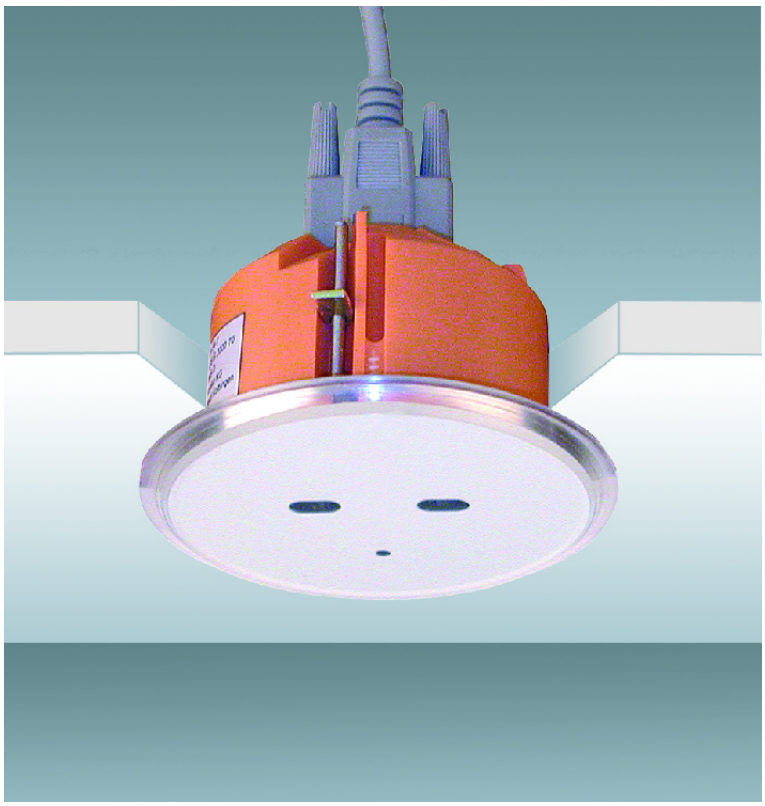
Installation, Mounting and Maintenance

Model RMS



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Installation, Mounting and Maintenance Model RMS

Contents

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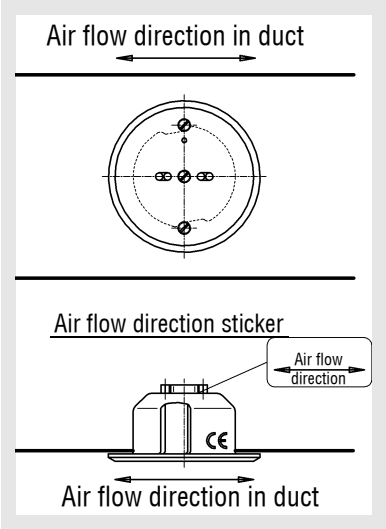
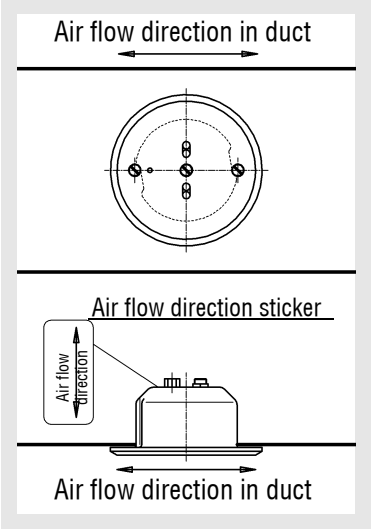
When integrating SCHAKO components in customer facilities, any compatibility problems are not our responsibility and must be eliminated by the customer.

1. Mounting position

Correct!



False!



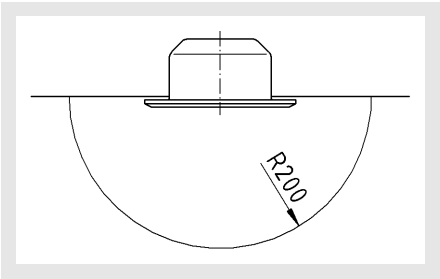
The maximum distance between smoke detector type RMS and fire damper must not be greater than 1 m as smoke must be detected as close as possible on the safety component.

Ceiling fitting

When fitting in ceilings the smoke detector must be installed outside the hand area only. Furthermore, the actuator of the smoke detectors must be programmed on.site by the building control system (GLT) or the central fire alarm system such that an alarm message occurs only when at least 2 smoke detectors have moved into the alarm position. (2-detector dependence)

Installation arrangement and mounting

The smoke detector type RMS must be fitted free of vibration if possible. When charged with steam, disinfectant, dust, soot (exhaust gases) or dew, an alarm or fault message is triggered.
If the smoke detector type RMS-L is used in a smoke extraction duct made of calcium silicate plates, the channel opposite from the smoke detector must be painted black in an area of ±500 mm around the smoke detector.
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.



