

Instruction for use LSC 4503 - Basic



LSC Lift Smoke Control

The energy-optimised system for ventilating
and exhausting smoke from lift shafts

Powering your ideas!

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1.0 Lift Shaft Smoke Vent

The State Building Regulations demand, that smoke vent in lift shafts is ensured in case of fire. By the Energy Saving Regulation EnEV is simultaneously demanded, that building external areas must be constructed in such a way, that they are permanent air-tight according to the state of the art.

With LSC D+H offers a special system, which will provide smoke vent of lift shafts in case of fire by

using electric motor controlled louvres, windows or domelights. The smoke vent flaps, normally closed, will simultaneously prevent an unnecessary loss of thermal energy, caused by uncontrolled escaping of heated air out of the building.

Consequently energy can be saved, ventilation controlled and smoke vent ensured in case of fire.

1.1 Legal Aspects



Legal Aspects

Energy Saving Regulation EnEV 10/2007

§ 6 tightness, minimum change of air

(1) Buildings to be erected must be constructed in such a way, that the heat transferring external area, including the joints, will be permanently airtight sealed according to the state of art. (...)

Operational Safety Regulation

State Building Regulations (LBO)

Lift Guideline 95/16 of the EC

DIN VDI 6017 Behaviour of Lifts in case of Fire

EU guideline DIN V 18599

energetic valuation of buildings

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1.2 One System many Advantages

LSC - Lift Control is an energy-optimized system for smoke vent and ventilation of lift shafts.

Lower Thermal Energy Costs

Operators and users must rethink their attitude towards energy consumption forced by the continuous high oil price as well as generally increasing energy costs.

The D+H system LSC avoids unnecessary losses of energy, because a permanent opening in the top end area of the lift shaft is avoided and with this, an uncontrolled ventilation of the building will be prevented.

The result:

Operating expenses will be noticeably reduced.

Better Building-Energy Pass

An optimized thermal insulation will lead as well to better values in the building-energy pass, which will be successively prepared from 2007 for all buildings.

This will have a positive effect on the image of a building.

From this will result better rentability, not least because of lower additional costs. This will have a positive influence on the building value as well.

Using **LSC-Basic**, the central control panel may be mounted on the **ground floor** next to the lift door. A SHEV trigger and integrated vent button is already integrated in the control centre.

LSC-Basic may be used when the main evacuation level is monitored on-site or not at all. The shaft head may optionally be monitored for overheating using a room temperature controller.

Ideally, the smoke extraction system should be installed in the lift machine room. If this is not possible, a suitable location should be agreed on-site.

Less draught in a staircase

The closed smoke vent openings will lessen the draught in the staircase and thereby the thermal comfort will be improved for the user.

Possible whistling sounds will be additionally avoided, caused by a too high flow of air.

Early Evacuation

A fire will be already recognized during a fire formation through the smoke suction system used. People in the lift can be moved earlier therefore to the smokefree evacuating level.

The **LSC-Basic** System is designed specifically for lift shafts with a height of 20 meters.

Particular attention has been paid to investment considerations. **LSC-Basic** has a very short amortization time.

Controlled ventilation

The smoke vent is individually controlled by appropriate sensors for ventilation and controlled heat extraction.

A thermostat may optionally be installed to monitor the temperature to ensure a constant pleasant indoor climate while preventing lift overheating without a machine room. An air quality (CO₂) sensor may also be used.

In addition to the automatic function, manual ventilation is also possible for air change every five hours.

1.3 Solution for every Application

An electric motor opens a smoke vent at the top of the left shaft in the event of a fire or for ventilation purposes.

The **MICRO SENS**[®] smoke extraction system handles fire detection in the lift shaft.

D+H only supplies Lift Smoke Control systems in conjunction with a smoke extraction system. The entire shaft is permanently monitored by a vertical pipe with intake openings running vertically up the lift shaft.

This ensures that fire smoke is detected quickly and reliably, even under difficult conditions.

Evacuating lift passengers is particularly important in heavily frequented public buildings.

In the event of a fire, a signal also goes to the lift control that moves it to the preset main evacuation level in addition to triggering the SHEV function. In most cases, this will be the main entrance area.



