

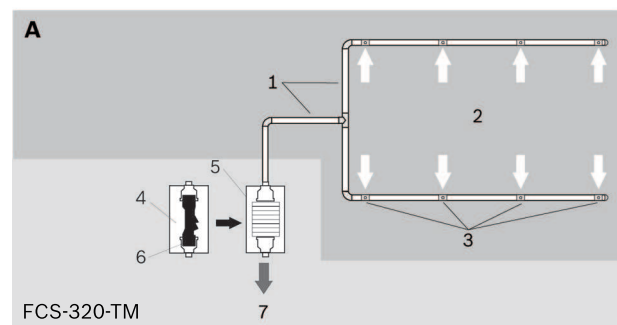
## FCS-320-TM Conventional aspiration smoke detector series



- ▶ 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
- ▶ Simple implementation of the pipe system planning through patented suction-reducing film sheets

Aspiration smoke detectors from the FCS-320-TM series are active fire detection devices for providing early smoke and fire detection. They are used for space and equipment protection as well as for monitoring air conditioning units or ducts (provided that it is installed outside of these units or ducts). You can also pinpoint the exact location of the fire using the innovative fire source identification operation. 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                         |
| FCS-320-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 takes air samples from the monitoring area through a pipe system with defined air sampling openings and passes the samples 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 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**

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.

**Variants**

All devices have LED displays for operating mode, malfunction and main alarm, and also offer an infrared diagnostics port. In addition, FCS-320-TM-R offers an optical fire source identification display for up to five zones.

**Regulatory information**

Region	Regulatory compliance/quality marks	
Morocco	CMIM	FCS-320-TM
Macao Special Administrative Region Government	CB	0851/GEL/DPI/2020
Germany	VdS	G209144 FCS-320-TM_FAS-420-TM

Region	Regulatory compliance/quality marks	
Switzerland	VKF	AEAI 21137 FCS-320-TM_FAS-420-TM
Europe	CE	FCS-320-TM
	CPD	0786-CPD-20879 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 ± 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**

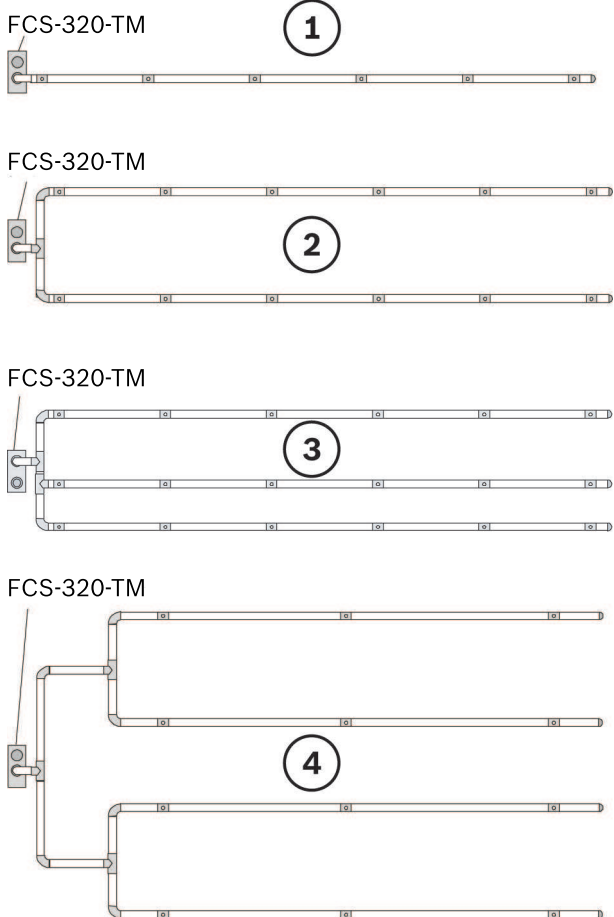
For faster detection, it is best to select several short branches rather than a few long branches (U and double-U pipe systems preferable).

**Pipe configuration**

Depending on the geometry of the area, the aspiration pipe is planned as an I, U, M or double-U pipe system.

**i 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 FCS-320-TM planning, refer to the user manual (F.01U.130.928).

**Technical specifications**

**Electrical**

Power supply (Conventional)	14 VDC-30 VDC			
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
• At alarm	125 mA	135 mA	150 mA	175 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**

**FCS-320-TM Aspiration smoke detector**

Conventional 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 **FCS-320-TM | F.01U.141.195**

**FCS-320-TM-R Aspiration smoke detector, room-ident**

Conventional 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 **FCS-320-TM-R | F.01U.141.196**

**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**

**FCA-320-RELAY Relay module**

Relay module for aspiration smoke detector FCS-320-TM or FCS-320-TM-R

Order number **FCA-320-RELAY | F.01U.141.200**

**FCA-320-Reset Reset Module**

Reset module for FCS-320-TP1, FCS-320-TP2 or FCS-320-TM

Order number **FCA-320-RESET | F.01U.141.199**

**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**

**Services****EWE-FCS320-IW 12 mths wrty ext FCS-320**

12 months warranty extension

Order number **EWE-FCS320-IW | F.01U.360.756**

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