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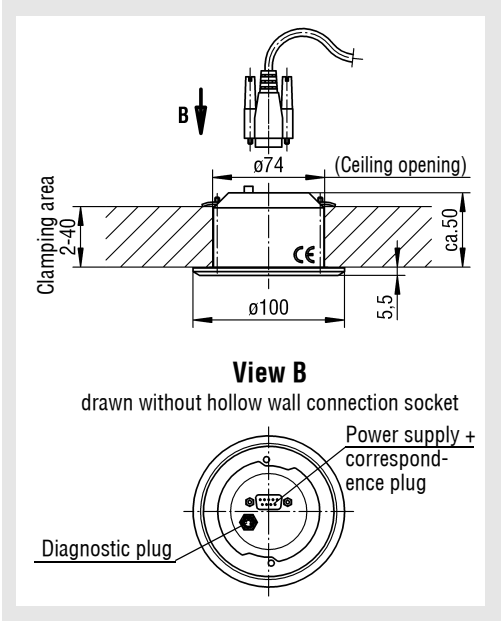
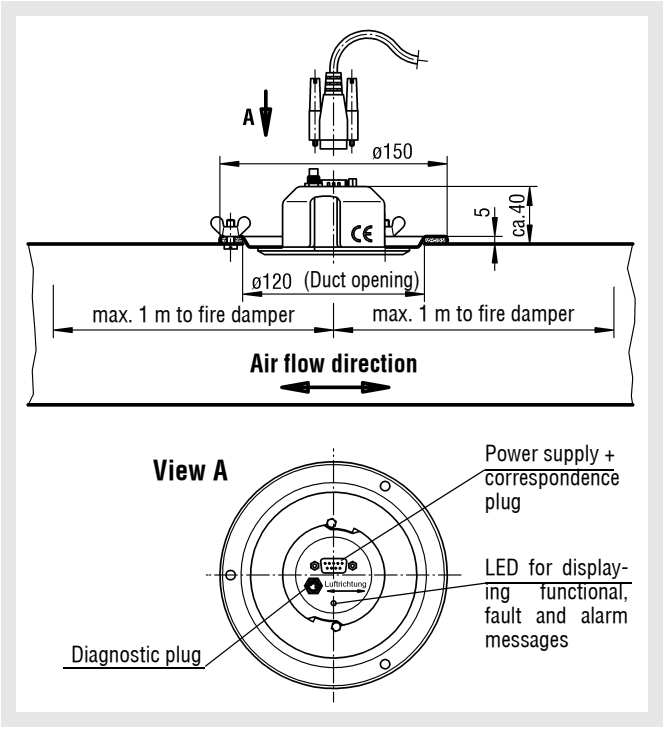
2. Installation into ceiling (smoke detection system type RMS-D)



Assembly in ceiling:

1. Establish smoke detector position and mark the middle.
2. Cut out a hole of 74 mm in diameter.
3. Fit and clamp a hollow wall connection socket.
4. Insert smoke detector and screw it to the hollow wall connection socket.
5. Carry out electrical wiring according to the diagram.

3. Installation in duct (smoke detection system type RMS-L)



Assembly in duct:

1. Establish smoke detector position max. 1 m before or after the safety component, since smoke must be detected in its immediate proximity, not in the inspection opening of the fire damper), and mark the middle.
2. Cut out a hole of 120 mm in diameter.
3. Drill mounting holes (only for design with thumb nuts).
4. Insert the delivered insulating sleeves into the mounting holes.
5. Fit smoke detector with maintenance cover and seal, connect with thumb nuts or Parker screws.
6. During assembly, observe air flow direction.
7. Carry out electrical wiring according to the diagram.
8. Before putting the RMS into operation, the duct system must be cleaned completely. Please note that, after wiping the front glass, the front glass must be sprayed with an anti-static spray.

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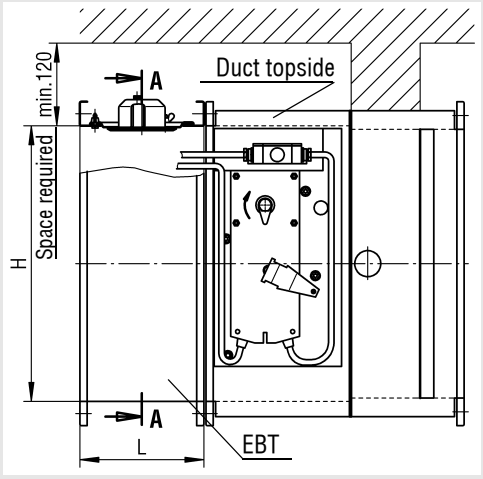
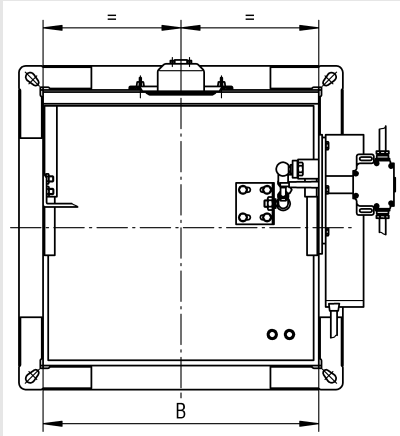
4. RMS-L fire damper installation

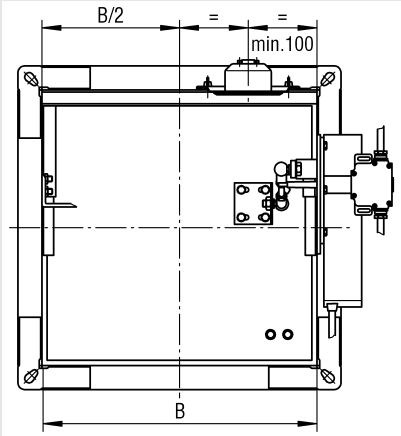
Smoke detection system type RMS-L for fire damper installation using assembly part type EBT