- 1 LSC 4503 compact control system
- 2 RT 45 manual activator
- 3 MicroSens smoke ventilation system
- 4 LSP 44 extraction pipe set
- 5 LSS dome skylight
- 6 LSL louver window
- 7 RTR 231 room temperature control

2.0 Introduction to SHEV Systems

Smoke and heat vent systems (SHEVs) are very important elements of structural preventive fire protection.

Smoke and heat vent systems are appliances of preventive fire protection. They fulfil important functions in case of fire as there are: protection of human life by creating a smokefree layer, by which

escape and rescue routes will be kept free for the fire brigade. Consequential damages by conflagration gases are reduced and therefore considerable material assets are often protected from destruction. Precondition for this is, that the system will function absolutely reliable in a case of fire.

2.1 Details to the Product

This SHEV-system has been constructed in accordance with the latest state of the art and science. In case of professional mounting and maintenance it is of high operating safety. Nevertheless, there can dangers arise from the product, if by unqualified personell used inexpertly or not in accordance with the regulations.

Unauthorized modifications and alterations at the SHEV-system are **not allowed** for safety reasons. This operating instruction must be **read through carefully** before installation. Keep to the instruction. **Please observe in any case the safety notes.**

2.2 Details about Mounting



Safety system for protecting human life and material assets! Once a year functional testing by a specialist company authorized by the manufacturer.

Connection, mounting and functional testing by a specialist company authorized by the manufacturer. Green control diodes in the buttons must constantly lighten, otherwise see "Informations for Starting". Repair power failure at once. Instructions of the fire protection authorities must be always observed.

Should special problems arise during mounting or operation, with which is not extensively enough dealt with in the operating instructions, so please for your own safety do not hesitate to consult with the manufacturer.

Apart from suction tubes with reflux valve and air recirculation, **no components will be installed in the lift shaft!** Acceptance through the TÜV can be only obtained with this precondition as well as with simple and economical maintenance warranted.

2.3 Safety Notes



Danger of Injury or Life!

Working on the **central appliance** is only allowed, if this is **switched idle**. This includes distribution voltage with 230 VAC alternating voltage as well as emergency power supply with 24 VDC direct voltage. Only electrical specialist companies are authorized to install these systems, who have electrical specialist staff with relevant experiences in installing danger alarm systems or smoke and heat vent systems. Only these ones can take on responsibility for functioning, and can ensure product liability for the whole system (see product liability law BGBLI S.2198 and BGB (bodily injury, compensation for damage). Therefore, regular maintenance and checking of functional readiness is imperative and has to be ensured.

These standard requirements are demanded according to regulations of the DIN, of the Association of German Insurer against damage of property (VdS) and the respective local authorities.

In spite of greatest possible care we can not accept responsibility for this document. All informations given are no warranted qualification in the sense of § 434 BGB.

Current directions of the authorities and the VDE-regulations must be taken into account during the entire mounting and installation of the system. Regulations of the local EVU must be additionally observed. Furthermore, individual working steps must be coordinated with the management of works.

2.4 Maintenance

Smoke and heat vent systems must be maintained at annual intervals by authorized specialist companies according to DIN 18232 section 2 paragraph 10.2, and VDE 0833 section 1 paragraph 5.3.4 for alarm systems and manufacturer guidelines.

Once a year by a specialist company, who is authorized by the appliance manufacturer.

Renew test badge, keep control book.

The respective current D+H maintenance instruction is decisive.

D+H authorized expert companies have been specially trained by D+H for carrying out expertly this maintenance, and they get automatically the latest maintenance instructions.

Following tests must be carried out in the course of maintenance:

- Outside examination/ inspection of system components
- Measuring of insulation resistances
- Checking of all relevant power supply units
- Functional testing of connected system components
- Record of competent carrying-out of maintenance, and designation according to directions
- Cleaning the extraction pipe and replacing the extraction filter

Information

The control panel will report an overdue maintenance after approx. 14–16 months.

The yellow diode on the RT 45 will start to flash, and can only be reset using a special software tool by a specialist company authorized by the manufacturer.

Only regular and professional maintenance warrants the necessary and permanent functional safety.

