamp by Philips.
- The FCP-OC 500, like the FCP-O 500, is planned according to the guidelines for optical detectors (see DIN VDE 0833 Part 2 and VDS 2095).
- The detectors must be installed exclusively in the FCA-500 bases provided. In addition, the detector base must be installed in an FAA-500-BB ceiling mount back box or in FAA-500-SB surface mount back box.



Notice

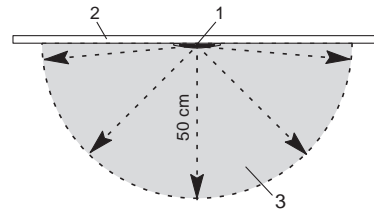
For flush ceiling mounting with FAA-500-BB: The false ceiling may have a maximum thickness of



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.
- The bases are equipped as standard with a spring which is suitable for installation of the detector in false ceilings. When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger springs FAA-500-SPRING with red markings.
- Maximum permitted air speed: 20 m/s
- Country-specific standards and guidelines must be observed during the planning phase.
- Technical Specifications

Parts Included

Detector type	Qty.	Components
FCP-O 500	1	Optical Smoke Detector, White
FCP-O 500-P	1	Optical Smoke Detector, Transparent with Color Inserts
FCP-OC 500	1	Multisensor Detector Optical/Chemical, White
FCP-OC 500-P	1	Multisensor Detector Optical/Chemical, Transparent with Color Inserts

Technical Specifications

Electrical

Operating voltage	8.5 V DC bis 33 V DC
Standby current	
• FCA-500-EU	3 mA
• FCA-500-E-EU	24 mA
Alarm current	47 mA
Fault current	
• FCA-500-EU	52 mA
• FCA-500-E-EU	58 mA
Alarm resistance	0 Ω (UL application) or 680 Ω
Fault relay output	NC / C
Indicator output	Relay connects 0 V over 1.5 kΩ

Mechanics

Individual display	Two-color LED, red (alarm), green (test mode)
Dimensions	
Detector	Ø 113 x 55 mm
Detector with trim ring	Ø 150 x 55 mm
Detector with cover, base and ceiling mount back box	Ø 150 x 110 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Front plate color	
FCP-O 500/ FCP-OC 500	Signal white matt

FCP-O 500-P/ FCP-OC 500-P	Transparent/silver-gray
Weight	Without / with packaging
FCP-OC 500(-P)	180 g / 370 g
FCP-O 500(-P)	170 g / 360 g
Trim Ring	30 g / 60 g

Environmental conditions

Protection class as per EN 60529	
FCP-O 500 (-P)	IP 53
FCP-OC 500 (-P)	IP 33
Permissible operating temperature	
FCP-O 500 (-P)	-20 °C bis +65 °C
FCP-OC 500 (-P)	-10 °C bis +50 °C
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s

Planning

Monitoring area	Max. 120 m ² (Heed local guidelines!)
Maximum installation height	Max. 16 m (Heed local guidelines!)
Minimum installation height	Out of arm's reach Minimum installation height recommended by BOSCH: 2.70 m
In the case of flush ceiling mounting with ceiling mount back box	
Thickness of the false ceiling	Max. 32 mm
Required bored hole	Ø 130 mm (-1 mm bis +5 mm)
Installation depth	110 mm Note: Above the false ceiling, a free height of at least 110 mm is required.
Minimum distance to lamps	0.5 m

Special features

Detection principle	
• FCP-O 500 (-P)	Scattered light measurement
• FCP-OC 500 (-P)	Combination of scattered light measurement and combustion gas measurement
Features	
• All FCP-500 detectors	Contamination detection Drift compensation (optical section)

<ul style="list-style-type: none"> In addition, for FCP-OC 500(-P) 	Drift compensation in the gas sensor section
Response sensitivity	
<ul style="list-style-type: none"> FCP-O 500 (-P) 	< 0.18 dB/m (EN 54-7)
<ul style="list-style-type: none"> FCP-OC 500 (-P) 	Optical section: < 0.36 dB/m (EN 54-7) Gas sensor section: in ppm range

Ordering Information

FCP-O 500 Optical Smoke Detector, White

ultra-flat design, conventional technology
Order number **FCP-O 500**

FCP-O 500-P Optical Smoke Detector, Transparent with Color Inserts

ultra-flat design, conventional technology
Order number **FCP-O 500-P**

FCP-OC 500 Multisensor Detector Optical/Chemical, White

ultra-flat design, conventional technology
Order number **FCP-OC 500**

FCP-OC 500-P Multisensor Detector Optical/Chemical, Transparent with Color Inserts

ultra-flat design, conventional technology
Order number **FCP-OC 500-P**

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, Transparent with Color Inserts

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

FCA-500-EU Conventional Base

for the FCP--500 Series detectors
Order number **FCA-500-EU**

FCA-500-E-EU Conventional Base EOL

for the FCP-500 Series detectors, with integrated EOL resistor
Order number **FCA-500-E-EU**

FAA-500-BB Ceiling Mount Back Box

for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors
Order number **FAA-500-BB**

FAA-500-CB Built-in 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 Ceiling Mount Back Box, which contains the base and the detector.
Order number **FAA-500-CB**

FAA-500-SB Surface Mount Back Box

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**

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal

for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling
Order number **FAA-500-SB-H**

FAA-500-SPRING for Concrete/Wooden Ceilings (DU = 10 units)

Order number **FAA-500-SPRING**

FCP-320/FCH-320 Conventional Automatic Fire Detectors



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.

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

System Overview

Operating mode	Detector type			
	FCP-OC320	FCP-OT320	FCP-O320	FCH-T320/T320-FSA
Combined	x	x	-	-
Optical (scattered light measurement)	x	x	x	-
Thermal max.	-	x	-	x
Thermal differential	-	x	-	x
Chemical (gas measurement)	x	-	-	-

Functions

The FCP-OC320 and FCP-OT320 Multisensor Detectors each combine two detection principles. All sensor signals are analyzed continually by the internal evaluation electronics and are linked with each other. If a signal combination fits the detector's programmed code field, an alarm is automatically triggered. By linking the sensors, the combined detectors can also be used in places where work carried out gives rise to light smoke, steam or dust.

Optical sensor (smoke sensor)

The optical sensor uses the scattered-light method. An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

Thermal sensor (temperature sensor)

A thermistor in a resistance network is used as a thermal sensor; an analog-digital converter measures the temperature-dependent voltage at regular intervals. When the maximum temperature of 54°C is exceeded (thermal maximum), or if the temperature rises by a defined amount within a specified time (thermal differential), the temperature sensor triggers the alarm status.

Chemical sensor (CO gas sensor)

The main function of the gas sensor is to detect carbon monoxide (CO) generated as a result of a fire, but it will also detect hydrogen (H) and nitrous monoxide (NO). The sensor signal value is proportional to the concentration of gas. The gas sensor delivers additional information to effectively suppress deceptive values. Depending on the service life of the gas sensor, the OC 310 detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Special features	Detector type			
	FCP-OC320	FCP-OT320	FCP-O320	FCH-T320/T320-FSA
Drift compensation in optical unit	x	x	x	-
Drift compensation in the gas sensor	x	-	-	-

Certifications and Approvals

The detectors comply with:

Detector type	EN54-5:2000/A1:2002	EN54-7:2000/A1:2002
FCP-OC320		•
FCP-OC320-R470		•
FCP-OT320	•	•

FCP-OT320-R470	•	•
FCP-O320		•
FCP-O320-R470		•
FCH-T320	•	
FCP-T320-R471	•	
FCH-T320-FSA	•	

Region	Certification	
Europe	CE	FCP-/FCH-320 000018/01 FCP-O320
	CPD	0786-CPD-20353 FCH-T320_FCH-T320-R470
Germany	CPD	0786-CPD-20354 FCH-T320-FSA
	CPD	0786-CPD-20351 FCP-O320_FCP-O320-R470
	CPD	0786-CPD-20355 FCP-OC320_FCP-OC320-R470
	CPD	0786-CPD-20352 FCP-OT320_FCP-OT320-R470
	VdS	G 208003 FCH-T320_-R470
	VdS	G 208004 FCH-T320-FSA
	VdS	G 208001 FCP-O320_-R470
	VdS	G 208002 FCP-OT320_-R470
	VdS	G 208005 FCP-OC320_-R470

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. This detector has the characteristic curve corresponds to class A1R.

Parts Included

Detector type	Qty	Components
FCP-OC320	1	Multisensor Detector Optical/Chemical
FCP-OT320	1	Multisensor Detector Optical/Thermal
FCP-O320	1	Optical Smoke Detector
FCH-T320	1	Heat Detector (Thermal Differential/Thermal Maximum)
FCH-T320-FSA	1	Heat Detector for Fire Barriers conforming to DIBt, Quality-controlled (Thermal Differential/Thermal Maximum)

Technical Specifications

Electrical

Operating voltage	8.5 V DC 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
• FCP-OC320	Approx. 85 g / approx 130 g
• FCP-OT320 / FCP-O320 / FCH-T320 / FCH-T320-FSA	Approx. 80 g / approx. 120 g

Environmental conditions

Protection class as per EN 60529	IP 40, IP 43 with detector base with damp room seal
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s
Permissible operating temperature	
• FCP-OC320	-10 °C to +50 °C
• FCP-OT320	-20 °C to +50 °C
• FCP-O320	-20 °C to +65 °C
• FCH-T320 / T320-FSA	-20 °C to +50 °C

Planning

Monitoring area	
<ul style="list-style-type: none"> FCP-OC320, FCP-OT320, FCP-O320 	Max. 120 m ² (Heed local guidelines!)
<ul style="list-style-type: none"> FCH-T320 	Max. 40 m ² (Heed local guidelines!)
Maximum installation height	16 m (Heed local guidelines!)
<ul style="list-style-type: none"> FCP-OC320, FCP-OT320, FCP-O320 	16 m (Heed local guidelines!)
<ul style="list-style-type: none"> FCH-T320 	6 m (Heed local guidelines!)

Special features

Response sensitivity	
<ul style="list-style-type: none"> Optical part 	< 0.2 dB/m, in line with EN 54 T7
<ul style="list-style-type: none"> Thermal maximum part 	>54 °C
<ul style="list-style-type: none"> Thermal rate-of-rise part (in line with prEN 54-5) 	FCH-T320: A2R FCH-T320-FSA: A1R
<ul style="list-style-type: none"> Chemical part 	In ppm range
Color code	
<ul style="list-style-type: none"> FCP-OC320 	Blue ring
<ul style="list-style-type: none"> FCP-OT320 	Black ring
<ul style="list-style-type: none"> FCP-O320 	No marking
<ul style="list-style-type: none"> FCH-T320 / T320-FSA 	Red ring

Ordering Information**FCP-O320 Optical Smoke Detector**

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

FCP-OT320 Multisensor Detector Optical/Thermal

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

FCP-OC320 Multisensor Detector Optical/Chemical

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

FCP-OC320-R470 Multisensor Detector Optical/Chemical

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

FCP-OT320-R470 Multisensor Detector Optical/Thermal

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

FCP-O320-R470 Optical Smoke Detector

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

FCH-T320 Heat Detector

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

FCH-T320-R470 Heat Detector

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

FCH-T320-FSA Heat Detector, for Fire Barriers conforming to DIBt

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

Accessories**MS 400 Detector Base**

Order number **MS 400**

MSC 420 Additional Base with Damp Room Seal

for surface-mounted cable feed
Order number **MSC 420**

MPA External Detector Alarm Display according to DIN 14623

the transparent red alarm display conforms to DIN 14623
Order number **MPA**

FAA-420-RI Remote Indicator

required if the detector is not directly visible or has been mounted in false ceilings or false floors
Order number **FAA-420-RI**

Mounting Bracket for Fire Detectors on False Floor Stilts

Order number **FMX-DET-MB**

MK 400 Detector Console

Console for DIBt compliant mounting of detectors above doors etc., including detector base
Order number **MK 400**

MH 400 Detector Heating Element

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

SK 400 Protective Basket

prevents damage
Order number **SK 400**

SSK 400 Protective Dust Cover

(packing unit = 10 units)
Order number **SSK 400**

TP4 400 Support Plate for Detector Identification

(packing unit = 50 units)
Order number **TP4 400**

TP8 400 Support Plate for Detector Identification

(packing unit = 50 units)
Order number **TP8 400**

DO1101A-Ex Optical Smoke Detector for Ex Areas



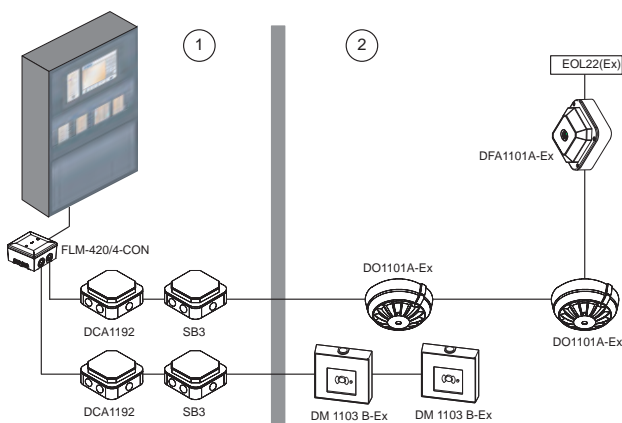
The DO1101A-Ex is an Optical Smoke Detector for the detection of smoldering and flaming fires in potentially explosive areas in zones 1 and 2.

8

Features

- ▶ Elegant, compact and robust design
- ▶ Deception-proof operating behaviour
- ▶ High level of resistance to temperature fluctuations, humidity, corrosion and contamination
- ▶ High resistance to interference through current gain

System Overview



Pos.	Description
1	Non-Ex area
2	Ex area zone 1 or 2

Functions

The optical sensor in the smoke detector uses the scattered-light method. An LED transmits light to the measuring chamber, where it is absorbed by the labyrinth structure. In the event of a fire, smoke enters

the measuring chamber and the smoke particles scatter the light from the LED. The amount of light hitting the photo diode is converted into a proportional electrical signal.

The entire electronic system is protected inside the detector. The base is only used for the detector contact.

Certifications and Approvals

Region	Certification	
Europe	CE	DO 1101A-Ex
	CPD	0786-CPD-20076 DO1101A-Ex
Germany	VdS	G 296052 DO 1101A-Ex
	PTB	02 ATEX 2135 DO1101A-Ex
Hungary	TMT	TMT-89/09/2004-2010 szamu DO 1101A-Ex
Russia	GOST	POCC DE.C313.B06297
	GOST	C-CH.IIB13.B.00188 DO1103A-EX

Parts Included

Qty.	Components
1	DO1101A-Ex Optical Smoke Detector

Technical Specifications

Electrical

Operating voltage	16 V DC ... 28 V DC
Standby current consumption	0.1 mA

Mechanics

Individual display	LED red
Connection terminals	0.2 mm ² ... 2.5 mm ²
Dimensions (D x H)	
• Detector	Ø 116 mm x 51 mm
• Detector incl. base	Ø 116 mm x 61 mm
Housing material	
• Detector	Plastic, ABS
• Base	Plastic (ASA)
Color (detector and base)	White, RAL 9010
Weight incl. base	185 g

Environmental conditions

Protection class as per EN 60529	IP 43
Permissible operating temperature	-25 °C ... +60 °C
Permissible storage temperature	-40 °C ... +75 °C
Permissible relative humidity	≤ 95%

Planning

Monitoring area as per EN 54-7	Max. 120 m ² (Heed local guidelines!)
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Special features

Detection principle	Scattered light measurement
Explosion classification in line with IEC 60079 and EN 50020	Eex ib IIC T4 (Ta ≤ 60 °C)

Ordering Information**DO1101A-Ex Optical Smoke Detector for Ex Areas**Order number **DO1101A-Ex****Accessories****Base for DO1101A-Ex Smoke Detector**

standard Base with integrated rubber seal and terminal block

Order number **DO1101A-EX-BASE****DBZ 1191 Additional Base**

for the standard base of the DO1101A-Ex

Order number **DBZ1191****DBZ 1192 Additional Base for Damp Rooms**

for the standard base of the DO1101A-Ex

Order number **DBZ1191+BOX****DBZ 1193A Detector Identification**

Purchase order quantity must be 10 or multiple of 10.

Order number **DOW1171-IDENT****SB3 Safety Barrier incl. DCA1192 Input/Output Module**

limits the electrical energy between non-inherently safe and inherently safe circuits

Order number **SB3**

FAA-500-TR-W Trim Ring, White

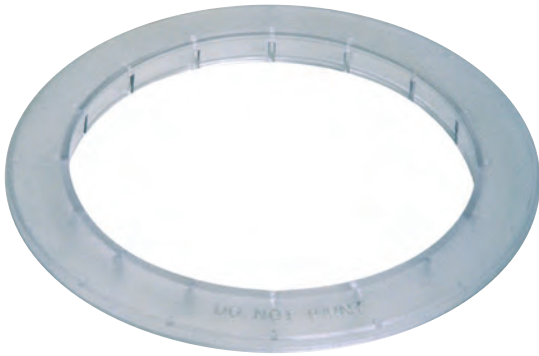


White Trim Ring for 500 und 520 Series Fire Detectors

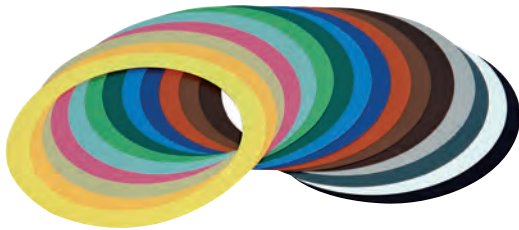
Ordering Information

FAA-500-TR-W Trim Ring, White
for 500 and 520 Series Fire Detectors
Order number **FAA-500-TR-W**

FAA-500-TR-P Trim Ring, Transparent with Color Inserts



Trim Ring for the "transparent with color inserts" Fire Detectors in the 500 and 520 Series



Ordering Information

FAA-500-TR-P Trim Ring, Transparent with Color Inserts
for 500 and 520 Series Fire Detectors
Order number **FAA-500-TR-P**

FCA-500-EU Conventional Base



For installation of FCP-500 detectors.

Functions

The screw-type terminals guarantee a secure electrical connection through the clamped contacts when mounting the FCP-500 detector.

The bases are provided with three holders for cable ties.

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Technical Specifications

Connections	Power supply (0 V, +V) Fault relay (C, NC) Alarm relay (NO, C) C-point Shielding
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions (D x H)	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight (without / with packaging)	200 g / 280 g

Ordering Information

FCA-500-EU Conventional Base

for the FCP--500 Series detectors

Order number **FCA-500-EU**

FCA-500-E-EU Conventional Base EOL



For installation of FCP-500 detectors.

Functions

The screw-type terminals guarantee a secure electrical connection through the clamped contacts when mounting the FCP-500 detector.
The bases are provided with three holders for cable ties.

Technical Specifications

Connections	Power supply (0 V, +V) Fault relay (C, NC) Alarm relay (NC, NO, C) C-point Shielding 2 screw-type terminals for EOL resistance
Cable cross section	0.3 mm ² – 3.3 mm ²
Dimensions (D x H)	Ø 145.6 x 63.5 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Weight (without / with packaging)	200 g / 280 g

Ordering Information

FCA-500-E-EU Conventional Base EOL

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

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

FAA-500-BB Ceiling Mount Back Box



The FAA-500-BB Ceiling Mount Back Box is necessary for flush ceiling installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors.

8

Technical Specifications

Mounting dimensions	
<ul style="list-style-type: none"> Maximum thickness of the false ceiling 	32 mm
<ul style="list-style-type: none"> Mounting height 	11 cm
<ul style="list-style-type: none"> Required bore hole 	Ø 130 mm (-1 mm/+5 mm)
Max. cable diameter	1.4 cm
Dimensions	Ø 140 x 104 mm
Housing material	Polycarbonate
Housing color	White
Weight (without/with packaging)	100 g/200 g

Ordering Information

FAA-500-BB Ceiling Mount Back Box

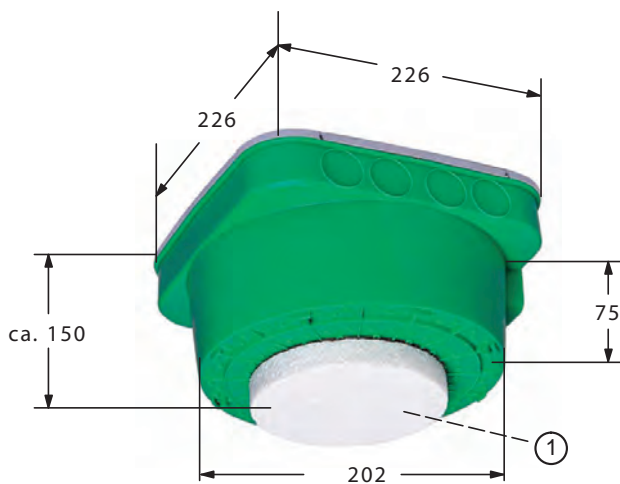
for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors
Order number **FAA-500-BB**

FAA-500-CB Built-in Housing for Concrete Ceilings



FAA-500-CB Built-in Housings are used to install 500 and 520 Series Fire Detectors in concrete ceilings. These make it possible to position cable ducts with ease and precision.

System Overview



Pos.	Description
1	Front part

Ordering Information

FAA-500-CB Built-in 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 Ceiling Mount Back Box, which contains the base and the detector.
Order number **FAA-500-CB**

FAA-500-SB Surface Mount Back Box



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.

8

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
- Each 25 mm (1.0 inch) for 3/4" cable protection conduit

In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 80 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight	Approx. 195 g/300 g (without/with packaging)

Ordering Information

FAA-500-SB Surface Mount Back Box

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**

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal



This is used as an alternative to the Ceiling Mount Back Box. The Surface Mount Back Boxes are designed for flush-mounted cable feed and surface-mounted cable feed with cable protection conduits.

The FAA-500-SB-H has an additional seal for damp rooms.

Functions

The inputs for surface-mounted cable feed are pre-punched. For flush-mounted cable feed, two inlets are provided in the base:

- Each 20 mm (0.75 inch) for PG 13.5 threads
- Each 25 mm (1.0 inch) for 3/4" cable protection conduit

In the case of cable feed via PG 13.5 threads, cables with diameters of up to 1.2 cm can be used.

The base is fitted using screws at four attachment points.

Technical Specifications

Dimensions	Ø 150 mm x 82 mm
Housing material	Polycarbonate (PC-FR)
Housing color	White (RAL 9003)
Weight (without/with packaging)	Approx. 225 g/330 g

Ordering Information

FAA-500-SB-H Surface Mount Back Box with Damp Room Seal

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 for Concrete/ Wooden Ceilings



DU = 10 units

The bases of the 500 Series are fitted with spring as standard. This is suitable for installing the detector in false ceilings.

When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger FAA-500-SPRING springs with red markings.

Ordering Information

FAA-500-SPRING for Concrete/Wooden Ceilings

(DU = 10 units)

Order number **FAA-500-SPRING**

8

FAA-500-RTL Exchanger Device



The FAA-500-RTL Exchanger Device for the insertion and removal of detectors of the 500 and 520 Series, fits on the SOLO100 Telescopic Access Pole.

Parts Included

Qty.	Components
1	FAA-500-RTL Exchanger Device for Detectors of the 500 and 520 Series



Notice

The SOLO100 Telescopic Access Pole is not included in the scope of delivery.

Ordering Information

FAA-500-RTL Exchanger Device
for Detectors of the 500 and 520 Series
Order number **FAA-500-RTL**

FAA-500-TTL Test Adapter with Magnet



The FAA-500-TTL Test Adapter is placed on the SOLO330 Smoke Detector Tester. It serves to test detectors in the 500 and 520 Series.

Functions

The magnet integrated into the Test Adapter switches the detector into test mode automatically by activating the reed switch. The operating mode of the detector is indicated by its two-color LED.

8

Installation/Configuration Notes

For the detector test of the 500 and 520 Series, you will need:

- FAA-500-TTL Test Adapter
- SOLO330 Smoke Detector Tester

Also required for detectors with CO sensor:

- Solo CO Testing gas



Notice

For the detectors in the 500 and 520 Series, no test aerosol is required for optical smoke detectors!

Parts Included

Qty.	Components
1	FAA-500-TTL Test Adapter with Magnet

Ordering Information

FAA-500-TTL Test Adapter with Magnet

The FAA-500-TTL Test Adapter is placed on the SOLO330 Smoke Detector Tester. It serves to test detectors in the 500 and 520 Series.

Order number **FAA-500-TTL**

MSC 420 Additional Base with Damp Room Seal



The Additional Base MSC 420 was conceived specially for surface-mounted cable feeds with cable protection conduits and has 2 opposing pre-cut inlets of 20 mm diameter and 2 additional opposing and prepared inlets for up to 28 mm diameter.

To protect against condensation water penetration, a seal made of TPE is situated on the base of the MSC 420.

Technical Specifications

Base material	ABS (Novodur)
Seal material	TPE
Base color	Similar to RAL 9010
Dimensions	Ø 120 x 36.7 mm
Weight	74 g

Ordering Information

MSC 420 Additional Base with Damp Room Seal
for surface-mounted cable feed
Order number **MSC 420**

MSD 320 Conventional Detector Base with Diode



8

For use according to British Standard, the Series 320 detector is mounted in the MSD 320 Conventional Detector Base with Diode.

The MSD 320 is provided with an integrated diode that preserves the loop function if the detector is removed. The detector unit can be protected against unauthorised removal with a variable locking bar.



Notice

For EOL resistance refer to panel instructions.

Mounting notes for the MSD 320

- The bases are prepared for surface cable feed at four positions with prepared knockouts.
- Flush mounting cable feed occurs through the base center.
- Choose shielding wire as short as possible and isolate it.

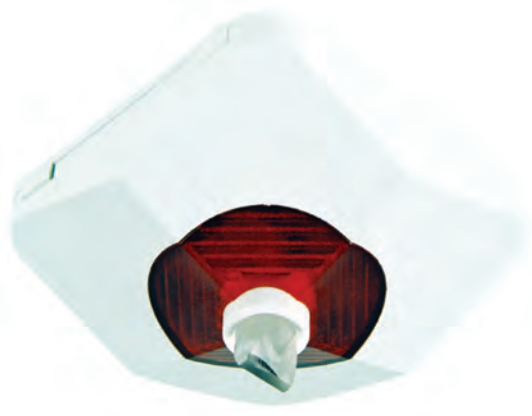
Technical Specifications

Connections	Power supply (0 V, +V) a1/a2, b1, b2 C- point Shielding
Housing material	ABS (Novodur)
Housing color	similar RAL 9010
Dimensions	Ø 120 x 22,7 mm
Weight	72 g

Ordering Information

MSD 320 Conventional Detector Base with Diode
for Great Britain
Order number **MSD 320**

MPA External Detector Alarm Display according to DIN 14623



The External Detector Alarm Display is required if the detector is not directly visible or has been mounted in false ceilings or false floors. The External Detector Alarm Display should be mounted in corridors or access pathways to the corresponding building sections or rooms.

Certifications and Approvals

Region	Certification	
Europe	CE	MPA
	CPD	0786-CPD-20765 MPA
Germany	VdS	G 294052 MPA_G294052
	PTB	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA_01 ATEX 2163 X
Poland	CNBOP	2095/2006 MPA

Installation/Configuration Notes



Notice

If unshielded cables are used, the cable length between a LSN detector and an External Detector Alarm Display is restricted to a maximum of 3 m.

If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the External Detector Alarm Display within one loop or stub).

Technical Specifications

Operating voltage	9 V DC ... 30 V DC
Current consumption for display	
• T.2	Approx. 2 mA
• T.3	Limited to approx. 13 mA
• T.4	Limited to 20 mA maximum

Display medium	1 LED via a light guide
Permissible wire gauge	0.6 mm ... 0.8 mm
Dimensions	85 x 85 x 50 mm
Weight	65 g
Protection class as per IEC 60529	IP 40

Ordering Information

MPA External Detector Alarm Display according to DIN 14623

the transparent red alarm display conforms to DIN 14623

Order number **MPA**

FAA-420-RI Remote Indicator



The external detector alarm display should be mounted in corridors or access pathways of the corresponding building sections or rooms.

Certifications and Approvals

8

Region	Certification
Europe	CE FAA-420-RI

Installation/Configuration Notes



Notice

If unshielded cables are used, the cable length between an LSN detector and an external detector alarm display is restricted to a maximum of 3 m.

If shielded cables are used, make sure that the total cable length does not exceed 500 m (= sum of all cables to the external detector alarm display within one loop or stub).

Technical Specifications

Operating voltage	5 V DC ... 30 V DC
Maximum current consumption	20 mA
Display medium	2 LEDs
Permissible wire gauge	0.6 mm – 2.0 mm
Dimensions	84 x 84 x 35 mm
Weight	45 g
Protection class as per IEC 60529	IP 40

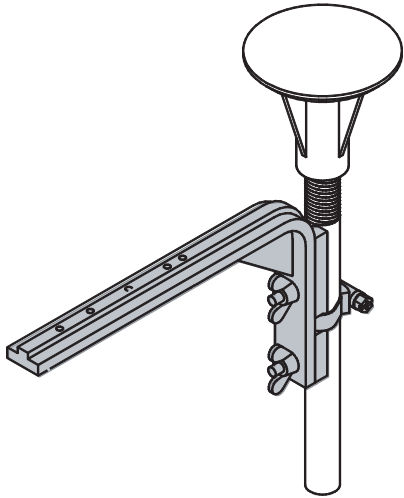
Ordering Information

FAA-420-RI Remote Indicator

required if the detector is not directly visible or has been mounted in false ceilings or false floors

Order number **FAA-420-RI**

Mounting Bracket for Fire Detectors on False Floor Stilts



Mounting Bracket to mount the detector in floor cavities.
The detector base is **not** included in the scope of delivery.

Ordering Information

Mounting Bracket for Fire Detectors on False Floor Stilts

Order number **FMX-DET-MB**

MK 400 Detector Console



Console for DIBt compliant mounting of detectors above doors etc.

The detector base is included in the scope of delivery.

Installation/Configuration Notes

Dimensions (L x B x H): 185 x 129 x 29 mm (without base)

Ordering Information

8

MK 400 Detector Console

Console for DIBt compliant mounting of detectors above doors etc., including detector base

Order number **MK 400**

MH 400 Detector Heating Element



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.

Ordering Information

MH 400 Detector Heating Element

usable at locations where the functional safety of the detector might be impaired by condensation

Order number **MH 400**

SK 400 Protective Basket



The Protective Basket prevents e. g. in a sports hall that balls hit and damage the detector.

The robust Protective Basket consists of 5 mm round steel, and is painted aluminum gray (RAL 9007).

Diameter (max.): 148 mm

Height: 75 mm

Ordering Information

SK 400 Protective Basket

prevents damage

Order number **SK 400**

SSK 400 Protective Dust Cover



Packing unit = 10 units

The Protective Dust Cover SSK 400 protects a mounted detector base – with or without detector head – against dirt during building work.

The Protective Dust Cover made of polypropylene (PP) is pushed onto the installed detector base.

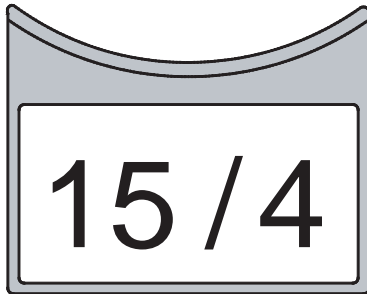
Ordering Information

SSK 400 Protective Dust Cover

(packing unit = 10 units)

Order number **SSK 400**

TP4 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 4 m and is configured for a self-adhesive label with dimensions of up to 65 x 34 mm.

8



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.

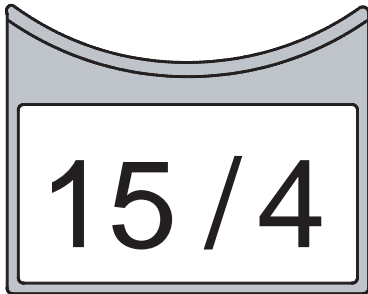
Ordering Information

TP4 400 Support Plate for Detector Identification

(packing unit = 50 units)

Order number **TP4 400**

TP8 400 Support Plate for Detector Identification



Packing unit = 50 units

The Support Plate, made of ABS plastic (Novodur, color similar to RAL 9010) and 1.8 mm thick, is clamped between the detector base and the ceiling.

This is designed for an installation height of up to 8 m and is configured for a self-adhesive label with dimensions of up to 97 x 44 mm.



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.

Ordering Information

TP8 400 Support Plate for Detector Identification

(packing unit = 50 units)

Order number **TP8 400**

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.

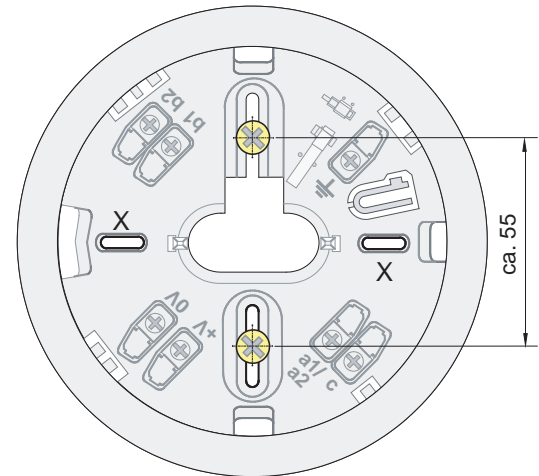
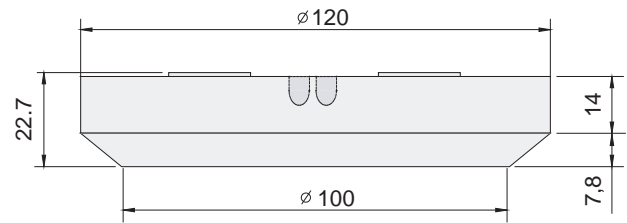
The Detector Base made of white ABS plastic (Novodur, color similar to RAL 9010) has a matt finish and seven terminal screws to connect the detector and its features to the fire panel.

Contacts connected to the terminals guarantee a secure electric connection when the detector module is installed. Cables up to 2.5 mm² 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 Detector Base
Order number **MS 400**

Accessories

FAA-420-SEAL Damp Room Seal
1 package = 10 pieces
Order number **FAA-420-SEAL**

Base for DO1101A-Ex Smoke Detector



Standard Base with integrated rubber seal and terminal block with efficient cutting/clamping function for wire diameters from 0.6 mm to 0.8 mm

Technical Specifications

Cable diameter	0.2 mm ² . . 2.5 mm ²
Housing material	Plastic, ASA
Housing color	White, RAL 9010
Dimensions (D x H)	Ø 113 x 26 mm
Weight	Approx. 65 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C . . . +70 °C
Permissible storage temperature	-30 °C . . . +75 °C

Ordering Information

Base for DO1101A-Ex Smoke Detector

standard Base with integrated rubber seal and terminal block

Order number **DO1101A-EX-BASE**

DBZ 1191 Additional Base



Additional Base for the standard base of the DO1101A-Ex.

The additional base is required for attachment to uneven surfaces and to feed surface cables with external diameters of up to 14 mm. The standard base is placed on top and attached with snap-action catches.

Technical Specifications

Cable diameter	0.2 mm ² . . 2.5 mm ²
Housing material	Plastic, ASA
Housing color	White, RAL 9010
Dimensions (D x H) (with detector and base)	Ø 116 x 78 mm
Weight	Approx. 50 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C . . . +70 °C
Permissible storage temperature	-30 °C . . . +75 °C

Ordering Information

DBZ 1191 Additional Base
for the standard base of the DO1101A-Ex
Order number **DBZ1191**

DBZ 1192 Additional Base for Damp Rooms



Additional Base for Damp Rooms for the standard base of the DO1101A-Ex

This additional base for damp rooms is required for installation in damp and dirty environments.

Surface cable feeds realized with PG16 threaded sections.

The standard base is placed on top and attached with snap-action catches.

Technical Specifications

Dimensions (W x H x D)	134 x 134 x 70 mm
Housing material	Plastic, ABS / PC-GF20
Housing color	White, RAL 9010
Weight	Approx. 260 g
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C

Ordering Information

DBZ 1192 Additional Base for Damp Rooms

for the standard base of the DO1101A-Ex

Order number **DBZ1191+BOX**

DBZ 1193A Detector Identification



Holder made of polycarbonate with hinged lid, for safe insertion of a identifier plate size 58 mm x 19 mm



Notice

Maximum typeface size 16 mm!

Ordering Information

DBZ 1193A Detector Identification

Purchase order quantity must be 10 or multiple of 10.
Order number **DOW1171-IDENT**

SB3 Safety Barrier incl. DCA1192 Input/Output Module



Functions

The SB3 Safety Barrier limits the electrical energy between non-inherently safe and inherently safe circuits and thus prevents the ignition of gas mixtures by electrical sparks.

The Safety Barrier must always be installed outside the explosive area.

The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier.

Certifications and Approvals

Region	Certification	
Europe	CE	DC 1192
	CE	SB 3
	CPD	0786-CPD-20512 DC 1192
Germany	VdS	G 298021 DC 1192
	PTB	01 ATEX 2088 SB 3

Parts Included

Qty.	Components
1	SB3 Safety Barrier
1	Installation set for SB3
1	DCA1192 Input/Output Module
1	Terminal carrier for DCA1192
1	EOL22(Ex) line termination, included with the DCA1192
2	Housing with cover

Technical Specifications

SB3 Safety Barrier, with Housing

Max. voltage	28 VDC
Max. permissible current	100 mA
Max. output	0.7 W
Wire gauge	0.2 mm ² ... 2.5 mm ²
Cable bushings	PG16 (6x)
Dimensions (W x H x D)	135 x 135 x 65 mm
Housing material	Plastic, PC
Housing color	White, RAL 9010

Weight	Approx. 450 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C
Ignition protection according to EN 50014/20	Inherent safety EEx ia IIC / IIB

DCA1192 Input/Output Module, with Housing

External supply	
• Operating voltage	18 V DC ... 32 V DC
• Current consumption	Max. 5 mA
• Line resistance	50 Ω ... 250 Ω
• Line termination	EOL22(Ex)
Line termination	
• Operating voltage	18 V DC ... 22 V DC
• Standby current	≤45 mA
• Operating current	≤150 mA
• Line resistance	50 Ω ... 250 Ω
• Line termination	EOL22(Ex)
Wire gauge	0.2 mm ² ... 2.5 mm ²
Cable bushings	PG16 (6x)
Housing material	Plastic, PC
Housing color	White, RAL 9010
Dimensions (W x H x D)	135 x 135 x 65 mm
Weight	Approx. 425 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C ... +70 °C
Permissible storage temperature	-30 °C ... +75 °C
Permissible relative humidity	≤100% at T≤34 °C

Ordering Information

SB3 Safety Barrier incl. DCA1192 Input/Output Module

limits the electrical energy between non-inherently safe and inherently safe circuits

Order number **SB3**

FAS-420-TM Series Aspirating Smoke Detectors LSN improved version



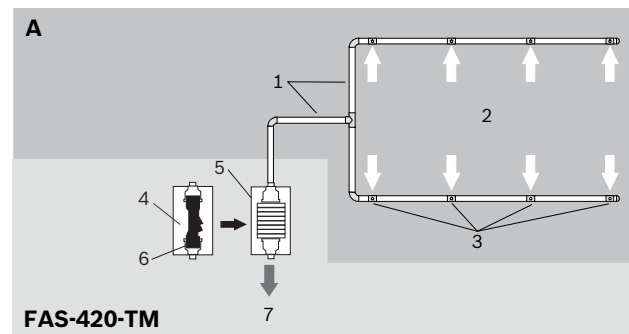
The FAS-420-TM Series Aspirating Smoke Detectors are specially designed for direct connection to the Local SecurityNetwork improved version with the extended range of features. These active fire detection systems are for early fire detection in zone and equipment protection, as well as for the monitoring of air-conditioning units or ducts. The exact location of the fire can be pinpointed using the innovative fire source identification.