Section A-A / centre assembly
for B ≤ 711

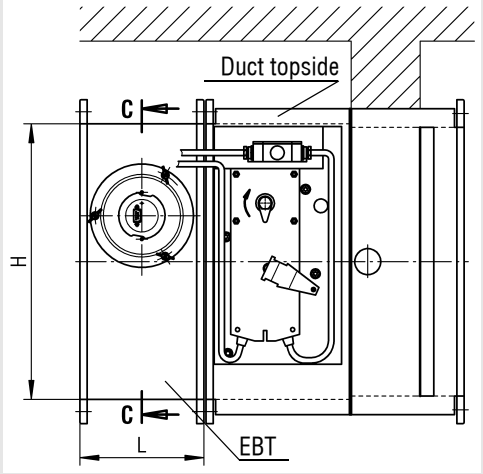


Section A-A / off-centre assembly
for B > 711

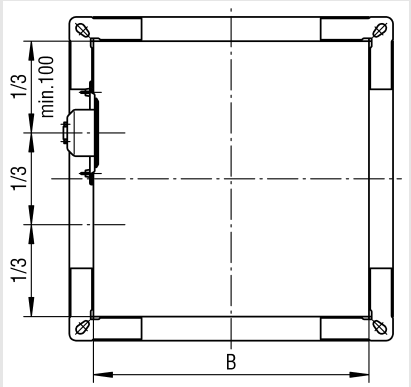


The smoke detector must always be assembled in the assembly part type EBT on the same damper half as the release device (not in the inspection opening of the fire damper).

Installation into duct side wall possible from H ≥ 318



Section C-C



The dimension L depends on the height H (mm).

H (mm)	L (mm)
201	180
252	180
318	180
357	180
400	180
449	180
503	180
565	180
634	180
711	180
797	200

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5. 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.

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 relay modules / 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. Disconnecting the mains supply voltage or the "+" output line will reset the detector.

After fitting the smoke detection system RMS-L on-site ready to operate, an acceptance test immediately prior to putting the fire damper or smoke detector must establish that the installation and the correct functioning, especially the correct interaction of all components, conforms to the regulations. The acceptance test must be carried out by authorised personnel of the manufacturer of the smoke detection system RMS-L or by other authorised specialists only. The acceptance test must be documented by the building owner of the ventilation system. The documents must be filed by the building owner/operator of the ventilation system.

After a successful acceptance test , the responsible for the acceptance shall install a sign supplied by the manufacturer, which is included in each delivery, in the immediate proximity of each fire damper.

Note
Installation and wiring must be carried out by professionals only. The recognised regulations of technology, safety and accident prevention regulations as well as the VDE guidelines, regulations of the local electric power companies and the wiring instructions and connection diagrams of the component manufacturer must be adhered to when installing, 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 brochure description.

Labelling
Make sure that during wiring all RMS are already marked with the position (installation site) and an unmistakable number for the assignment in the switch cabinet or on the KOMES device.

6. Technical Data

Operating voltage	24 V DC (+10%)
Residual ripple	< 20%
Current consumption	40 mA
Switching contacts	- 1 Alarm output (potential-free change-over contact) - 1 Fault output (potential-free change-over contact)
max. switching voltage	100 V DC / 125 V AC
max. switching current	2.0 A
max. switching power	30 W / 62.5 V A
Operating and ambient temperature	0 °C to +60 °C
Protection type according to DIN 40050	IP 42
Weight	0.2 kg
Storage temperature	max. 75°C
relative humidity	10 - 90%

VdS approval no.:	RMS-D	⇒ G 200070
	RMS-L	⇒ G 200096
DIBt Approval no.:	RMS-L	⇒ Z-78.6-58

Individual display - LED display

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

When soiled, the smoke detector can still detect smoke.

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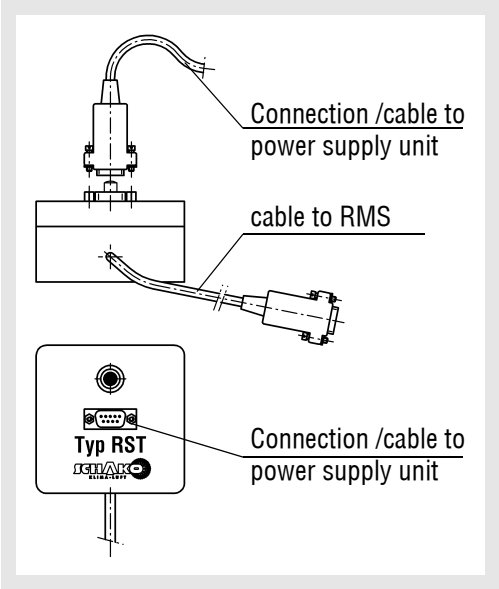
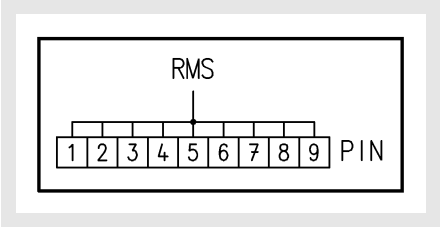
7. Accessories

