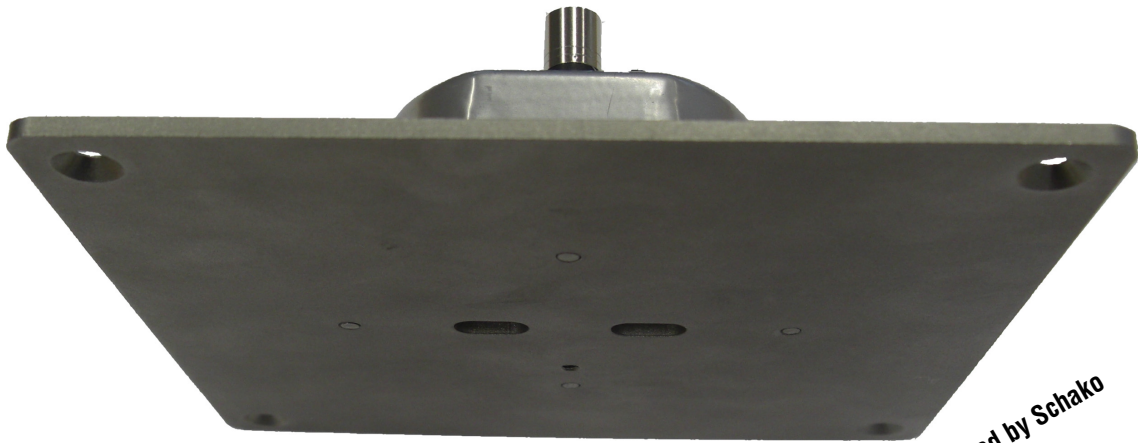




Smoke Detection System

RMS-V



Industrial property rights owned by Schako
- Patent: DE 199 51 403 A1
- Registered utility model: 2002 3533.8
- Patent EP 122 4641

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Smoke Detection System RMS-V

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Smoke Detection System RMS-V

Description

Application

Schako smoke detectors **are used wherever, at the earliest possible stage of a fire, upon occurrence of cold smoke of < 72°, triggering and switching operations are to be controlled automatically. They can be fitted flush to ceilings.**

The RMS-V is has been specially designed for use in prisons and penitentiary institutions, since the stainless steel face-plate avoids damage to the mounted part caused by vandalism.

During an alarm, the smoke detectors limit the source of fire. The alarm message is transmitted via an optocoupler equipped with a signal resistance. The smoke detectors are supplied with in a protected area by a 230 AC mains supply unit and by a secondary 24 V DC.

The smoke detectors remain in alarm condition after being triggered, even after the normal ambient conditions have been restored. The smoke detectors will not return to its monitoring status until they are reset.

As the measurements are taken outside the RMS housing, thus **not requiring a detection chamber**, the function **does not depend on a minimum or maximum air velocity.**

Function (special scattered light method)

Two sensors in the smoke detector send out a light beam and measure if the air on the front of the safety glass is contaminated with smoke or other particles.

Before triggering an alarm, various measurement cycles must be carried out, during which the contamination in the air must be measured. If the contamination is not permanently present, then the internal measurement cycle counter is reset. The response sensitivity of the smoke detector is set ex works. The alarm output has been designed as optocoupler with signal resistance. The smoke detector can be reset to the ready-to-operate mode by remote control. A power failure at the smoke detector can be displayed at the central unit. Tampering with the smoke detector, for example by taping the sensors, is detected and reported to the switchboard via an optocoupler equipped with a signal resistance (error output). Deposits in the measuring openings of the safety glass of the smoke detector are detected and evaluated. When a certain degree of soiling is exceeded, it is reported as a fault message to the switchboard via the optocoupler equipped with a signal resistance. In this way, the smoke detection system monitors itself. The degree of soiling can be polled and all relevant detector data can be read out by means of a diagnostic and data read-out unit (at an extra charge).

Advantages

- as no detection chamber is required for measurements, no medium flows through the smoke detector and deposits can only be formed on the safety glass.
- flush fit to ceiling.
- automatic tampering detection.
- easy to clean.
- Self-function test of the transmitter and receiver sensors. A defect is displayed.
- when a power, processor or system failure occurs, a fault message is displayed simultaneously with an alarm message.
- with system monitoring (watchdog).
- Bus connection possible via the optocoupler equipped with a signal resistance.
- Connection to the communicative Signalling and Switching Bus System Model KOMES possible.
- to avoid damage to the mounted part caused by vandalism, it is equipped with a stable stainless steel faceplate.

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Connection to the Communicative Signalling and Switching Bus System KOMES

In alarm or fault condition the relevant optocoupler with signal resistance of the smoke detector transmits a signal to the compatible limit switch module KESS or to the switch motor booster SMB-RSA, which transmits this message to the KOMES bus system.