Only authorized specialist companies are allowed to install and maintain smoke and heat vent systems and system components, constructed and distributed by **D+H Mechatronic AG**. All **D+H Mechatronic AG** partners belong to these authorized specialist companies, who regularly undergo an in-house training to ensure their qualification and experience.

According to DIN VDE 0108 section 1 paragraph 9.1.1 accumulators for emergency supply (lead accumulators) must be checked every six months by a person, who has been introduced to this task, and once a year, maintenance must be carried out by specialist companies.

Accumulator types, which are used for **D+H Mechatronic AG** smoke and heat vent systems must be VdS approved, and must be released by **D+H Mechatronic AG** to use in smoke and heat vent systems.

According to DIN 18232 section 2 paragraph 10.2 the tests must be put down in an operational book, which the operator/ building owner must present to the building supervision authority on request.

This operational book is available at **D+H Mechatronic AG** (Ord.-No.: 68.700.15)

Executed maintenance must be proved by a **D+H Mechatronic AG** maintenance/ and testing confirmation.

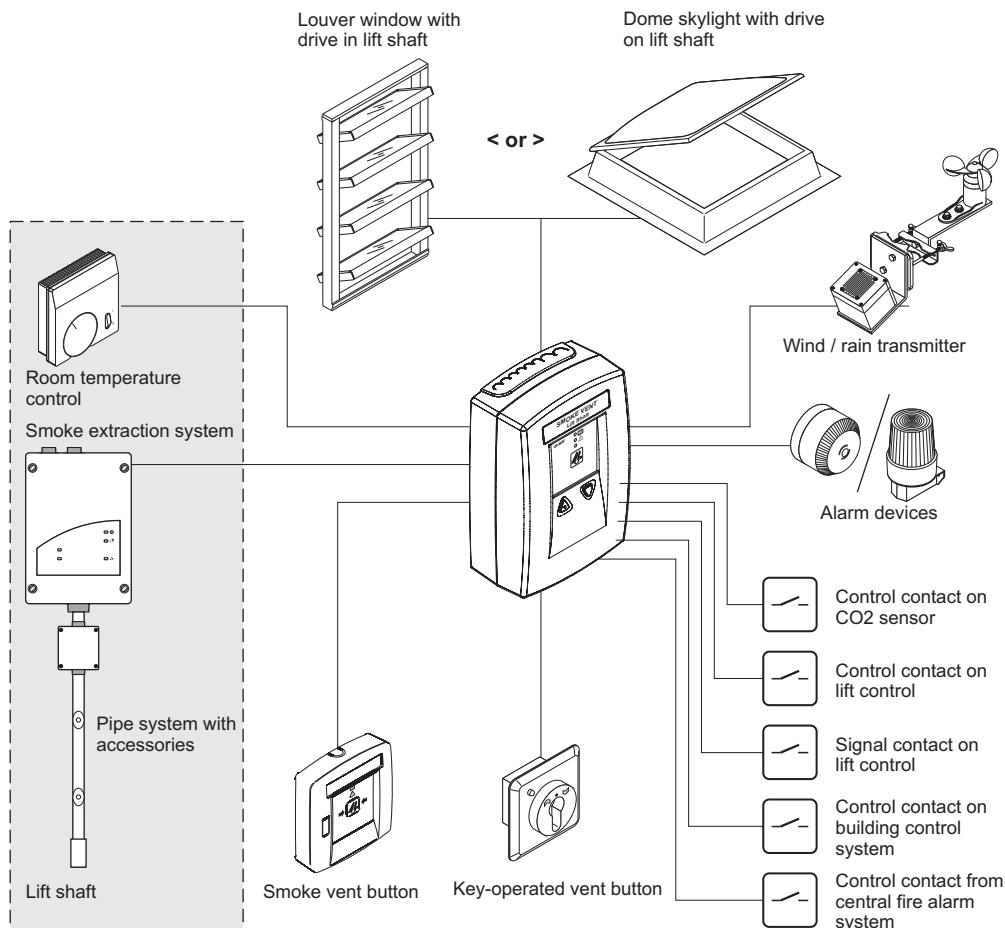
Observe regulations for danger warning systems VDE 0833, guidelines for electrical systems VdS 2221, DIN 18232 for smoke and heat vent systems, regulations of the local fire-brigade and of EVU for connection to mains supply.