Reset button type RST

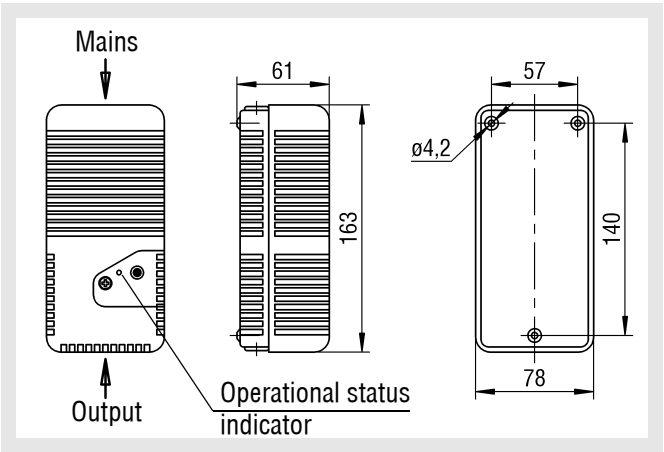


The reset button type RST (at an extra charge) can be used to reset an alarm message.
The reset key is built into a T-piece socket.

Terminals RST



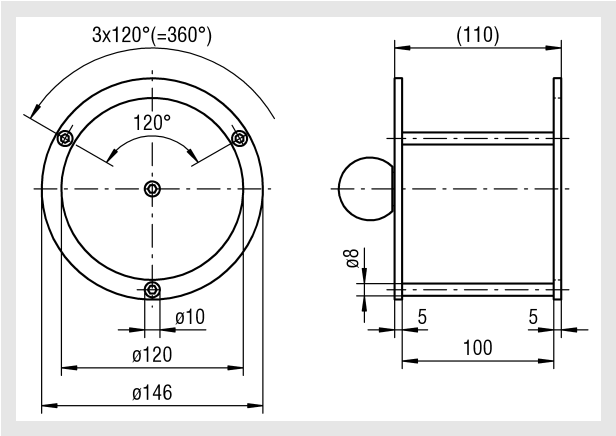
Power supply unit NG 519 (for a max. of 8 RMS-D)
Power supply unit NAG 03 (for a max. of 15 RMS-D)



Parts marked with this symbol must only be replaced with original parts!

The power supply units must be installed at a visible locaction accessible even in case of fire.

Smoke simulation device (-RSG)



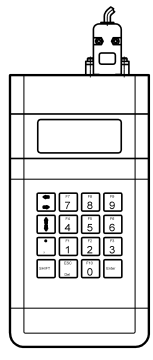
The smoke simulation device (-RSG) is required for simple maintenance and inspection of the smoke detectors.

For RMS-D:
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.

For RMS-L:
The smoke detectors installed flush with the duct do not have to be dismounted from the duct, and the electric wiring does not have to be deinstalled. Next, simply place the smoke detector with cover plate into the opening of the smoke simulation device.
After about 12 seconds, the smoke detector must trigger an alarm message. The diode on the smoke detector or on the reset button/ relay module 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/or the relay module. As soon as the diode on the smoke detector or on the reset button/relay module flashes in green again, the smoke detector is ready to operate again.

Attention!
Before using the smoke simulation device, the alarm transmission to the fire department must be deactivated.

Diagnostic and data read-out unit



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

- Degree of soiling 1 and 2
- Serial number
- Trigger threshold value
- Temperature in the smoke detector
- Functionality control of alarm contact
- Functionality control of fault contact

- including 1 m of connecting cable
- The power is supplied by the RMS

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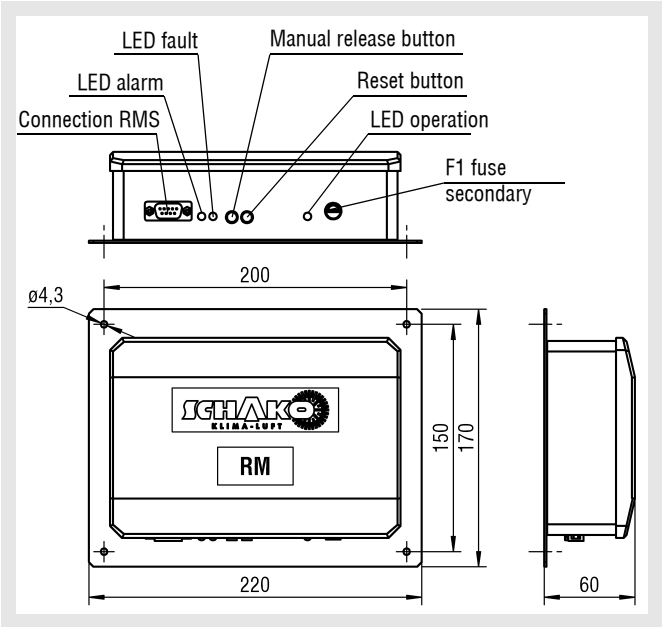
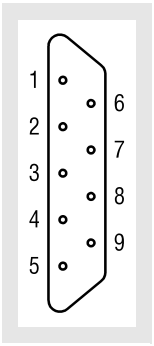
Relay module (-RM)



The RMS-L can be easily connected to the power supply by means of a relay module (9-pin SUB-D plug).
Moreover, the reset button RST and test switch TS have already mounted on the relay module.
This makes it easier to check the BK closing function via the test switch TS and/or to reset the alarm message via the reset button RST.
Additional terminal strips for spring return actuator and / or fan disconnection or other switching operations will shorten the installation time and prevent wrong wiring.
The 24 V motor can be connected ready to plug in via the AMP plug. You have the option of ordering the relay module with integrated transformer (version 1) for connection to 230 V AC 50 Hz or without transformer (version 2) for connection to 24 V DC.