The aspirating smoke detectors are fitted with the latest fire detection technology. Their resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under difficult environmental conditions.

Features

- ▶ For connecting to the fire panels FPA-5000 and FPA-1200 with LSN improved technology
- ▶ High deceptive alarm immunity with intelligent *LOGIC·SENS* signal processing
- ▶ Innovative fire source identification technology allows the exact location of the fire to be pinpointed by monitoring up to five distinct zones
- ▶ Innovative airflow monitoring including single-hole monitoring detects obstruction and breakage
- ▶ Installation and commissioning made easy by plug-and-play function

System Overview



A	Pipe system
FAS-420-TM series	Aspirating 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 Aspirating Smoke Detector triggers the alarm when the appropriate light obscuration level is reached. The alarm is displayed via the pre-alarm or main alarm LED on the device and forwarded to the connected fire panel.

Various time-delay settings can be selected for displaying and forwarding alarms and malfunctions. A malfunction message is reset via the connected fire panel. Alarm and malfunction messages are displayed simultaneously on the device via the Local SecurityNetwork (LSN) using the reset function on the detector line.

Avoiding false alarms

The *LOGIC·SENS* intelligent signal processing compares the measured smoke level with known disturbance variables and decides whether something is an alarm or deception.

Fire source identification

Innovative fire source identification technology allows the exact location of the fire to be pinpointed by monitoring up to five distinct zones.

Airflow monitoring

An airflow sensor checks the connected pipe system for breakage and obstruction.

Response sensitivity

FAS-420-TM series Aspirating Smoke Detectors have a response sensitivity of 0.5%/m to 2%/m light obscuration. The alarm threshold can be set at intervals

of 0.1%/m with FAS-ASD-DIAG. The smoke level display on the FAS-420-TM-RVB model allows a response sensitivity of 0.05%/m to 0.2%/m light obscuration.

Allocating detector address

The address on the Aspirating Smoke Detector is set using the DIP switch. Both automatic and manual address allocation are possible, with or without auto detection.

The following settings are possible:

Addresses	Operating mode
0	Automatic address allocation for loop/stub in LSN improved mode (T-tap not possible)
1 - 254	Manual address allocation for loop/stub/T-tap in LSN improved mode
255	Automatic address allocation for loop/stub in LSN classic mode (address range: max. 127)

LSN improved features

FAS-420-TM series Aspirating Smoke Detectors feature LSN improved technology:

- Flexible network structures, including T-tapping with no additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used.

The FAS-420-TM series also offers all the established benefits of LSN technology. The operating data and fault messages can be found on the panel controller.

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

FAS-420-TM series variant models

All FAS-420-TM series Aspirating Smoke Detectors have LED displays for operating mode, malfunction and main alarm, as well as offering an infrared diagnostics port. In addition to this, the FAS-420-TM-R and FAS-420-TM-RVB variants offer an optical fire location display for up to five zones. The FAS-420-TM-RVB also includes a pre-alarm display and a 10-segment smoke level display.

Certifications and Approvals

Region	Certification	
Europe	CE	FAS-420-TM Series
	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

- 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).

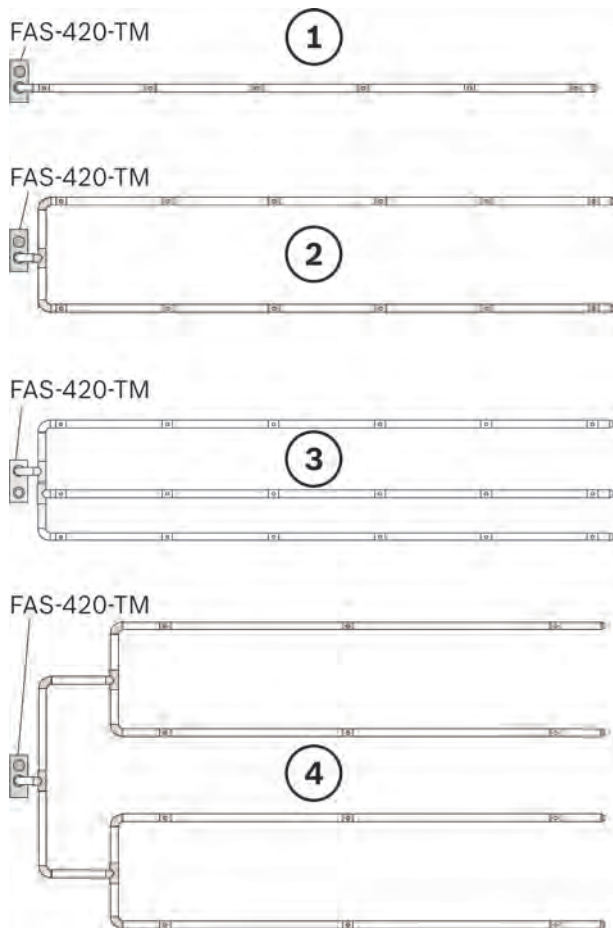
Pipe configuration

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 Aspirating Smoke Detectors LSN improved version” (Product ID F.01U.088.878):

- Planning airflow monitoring
- Defining the sensitivity
- Planning limitations
- Planning air sampling pipes
- Standard Pipe Planning
- Simplified Pipe Planning
- Planning for Forced Airflow
- Setting of the fan current

Parts Included

Type of device	Qty.	Components
FAS-420-TM	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction and alarm

FAS-420-TM-R	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction, alarm and fire source identification
FAS-420-TM-RVB	1	Standard Aspirating Smoke Detector unit with LED displays for operating mode, malfunction, pre-alarm, main alarm, fire source identification and 10-segment smoke level display



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 Aspirating Smoke Detector LSN improved version

with LED displays for operating mode, malfunction and alarm

Order number **FAS-420-TM**

FAS-420-TM-R Aspirating Smoke Detector LSN improved version

with LED displays for operating mode, malfunction, alarm and fire source identification

Order number **FAS-420-TM-R**

FAS-420-TM-RVB Aspirating Smoke Detector LSN improved version

with LED displays for operating mode, malfunction, alarm, fire source identification and smoke level display

Order number **FAS-420-TM-RVB**

Accessories

FAS-420-TM-HB Housing Base

for Aspirating Smoke Detectors Series FAS-420-TM

Order number **FAS-420-TM-HB**

FAS-ASD-DIAG Diagnostic Software

The FAS-ASD-DIAG Diagnostic Software enables reading out all stored device data and gives advices to remove failures.

Including connection cable for USB interface and diagnosis tool with an infrared interface.

Order number **FAS-ASD-DIAG**

Test Pipe

Order number **RAS test pipe**

Test Adapter

Order number **RAS test adapter**

AF-BR Marking Tapes for Aspiration Reducing Film Sheets

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR**

AF-2.0 Aspiration Reducing Film Sheets 2.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.0**

AF-2.5 Aspiration Reducing Film Sheets 2.5 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.5**

AF-3.0 Aspiration Reducing Film Sheets, 3.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.0**

AF-3.2 Aspiration Reducing Film Sheets, 3.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.2**

AF-3.4 Aspiration Reducing Film Sheets, 3.4 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.4**

AF-3.6 Aspiration Reducing Film Sheets, 3.6 mm

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.6**

AF-3.8 Aspiration Reducing Film Sheets, 3.8 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.8**

AF-4.0 Aspiration Reducing Film Sheets, 4.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.0**

AF-4.2 Aspiration Reducing Film Sheets, 4.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.2**

AF-4.4 Aspiration Reducing Film Sheets, 4.4 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.4**

AF-4.6 Aspiration Reducing Film Sheets, 4.6 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.6**

AF-5.0 Aspiration Reducing Film Sheets, 5.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.0**

AF-5.2 Aspiration Reducing Film Sheets, 5.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.2**

AF-5.6 Aspiration Reducing Film Sheets, 5.6 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.6**

AF-6.0 Aspiration Reducing Film Sheets, 6.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.0**

AF-6.8 Aspiration Reducing Film Sheets, 6.8 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.8**

AF-7.0 Aspiration Reducing Film Sheets, 7.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-7.0**

FAS-420 Series Aspirating Smoke Detectors LSN improved version



The FAS-420 Series Aspirating Smoke Detectors are specially designed for direct connection to the Local SecurityNetwork LSN improved version with the extended features. They are active fire detection systems for early fire detection in area and equipment monitoring, as well as for the monitoring of air conditioning units or ducts.

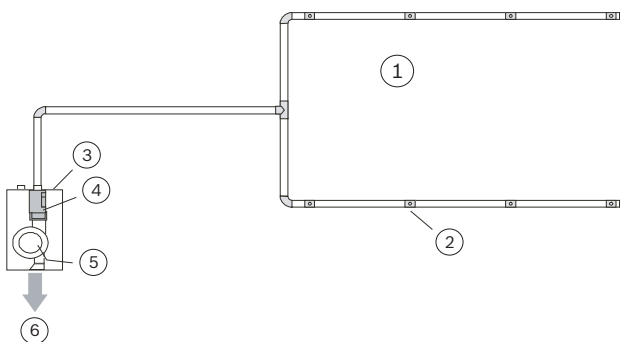
They have the latest detection technology. Their resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under extreme environmental conditions.

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.

Features

- ▶ Connectable to the fire panels FPA-5000 and FPA-1200 with the improved LSN technology
- ▶ High deceptive alarm immunity with intelligent signal processing *LOGIC·SENS*
- ▶ Innovative airflow monitoring including single-hole monitoring detects obstruction and breakage
- ▶ Initial set-up made easy by automatic initialization
- ▶ Easy diagnostics through flash code on the Detector Module or by using the FAS-ASD-DIAG diagnostic software

System Overview



Pos.	Description
1	Pipe system/air intake

2	Air sampling openings
3	Housing
4	Detector Module incl. airflow sensor
5	Aspiration unit
6	Air outlet

Functions

The aspiration unit takes air samples from the monitoring area through a pipe system with defined air sampling openings and passes the samples to the Detector Module.

Depending on the response sensitivity of the used Detector Module, the Aspirating Smoke Detector triggers an alarm when the appropriate smoke density is reached. This alarm is displayed via the alarm LED on the unit and is transmitted to the fire panel.

An airflow sensor checks the connected pipe system for breakage and obstruction.

Intelligent signal processing *LOGIC·SENS* compares the measured smoke level with known disturbance variables and decides between alarm and deception. For the display and transmission of alarm and faults various delay times can be selected.

Each Detector Module is monitored for contamination, signal malfunction and device removal. Malfunctions and certain device states are displayed using various LED flash codes on the Detector Module's electronics PCB. A fault message is reset via the connected fire panel. Via the Local SecurityNetwork LSN the alarm and fault messages on the unit are reset simultaneously with the detector line.

There are three different Detector Modules available for the FAS-420 Series Aspirating Smoke Detectors. These modules have different response sensitivities:

Detector Module	Max. sensitivity (light obscuration)	Levels for selection
DM-TT-50(80)	0.5 %/m (0.8 %/m)	2
DM-TT-10(25)	0.1 %/m (0.25 %/m)	4
DM-TT-01(05)	0.015 %/m (0.05 %/m)	4

i 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 the fire panels FPA-5000 and FPA-1200 and programming via FSP-5000-RPS also allows for dual-zone dependency.

Address allocation

The integrated DIP switches are used to select between automatic or manual addressing with or without auto detection.

The following settings are possible:

Address	Operating mode
0	Automatic addressing in improved version LSN mode for loop/stub (T-taps not possible)
1 – 254	Manual addressing in improved version LSN mode for loop/stub/T-taps
255	Automatic addressing in classic LSN mode for loop/stub (address range: max. 127)

Features of improved LSN

The Aspirating Smoke Detectors in the 420 Series offer all the features of the LSN technology improved version:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

In addition, the FAS-420 Series offer all the established benefits of LSN technology. Operating data and fault messages can be found on the panel controller. In the event of an alarm, individual detector identification is transmitted to the fire panel.

Model variants FAS-420 Series

The variants FAS-420-TP1 and FAS-420-TP2 are the cost-effective Aspirating Smoke Detectors for universal use with LED displays for operation, malfunction, and alarm (two alarm indications on the FAS-420-TP2). 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.

Certifications and Approvals

Region	Certification	
Europe	CE	FAS-420-TP1/-TP2
	CE	FAS-420-TT1/-TT2
Germany	CPD	0786-CPD-20790 FCS-320-TPx_FCS-320-TTx_FAS-420-TPx_FAS-420-TTx
	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 fire panels FPA-5000 and FPA-1200 with the extended system parameters of LSN improved version.
- Programming is carried out via RPS.
- The fan requires a separate power supply.
- An external detector alarm display for connection to the FAS-420 Series Aspirating Smoke Detectors can be ordered separately.

Planning of the pipe system

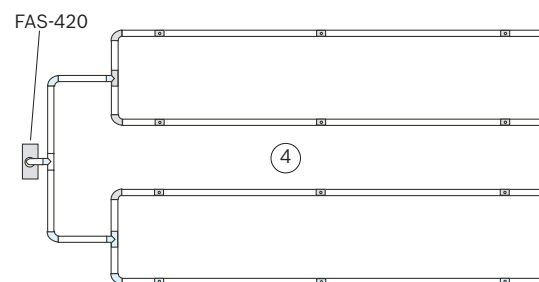
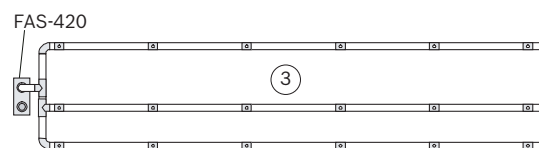
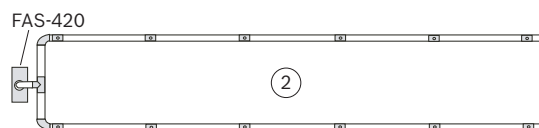
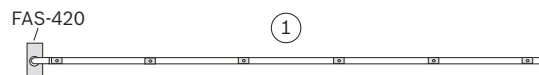
- In planning, a distinction is made between area monitoring and equipment monitoring.

- PVC pipes and halogen-free aspiration pipes can be used.
- For equipment monitoring, halogen-free pipes should be used.
- The air sampling pipe system should be arranged such that any fires can be detected at the initial stage.
- The pipe system including air sampling openings must always be symmetrical in design ($\pm 10\%$ deviation).
- If structural issues make it impossible to maintain this symmetry, the following conditions apply:
 - The number of air sampling openings and the length of the shortest and longest pipe branch within the pipe system must not exceed a quantity ratio of 01:02.
 - The distance between neighboring air sampling openings on the aspiration pipe must be even (max. deviation $\pm 20\%$).
 - The diameters of the air sampling openings are determined separately for each pipe branch. The diameters depend on the total number of air sampling openings in the pipe branch in question.
- Greater distances between the Aspirating Smoke Detector and aspiration pipe are specified for pipes with a 40 mm diameter.
- Depending on the geometrics of the area, the I-, U-, M- or double U-pipe system is utilized.



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 m² (VdS-compliant)
 - With two Detector Modules: 2*280 m / 5760 m²

Aspiration pipe planning

Aspiration pipe systems are constructed according to planning specifications with the common pipe components as well as components for special applications, e. g. Water Separator or Detonation Safety Barrier.

All borings for the smoke aspiration systems are made to a diameter of 10 mm and the exact aspiration openings are implemented by means of the patented Aspiration Reducing Film Sheets. For each aspiration hole a Aspiration reducing Film Sheet with corresponding punch diameter and Marking Tape must be provided.



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, please refer to the operation guide “FAS-420 Series Aspirating Smoke Detectors LSN improved version” (product ID F.01U.029.275):

- Specifying the sensitivity
- Standard planning in line with VdS
- Planning with long pipe feed lines
- Planning for high-rise warehouses
- Simplified Planning
- Planning with single-hole monitoring
- Planning for forced airflow

Parts Included

Type of device	Qty	Components
FAS-420-TP1	1	Aspirating Smoke Detector basic unit, with LED displays for operation, malfunction, and alarm, for one Detector Module, for connecting one pipe system
FAS-420-TP1-SL	1	Silent version of FAS-420-TP1
FAS-420-TP2	1	Aspirating Smoke Detector basic unit, with LED displays for operation, malfunction, and alarm, for two Detector Modules, for connecting two pipe systems
FAS-420-TP2-SL	1	Silent version of FAS-420-TP2
FAS-420-TT1	1	Aspirating Smoke Detector basic unit, with differentiated alarm and smoke level display, for one Detector Module, for connecting one pipe system
FAS-420-TT1-SL	1	Silent version of FAS-420-TT1
FAS-420-TT2	1	Aspirating Smoke Detector basic unit, with differentiated alarm and smoke level display, for two Detector Modules, for connecting two pipe systems
FAS-420-TT2-SL	1	Silent version of FAS-420-TT2



Notice

One or two Detector Modules must be ordered separately for the basic units (see table). Only use Detector Modules of the type DM-TT-XX for all variants of the FAS-420 series.

For type of device	Qty	Required Detector Modules
FAS-420-TP1 FAS-420-TP1-SL	1	Either DM-TT-50(80), DM-TT-10(25) or DM-TT-01(05)
FAS-420-TP2 FAS-420-TP2-SL	2	DM-TT-50(80), DM-TT-10(25) and/or DM-TT-01(05)
FAS-420-TT1 FAS-420-TT1-SL	1	Either DM-TT-50(80), DM-TT-10(25) or DM-TT-01(05)
FAS-420-TT2 FAS-420-TT2-SL	2	DM-TT-50(80), DM-TT-10(25) and/or DM-TT-01(05)

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC	
Current consumption from LSN	6.25 mA	
Current consumption from auxiliary power supply (at 24 V)	FAS-420-TP1/ FAS-420-TT1	FAS-420-TP2/ FAS-420-TT2
• Starting current, fan voltage 6.9 V	300 mA	330 mA

• Starting current, fan voltage 9 V	300 mA	330 mA
• In standby, fan voltage 6.9 V	200 mA	230 mA
• In standby, fan voltage 9 V	260 mA	310 mA
• On alarm, fan voltage 6.9 V	230 mA	290 mA
• On alarm, fan voltage 9 V	290 mA	370 mA

Mechanics

Displays on the device		
FAS-420-TP1 / -TP2 and -SL		
• In operation	Green LED	
• Malfunction	Yellow LED	
• Alarm	1 red LED / 2 red LEDs	
FAS-420-TT1 / -TT2 and -SL		
• In operation	Green LED	
• Malfunction	Yellow LED	
• Level display	1 x / 2 x smoke level display, each with 10 segments (1 - 10)	
• Alarm	1 x 3 / 2 x 3 red LEDs for info alarm, pre-alarm and main alarm	
Conical duct connections for Ø 25 mm		
• Aspiration pipe	1 pipe / 2 pipes	
• Air return	1 pipe	
Cable bushings	5 x M 20 and 2 x M 25	
Dimensions (W x H x D)	200 x 292 x 113 mm	
Housing material	Plastic (ABS)	
Housing color	Papyrus white, RAL 9018	
Weight	Approx. 1.5 kg	

Environmental conditions

Protection class as per EN 60529	IP 20	
Permissible temperature range		
• Series FAS-420 Aspirating Smoke Detectors	-20 °C to +60 °C	
• Pipe system PVC	00 °C to +60 °C	
• Pipe system ABS	-40 °C to +80 °C	
Permissible relative humidity (non-condensing)	10 to 95 %	

Special features

Acoustic power level		
• FAS-420-TP1 FAS-420-TP2 FAS-420-TT1 FAS-420-TT2	45 dB(A)	
• FAS-420-TP1-SL FAS-420-TP2-SL FAS-420-TT1-SL FAS-420-TT2-SL	38 dB(A)	
Response sensitivity (max. light obscuration)		
• Detector Module DM-TT-50(80)	0.5 %/m (0.8 %/m)	
• Detector Module DM-TT-10(25)	0.1 %/m (0.25 %/m)	
• Detector Module DM-TT-01(05)	0.015 %/m (0.05 %/m)	
Service life of the fan (12 V)	43,000 hrs at 24 °C	

Ordering Information

FAS-420-TP1 Aspirating Smoke Detector LSN improved version

Basic unit without Detector Module, for connecting one pipe system
Order number **FAS-420-TP1**

FAS-420-TP2 Aspirating Smoke Detector LSN improved version

Basic unit without Detector Modules, for connecting two pipe systems
Order number **FAS-420-TP2**

FAS-420-TT1 Aspirating Smoke Detector LSN improved version

Basic unit without Detector Module, for connecting one pipe system
Order number **FAS-420-TT1**

FAS-420-TT2 Aspirating Smoke Detector LSN improved version

Basic unit without Detector Modules, for connecting two pipe systems
Order number **FAS-420-TT2**

Accessories

DM-TT-50(80) Detector Module

for Aspirating 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

for Aspirating 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) Detector Module

for Aspirating Smoke Detectors Series FAS-420, with max. sensitivity of 0,015 %/m (0.05 %/m) light obscuration
Order number **DM-TT-01(05)**

MT-1 Device MountingOrder number **TITANUS MT-1 mount****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****Test Pipe**Order number **RAS test pipe****Test Adapter**Order number **RAS test adapter****AF-BR Marking Tapes for Aspiration Reducing Film Sheets**

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR****AF-2.0 Aspiration Reducing Film Sheets 2.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.0****AF-2.5 Aspiration Reducing Film Sheets 2.5 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.5****AF-3.0 Aspiration Reducing Film Sheets, 3.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.0****AF-3.2 Aspiration Reducing Film Sheets, 3.2 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.2****AF-3.4 Aspiration Reducing Film Sheets, 3.4 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.4****AF-3.6 Aspiration Reducing Film Sheets, 3.6 mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.6****AF-3.8 Aspiration Reducing Film Sheets, 3.8 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.8****AF-4.0 Aspiration Reducing Film Sheets, 4.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.0****AF-4.2 Aspiration Reducing Film Sheets, 4.2 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.2****AF-4.4 Aspiration Reducing Film Sheets, 4.4 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.4****AF-4.6 Aspiration Reducing Film Sheets, 4.6 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.6****AF-5.0 Aspiration Reducing Film Sheets, 5.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.0****AF-5.2 Aspiration Reducing Film Sheets, 5.2 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.2****AF-5.6 Aspiration Reducing Film Sheets, 5.6 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.6****AF-6.0 Aspiration Reducing Film Sheets, 6.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.0****AF-6.8 Aspiration Reducing Film Sheets, 6.8 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.8****AF-7.0 Aspiration Reducing Film Sheets, 7.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-7.0**

Components for Smoke Aspiration Systems



A wide range of aspiration pipe components are available for use in smoke aspiration systems. The use of appropriate components allows for a safe and reliable operation even under extreme ambient conditions.

8

Ordering Information

FAS-ASD-PHF16 Polywell Hose Flexible, PG16

50 m roll, flexible, black, non halogen
Order number **FAS-ASD-PHF**

FAS-ASD-TRPG16 Threaded Ring, PG16

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 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**

Dust Collector, for Pipe Exterior Ø 25 mm

Order number **AD25 dust collect**

FAS-ASD-DSB Detonation Safety Barrier

type PROTEGO EG IIA
Order number **FAS-ASD-DSB**

Water Separator, for Pipe Exterior Ø 25 mm

Order number **AD25 water sep**

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**

Filter Box Small, for Pipe Exterior Ø 25 mm

Order number **AD25 filter box s**

Replacement Filter Mat for Filter Box Small

Order number **RAS spare filter s**

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**

Fireray 50/100RV Linear Smoke Detectors



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.

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

Functions

The transmitter emits an infrared light beam (880 nm) that is focused through a lens and invisible. The light beam is reflected by 180° by the prism reflector mounted opposite and returned to the transmitter/receiver combination.

If the IR beam is obscured by smoke and the signal received drops below the selected threshold value for 10 s, the Fireray triggers a fire alarm and the alarm relay closes.

The activation threshold can be adjusted to the environmental conditions. Settings 25% (sensitive), 35%, and 50% (non-sensitive) are possible.

For the alarm relay, you can select between auto-reset and alarm storage.

Various operating states are displayed by LEDs:

- Alarm
- Malfunction
- Operating display
- End of the readjustment for contamination/aging

Slow changes in the operating states (e. g. aging of the components, contamination of the optic, etc.) do not lead to faulty triggering, but are compensated for by automatic amplification control. The state of the system is compared with a default reference value every 15 minutes and in case of deviations, compensated automatically up to 0.7 dB/h. If the readjustment limit is reached, either "Malfunction" or "Alarm" is triggered. If the IR beam is obscured for at least 10 seconds by more than 90% with a sharp signal increase, the fault relay switches. The reason can be an obstacle in the beam path, turning of the detector, covering of the reflector, etc. After removing the cause of the malfunction, the fault relay is set again and the detector is reset automatically into the detection-ready state after 5 s. The fire panel must be reset separately. The detector has an alarm output in the form of a floating self-holding relay contact.

Certifications and Approvals

Meets the following regulations:

- BS 5839 Part 5
- EN54-12:2002

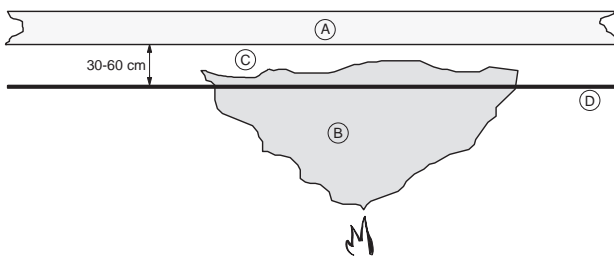
Region	Certification	
Europe	CE	Fireray 50/100RV
	CPD	0786-CPD-20045 Fireray 50R/50RV/100R/100RV
Germany	VdS	G 203070 Fireray 50RV/100RV
Switzerland	VKF	AEAI 19200 Fireray 50RV_Fireray 100RV
Russia	GOST	POCC.YII001.B07219 Fireray2000 & Fireray 50-100RV
	GOST	POCC GB.bb02.H04311 Fireray2000 & Fireray50-100RV
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.

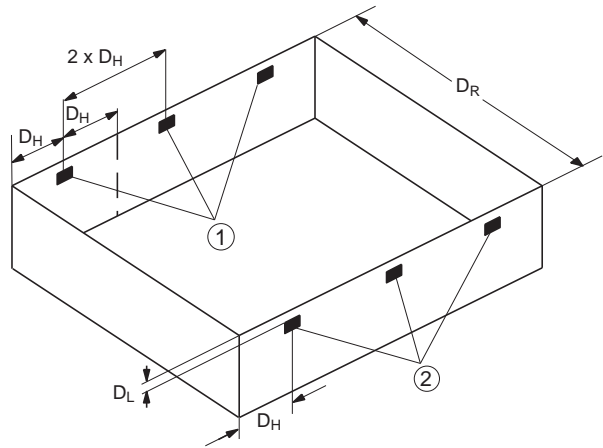
Detector arrangement

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.	
	- Fireray 50RV:	over 5 m to 50 m
	- Fireray 100RV:	over 50 m to 100 m

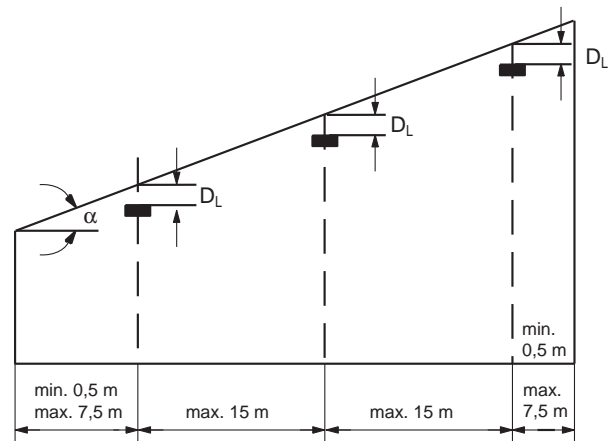
- The center line of the monitoring beam may not be closer than 0.5 m to walls, equipment or stored goods.
- The prism reflectors permit angle deviations up to 5° from the center line without signal weakening.

Positioning detectors on flat ceilings

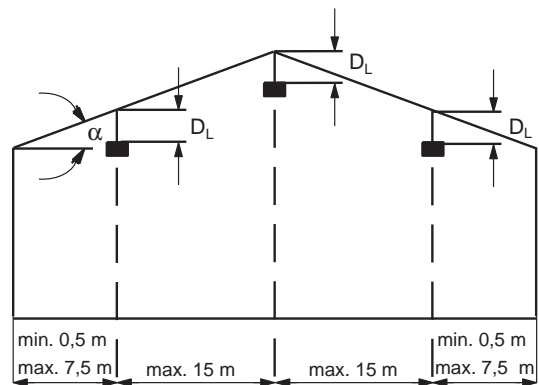


Pos.	Description
1	Fireray 50/100RV
2	Prism reflectors
D_H, D_L, D_R	see table above

Positioning the detectors in a tilted roof



Positioning the detectors in a saddleback roof



**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 ²	0.3 m to 0.5 m	0.3 m to 0.5 m
over 6 m to 12 m	6.5 m	1300 m ²	0.4 m to 0.7 m	0.4 m to 0.9 m
more than 12 m to 16 m ^{*)**}	7 m ^{*)}	1400 m ² ^{**}	0.6 m to 0.9 m ^{**}	0.8 m to 1.2 m ^{**}

D_H = greatest permissible horizontal distance of any point of the ceiling to the next-closest beam

A = maximum monitoring area per detector (= double the product of the greatest horizontal distance D_H and highest allowable detector/reflector distance)

D_L = distance of the detector to the ceiling

α = angle which the roof/ceiling pitch forms with the horizontal; if a roof has different pitches (e. g. sheds), use the smallest existing pitch

* With a room height of more than 12 m, it is recommended that you provide a second monitoring level on which the detectors are arranged offset to the first monitoring level

** Depends on use and environmental conditions (e. g. quick fire development and smoke spread)

- Depending on the roof construction (flat, tilted or saddleback), the detectors and reflectors must be arranged depending on the roof pitch α and the room height R_H so that the light beam in the distance D_L runs under the roof (see table).

Parts Included**Fireray 50RV**

Qty.	Components
1	Linear Smoke Detector Fireray 50RV: compact device with integrated transmitter, receiver, and control unit
1	Prism reflector
1	Test filter
1	Connection cable with plug
1	Installation material

Fireray 100RV

Qty.	Components
1	Linear Smoke Detector Fireray 100RV: compact device with integrated transmitter, receiver, and control unit

4	Prism reflectors
1	Test filter
1	Connection cable with plug
1	Installation material

Technical Specifications**Electrical**

Operating voltage	10 V DC ... 30 V DC
Current consumption	
• In standby	< 4 mA @ 24 V
• In alarm/malfunction	< 15 mA
Reset control by power disruption	> 5 s
Alarm relay (contact load)	Open contact, potential free (2 A @ 30 V DC)
Fault relay (contact load)	Break contact element, potential free (2 A @ 30 V DC)

Mechanics

LED indicators for	
• Alarm	Red
• Malfunction	Yellow
• Operation	Yellow flashing once in 10 seconds
• Limit of the readjustment for contamination/aging	Yellow flashing once in 2 seconds
Dimensions (W x H x D)	
• Fireray 50/100RV	126 x 210 x 120 mm
• Prism reflector	100 x 100 x 9.5 mm
Housing Color	Light gray/black
Housing material	ABS, non-flammable
Weight	670 g

Environmental conditions

Protection class as per EN 60529	IP 50
Permissible operating temperature	-30 °C ... 55 °C

Planning

Permissible distance detector-reflector	
• Fireray 50RV	Min. 5 m - max. 50 m
• Fireray 100RV	Min. 50 m - max. 100 m
Side detection width (on both sides of the light beam)	Max. 7.5 m (Heed local 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 50RV**

Linear Smoke Detector, retro-operation, range 5 m to 50 m

Order number **Fireray 50 RV**

Fireray 100RV

Linear Smoke Detector, retro-operation, range 50 m to 100 m

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

Fireray 2000 Linear Smoke Detector



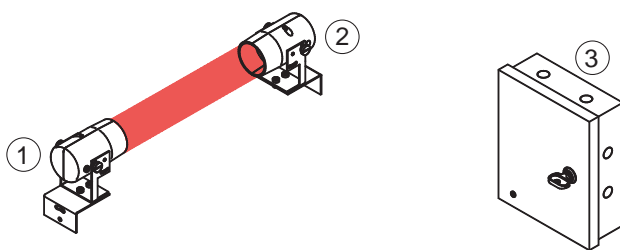
The Fireray 2000 is an optical Linear Smoke Detector for the detection of light and dark smoke across an area of 10 m to 100 m or 2 m to 45 m in reflection operation using prisms.

Preferred areas of application are very large and high halls, e. g. airplane hangars, factory buildings and similar buildings where the use of point-type automatic automatic call points is not possible.

Features

- ▶ Extended monitoring area
- ▶ Increased security against false alarms with gain control
- ▶ Potential-free, self-holding relay double-throw contact as alarm output
- ▶ LED displays in the control unit for:
- ▶ Adjustable thresholds

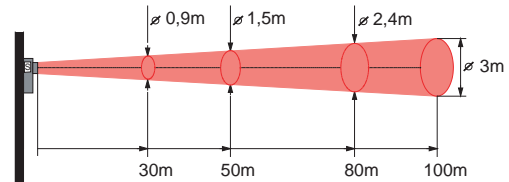
System Overview



Pos.	Description
1	Infrared transmitter
2	Infrared receiver
3	Control unit

Functions

The transmitter transmits an invisible infrared light beam bundled through a lens to the receiver.



At a maximum distance of 100 m the core diameter of the light beam is 3 m. The core diameter is the area of the conical IR beam in which orderly operation of the system is possible.

If smoke interrupts the beam, the signal in the receiver is attenuated depending on the thickness of the smoke. If an attenuation according to the set threshold lasts longer than 5 s, an alarm is triggered.

The alarm threshold can be set to 25% or 35% or 50% with the use of prisms.

Slow changes (e. g. contamination of the optical system) do not cause false alarms; instead, they are balanced out by an automatic gain control. Here the current state of the system is compared with a reference value and adjusted stepwise in case of deviations greater than 7%. By default, the comparison is done every 1.5 hours.

With a comp switch, manual or automatic alarm reset can be selected.

The Fireray 2000 can also be used as reflection fire alarm system with prisms (transmitters and receivers on the same wall).

Certifications and Approvals

Comply with:

- EN54-12:2002

Region	Certification	
Europe	CE	Fireray 2000
	CPD	0786-CPD-20196 Fireray 2000
Germany	VdS	G 297058 Fireray 2000
Switzerland	VKF	AEAI 19201 Fireray 2000
Czech Republic	TZÚS	080-001259 Fireray 2000
Russia	GOST	POCC GB.bb02.HQ4311 Fireray2000 & Fireray50-100RV
	GOST	POCC.YII001.B07219 Fireray2000 & Fireray 50-100RV
Sweden	INTYG	09-408 Fireray 2000

Installation/Configuration Notes

General installation/configuration notes

- A FLM-420/4-CON Conventional Interface Module is required for connection of the Fireray 2000 to the LSN.
- Between the detector and reflector there must be a constant visual connection, which may not be interrupted by movable objects (e. g. overhead crane).
- The mounting surfaces for the transmitter and receiver must be stable and free of vibration. Installation on metal surfaces should be avoided since they expand and contract in case of temperature fluctuations.

- Inaccessible areas are monitored by monitoring transmitters and receivers outside and letting them look through windows into the monitoring area. The minimum diameter of the opening must be 20 cm or an opening corresponding to the diameter of the beam.

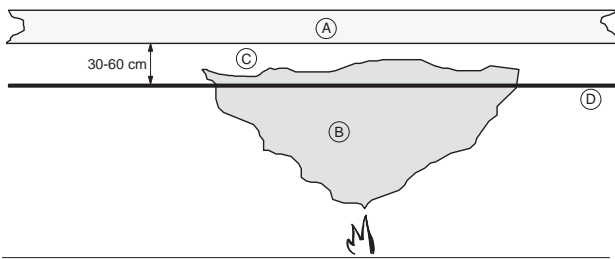


Notice

Normal panes of glass reduce the effective system range by approx. 10% per pane

- When installing the receiver, be sure that the direct penetration of sunlight or other light into the optical system is avoided. Normal environmental light has no influence on the receiver.
- The control unit must be installed in an area that is easy to reach. A screened cable must be used. The maximum cable length of 100 m to the receiver may not be exceeded.
- An adjustment tool can be ordered separately. It is connected to the control unit. Alignment, particularly over larger distances, is considerably simplified with the help of two LED displays.

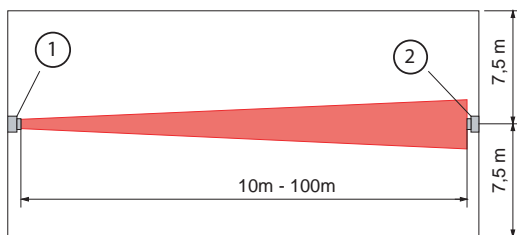
Heat accumulation under roof surfaces can prevent the travel of climbing smoke to the ceiling. The detector must therefore be mounted below an expected heat accumulation. This can mean that the benchmark values for D_L specified in the table must be exceeded.



Pos. Description

- A Ceiling
- B Mushroom cloud
- C Heat accumulation
- D IR beam

- Since the smoke over a fire source does not just climb vertically upwards, but rather spreads like a mushroom cloud (depending on existing air currents and air pads), the width of the monitoring area is much greater than the diameter of the IR beam.



Pos. Description

- 1 Transmitter
- 2 Receiver

- The sideways detection width on both sides of the beam center line is 7.5 m.
- Country-specific standards and guidelines with respect to planning must be adhered to.

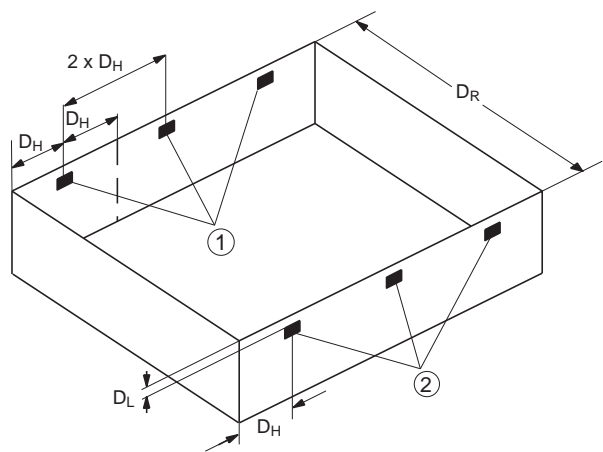
Detector arrangement

The detectors must be divided up so that the following distances are adhered to:

D_H	Horizontal distance detector-wall or detector-ceiling	at least 0.5 m, max. 7.5 m
$2 \times D_H$	Distance between two parallel beams	max. 15 m
D_L	Distance from the ceiling	0.3 m to 0.6 m
D_R	Range = distance between detector and reflector:	
	- Fireray 2000	over 10 m to 100 m
	- Fireray 2000 in retro operation:	over 2 m to 45 m

- The center line of the monitoring beam may not be closer than 0.5 m to walls, equipment or stored goods.
- The prism reflectors permit angle deviations up to 5° from the center line without signal weakening.