2.5 Guarantee

You will get **2 years** guarantee for all D+H products from date of verified handing over of the system up to maximal 3 years after date of delivery, when mounting and starting has been carried out by a D+H authorized **distributor**.

D+H guarantee is expired, with connection of D+H components with external systems or with mixing of D+H products with parts of other manufacturers.

3.0 System Overview



The LSC 4503 was specifically developed for controlling lift shaft ventilation and smoke removal. This highly versatile system may be connected to a variety of external components. Several inputs and outputs are available.

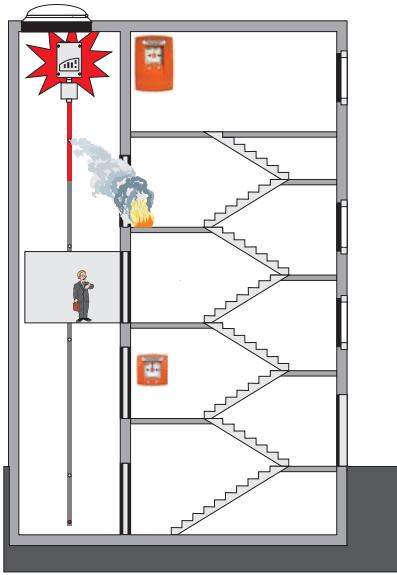
The following components are connected in the basic configuration:

Smoke extraction system, temperature control, 24 VDC SHEV motor, external smoke vent button, potential-free alarm message to the lift control.

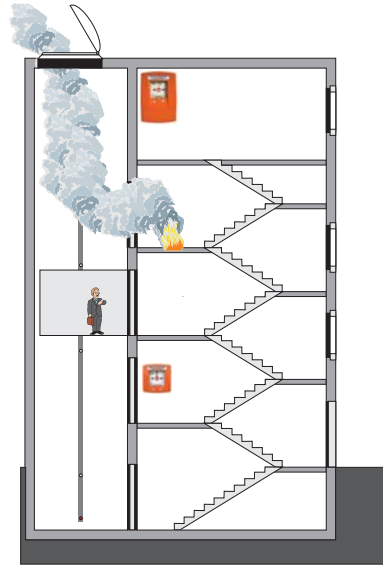
The KM 45 LSC connection PCB is required (available separately) for further components to be connected, and allows all external components and messages to be connected.