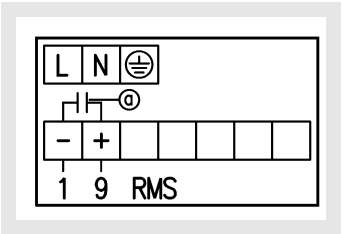
Connection assignment of the 9-pin SUB-D plug:

Assignment	Colour	Relay dead	Relay in operation	Meaning
1	black	-	-	GND
2	brown			Relay contact work contact fault
3	red			Relay contact center contact fault
4	orange			Relay contact rest contact fault
5	yellow	-	-	Test switch to GND
6	green			Relay contact rest contact alarm
7	blue			Relay contact center contact alarm
8	purple			Relay contact work contact alarm
9	grey	-	-	+24 V



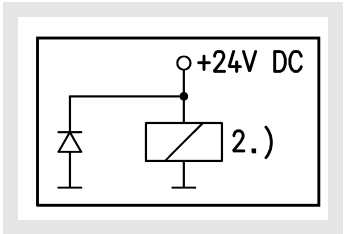
The relays drop off when an alarm / a fault or a power cut occurs.
For the current wire colours, please refer to the leaflet enclosed with each smoke detector type RMS-L.

Connection assignment of the NG 519 / NAG 03
Terminals



a = Electrolytic capacitor 470 µF 35 V