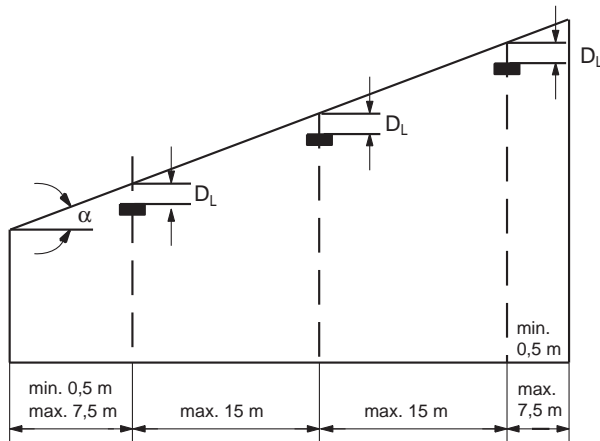
Positioning detectors on flat ceilings



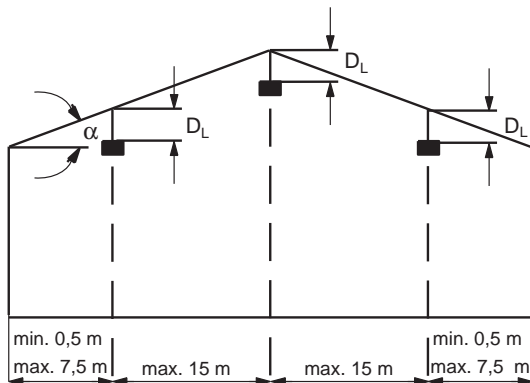
Pos. Description

- 1 Fireray 2000 transmitter or receiver
- 2 Fireray 2000 receiver or transmitter or prism

Positioning the detectors in a tilted roof



Positioning the detectors in a saddleback roof

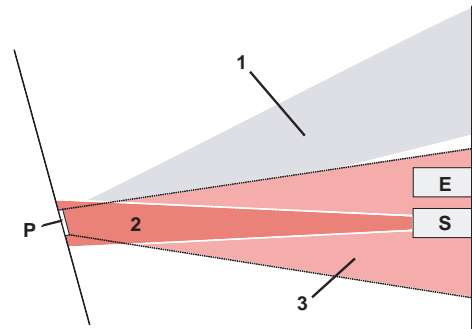


i Notice

The ceiling distance can be reduced by 1% per degree for saddleback roofs, up to a maximum of 25%.

Installation as reflection fire alarm system with prisms

- To install transmitter and receiver on the same wall, you need prisms that reflect the light by 180°. The use of prisms eases the installation of transmitters and receivers and the comparison.
- With installation as reflection fire alarm system with prisms, transmitter and receiver must be installed as close to one another as possible.
- Required number of prisms:
 - Distance up to 25 m: 1 prism
 - Distance up to 45 m: 9 prisms
- To achieve effective reflection, the prisms must be installed right-angled to the IR beam of the transmitter. Deviations cause a weaker signal.



Pos. Description

- Additional reflection from the polished prism surface
 - Beam from transmitter
 - Main portion of the reflected beam to the receiver
- P Prism
E Receiver
S Transmitter

Detector arrangement in accordance with VdS/VDE

The number of light beam smoke detectors must be selected so that the maximum monitoring area A in the table is not exceeded (fulfills VdS 2095 and DIN VDE 0833-2).

Room height R_H	D_H	A	D_L at $\alpha < 20^\circ$	D_L at $\alpha > 20^\circ$
up to 6 m	6 m	1200 m ²	0.3 m to 0.5 m	0.3 m to 0.5 m
over 6 m to 12 m	6.5 m	1300 m ²	0.4 m to 0.7 m	0.4 m to 0.9 m
more than 12 m to 16 m ^{*)**)}	7 m ^{*)}	1400 m ^{2*}	0.6 m to 0.9 m ^{**)}	0.8 m to 1.2 m ^{**)}

D_H = greatest permissible horizontal distance of any point of the ceiling to the next-closest beam

A = maximum monitoring area per detector (= double the product of the greatest horizontal distance D_H and highest allowable detector/reflector distance)

D_L = distance of the detector to the ceiling

α = angle which the roof/ceiling pitch forms with the horizontal; if a roof has different pitches (e. g. sheds), use the smallest existing pitch

^{*)} With a room height of more than 12 m, it is recommended that you provide a second monitoring level on which the detectors are arranged offset to the first monitoring level

^{**)} Depends on use and environmental conditions (e. g. quick fire development and smoke spread)

- Depending on the roof construction (flat, tilted or saddleback), the detectors and reflectors must be arranged depending on the roof pitch α and the room height R_H so that the light beam in the distance D_L runs under the roof (see table).

Parts Included

Qty.	Components
1	Control unit, Fireray 2000
1	Infrared transmitter
1	Infrared receiver
1	Test filter

Technical Specifications

Electrical

Operating voltage	24 VDC (11.5 . . . 28 VDC)
Current consumption	
• In standby	Approx. 14 mA
• During an alarm	Approx. 22 mA

Mechanics

LED indicators for	Malfunction (beam interruption) Signal too high Signal too low Alarm
Dimensions (W x H x D)	
• Control unit incl. key	212 x 261.5 x 120.6 mm
• Transmitter incl. installation frame	90 x 130 x 115 mm
• Receiver incl. installation frame	90 x 130 x 115 mm
• Prism	124.6 x 103 x 9.5 mm
Color (all parts)	White, RAL 9010
Material	
• Control unit incl. key	Aluminium
• Transmitter and receiver housing	Sheet steel
Weight	
• Control unit incl. key	1060 g
• Transmitter incl. installation frame	650 g
• Receiver incl. installation frame	650 g

Environmental conditions

Protection class as per EN 60529	IP 54
Permissible operating temperature	-20 °C . . . 55 °C

Planning

Permissible distance transmitter-receiver	Min. 10 m - max. 100 m
Permissible distance transmitter-receiver in reflection operation with prism	Min. 2 m - max. 45 m

Special features

Optical wavelength	880 nm
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Ordering Information

Fireray 2000 Linear Smoke Detector

Range: 10 m to 100 m or 2 m to 45 m in reflection operation using prisms

Order number **Fireray 2000**

Accessories

Prism for Fireray 2000

Distance: up to 25 m: 1 prism, up to 35 m: 4 prisms, up to 45 m: 6 prisms

Order number **Fireray 2000-prism**

FRAY5000-EN Linear Smoke Detector



The FRAY5000-EN Linear Smoke Detector covers distances between 8 m and 100 m. A reflective prism allows for the accurate detection of smoke particles within the given distance range.

For ranges between 8 m and 50 m, one prism is sufficient. For ranges between 50 m and 100 m, four prisms are required. The additional prisms are included in the FRAY5000-LR-Kit Long Range Kit.

Key application areas are large halls such as historical buildings, churches, museums, shopping centers, factory halls, warehouses, etc.

The FRAY5000-EN Linear Smoke Detector is suitable for use in areas where point-type detectors are not effective.

The FRAY5000-EN Linear Smoke Detector can be upgraded with three FRAY5000-HEAD-EN Detector Heads. The system controller can control up to four detectors. Each head can be programmed separately.

Features

- ▶ Extended monitoring range
- ▶ Up to 4 detectors per system controller
- ▶ Transmitter and receiver integrated into a compact housing
- ▶ Electronic and optical feature for detector alignment and self-alignment during operation
- ▶ Remote control unit at eye level for easy installation and programming

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 FRAY5000-EN 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.

Certifications and Approvals

Comply with:

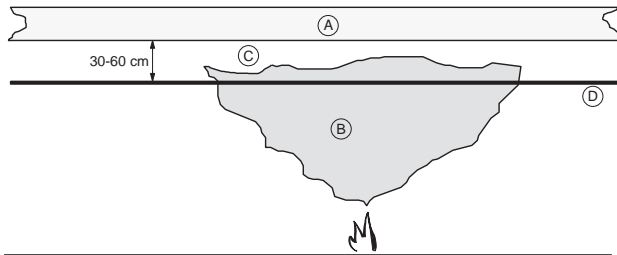
- EN54-12:2002

Region	Certification	
Europe	CE	FRAY5000-EN
	CPD	0832-CPD-0565 FRAY5000-EN
Germany	VdS	G 208017 FRAY5000-EN
Switzerland	VKF	AEAI 19202 Fireray 5000
Belgium	BOSEC	TCC2-K803/b Fireray 5000-HEAD-EN
USA	FM	3037125 Fireray 5000
Sweden	INTYG	08-722 FRAY5000-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



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:

X 1	Distance from the ceiling	0.3 m to 0.6 m
X 2	Horizontal distance detector/wall	min. 0.5 m
X 3	Horizontal distance between two detectors under gable roofs	

Example: Gable roof, 10° roof pitch

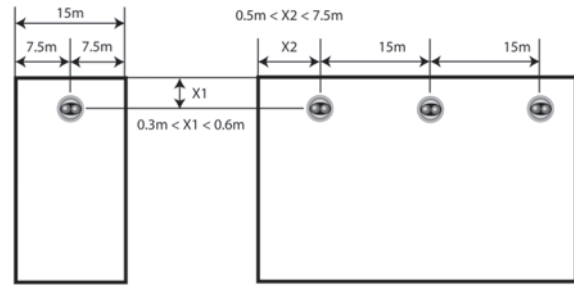
$X3 = 7.5\text{ m} + (7.5\text{ m} \times 10\%)$

$X3 = 7.5\text{ m} + 0.75\text{ m}$

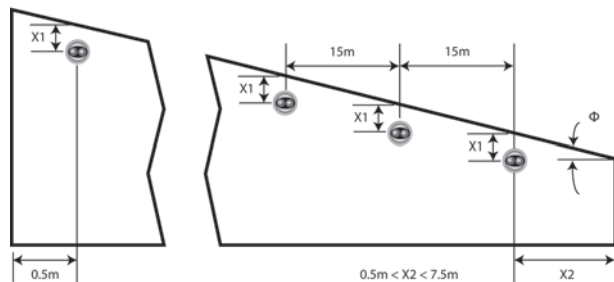
$X3 = 8.25\text{ m}$

- The maximum distance between two detectors with parallel IR beams is 15 m.
- The centre line of the monitoring beam may not be closer than 0.5 m to walls, furniture or stored goods.
- The reflectors allow an angle deviation of up to 5° from the centre line without causing a weakening of the signal..

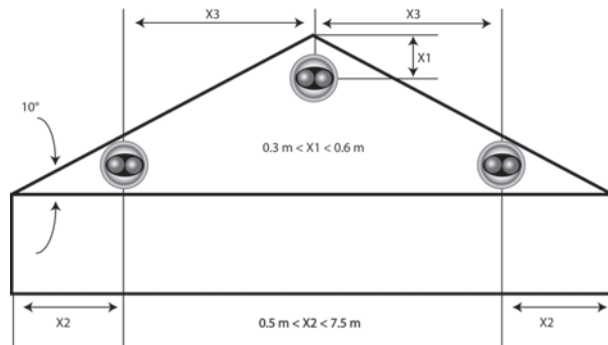
Positioning the detectors on flat ceilings



Positioning the detectors under a shed roof



Positioning the detectors under a gable roof



Detector arrangement in accordance with VdS/VDE

- The number of light beam smoke detectors must be selected according to the maximum monitoring area A listed in the table and which must not be exceeded (meets VdS 2095 and DIN VDE 0833-2).

Room height RH	X2	A	X1 at $\alpha < 20^\circ$	X1 at $\alpha > 20^\circ$
Up to 6 m	6 m	1200 m ²	0.3 m to 0.5 m	0.3 m to 0.5 m
6 m to 12 m	6,5 m	1300 m ²	0.4 m to 0.7 m	0.4 m to 0.9 m
12 m to 16 m ^(*))	7 m ^(*))	1400 m ² ^(**))	0.6 m to 0.9 m ^(**))	0.8 m to 1.2 m ^(**))

X2 = greatest permissible horizontal distance of any point of the ceiling to the next-closest beam
 A = maximum monitoring area per detector (= double the product of the greatest horizontal distance DH and the highest allowable detector/reflector distance)
 X1 = distance between the detector and the ceiling
 α = angle which the roof/ceiling pitch forms with the horizontal; if a roof has different pitches (e. g. sheds), use the smallest pitch.

* With a room height of more than 12 m, it is recommended that you provide a second monitoring level on which the detectors are arranged offset to the first monitoring level

** Depends on use and environmental conditions (e. g. quick fire and spread of smoke)

- Depending on the roof construction (flat, tilted or gable), the detectors and reflectors must be arranged according to the roof pitch α and the room height RH so that the light beam runs along the roof in a distance DL (see table).

Parts Included

Qty.	Components
1	FRAY5000-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 28 V DC
Current consumption	
• In standby (1 detector)	≤ 12 mA @ 28 V DC
• In standby for each additional detector	≤ 2.2 mA @ 28 V DC
• In alarm/fault (with 1-4 detectors)	≤ 52 mA @ 28 V DC
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	135 x 135 x 135 mm
• Prism reflector	100 x 100 x 10 mm
• Control unit	200 x 235 x 81 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 50 °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 4

Special features

Optical wavelength	850 nm
Tolerance of the axial deviation	
• Detector	± 0.3°
• Reflective prism	± 5.0°

Ordering Information

FRAY5000-EN Linear Smoke Detector

with one Detector Head, retro-operation, with building shift compensation, range 8 m - 50 m
Order number **FRAY5000-EN**

FRAY5000-HEAD-EN Detector Head

additional Detector Head
Order number **FRAY5000-HEAD-EN**

FCS-LWM-1 Linear Heat Detector



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.

8

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

Functions

The four copper wires on the sensor cable are each surrounded by a color-coded (orange, white, red, blue) material with a negative temperature coefficient and encased in a thermally resistant external coating. Two copper wires are connected to the bare end of the sensor cable to form two loops. The end of the sensor cable is then hermetically sealed. Both loops are continually monitored. In the event of an interruption or short circuit, the control unit outputs a trouble message.

If the temperature rises, the electrical resistance between the two loops changes. The control unit detects this change and triggers the alarm if the defined response temperature is exceeded. Both short sensor lengths and longer sections with small temperature increases are detected.

Certifications and Approvals

VdS-Approval: G 205 066

Region	Certification	
Europe	CE	FCS-LWM-1
Germany	VdS	G 205066 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 m², 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 m² and 36 m², 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

Quant.	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**

Usable in constricted spaces and under extreme environmental conditions
Order number **FCS-LWM-1**

Accessories**Blue Sensor Cable, per Meter**

suitable for use in non-aggressive atmosphere with high humidity
Order number **LHD4-SC-BLUE**

Black Sensor Cable with Nylon Coating, per Meter

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)
Order number **LHD4-SC-BLACK**

Black Sensor Cable with Woven Steel Cover, per Meter

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)
Order number **LHD4-SC-STEEL**

Terminal Connector for Sensor Cable

Order number **LHD4-terminal**

Intermediate Connector for Sensor Cable

Order number **LHD4-connector**

ADW 511 A Linear Heat Detector

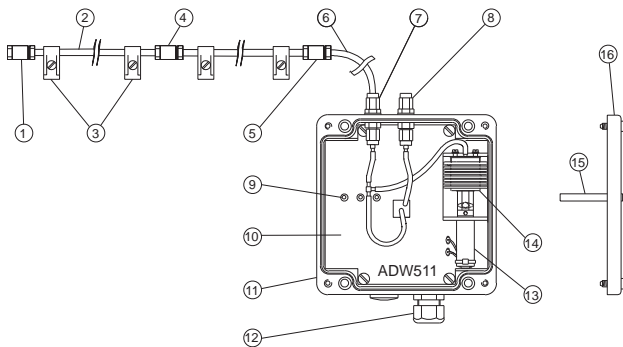


The Transafe ADW 511A is a Linear Heat Detector with differential and maximum temperature recording. The mode of operation is based on volumetric expansion of a gas on heating and the corresponding increase in pressure in a pneumatically sealed system. The heat detector comprises a sensor tube (SENSTUBE) and a detector box (with control unit). The robust design makes the ADW 511A particularly suitable for use in extreme areas in which conventional detectors cannot be used (e. g. response grades in line with EN 54 Part 5 and for increased ambient temperatures in line with EN 54 Part 8).

Features

- ▶ Compact, robust design
- ▶ Suitable for use under extreme environmental conditions
- ▶ Low maintenance costs through periodic fully automated seal verification and self-monitoring
- ▶ Application-specific default settings by rotary switch
- ▶ Response behavior can be programmed by PC

System Overview



Pos.	Description
1	End screw cap
2	Sensor tube segment
3	Fixing bridles
4 + 5	SERTO clamp
6	Sensor tube segment
7	Sensor tube connection
8	Reference tube
9	Operating status display LEDs
10	PC board with evaluation electronics
11	Detector box housing
12	Cable duct (PG clamp)
13	Pump drive motor
14	Pump
15	Fiber-optic cable for the 3 display LEDs (Pos. 9)
16	Housing cover of the detector box

Functions

The pressure sensor continually measures the pressure in the sensor tube. The sensor signals are evaluated by the microprocessor. The differential behavior is electronic.

If the pressure in the sensor tube rises strongly over a short time, the ADW 511A triggers an alarm. Disturbance variables such as slow pressure changes, e. g. as a result of weather-related temperature fluctuations or pressure blows caused by high volumes of traffic in tunnels are filtered out.

The evaluation of maximums is designed so that the pressure value corresponding to a programmable maximum temperature triggers the alarm. The ADW 511A also responds to gradual temperature increases over a longer time period, e.g. $\Delta T = 40K/h$ overheating of an oven. A temperature sensor in the detector box continually measures the current ambient temperature and derives the reference value for the maximum evaluation value.

Self-monitoring

A test motor with a pressure pump generates a specified pressure excess in the sensor tube in regular, configurable intervals.

If the value measured by the sensor does not correspond to the set value, e. g. because of a leak or crushing of the sensor tube, a fault indication is displayed.

Alarm and fault indications take the form of three LEDs on the PC board using three fiber-optic cables in the housing cover.

Certifications and Approvals

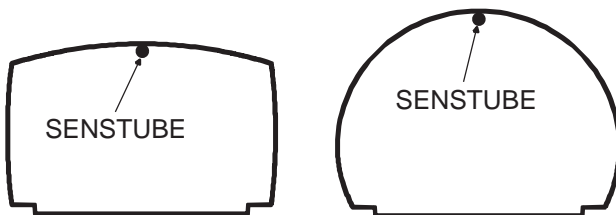
Region	Certification	
Europe	CE	ADW 511 A
Germany	VdS	G 204122 ADW 511A
Switzerland	VKF	AEAI 19205 ADW511A

Installation/Configuration Notes

General Planning Notes

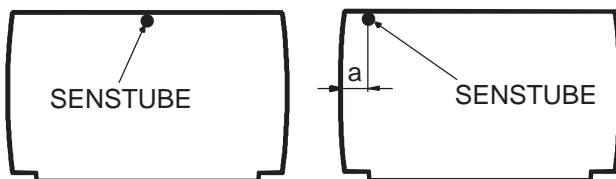
- The mounting location of the detector box and sensor tube (SENSTUBE) must not be exposed to direct sunlight.
- The detector box can be mounted anywhere, although a minimum distance of 0.1 m from switching boxes, niches etc. must be provided on the sensor tube connection side.
- If used in a tunnel, or if it must be fitted outdoors, the detector box must be installed in an additional protective box.
- At tunnel entrance portals, a distance of 25 m must be maintained between the sensor tube end and the portal.
- The minimum sensor tube length is 20 m.

Tunnel with curved roof, or round construction and 2 to 3 traffic lanes



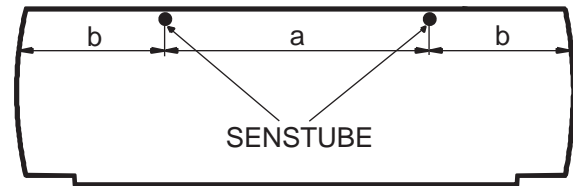
- The sensor tube **must always** be installed in the middle of the tunnel roof (max. permitted side tolerance ± 0.5 m).
- The maximum permitted sensor tube length is 130 m.

Tunnel with flat roof and 2 to 3 traffic lanes



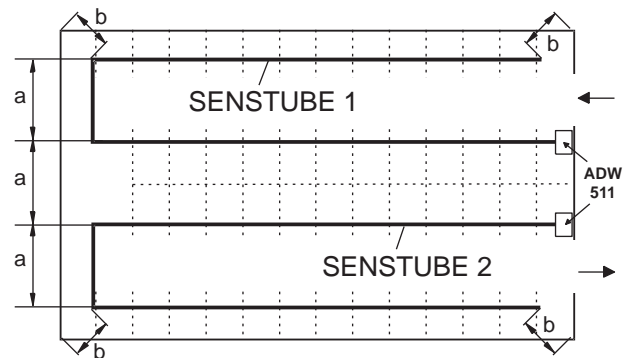
- The sensor tube **should** preferably be installed in the middle of the tunnel roof (max. permitted side tolerance ± 0.5 m).
- The sensor tube side mounting is possible taking a minimum distance (a) to tunnel wall into account.
 - For 2 traffic lanes: $a > 0.5$ m
 - For 3 traffic lanes: $a > 1.0$ m
- The maximum permitted sensor tube length is 130 m.

Tunnel with flat roof and more than 3 traffic lanes



- At least two sensor tubes are required
- The maximum distance (a) between the sensor tubes is 10 m.
- The maximum distance (b) between sensor tube and tunnel wall is $\frac{1}{2} a = 5$ m.

Storage halls, parking garages, vehicle decks and applications with similar usage



- It is possible to lay the sensor tube in a spiral.
- The maximum permitted sensor tube length is 80 m.
- The maximum distance (a) between the sensor tubes is 7.2 m.
- The maximum distance (b) between sensor tube and tunnel wall is $\frac{1}{2} a = 3.6$ m.
- Roof underpinnings must take guidelines in force into account.

Other applications

- For all other applications, the sensor tube must be installed after agreement with the commissioning authorities responsible.
- The permitted sensor tube length is 80 m as standard. Longer lengths are application-specific and must be approved by the manufacturer.
- For use in areas with raised ambient temperature, metal bridles must be used for sensor tube mounting. In addition, the detector box must be mounted in an area with normal ambient temperatures.

Parts Included

Qty.	Components
1	Transafe ADW 511A detector box, signal analysis and monitoring module of the linear maximum and differential heat detector

Technical Specifications

Electrical

Operating voltage	10 V DC to 30 V DC
Max. current consumption (12 / 24 V DC operation)	Measured at 10.5 V DC / 14 V DC

• In standby	114 mA / 90 mA approx.
• In the event of an alarm (diff./max.)	124 mA / 99 mA approx.
• In the event of pre-alarm + alarm	135 mA / 108 mA approx.
• In the event of malfunction	103 mA / 81 mA approx.
• When testing	127 mA / 102 mA approx.
Maximum contact load of alarm relay	1 A / 50 V DC

Mechanics

Connections	Contact outputs for
	<ul style="list-style-type: none"> • Alarm • Pre-alarm • Malfunction • Leakage
RS232 serial interface	9-pin D-SUB connector for programming and data transmission
Displays	
• ALARM DIFF	LED red
• ALARM MAX	LED red
• POWER / FAULT	LED yellow
Detector box	
• Material	Polyester, fiber-reinforced
• Color	Dark gray, RAL 7000
• Dimensions (W x H x D)	160 x 205 x 93 mm
• Weight	1700 g approx.
Sensor tube	
• Material	Copper
• Dimensions (Ø x L)	Ø 5 mm x 20 m to 130m

Environmental conditions

Protection class as per EN 60529	IP 65
Permissible operating temperature	
• Detector box	-20 °C to +50 °C
• Sensor tube ⁽¹⁾	-40 °C to +160 °C
Permissible relative humidity	
• Detector box	95 %
• Sensor tube	100 %

(1) Subject to prior consultation with Bosch ST, lower or higher operating temperatures may be possible

System limits

Maximum permitted sensor tube length	
• Tunnel applications (incl. tube mounting)	20 m to 130 m
• For other applications (incl. tube mounting)	20 m to 80 m

Special features

Detection principle	Change in volume of gases caused by temperature change
Detector class according to EN 54-5	A1 - G

Ordering Information

ADW 511 A Linear Heat Detector

Order number **ADW 511 A**

Accessories

Copper Pipe and Accessories

order quantity must be specified in meters, delivery occurs in 5.5 m long pieces, Ø 5 mm, including 6 clamps and 1 SERTO screw connector

Order number **ADW53A6M-CU-PIPE**

Plastic Hose, 25 m Reel

PA (polyamide)

Order number **ADW53A-TUBE**

Infrared Flame Detectors



Infrared Flame Detectors are used to detect open flames in rooms or outdoors.

They are especially suitable for smokeless liquid and gas fires as well as for fires of materials that contain carbon with strong smoke development.

Typical areas of application are:

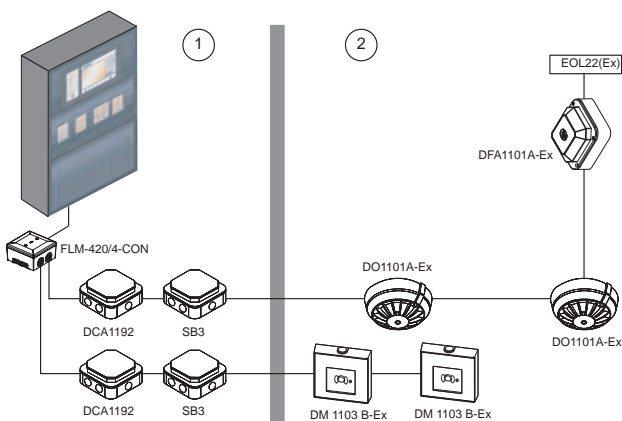
large industrial warehouses, airplane hangars, chemical facilities, oil refineries, machine rooms, ferries and freight ships, power plants, printing plants, wood warehouses, subway tunnels.

The DF1101A-Ex is an inherently safe Infrared Flame Detector for use in explosive areas of the zones 1 and 2, e. g. in high warehouse halls for flammable liquids, where liquid fires could occur in an explosive atmosphere.

Features

- ▶ Compact, robust and nearly maintenance-free
- ▶ Suitable for outdoor use under extreme conditions
- ▶ Optimal adjustment to the environmental conditions with 10 DIP switches
- ▶ Two sensitivity levels
- ▶ Easy-to-see red individual display

System Overview



Pos.	Description
1	Non-Ex area
2	Ex area zone 1 or 2

Functions

The detection element of the Infrared Flame Detector consists of two pyroelectric sensors (sensor 1 and 2) and a silicon photo diode (sensor 3). While sensor 1 detects the flame, the other two sensors measure the malfunction beam in other wavelength ranges.

Sensor	Spectral range	Detection from
1	4.0 μm to 4.8 μm	CO ₂
2	5.1 μm to 6.0 μm	Sources of interference
3	0.7 μm to 1.1 μm	Solar radiation

The combination of the three sensors and the intelligent signal processing with fuzzy algorithms and wavelet creates outstanding reliability of detection with high protection against false alarms.

Certifications and Approvals

The DF1101A-Ex meets the explosion classification in line with IEC 60079 and EN 50020 (Eex ib IIC T4).

Region	Certification	
Europe	CE	DF 1192
	CE	DF 1101-Ex
Germany	VdS	G 299085 DF1101-Ex/DF1192

Installation/Configuration Notes

- Both Infrared Flame Detectors comply with EN 54-10.
- The response sensitivity and the resulting monitoring area of an Infrared Flame Detector depend on:
 - Detection distance
 - Possible spread of fire
 - Fire material
 - Detector sensitivity
 - Detector arrangement.
- Purely for physical reasons, IR flame detectors can detect **no** fires of inorganic materials (e. g. sulfur, phosphorous, magnesium, natrium, hydrogen, etc.).
- The detector must have a direct visual line to all possible fire locations of the monitoring area.
- Practical area monitoring is achieved with a detector arrangement at a 45° to the corners of the area.
- If the room height is more than 5 m, the detector axis should be aligned towards the opposite corner of the room.
- The space above the detector is outside of the detection area.
- Despite wide-ranging insensitivity, the sensors must be protected against direct or indirect sunlight; it may be necessary to install a covering housing.

- The Infrared Flame Detectors can be connected using a FLM-420/4-CON Conventional Interface Module to the Local SecurityNetwork LSN.

Parts Included

Detector type	Qty.	Components
DF1192	1	Infrared Flame Detector DF1192
DF1101A-Ex	1	Infrared Flame Detector DF1101A-Ex



Notice

With the Infrared Flame Detectors DF1192 and DF1101A-Ex, the DFB1190 detector base is not included in the scope of delivery and must be ordered separately.

Technical Specifications

Electrical

Operating voltage	16 VDC . . . 28 VDC
Standby current consumption	0.5 mA

Mechanics

Individual display	LED red
Connection terminals	0.2 mm ² . . . 2.5 mm ²
Dimensions (W x H x D)	
• Detector	135 x 135 x 32 mm
• Detector incl. base	135 x 135 x 77 mm
Housing material	
• Detector	Cast aluminum
• Base	Plastic, PC, fiber-reinforced
Color (detector and base)	White, RAL 9010
Weight incl. base	
• DF1192	500 g
• DF1101A-Ex	750 g

Environmental conditions

Protection class as per EN 60529	IP 67
Permissible operating temperature	-35 °C . . . +70 °C
Permissible storage temperature	-40 °C . . . +75 °C
Relative humidity	< 100 %, no heavy condensation of the sensor window

Planning

Max. installation height	1.5 . . . 20 m
Max. monitoring area	80 m ² (Heed local guidelines!)

Special features

Detection principle	Detection of infrared radiation
Detection area	90°

Ordering Information

DF1192 Infrared Flame Detector

Order number **DF1192**

DFB1192-BASE Base for Infrared Flame Detector

Base for Infrared Flame Detectors DF1192 and DF1101A-Ex, including line termination EOL22(Ex)
Order number **DF1192-BASE**

DF1101A-Ex Infrared Flame Detector for Ex Areas

Order number **DF1101A-Ex**

SB3 Safety Barrier incl. DCA1192 Input/Output Module

limits the electrical energy between non-inherently safe and inherently safe circuits
Order number **SB3**

FAD-420-HS-EN Duct Smoke Detector

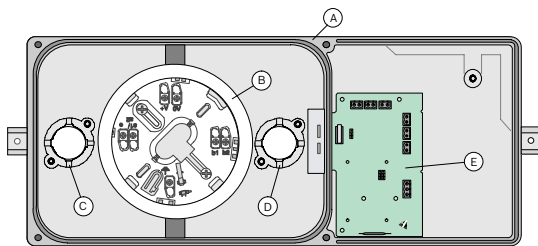


The FAD-420-HS-EN Duct Smoke Detector with integrated FAD-O420 Detector detects smoke in ventilation ducts. Smoke particles in the air are reliably detected and reported to the fire panel by the LSN improved bus system.

Features

- ▶ Use in ventilation systems with air velocities from 1.5 m/s to 20 m/s
- ▶ For the activation of fans, door controls or external display devices an optional Relay Board can be installed
- ▶ A clear section on the frosted cover allows observing the alarm LED of the integrated FAD-O420 Detector
- ▶ Control to prevent unwanted removal of the cover
- ▶ Easy installation of the FAD-O420 Detector

System Overview



- A Air sampling housing
- B Detector Base for the FAD-O420 Detector
- C,D Mounting flange for sample tube or ventilation tube
- E Connection board

Functions

Air from the ventilation duct is constantly directed through the sample tube and the air sampling housing to the purpose-built FAD-O420 Detector. Smoke particles in the air are reliably detected and reported to the fire panel by the LSN improved bus system.

Certifications and Approvals

Region	Certification	
Europe	CE	FAD-O420, FAD-420-HS-EN, FAD-RB-DIBT
Germany	VdS	G 211088 FAD-O420-HS-EN

Installation/Configuration Notes

- Air velocities from 1.5 m/s to 20 m/s
- Horizontal or vertical mount of housing
- If a remote indicator is connected (like MPA or FAA-420-RI), the FAD-RB-DIBT Relay Board **must not** be used!

Parts Included

Quant.	Component
1	Air sampling housing with connection board, Detector base and installation material
1	D344-1.5 sample tube (length 45.7 cm)
1	Ventilation tube
2	D344-TF air filter for sample and ventilation tube



Notice

Please note that the FAD-420-HS-EN does not come with the required FAD-O420 Detector. The FAD-O420 Detector has to be ordered in addition.

Technical Specifications

FAD-420-HS-EN Duct Smoke Detector

Electrical

Operating voltage	24 V DC (15 ... 33 V DC)
Maximum current consumption	Approx. 0.5 mA (approx. 0.7 mA when FAD-RB-DIBT Relay Board is installed)
Electromagnetic susceptibility (EMS)	EN 50130-4
Electromagnetic emission (EME)	EN 61000-6-3

Mechanics

Dimensions (H x W x D)	16.5 x 39.5 x 11 cm
Material and Color	
• Housing base	Plastic fiber reinforced, PPE + PS (UL94-V1), grey
• Housing cover	Plastic, PC (UL94-V2), clear
• Weight	Approx. 1.5 kg

Environmental Conditions

Permissible air velocity	1.5 m/s ... 20 m/s
Permissible operating temperature	0 °C ... 50 °C
Permissible storage temperature	-20 °C ... 80 °C

Permissible relative humidity	95 %, non condensing
Protection class as per EN 60529	IP 30

FAD-RB-DIBT Relay Board

Maximum contact load	2 A at 30 VDC
Weight	11 g

Ordering Information

FAD-420-HS-EN Duct Smoke Detector

The FAD-O420 Detector must be ordered in addition.
Order number **FAD-420-HS-EN**

Accessories

FAD-O420 Detector for Use in Air Sampling Housing

Order number **FAD-O420**

FAD-RB-DIBT Relay Board for DIBT Application

Order number **FAD-RB-DIBT**

FAA-420-RI Remote Indicator

required if the detector is not directly visible or has been mounted in false ceilings or false floors
Order number **FAA-420-RI**

D344-3 Sample Tube

length 91.4 cm (3 ft)
Order number **D344-3**

D344-5 Sample Tube

length 1.52 m (5 ft)
Order number **D344-5**

D344-TF Filter for Sample/Ventilation Tube

Replaceable filters for duct detector sampling tubes, available in packages of 20
Order number **D344-TF**

FCS-320-TP Series Conventional Aspirating Smoke Detectors

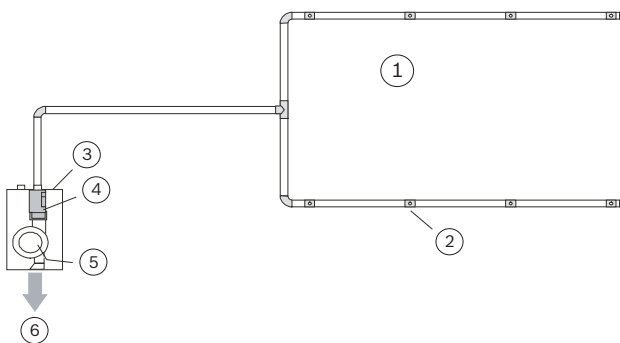


The FCS-320-TP Series Aspirating Smoke Detectors are active fire detection systems for early fire detection in area and equipment monitoring, as well as for the monitoring of air conditioning units or ducts. They have the latest detection technology. Their resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under extreme environmental conditions.

Features

- ▶ Connectable 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

System Overview



Pos.	Description
1	Pipe system/air intake
2	Air sampling openings

3	Housing
4	Detector Module incl. airflow sensor
5	Aspiration unit
6	Air outlet

Functions

The aspiration unit takes air samples from the monitoring area through a pipe system with defined air sampling openings and passes the samples to the Detector Module.

Depending on the response sensitivity of the used Detector Module, the Aspirating Smoke Detector triggers an alarm when the appropriate smoke density is reached. This alarm is displayed via the alarm LED on the unit and is transmitted to the fire panel.

An airflow sensor checks the connected pipe system for breakage and obstruction.

Intelligent signal processing *LOGIC-SENS* compares the measured smoke level with known disturbance variables and decides between alarm and deception. For the display and transmission of alarm and faults various delay times can be selected.

Each Detector Module is monitored for contamination, signal malfunction and device removal. Malfunctions and certain device states are displayed using various LED flash codes on the Detector Module's electronics PCB. 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 Aspirating 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

i 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).

Certifications and Approvals

Region	Certification	
Europe	CE	FCS-320-TP
	CPD	0786-CPD-20790 FCS-320-TPx_FCS-320-TTx_FAS-420-TPx_FAS-420-TTx

Installation/Configuration Notes

- For connection to conventional fire panels

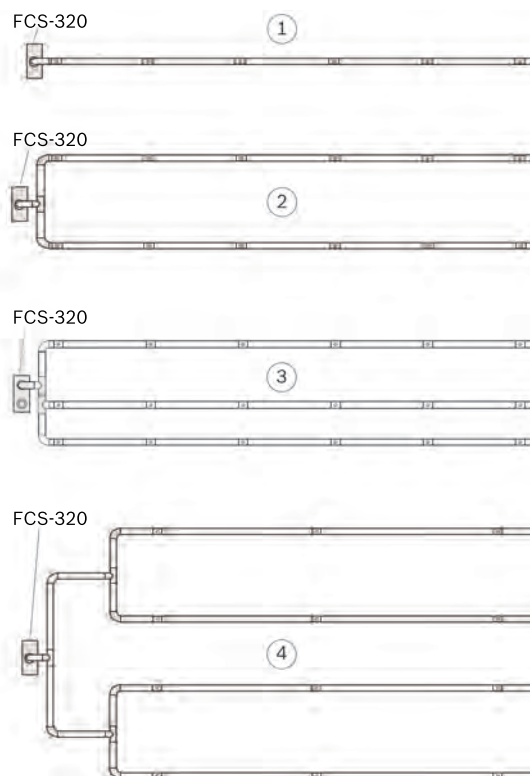
Planning of the pipe system

- 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 m² (VdS-compliant)
 - With two Detector Modules: 2*280 m / 5760 m²

Aspiration pipe planning

- Aspiration pipe systems are constructed according to planning specifications with the common pipe components as well as components for special applications, e. g. Water Separator or Detonation Safety Barrier.

- All borings for the smoke aspiration systems are made to a diameter of 10 mm and the exact aspiration openings are implemented by means of the patented Aspiration Reducing Film Sheets. For each aspiration hole a Aspiration reducing Film Sheet with corresponding punch diameter and Marking Tape must be provided.

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	Qty	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	Qty	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
	<ul style="list-style-type: none"> • Starting current, fan voltage 6.9 V 	300 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	
• FCS-320-TP Series Aspirating Smoke Detectors	-20 °C to +60 °C
• Pipe system PVC	00 °C to +60 °C
• Pipe system ABS	-40 °C to +80 °C
Permissible relative humidity (non-condensing)	10 to 95 %

Special features

Acoustic power level	45 dB(A)
Response sensitivity	max. light obscuration
• Detector Module DM-TP-50(80)	0.5 %/m (0.8 %/m)
• Detector Module DM-TP-10(25)	0.1 %/m (0.25 %/m)
• Detector Module DM-TP-01(05)	0.015 %/m (0.05 %/m)
Service life of the fan (12 V)	43,000 hrs at 24 °C

Ordering Information

FCS-320-TP1 Conventional Aspirating Smoke Detectors

Order number **FCS-320-TP1**

FCS-320-TP2 Conventional Aspirating Smoke Detectors

Order number **FCS-320-TP2**

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-Reset Reset Module

Reset module for FCS-320-TP1, FCS-320-TP2 or FCS-320-TM

Order number **FCA-320-Reset**

MT-1 Device Mounting

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**

Test Pipe

Order number **RAS test pipe**

Test Adapter

Order number **RAS test adapter**

AF-BR Marking Tapes for Aspiration Reducing Film Sheets

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR**

AF-2.0 Aspiration Reducing Film Sheets 2.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.0**

AF-2.5 Aspiration Reducing Film Sheets 2.5 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.5**

AF-3.0 Aspiration Reducing Film Sheets, 3.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.0**

AF-3.2 Aspiration Reducing Film Sheets, 3.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.2**

AF-3.4 Aspiration Reducing Film Sheets, 3.4 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.4**

AF-3.6 Aspiration Reducing Film Sheets, 3.6 mm

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.6**

AF-3.8 Aspiration Reducing Film Sheets, 3.8 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.8**

AF-4.0 Aspiration Reducing Film Sheets, 4.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.0**

AF-4.2 Aspiration Reducing Film Sheets, 4.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.2**

AF-4.4 Aspiration Reducing Film Sheets, 4.4 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.4**

AF-4.6 Aspiration Reducing Film Sheets, 4.6 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.6**

AF-5.0 Aspiration Reducing Film Sheets, 5.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.0**

AF-5.2 Aspiration Reducing Film Sheets, 5.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.2**

AF-5.6 Aspiration Reducing Film Sheets, 5.6 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.6**

AF-6.0 Aspiration Reducing Film Sheets, 6.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.0**

AF-6.8 Aspiration Reducing Film Sheets, 6.8 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.8**

AF-7.0 Aspiration Reducing Film Sheets, 7.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-7.0**

FCS-320-TM Series Conventional Aspirating Smoke Detectors



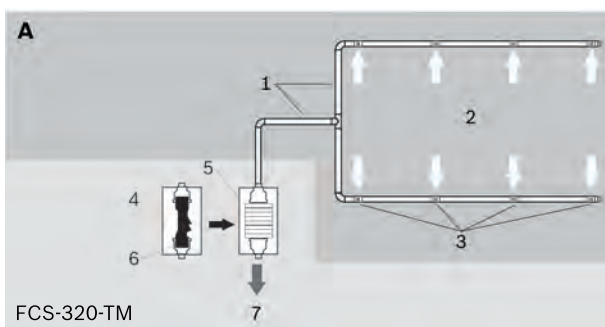
The FCS-320-TM Series Aspirating Smoke Detectors are active fire detection systems for early fire detection in zone and equipment protection, as well as for the monitoring of air-conditioning units or ducts. The exact location of the fire can be pinpointed using the innovative fire source identification.

