

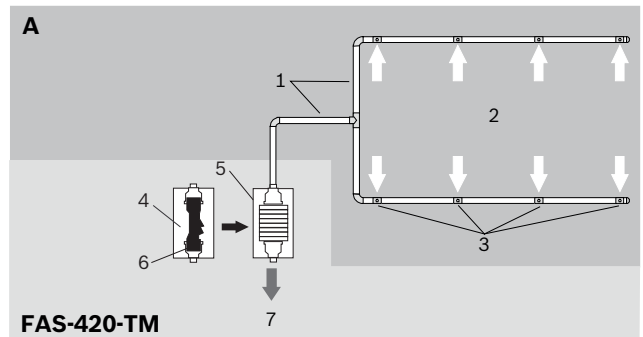
FAS-420-TM Aspiration smoke detector series LSN improved



- ▶ High deceptive alarm immunity with intelligent 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
- ▶ Preservation of LSN loop functions in the event of wire interruption or short-circuit through two integrated isolators

The FAS-420-TM Aspiration 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 (provided that the detector is installed outside of these units or ducts). The exact location of the fire can be pinpointed using the innovative fire source identification. Aspiration smoke detectors are fitted with the latest fire detection technology. The resistance to contamination, the temperature compensation of the sensor signals and initialization in relation to air pressure ensure reliable operation even under difficult environmental conditions.

System overview



- | | |
|-------------------|-------------------------------------|
| A | Pipe system |
| FAS-420-TM series | Aspiration 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 aspiration smoke detector triggers the alarm when the appropriate light obscuration level is reached. The alarm is displayed through the internal 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 through the connected fire panel. Alarm and malfunction messages are displayed simultaneously on the device through the Local SecurityNetwork (LSN) using the reset function on the detector line.

Avoiding false alarms

Intelligent signal processing *LOGIC-SENS* compares the measured smoke level with known disturbance variables and decides between alarm and 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

The aspiration 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 FAS-420-TM-RVB Aspiration smoke detector allows a response sensitivity of 0.05%/m to 0.2%/m light obscuration.

Address setting

The address on the aspiration smoke detector is set using the DIP switches. Automatic address setting and manual address setting is possible, with or without auto detection.

The following settings are possible:

Address	Operating mode
0	Automatic address setting in improved version LSN mode for loop/stub (T-taps not possible)

1 - 254	Manual address setting in improved version LSN mode for loop/stub/T-taps
255	Automatic address setting in classic LSN mode for loop/stub (address range: max. 127)

LSN improved features

The devices offer all the features of the LSN technology improved version:

- 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 devices also offer 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.

Variants

All devices have LED displays for operating mode, malfunction and main alarm, and also offer 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.

FAS-420-TM-RVB also includes an internal alarm display and a 10-segment smoke level display.

Regulatory information

Region	Regulatory compliance/quality marks	
Morocco	CMIM	FAS-420-TM
Macao Special Administrative Region Government	CB	0851/GEL/DPI/2020
Germany	VdS	G209144 FCS-320-TM_FAS-420-TM
Switzerland	VKF	AEAI 21137 FCS-320-TM_FAS-420-TM
Europe	CE	FAS-420-TM Series
	CPD	0786-CPD-20879 FCS-320-TM_FAS-420-TM
Hungary	TMT	TMT-55/2009 FAS-420-TM

Installation/configuration notes

- For connection to the addressable fire panels with the extended system parameters of LSN improved version.
- You can use this device with the Panel Controller MPC-xxxx-B or MPC-xxxx-C. The Panel Controller MPC-xxxx-A cannot be used.

- 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 ± 20%)
- Same distance between adjacent air sampling openings on the smoke aspiration pipe (maximum deviation ± 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 ± 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

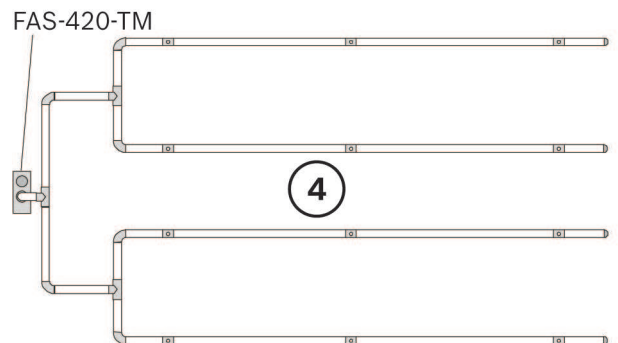
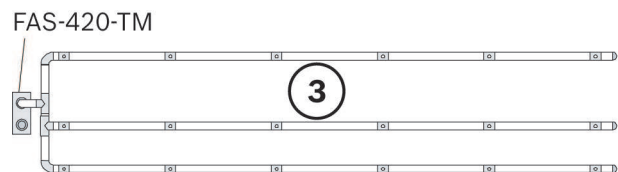
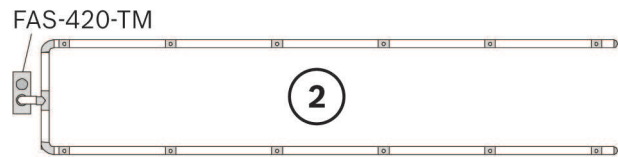
For faster detection, it is best to select several short branches rather than a few long branches (U and double-U pipe systems preferable).