required inverse diode



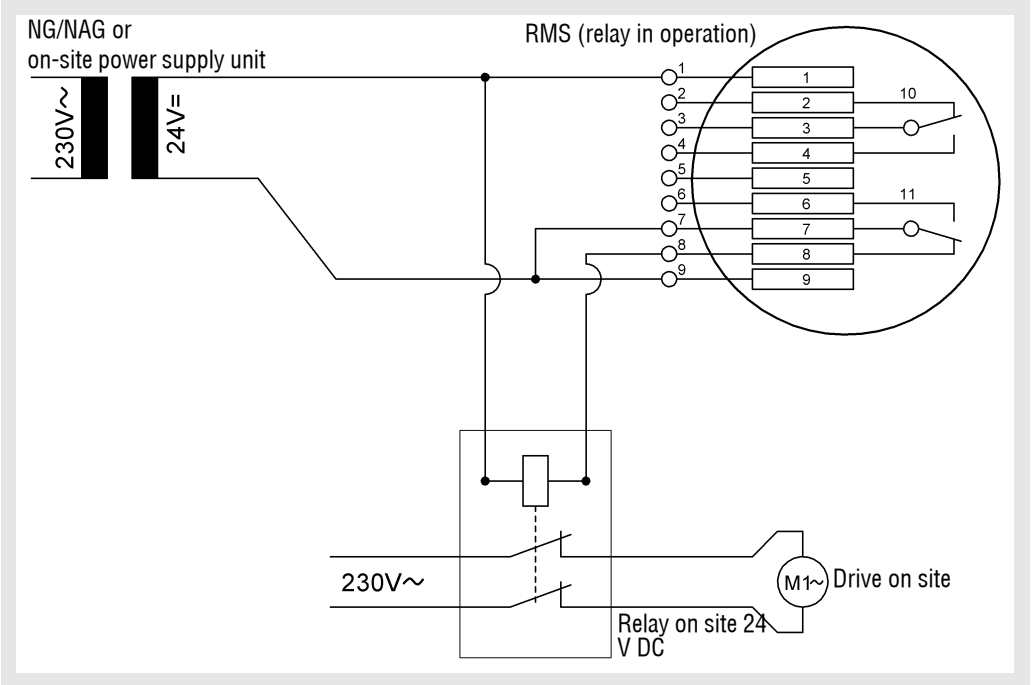
2.) Relay / protection

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

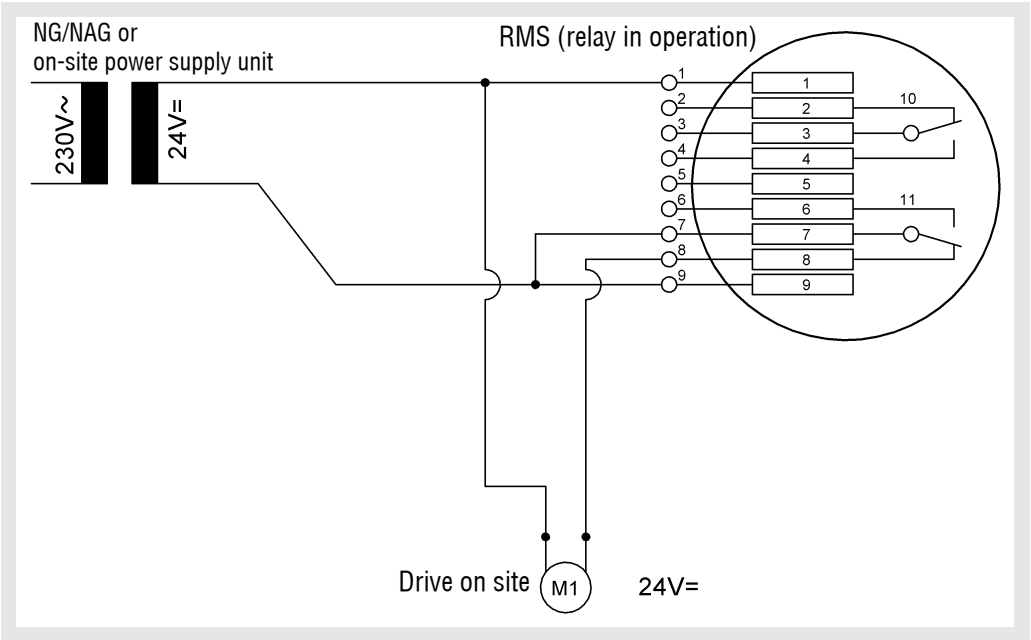
1. Connect all smoke detectors to the relevant mains rectifier type NG 519 or NAG 03
2. Connect the voltage supply to the mains rectifier

8. Circuit diagram

Circuit diagram of power supply unit (on-site) and relay (on-site)



Circuit diagram of power supply unit (on-site)



Contact assignment RMS-L:

1	GND
2	Work contact
3	Centre contact
4	Closed contact
5	Test switch / RST
6	Closed contact
7	Centre contact
8	Work contact
9	+24 V
10	Fault
11	Alarm

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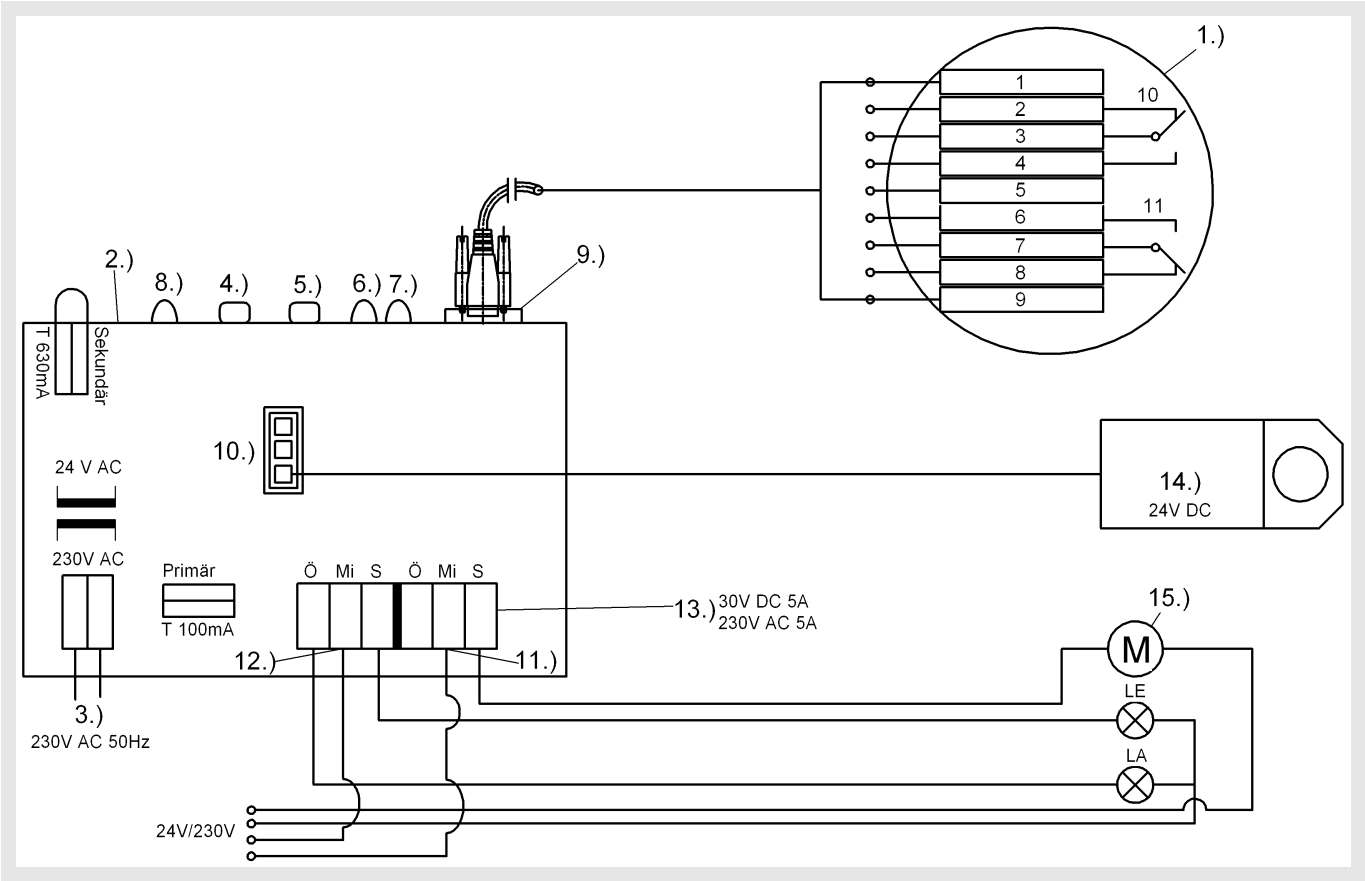
Circuit diagram relay module
Version 1