The aspirating smoke detectors are fitted with the latest fire detection technology. Their resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under difficult environmental conditions.

Features

- ▶ For connecting to conventional fire panels
- ▶ High deceptive alarm immunity with intelligent *LOGIC-SENS* signal processing
- ▶ Innovative fire source identification technology allows the exact location of the fire to be pinpointed by monitoring up to five distinct zones
- ▶ Innovative airflow monitoring including single-hole monitoring detects obstruction and breakage
- ▶ Installation and commissioning made easy by plug-and-play function

System Overview



A	Pipe system
FCS-320-TM series	Aspirating 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 FCS-320-TM Aspirating 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 Aspirating Smoke Detectors have a response sensitivity of 0.5%/m to 2%/m light obscuration. The alarm threshold can be set at intervals of 0.1%/m with FAS-ASD-DIAG.

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.

Certifications and Approvals

Region	Certification	
Europe	CE	FCS-320-TM
	CPD	0786-CPD-20879 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).

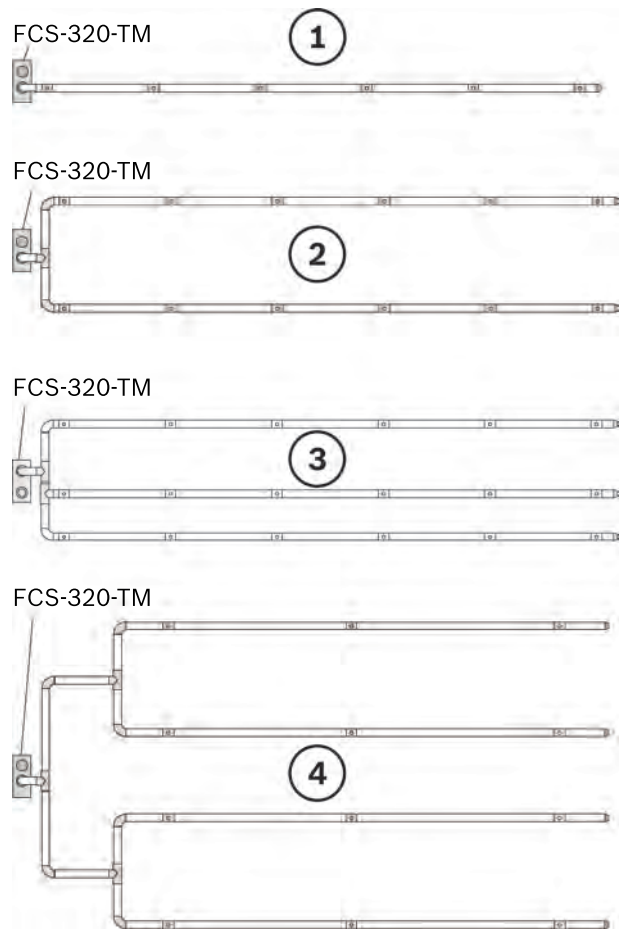
Pipe configuration

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 Conventional Aspirating Smoke Detector
with LED displays for operating mode, malfunction and alarm
Order number **FCS-320-TM**

FCS-320-TM-R Conventional Aspirating Smoke Detector
with LED displays for operating mode, malfunction, alarm and fire source identification
Order number **FCS-320-TM-R**

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 FCS-320-TM or FCS-320-TM-R

Order number **FCS-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**

Test Pipe

Order number **RAS test pipe**

Test Adapter

Order number **RAS test adapter**

AF-BR Marking Tapes for Aspiration Reducing Film Sheets

Price per piece, DU 10 pieces

Order number **TITANUS AF-BR**

AF-2.0 Aspiration Reducing Film Sheets 2.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.0**

AF-2.5 Aspiration Reducing Film Sheets 2.5 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-2.5**

AF-3.0 Aspiration Reducing Film Sheets, 3.0 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.0**

AF-3.2 Aspiration Reducing Film Sheets, 3.2 mm

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.2****AF-3.4 Aspiration Reducing Film Sheets, 3.4 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.4****AF-3.6 Aspiration Reducing Film Sheets, 3.6 mm**

Price per piece, DU 10 pieces

Order number **TITANUS AF-3.6****AF-3.8 Aspiration Reducing Film Sheets, 3.8 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-3.8****AF-4.0 Aspiration Reducing Film Sheets, 4.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.0****AF-4.2 Aspiration Reducing Film Sheets, 4.2 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.2****AF-4.4 Aspiration Reducing Film Sheets, 4.4 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.4****AF-4.6 Aspiration Reducing Film Sheets, 4.6 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-4.6****AF-5.0 Aspiration Reducing Film Sheets, 5.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.0****AF-5.2 Aspiration Reducing Film Sheets, 5.2 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.2****AF-5.6 Aspiration Reducing Film Sheets, 5.6 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-5.6****AF-6.0 Aspiration Reducing Film Sheets, 6.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.0****AF-6.8 Aspiration Reducing Film Sheets, 6.8 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-6.8****AF-7.0 Aspiration Reducing Film Sheets, 7.0 mm**

Price per piece, DU 10 pieces

Order number **TITANUSAF-7.0****FAS-420-TM-HB Housing Base**

for Aspirating Smoke Detectors Series FAS-420-TM

Order number **FAS-420-TM-HB**

N4387A Linear Heat Series



The N4387A Linear Heat Series is a fiber-optic linear heat detection system which can monitor a maximum range of 16 km (up to 2 fiber channels with 8 km length each). The system creates an exact temperature profile while measuring the temperatures along the optical fiber in minimum measurement cycles of 10 seconds and with a minimum spatial resolution of 1 m. The measurements are based on the quantum-mechanic Raman effect and the patented OTDR measurement principle (Optical Time Domain Reflectometry). Thanks to the fiber-optic technology the Linear Heat Series is especially suited for use in harsh conditions like dirt, dust, humidity and electromagnetic or radioactive radiation.

The Linear Heat Series is especially suited for monitoring objects with high danger potential:

- Road and rail tunnels
- Conveyer belts
- Production halls and high voltage cables
- Subway stations
- Escalators in shopping malls
- Mining transport machinery
- Steel production plants
- Areas with explosion danger (oil production)
- All types of production plants and halls with harsh conditions (dirt, dust, humidity)
- Power plants (cable trays and cable shafts)
- Nuclear plants (for monitoring radioactive areas, requires special sensor fiber)

Features

- ▶ Fast and accurate detection of fire location, size and spreading
- ▶ Coverage of up to 2 x 8 km or 48000 m² without blind spots
- ▶ Up to 256 alarm zones with up to 5 alarm criteria each, freely programmable
- ▶ Lowest false alarm rate even in hazardous environments
- ▶ Easy system integration, scalability, standard interfaces and protocols

Functions

The sensor cable can be segmented in up to 256 zones (can be overlapping) each of which can be programmed with multiple alarm criteria. Available criteria are temperature maximum, temperature rate-of-rise (3 per zone) and temperature deviance from zone average.

The system can localize a fire within a range of a few meters. This happens without interference from wind, since the system does measure not only convection heat but also heat radiation. Additionally the system can monitor fire size and fire spreading direction over a longer period, since the sensor cable can withstand temperatures of up to 1000 °C without losing its functionality.

Certifications and Approvals

Certification

UL 20081210-E311780
UL 61010-1, IEC 61010-1, CSA-C22.2 No. 1010-1

Q20070029

KFI 2008-10-635

IEC 60825-1:2001 (Laser Safety)

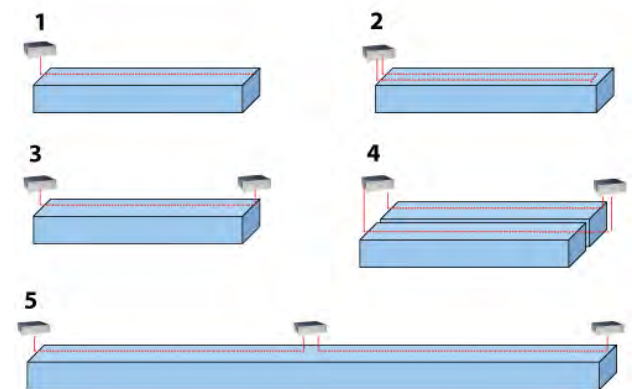
1M, FDA 21CFR 1040.10+, Laser Note Nr. 50
(FDA for Laser Sources)

BVS 08 ATEX F 002 X
I (M2), II (1) GD

Region	Certification	
Europe	CE	N4387A Wärmemelder
Germany	VdS	G 207158 N4387A Wärmemelder

Installation/Configuration Notes

Based on the number of detection controllers and fiber channels, you can configure different heat monitoring systems.



1	1 controller with 1 fiber channel; 8 km length; non-redundant single-ended layout
2	1 controller with 2 fiber channels; 4 km length; redundant dual-ended layout
3	2 controllers with 1 fiber channel each; 8 km length; fully redundant single-ended layout
4	2 controllers with 2 fiber channels each; 8 km length; fully redundant dual-ended layout
5	2 controllers with 1 fiber channel each; 16 km length; fully redundant single-ended layout

Parts Included

Quantity	Part
1	N4387A Detection Controller incl. 1 fiber channel
1	Power supply cord
1	E2000 service device
10	Cleaning tissue for sensor cable connectors
1	CD with configuration software
1	User manuals and Certificate of Calibration

The detection controller comes standard with 1 fiber channel. For applications that require 2 fiber channels, you have to order an additional one separately. It will be delivered pre-installed with the controller.

Technical Specifications

Laser

Laser type	Semi-conducting laser
Wavelength	1064 nm
Maximum average output power*	17 mW
Beam diameter	50 µm
Numeric Aperture	0.2
Laser class according to IEC 60825	1M
Maximum allowed average output power**	20 mW

* The maximum average output is the highest possible average power the laser can generate at its output.

** The maximum allowed average output power is the highest power which is allowed according to the IEC laser class used.

Detection Controller

Monitoring distances	1, 2, 3, 4, 8 km
Minimum sampling interval	0.5 m
Available measurement cycles	10 s to 30 s
Available settings for spatial resolution	1 m, 1.5 m, 3 m, 5 m, 8 m
Temperature resolution (standard deviation over distance) 30 s/ 1.5 m resolution	+/- 2.5 °C
Temperature reproductibility (standard deviation)	0.3 °C (1-4 km); 1 °C (8 km)
Temperature reproductibility for whole operating temperature area (standard deviation)	2 °C
Absolute temperature standard deviation	2.5 °C
Available measuring modes	Single-ended and dual-ended; including fiber break reconstruction

Operating voltage	10 V DC to 30 V DC
Current consumption at 20 °C	Average 15 W, max < 40 W

Sensor Fiber

Fiber types	MM 50/125 µm MM 62.5/125 µm
Dynamic range	30 dB (loss in both directions)
Permissible operating temperature of sensor fiber	-273 °C to +700 °C (possibly limited by sensor cable used)
Cable diameter	
• Sensor Cable Safety	4.0 mm
• Sensor Cable Steel	3.8 mm
Cable weight	
• Sensor Cable Safety	17 kg/km
• Sensor Cable Steel	25 kg/km

Housing and Environmental Conditions

Permissible operating temperature	
• 1 fiber channel	-10 °C to +60 °C
• 2 fiber channels	-5 °C to +60 °C
Permissible storage temperature	-40 °C to +80 °C
Permissible relative humidity	
• 1 fiber channel	0% to 95% non-condensing
• 2 fiber channels	15% to 85% non-condensing
Operation conditions for power supply (optional)	0 °C to 50 °C; non-condensing, only interior rooms
Measurements (H x W x D)	88 x 448 x 364 mm
Weight	9 kg

Interfaces

Optical connector	E2000; 8° angled polish
Number of channels	1 or 2 channels
Computer interfaces	USB, LAN
Relay board	4 inputs / 20 outputs*
Internal data storage capacity	150 measurements

* Additional relays can be ordered separately (A1210A).

N4387A Linear Heat Series Cables



Sensor Cables

2 different types are available:

- Sensor Cable Safety
- Sensor Cable Steel

The Sensor Cable Safety is a quickly responsive sensing cable in tight-buffered design with a small diameter, low weight and good flexibility. Thanks to the aramid yarn surrounding the fibers, the cable offers a good rodent protection and withstands high tensile loads.

The Sensor Cable Steel is a quickly responsive sensing cable in loose-tube design. The fibers are protected by non-corrosive and water-tight tubes made from stainless steel. Additionally armored with stainless steel wires, the cable offers the highest tensile-loaded capacity and crush resistance as well as an excellent rodent protection.

Both cable types have a halogen-free flame-retardant coating.

The expected lifespan of both cables is 30 years.

Mounting Clamps in Plastic or Steel

The self-locking plastic clamps are field-proofed in many tunnels. This fastening solution allows you to fix the sensor cable fast and securely. The clamps provide good resistance against chemicals and corrosive atmospheres, and are halogen-free. The plastic clamps combined with the metal-free Sensor Cable Safety are especially suited for use in rail tunnels where metal-free components are often required.

The steel clamps are a cost-effective solution complying with DIN 3016.

2 different types are available:

- Zinc-plated steel clamps (including zinc-plated anchor bolts)
- Stainless steel clamps (including stainless steel anchor bolts)

Steel Anchor Bolts

To fix the clamps durably and reliably on the concrete, special steel anchor bolts are used. They are placed into a drilled hole and anchored by deformation-controlled expansion. They can be used in structures exposed to dry internal conditions and also in structures exposed to humid and aggressive conditions like seawater, chloride or chemically polluted atmospheres.

2 different types are available:

- Zinc-plated steel anchor bolts
- Stainless steel anchor bolts

Features

- ▶ Imperishable against environmental influences
- ▶ Maintenance-free
- ▶ Light, flexible and easy to install
- ▶ Highest durability against temperatures up to 1000°C

Certifications and Approvals

Sensor Cable

IEC	IEC 60331-25 IEC 620332-1/-2/-3-24 IEC 60754-2 IEC 60793 IEC 60794-1-2 IEC 61034-2
EN	EN 187000
Vds	EN 54-5 / A1

Parts Included

Sensor cables come standard with pre-installed connectors (connectors have to be ordered separately). This enables a quick and easy cable installation in the field without complex splicing connection devices. For safe transport and installation the connectors and cable ends are wrapped tightly in solid tubing material.

Technical Specifications

Cables

Material / Construction	
• Sensor Cable Safety	• Tight-buffered design • Aramid yarn
• Sensor Cable Steel	• Loose-tube design, gel-free • Stainless steel tubes and wires
Outer sheath	Flame-retardant and non-corrosive (FRNC)
Fiber	MM 50/125 µm
Diameter	
• Sensor Cable Safety	4.0 mm
• Sensor Cable Steel	3.8 mm
Weight	
• Sensor Cable Safety	17 kg/km
• Sensor Cable Steel	25 kg/km
Minimum bending radius	
• With tensile load	20xD mm
• Without tensile load	15xD mm
Maximum crush resistance	

• Sensor Cable Safety	100 N/cm
• Sensor Cable Steel	960 N/cm
Maximum working load	
• Short term	
• Sensor Cable Safety	1000 N
• Sensor Cable Steel	1500 N
• Permanent	
• Sensor Cable Safety	800 N
• Sensor Cable Steel	1100 N
Permissible operating temperature	-40 °C to +85 °C
Permissible installation temperature	-5 °C to +50 °C
Permissible short term temperature (1 h)	-50 °C to +150 °C

Plastic Clamps

Type	Type 8, with reducing nozzle, brace and M6 nut
Color	Dark gray, RAL 7001
Material	High-quality polyamide
Permissible operating temperature	-40 °C to +110 °C
Specification	<ul style="list-style-type: none"> • UV-durable • Chemically durable • Halogen-free according to IEC-754-2

Steel Clamps

Type	RLGU / RSGU
Material	<ul style="list-style-type: none"> • Zinc-plated steel with rubber protection, or • Stainless steel
Specification	DIN 3016, with 2 x M6 nuts

Anchor Bolts

Type	K6 30 / 15
Measurements (L x Ø)	66 mm x 6 mm
Material	<ul style="list-style-type: none"> • Zinc-plated steel or • Stainless steel
Fastening depth	26 mm

N4387A Linear Heat Series Extensions



The N4387A Linear Heat Series detection system can easily be integrated into SCADA Systems, direct process control or external connections to fire control panels. The following accessories can be used to extend the standard DTS interfaces.

Relay Controller Set

If the application requires driving more than the embedded 20 relays outputs of the detection controller, the Relay Controller Sets should be used. Each relay output can be assigned to any defined alarm condition. The set includes:

- Power supply
- Pre-programmed relay controller
- 1 digital output module and 1 end module
- 8 relays, with accessories for easy wiring

Relay Extension Set

The extension set adds another digital output module and 8 relays.

Example: To have 48 relays, you require 1 Relay Controller Set and 5 Relay Extension Sets.

Relay Power Supply

The Relay Power Supply provides 5A at 24V and is able to supply enough current for a system configuration with up to 128 relays. For more relays, another power supply is required to supply the second set of 128 relays. In this case, the bus power module, which is part of the Relay Controller Set, need to be inserted in the middle of the digital output modules.

DIN Rail

A DIN rail is available in 450 mm length for mounting various interface modules into a 19" rack system.

Technical Specifications

Relay Controller Set

Operating voltage	24 VDC
Current consumption	
• Fieldbus controller	350 mA at 24 VDC
• Digital IO card	25 mA at 24 VDC
• Relay	25 mA at 24 VDC
Height	100 mm
Depth	70 mm over DIN rail
Width	

• Fieldbus controller	55 mm
• Digital IO card	12 mm
• Relay	6 mm
Weight	
• Fieldbus controller	200 g
• Digital IO card	50 g
• Relay	23 g
Mounting	DIN rail
Permissible operating temperature	0 °C to +55 °C
Permissible storage temperature	-25 °C to +85 °C
Permissible relative humidity	5% to 95%, non condensing

Relay Extension Set

Operating voltage	24 VDC
Current consumption	
• Per digital IO card	25 mA at 24 VDC
• Per relay	25 mA at 24 VDC
Height	100 mm
Depth	70 mm over DIN rail
Width	
• Fieldbus controller	55 mm
• Digital IO card	12 mm
• Relay	6 mm
Weight	
• Digital IO card	50 g
• Relay	23 g
Mounting	DIN rail
Permissible operating temperature	0 °C to +55 °C
Permissible storage temperature	-25 °C to +85 °C

Relay Power Supply

Operating voltage	90 to 264 VDC
Dimensions (H x W x D)	144 mm x 74 mm x 110 mm
Weight	890 g
Mounting	DIN rail
Permissible operating temperature	0 °C to +55 °C
Permissible storage temperature	-25 °C to +85 °C
Permissible relative humidity	5% to 95% , non-condensing

Manual Call Points

9

LSN Manual Call Points	336
Conventional Manual Call Points	344
Accessories - Manual Call Points LSN and Conventional	349
Conventional Manual Call Points for Ex Areas	354
Accessories - Manual Call Points for Ex Areas	356

FMC-420RW Single Action Call Points LSN improved



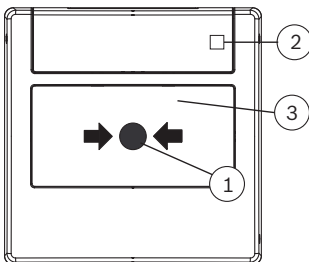
FMC-420RW Single Action Call Points are used for manual triggering and can be employed in both the Local SecurityNetwork (LSN) and the LSN improved version.

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

Functions

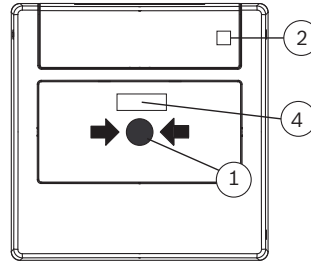
Single action call points with glass pane:



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) goes dark.

Resettable single action call points:



Pressing the black marking (1) triggers the alarm. The alarm status is indicated by the changed window color (4) and the flashing LED (2).

Single action call points can be reset using the test key. The LED (2) goes dark.

Individual call point identification

Neither single action call points with glass pane nor resettable single action call points are reset on the fire panel.

Individual call point identification with display of the call point address on the fire panel ensures the quick location of the triggered call point.

Certifications and Approvals

Region	Certification	
Europe	CE	FMC-420RW-GSGBU/-GSRBU/-GSGYE/-GSRYE
	CE	FMC-420RW-GSGRD/-GSRRD/-GFGRD/-GFRRD
	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
	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 ±200 mm (55 in. ±8 in.), measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be sufficiently lit with daylight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that can be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.
- Standards, guidelines and planning recommendations regarding the installation location etc. should also be taken into consideration.
- The regulations of the local fire services must be observed.

Parts Included

Quantity	Components
1	FMC-420RW-GSGRD Manual Call Point with Glass Pane, Surface-mounted, Red
1	FMC-420RW-GSRRD Manual Call Point Resettable, Surface-mounted, Red
1	FMC-420RW-GFGRD Manual Call Point with Glass Pane, Flush-mounted, Red
1	FMC-420RW-GFRRD Manual Call Point Resettable, Flush-mounted, Red
1	FMC-420RW-GSGYE Manual Call Point with Glass Pane, Surface-mounted, Yellow
1	FMC-420RW-GSRYE Manual Call Point Resettable, Surface-mounted, Yellow
1	FMC-420RW-GSGBU Manual Call Point with Glass Pane, Surface-mounted, Blue
1	FMC-420RW-GSRBU Manual Call Point Resettable, Surface-mounted, Blue
1	FMC-420RW-HSGRD Manual Call Point for Outdoor Use, with Glass Pane, Surface-mounted, Red/White
1	FMC-420RW-HSRRD Manual Call Point for Outdoor Use, Resettable, Surface-mounted, Red/White



Notice

The FMC-KEY-RW Test Key is not included in the delivery and must be ordered separately. For the flush-mounted variants, the bezel has to be ordered separately.

Technical Specifications

Electrical

Operating voltage	15 VDC to 33 VDC
Current consumption	0.4 mA

Mechanical components

Dimensions (H x W x D)	
<ul style="list-style-type: none"> FMC-420RW-GFGRD, FMC-420RW-GFRRD 	107 mm x 107 mm x 38.5 mm (4.2 in. X 4.2 in. X 1.5 in.)
<ul style="list-style-type: none"> FMC-420RW-GSGRD, FMC-420RW-GSGBU, FMC-420RW-GSGYE 	87 mm x 87 mm x 56 mm (3.4 in. X 3.4 in. X 2.2 in.)
<ul style="list-style-type: none"> FMC-420RW-GSRRD, FMC-420RW-GSRBU, FMC-420RW-GSRYE 	87 mm x 87 mm x 56 mm (3.4 in. X 3.4 in. X 2.2 in.)
<ul style="list-style-type: none"> FMC-420RW-HSGRD, FMC-420RW-HSRRD 	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"> Red 	RAL 3001
<ul style="list-style-type: none"> Blue 	RAL 5005

<ul style="list-style-type: none"> Yellow 	RAL 1003
<ul style="list-style-type: none"> Red/white 	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 with Glass Pane, Red

for indoor use, surface-mounted, direct alarm triggering (type A), for LSN improved
Order number **FMC-420RW-GSGRD**

FMC-420RW-GSRRD Manual Call Point Resettable, Red

for indoor use, surface-mounted, direct alarm triggering (type A), for LSN improved
Order number **FMC-420RW-GSRRD**

FMC-420RW-GFGRD Manual Call Point with Glass Pane, Flush-mounted, Red

for indoor use, direct alarm triggering (type A), for LSN improved
Order number **FMC-420RW-GFGRD**

FMC-420RW-GFRRD Manual Call Point Resettable, Flush-mounted, Red

for indoor use, direct alarm triggering (type A), for LSN improved
Order number **FMC-420RW-GFRRD**

FMC-420RW-GSGYE Manual Call Point with Glass Pane, Yellow

for indoor use, surface-mounted, direct triggering (type A), for LSN improved
Order number **FMC-420RW-GSGYE**

FMC-420RW-GSRYE Manual Call Point Resettable, Yellow

for indoor use, surface-mounted, direct triggering (type A), for LSN improved
Order number **FMC-420RW-GSRYE**

FMC-420RW-GSGBU Manual Call Point with Glass Pane, Blue

for indoor use, surface-mounted, direct triggering (type A), for LSN improved
Order number **FMC-420RW-GSGBU**

FMC-420RW-GSRBU Manual Call Point Resettable, Blue

for indoor use, surface-mounted, direct triggering (type A), for LSN improved
Order number **FMC-420RW-GSRBU**

FMC-420RW-HSGRD Manual Call Point with Glass Pane, Red/White, Outdoor

for outdoor use, surface mounting, direct alarm trigger (type A)

Order number **FMC-420RW-HSGRD**

FMC-420RW-HSRRD Manual Call Point Resettable, Red/White, Outdoor

for outdoor use, surface mounting, direct alarm trigger (type A)

Order number **FMC-420RW-HSRRD**

Accessories**FMC-BEZEL-RD Bezel for MCP RW, 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 MCP RW, white

Frame for the flush-mounted variant of the RW call points.

1 unit = 4 bezels

Order number **FMC-BEZEL-WH**

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 Glasses

Spare glasses for all RW call points.

1 unit = 5 spare glasses

Order number **FMC-SPGL-RW**

FMC-SIGN-RW Out of Order Sign

Used instead of the glass pane when a call point is not ready for use.

1 unit = 5 signs

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 Clear Hinged Flap

To protect against accidental triggering; with seal.

1 unit = 5 flaps

Order number **FMC-FLAP-RW**

FMC-210-DM Double Action Call Points

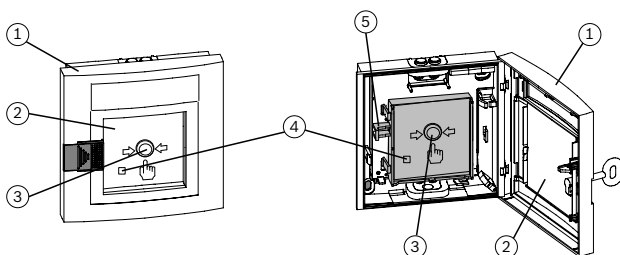


The FMC-210-DM Manual Call Points are used for manual triggering, and are deployed in the Local SecurityNetwork LSN and LSN improved. Form H Manual Call Points are designed for outdoor deployment, form G Manual Call Points are designed for indoor deployment.

Features

- ▶ Adjustment of the Manual Call Point after alarm triggering
- ▶ Automatic or manual detector addressing via rotary switch possible
- ▶ Indicator LED for alarm or for inspection evaluation
- ▶ Call point query routines with evaluation and multiple transmission
- ▶ Individual call point identification

Functions



In the event of an alarm, the glass pane (2) is broken first, then the manual call point (3) is pressed hard. This activates the microswitch for alarm triggering and the indicator LED (4) blinks. A mechanism holds the pressed call point down.

The manual call point can be reset with the reset lever (5) or by closing the door of the manual call point (1). The indicator LED (4) goes out.

This does not reset the alarm on the fire panel.

Individual call point identification with display of the call point address on the fire panel ensures the quick location of the triggered call point.

Variants

The designs of the manual call points for outdoor and indoor use are identical. The manual call points for indoor use (form G) are available in red, blue, and yellow; the manual call points for outdoor use (form H) are available in red and blue.

Form H manual call points are equipped with an especially resistant PC board layered with parylene.

Improved LSN features

The manual call points offer all the features of the improved LSN technology:

- Flexible network structures, including "T-tapping" without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Automatic or manual detector addressing selectable via rotary switch, in each case with or without auto-detection
- 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.

Certifications and Approvals

Type Number	Complies with
FMC-210-DM-G-R	EN 54-11:2001/A1:2005, EN 54-17:2005
FMC-210-DM-H-R	EN 54-11:2001/A1:2005, EN 54-17:2005
FMC-210-DM-G-Y	EN 12094-3:2003, EN 54-17:2005
FMC-210-EST-G-B	EN 12094-3:2003, EN 54-17:2005

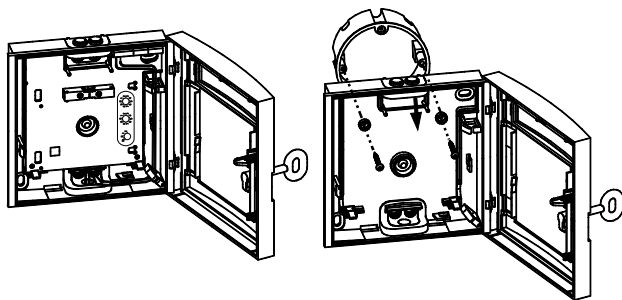
Region	Certification
Europe	CE FMC-210-DM-G-B/-H-B/-SM-G-B
	CE FMC-210_DM-G-R/-H-R/-SM-G-R
	CE FMC-210-DM-G-Y / EST-G-B
	CPD 0786-CPD-20293 FMC-210-DM-G/H-R
Germany	CPD 0786-CPD-20244 FMC-210-DM-G-Y
	CPD 0786-CPD-20245 FMC-210-EST-G-B
	VdS G 206100 FMC-210_EST-G-B_G206100
Poland	VdS G 206098 FMC-210_DM-G-R/-H-R_G206098
	VdS G 206099 FMC-210_DM-G-Y_G206099
	CNBOP 0082/2008 FMC-210 DM-G-R, FMC-210 DM-H-R
Czech Republic	TZÚS 080_12987 FMC-210
	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

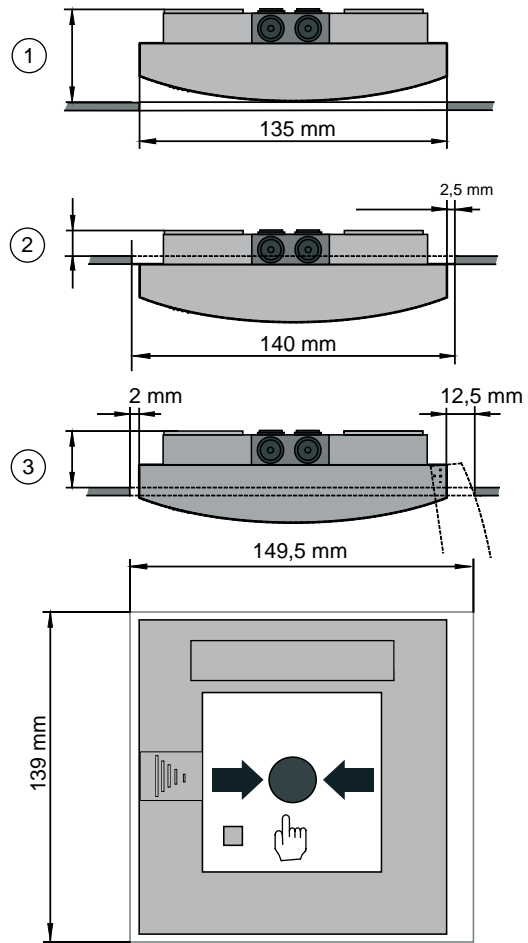
- Manual call points must be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm ±200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be adequately illuminated by sunlight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that may be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.
- Additional norms, guidelines, and planning recommendations with respect to installation location, etc. must be taken into account (see fire detector manual).
- The regulations of the local fire services must be observed.

Installation

- The cable duct can be surface-mounted or flush-mounted.



- Installation in fire hose cabinets is possible in three ways:



Pos.	Description
1	Installation depth version 1: ca. 40 mm
2	Installation depth version 2: 14 mm
3	Installation depth version 3: min. 30 mm

Parts Included

Type Number	Component
FMC-210-DM-G-R Form G, Red	Manual Call Point for indoor use, indirect triggering (type B), housing color red
FMC-210-DM-H-R Form H, Red	Manual Call Point for outdoor use, indirect triggering (type B), housing color red
FMC-210-DM-G-B Form G, Blue	Manual Call Point for indoor use, indirect triggering (type B), housing color blue
FMC-210-DM-H-B Form H, Blue	Manual Call Point for outdoor use, indirect triggering (type B), housing color blue
FMC-210-DM-G-Y Form G, Yellow	Manual Call Point for indoor use, indirect triggering (type B), housing color yellow
FMC-210-EST-G-B Form G, Blue	Electronic Stop Device for indoor use, indirect triggering (type B), housing color blue

i Notice
The key must be ordered separately.

Technical Specifications

Electrical

Operating voltage	24 VDC (15 VDC ... 33 VDC)
Current consumption	0.4 mA

Mechanics

Dimensions (W x H x D)	135 x 135 x 40 mm / 5.31 x 5.31 x 1.5 in.
Housing material	Plastic, ASA
Colors	Red, RAL 3001 Blue, RAL 5005 Yellow, RAL 1003
Weight	Approx. 235 g

Environmental Considerations

Protection class as per EN 60529	
• Form H (outdoor use)	IP 54
• Form G (indoor use)	IP 52
Norm	
• FMC-210-DM-G-R, FMC-210-DM-H-R	EN 54-11
• FMC-210-DM-G-Y, FMC-210-EST-G-B	EN 12094-3
Permissible operating temperature	
• Form H (outdoor use)	-25 °C ... +70 °C / -13 °F ... 158 °F
• Form G (indoor use)	-10 °C ... +55 °C / 14 °F ... 131 °F

Ordering Information

FMC-210-DM-H-R Form H, Red

Manual call point for outdoor use, indirect alarm triggering (type B), for LSN improved
Order number **FMC-210-DM-H-R**

FMC-210-DM-G-B Form G, Blue

Manual call point for indoor use, indirect triggering (type B), for LSN improved
Order number **FMC-210-DM-G-B**

FMC-210-DM-H-B Form H, Blue

Manual call point for outdoor use, indirect triggering (type B), for LSN improved
Order number **FMC-210-DM-H-B**

FMC-210-DM-G-Y Form G, Yellow

Manual call point for indoor use, indirect triggering (type B), for LSN improved
Order number **FMC-210-DM-G-Y**

FMC-210-EST-G-B Form G, Blue

Electronic stop device for indoor use, indirect triggering (type B), for LSN improved
Order number **FMC-210-EST-G-B**

Accessories

FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank)

For the labeling field of manual call points of the Series FMC-210.
1 unit = 10 sheets
Order number **FMX-FSO-LSN**

FMC-FST-DE Printed Labeling Foils for the Upper Label Field

For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets
Order number **FMC-FST-DE**

FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.
1 unit = 5 spare glasses
Order number **FMC-SPGL-DEIL**

Key for Fire Detectors Types G and H

made of red plastic (ASA)
Order number **FMM-KEY-Form G/H**

FMC-210-SM Single Action Call Points



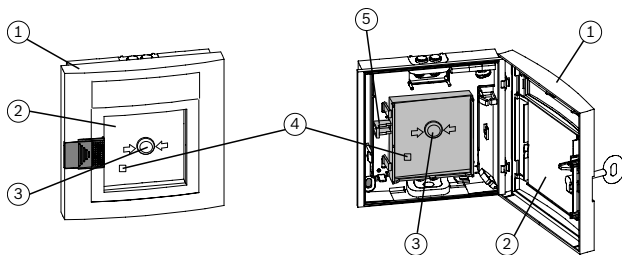
The FMC-210-SM Single Action Call Points are used for manual triggering, and can be used in the Local SecurityNetwork LSN and LSN improved. The FMC-210-SM Single Action Call Points are designed for indoor deployment.

9

Features

- ▶ Alarm triggering by breaking of the glass pane
- ▶ Automatic or manual detector addressing via rotary switch possible
- ▶ Indicator LED for alarm or for inspection evaluation
- ▶ Call point query routines with evaluation and multiple transmission
- ▶ Individual call point identification

Functions



With single action call points, the alarm is triggered when the glass plate (2) is broken and the button (3) springs up.

This activates the microswitch for alarm triggering and the indicator LED (4) blinks.

The call point (3) can be reset after inserting a new glass pane (2) and closing the door of the single action call point (1). The indicator LED (4) goes out.

This does not reset the alarm on the fire panel.

Individual call point identification with display of the call point address on the fire panel ensures the quick location of the triggered call point.

Certifications and Approvals

FMC-210-SM-G-R applies to

- EN 54-11:2001/A1:2005
- EN 54-17:2005

Region	Certification	
Europe	CPD	0786-CPD-20316 FMC-210-SM-G-R
Germany	VdS	G 207008 FMC-210-SM-G-R_G207008

Installation/Configuration Notes

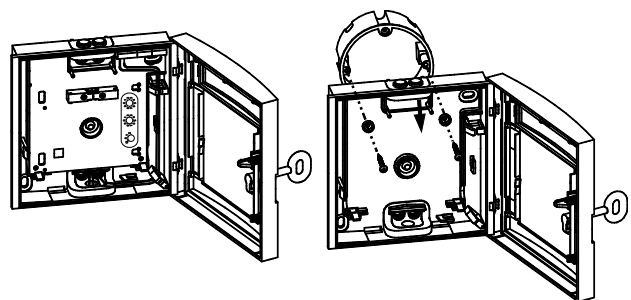
- Manual call points must be mounted visibly along escape and rescue routes (e. g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm \pm 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be 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

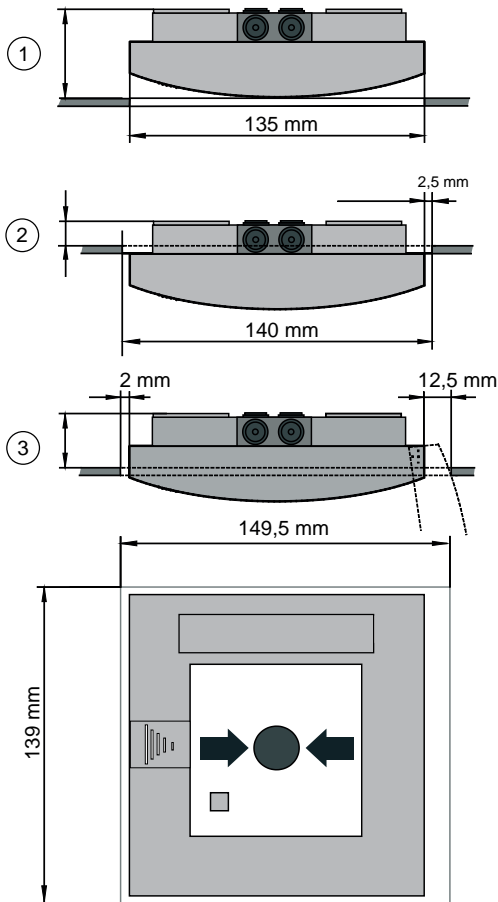
- The distance between manual call points should not be more than 100 m according to DIN 14675 or 80 m according to VdS.
- In high risk areas, manual call points should be installed at a distance of max. 40 m (VDE 0833 Part 2, Point 7.2.6).