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 FAS-420-TM planning, refer to the User manual (F.01U.088.878).

Technical specifications

Electrical	
LSN power supply	15 V DC-33 V DC
Auxiliary power supply	14 V DC-30 V DC
LSN current consumption	6.25 mA
Current consumption from auxiliary power supply (24 V)	Fan voltage

	9 V	10.5 V	12 V	13.5 V
• Starting current	120 mA	130 mA	145 mA	160 mA
• In standby	90 mA	110 mA	130 mA	150 mA
• With alarm, device variants FAS-420-TM and FAS-420-TM-R	125 mA	135 mA	150 mA	175 mA
• With alarm, device variant FAS-420-TM-RVB	180 mA	180 mA	180 mA	180 mA

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	
Aspiration smoke detector	-20 °C to +60 °C
PVC pipe system	-10 °C to +60 °C
ABS pipe system	-40 °C to +80 °C
Permissible relative humidity (non-condensing)	Max. 95%

Ordering information

FAS-420-TM Aspiration smoke detector

Analog addressable aspiration smoke detector with LED displays for operating mode, malfunction and alarm. For connecting one pipe system.

The FAS-420-TM-HB Housing base must be ordered separately.

Order number **FAS-420-TM | F.01U.078.495**

FAS-420-TM-R Aspiration smoke detector, room-ident

Analog addressable aspiration smoke detector with LED displays for operating mode, malfunction, alarm and fire source identification. For connecting one pipe system.

The FAS-420-TM-HB Housing base must be ordered separately.

Order number **FAS-420-TM-R | F.01U.078.496**

FAS-420-TM-RVB Aspiration smoke detector, bar graph

Analog addressable aspiration smoke detector with LED displays for operating mode, malfunction, internal alarm, and main alarm, fire source identification and 10-segment smoke level display. For connecting one pipe system.

The FAS-420-TM-HB Housing base must be ordered separately.

Order number **FAS-420-TM-RVB | F.01U.078.497**

FAS-420-TM-HB Housing base

Housing base for aspiration smoke detector

Order number **FAS-420-TM-HB | F.01U.078.494**

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 | F.01U.033.505**

RAS TEST-PIPE Test pipe for smoke aspiration system

Pipe with three different suction openings to make the functional test easier to carry out.

Order number **RAS TEST-PIPE | 4.998.148.848**

Test Adapter

The Test Adapter is recommended for applications where the suction pipe system has to be fixed.

Order number **RAS TEST ADAPTER | 4.998.148.849**

TITANUS AF-BR Marking tape suction-reducing film sheet

For securing a suction-reducing film sheet to prevent it from becoming displaced. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-BR | 4.998.143.413**

TITANUS AF-2.0 Suction-reducing film sheets, 2.0mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-2.0 | 4.998.143.416**

TITANUS AF-2.5 Suction-reducing film sheets, 2.5mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-2.5 | 4.998.143.417**

TITANUS AF-3.0 Suction-reducing film sheets, 3.0mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-3.0 | 4.998.143.418**

TITANUS AF-3.2 Suction-reducing film sheets, 3.2mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-3.2 | 4.998.143.419**

TITANUS AF-3.4 Suction-reducing film sheets, 3.4mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-3.4 | 4.998.143.420**

TITANUS AF-3.6 Suction-reducing film sheets, 3.6mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-3.6 | 4.998.143.422**

TITANUS AF-3.8 Suction-reducing film sheets, 3.8mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-3.8 | 4.998.143.423**

TITANUS AF-4.0 Suction-reducing film sheets, 4.0mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces

Order number **TITANUS AF-4.0 | 4.998.143.424**

TITANUS AF-4.2 Suction-reducing film sheets, 4.2mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-4.2 | 4.998.143.425**

TITANUS AF-4.4 Suction-reducing film sheets, 4.4mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-4.4 | 4.998.143.426**

TITANUS AF-4.6 Suction-reducing film sheets, 4.6mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-4.6 | 4.998.143.427**

TITANUS AF-5.0 Suction-reducing film sheets, 5.0mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-5.0 | 4.998.143.428**

TITANUS AF-5.2 Suction-reducing film sheets, 5.2mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-5.2 | 4.998.143.429**

TITANUS AF-5.6 Suction-reducing film sheets, 5.6mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-5.6 | 4.998.143.430**

TITANUS AF-6.0 Suction-reducing film sheets, 6.0mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-6.0 | 4.998.143.431**

TITANUS AF-6.8 Suction-reducing film sheets, 6.8mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-6.8 | 4.998.143.432**

TITANUS AF-7.0 Suction-reducing film sheets, 7.0mm

For covering an air sampling opening with corresponding punch diameter. Price per piece, delivery unit: 10 pieces
Order number **TITANUS AF-7.0 | 4.998.143.433**

Represented by:

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
www.boschsecurity.com/xc/en/contact/
www.boschsecurity.com

Germany:
Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Tel.: +49 (0)89 6290 0
Fax: +49 (0)89 6290 1020
de.securitysystems@bosch.com
www.boschsecurity.com

North America:
Bosch Security Systems, LLC
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
onlinehelp@us.bosch.com
www.boschsecurity.com

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
www.boschsecurity.com/xc/en/contact/
www.boschsecurity.com