3.1 Functional Principle

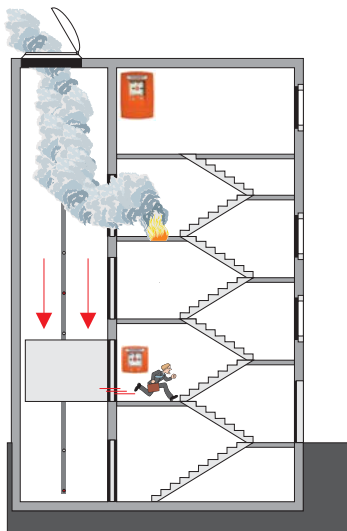
① Smoke recognition



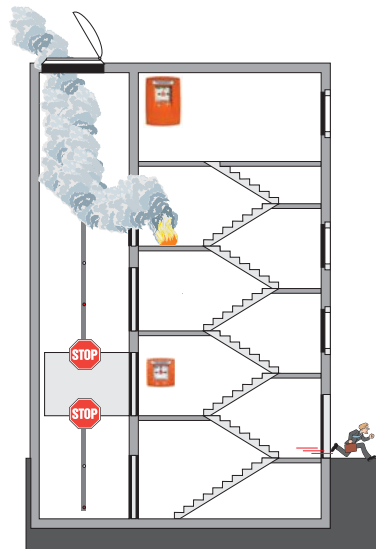
② Opening of the smoke vent flap



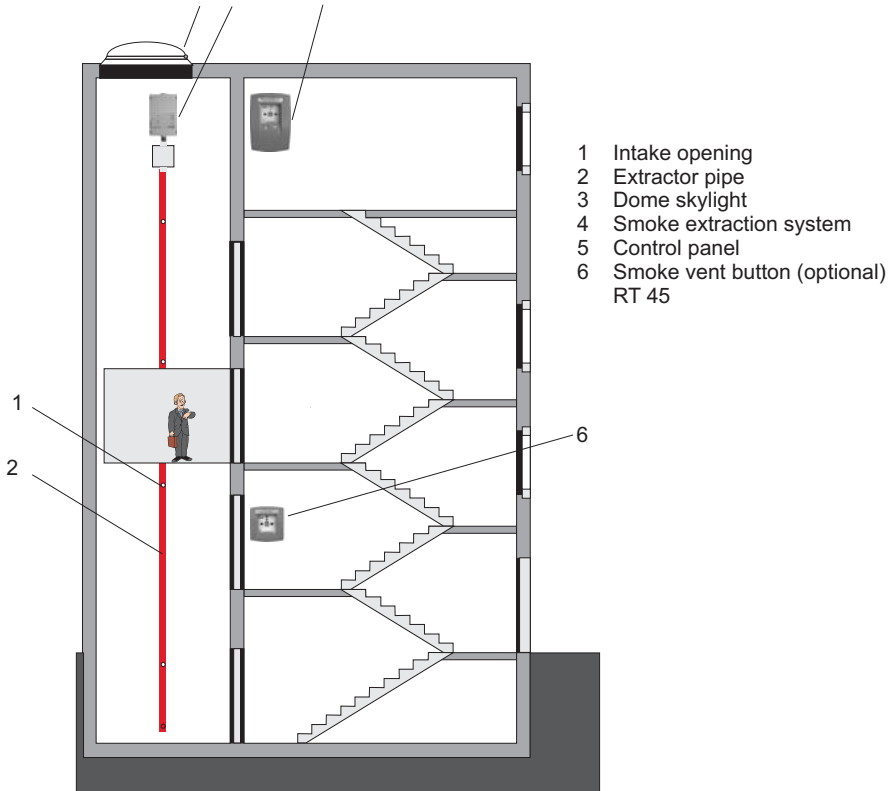
③ Evacuating travels of lift car



④ Prevention of further lift car travels



3.2 Why Smoke Suction?



Air sampling through intake openings along the entire height of the lift shaft prevents false alarms and allows reliable early smoke detection.

Optical smoke detectors cannot be used, as there is a very high probability of false alarms due to turbulence from the lift and the risk of soiling. Smoke detectors per VDE 0833-2 (06/2009) + DIN EN 54-7 standard are also unsuitable for use in lift shafts, as smoke cannot reach the detector unhindered, and the ceiling height exceeds the twelve-meter limit.

Smoke intake at specific points at the floor levels allows earlier detection, and the lift automatically moves to the main evacuation level.

The electric SHEV opening motor is actuated by a post-cycle control to actuate the drives repeatedly at regular intervals. This opens vents that may at first be blocked by icing or sticky gaskets.

The use of smoke extraction systems is often thought to cost more than fire detectors, but this is not the case. On the contrary, this keeps maintenance costs to a minimum.

No control leads or contacts by the lift manufacturer are needed, since no fire detector needs be installed under the lift car, which would be a prerequisite for using smoke detectors in the lift shaft.

3.3 Cables for D+H smoke and heat vent systems

The smoke vent control panel is designed for opening smoke vent devices that operate by thermal ascending force and by automatic fire recognition devices (smoke extraction system), and are triggered either automatically or manually by a smoke vent button at an early stage of a fire to remain in opened position without further power consumption. In these cases, the electric wiring only needs to be in good working order at early stages of fire. Protected wiring is required with protection against mechanical damage according to DIN 18232 Part 2.7.2.4

Control Cables (Group)

Cables from the smoke vent control panel to connection of drive (drive lines have a monitoring wire, in which fire recognition devices (thermal maximal detector e.g. THE) can be looped-in)

- Safety line, with functional conservation
... E30, according to DIN 4102* or standard guidelines for line systems MLAR.

Detector Cables (Line)

Signal wires are monitored for short circuits and open circuits.