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

Parts Included

TypeNumber.	Component
FMC-210-SM-G-B Form G, Blue	Single Action Call Point for indoor use, direct triggering (type A)
FMC-210-SM-G-R Form G, Red	Single Action Call Point for indoor use, direct triggering (type A)



Notice

The key must be ordered separately.

Technical Specifications

Electrical

Operating voltage	15 V DC ... 33 V DC
Current consumption	0.4 mA

Mechanics

Dimensions (H x W x D)	135 x 135 x 40 mm
Housing material	Plastic, ASA

Colors	
• FMC-210-SM-G-R	Red, RAL 3001
• FMC-210-SM-G-B	Blue, RAL 5005
Weight	Approx. 235 g

Environmental Considerations

Protection class as per EN 60529	IP 52
Permissible operating temperature	-10 °C ... +55 °

Ordering Information

FMC-210-SM-G-R Form G, Red

Single Action Call Point for indoor use, direct alarm triggering (type A), for LSN improved
Order number **FMC-210-SM-G-R**

FMC-210-SM-G-B Form G, Blue

Single Action Call Point for indoor use, direct triggering (type A), for LSN improved
Order number **FMC-210-SM-G-B**

Accessories

FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank)

For the labeling field of manual call points of the Series FMC-210.

1 unit = 10 sheets

Order number **FMX-FSO-LSN**

FMC-FST-DE Printed Labeling Foils for the Upper Label Field

For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets

Order number **FMC-FST-DE**

FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.

1 unit = 5 spare glasses

Order number **FMC-SPGL-DEIL**

Key for Fire Detectors Types G and H

made of red plastic (ASA)

Order number **FMM-KEY-Form G/H**

FMC-300RW Single Action Call Points



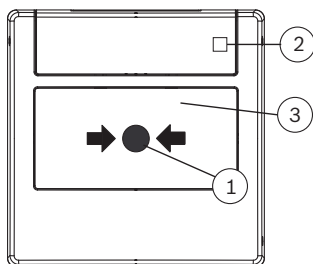
FMC-300RW Single Action Call Points are used for manual alarm triggering and are employed in conventional technology.

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

Functions

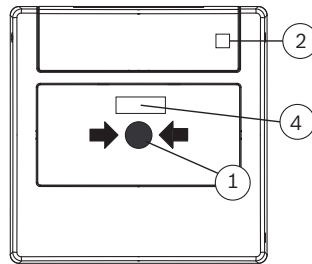
Single action call points with glass pane:



Pressing the black marking (1) breaks the glass pane (3), which triggers the alarm and causes the LED display (2) to flash.

Single action call points can be reset with the test key and by replacing the glass pane (3). The LED display (2) goes out.

Resettable single action call points:



Pressing the black marking (1) triggers the alarm. The alarm status is displayed by the red window (4) and the flashing LED display (2).

Single action call points can be reset using the test key. The LED display (2) goes out.

Certifications and Approvals

Applies to EN 54-11:2001/A1:2005

Region	Certification	
Europe	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 must be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm \pm 200 mm (55 in. \pm 8 in.), measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be sufficiently lit with daylight or another light source (including emergency lighting if present).
- The maximum number of LSN elements that can be connected depends on their current consumption from the LSN data line. The limit values should be taken from the product information supplied with the fire panel used.
- Standards, guidelines and planning recommendations regarding the installation location etc. should also be taken into consideration.
- The regulations of the local fire services must be observed.

Parts Included

Quantity	Components
1	FMC-300RW-GSGBU Manual Call Point with Glass Pane, Blue
1	FMC-300RW-GSRBU Manual Call Point Resettable, Blue
1	FMC-300RW-GSGRD Manual Call Point with Glass Pane, Red
1	FMC-300RW-GSRRD Manual Call Point Resettable, Red
1	FMC-300RW-GSGYE Manual Call Point with Glass Pane, Yellow
1	FMC-300RW-GSRYE Manual Call Point Resettable, Yellow

**Notice**

The FMC-KEY-RW Test Key is not included in the scope of delivery and must be ordered separately.

Technical Specifications**Electrical**

Operating voltage	20 VDC (8.5 VDC to 30 VDC)
Current consumption	specified by the respective security system
Alarm resistor	820 Ω +/- 10% (8.5 VDC to 30 VDC)

Mechanical components

Dimensions (H x W x D)	87 mm x 87 mm x 56 mm (3.4 in. x 3.4 in. x 2.2 in.)
Housing material	Plastic, ASA
Colors	
• Red	RAL 3001
• Blue	RAL 5005
• Yellow	RAL 1003

Environmental conditions

Protection category according to EN 60529	IP 54
Permissible operating temperature	-25 °C to +70 °C

Ordering Information**FMC-300RW-GSGBU Manual Call Point with Glass Pane, Blue**

for indoor use, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSGBU**

FMC-300RW-GSRBU Manual Call Point Resettable, Blue

for indoor use, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSRBU**

FMC-300RW-GSGRD Manual Call Point with Glass Pane, Red

for indoor use, surface-mounted, direct alarm triggering (type A), conventional technology
Order number **FMC-300RW-GSGRD**

FMC-300RW-GSRRD Manual Call Point Resettable, Red

for indoor use, surface-mounted, direct alarm triggering (type A), conventional technology
Order number **FMC-300RW-GSRRD**

FMC-300RW-GSGYE Manual Call Point with Glass Pane, Yellow

for indoor use in interior areas, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSGYE**

FMC-300RW-GSRYE Manual Call Point Resettable, Yellow

for indoor use in interior areas, surface-mounted, direct triggering (type A), conventional technology
Order number **FMC-300RW-GSRYE**

Accessories**FMC-BEZEL-RD Bezel for MCP RW, 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 MCP RW, white

Frame for the flush-mounted variant of the RW call points.

1 unit = 4 bezels

Order number **FMC-BEZEL-WH**

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 Glasses

Spare glasses for all RW call points.

1 unit = 5 spare glasses

Order number **FMC-SPGL-RW**

FMC-SIGN-RW Out of Order Sign

Used instead of the glass pane when a call point is not ready for use.

1 unit = 5 signs

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 Clear Hinged Flap

To protect against accidental triggering; with seal.

1 unit = 5 flaps

Order number **FMC-FLAP-RW**

FMC-120-DKM Manual Call Points

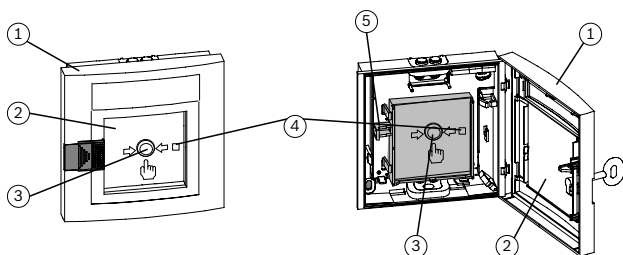


The FMC-120-DKM Manual Call Points handle manual alarm triggering and are used with conventional technology.

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

Functions



In the event of an alarm, the glass pane (2) is broken first, then the manual call point (3) is pressed hard. This activates the micro switch for alarm triggering and the indicator LED (4) blinks.

A locking mechanism holds the pressed manual call point.

The manual call point can be reset with the reset lever (5). The indicator LED (4) goes out.

This does not reset the alarm on the fire panel.

Variants

The design of the manual call points for indoor (form G) and outdoor use (form H) are identical. Three color variants, red, blue, and yellow are available.

Detectors for outdoor use (form H) have a cover equipped with a seal.

Certifications and Approvals

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

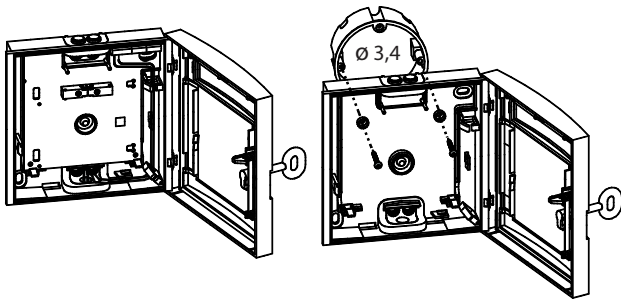
Region	Certification
Europe	CE FMC-120-EST-G-B / -DKM-G-Y
	CE FMC-120-DKM-G-R/-H-R
	CE FMC-120-DKM-G-B/ -H-B
	CPD 0786-CPD-20294 FMC-120-DKM-G/H-R
	CPD 0786-CPD-20231 FMC-120-DKM-G-Y
	CPD 0786-CPD-20232 FMC-120-EST-G-B/-H-HE
Germany	VdS G 298061 FMC-120-DKM-G-R/-R_G298061
	VdS G 206079 FMC-120-DKM-G-Y_G206079
	VdS G 206080 FMC-120-EST-G-B/-H-HE_G206080
PTB	01 ATEX 2163 X OTC/OC 310/410, OT/O/T 300/400, DKM/SKM 120, DM/SM 210, MPA_01 ATEX 2163 X
	01 ATEX 2163 X FMC-120-DKM

Installation/Configuration Notes

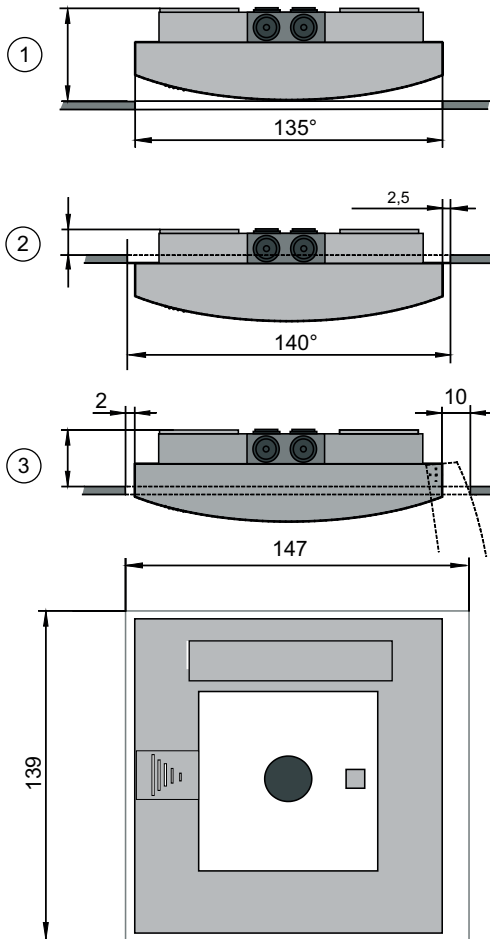
- Manual call points have to be mounted visibly along escape and rescue routes (e.g. exits, passageways, stairwells) and be easily accessible.
- An installation height of 1400 mm \pm 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must 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-R Form G, Red

Manual Call Point for indoor use, indirect alarm triggering (type B), conventional technology
Order number **FMC-120-DKM-G-R**

FMC-120-DKM-H-R Form H, Red

Manual Call Point for outdoor use, indirect alarm triggering (type B), conventional technology
Order number **FMC-120-DKM-H-R**

FMC-120-DKM-G-B Form G, Blue

Manual Call Point for indoor use, indirect triggering (type B), conventional technology
Order number **FMC-120-DKM-G-B**

FMC-120-DKM-H-B Form H, Blue

Manual Call Point for outdoor use, indirect triggering (type B), conventional technology
Order number **FMC-120-DKM-H-B**

FMC-120-DKM-G-Y Form G, Yellow

Manual Call Point for indoor use, indirect triggering (type B), conventional technology
Order number **FMC-120-DKM-G-Y**

FMC-120-EST-G-B Form G, Blue

Electronic Stop Device for indoor use, indirect triggering (type B), conventional technology
Order number **FMC-120-EST-G-B**

Accessories

FMX-FSO-GLT Punched, Self-adhesive Foil Sets (Blank)

For the labeling field of conventional manual call points of the Series FMC-120, 1 unit = 10 sheets
Order number **FMX-FSO-GLT**

FMC-FST-DE Printed Labeling Foils for the Upper Label Field

For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets
Order number **FMC-FST-DE**

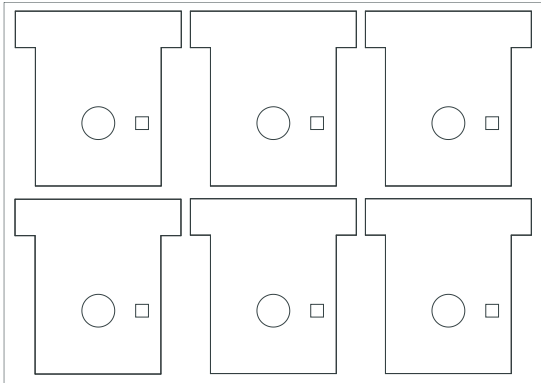
FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM, FMC-120 and FMC-210.
1 unit = 5 spare glasses
Order number **FMC-SPGL-DEIL**

Key for Fire Detectors Types G and H

made of red plastic (ASA)
Order number **FMM-KEY-Form G/H**

Punched, Self-adhesive Foil Sets (Blank), for Operating Panel and Labeling Field



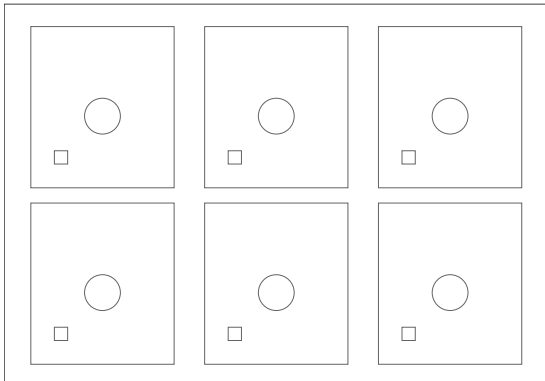
10 punched foil sets, appropriate for DM/DKM/SM/SKM, for individual printing with a customary laser printer. The required print file is available on the WinPara diskette.

Ordering Information

Punched, Self-adhesive Foil Sets (Blank), for Operating Panel and Labeling Field

10 units, for DM/DKM/SM/SKM, for individual printing
Order number **DKM120-LABEL**

FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank)



For the labeling field of manual call points of the Series FMC-210.

1 unit = 10 sheets

Appropriate for printing at standard laser printers. The required print file is available on the WinPara disk.

Ordering Information

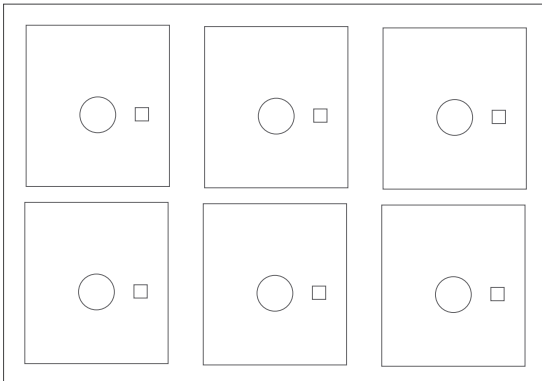
FMX-FSO-LSN Punched, Self-adhesive Foil Sets (Blank)

For the labeling field of manual call points of the Series FMC-210.

1 unit = 10 sheets

Order number **FMX-FSO-LSN**

FMX-FSO-GLT Punched, Self-adhesive Foil Sets (Blank)



For the labeling field of conventional manual call points of the Series FMC-120.

1 unit = 10 sheets

Appropriate for printing at standard laser printers. The required print file is available on the WinPara disk.

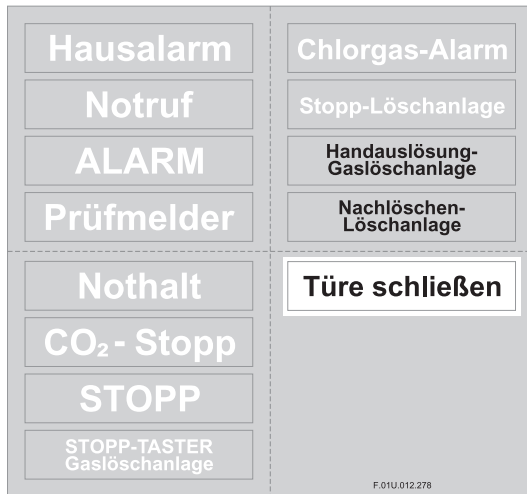
Ordering Information

FMX-FSO-GLT Punched, Self-adhesive Foil Sets (Blank)

For the labeling field of conventional manual call points of the Series FMC-120, 1 unit = 10 sheets

Order number **FMX-FSO-GLT**

FMC-FST-DE Printed Labeling Foils for the Upper Label Field



For yellow and blue manual call points of Series FMC-120 and FMC-210.

1 unit = 5 sheets

All labeling foils meet the requirements of the EN 12094-3 (use in gas extinguishing system).

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Ordering Information

FMC-FST-DE Printed Labeling Foils for the Upper Label Field

For yellow and blue manual call points of Series FMC-120 and FMC-210, 1 unit = 5 sheets

Order number **FMC-FST-DE**

FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM,
FMC-120 and FMC-210.
1 unit = 5 spare glasses

Ordering Information

FMC-SPGL-DEIL Spare Glasses

For manual call points of Series DM, DKM, SKM,
FMC-120 and FMC-210.
1 unit = 5 spare glasses
Order number **FMC-SPGL-DEIL**

Conventional Manual Call Points for Ex Areas

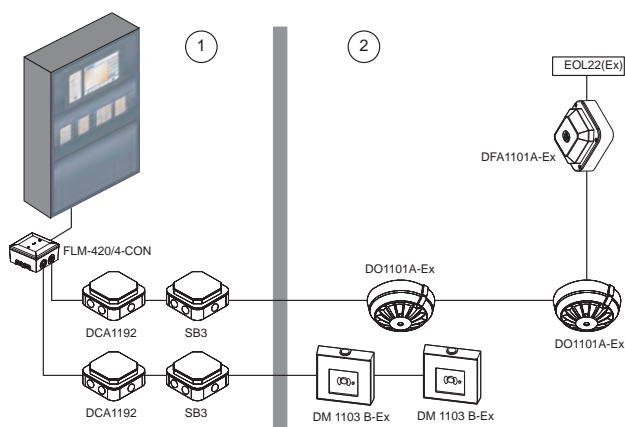


The Conventional Manual Call Points for Ex Areas are used to manually activate the alarm in zones 1 and 2 at risk of explosion.

The K type call points are encapsulated, intrinsically safe call points and do not require any safety barriers. The DM 1103 B-Ex Manual Call Points for ex zones must be connected via a Safety Barrier SB 3 incl. Input/Output Module DCA1192 (see system overview).

9

System Overview



For DM 1103 B-Ex:

Pos.	Description
1	Non-ex area
2	Ex area zone 1 or 2

Functions

In the event of an alarm, the glass pane (2) is broken first, then the pushbutton (3) is pressed hard. Thus the switch triggers the alarm.

A locking mechanism holds the pressed manual call point.

The pushbutton can be reset with the reset lever. This does not reset the alarm on the fire panel.

Certifications and Approvals

Region	Certification	
Europe	CE	DM 1103
	BASEE-FA	Ex 98E2304 DM 1103 B-Ex
Germany	VdS	G 297060 DKM 2014/2-ex/-GLU
	VdS	G 295036 DM 1103 B-Ex
	PTB	97 ATEX 3197 DKM 2014/2 / DKM 2014/2-GLU

Installation/Configuration Notes

- Manual call points must be illuminated sufficiently with daylight or another light source (including emergency lighting, if present).
- An installation height of 1400 mm \pm 200 mm, measured from the middle of the manual call point to the floor, must be maintained.
- Manual call points must be installed along escape and rescue routes (e.g. exits, passageways, stairwells).
- Further standards, guidelines and planning recommendations regarding the installation location etc., should also be taken into consideration (see Fire Detection manual).
- Regulations of local fire departments must be observed.

Installation/configuration notes in accordance with VdS/VDE

- The distance between manual call points should not exceed 100 m according to DIN 14675 or 80 m according to VdS.
- In high risk areas, manual call points should be installed at a distance of max. 40 m (VDE 0833 Part 2, Point 7.2.6).
- According to VdS, up to 10 manual call points can be connected to a primary line.

DKM 2014/2-ex Manual Call Point Type K

- For connection to the LSN, an NBK 100 LSN Fire Interface is required.
- Can be connected directly to the following conventional control panels:
 - BZ 1012
 - BZ 1060
 - UEZ 1000 GLT.
- With an NBK 100 LSN Fire Interface, can be connected to the following control panels:
 - BZ 500 LSN
 - UEZ 1000 LSN
 - UEZ 2000 LSN
 - UGM 2020 LSN

DKM 2014/2-ex-UGM Manual Call Point Type K, for Connection to UGM Conventional

- Can be connected directly to the UGM-GLT Universal Danger Detection System

DM 1103 B-Ex manual call point for ex area

- For connection to the LSN, an NBK 100 LSN interface is required.
- For use in explosive areas of zones 1 and 2, a safety barrier and an input/output module are required, which must be mounted in front of the ex area.

- Cables can be inserted surface-mounted or flush-mounted

Parts Included

Type	Qty.	Components
DKM 2014/2-ex	1	Manual Call Point Type K, for ex areas, for surface mounting
DKM 2014/2-ex-UGM	1	Manual Call Point Type K, for Connection to UGM Conventional, for ex areas, for surface mounting
DM 1103 B-Ex	1	DM 1103 B-Ex manual call point, color red
	1	Key for DM1103B-Ex manual call point
	2	PG11 cable screws

Technical Specifications

DKM 2014/2-ex Manual Call Point Type K DKM 2014/2-ex-UGM Manual Call Point Type K, for Connection to UGM Conventional

Operating voltage	24 V DC
Switch contact	Type 366 (encapsulated), II 2 G EEx d IIC
Maximum contact load	5 A / 250 V AC 0,25 A / 250 V DC
Cable entry	<ul style="list-style-type: none"> • 1x M16 x 1.5 tightening diameter 4-8 mm, EEx e II • Blind plug: 1x M16 x1.5 EEx e II
Housing material	Polyester, glass fiber reinforced
Colors	Red, RAL 3001
Dimensions (W x H x D)	136 x 138 x 88 mm
Weight	Approx. 1800 g
Protection class as per EN 60529	IP 66
Permissible operating temperature	-25 °C to +40 °C
Ex classification	Eex emd IIC T6
Test certificate / PTB No.	97-37001
ATEX approval no.	PTB 97 ATEX 3197

DM 1103 B-Ex Manual Call Point

Operating voltage	16V DC to 28V DC
Cable duct	PG11 screws (2x)
Connection terminals	0.2 mm to 1.5 mm
Housing material	Plastic, PC
Color	Red, RAL 3000
Dimensions (W x H x D)	134.4 x 134.4 x 43.5 mm
Weight	Approx. 200 g

Protection class as per EN 60529	IP 54
Permissible operating temperature	-25 °C to +60 °C
Permissible storage temperature	-30 °C to +75 °C
Permissible relative humidity	≤100% at T≤34 °C
Ex classification	EEx ib IIC T4

Ordering Information

DKM 2014/2-ex Manual Call Point Type K

for ex area, surface-mounted, indirect alarm triggering, conventional technology
Order number **DKM 2014/2-ex**

Key for Fire Detector Type K

Order number **FMX-7743.0.0500**

DKM 2014/2-ex-UGM Manual Call Point Type K, for Connection to UGM Conventional

for ex area, surface-mounted, indirect alarm triggering
Order number **DKM 2014/2-ex-UGM**

Key for Fire Detector Type K

Order number **FMX-7743.0.0500**

DM 1103 B-Ex Manual Call Point

for zone 1 and 2 areas at risk of explosion, conventional technology
Order number **DM1103B-Ex**

SB3 Safety Barrier incl. DCA1192 Input/Output Module

limits the electrical energy between non-inherently safe and inherently safe circuits
Order number **SB3**

Accessories

FMC-SPGL-DEIL Spare Glasses

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 incl. DCA1192 Input/Output Module



Functions

The SB3 Safety Barrier limits the electrical energy between non-inherently safe and inherently safe circuits and thus prevents the ignition of gas mixtures by electrical sparks.

The Safety Barrier must always be installed outside the explosive area.

The DCA1192 Input/Output Module is the galvanical isolation between the fire panel and SB3 Safety Barrier.

Certifications and Approvals

Region	Certification	
Europe	CE	DC 1192
	CE	SB 3
	CPD	0786-CPD-20512 DC 1192
Germany	VdS	G 298021 DC 1192
	PTB	01 ATEX 2088 SB 3

Parts Included

Qty.	Components
1	SB3 Safety Barrier
1	Installation set for SB3
1	DCA1192 Input/Output Module
1	Terminal carrier for DCA1192
1	EOL22(Ex) line termination, included with the DCA1192
2	Housing with cover

Technical Specifications

SB3 Safety Barrier, with Housing

Max. voltage	28 V DC
Max. permissible current	100 mA
Max. output	0.7 W
Wire gauge	0.2 mm ² . . . 2.5 mm ²
Cable bushings	PG16 (6x)
Dimensions (W x H x D)	135 x 135 x 65 mm
Housing material	Plastic, PC
Housing color	White, RAL 9010

Weight	Approx. 450 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C . . . +70 °C
Permissible storage temperature	-30 °C . . . +75 °C
Ignition protection according to EN 50014/20	Inherent safety EEx ia IIC / IIB

DCA1192 Input/Output Module, with Housing

External supply	
• Operating voltage	18 V DC . . . 32 V DC
• Current consumption	Max. 5 mA
• Line resistance	50 Ω . . . 250 Ω
• Line termination	EOL22(Ex)
Line termination	
• Operating voltage	18 V DC . . . 22 V DC
• Standby current	≤45 mA
• Operating current	≤150 mA
• Line resistance	50 Ω . . . 250 Ω
• Line termination	EOL22(Ex)
Wire gauge	0.2 mm ² . . . 2.5 mm ²
Cable bushings	PG16 (6x)
Housing material	Plastic, PC
Housing color	White, RAL 9010
Dimensions (W x H x D)	135 x 135 x 65 mm
Weight	Approx. 425 g
Protection class as per EN 60529	IP 56
Permissible operating temperature	-25 °C . . . +70 °C
Permissible storage temperature	-30 °C . . . +75 °C
Permissible relative humidity	≤100% at T≤34 °C

Ordering Information

SB3 Safety Barrier incl. DCA1192 Input/Output Module

limits the electrical energy between non-inherently safe and inherently safe circuits

Order number **SB3**

Interface and EOL Modules

10

LSN Interface Modules Series 420	358
EOL Modules	396

FLM-420/4-CON Conventional Interface Modules 4-wire LSN

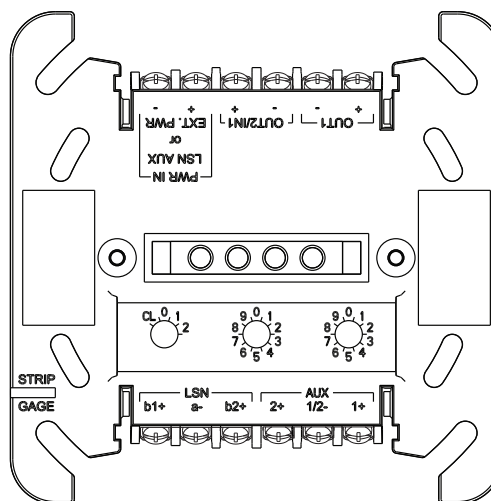


The FLM-420/4-CON Conventional Interface Modules allow conventional detectors to be connected to LSN fire panels via a 4-wire supply network (Local SecurityNetwork LSN with external power supply). The interface modules in the 420 series have been specially developed for connecting to the Local SecurityNetwork 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.

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

System Overview



Description

LSN b1+ | a- | b2+
 AUX 2+ | 1/2- | 1+
 OUT1 + | -
 OUT2/IN1 - | +
 PWR IN
 LSN AUX or EXT.PWR + | -

Connection

LSN (in/out)
 Output power supply 4-wire detectors
 Stub 1 or loop out
 Stub 2 or loop in
 Input power supply (from LSN or external source)

Functions

Features conventional lines

Individual detector parameters can be programmed for each stub. Within one stub or loop the detector parameters have to be consistent.

Only one EOL resistance can be selected for each interface module.

The detector voltage AUX (supply to 4-wire detectors) can be switched on or off for each line individually. For configurations with only one stub or one loop the two outputs AUX with 200 mA maximum current intensity can be switched in parallel.

If a line has only 2-wire detectors connected, the AUX output of this line might be switched in parallel with the AUX output of the second line (with 4-wire detectors). In this case, both AUX outputs are reset in parallel at once.

If both lines have only 2-wire detectors connected, both AUX outputs are set off.

The detector lines are short-circuit proof. In the event of a short circuit on the line, a fault message is sent to the control panel.

In the event of a line interruption in the loop, the loop is split into two stubs to retain all detectors.

The system detects removal of detectors and indicates a fault message on the fire panel.

The fire panel detects a ground connection for each individual line.

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Interface module functions

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:

Address	Operating mode	Fire panel
0 0 0	Loop/stub in LSN mode improved version with automatic addressing (T-taps not possible)	FPA-5000 FPA-1200
0 0 1 - 254	Loop/stub/T-taps in LSN mode improved version with manual addressing	FPA-5000 FPA-1200
CL 0 0	Loop/stub in LSN mode classic	BZ 500 LSN UEZ 2000 LSN UGM 2020

Features of LSN improved version

The interface modules in the 420 series offer all the features of the improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per fire panel loop or stub line
- Rotary switches allow operator to select automatic and manual addressing, either with or without auto detection
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

Interface variants

Different versions of the interface module are available:

- FLM-420/4-CON-S for surface-mount installation with housing
- FLM-420/4-CON-D for installation via an adapter on a DIN rail or in a FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

Complies with

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

Region	Certification	
Europe	CE	FLM-420_4-CON/-S/-D
	CPD	0786-CPD-20399 FLM-420/4-CON-S, -D
Germany	VdS	G 208010 FLM-420/4-CON; FLM-420/4CON-D
	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.
- Programming is done with the programming software of the fire panel.
- Within one stub (class B) or loop (class A) the detector parameters have to be consistent (e.g. standby current, alarm resistance).
- Loop wiring of the conventional zone (class A) does not require an EOL resistor as it is already integrated in the interface module.
- The power supply is provided via the two wires on the 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. $\pm 0,5$ V DC))
• Max. line current	80 mA per line ($\pm 10\%$ at 25 °C)
• Max. line resistance	50 Ω per line (max. 2 x 25 Ω)
Input power supply (PWR IN)	
• Voltage	24 to 30 V DC
• Residual ripple	< 150 mV
Output power supply 4-wire detector (AUX)	
• Voltage	23.5 V DC to 30 V DC (rated voltage 24 V DC)
• Residual ripple	< 300 mV
• Max. current (supply to 4-wire detector)	200 mA per output (can be switched in parallel)
EOL resistor for stub wiring of conventional zone (class B)	
• With calibration value	2,2 k Ω
• Without calibration value	2,2 k Ω / 3,9 k Ω

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 ²
Housing material	
• Surface-mounted housing	ABS/PC blend
• Interface housing and adapter	PPO (Noryl)
Color	
• Surface-mounted housing	Signal white, RAL 9003
• Interface housing and adapter	Off- white, similar to RAL 9002
Dimensions	
• FLM-420/4-CON-S	Approx. 126 x 126 x 71 mm (W x H x D)

• FLM-420/4-CON-D	Approx. 110 x 110 x 48 mm (W x H x D)
Weight	Without / with packaging
• FLM-420/4-CON-S	Approx. 390 g / 590 g
• FLM-420/4-CON-D	Approx. 150 g / 350 g

Environmental conditions

Permitted operating temperature	-20 °C to +55 °C
Permitted storage temperature	-25 °C to +80 °C
Permitted rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	
• FLM-420/4-CON-S	IP 54
• FLM-420/4-CON-D	IP 30

Ordering Information

FLM-420/4-CON-S Conventional Interface Module 4-wire LSN

with 2 primary lines for 2- or 4-wire conventional detectors, with surface-mounted housing
Order number **FLM-420/4-CON-S**

FLM-420/4-CON-D Conventional Interface Module 4-wire LSN

with 2 primary lines for 2- or 4-wire conventional detectors, type DIN rail
Order number **FLM-420/4-CON-D**

Accessories

FLM-IFB126-S Surface-mounted Housing

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)
Order number **FLM-IFB126-S**

FLM-420-NAC Signaling Device Interface Modules



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.

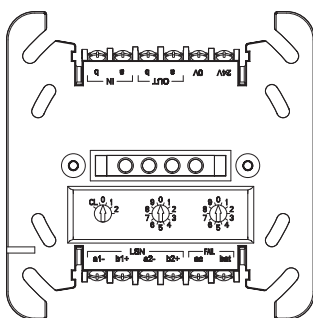
The following can be connected:

- Sounders
- Strobes
- Horns.

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

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.

Certifications and Approvals

Complies with

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

Region	Certification	
Europe	CE	FLM-420-NAC/-S/-D
	CPD	0786-CPD-20375 FLM-420-NAC
Germany	VdS	G 207052 FLM-420-NAC-S; FLM-420-NAC-D
Hungary	TMT	TMT-24/2006 FLM-420-NAC, FLM-I 420-S
	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

Type	Qty	Components
FLM-420-NAC-S	1	Signaling Device Interface Module with surface-mounted housing
FLM-420-NAC-D	1	Signaling Device Interface Module for installation on a DIN rail with adapter
	1	3.9 kOhm resistor

Technical Specifications

Electrical

Input voltage	15 V DC to 33 V DC
Max. current consumption	
• from LSN	6,06 mA (normal operation and alarm)
• from external power supply	15 mA (normal operation) + output current

External power supply	20,4 V DC to 29 V DC
Max. output current	3 A (during an alarm, from ext. power supply)
EOL resistance	3.9 kΩ

Mechanics

Display elements	
• Red LED	Alarm
• Green LED	Normal operation
LSN/Address setting	3 rotary switches for
	<ul style="list-style-type: none"> • Mode LSN "classic" or LSN improved version • Automatic or manual addressing
Connections	12 threaded clamps
Max. wire diameter for terminals	3.3 mm ² (12 AWG)
Housing material	
• Interface module	PPO (Noryl)
• Surface-mount housing	ABS/PC-Blend
Housing color	
• Interface module	Off-white, similar to RAL 9002
• Surface-mount housing	Signal white, RAL 9003
Dimensions	
• FLM-420-NAC-S	Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)
• FLM-420-NAC-D (with DIN rail adapter)	Approx. 110 x 110 x 48 mm (4.33 x 4.33 x 1.89 in.)
Weight	
FLM-420-NAC-S	Approx. 390 g (13.8 ounces)
FLM-420-NAC-D (with DIN rail adapter)	Approx. 150 g (5.3 ounces)

System limits

Number of zones per signaling device interface module	1
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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 Signaling Device Interface Module
with 1 supervised output line for conventional signaling devices, with surface-mounted housing
Order number **FLM-420-NAC-S**

FLM-420-NAC-D Signaling Device Interface Module
with 1 supervised output line for conventional signaling devices, for installation on a DIN rail with adapter
Order number **FLM-420-NAC-D**

FLM-420-RHV Relay High Voltage Interface Modules

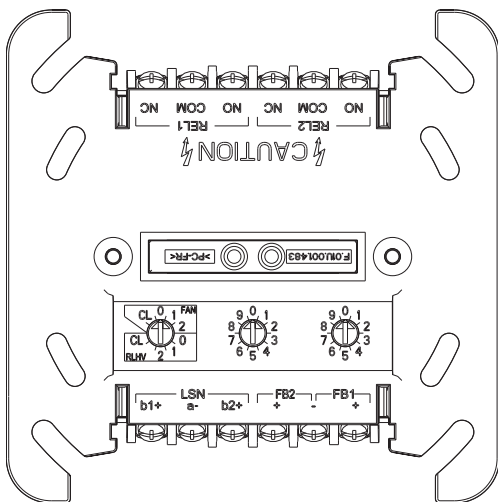


The FLM-420-RHV Relay High Voltage Interface Modules are used to control the activation of external elements, e. g. smoke dampers or fans (FAN function), via the Local SecurityNetwork LSN.

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

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.

Certifications and Approvals

Complies with

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

Region	Certification	
Europe	CE	FLM-420-RHV/-S/-D
	CPD	0786-CPD-20376 FLM-420-RHV
Germany	VdS	G 207053 FLM-420-RHV-S; FLM-420-RHV-D
	MOE	UA1.016-0070267-11 FLM-420-RHV-S_FLM-420-RHV-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.
- It is not permitted
 - to operate the relays with different voltages (high voltage and low voltage)
 - to place two different AC line voltage phases on the relay contacts.
- The monitoring function is deactivated at the time of delivery, and can be activated via the panel software.
- The surface-mounted housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched cable ducts for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable ducts for diameter up to 21 mm (for conduit)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Components
FLM-420-RHV-S	1	Relay High Voltage Interface Module with surface-mounted housing
FLM-420-RHV-D	1	Relay High Voltage Interface Module for installation on a DIN rail with adapter

Technical Specifications

Electrical

Input voltage	15 V DC to 33 V DC (min...max)
Max. current consumption	17.15 mA (normal operation and activated)
Max. contact load	10 A at 120 V AC 10 A at 230 V AC 10 A at 24 V DC 6 A at 30 V DC

Max. bounce period of NC contact	9 ms
Feedback current	1 mA (EOL resistance R=3.9 kΩ)
Feedback voltage	Max. 30 V DC
Fuses (F1, F2)	10 A / 250 V

Mechanics

Operating/display elements	2 LEDs (1 x red, 1 x green)
Function selection and address setting	3 rotary switches for <ul style="list-style-type: none"> • FAN/RLHV function • Mode LSN "classic" or LSN „improved version“ • Automatic or manual addressing
Connections	12 threaded clamps
Housing material	<ul style="list-style-type: none"> • Interface module: PPO (Noryl) • Surface-mount housing: ABS/PC-Blend
Housing color	<ul style="list-style-type: none"> • Interface module: Off-white, similar to RAL 9002 • Surface-mount housing: Signal white, RAL 9003
Dimensions	<ul style="list-style-type: none"> • FLM-420-RHV-S: Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.) • FLM-420-RHV-D (with DIN rail adapter): Approx. 110 x 110 x 48 mm (4.33 x 4.33 x 1.89 in.)
Weight	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • FLM-420-RHV-S: IP 54 • FLM-420-RHV-D: IP 30

Ordering Information

FLM-420-RHV-S Relay High Voltage Interface Module
with 2 relay outputs (230 V), with surface-mounted
housing
Order number **FLM-420-RHV-S**

FLM-420-RHV-D Relay High Voltage Interface Module
with 2 relay outputs (230 V), for installation on a DIN
rail with adapter
Order number **FLM-420-RHV-D**

FLM-420-RLV1 Relay Interface Modules Low Voltage



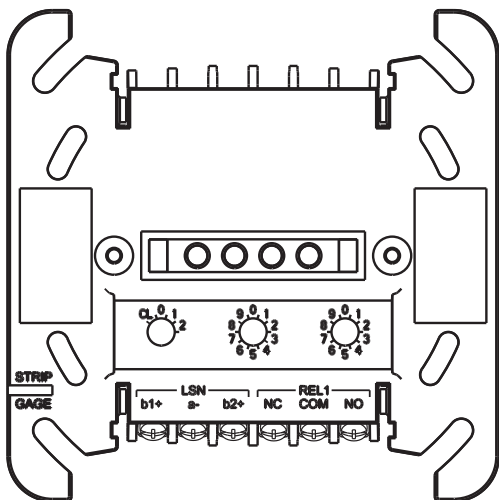
The FLM-420-RLV1 Relay Interface Modules Low Voltage feature a changeover contact relay for providing a potential-free output contact. They are 2-wire LSN elements. When connected to the fire panels FPA-5000 and FPA-1200, the interface module offers the enhanced functionality of LSN improved technology.