Smoke Detection System RMS-V

Ceiling assembly

When installed in ceilings, the smoke detector must be installed outside the areas that can be reached by hand.

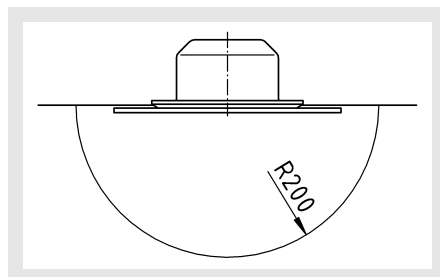
Installation arrangement and mounting

The smoke detector type RMS must be fitted free of vibration if possible. When charged with steam, dust, soot (exhaust gases) or dew, an alarm or fault message is triggered.

Assembly in ceilings

1. Establish smoke detector position and mark the middle.
2. Cut out a hole of 105 mm in diameter.
3. Insert smoke detector and mount it on the ceiling using 4 special fastening screws (on-site).
4. Carry out electrical wiring according to diagram.

When fitting the RMS smoke detector, care must be taken that in a 200 mm radius around the detector, nothing can reflect the emitted sensor signals.



Connection

1. Connect the mains power supply. When the output voltage is active, the green operating indicator lamp will flash.
2. Check the output voltage.

Note

Before the first startup of the smoke detector, the ceiling must be cleaned to remove any assembly dirt so as to avoid any accidental alarm message.

The power supply units are equipped with a controller with power limiter and thermal protection. When a short-circuit occurs, the controller switches off the output voltage. An interruption in the mains supply voltage or of the "+" output line will reset the detector.

Construction

Safety glass

- fitted with a 3 mm stainless steel faceplate (sand-blasted), to avoid damage to the mounted part caused by vandalism
- Plexiglas

Connecting socket of the diagnostic device

- 6-pin Mini DIN plug

Connection

- Two 4-pin terminal strips

Housing

- sheet steel

Individual display

- Room-side LED

Base

- Plastic (high-quality)

Accessories

Diagnostic and data read-out unit

- for polling the degree of soiling and reading out all relevant detector data

Power supply unit

- NG 519: for a max. of 8 RMS-V 230 V AC / 24 V DC
- NAG 03 : for a max. of 15 RMS-V 230 V AC / 24 V DC

Smoke simulation device (-RSG)

- for simple maintenance and inspection of the smoke detectors

Reset key (-RST)

- for resetting the alarm message

Fastening

Screw mounting (-SM)

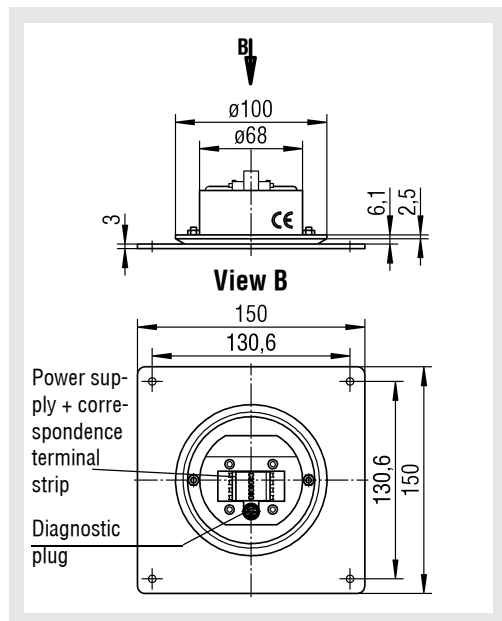
- Standard, screws must be provided on-site

Smoke Detection System RMS-V

Models and dimensions

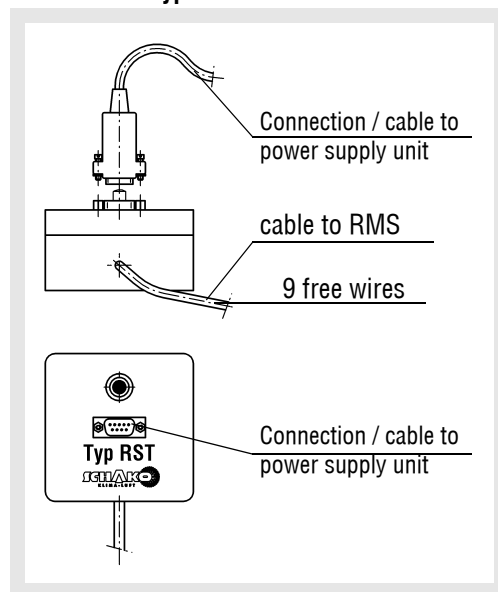
Dimensions

RMS-V



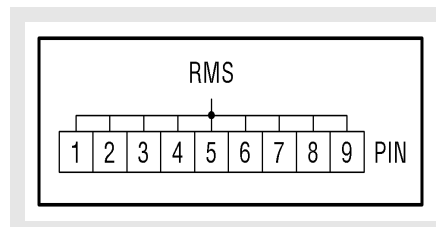
Dimensions of accessories

Reset button type RST



The reset button type RST (at an extra charge) can be used to reset an alarm message.
The reset button is fitted in a T-piece socket.