1.) Smoke detector
2.) Relay module
3.) Mains connection
4.) Reset button
5.) Manual release
6.) LED fault
7.) LED alarm
8.) LED operation
9.) Connection RMS
10.) AMP plug for 24V motors
11.) Selector switch 1 actuator
12.) Selector switch 2 light
13.) Contact load of the selector switch
14.) Spring return actuator 24 V AC/DC for fire damper. SCHAKO product or external product
15.) Spring return actuator 24 V AC / 230 V AC Schako product or external product

Contact assignment RMS-L:

1	GND
2	Work contact
3	Centre contact
4	Closed contact
5	Test switch / RST
6	Closed contact
7	Centre contact
8	Work contact
9	+24 V
10	Fault
11	Alarm
Ö	= NC contact
Mi	= Centre contact
S	= NO contact
LA	= Ventilation OFF
LE	= Ventilation ON

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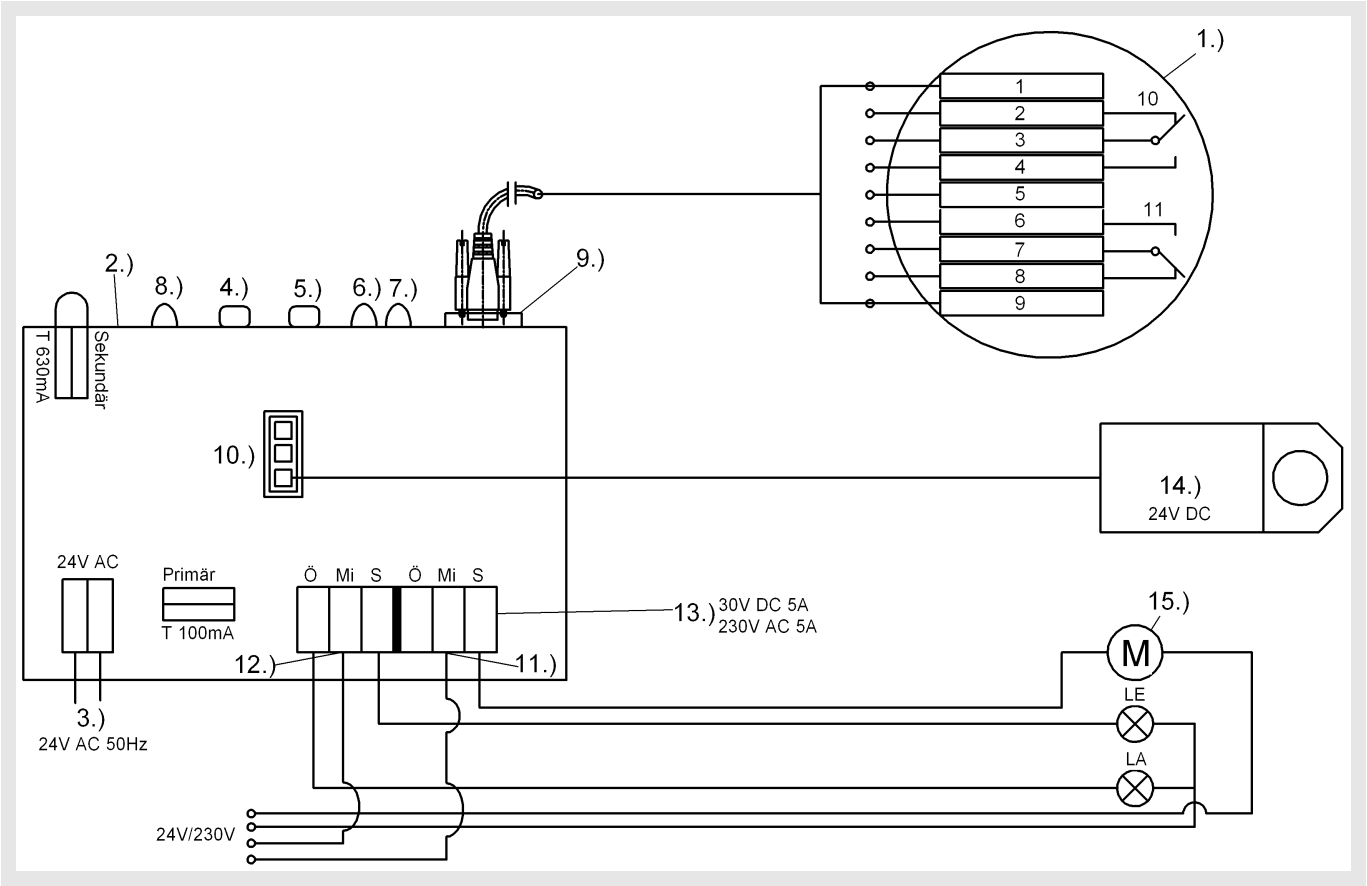
Circuit diagram relay module
Version 2 - without general supervisory building approval, approval required in individual cases.