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

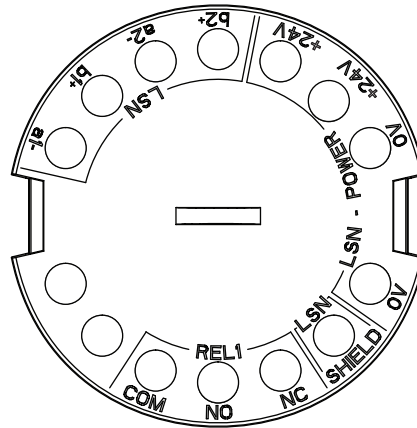
System Overview

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.

Certifications and Approvals

Complies with

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

Region	Certification	
Europe	CE	FLM-420-RLV1-D
	CE	FLM-420-RLV1-D
	CPD	0786-CPD-20291 FLM-420-RLV1
Germany	CPD	0786-CPD-20292 FLM-420-RLV1-W, -E
	VdS	G 207077 FLM-420-RLV1-D; FLM-420-RLV1-E; FLM-420-RLV1-W
	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 ²
• FLM-420-RLV1-D	0.6 to 3.3 mm ²
Address setting	
• FLM-420-RLV1-E	8 DIP switches
• FLM-420-RLV1-D	3 rotary switches
Housing material	
• FLM-420-RLV1-E	ABS/PC blend

• FLM-420-RLV1-D with adapter	PPO (Noryl)
Color	
• FLM-420-RLV1-E	Signal white, RAL 9003
• FLM-420-RLV1-D	Off-white, similar to RAL 9002
Dimensions	
• FLM-420-RLV1-E	Approx. 50 mm x 22 mm (Ø x H)
• FLM-420-RLV1-D with adapter	Approx. 110 x 110 x 48 mm (W x H x D)
Weight	Without / with packaging
• FLM-420-RLV1-E	Approx. 35 g / 130 g
• FLM-420-RLV1-D	Approx. 150 g / 235 g

Environmental conditions

Permitted operating temperature	-20 °C to +55 °C
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 Voltage
with 1 relay output, type in-built
Order number **FLM-420-RLV1-E**

FLM-420-RLV1-D Relay Interface Module Low Voltage
with 1 relay output, DIN rail type
Order number **FLM-420-RLV1-D**

FLM-IFB126-S Surface-mounted Housing
as retainer for the interface modules series 420 type
DIN rail (-D) or spare housing for type surface-mount (-S)
Order number **FLM-IFB126-S**

FLM-420-RLV8-S Octo-relay Interface Module Low Voltage



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.

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

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 SecurityNetwork LSN improved version, the operator can select automatic or manual addressing with or without auto-detection. In LSN mode classic, connection to the fire panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020 is possible.

Address	Mode
000	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)

001 ... 254	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL00	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules of the 420 Series have all features of the improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

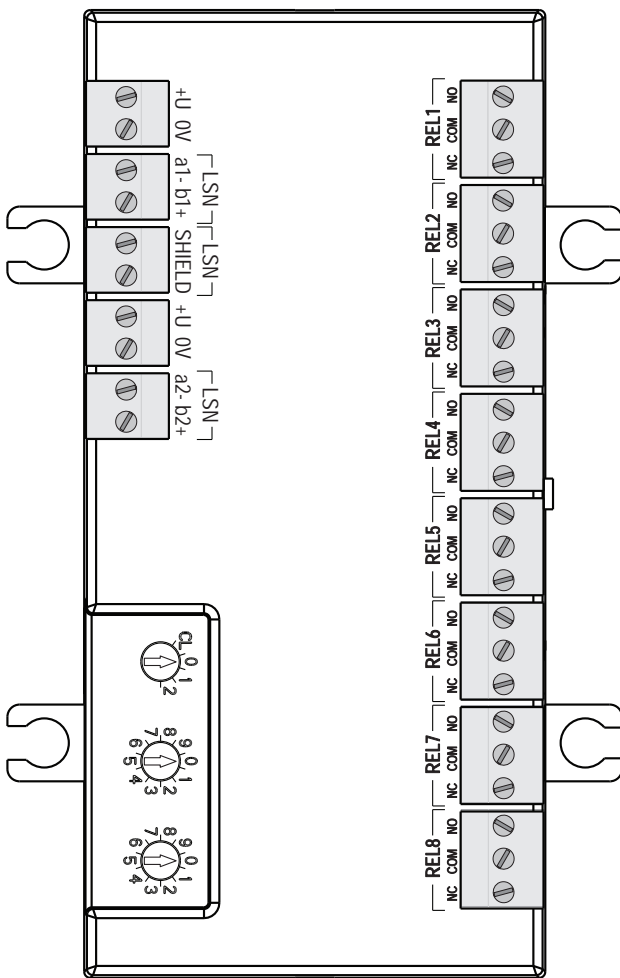
Certifications and Approvals

Complies with

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

Region	Certification	
Europe	CE	FLM-420-RLV8-S
	CPD	0786-CPD-20559 FLM-420-RLV8-S
Germany	VdS	G 208183 FLM-420-RLV8-S
	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 terminals blocks to allow a second pair of wires to be looped through to an auxiliary power to supply downstream connected elements.
- The cables are fed through rubber bushings or PG cable glands
- The pluggable terminal blocks allow for an easy wiring even if the interface module is built in.

- Use included spacers when mounting on uneven surface.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty	Component
FLM-420-RLV8-S	1	Octo-relay Interface Module Low Voltage, in housing for surface mounting

Technical Specifications

Electrical

LSN	
• LSN input voltage	15 V DC to 33 V DC (min. to max.)
• Max. current consumption from LSN	3.55 mA
8 relays (low voltage)	(NC contact / COM / NO contact)
Contact load (resistive load)	
• Max. switching current and voltage	• 2 A / 30 VDC • 0.5 A / 42.4 VAC
• Min. switching current and voltage	• 0.01mA / 10 mVDC • 0.01 mA / 10 mV AC
• Max. AC frequency	100 Hz

Mechanical

Connections	Screw terminals
Wire diameter	0.6 to 3.3 mm ²
Address setting	3 rotary switches
Material	ABS + PC-FR
Housing color	Signal white, RAL 9003
Dimensions	Approx. 140 x 200 x 48 mm (W x H x D)
Weight (without/with packing)	Approx. 490 g / 810 g

Environmental conditions

Permissible operating temperature	-20 °C to +65 °C
Permissible storage temperature	-25 °C to +80 °C
Permissible rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 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**

FLM-420-I8R1-S Octo-input Interface Module with Relay



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.

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

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

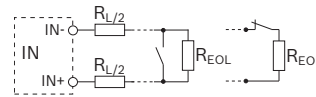
The monitoring functions of the eight inputs can be selected individually by setting the corresponding addresses.

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 k Ω .

The interface module detects

- Standby
- Triggering in the event of a short circuit
- Triggering in the event of line interruption.



Position Description

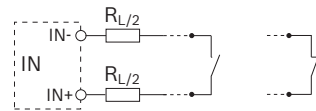
R_L Overall line resistance with $R_L = R_{L/2} + R_{L/2} + R_{EOL}$

$R_{L/2}$ 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_L
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	Mode
0 0 0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 ... 2 5 4	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules of the 420 series have all features of the improved LSN technology:

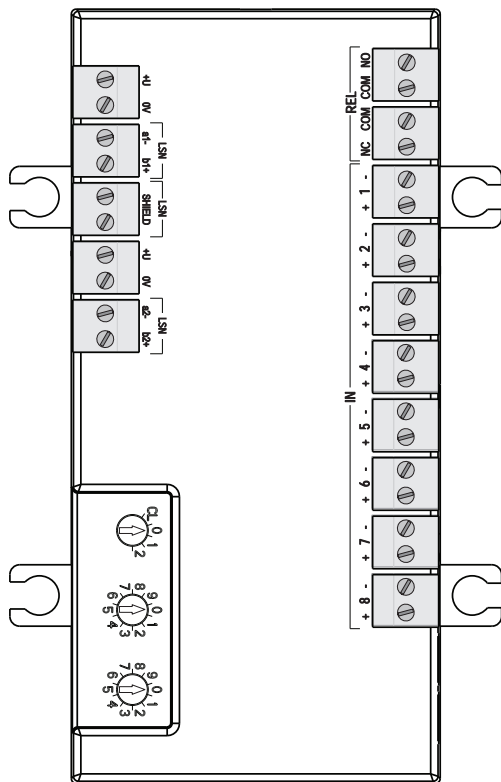
- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN improved elements per loop or stub line
- Unshielded cable can be used
- Downwards compatible with existing LSN systems and control panels.

Certifications and Approvals

- Complies with
- EN54-17:2005
 - EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-I8R1-S
	CPD	0786-CPD-20560 FLM-420-I8R1-S
Germany	VdS	G 208184 FLM-420-I8R1-S
	MOE	UA1.016-0070265-11 FLM-420-I8R1-S

Installation/Configuration Notes



Description	Connection
+U 0V	Auxiliary power supply (support points to loop through)
LSN a1- b1+	LSN incoming
LSN SHIELD	Cable shielding (if available)
+U 0V	Auxiliary power supply (support points to loop through)
LSN a2- b2+	LSN outgoing
IN 1 ... 8: + -	Input 1 to input 8
REL NC COM COM NO	Change-over relay (NC contact / COM, COM / NO contact)

- Can be connected to the fire panels FPA-5000 and FPA-1200 and the classic LSN control panels BZ 500 LSN, UEZ 2000 LSN and UGM 2020.
- Programming is done with the programming software of the fire panel.

- The LSN connection is established by the two wires of the LSN line.
- The activation of the inputs IN 1...8 has to be carried out electrically isolated from LSN (e. g. with relay contact, pushbutton, etc.).
- The inputs must have a minimum activation time of 3.2 s.
- The maximum cable length of all inputs connected to the loop or stub is 500 m in total. Additionally, all outputs which are not electrically isolated from LSN must be included in the total line length calculation (e.g. peripherals connected via C points). With UEZ 2000 LSN and UGM 2020, the limitation to 500 m applies to each Network Processing Converter (NVU).
- The interface module has 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

Type	Qty.	Component
FLM-420-I8R1-S	1	Octo-input Interface Module with Relay, in housing for surface mounting

Technical Specifications

Electrical

LSN	
• LSN input voltage	15 VDC to 33 VDC
• Max. current consumption from LSN	5.5 mA
Inputs	8, independent
Line monitoring with EOL	
• EOL resistor	Nominal 3.9 kΩ
• Overall line resistance R_{Σ} with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$	<ul style="list-style-type: none"> • Standby: 1500 Ω to 6000 Ω • Line interruption: > 12.000 Ω • Short circuit: < 800 Ω
Contact monitoring	
• Max. current strength (current pulse)	8 mA
Minimum activation time of the inputs IN 1...8	3.2 s
Relay (low voltage)	(NC / COM / NO contact)
Contact load (resistive load)	

• Max. switching current and voltage	<ul style="list-style-type: none"> • 2 A / 30 VDC • 0.5 A / 42.4 VAC
• Min. switching current and voltage	<ul style="list-style-type: none"> • 0.01 mA / 10 mVDC • 0.01 mA / 10 mVAC
• Max. AC frequency	100 Hz

Mechanical

Connections	Screw terminals
Wire diameter	0.6 mm ² to 3.3 mm ²
Address setting	3 rotary switches
Material	ABS + PC-FR
Housing color	Signal white, RAL 9003
Dimensions	Approx. 140 x 200 x 48 mm (W x H x D)
Weight (without/with packing)	Approx. 480 g / 800 g

Environmental conditions

Permissible operating temperature	-20 °C to +65 °C
Permissible storage temperature	-25 °C to +80 °C
Permissible rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 54

System limiting values

Maximum cable length of all inputs and outputs which are connected to the loop or stub and not electrically isolated from LSN	500 m in total
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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**

FLM-420-I2 Input Interface Modules



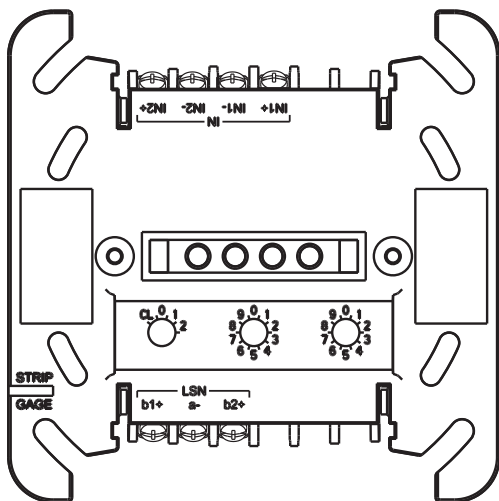
The FLM-420-I2 Input Interface Modules monitor up to two inputs. They are 2-wire LSN elements for connection to the Local SecurityNetwork LSN improved version with the enhanced functionality.

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

System Overview

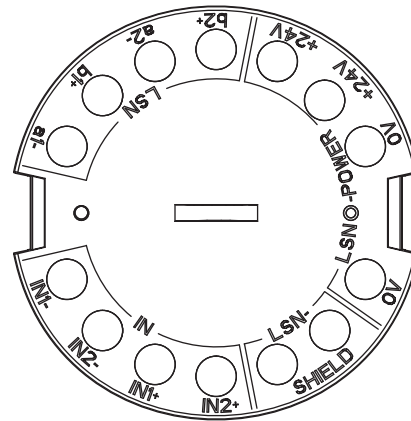
FLM-420-I2-D



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 0V 0V +24V +24V	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

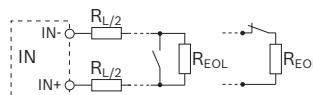
The monitoring functions can be selected for the two inputs individually by address setting via the programming software.

Line monitoring with EOL resistor

Operation with EOL resistor can be programmed for each input individually. The standard EOL resistor is 3.9 kΩ.

The interface module detects

- Standby
- Triggering in the event of line interruption
- Triggering in the event of a short circuit.

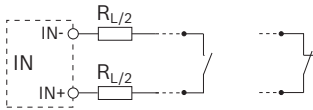


Position	Description
R_T	Overall line resistance with $R_T = R_{L/2} + R_{L/2} + R_{EOL}$
$R_{L/2}$	Line resistance

The following line conditions will be definitely detected if the overall line resistance is within the specified ranges:

Line condition	Overall line resistance R_{Σ}
Standby	1500 Ω to 6000 Ω
Interruption	> 12.000 Ω
Short circuit	< 800 Ω

Contact monitoring

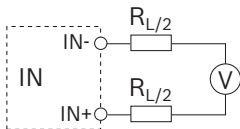


Position	Description
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$R_{L/2}$	Line resistance with $R_{L/2} + R_{L/2} \leq 50 \Omega$
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The interface module evaluates the operating conditions "open" or "closed". The normal operating condition can 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
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$R_{L/2}$	Line resistance with $R_{L/2} + R_{L/2} \leq 50 \Omega$
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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.

Certifications and Approvals

Complies with

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

Region	Certification
Europe	CE FLM-420-I2-W/-E
	CE FLM-420-I2-D
	CPD 0786-CPD-20288 FLM-420-I2-D
Germany	CPD 0786-CPD-20287 FLM-420-I2-W, -E
	VdS G 207076 FLM-420-I2-D; FLM-420-I2-E; FLM-420-I2-W
	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 Ω
• Overall line resistance	<ul style="list-style-type: none"> • During standby: 1500 to 6000 Ω • Interruption: > 12.000 Ω • Short circuit: < 800 Ω
Contact monitoring	
• Max. current (current peak)	8 mA
Voltage monitoring	
• Voltage range	0 to 30 V DC
• Input resistance	≥ 50 k Ω
• Selectable threshold values	<ul style="list-style-type: none"> • 0.8 V DC (± 0.3 V DC) • 3.3 V DC (± 0.3 V DC) • 10.2 V DC (± 0.5 V DC) • 21.2 V DC (± 0.5 V DC)

Mechanical

Connections	
• FLM-420-I2-E / W	14 screw terminals
• FLM-420-I2-D	7 screw terminals
Permitted wire cross-section	
• FLM-420-I2-E / W	0.6 to 2.0 mm ²
• FLM-420-I2-D	0.6 to 3.3 mm ²
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

with 2 monitored inputs, flush-mount type
Order number **FLM-420-I2-E**

FLM-420-I2-W Input Interface Module

with 2 monitored inputs, wall-mount type, with cover
Order number **FLM-420-I2-W**

FMX-IFB55-S Interface Box Surface-mount

for interface modules of wall mount type in the 420 series, surface-mount
Order number **FMX-IFB55-S**

FLM-420-I2-D Input Interface Module

with 2 monitored inputs, DIN rail type
Order number **FLM-420-I2-D**

FLM-IFB126-S Surface-mounted Housing

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)
Order number **FLM-IFB126-S**

FLM-420-O2 Output Interface Modules



The FLM-420-O2 Output Interface Modules have two outputs to control external devices. They are 2-wire LSN elements for connection to the Local SecurityNetwork LSN improved version with the enhanced functionality.

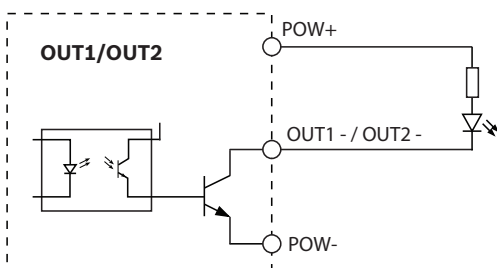
Features

- ▶ Two semi-conductor outputs, can be switched independently of each other
- ▶ Outputs are electrically isolated from LSN loop and short-circuit proof
- ▶ Max. switchable current per output 700 mA
- ▶ Maintains LSN loop functions in the event of wire interruption or short-circuit thanks to two integrated isolators

Functions

Semi-conductor outputs

The two semi-conductor outputs can be switched independently of each other. They are electrically isolated from the LSN loop and protected against short circuits.



Functionality of the semi-conductor outputs

Power supply

The loads' power supply can be selected for each output:

- Power supply of the interface module
- External power supply.

Address switches

The addresses of the interface modules are set using:

- DIP switches for FLM-420-O2-E and FLM-420-O2-W
- Rotary switches for FLM-420-O2-D.

In improved version LSN mode, the operator can select between automatic or manual addressing with or without auto-detection.

Address rotary switches	Address DIP switches	Operating mode
0 0 0	0	Loop/stub in improved version LSN mode with automatic addressing (T-taps not possible)
0 0 1 - 2 5 4	1 - 254	Loop/stub/T-taps in improved version LSN mode with manual addressing
CL 0 0	255	Loop/stub in LSN mode classic

LSN features

Integrated isolators ensure that function is maintained in the event of a short circuit or line interruption in the LSN loop. A fault indication is sent to the fire panel.

Features of LSN improved version

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements
- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

Interface module variants

The Output Interface Modules are available in various designs:

- FLM-420-O2-E type in-built:
 - Can be built in to standard device boxes in accordance with EN 60670
 - For space-saving installation in devices
- FLM-420-O2-W type wall-mount (with cover):
 - Can be built in to standard device boxes in accordance with EN 60670
 - For surface mounting in conjunction with the FMX-IFB55-S interface box.
- FLM-420-O2-D type DIN rail:
 - For installation on a DIN rail in accordance with EN 60715 with included adapter
 - Can be built in to a FLM-IFB126-S surface-mounted housing.

Certifications and Approvals

Complies with

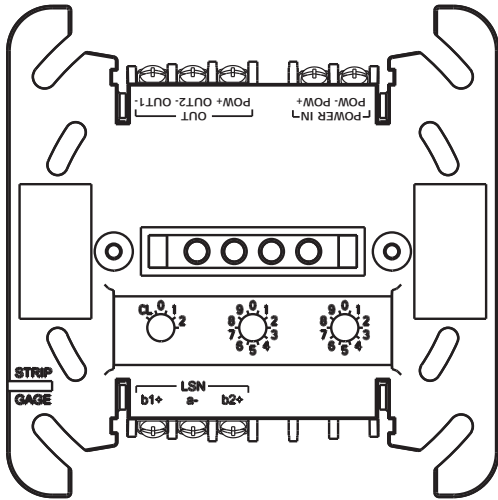
- EN54-17:2005
- EN54-18:2005

Region	Certification	
Europe	CE	FLM-420-O2/-W/-E
	CE	FLM-420-O2-D
	CPD	0786-CPD-20290 FLM-420-O2-D
	CPD	0786-CPD-20289 FLM-420-O2-W, -E

Region	Certification	
Germany	VdS	G 207075 FLM-420-02-D; FLM-420-02-E; FLM-420-02-W
	MOE	UA1.016-0070270-11 FLM-420-02-W_FLM-420-02-E_FLM-420-02-D

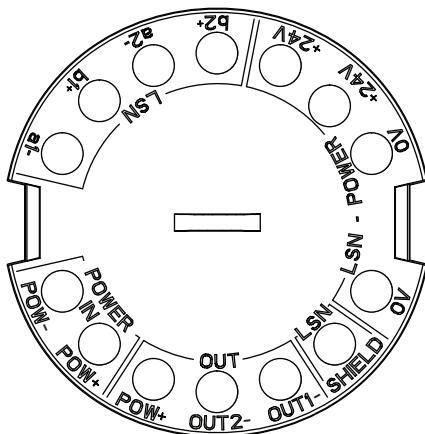
Installation/Configuration Notes

FLM-420-02-D



Description	Connection
POWER IN: POW- POW+	Power supply (LSN and outputs)
POW+	Reference potential (+)
OUT2-	Output 2 (switched negative potential)
OUT1-	Output 1 (switched negative potential)
LSN b1+ a- b2+	LSN (in/out)

FLM-420-02-E / FLM-420-02-W



Description	Connection
POWER IN POW+ POW-	Power supply (LSN and outputs)
POW+	Reference potential (+)
OUT2-	Output 2 (switched negative potential)
OUT1-	Output 1 (switched negative potential)

LSN SHIELD	Shielding cable (if available)
LSN POWER 0 V 0 V +24 V +24 V	LSN power supply (supports for looping through)
LSN a1- b1+ a2- b2+	LSN (in/out)

- Can be connected to the fire panels FPA-5000 and FPA-1200.
- Programming is done with the programming software of the fire panel.
- The LSN connection is established via the two wires on the LSN line.
- The power supply for the outputs can be provided by the power supply of the interface module or an external power supply. External power supply units must be free-of-ground.
- The loads are switched against the negative potential of the interface modules (OUT1- or OUT2-). The positive potential is provided by either the power supply of the interface module (POW+) or an external power supply unit.
- The maximum switchable voltage to the semiconductor outputs is 30 V DC. The maximum switchable current is 700 mA per output.
- A maximum cable length of 3 m is permitted per output.
- The in-built (-E) and wall-mount (-W) versions are fitted with terminals to allow a second wire pair to be looped through to the LSN power supply of subsequent elements.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-02-E	1	Output Interface Module, type in-built
FLM-420-02-W	1	Output Interface Module, type wall-mount, with cover and accessories
FLM-420-02-D	1	Output Interface Module, type DIN rail, with adapter and light pipe

Technical Specifications

Electrical

LSN	
• LSN input voltage	15 V DC to 33 V DC
• Max. current consumption from LSN	4.9 mA
Outputs	2, independent of each other
• Max. switching voltage of semiconductor outputs	30 V DC
• Max. switchable output current	700 mA per output
• Bounce period (when initializing the system)	< 2 ms
External power supply	5 to 30 V DC (min. to max.)

Mechanical

Connections	
• FLM-420-O2-E / -W	14 screw terminals
• FLM-420-O2-D	8 screw terminals
Permitted wire cross-section	
• FLM-420-O2-E / -W	0.6 to 2.0 mm ²
• FLM-420-O2-D	0.6 to 3.3 mm ²
Address setting	
• FLM-420-O2-E / -W	8 DIP switches
• FLM-420-O2-D	3 rotary switches
Housing material	
• FLM-420-O2-E / -W	ABS/PC blend
• FLM-420-O2-D with adapter	PPO (Noryl)
Color	
• FLM-420-O2-E / -W	Signal white, RAL 9003
• FLM-420-O2-D with adapter	Off-white, similar to RAL 9002
Dimensions	
• FLM-420-O2-E	Approx. 50 mm x 22 mm (Ø x H)
• FLM-420-O2-W	Approx. 76 mm x 30 mm (Ø x H)
• FLM-420-O2-D with adapter	Approx. 110 x 110 x 48 mm (W x H x D)
Weight	Without / with packaging
• FLM-420-O2-E	Approx. 35 g / 130 g
• FLM-420-O2-W	Approx. 55 g / 155 g
• FLM-420-O2-D	Approx. 150 g / 235 g

Environmental conditions

Permitted operating temperature	-20 °C to +65 °C
Permitted storage temperature	-25 °C to +80 °C
Permitted rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 30

System limits

Max. cable length per output	3 m
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Ordering Information**FLM-420-O2-E Output Interface Module**

with 2 open collector outputs, type in-built

Order number **FLM-420-O2-E****FLM-420-O2-W Output Interface Module**

with 2 open collector outputs, type wall-mount, with cover

Order number **FLM-420-O2-W****FMX-IFB55-S Interface Box Surface-mount**

for interface modules of wall mount type in the 420 series, surface-mount

Order number **FMX-IFB55-S****FLM-420-O2-D Output Interface Module**

with 2 open collector outputs, DIN rail type

Order number **FLM-420-O2-D****FLM-IFB126-S Surface-mounted Housing**

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)

Order number **FLM-IFB126-S**

FLM-420-08I2-S Octo-output Interface Module with 2 Inputs



The FLM-420-08I2-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.

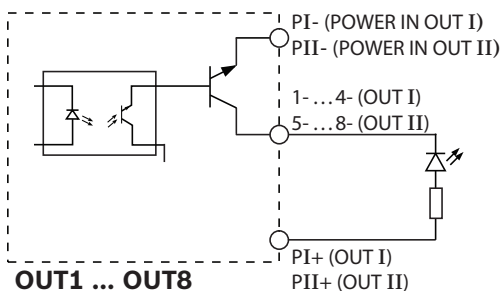
Features

- ▶ Eight individually switchable semi-conductor outputs
- ▶ Outputs 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

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-420-08I2-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

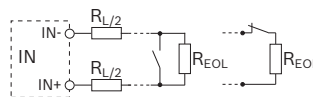
The monitoring functions of the two inputs can be selected individually by setting the corresponding addresses.

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 kΩ.

The interface module detects

- Standby
- Triggering in the event of a short circuit
- Triggering in the event of line interruption.



Position

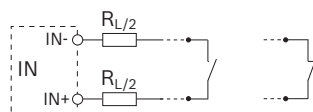
Description

- R_{Σ} Overall line resistance with $R_{\Sigma} = R_{L/2} + R_{L/2} + R_{EOL}$
- $R_{L/2}$ Line resistance

The following line conditions will be reliably detected if the overall line resistance is within the specified range:

Line condition	Overall line resistance R_{Σ}
Standby	1500 Ω to 6000 Ω
Short circuit	< 800 Ω
Interruption	> 12.000 Ω

Contact monitoring



The interface module evaluates the operating conditions "open" or "closed". The normal operating condition can be programmed for each input. Contact monitoring has a pulse intensity of 8 mA.

Address switches

The 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.

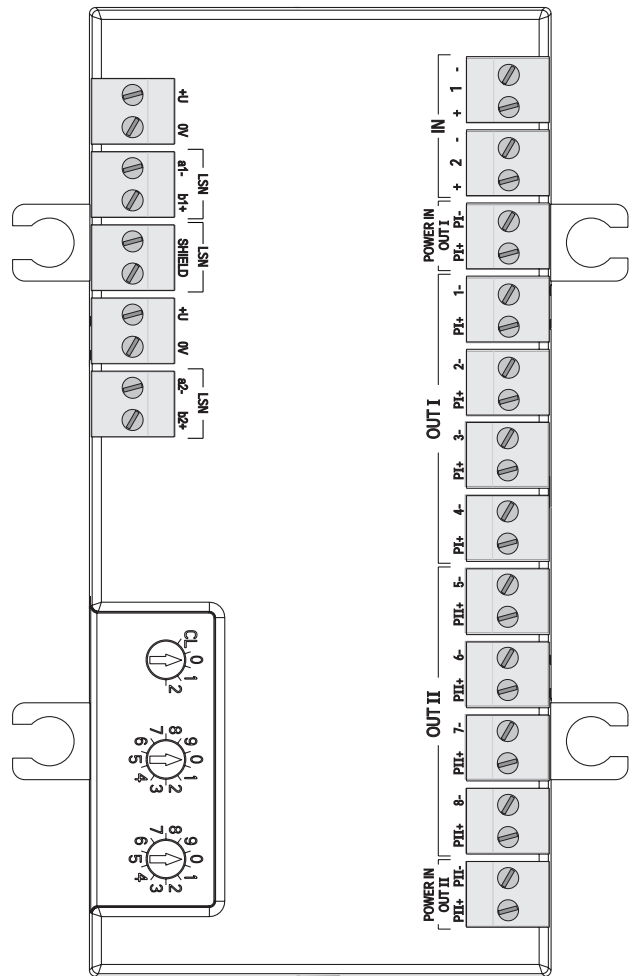
Certifications and Approvals

Complies with

- EN 54-17: 2005
- EN 54-18: 2005 + AC: 2007

Region	Certification	
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
	MOE	UA1.016-0070230-11 FLM-420-08I2-S

Installation/Configuration Notes



Description		Connection
	+U 0V	Auxiliary power supply (support points to loop through)
LSN	a1- b1+	LSN incoming
LSN	SHIELD	Cable shielding (if available)
	+U 0V	Auxiliary power supply (support points to loop through)
LSN	a2- b2+	LSN outgoing
POWER IN OUT I I	P I I + P I I -	Power supply output 5 to 8
OUT I I	P I I + 8 - ... P I I + 5 -	Reference potential (P I I +), switched negative potential output 5 to 8
OUT I	P I + 4 - ... P I + 1 -	Reference potential (P I I +), switched negative potential output 1 to 4
POWER IN OUT I	P I + P I -	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_I/1- to 4- and OUT_{II}/5- to 8- are switched against the negative potential of the interface module (POWER IN OUT_I/ P_I- and POWER IN OUT_{II}/ P_{II}-). The positive potential for OUT_I/P_I+ and OUT_{II}/P_{II}+ 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_I/P_I+ and POWER IN OUT_I/P_I+ as well as OUT_{II}/P_{II}+ and POWER IN OUT_{II}/P_{II}+ 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

Type	Qty.	Component
FLM-420-08I2-S	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	8, independent
• 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_{Σ} with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$	<ul style="list-style-type: none"> • Standby: 1500 Ω to 6000 Ω • Short circuit: < 800 Ω • Line interruption: > 12.000 Ω
Contact monitoring	
• Max. current strength (current pulse)	8 mA
Minimum activation time of the inputs IN 1...2	3.2 s

Mechanical

Connections	30 screw terminals
Permissible wire diameter	0.6 mm ² to 3.3 mm ²
Address setting	3 rotary switches
Material	ABS + PC-FR
Housing color	Signal white, RAL 9003
Dimensions	Approx. 140 x 200 x 48 mm (W x H x D)
Weight (without/with packing)	Approx. 480 g /800 g

Environmental conditions

Permissible operating temperature	-20 °C to +65 °C
Permissible storage temperature	-25 °C to +80 °C
Permissible rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 54

System limiting values

Maximum cable length of all inputs and outputs which are connected to the loop or stub and not electrically isolated from LSN	500 m in total
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Ordering Information

**FLM-420-08I2-S Octo-output Interface Module with
2 Inputs**

in housing for surface mounting

Order number **FLM-420-08I2-S**

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.

Certifications and Approvals

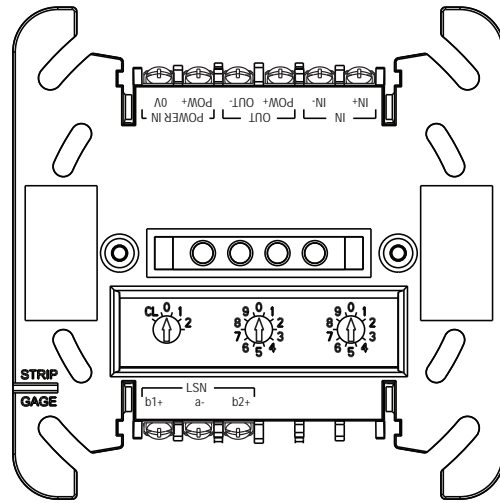
Complies with

- EN 54-17: 2005
- EN 54-18: 2005 + AC:2007

Region	Certification	
Europe	CE	FLM-420-O111-E
	CE	FLM-420-O111-D
	CPD	0786-CPD-20714 FLM-420-O111-E
Germany	CPD	0786-CPD-20715 FLM-420-O111-D
	VdS	G 209070 FLM-420-O111-E
Hungary	VdS	G 209069 FLM-420-O111-D
	TMT	TMT-36/2010 szamu FLM-420-O812-S, FLM-420-O111-E, FLM-420-O111-D, FLM-420-RLE-S
	MOE	UA1.016-0070232-11 FLM-420-O111-E
	MOE	UA1.016-0070263-11 FLM-420-O111-D

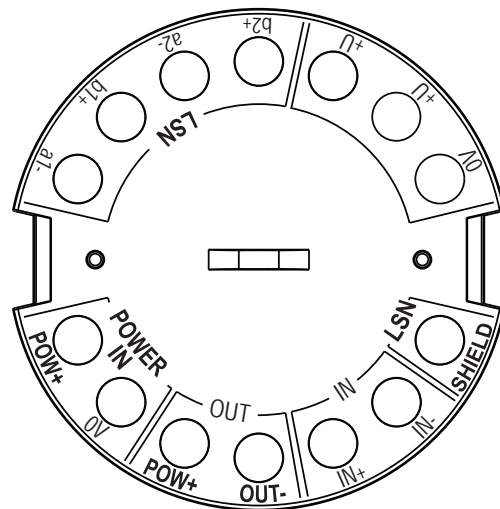
Installation/Configuration Notes

FLM-420-O111-D



Description	Connection	Connection
IN	IN- IN+	Input 1
OUT	POW+	Reference potential (+)
	OUT-	Output (switched negative potential)
POWER IN	POW+ 0V	Power supply output
LSN	b1+ a- b2+	LSN (incoming / outgoing)

FLM-420-O111-E



Description	Connection	Connection
POWER IN	POW+ 0V-	Power supply (interface module and output)
OUT	POW+	Reference potential (+)
	OUT-	Output (switched negative potential)
IN	- +	Input
LSN	SHIELD	Cable shielding (if available)

	0V +U +U	Auxiliary power supply (support points to loop through)
LSN	b2+ a2- b1+ a1-	LSN (incoming / outgoing)

- Can be connected to the fire panels FPA-5000 and FPA-1200.
- Programming is done with the programming software of the fire panel.
- The LSN connection is established by the two wires of the LSN line.
- The power supply for the output is either fed by the auxiliary power supply from the fire panel or by an external power supply unit. External power supplies must be free-of-ground.
- The outputs OUT/OUT- are switched against the negative potential of the interface module (POWER IN/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.
- A maximum cable length of 3 m is permitted per input and output.
- The maximum cable length of all inputs connected to the loop or stub is 500 m in total. Additionally, all outputs which are not electrically isolated from LSN must be included in the total line length calculation (e.g. peripherals connected via C points). With UEZ 2000 LSN and UGM 2020, the limitation to 500 m applies to each Network Processing Converter (NVU).
- The interface module has terminals blocks to allow a second pair of wires to be looped through to supply the downstream connected elements with LSN power.
- For a fire system operation according to EN 54-2, the interface modules used for the activation of fire protection equipment and whose outputs are not monitored, must be installed directly next to or within the device which shall be activated.

Parts Included

Type	Qty.	Component
FLM-420-0111-E	1	Output-input Interface Module, in-built version
FLM-420-0111-D	1	Output-input Interface Module, DIN-rail version, with adapter and light pipe

Technical Specifications

Electrical

LSN	
• LSN input voltage	15 V DC to 33 V DC
• Max. current consumption from LSN	1.9 mA

Output	
• Max. switchable voltage of semiconductor output	30 V DC
• Max. switchable output current	700 mA (depending on external power supply)
• External power supply	5 V DC to 30 V DC
Input	
Line monitoring with EOL	
• EOL resistor	Nominal 3.9 kΩ
• Overall line resistance R_{Σ} with $R_{\Sigma} = R_{L/1} + R_{L/2} + R_{EOL}$	<ul style="list-style-type: none"> • Standby: 1500 Ω to 6000 Ω • Short circuit: < 800 Ω • Line interruption: > 12.000 Ω
Contact monitoring	
• Max. current strength (current pulse)	8 mA
Minimum activation time of the input	3.2 s

Mechanical

Connections	
• FLM-420-0111-E	14 screw terminals
• FLM-420-0111-D	12 screw terminals
Permissible wire diameter	
• FLM-420-0111-E	0.6 mm ² to 2.0 mm ²
• FLM-420-0111-D	0.6 mm ² to 3.3 mm ²
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-420-02-D	Approx. 95 g / 390 g

Environmental conditions

Permissible operating temperature	-20 °C to +65 °C
Permissible storage temperature	-25 °C to +80 °C
Permissible rel. humidity	< 96% (non-condensing)
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 30

System limiting values

Maximum cable length input	3 m
Maximum cable length output	3 m

Ordering Information**FLM-420-O111-E Output-input Interface Module**

with 1 open collector output and 1 monitored input, in-built version

Order number **FLM-420-O111-E**

FLM-420-O111-D Output-input Interface Module

with 1 open collector output and 1 monitored input, DIN-rail version

Order number **FLM-420-O111-D**

FLM-420-RLE-S Extinguishing Interface Module

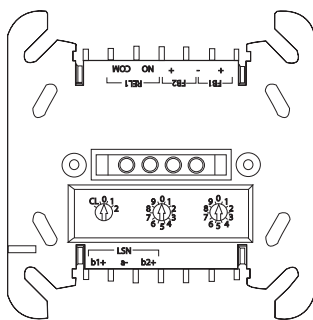


The FLM-420-RLE-S is used for the supervised monitoring and activation of extinguishing systems connected to the Local SecurityNetwork.

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

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.

Certifications and Approvals

Complies with EN 54-17:2005, EN 54-18:2005 and VdS 2496

Region	Certification	
Europe	CE	FLM-420-RLE-S
	CPD	0786-CPD-20725 FLM-420-RLE-S
Germany	VdS	G 209085 FLM-420-RLE-S
Hungary	TMT	TMT-36/2010 szamu FLM-420-08I2-S, FLM-420-0111-E, FLM-420-0111-D, FLM-420-RLE-S
	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

Quant.	Component
1	FLM-420-RLE-S Extinguishing Interface Module
1	Surface-mount housing
1	DIN rail adapter
2	3.9 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"> after initialization / during standby 	3.3 kOhm
<ul style="list-style-type: none"> during alarm 	680 Ohm
Max. monitoring voltage	6 V
Max. monitoring current	1.5 mA (line short-circuit)

Mechanics

Operating/display elements	2 LEDs (1 yellow, 1 red)
Address setting	3 rotary switches for <ul style="list-style-type: none"> LSN classic mode or LSN improved version Automatic or manual addressing
Connection	8 screw terminals
Material	
<ul style="list-style-type: none"> Interface module 	PPO (Noryl)
<ul style="list-style-type: none"> Surface-mount housing 	ABS/PC blend
Color	
<ul style="list-style-type: none"> Interface module 	Gray white, similar to RAL 9002
<ul style="list-style-type: none"> Housing 	Signal white, RAL 9003
Dimensions	
<ul style="list-style-type: none"> with housing 	Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)
<ul style="list-style-type: none"> without housing (with DIN rail adapter) 	Approx. 110 x 110 x 48 mm (4.33 x 4.33 x 1.89 in.)
Weight	
<ul style="list-style-type: none"> with housing 	Approx. 390 g (13.8 ounces)
<ul style="list-style-type: none"> without housing 	Approx. 150 g (5.3 ounces)

Environmental conditions

Permitted operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Permitted storage temperature	-25 °C to 85 °C (-13 °F to 176 °F)
Permitted relative humidity	< 96%
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 54

Ordering Information

FLM-420-RLE-S Extinguishing Interface Module

The FLM-420-RLE-S is used for the supervised monitoring and activation of extinguishing systems. Order number **FLM-420-RLE-S**

FMX-IFB55-S Interface Box Surface-mount



The FMX-IFB55-S Interface Box Surface-mount acts as a retainer for interface modules of wall mount type in the 420 series.