Terminals RST



Smoke Detection System RMS-V

Technical data

RMS-V

Operating voltage	24 V DC (+10%)
Residual ripple	< 20%
Current consumption	20 mA
Switching contacts	- 1 Alarm output (1 optocoupler with signal resistances) - 1 Fault output (1 optocoupler with signal resistances)
Alarm resistance	18 kOhm
Resistance for operation	47 kOhm
Operating state	Resistance values at the terminals R+ and R-
Start	> 1 MOhm
Operation	47 kOhm
Alarm	18 kOhm
Fault	> 1 MOhm
Operating and ambient temperature	0 °C to +60 °C
Protection type according to DIN 40050	IP 42
Weight	0.7 kg
Storage temperature	max. 75°C
relative humidity	10 - 90%

Individual display - LED display:

flashing green	= Function
permanently red	= Alarm
permanently orange	= Fault / soiled

When soiled, the smoke detector can still detect smoke.

Maintenance / Inspection

The smoke detector RMS-V must be subjected to regular maintenance according to statutory regulations.

Note

Installation and wiring must be carried out by skilled electricians. The recognised technical rules, safety and accident prevention regulations as well as VDE (Union of German Technical Engineers) guidelines, regulations of the local power company and the wiring information and connecting diagrams of the component manufacturer must be observed during installation, wiring and commissioning. When wiring the junction boxes, care must be taken to connect the shielding to earth. The smoke detector must be used according to the catalogue description.

Maintenance instructions

The SCHAKO smoke detector type RMS permanently monitors itself and gives an error warning to the central unit if there is a mechanical or electrical defect or if it is too soiled.

When a power failure of the smoke detector occurs, a fault message is also sent to the central unit.

Maintenance includes the following activities:

1. The type of use and the installation situation must be checked for the first time during commissioning and then after changes have been made.
2. The electrical connections must be checked for correct connection and perfect condition.
3. Check if the diode on the fitted smoke detector or the reset button type RST flashes green, thus signalling ready operating state.
4. Electrical functionality control
The power supply of the smoke detector must be interrupted. The diode on the smoke detector or on the reset button is no longer lit. As soon as the power supply has been restored, the smoke detector must return to the ready operating state, and the diode on the smoke detector or on the reset button must flash green. At the central unit, the ready operating state must also be displayed.
5. Fault control
On the smoke detector RMS, the transmitter and receiver sensors must be covered. The diode on the smoke detector lights up permanently in orange. The smoke detector reports a fault message to the central unit. After that, the cover must be removed again. The smoke detector must again return to the ready operating state, and the fault message is reset at the central unit.
6. Functionality control using test aerosols
When the smoke detector is fitted to the ceiling, a test aerosol must be applied directly to the smoke detector. This must be done by applying the test aerosol to the smoke detector increasingly in pulsed form for about 10 sec. When the alarm threshold values is exceeded, an alarm message will be triggered. The diode on the smoke detector or reset button must light up in red. After the air in the surroundings of the smoke detector has broken down the aerosol to such an extent that the value drops again below the alarm threshold value, the alarm message is still displayed on the smoke detector or the reset button. This is why the smoke detector must be activated again by disconnecting the power supply or by pressing the reset button. As soon as the diode on the smoke detector type RMS or on the reset button type RST lights up in green again, the smoke detector is ready to operate again.
or
Functional control using the smoke simulation device (-RSG)
The smoke simulation device is simply placed from below, with the opening pointing upward, against the smoke detector. After about 12 seconds, the smoke detector must trigger an alarm message. The diode on the smoke detector or reset button must light up in red. Once this has taken place, the alarm message must be reset by disconnecting the power or by pressing the reset button. As soon as the diode on the smoke detector or on the reset button flashes in green again, the smoke detector is ready to operate again.

Smoke Detection System RMS-V

7. Soiled front glass

If the front glass is soiled to such an extent that the smoke detector sends a fault message to the central unit, and the diode on the smoke detector and reset button lights up in orange, the openings in the safety glass must be cleaned with compressed air. Dismounting the safety glass is not allowed. As soon as the soiling has been removed, the smoke detector returns automatically to the ready-to-operate state, and the diode on the smoke detector or on the reset button flashes in green again. It is recommended cleaning the openings in the safety glass with compressed air when carrying out the regular maintenance work. Do not use any aggressive materials for cleaning as the measuring openings might turn dull, causing a constant fault message to be sent (soiled front glass).