1.) Smoke detector
2.) Relay module
3.) Mains connection
4.) Reset button
5.) Manual release
6.) LED fault
7.) LED alarm
8.) LED operation
9.) Connection RMS
10.) AMP plug for 24V motors
11.) Selector switch 1 actuator
12.) Selector switch 2 light
13.) Contact load of the selector switch
14.) Spring return actuator 24 V AC/DC for fire damper. SCHAKO product or external product
15.) Spring return actuator 24 V AC / 230 V AC Schako product or external product

Contact assignment RMS-L:

1	GND
2	Work contact
3	Centre contact
4	Closed contact
5	Test switch / RST
6	Closed contact
7	Centre contact
8	Work contact
9	+24 V
10	Fault
11	Alarm

Ö	= NC contact
Mi	= Centre contact
S	= NO contact
LA	= Ventilation OFF
LE	= Ventilation ON

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9. Startup and function

Function:
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 is a potential-free change-over contact. 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. In this case, the electric circuit for the release device is interrupted on the connected fire dampers, and the dampers are closed. Tampering with the smoke detector, for example by taping the sensors, is detected and reported to the switchboard via a potential-free contact (error output). Deposits on 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 a potential-free contact. In this way, the smoke detector system monitors itself. The reset button type RST (at an extra charge) can be used to reset an alarm message. The smoke detector limits the source of fire during an alarm. The alarm message is transmitted via a potential-free contact and interrupts the electric circuit to the electric release devices (magnets, actuators) or to pneumatic valves when triggered via the pneumatic servo cylinder. The connected fire dampers are closed. Only trigger devices working by the "zero-current closed/ depressurised closed" working principle must be connected to the RMS system. The smoke detectors and the connected release and switch devices are supplied together with power from a mains rectifier 230 AC and secondary 24 V DC within a protection area.
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.

10. 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 contaminated. When a power failure of the smoke detector occurs, a fault message is also sent to the central unit. This permanent self-monitoring allows a yearly maintenance interval.

Maintenance includes the following actions:

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. If the smoke detector type RMS is inserted into the duct and no reset button has been installed, then the LED with a lead through the back of the duct can also check the function.

4. Electrical functionality control
   The power supply of the smoke detector must be disconnected by removing the 9-pin Sub-D plug. This causes the smoke detector to send an alarm to the central unit, as a result of which the connected locking devices must close automatically. The diode on the smoke detector or on the reset button is no longer lit. As soon as the power supply has been restored and the alarm has been acknowledged by the reset button, 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.

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6. Functionality control using test aerosols
   When the smoke detector is fitted to the ceiling, a test aerosol must be applied directly, or when fitted to ducts through an inspection opening, 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, and the connected locking devices must close automatically. 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 or on the reset button flashes in green again, the smoke detector is ready to operate again.
   or
   Functional control using the smoke simulation device (-RSG)
   For RMS-D:
   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.
   For RMS-L:
   The smoke detectors installed flush with the duct do not have to be dismounted from the duct, and the electric wiring does not have to be deinstalled. Next, simply place the smoke detector with cover plate into the opening of the smoke simulation device.After about 12 seconds, the smoke detector must trigger an alarm message. The diode on the smoke detector or on the reset button/relay module 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/or the relay module. As soon as the diode on the smoke detector or on the reset button/relay module flashes in green again, the smoke detector is ready to operate again.

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 front glass must be cleaned with a moist cloth. 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 wiping the front glass with a moist cloth when carrying out the regular maintenance work. Do not use any aggressive materials for cleaning the front glass as the glass might turn dull, causing a constant fault message to be sent (contaminated front glass)
   Please note that, after wiping the front glass, the front glass must be sprayed with an antistatic spray.

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.
   If any of the connected locking devices are not closing, even when the smoke detector operates faultlessly, then the locking devices themselves must be checked.

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11. Inspection 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 contaminated. When a power failure of the smoke detector occurs, a fault message is also sent to the central unit.
Inspection includes the following actions:

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

12. Troubleshooting

Should the smoke detector display a fault message after being fitted to a duct (yellow LED lights up), the following items must be checked:

Was the assembly part, if required, used?
Are there any assembly parts (e.g. silencer, volumetric flow controller, dehumidifier, humidifier [watch for fogging], T-pieces, bends) or objects at a distance of less than 200 mm from the RMS? (see 1. Mounting position)
Remedy: Place RMS at a suitable position.

Observe direction of mounting.
The mounting direction must have been established according to the Mounting instructions for duct or ceiling installation. When fitting to a duct, the sensors must always have to point in longitudinal direction of the duct.
Remedy: Rotate RMS until it points in the longitudinal direction of the duct.

Has the smoke detector been de-energised until the fire damper has been completely opened by the spring return actuator?
For dampers driven by electric actuators, first the dampers must be opened, and then the RMS can be switched on (it is possible that the damper leaf will generate a fault message on the RMS while opening).
Remedy: Use an assembly part or move RMS to a different position.

Were the ducts cleaned to remove any assembly dirt and dust before putting the unit into operation?
Remedy: Clean the duct system

As an option, we can offer a test detector including software. Once purchased, it will check the assembly situation already during the installation of the RMS. This makes it possible to eliminate faults already prior to commissioning.

Cable extensions of 1 m, 2 m and 3 m available.