Parts Included

Type	Qty.	Component
FMX-IFB55-S	1	Interface Box Surface-mount



Notice

A compatible cover is included in the scope of delivery for interface modules of wall mount type in the 420 series (FLM-420-...-W).

Technical Specifications

Mechanics

Material	ABS
Color	Signal white, RAL 9003
Weight	Approx. 30 g
Dimensions (Ø x H)	76 x 33 mm

Ordering Information

FMX-IFB55-S Interface Box Surface-mount
for interface modules of wall mount type in the
420 series, surface-mount
Order number **FMX-IFB55-S**

FLM-IFB126-S Surface-mounted Housing



The FLM-IFB126-S Surface-mounted Housing acts as a retainer for interface modules type DIN rail or as a spare housing for the type surface-mount in the 420 series.

Installation/Configuration Notes

- The Surface-mounted Housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched cable ducts for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable ducts for diameter up to 21 mm (for conduit)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.

Technical Specifications

Material	ABS/PC Blend
Color	Signal white (RAL 9003)
Dimensions	Approx. 126 x 126 x 70 mm
Weight	Approx. 235 g

Ordering Information

FLM-IFB126-S Surface-mounted Housing

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

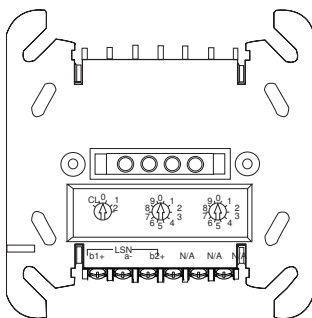


The Short Circuit Isolator isolates alarm zones in which a short circuit has occurred. This means the functionality of the remainder of the network remains preserved.

Features

- ▶ Rotary switch for automatic and manual address setting
- ▶ Preservation of LSN loop functions in the event of a short-circuit by two integrated isolators
- ▶ Power supply via LSN
- ▶ Three free screw terminals

System Overview



Description	Connector
b1+ / a- / b2+	LSN
N/A (3 x)	free terminals, e.g. for looping through ext. auxiliary voltage and for shielding

Functions

Features of improved LSN

The interface modules in the 420 series offer all the features of improved LSN technology:

- Flexible network structures including T-tapping without additional elements

- Up to 254 LSN-improved elements per loop or stub line
- Unshielded cable can be used

Address switch (rotary switch)

The address of the Short Circuit Isolator is set using the rotary switches.

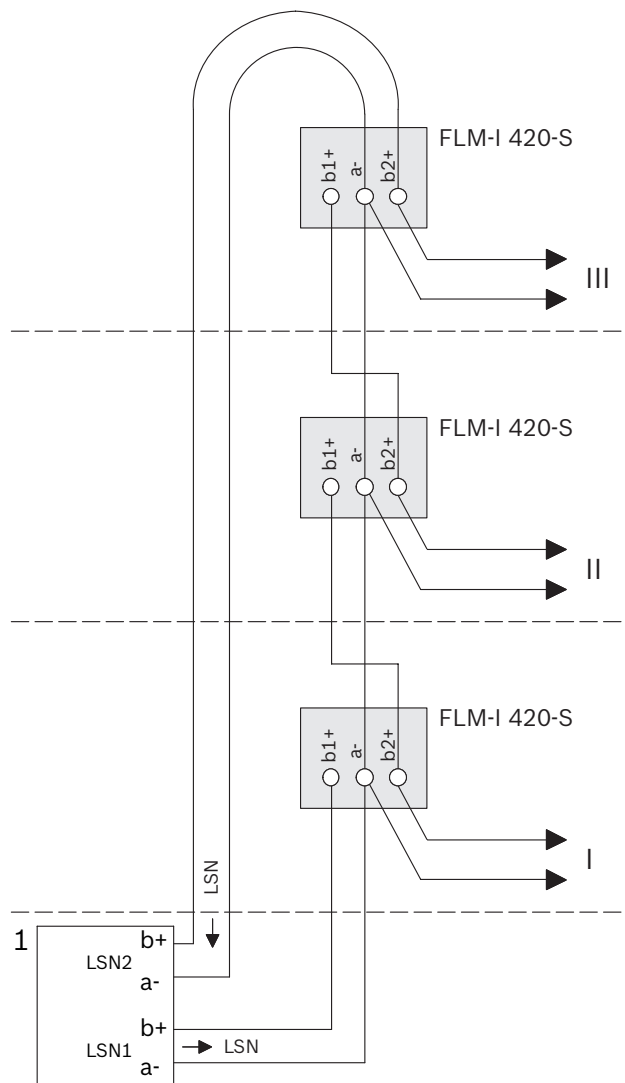
The following settings are possible:

0 0 0	Loop/stub in LSN mode improved version with automatic addressing (T-tap system not possible)
0 0 1 - 254	Loop/stub/T-tap system in LSN mode improved version with manual addressing
CL 0 0	Loop/stub in classic LSN mode

Configuration

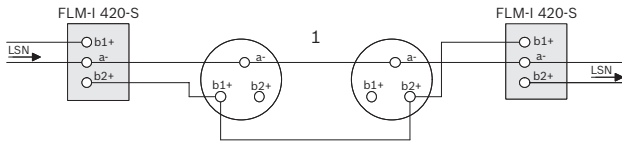
The Short Circuit Isolator isolates alarm zones in which a short circuit has occurred. The following illustrations show typical configurations of the isolator module.

Wiring example: Isolation of separate floors



Pos.	Description
1	Fire panel
I, II, III	Floors

Typical wiring in a T-Tap



Pos.	Description
1	Alarm zone / device group with LSN elements

Certifications and Approvals

Complies with EN54-17:2005

Region	Certification
Europe	CPD 0786-CPD-20374 FLM-I 420-S
Germany	VdS G 207045 FLM-I 420-S; FLM-I 420-D

Installation/Configuration Notes

- National standards and guidelines must be taken into account during the planning stage.
- The surface-mounted housing has two cable ducts on opposite sides:
 - 2 x 2 pre-punched for diameter up to 21 mm/to 34 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- In addition, there are cable ducts on the base of the surface-mounted housing:
 - 1 x pre-punched cable ducts for diameter up to 21 mm (for conduits)
 - 2 x 4 rubber bushes for inserting cables with diameters of up to 8 mm.
- Connectable to the fire panels FPA-5000 Modular and FPA-1200 with LSN technology improved version.

Parts Included

Qty.	Components
1	Short Circuit Isolator with surface-mounted housing.
1	DIN rail adapter



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	
• During initialization	< 0.4 mA
• Following the initialization	< 0.25 mA

Mechanics

LSN/Address setting	3 rotary switches for <ul style="list-style-type: none"> Mode LSN classic or LSN improved version Automatic or manual addressing
Connections	6 threaded clamps
Housing material	<ul style="list-style-type: none"> Isolator module: PPO (Noryl) Surface-mount housing: ABS/PC-Blend
Housing color	<ul style="list-style-type: none"> Isolator module: Off-white, similar to RAL 9002 Surface-mount housing: Signal white, RAL 9003
Dimensions	Approx. 126 x 126 x 71 mm (4.96 x 4.96 x 2.8 in.)
Weight	Approx. 150 g (5.3 ounces)

Environmental conditions

Permitted operating temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Permitted storage temperature	-25 °C to 85 °C (-13 °F to 176 °F)
Permitted relative humidity	< 96%
Classes of equipment as per IEC 60950	Class III equipment
Protection class as per IEC 60529	IP 54

Ordering Information

FLM-I 420-S Short Circuit Isolator

for the isolation of alarm zones in which a short circuit has occurred.

Order number **FLM-I 420-S**

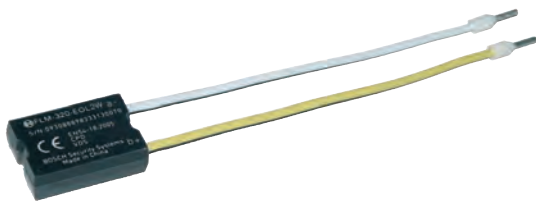
Accessories

FLM-IFB126-S Surface-mounted Housing

as retainer for the interface modules series 420 type DIN rail (-D) or spare housing for type surface-mount (-S)

Order number **FLM-IFB126-S**

FLM-320-EOL2W Conventional EOL Module 2-Wire



The EOL module terminates conventional lines according to EN 54-13.

It detects faults of the conventional line according to EN 54-13 and reports them to the fire panel. The reports are displayed on the panel controller.

Certifications and Approvals

Region	Certification	
Europe	CE	FLM-320-EOL2W
	CPD	0786-CPD-20926 FLM-320-EOL2W
Germany	VdS	G 210007 FLM-320-EOL2W

Installation/Configuration Notes

- FLM-420/4-CON from Software-Version 2.0
- According to DIN VDE 0833-2 there are the following restrictions:
- Max. 32 automatic fire detectors in a conventional line.
 - Max. 10 manual call points in a conventional line.

Parts Included

Qty.	Components
1	FLM-320-EOL2W Conventional EOL Module

Technical Specifications

Electrical

Operating voltage	9 VDC to 30 VDC
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 Conventional EOL Module 2-Wire
for EN 54-13 compliant termination of conventional lines
Order number **FLM-320-EOL2W**

FLM-320-EOL4W-S Conventional EOL Module 4- Wire



The EOL module terminates conventional lines according to EN 54-13.

It detects faults of the conventional line and aux power faults according to EN 54-13 and reports them to the fire panel. The reports are displayed on the panel controller.

For wirings complying with standards a maximum of 32 automatic fire detectors or 10 manual call points can be used.

Certifications and Approvals

Region	Certification	
Europe	CE	FLM-320-EOL4W-S
	CPD	0786-CPD-21028 FLM-320-EOL4W-S
Germany	VdS	G 211008 FLM-320-EOL4W-S

Installation/Configuration Notes

- For use with CZM 0004 A modules (Software-Version 1.1.10) only.
- For aux power supply according to EN 54-13 use BCM 0000 B, LSN 0300 A or LSN 1500 A.
- The resistance of the conventional line should not exceed $2 \times 25 \Omega$.
- FLM-420/4-CON from Software-Version 2.0

According to DIN VDE 0833-2 there are the following restrictions:

- Max. 32 automatic fire detectors in a LSN stub or T-tap.
- Max. 10 manual call points in a LSN stub or T-tap.

Parts Included

Qty.	Components
1	FLM-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 Conventional EOL Module 4-Wire
for EN 54-13 compliant termination of conventional lines
Order number **FLM-320-EOL4W-S**

FLM-420-EOL2W-W EOL Module LSN



The EOL module terminates LSN stubs or T-taps according to EN 54-13. It detects LSN line faults according to EN 54-13 and reports them to the fire panel via LSN. The reports are displayed on the panel controller.

Certifications and Approvals

Region	Certification	
Europe	CE	FLM-420-EOL2W-W
	CPD	0786-CPD-20927 FLM-420-EOL2W-W
Germany	VdS	G 210008 FLM-420-EOL2W-W

Installation/Configuration Notes

According to DIN VDE 0833-2 there are the following restrictions:

- Max. 32 automatic fire detectors in a LSN stub or T-tap.
- Max. 10 manual call points in a LSN stub or T-tap.

Parts Included

Qty.	Components
1	FLM-420-EOL2W-W EOL Module LSN

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 EOL Module LSN

for EN 54-13 compliant termination of LSN stubs or T-taps

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

FLM-420-EOL4W EOL Module LSN



The EOL module terminates LSN stubs or loops according to EN 54-13. It detects LSN line faults and aux power faults according to EN 54-13 and reports them to the fire panel via LSN. The reports are displayed on the panel controller. LSN loops improved version allows up to 254 LSN elements, LSN loops in classic mode allows up to 127 elements.

Certifications and Approvals

Region	Certification	
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

Installation/Configuration Notes

According to the LSN specifications

- A maximum of 127 elements can be connected to a LSN ring in classic mode
- A maximum of 254 elements can be connected to a LSN ring improved version.

Parts Included

Qty.	Components
1	FLM-420-EOL4W

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 EOL Module LSN

Order number **FLM-420-EOL4W-S**

FLM-420-EOL4W-D EOL Module LSN

Order number **FLM-420-EOL4W-D**

Notification Appliances

11

Audible Notification Appliances	402
Visual Notification Appliances	421

MSS Detector Base Sounders

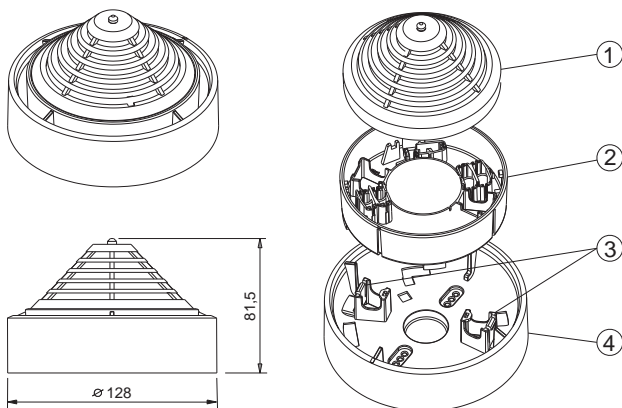


Detector Base Sounders are used when the acoustic signaling of an alarm is required directly at the site of the fire.

Features

- ▶ Volume up to 100 dB(A)
- ▶ Electronic tone generator integrated into the signaling device
- ▶ 11 different tone variants can be selected (incl. DIN tone)
- ▶ Great reliability and long service life
- ▶ For surface-mounted and flush-mounted cable feed

System Overview



Pos.	Description
1	Detector module
2	Sounder unit
3	Snap-fit hooks
4	Mounting base

Functions

The electronic tone generator integrated into the signaling device can produce 11 different tones (including DIN tones conforming to DIN 33404 and EN 457).

The tone variants include different wailing tones, various signals for fire alarms, and other special modulations. Depending on the tone type, volume set, and operating voltage, the sound pressure level varies between 87 dB(A) and 100 dB(A).

The programming of the tone type and volume setting is performed:

- for the MSS 300 / MSS 300-WH-EC via integrated DIP switch and potentiometer (continuously)
- for the MSS 400 LSN / MSS 401 LSN via the LSN.

Certifications and Approvals

MSS 400 LSN/MSS 401 LSN comply with:

- EN54-3:2001/A1:2002
- EN54-17:2005

MSS 300/MSS 300-WH-EC comply with:

- EN54-3:2001/A1:2002

Region	Certification
Europe	CE MSS 300 ws
	CE MSS 300 ws - EC
	CE MSS 401 LSN
Hungary	BMF 618/73/2002 OTC 410 LSN, OC 410 LSN, OC 310 GLT, MSS 300/400
Europe	CPD 0786-CPD-20185 MSS 300
	CPD 0786-CPD-20186 MSS 400_MSS 401
Germany	VdS G 204067 MSS 300/-EC/SA_G204067
	VdS G 204068 MSS 400/401/SA_G204068

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).

MSS 400 LSN Detector Base Sounder White

- The Detector Base Sounder as well as the deployed detector are each independent LSN elements.
- The current consumption from the LSN is max. 20 mA.

MSS 401 LSN Detector Base Sounder White

- The Detector Base Sounder as well as the deployed detector are each independent LSN elements.
- The current consumption from the LSN is only max. 1.025 mA, as the sounder has a separate power supply.

Tone type table

No.	Signal type (sound type)	Frequency / modulation	Acoustic sound level at 24 V
1*	Increasing/ decreasing tone (DIN tone)	1200/500 Hz at 1 Hz	96 dB(A)
2	Increasing/ decreasing tone British alarm tone (BS 5839)	800-970 Hz at 1 Hz	100 dB(A)
3	Increasing / decreasing tone Australian alarm tone (AS 2220)	2400-2850 Hz at 7 Hz	95 dB(A)
4	Variable tone Dutch alarm tone	500-1200 Hz 3.5 s on/ 0.5 s off	97 dB(A)
5	Continuous tone, British alarm tone (BS 5839)	970 Hz	97 dB(A)
6	Variable tone, French alarm tone	554 Hz/100 ms 440 Hz/400 ms	97 dB(A)
7	Continuous tone, Swedish alarm tone	660 Hz	97 dB(A)
8	Variable tone	580/1000 Hz each 500 ms on / off	91 dB(A)
9	Pulse tone	580 Hz each 250 ms on / off	87 dB(A)
10	USA temporal 3 tone ISO 8201	610 Hz	99 dB(A)
11	USA temporal 3 tone ISO 8201	2850 Hz	94 dB(A)

* Delivery state: tone complying with DIN 33404 or EN 457

Technical Specifications**Electrical**

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

MSS 400 LSN / MSS 401 LSN

Operating voltage	15 V DC to 33V DC
Current consumption from external source	
• MSS 401 LSN	Standby: 2 mA

Alarm: max. 20 mA

Current consumption from LSN

- | | |
|---------------|------------------------------------|
| • MSS 400 LSN | Standby: 2 mA
Alarm: max. 20 mA |
| • MSS 401 LSN | Max. 1.025 mA |

Mechanics

Connections (inputs/outputs)	0.28 mm ² to 2.5 mm ²
Dimensions (W x H)	128 x 40.5 mm
Weight	
• Without packaging	Approx. 220 g
• With packaging	Approx. 260 g
Housing	
• Material	Plastic, ABS (Novodur)
• Color	White, similar to RAL 9010

Environmental conditions

Protection category as per EN 60529 (with detector)	IP 30
Permissible operating temperature	-10 °C to +55 °C
Permissible storage temperature	-25 °C to +85 °C

Special features

Sound pressure level at a distance of 1 m	Max. 100 dB (A)
Frequency range	440 Hz up to 2.85 kHz

Ordering Information**MSS 300 Detector Base Sounder White**

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

MSS 300-WH-EC Detector Base Sounder White

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

DS 10 Sounders



The DS 10 sounders are acoustic signaling devices for connection to fire panels, available for operating voltage 230 V AC or 24 V DC.

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

Functions

The DS 10 sounders have an integrated tone generator with a selection of 6 sound variants, including DIN tones conforming to EN 457 (DIN 33404). Depending on the tone type, volume set, and operating voltage, the sound pressure level varies between 105 dB(A) and 110 dB(A). The programming/coding is undertaken via DIP switches in the signaling device. The DS 10 sounders can be used as a monitored and non-monitored signaling devices.

Certifications and Approvals

VdS ID number: **G 28 609**
 CE DS 10
 EN54-3: 2006

Region	Certification	
Europe	CE	DS 10
	CPD	0786-CPD-20005 DS10
Germany	VdS	G 28609 DS 10

Installation/Configuration Notes

- For surface-mounted cable feed
- Can be connected to the following fire panels:
 - BZ 1012
 - BZ 1060

- BZ 500 LSN
- UEZ 1000 LSN
- UEZ 2000 LSN
- UGM 2020.
- The DS 10 sounders can be directly connected to monitored control lines.

Tone type table

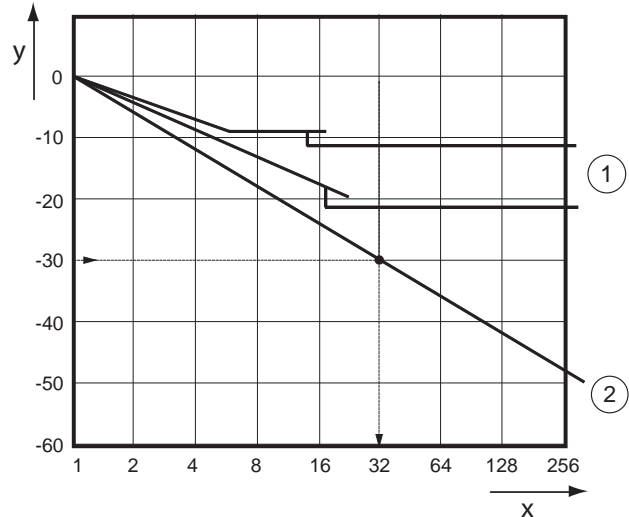
N	Signal shape	Frequency
0		
1	DIN tone (increasing/decreasing tone)	1200-500 Hz
2	Variable tone	825/1075 Hz
3	Pulse tone 1	825 Hz
4	Pulse tone 2	500 Hz
5	Continuous tone 1	825 Hz
6	Continuous tone 2	500 Hz

Calculation example: Number of signaling devices used:

Maximum DS 10 sound pressure level: **110 dB**
 less 10 dB for unique audibility: **-10 dB**
 less environmental sound level: **-70 dB**

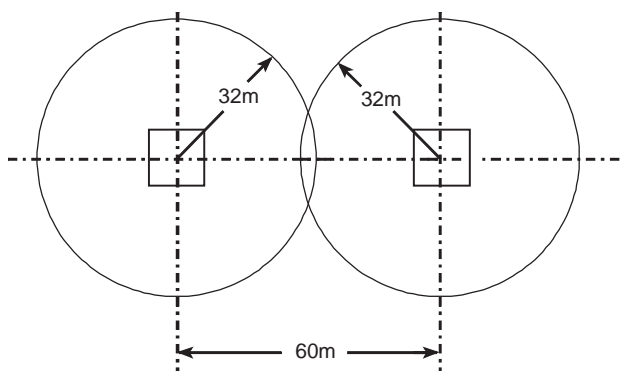
 Attenuation through distance from siren: **30 dB**

Diagram: Sound Pressure Level Drop



Pos.	Description
x	Distance from loudspeaker (m)
y	Sound pressure level decrease (dB)
1	Sound pressure decrease on reflection (depends on room volume and reverberation time)
2	Drop of sound pressure without reflection

The diagram shows a maximum distance of 32 m for this damping. It is therefore recommended that an audible notification appliance be installed approximately every 60 m.



Parts Included

Qty.	Components
1	Sounder red, 24 V DC or 230 V AC, surface-mounted cable feed

Technical Specifications

Operating voltage	
• DS 10 rot, 230 V	230 V AC
• DS 10 rot, 24 V	24 V DC (12 V DC ... 30 V DC)
Current consumption	
• 230 V type	Max. 60 mA
• 24 V type	Max. 420 mA
Sound pressure level at a distance of 1 m	Max. 110 dB (A)
Frequency range	500 Hz up to 1.2 kHz
Permissible operating temperature	-25 °C . . +55 °C
Permissible relative humidity	95%
Protection class as per EN 60529	IP 66/67
Dimensions (W x H x D)	133 x 119 x 133 mm
Housing material	Cast aluminum
Housing color	Red, similar to RAL 2002
Weight	
• 230 V type	2,200 g
• 24 V type	1,800 g

Ordering Information

DS 10 Red, 230 V

for connection to fire panels, available for operating voltage 230 V, usable in adverse environmental conditions

Order number **DS10-230V**

DS 10 Red, 24 V

for connection to fire panels, available for operating voltage 24 V DC, usable in adverse environmental conditions

Order number **DS10-24V**

HPW 11 AC Alarm Horn



The AC run Alarm Horn is a universal acoustic signaling device for dry and damp areas.

Features

- ▶ Robust housing made of impact-resistant plastic
- ▶ Suitable for indoor and outdoor use
- ▶ Very loud alarm tone: 110 dB(A)

Certifications and Approvals

Region	Certification	
Europe	CE	HPW 11

Parts Included

Qty.	Components
1	HPW 11 AC Alarm Horn, 230 V

Technical Specifications

Electric

Operating voltage	230 V AC
Current consumption	100 mA

Mechanics

Line feed	PG11 screw point for cable diameter 8-12 mm
Housing material	Plastic, ABS
Housing color	Light gray
Weight	
• With megaphone	1,200 g approx
• Without megaphone	900 g approx.

Environmental conditions

Protection class as per EN 60529	IP 55
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Special features

Sound pressure level at a distance of 1 m	Approx. 110 dB (A)
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Ordering Information

HPW 11 AC Alarm Horn

universal acoustic signaling device for dry and damp areas

Order number **HPW/11**

FNM-420-A Sounder Indoor



The indoor sounders are used independently for signaling an alarm directly at the fire location.

Features

- ▶ Volume up to 101.3 dB(A)
- ▶ Maximum current consumption less than 3,9 mA
- ▶ Up to 100 sounders per loop
- ▶ Constant sound pressure level between 22 V and 33 V operating voltage
- ▶ Synchronization without delay

Functions

The sounder allows to select 32 types of alarm and evacuation tones (incl. DIN tone 33404 Part 3) for different requirements.

You can adjust the sound pressure by five levels according to the operational environment. Depending on the tone type and volume set, the sound pressure varies between 65 dB and 101.3 dB. Sounders of the same LSN loop and with the same tone type provide synchronization without delay. The sounders can be programmed easily via the fire panel.

Certifications and Approvals

Complies with

- EN 54-3:2001
- EN 54-17:2005

Region	Certification	
Europe	CE	FNM-420-A-WH, FNM-420-A-RD
	CPD	0832-CPD-1006 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
	MOE	UA1.016.0113309-11 FNM-420-A-WH_FNM-420-A-RD

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.
- The signaling devices are intended for indoor use.
- The current consumption depends on the tone type selected and is maximum 3,9 mA.
- The maximum quantity of sounders on a loop depends on the cable diameter and overall loop current.
Please refer to the Fire System Designer for a safe loop configuration.

Tone type table

Nr	Signal type (Tone type)	Frequency / modulation	Sound pressure level dB(A)	EN 54-3**
1*	Sweeping tone = DIN tone	1200-500 Hz at 1 Hz, off 10 ms	99.0 dB(A)	93.9 dB(A)
2	Sweeping tone	2400-2900 Hz at 50 Hz	98.7 dB(A)	
3	Sweeping tone	2400-2900 Hz at 7 Hz	99.6 dB(A)	
4	Sweeping tone	800/1000 Hz at 7 Hz	99.0 dB(A)	
5	Intermittent tone	1000 Hz at 1 Hz	101.2 dB(A)	
6	Intermittent tone	1000 Hz / 0.25 s on, 1 s off	100.5 dB(A)	
7	Alternating tone	800/1000 Hz at 1 Hz	101.3 dB(A)	
8	Continuous tone	970 Hz	99.1 dB(A)	94.7 dB(A)
9	Alternating tone	800/1000 Hz at 2 Hz	101.0 dB(A)	
10	Intermittent tone	970 Hz / 0,5 s on/off, 3 tones per 4 cycles	99.0 dB(A)	94.0 dB(A)
11	Intermittent tone	2900 Hz / 0,5 s on/off	100.1 dB(A)	
12	Intermittent tone	1000 Hz / 0,5 s on/off	101.2 dB(A)	
13	Sweeping tone	800/1000 Hz at 1 Hz	100.3 dB(A)	
14	Alternating tone	510 Hz / 610 Hz / 0,5 s on/off	97.8 dB(A)	
15	BMW tone	800 Hz / 60 s on, 10 s off, 3 cycles	95.0 dB(A)	
16	Intermittent tone	2900 Hz at 1 Hz	99.2 dB(A)	
17	Alternating tone	2400/2900 Hz at 2 Hz	99.4 dB(A)	

1 8	Sweeping tone	2400-2900 Hz at 1 Hz	101.2 dB(A)	
1 9	Sweeping tone	1400-2000 Hz at 10 Hz	97.3 dB(A)	
2 0	Sweeping tone	500-1200 Hz / 0.5 s	98.5 dB(A)	
2 1	Continuous tone	2900 Hz	98.1 dB(A)	
2 2	Sweeping tone	800/1000 Hz at 50 Hz	99.8 dB(A)	
2 3	Alternating tone	554 Hz/100 ms + 440 Hz/400 ms	95.7 dB(A)	
2 4	Slow Whoop	500-1200 Hz in 3,5 s, off 0,5 s	100.1 dB(A)	96.0 dB(A)
2 5	Intermittent tone	2900 Hz / 150 ms on, 100 ms off	99.6 dB(A)	
2 6	Continuous tone	660 Hz	97.6 dB(A)	
2 7	Intermittent tone	660 Hz; 1,8 s on/off	97.6 dB(A)	
2 8	Intermittent tone	660 Hz / 150 ms on/off	96.4 dB(A)	
2 9	USA temporal 3 tone ISO 8201	610 Hz	97.7 dB(A)	
3 0	US Temporal Pattern LF	950 Hz / 0,5 s on/off x 3 then 1,5 s off	95.8 dB(A)	
3 1	3. Hi/Lo	1000/800 Hz (0,25 s on/alternate)	100.7 dB(A)	
3 2	Thyssen Krupp tone	450/650 Hz at 2 Hz	96.5 dB(A)	

* Delivery state: Tone in accordance with DIN 33404

** Results taken from EN 54-3 test results: Min SPL @ 15V @ max. volume @ loudest node dB(A). All other SPL measurements are taken 'on axis' and are not third party verified.

Sound pressure level tolerance is ± 3 dB(A).

Parts Included

Qty.	Components
1	Sounder Indoor
1	Key to open the housing

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	

• Quiescent state	< 1 mA
• Alarm	< 3,9 mA

Mechanics

Connections (inputs/outputs)	0,28 mm ² to 2,5 mm ²
Dimensions (H x W x D)	105 x 105 x 95 mm
Housing	
• Material	Plastic, ABS
• Color	red, similar to RAL 3001 white, similar to RAL 9010
Weight	
• Without packaging	250 g
• With packageing	300 g

Environmental conditions

Permissible operating temperature	-25 °C to +70 °C
Permissible storage temperature	-25 °C to +85 °C
Protection class as per EN 60529	IP 42 *

* 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

for signaling an alarm directly at the fire location, for LSN improved technology
Order number **FNM-420-A-WH**

FNM-420-A-RD Sounder Indoor, red

for signaling an alarm directly at the fire location, for LSN improved technology
Order number **FNM-420-A-RD**

FNM-420-A-BS Base Sounder, Indoor



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.

Features

- ▶ Volume up to 92.1 dB(A)
- ▶ Maximum current consumption less than 3.7 mA
- ▶ Up to 100 sounders per loop
- ▶ Constant sound pressure level between 22 V and 33 V operating voltage
- ▶ Synchronization without delay

Functions

The sounder allows to select 32 types of alarm and evacuation tones (incl. DIN tone 33404 Part 3) for different requirements.

You can adjust the sound pressure by five levels according to the operational environment. Depending on the tone type and volume set, the sound pressure varies between 65 dB and 92.1 dB. Sounders of the same LSN loop and with the same tone type provide synchronization without delay. The sounders can be programmed easily via the fire panel.

Certifications and Approvals

Complies with

- EN 54-3:2001
- EN 54-17:2005

Region	Certification	
Europe	CE	FNM-420-A-BS-WH, FNM-420-A-BS-RD
	CPD	0832-CPD-1008 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
	MOE	UA1.016.0113307-11 FNM-420-A-BS-WH_FNM-420-A-BS-RD

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.

- The signaling devices are intended for indoor use.
- The current consumption depends on the tone type selected and is maximum 3,7 mA.
- The maximum quantity of sounders on a loop depends on the cable diameter and overall loop current.
Please refer to the Fire System Designer for a safe loop configuration.
- The Base Sounder can be combined with a FNS-420-R LSN Strobe or an automatic fire detector Series 420 LSN improved version.
- For the installation with surface cabling an additional FNM-SPACER Spacer for Surface Cabling is necessary.
- A FNM-COVER-WH Cover is necessary, if the FNM-420-A-BS-WH Base Sounder Indoor is used without an automatic detector or FNS-420.

Tone type table

Nr	Signal type (Tone type)	Frequency / modulation	Sound pressure level dB(A)	EN 54-3**
1*	Sweeping tone = DIN tone	1200-500 Hz at 1 Hz, off 10ms	90.0 dB(A)	84.6 dB(A)
2	Sweeping tone	2400-2900 Hz at 50 Hz	90.9 dB(A)	
3	Sweeping tone	2400-2900 Hz at 7 Hz	91.9 dB(A)	
4	Sweeping tone	800/1000 Hz at 7 Hz	89.7 dB(A)	
5	Intermittent tone	1000 Hz at 1 Hz	84.6 dB(A)	
6	Intermittent tone	1000 Hz / 0.25 s on, 1 s off	84.1 dB(A)	
7	Alternating tone	800/1000 Hz at 1 Hz	87.5 dB(A)	
8	Continuous tone	970 Hz	87.7 dB(A)	86.0 dB(A)
9	Alternating tone	800/1000 Hz at 2 Hz	87.2 dB(A)	
10	Intermittent tone	970 Hz / 0,5 s on/off, 3 tones per 4 cycles	87.6 dB(A)	85.6 dB(A)
11	Intermittent tone	2900 Hz / 0,5 s on/off	88.9 dB(A)	
12	Intermittent tone	1000 Hz / 0,5 s on/off	84.6 dB(A)	
13	Sweeping tone	800/1000 Hz at 1 Hz	91.1 dB(A)	
14	Alternating tone	510 Hz / 610 Hz / 0,5 s on/off	85.4 dB(A)	
15	BMW tone	800 Hz / 60 s on, 10 s off, 3 cycles	88.0 dB(A)	

1 6	Intermittent tone	2900 Hz at 1 Hz	88.7 dB(A)	
1 7	Alternating tone	2400/2900 Hz at 2 Hz	92.1 dB(A)	
1 8	Sweeping tone	2400-2900 Hz at 1 Hz	91.4 dB(A)	
1 9	Sweeping tone	1400-2000 Hz at 10 Hz	83.6 dB(A)	
2 0	Sweeping tone	500-1200 Hz / 0.5 s	89.5 dB(A)	
2 1	Continuous tone	2900 Hz	86.5 dB(A)	
2 2	Sweeping tone	800/1000 Hz at 50 Hz	86.5 dB(A)	
2 3	Alternating tone	554 Hz/100 ms + 440 Hz/400 ms	87.4 dB(A)	
2 4	Slow Whoop	500-1200 Hz in 3,5 s, off 0,5 s	91.2 dB(A)	86.3 dB(A)
2 5	Intermittent tone	2900 Hz / 150 ms on, 100 ms off	88.0 dB(A)	
2 6	Continuous tone	660 Hz	88.6 dB(A)	
2 7	Intermittent tone	660 Hz; 1,8 s on/off	88.6 dB(A)	
2 8	Intermittent tone	660 Hz / 150 ms on/off	87.3 dB(A)	
2 9	USA temporal 3 tone ISO 8201	610 Hz	85.2 dB(A)	
3 0	US Temporal Pattern LF	950 Hz / 0,5 s on/off x 3 then 1,5 s off	88.5 dB(A)	
3 1	3. Hi/Lo	1000/800 Hz (0,25 s on/alternate)	87.3 dB(A)	
3 2	Thyssen Krupp tone	450/650 Hz at 2 Hz	87.1 dB(A)	

* Delivery state: Tone in accordance with DIN 33404

** Results taken from EN 54-3 test results: Min SPL @ 15V @ max. volume @ loudest node dB(A). All other SPL measurements are taken 'on axis' and are not third party verified.

Sound pressure level tolerance is ± 3 dB(A).

Parts Included

Qty.	Components
1	Base Sounder Indoor
1	Cover for Base Sounder (only FNM-420-A-BS-RD)
1	Mounting Plate

Technical Specifications

Electrical

Operating voltage	15 V DC to 33 V DC
Current consumption	
• Quiescent state	< 1 mA
• Alarm	< 3,7 mA

Mechanics

Connections (inputs/outputs)	0,28 mm ² to 2,5 mm ²
Dimensions (Ø x H)	
• With mounting plate	115 x 40 mm
• With spacer for surface cabling	115 x 50 mm
Housing	
• Material	Plastic, ABS
• Color	red, similar to RAL 3001 white, similar to RAL 9010
Weight	
• Without packaging	200 g
• With packageing	245 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 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

for signaling an alarm directly at the fire location, can be employed either as base sounders or stand-alone sounders, for LSN improved technology
Order number **FNM-420-A-BS-WH**

FNM-420-A-BS-RD Base Sounder Indoor, red

for signaling an alarm directly at the fire location, can be employed either as base sounders or stand-alone sounders, for LSN improved technology
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 Mounting Base for Surface Cabling, white

1 order unit = 10 mounting bases

Order number **FNM-SPACER-WH**

FNM-SPACER-RD Mounting Base for Surface Cabling, red

1 order unit = 10 mounting bases

Order number **FNM-SPACER-RD**

FNM-420-B-RD Sounder Outdoor, Red



The outdoor sounder is used independently for signaling an alarm directly at the fire location at outside areas.

Features

- ▶ Volume up to 102.5 dB(A)
- ▶ Maximum current consumption less than 3,9 mA
- ▶ Up to 75 sounders per LSN 300 A loop and 100 sounders per LSN 1500 A loop.
- ▶ Constant sound pressure level between 22 V and 33 V operating voltage
- ▶ IP 66 for usage at exposed outdoor locations

Functions

The sounder allows to select 32 types of alarm and evacuation tones (incl. DIN tone 33404 Part 3) for different requirements.

You can adjust the sound pressure by five levels according to the operational environment. Depending on the tone type and volume set, the sound pressure varies between 65 dB and 102.5 dB. Sounders of the same LSN loop and with the same tone type provide synchronization without delay. The sounders can be programmed easily via the fire panel.

Certifications and Approvals

Complies with

- EN 54-3:2001
- EN 54-17:2005

Region	Certification	
Europe	CE	FNM-420-B-RD
	CPD	0832-CPD-1007 FNM-420-B-RD
Germany	VdS	G 210004 FNM-420-B-RD
	MOE	UA1.016.0113311-11 FNM-420-B-RD

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.
- The signaling devices are intended for outdoor use.
- The current consumption depends on the tone type selected and is maximum 3,9 mA.
- The maximum quantity of sounders on a loop depends on the cable diameter and overall loop current.
Please refer to the Fire System Designer for a safe loop configuration.