If the line DIP switch 1.3 is ON, the opening device is automatically triggered in case of a fault (fault = alarm).

RT button cable and cable from automatic sensors and the smoke extraction system:

- House wiring cable JY(ST)Y 6 x 2 x 0.6

* *Note: Due to the large variety of cables on the market, no type designation is given for these cables. Please ask your D+H partner.*

Cables through areas not monitored

If motor wiring runs through unmonitored parts of the building, extended functional time of the wiring may be necessary.

- German guidelines on wiring installation (MLAR) or Safety wiring with retained function xxx E90*, installed per DIN 4102 (see supplementary sheet 1 to DIN VDE 0108).

If the LSC control units are not in the extractor pipe smoke detector area (i.e. not in the lift shaft), the installation area may be monitored by an automatic smoke detector that automatically opens the smoke and heat extraction devices before the SHEV control units and/or extractor pipe smoke detector are affected by fire.

230 VAC - Power supply

Provide for separate electric circuit.

Mark fuses.

Plug covering cap over mains binder on motherboard of control panel.

Connecting cable : NYM-I 3x1.5

Connecting load : LSC 4503 = 100 VA

3.4 Line lengths and cross sections

total consumption	0,5	1	1,5	2	A
3 x 1,5 mm ²	240	120	80	60	m
3 x 2,5 mm ²	400	200	130	100	m
*5 x 2,5 mm ²	800	400	260	200	m

Number of wires and cross-sections indicated, refer to required lines only.

In case of using a line with earthed conductor (green / yellow), this one will not be counted in and must not be wired.

Cross section (mm²) = $\frac{\text{plain cable length (m)} \times \text{total current}}{80}$

Weak current lines

Install and feed separately from supply mains.
Mark cable at terminal box red.

- * Connect in parallel 2 wires for each drive line.

3.5 Smoke extraction system planning

Regulations

The following planning regulation is based on the system limitations of the TITANUS **MICRO SENS**®. Current national regulations should be observed and the project adapted to comply with them.

EN 54-20

To comply with EN 54-20, smoke extractor systems must be planned in accordance with the project guidelines described.

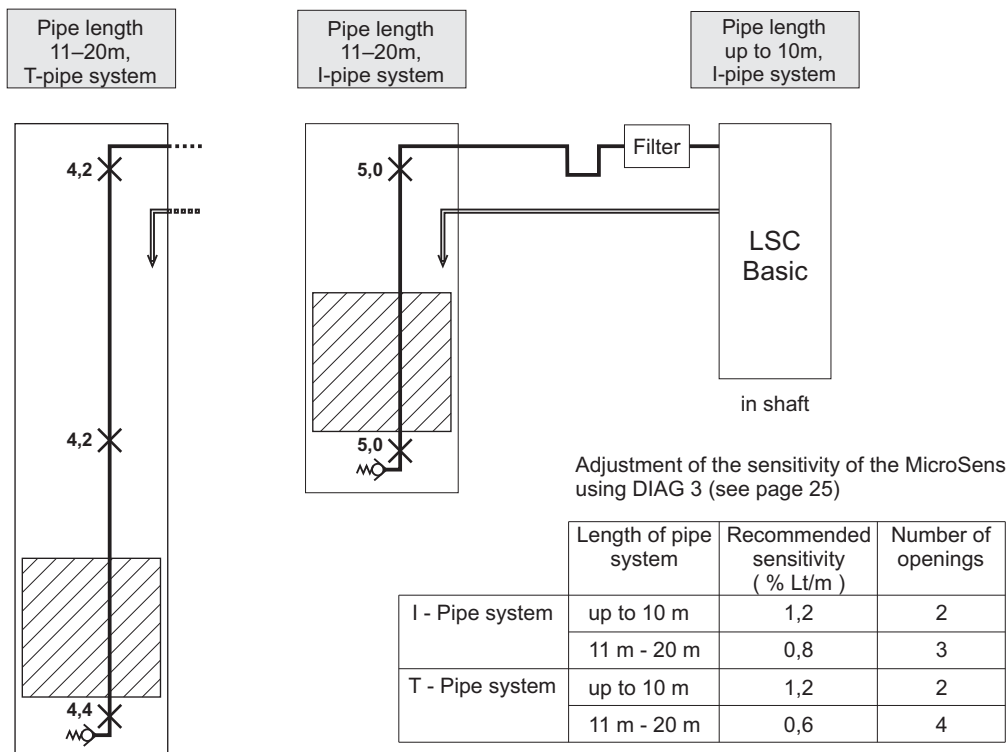
The following additional guidelines must be followed in systems compliant with VdS Schadenverhütung (VdS damage prevention) requirements:

- "Richtlinie für automatische Brandmeldeanlagen, Planung und Einbau" VdS Schadenverhütung GmbH, Cologne (VdS 2095)
- "Einrichtungsschutz für elektrische und elektronische Systeme" VdS Schadenverhütung GmbH, Köln (VdS 2304)

- „Projektierung von Ansaugbrandmeldern“ VdS Schadenverhütung GmbH, Köln (VdS 3435)

In addition, the following national standards must be followed in jurisdictions such as Germany:

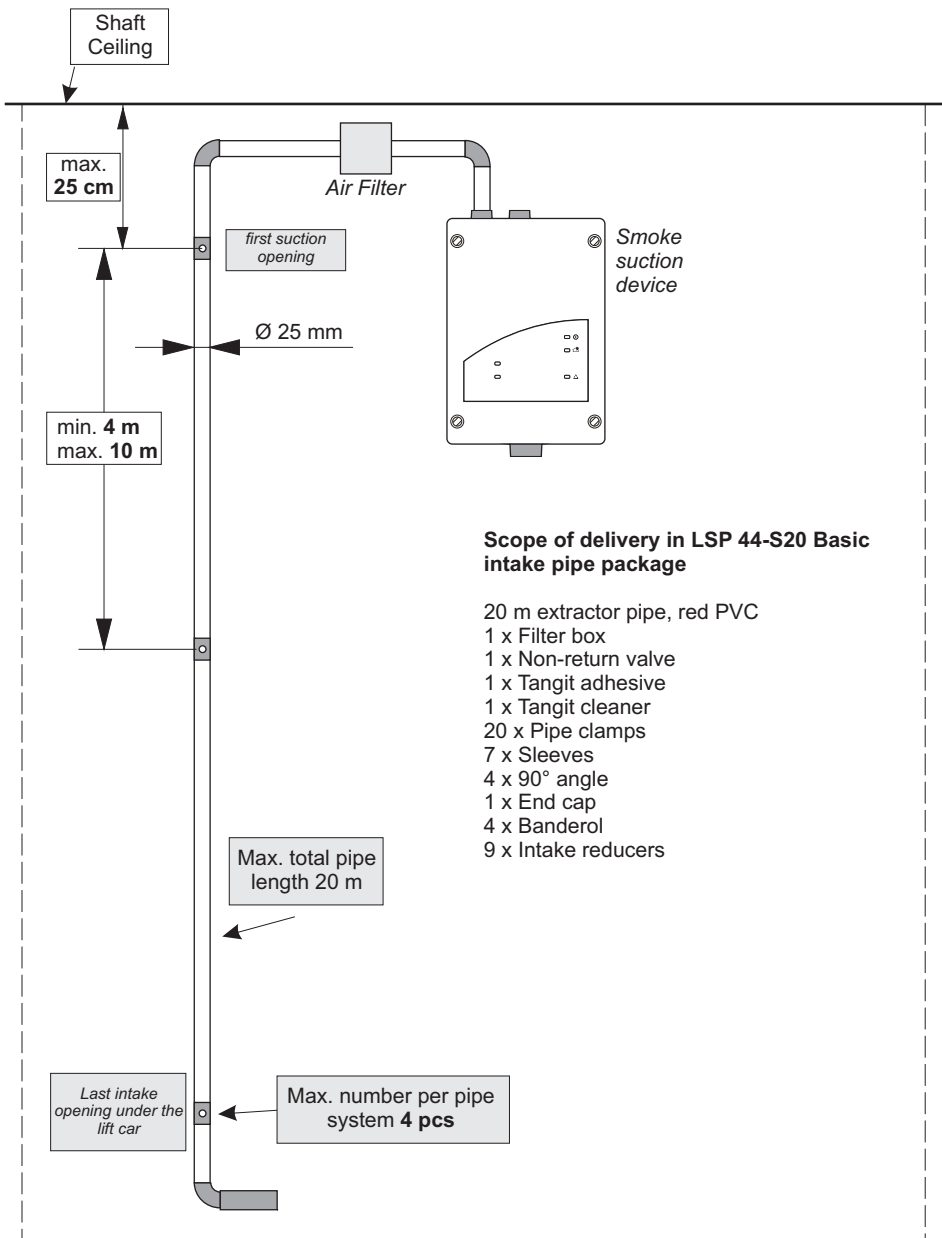
- DIN VDE 0833 Teil 1 and 2 "Gefahrenmeldeanlagen für Brand, Einbruch und Überfall"
- Additional specifications for installing fire alarms issued by fire departments, building supervisory authorities or the legal construction board with local jurisdiction only.