8. Elimination of defects

If defects have been detected during maintenance, they must be eliminated immediately. Defective components may only be replaced with original parts delivered by Schako. Repair of the smoke detector must be carried out only by the appliance manufacturer.

Inspection instructions

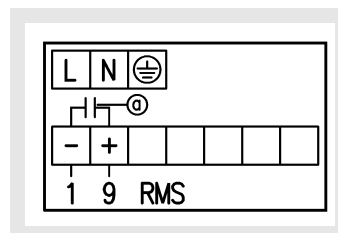
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When a power failure of the smoke detector occurs, a fault message is also sent to the central unit.

Inspection includes the following activities:

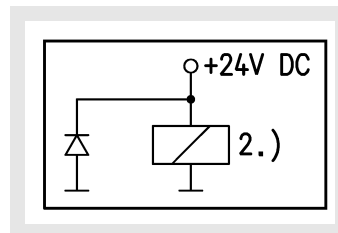
- Check if the diode on the fitted smoke detector or the reset button type RST flashes green, thus signalling ready operating state.

Connection assignment of the NG 519 / NAG 03 Terminals



a = Electrolytic capacitor 470
 μ F 35 V

required inverse diode



2.) Relay / protection

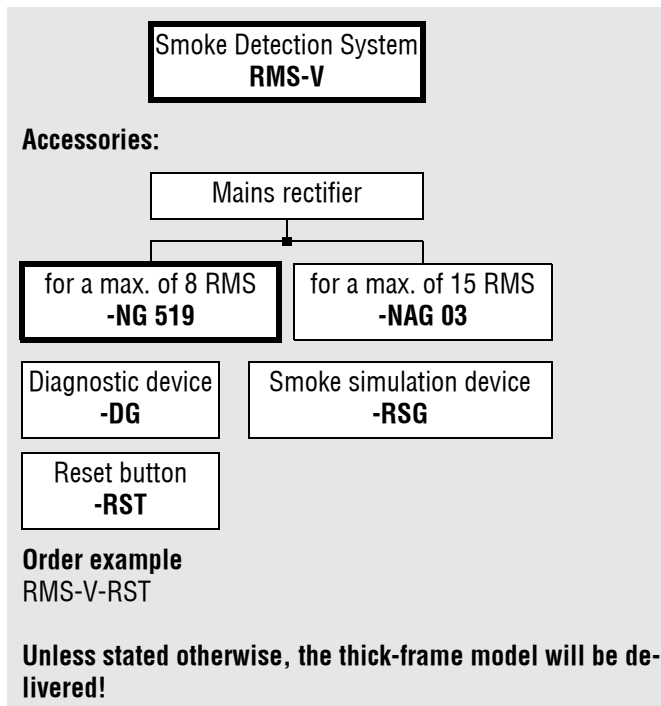
Caution!

When connecting the smoke detector type RMS-V, the following sequence must be adhered to:

1. Connect all smoke detectors to the relevant mains rectifier type NG 519 or NAG 03
2. Connect the voltage supply to the mains rectifier

Smoke Detection System RMS-V

Order details



Specification text

Smoke detection system **type RMS-V** with regular maintenance, for assembly in ceilings.

Consisting of a housing made of sheet steel painted to RAL 9010 (white), with a base made of high-quality plastic, safety glass made of Plexiglas, with 3 mm stainless steel faceplate (sand-blasted), to avoid damage to the mounted part caused by vandalism.

Two sensors self-monitoring permanently for correct functioning measure the air contamination due to smoke with a special scattered light procedure outside the housing, without using a detection chamber. They measure the degree of contamination on two points on the surface of the safety glass.

Alarm and fault messages each take place via 2 optocouplers equipped with signal resistances.

Manual triggering of the smoke detector possible via a reset button (at an extra charge) or via remote control.

with screw mounting via 4 mounting holes.

Connection 24 V DC.

Product: SCHAKO **type RMS-V**

Accessories:

- Power supply unit for supplying power to the smoke detectors. Short-circuit proof.
 - NG 519: for a max. of 8 RMS
230 V AC / 24 V DC
 - NAG 03: for a max. of 15 RMS
230 V AC / 24 V DC
- Reset button (-RST) for resetting the alarm message.
- Smoke simulation device (-RSG) for simple maintenance and inspection of the smoke detectors
- Diagnostic device (-DG) for polling the degree of soiling and reading out all relevant detector data.