Tone type table

Nr	Signal type (Tone type)	Frequency / modulation	Sound pressure level dB(A)	EN 54-3**
1*	Sweeping tone = DIN tone	1200-500 Hz at 1 Hz, off 10 ms	99.3 dB(A)	92.1 dB(A)
2	Sweeping tone	2400-2900 Hz at 50 Hz	99.9 dB(A)	
3	Sweeping tone	2400-2900 Hz at 7 Hz	100.8 dB(A)	
4	Sweeping tone	800/1000 Hz at 7 Hz	99.2 dB(A)	
5	Intermittent tone	1000 Hz at 1 Hz	100.9 dB(A)	
6	Intermittent tone	1000 Hz / 0.25 s on, 1 s off	100.4 dB(A)	
7	Alternating tone	800/1000 Hz at 1 Hz	100.9 dB(A)	
8	Continuous tone	970 Hz	99.8 dB(A)	94.7 dB(A)
9	Alternating tone	800/1000 Hz at 2 Hz	100.7 dB(A)	
10	Intermittent tone	970Hz / 0,5 s on/off, 3 tones per 4 cycles	99.7 dB(A)	94.0 dB(A)
11	Intermittent tone	2900 Hz / 0,5 s on/off	101.1 dB(A)	
12	Intermittent tone	1000 Hz / 0,5 s on/off	100.8 dB(A)	
13	Sweeping tone	800/1000 Hz at 1 Hz	100.4 dB(A)	
14	Alternating tone	510 Hz / 610 Hz / 0,5 s on/off	97.5 dB(A)	
15	BMW tone	800 Hz / 60 s on, 10 s off, 3 cycles	95.0 dB(A)	
16	Intermittent tone	2900 Hz at 1 Hz	100.7 dB(A)	
17	Alternating tone	2400/2900 Hz at 2 Hz	100.6 dB(A)	

1 8	Sweeping tone	2400-2900 Hz at 1 Hz	102.5 dB(A)	
1 9	Sweeping tone	1400-2000 Hz at 10 Hz	97.5 dB(A)	
2 0	Sweeping tone	500-1200 Hz / 0.5 s	98.8 dB(A)	
2 1	Continuous tone	2900 Hz	99.2 dB(A)	
2 2	Sweeping tone	800/1000 Hz at 50 Hz	99.7 dB(A)	
2 3	Alternating tone	554 Hz/100 ms + 440 Hz/400 ms	96.3 dB(A)	
2 4	Slow Whoop	500-1200 Hz in 3,5 s, off 0,5 s	100.1 dB(A)	96.0 dB(A)
2 5	Intermittent tone	2900 Hz / 150 ms on, 100 ms off	100.7 dB(A)	
2 6	Continuous tone	660 Hz	98.0 dB(A)	
2 7	Intermittent tone	660 Hz; 1,8 s on/off	98.0 dB(A)	
2 8	Intermittent tone	660 Hz / 150 ms on/off	96.7 dB(A)	
2 9	USA temporal 3 tone ISO 8201	610 Hz	97.4 dB(A)	
3 0	US Temporal Pattern LF	950 Hz / 0,5 s on/off x 3 then 1,5 s off	97.1 dB(A)	
3 1	3. Hi/Lo	1000/800 Hz (0,25 s on/alternate)	100.3 dB(A)	
3 2	Thyssen Krupp tone	450/650 Hz at 2 Hz	96.9 dB(A)	

* Delivery state: Tone in accordance with DIN 33404 Part 3

** Results taken from EN 54-3 test results: Min SPL @ 15V @ max. volume @ loudest node dB(A). All other SPL measurements are taken 'on axis' and are not third party verified.

Sound pressure level tolerance is ± 3 dB(A).

Parts Included

Qty.	Components
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	< 3,9 mA

Mechanics

Connections (inputs/outputs)	0,28 mm ² to 2,5 mm ²
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 packageing	300 g

Environmental conditions

Permissible operating temperature	-25 °C to +70 °C
Permissible storage temperature	-25 °C to +85 °C
Protection class as per EN 60529	IP 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

for signaling an alarm directly at the fire location, for LSN improved technology

Order number **FNM-420-B-RD**

FNM-320 Sounders Conventional



The FNM-320 Sounders are acoustic signaling devices with a sound transducer and are designed for connection to fire panels.

Features

- ▶ Volume up to 112 dB(A)
- ▶ Compact, robust and maintenance-free
- ▶ Can be used in adverse environmental conditions
- ▶ For 12 V DC and 24 V DC
- ▶ Reverse polarity protection

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.

The volume is steplessly adjustable by the integrated potentiometer. 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.

Certifications and Approvals

Region	Certification
Europe	CE FNM-320-SRD,FNM-320-FRD,FNM-320-SWH,FNM-320-FWH
	CE FNM-320-LEDSRD
	CPD 0832-CPD-1374 FNM-320-SRD_FN-320-SWH_FNM-320-FRD_FNM-320-FWH
	CPD 0832-CPD-1375 FNM-320LED-SRD

Region	Certification
Germany	VdS G 210036 FNM-320-Serie
	VdS G 210037 FNM-320-LEDSRD
Poland	CNBOP 1182/2012 FNM-320

Installation/Configuration Notes

- Can be connected to the following fire 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.

Tone Table FNM-320-SRD, -SWH, -FRD, FWH

Tone	Type	Modulation	Frequency	Pulse	Duty Cycle	Country	12/24VDC		EN54-3 @28VDC
							mA	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	300 - 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)			5/8	95/101	*
11	4	10101	800 & 970Hz	1Hz (500ms - 500ms)		BS	6/12	95/101	*
12	4	10100	2850Hz	0.5Hz (1s)			9/17	99/105	*
13	14	10011	970Hz	0.8Hz (250ms)			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)			4/6	94/100	*
17	17	01111	660Hz	0.28Hz (1.8s)			4/7	95/101	*
18	18	01110	660Hz	0.05Hz (6.5s)			3/6	95/101	*
19	19	01101	660Hz				5/10	95/101	*
20	20	01100	554 & 440Hz	0.5Hz (1s)			7/16	96/102	*
21	21	01011	660Hz	1Hz (500ms - 500ms)			4/6	94/101	*
22	14	01010	2850Hz	4Hz (150ms)			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	ISO 8201	4/7	95/101	*
26	26	00110	800 - 970Hz	3 x 500ms	1.5s	ISO 8201	4/6	95/102	*
27	27	00101	970 & 800Hz	3 x 500ms	1.5s	ISO 8201	3/6	94/101	*
28	10	00100	800 & 970Hz	2Hz (250ms - 250ms)		BS	6/12	95/101	93/96
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 ±3 dB(A).

Tone Table FNM-320-LEDSRD

Tone	Type	Modulation	Frequency	Pulse	Duty Cycle	Country	@20 °C		EN54-3 @28VDC
							mA	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	300 - 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)			13	100	*
11	4	10101	800 & 970Hz	1Hz (500ms - 500ms)		BS	19	100	*
12	4	10100	2850Hz	0.5Hz (1s)			25	109	*
13	14	10011	970Hz	0.8Hz (250ms)			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)			10	86	*
17	17	01111	660Hz	0.28Hz (1.8s)			13	88	*
18	18	01110	660Hz	0.05Hz (6.5s)			15	88	*
19	19	01101	660Hz				15	89	*
20	20	01100	554 & 440Hz	0.5Hz (1s)			14	96	*
21	21	01011	660Hz	1Hz (500ms - 500ms)			11	87	*
22	14	01010	2850Hz	4Hz (150ms)			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	ISO 8201	15	99	*
26	26	00110	800 - 970Hz	3 x 500ms	1.5s	ISO 8201	21	108	*
27	27	00101	970 & 800Hz	3 x 500ms	1.5s	ISO 8201	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	*

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.

Parts Included

Qty.	Components
1	Acoustic Signaling Device, red or white
1	Base, surface or flush mounting

Technical Specifications

Electrical

Operating voltage	9 V DC to 30 V DC
Max. current consumption	
• FNM-320-SRD /-FRD/-SWH/-FWH	33 mA
• FNM-320-LEDSRD	36 mA
Monitoring	Reverse polarity

Mechanics

Dimensions (W x H)	
• FNM-320-FWH/-FRD	Ø 93 mm x 63 mm
• FNM-320-SWH/-SRD	Ø 93 mm x 91 mm
• FNM-320-LEDSRD	Ø 93 mm x 107 mm
• Weight	
• FNM-320-SWH/-SRD FWH/-FRD	250 g
• FNM-320-LEDSRD	300 g
Housing material	ABS V0, PC
Color	Red, RAL 3001 White, RAL 9010

Environmental conditions

Permissible operating temperature	
• FNM-320-SWH/-SRD FWH/-FRD	-25 °C to +70 °C
• FNM-320-LEDSRD	-10 °C to +55 °C
Permissible rel. humidity	Complies with EN 54-3
Protection class as per EN 60529	
• FNM-320-FWH/-FRD	IP 54 *
• FNM-320-SWH/-SRD	IP 65 *
• FNM-320-LEDSRD	IP 65 *

* Manufacturers specification, not third party verified

Special features

Max. sound pressure	
• At 12 V	105 dB(A) ±3 dB(A)

• At 24 V	112 dB(A) ±3 dB(A)
FNM-320-LEDSRD	
• Light output	> 0.5 cd
• Flash rate	1 Hz

Ordering Information

FNM-320-SRD Sounder Red, Surface Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-SRD**

FNM-320-FRD Sounder Red, Flush Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-FRD**

FNM-320-SWH Sounder White, Surface Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-SWH**

FNM-320-FWH Sounder White, Flush Mounting

for connection to fire alarm systems, with sound transducer, suitable for use in adverse environmental conditions

Order number **FNM-320-FWH**

FNM-320-LEDSRD Sounder Red with LED, Surface Mounting

for connection to fire alarm systems, with sound transducer and integrated LED, suitable for use in adverse environmental conditions

Order number **FNM-320-LEDSRD**

FNM-420U Sounders, uninterruptible



These devices are equipped with an industrial, high-performance power source for bypassing the power supply. This feature 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.

- ▶ Uninterruptible alarm signaling – even in the LSN stub
- ▶ Maximum current consumption of less than 4.05 mA
- ▶ Volume of up to 101.3 dB(A)
- ▶ Immediate synchronization
- ▶ Long life cycle and modern design

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. Sounders with the same tone offer immediate synchronization within a loop. The sounders can be programmed easily and clearly via the control panel.

Certifications and Approvals

Region	Certification
Europe	CE FNM-420U-A/-B

Installation/Configuration Notes

- This device can only be used with the type B panel controller or the FPA-1200-MPC Panel Controller. The type A panel controller cannot be used.
- The current consumption depends on the tone type selected and is maximum 4.05 mA.
- Sounders with different LSN settings (classic and improved) cannot be synchronized.

- The maximum number of sounders on each loop depends on the cable diameter and the total current of the loop.
Use the Fire System Designer for reliable loop planning.

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	99.0 dB(A)	93.0 dB(A)
2	Increasing	2400–2900 Hz at 50 Hz	98.7 dB(A)	
3	Increasing	2400–2900 Hz at 7 Hz	99.6 dB(A)	
4	Increasing	800/1000 Hz at 7 Hz	99.0 dB(A)	
5	Pulse tone	1000 Hz at 1 Hz	101.2 dB(A)	
6	Pulse tone	1000 Hz/0.25 s on, 1 s off	100.5 dB(A)	
7	Variable tone	800/1000 Hz at 1 Hz	101.3 dB(A)	
8	Continuous tone	970 Hz	99.1 dB(A)	93.1 dB(A)
9	Variable tone	800/1000 Hz at 2 Hz	101.0 dB(A)	
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	99.0 dB(A)	92.6 dB(A)
11	Pulse tone	2900 Hz/0.5 s on/off	100.1 dB(A)	
12	Pulse tone	1000 Hz/0.5 s on/off	101.2 dB(A)	
13	Increasing	800/1000 Hz at 1 Hz	100.3 dB(A)	
14	Variable tone	510 Hz/610 Hz/0.5 s on/off	97.8 dB(A)	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	95.0 dB(A)	
16	Pulse tone	2900 Hz at 1 Hz	99.2 dB(A)	
17	Variable tone	2400/2900 Hz at 2 Hz	99.4 dB(A)	
18	Increasing	2400–2900 Hz at 1 Hz	101.2 dB(A)	
19	Increasing / decreasing tone	1400-2000 Hz at 10 Hz	97.3 dB(A)	

20	Slowly increasing / decreasing	500–1200 Hz/ 0.5 s	98.5 dB(A)	
21	Continuous tone	2900 Hz	98.1 dB(A)	
22	Increasing	800/1000 Hz at 50 Hz	99.8 dB(A)	
23	Pulse tone	554 Hz/100 ms + 440 Hz/400 ms	95.7 dB(A)	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	100.1 dB(A)	94.0 dB(A)
25	Pulse tone	2900 Hz/ 150 ms on, 100 ms off	99.6 dB(A)	
26	Continuous tone	660 Hz	97.6 dB(A)	
27	Pulse tone	660 Hz/1.8 s on/off	97.6 dB(A)	
28	Pulse tone	660 Hz/150 ms on/off	96.4 dB(A)	
29	USA temporal 3 tone ISO 8201	610 Hz	97.7 dB(A)	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	95.8 dB(A)	
31	3. Hi/Lo	1000/800 (0.25 s on/ alternating)	100.7 dB(A)	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	96.5 dB(A)	

* 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.

Sound pressure level specified with a tolerance of ± 3 dB(A).

Parts Included

Quantity	Component
1	Sounder for indoor areas, red or white; Sounder for outdoor areas, red
1	Power source (3 V lithium)
1	Key (for opening the housing)

Technical Specifications

Electrics

Operating voltage	15 V DC to 33 V DC
Current consumption	

• Standby	1 mA
• Alarm	4.05 mA

Mechanics

Connections (inputs/outputs)	0.28 mm ² to 2.5 mm ²
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
Housing material	Plastic, ABS
Housing color	Red, similar to RAL 3001 White, similar to RAL 9010
Weight	Approx. 295 g

Environmental conditions

Permissible operating temperature	-20°C to +70°C
Permissible storage temperature	-20°C to +70°C
Protection category (EN 60529)	
• FNM-420U-A for indoor areas	IP 42
• FNM-420U-B for outdoor areas	IP 66

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

FNM-420U-A-BS Base Sounders (Indoor), uninterruptible



These devices are equipped with an industrial, high-performance power source for bypassing the power supply. This feature 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.

The base sounders can be installed as a standalone device or in conjunction with an automatic detector from the 420 series or an FNS-420-R LSN Strobe.

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Features

- ▶ Uninterruptible alarm signaling – even in the LSN stub
- ▶ Maximum current consumption of less than 3.85 mA
- ▶ Volume of up to 93.1 dB(A)
- ▶ Immediate synchronization
- ▶ Long life cycle and modern design

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. Base sounders with the same tone type offer immediate synchronization within a loop.

Installation/Configuration Notes

- This device can only be used with the type B panel controller or the FPA-1200-MPC Panel Controller. The type A panel controller cannot be used.
- The current consumption depends on the tone type selected and is maximum 3.85 mA.
- Sounders with different LSN settings (classic and improved) cannot be synchronized.

- The maximum number of sounders on each loop depends on the cable diameter and the total current of the loop.
Use the Fire System Designer for reliable loop planning.
- The base sander can be operated with an FNS-420-R LSN Strobe or an automatic detector from the 420 series.
- For installation scenarios involving surface-mounted cable routing, an FNM-SPACER Mounting Base is also required for surface cabling.
- The white FNM-420-A-BS-WH Base Sander requires a white FNM-COVER-WH Cover when used without a detector or strobe.

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	91.0 dB(A)	86.8 dB(A)
2	Increasing	2400–2900 Hz at 50 Hz	91.9 dB(A)	
3	Increasing	2400–2900 Hz at 7 Hz	92.9 dB(A)	
4	Increasing	800/1000 Hz at 7 Hz	90.7 dB(A)	
5	Pulse tone	1000 Hz at 1 Hz	85.6 dB(A)	
6	Pulse tone	1000 Hz/ 0.25 s on, 1 s off	85.1 dB(A)	
7	Variable tone	800/1000 Hz at 1 Hz	88.5 dB(A)	
8	Continuous tone	970 Hz	88.7 dB(A)	84.7 dB(A)
9	Variable tone	800/1000 Hz at 2 Hz	88.2 dB(A)	
10	Pulse tone	970 Hz/0.5 s on/off, 3 tones in 4 cycles	88.6 dB(A)	85.2 dB(A)
11	Pulse tone	2900 Hz/0.5 s on/off	89.9 dB(A)	
12	Pulse tone	1000 Hz/0.5 s on/off	85.6 dB(A)	
13	Increasing	800/1000 Hz at 1 Hz	92.1 dB(A)	
14	Variable tone	510 Hz/ 610 Hz/0.5 s on/off	86.4 dB(A)	
15	BMW tone	800 Hz/60 s on, 10 s off, 3 cycles	89.0 dB(A)	
16	Pulse tone	2900 Hz at 1 Hz	89.7 dB(A)	
17	Variable tone	2400/2900 Hz at 2 Hz	93.1 dB(A)	

18	Increasing	2400–2900 Hz at 1 Hz	92.4 dB(A)	
19	Increasing/ decreasing tone	1400-2000 Hz at 10 Hz	84.6 dB(A)	
20	Slowly increasing/ decreasing	500–1200 Hz/ 0.5 s	90.5 dB(A)	
21	Continuous tone	2900 Hz	87.5 dB(A)	
22	Increasing	800/1000 Hz at 50 Hz	87.5 dB(A)	
23	Pulse tone	554 Hz/ 100 ms + 440 Hz/ 400 ms	88.4 dB(A)	
24	Slowly increasing	500–1200 Hz in 3.5 s, pause 0.5 s	92.2 dB(A)	87.4 dB(A)
25	Pulse tone	2900 Hz/ 150 ms on, 100 ms off	89.0 dB(A)	
26	Continuous tone	660 Hz	89.6 dB(A)	
27	Pulse tone	660 Hz/1.8 s on/off	89.6 dB(A)	
28	Pulse tone	660 Hz/ 150 ms on/off	88.3 dB(A)	
29	USA temporal 3 tone ISO 8201	610 Hz	86.2 dB(A)	
30	US temporal pattern LF	950 Hz/0.5 s on/off x 3 then pause 1.5 s	89.5 dB(A)	
31	3. Hi/Lo	1000/800 (0.25 s on/ alternating)	88.3 dB(A)	
32	Thyssen Krupp tone	450/650 Hz at 2 Hz	88.1 dB(A)	

* 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.
Sound pressure level specified with a tolerance of ± 3 dB(A).

Parts Included

Quantity	Component
1	Base sounder for indoor area, red or white
1	Power source (3 V lithium)
1	Mounting plate (flush-mounted)

Technical Specifications

Electrics

Operating voltage	15 V DC to 33 V DC
Current consumption	
• Standby	1 mA
• Alarm	3.85 mA

Mechanics

Connections (inputs/outputs)	0.28 mm ² to 2.5 mm ²
Dimensions (Ø x H)	
• With mounting plate	115 x 40 mm
• With mounting base	115 x 50 mm
Housing	
• Material	Plastic, ABS
• Color	Red, similar to RAL 3001 White, similar to RAL 9010
Weight	240 g

Environmental conditions

Permissible operating temperature	-20°C to +70°C
Permissible storage temperature	-20°C to +70°C
Protection category (EN 60529)	IP 42

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

Ordering Information

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 Mounting Base for Surface Cabling, white

1 order unit = 10 mounting bases

Order number **FNM-SPACER-WH**

**FNM-SPACER-RD Mounting Base for Surface Cabling,
red**

1 order unit = 10 mounting bases

Order number **FNM-SPACER-RD**

FNS-P400RTH Rotating Beacons

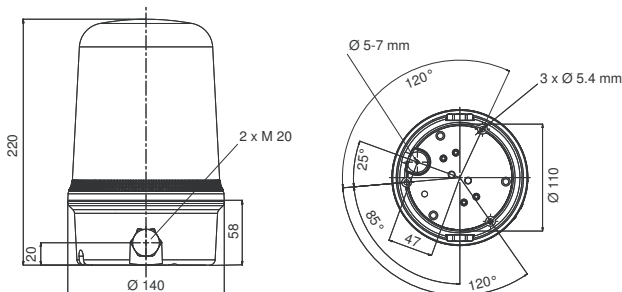


The rotating beacons are used for an additional local alarm notification.

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

System Overview



Functions

Inside the beacon, a motor-driven mirror rotates around the halogen bulb with constant speed and thus, generates a blinking signal.

In the event of an alarm, the beacons are activated by the appropriate interface or functional modules of the fire panel.

Certifications and Approvals

Region	Certification	
Europe	CE	FNS-P400RTH

Installation/Configuration Notes

- A right-angle mounting bracket can be ordered separately for easy wall mounting

Parts Included

Quant.	Component
1	Rotating Beacon with motor and reflector, in a weatherproof housing with a red or amber lens

Technical Specifications

Electrical

Operating voltage	230 V
Current consumption	186 mA
Light output	40 W

Mechanics

Housing	
• Material	Polycarbonate (PC)
• Base color	Black
• Lens color	Transparent red or amber
Light source	Halogen bulb
Dimensions	Ø 140 x 220 mm
Weight	578 g

Environmental conditions

Protection class as per EN 60529	IP 65
Permissible operating temperature	-25°C to +50°C

Special features

Rotation speed	Approx. 180 min ⁻¹
Lifespan	> 5,000 h

Ordering Information

FNS-P400RTH-Y Rotating Beacon Amber, 230 V
for an additional local alarm notification
Order number **FNS-P400RTH-Y**

FNS-P400RTH-R Rotating Beacon Red, 230 V
for an additional local alarm notification
Order number **FNS-P400RTH-R**

Accessories

Mounting Bracket for FNS-P400RTH
for easy wall-mounting of the FNS-P400RTH Rotating Beacon; mounting bracket material: polycarbonate.
Order number **FNA-P400RBA-MB**

PB 2005 Strobe Red, 24 V

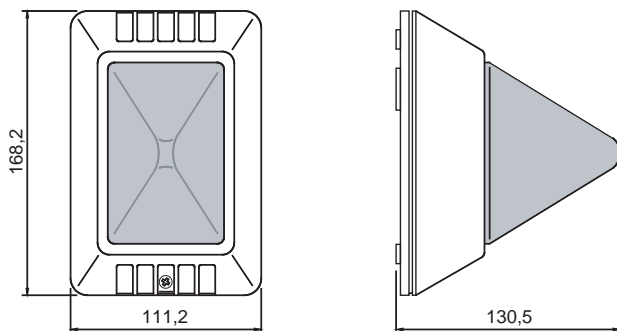


The PB 2005 Strobe is a signaling device for visual alarm. It is designed for connection to fire panels.

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

System Overview



Functions

- The strobe lamps are located in the transparent upper section of the signaling device. This issues flashes of red light when controlled via the central fire panel.
- The blink frequency is once a second.
- The circuit board has a protective lacquer.

Certifications and Approvals

Region	Certification	
Europe	CE	PB 2005

Installation/Configuration Notes

- Can be connected to the following fire panels:
 - BZ 1060
 - BZ 500 LSN
 - UEZ 1000 LSN
 - UEZ 2000 LSN
 - UGM 2020.



Notice

When connected to the BZ 1060, a resistance of 10 Ω/2 W in series is switched.

Parts Included

Qty.	Components
1	PB 2005 Strobe Red, 24 V, consisting of a gray lower part and a signal part of red, transparent acrylic glass

Technical Specifications

Electrical

Operating voltage	18 V DC . . . 30 V DC
Current consumption	230 mA
Power consumption	5.6 W

Mechanics

Cable entry	M20
Housing material	Plastic, ABS
Housing color	Graphite gray, RAL 7024
Signal strobe lens material	PC
Signal strobe lens color	Red transparent
Dimensions (W x H x D)	166 mm x 111 mm x 128 mm
Weight	Approx. 310 g

Environmental conditions

Protection class as per EN 60529	IP 55
Permissible operating temperature	-30°C . . . +55°C
Permissible storage temperature	-40°C . . . +70 °C
Permitted relative humidity	90%

Special features

Flash strength	5.0 J
Flash frequency	1 Hz
Service life ^{*)}	8 million flashes

^{*)} After approx. 8 million flashes, the light emission amounts to only 70% of the initial power. The flash tube has then become only a bit darker.

Ordering Information

PB 2005 Strobe Red, 24 V

Signaling device for visual alarm, for connection to fire panels

Order number **PB 2005**

FNS-420-R LSN Strobe, Red

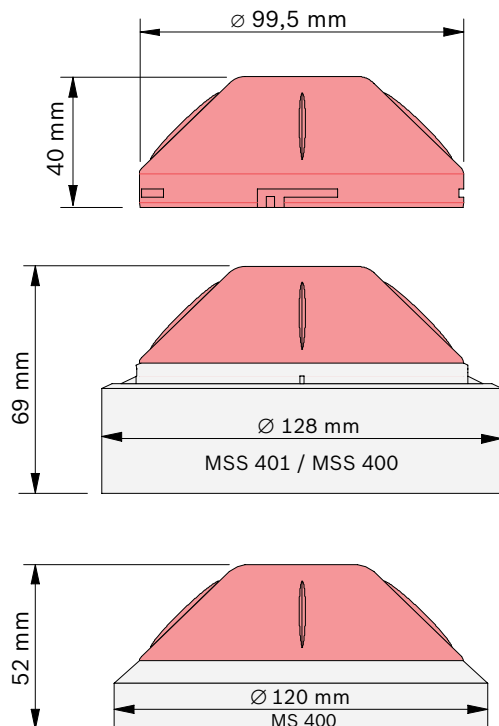


The FNS-420-R LSN Strobe is an optical signaling device and can be connected exclusively to the fire panels FPA-5000 and FPA-1200.

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 only be used with the FNM-420-A-BS Base Sounders or the MSS 400 LSN and the MSS 401 LSN Detector Base Sounders providing a combination of visual and acoustic signaling. Mounted on the MS 400 Detector Base, the FNS-420-R can be used as a strobe without acoustic signaling. Both applications are easily integrated into an existing Local SecurityNetwork (LSN).



Notice

The FNS-420-R LSN Strobe cannot be used with the MSS series stand-alone or conventional sounders.

Certifications and Approvals

Complies with EN54-17:2005

Region	Certification	
Europe	CE	FNS-420-R LSN
	CPD	0786-CPD-20531 FNS-420-R
Germany	VdS	G 207145 FNS-420-R
	MOE	UA1.016-0070272-11 FNS-420-R

Installation/Configuration Notes

The FNS-420-R LSN Strobe can be connected exclusively to the fire panels FPA-5000 and FPA-1200.

Parts Included

Quant.	Component
1	FNS-420-R LSN Strobe, Red

Technical Specifications

Electrical

Operating voltage	28 V DC (15 to 33 V DC)
Current consumption	0.5 to 6.55 mA
Light intensity	> 2 cd

Mechanical

Dimension (H x W)	40 x 99.5 mm
Weight	67 g
Material	PC, ABS (UL94 V-2)

Environmental conditions

Operating temperature	-20 °C to 60 °C
Protection class as per EN 60529	IP 42

Ordering Information

FNS-420-R LSN Strobe, Red

optical signaling device that can be connected to the fire panels FPA-5000 and FPA-1200

Order number **FNS-420-R**

FNS-320 Beacons Conventional



The FNS-320 Beacons are universally employable signaling devices for optical alarm and designed for connection to fire panels.

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

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.

Certifications and Approvals

Region	Certification	
Europe	CE	FNS-320-SRD, FNS-320-SYE, FNS-320-SWH, FNS-320-SGR
Germany	VdS	G 210038 FNS-320 Serie
Poland	CNBOP	1229/2012 FNS-320-SRD

Installation/Configuration Notes

- The beacons are suitable for indoor and outdoor use.
- The upper part fixed to the base by a bayonet lock.
- The strobe lens has screw threads and is also secured against removal by a security screw.
- Can be connected to the following fire panels:
 - FPA-5000 / FPA-1200 with NZM 0002 A or FLM-420-NAC
 - (BZ 1060, BZ 500 LSN, UEZ 1000 LSN, UEZ 2000 LSN, UGM 2020)

Parts Included

Quant.	Component
1	Signaling device in red, clear, amber or green
1	Mounting base, red, surface mounting

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	Complies with EN 54-3

*Manufacturers specification, not third party verified

Special features

Light output	10 cd (1.25 J)
Flash rate	1Hz

Ordering Information

FNS-320-SRD Beacon Red, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SRD**

FNS-320-SGR Beacon Green, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SGR**

FNS-320-SYE Beacon Amber, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SYE**

FNS-320-SWH Beacon Clear, Surface Mounting
for local visual alarm notification
Order number **FNS-320-SWH**

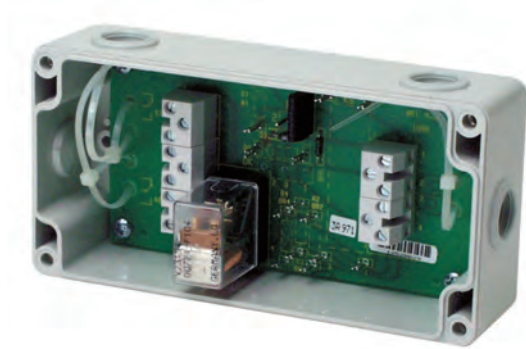
Distributors and Relays

12

Relays

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UAR Relays for Fire Detection Systems



The Universal Connection Relay (UAR) is controlled by a security system and handles the triggering of additional equipment on monitored control lines.

The UAR can be, depending on the connection to the security system, equipped with a 12 V relay or a 24 V relay.

Certifications and Approvals

Region	Certification	
Europe	CE	UAR 12V/24V
Germany	VdS	G 178046 UAR

Parts Included

UAR/12 V Universal Connection Relay

Qty.	Components
1	Relay housing with PC board and relay base
1	Relay 12 V
1	Bag with connection accessories

UAR/24 V Universal Connection Relay

Qty.	Components
1	Relay housing with PC board and relay base
1	Relay 24 V
1	Bag with connection accessories

Technical Specifications

Operating voltage	10.5 V DC . . . 29 V DC
Permissible switching current	Max. 3 A
Switching voltage	60 V AC/DC
Switching power with AC current load	180 VA
Permissible ambient temperature	-25 °C . . . +60 °C
Protection class as per EN 60529	IP 54
Housing color	Gray

Dimensions (W x H x D)	160 x 80 x 55 mm
Weight	Approx. 300 g

Ordering Information

UAR/12 V Universal Connection Relay

Both parts (housing and relay) are needed.
Order number **FMX-UAR12-compl**

UAR/24 V Universal Connection Relay

Both parts (housing and relay) are needed.
Order number **FMX-UAR24-compl**

Test and Service Devices

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Test Devices	430
Service Devices	439

SOLO461 Heat Detector Tester



The SOLO461 Heat Detector Tester operates with a battery to direct heated air at heat detector sensors. It uses a patented CAT™ (Cross Air Technology) system to focus the air and direct it horizontally at the sensor regardless of the detector's size or shape.

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

Functions

Cross Air Technology

Under control of a microprocessor, blown air is heated by the element just before exiting the duct. The narrow opening focuses the heated air into a beam. A reference platform incorporated into the Heat Detector Tester ensures that the beam of heated air is correctly lined up with the sensor whatever the shape and size of the detector.

Because the beam of hot air is blown horizontally directly at the sensor:

- Test times are dramatically reduced
- Minimum power is required thereby extending battery life
- The possibility of heat damage to detector plastics is significantly reduced

Tool Operation

When the tool is fully assembled, press the switch on the tester to put the tool into standby mode. When the tester is positioned so that it encloses a detector, the detector interrupts an infrared beam turning on the heater and blower units in the tester. Hold the tool in place over the detector until either:

- the detector alarms indicating proper operation
- until the tool automatically times out indicating a problem with the detector

When the tool is moved away from the detector or when the tool times out the heater shuts off and the blower runs for a few seconds to cool the heater.

Certifications and Approvals

Region	Certification	
Europe	CE	Solo 461
USA	UL	URRQ.S4994, URRQ.S7201 SOLO461

Parts Included

Quant.	Component
1	SOLO461 Heat Detector Tester
2	SOLO720 Battery
1	Charging set with mains and car connector
1	Literature pack

Technical Specifications

Electrical

Charging set operating voltage	
• Alternating voltage	110 to 240 V AC ~50/60 Hz
• Direct voltage	11 to 16 VDC

Mechanical

Weight	
• Without battery	600 g (21 oz)
• With battery	1.1 kg (38.8 oz)
Dimension (Ø x H)	99.5 mm x 52 mm (3.9 in x 2 in)

Environmental

Operating temperature	5 °C to 45 °C (40 °F to 115 °F)
Storage temperature	-10 °C to 50 °C (15 °F to 120 °F)
Permissible relative humidity	85% (non-condensing)

Trademarks

CAT™ and SOLO™ are trademarks of No Climb Products, Ltd.

Ordering Information

SOLO461 Heat Detector Tester

Heat Detector Tester operating with a battery
Order number **SOLO461**

Accessories

SOLO610 Test Equipment 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.
Order number **SOLO100**

SOLO101 Fixed Extension Pole

Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.

Order number **SOLO101**

SOLO720 Battery

Rechargeable battery bar for the SOLO461 Heat Detector Tester

Order number **SOLO720**

SOLO330 Smoke Detector Tester



Use the SOLO330 Smoke Detector Tester for in place testing of smoke detectors using an aerosol designed to simulate smoke particles.

Features

- ▶ Touch-sensitive, spring-loaded mechanism for effective, economic aerosol delivery
- ▶ Clear cup allows view of detector LED
- ▶ Strong and durable modern plastics technology for long life and minimal weight
- ▶ Compatible with SOLO100 and SOLO101 Poles

Certifications and Approvals

Region	Certification	
USA	UL	URRQ.S24293 SOLO330

Parts Included

Quant.	Component
1	SOLO330 Smoke Detector Tester
1	Literature pack

Technical Specifications

Mechanical

Detector size range ¹ (Ø)	99 mm (3.9 in)
Weight	567 g (1 lb 4 oz)
Working angle	0° to 90°

¹Only the sensing chamber needs to be sealed within the tester cup.

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd

Ordering Information

SOLO330 Smoke Detector Tester

Tests smoke detectors in place using an aerosol.

Order number **SOLO330**

SOLO100 Telescopic Access Pole



The SOLO100 Telescopic Access Pole enables the installation and replacement of fire detectors at high ceilings. It can be expanded with up to three SOLO101 Fixed Extension Poles. The Telescopic Access Pole withstands high voltage situations and is checked for Safety compliance in accordance with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

Features

- ▶ Non-conductive at voltage of 20 kV
- ▶ Expandable with up to three SOLO101 Fixed Extension Poles

Technical Specifications

Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
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Mechanics

Length	
• Europe, Middle East, Africa	1 m to 3.4 m (3.3 ft to 11.2 ft)
• America	1.26 m to 4.5 m (4.1 ft to 14.8 ft)

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Ordering Information

SOLO100 Telescopic Access Pole

Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed Extension Poles.
Order number **SOLO100**

Accessories

SOLO101 Fixed Extension Pole

Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.

Order number **SOLO101**

Spare Test Beaker for Service Set



Only for the SOLO330 Smoke Detector Tester from the service set with the product ID 2.799.330.868



Notice

The seal on the top of the Spare Test Beaker (shown in black in the figure) is not included in the scope of delivery!

Ordering Information

Spare Test Beaker for Service Set

only for the SOLO330 Smoke Detector Tester from the service set with the product ID 2.799.330.868

Order number

Accessories

Seal for Test Beaker

only for the smoke detector test device from the service set with the product ID 2.799.330.868

Order number **test tool membrane**

Solo A3-001 Test Aerosol for Optical Smoke Detectors



Spray with 250 ml Test Aerosol for Optical Smoke Detectors,
DU = 12 pieces

Ordering Information

Solo A3-001 Test Aerosol for Optical Smoke Detectors
DU = 12 pieces
Order number **Solo A3-001**

Solo CO Testing Gas



Spray with CO testing gas for multisensor detectors with C component.

Contents: approx. 4 l compressed gas
(DU = 12 pieces)

Ordering Information

Solo CO Testing Gas

for multisensor detectors with C-sensor, DU = 12 pieces.

Order number **Solo CO test gas**

LSN Simulator



By imitating an LSN loop or stub, one at a time, the LSN Simulator enables the testing of the LSN control panel parameters.

The required SenSim software is available for download on the BOSCH ExtraNet (authorized access only).

Suitable for:

- BZ 500 LSN
- UEZ 2000 LSN
- UGM 2020

Ordering Information

LSN Simulator

enables the testing of the LSN control panel parameters
Order number **IPB-SIM-LSN**

LSN Test Device



By imitating the control panel the LSN Test Device enables the testing of the periphery.

The required PG32 software is available for download on the BOSCH ExtraNet (authorized access only).

Suitable for:

- BZ 500 LSN
- UEZ 2000 LSN
- UGM 2020

Ordering Information

LSN Test Device

enables the testing of the periphery of a control panel

Order number **IPB-TD-LSN**

SOLO200 Detector Removal Tool



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.

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

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 Detector Removal Tool

Use to remove and replace detectors
Order number **SOLO200**

FME-420-ADAP Tool Adapter for MS420



The FME-420-ADAPT Tool Adapter can be used in addition to the SOLO200 Detector Removal Tool. The plastic bowl and the adapter pole optimize the insertion and removal of fire detectors when using detector bases with springs (MS 420, FAA-MS 420-R-SP).



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.

Ordering Information

FME-420-ADAP Tool Adapter for MS420

optimize the insertion and removal of fire detectors
Order number **FME-420-ADAP**

Exchanger Device for DO1101A-Ex and DOW 1171



Exchanger Device for the insertion and removal of the following fire detectors:

- DO1101A-Ex Optical Smoke Detector for Ex Areas
- DOW 1171 Optical RF Smoke Detector

Parts Included

Qty.	Components
1	Exchanger Device for DO1101A-Ex and DOW 1171



Notice

The Exchanger Device fits only on Siemens service poles. The service pole is not included in the scope of delivery.

Ordering Information

Exchanger Device for DO1101A-Ex and DOW 1171

fits only on Siemens service poles

Order number **FAA-RTL-SIEMENS**

SOLO100 Telescopic Access Pole



The SOLO100 Telescopic Access Pole enables the installation and replacement of fire detectors at high ceilings. It can be expanded with up to three SOLO101 Fixed Extension Poles.

The Telescopic Access Pole withstands high voltage situations and is checked for Safety compliance in accordance with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

Features

- ▶ Non-conductive at voltage of 20 kV
- ▶ Expandable with up to three SOLO101 Fixed Extension Poles

Technical Specifications

Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

Mechanics

Length	
<ul style="list-style-type: none"> • Europe, Middle East, Africa 	1 m to 3.4 m (3.3 ft to 11.2 ft)
<ul style="list-style-type: none"> • America 	1.26 m to 4.5 m (4.1 ft to 14.8 ft)

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Ordering Information

SOLO100 Telescopic Access Pole

Enables the installation and replacement of fire detectors at high ceilings. Expandable with up to three SOLO101 Fixed Extension Poles.

Order number **SOLO100**

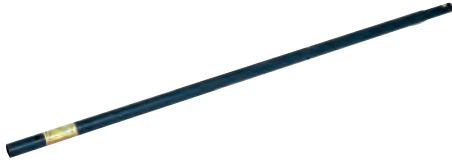
Accessories

SOLO101 Fixed Extension Pole

Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.

Order number **SOLO101**

SOLO101 Fixed Extension Pole



The SOLO101 Fixed Extension Pole enables the installation and replacement of fire detectors at ceilings. Use it individually or with up to three other Fixed Extension Poles. It also can be used with the SOLO100 Telescopic Access Pole.

The Fixed Extension Pole withstands high voltage situations and is checked for safety compliance in accordance with the requirements of BS EN 61235 Section 12 using an applied voltage of 20 kV.

Features

- ▶ Non-conductive at voltage of 20 kV
- ▶ Expandable with other Fixed Extension Pole
- ▶ Extension for the SOLO100 Telescopic Access Pole

Technical Specifications

Electrical

Conductivity	Tested per BS EN 61235 Section 12; applied voltage 20 kV
--------------	--

Mechanical

Length	
• Europe, Middle East, Africa	1 m (3.3 ft)
• Amerika	1.13 m (3.7 ft)

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Ordering Information

SOLO101 Fixed Extension Pole

Enables the installation and replacement of fire detectors at ceilings. Expandable with other Fixed Extension Poles.

Order number **SOLO101**

SOLO610 Test Equipment Bag



The SOLO610 Test Equipment Bag is made of sturdy woven polyester with a PVC coating for carrying and storing test and service products. It is designed with special compartments to hold a full range of products.

Certifications and Approvals

Trademarks

SOLO™ is a trademark of No Climb Products, Ltd.

Parts Included

Quant.	Component
1	SOLO610 Test Equipment Bag

Ordering Information

SOLO610 Test Equipment Bag

Robust bag made of sturdy woven polyester for carrying and storing test and service products.

Order number **SOLO610**

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