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TROX® TECHNIK

Product Information on Smoke Detectors Type RM-O-VS-R

PI/4/19/EN/1

Application

Smoke detectors must in conjunction with smoke protection dampers, e.g. Trox smoke protection damper type JZ-RS with general building approval No. Z-78.4-51, prevent the transmission of smoke in ventilation systems.

Installation

The smoke detectors must be installed (distance maximum 1 metre in front of or behind the smoke protection damper, which shall be controlled) in such a way, that air definitely flows through it, when the ventilator is running. If there is no flow through rate, the associated smoke protection damper closes automatically not later than 140 seconds after the opening signal.

Attention!

Smoke detectors are items which require an offical licence for use (general building approval). Therefore, the “General and Special Provisions” specified in the general building approval must be followed when using the smoke detectors.

Substantial Features

- Approved by German Institute for Building Technology (General Building Approval No. Z-78.4-51)
- With integrated flow monitor
- Monitoring the degree of pollution
- Automatic closing of the associated smoke protection damper if the smoke concentration is too high, missing air-flow, faulty electronics and loss of electrical energy
- **Maintenance once only per year.**

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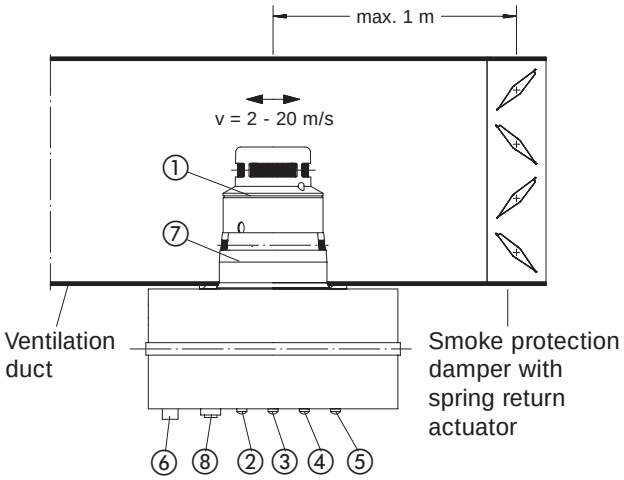

① Optical smoke sensor
② LED lamp - green - “System monitoring”
③ LED lamp - red - “Alarm position”
④ LED lamp - yellow - “Degree of pollution monitoring”
⑤ LED lamp - blue - “Air flow monitoring”
⑥ Socket for diagnostic instrument
⑦ Air-flow monitor
⑧ Push-button “Test / Reset”

Function

The optical smoke sensor Pos. (1) looking in the ventilation duct controls the passing air flow, if there are smoke aerosols. If a permitted smoke concentration is exceeded, no air flow in the area of the smoke sensor, a short-circuit, interruption of the supply voltage to the smoke sensor, demounted smoke sensor or a AC/DC power failure, the alarm relay interrupts the electric circuit to the electric spring return actuator of the smoke protection damper. The smoke protection damper must now close automatically, the fan will be switched off.

The operating states of the smoke detector are displayed by four LED-lamps Pos. (2) to (5).

The conventional operation of the smoke detector, while the ventilation system is working, is indicated by permanent light of the green LED Pos. (2). If the green and red LED Pos. (2) and Pos. (3) are flashing, there is a fault in the electronics.

If the permitted smoke concentration is exceeded or if there is a fault of the functions “Operation, Air flow- and System Voltage Monitoring”, the alarm relay switches and the red LED Pos. (3) flashes, the green LED Pos. (2) goes out. The associated smoke protection damper closes, the fan will be switched off.

To avoid false alarms, the smoke sensor of the smoke detector is continuously controlled, if there is pollution. If external influences (dust, etc.) lead to enduring pollution of the smoke sensor of over 70 %, the yellow LED Pos. (4) flashes. The current degree of pollution is recallable by a diagnostic instrument via the socket Pos. (6).

The air flow in the area of the smoke sensor is monitored by an air-flow monitor Pos. (7). Air velocities exceeding 2 m/s are indicated by permanent light of the blue LED Pos. (5). If there is no volume flow, the alarm relay switches and the red LED Pos. (3) flashes, the blue LED Pos. (5) goes out. The associated smoke protection damper closes, the fan will be switched off.

All fault signals can be reset after eliminating the reason of the faults by the push-button “Reset” Pos. (8). During actuation of the push-button, the red LED Pos. (3) shows permanent light.

Inspection / Maintenance (on site)

- ☐ Check original application and installation situation
- ☐ Check intactness of electrical connections and wires
- ☐ Check the response behaviour of the smoke sensor by blowing in test gas, if the permitted smoke-gas-concentration is exceeded, the associated smoke protection damper closes, the fan will be switched off. The green LED Pos. (2) and the blue LED Pos. (5) go out. The red LED Pos. (3) flashes.
- ☐ After the smoke sensor is clear of smoke, it is possible to re-open the smoke protection damper. Thereto actuate the push-button Pos. (8) . The flashing red LED Pos. (3) goes out, the green LED Pos. (2) shines. The associated smoke protection damper drive to the OPEN-position. The light of the blue LED Pos. (5) indicates that the smoke sensor is flushed by the air volume flow.

Remedy of Defects

If inspection and maintenance has revealed faults, these must be repaired immediately. Faulty components must be replaced only by original Trox spare parts.

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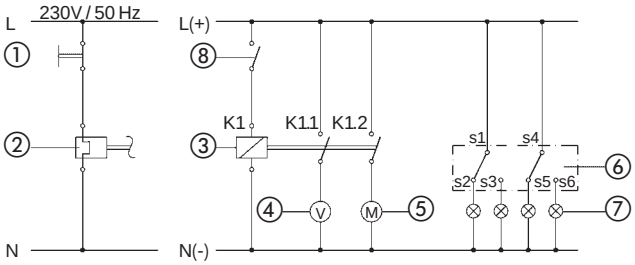
Circuit Diagram and Wiring Diagram for Smoke Protection Damper and Smoke Detector



Smoke protection damper in **OPEN** position shown

① Electric switch, supplied by others
(close and open smoke protection damper)

② Smoke detector
(close smoke protection damper)
with push-button “Test / Reset”

③ Load-relay K1, supplied by others with contact on K1.1 / K1.2 for switching of the spring return actuator and the ventilator

④ Ventilator, supplied by others

⑤ Spring return actuator of the smoke protection damper

⑥ In the spring return actuator integrated limit switches

⑦ Consumer electrics, supplied by others
(e.g. pilot lamp for position indication)

⑧ Contact from alarm relay of the smoke detector

Technical Data

- Supply voltage: 230 V, 50/60 Hz
- Power consumption: max. 25 VA
- Degree of protection: IP 42
- Permitted ambient temperature: + 10 °C to + 60 °C
- Permitted air velocity in the ventilation duct: 2 m/s to 20 m/s
- Permitted air humidity: 0 to 90 % relative humidity (condensation and water vapour impact can cause false alarm)
- Warning limit for air flow: ≤ 2 m/s
- Warning limit for increased pollution: > 70 ± 10 units
- System monitoring: electric fault
- EMC: Interference suppression to EN 60801-2 and 60801-4
- Weight: 1.5 kg

Order Code / Prices (Price list 2002)

Smoke detector	RM-O-VS-R	1724,- € per piece
Diagnostic instrument	D-RM-O-VS	227,- € per piece

Tendering Text

☐ For RM-O-VS-R
Smoke detector (smoke detection using optical light scattering principle) with issued general building approval awarded by German Institute for Building Technology, Berlin, suitable for controlling of building approved smoke protection dampers. Applicable for air velocities of 2 to 20 m/s.

With monitoring of the air flow, the pollution of the smoke sensor chamber and the system electronics. It must be possible to recall the pollution level of the smoke sensor chamber via a diagnostic instrument.

Maintenance once only per year.

☐ For D-RM-O-VS
Diagnostic instrument for smoke detector type RM-O-VS-R to recall pollution level. Measurement range: 0 - 100 units; hand unit with 1 m long connecting lead and plug, battery supply 9 V.