4.0 Tube System

The tube system serves for a defined air sampling from the monitoring area and consists of different components.

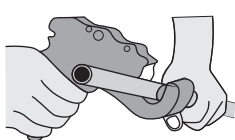
A simplified project planning will be applied in equipment protection and in conveniences of small dimensions.



4.1 Mounting of Tube System

The tube system shall be put together according to the requisition by the project and with observance of the project planning guidelines.

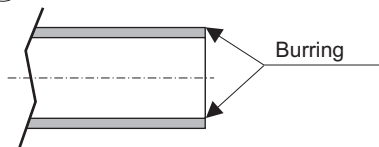
- 1 Cut tubes to length**
(pipe cutter or pipe shears 38 mm / metal cutting saw)



Suction tube (PVC) (optional available)
R-2519, R-3218, R-4019

Suction tube halogen free
ABSR-2518, ABSR-3220, ABSR-4025

- 2 Burring**



Minimize tube lengths and changes of direction. **Angles** (see fig. 1 on the right) have an extremely high air flow resistance. Therefore use these only at places, where they are inevitable for structural reasons. If necessary, the tube length must be reduced in proportion to the angles used.

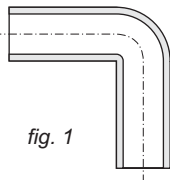
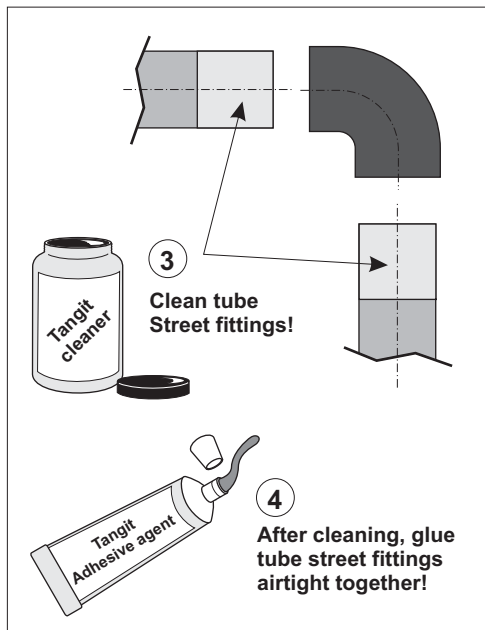


fig. 1



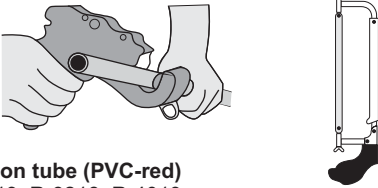
If angles and bends are used, the maximum total length of the tube system will be reduced.

Standard Value

- An angle corresponds to a straight tube length of 1,5 m.

4.2 Mounting of Reflux Valve at Suction Tube End

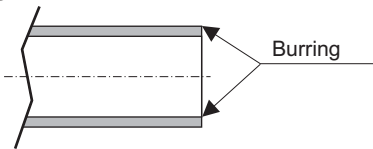
- 1** Cut tubes to length
(pipe cutter or pipe shears 38 mm /
metal cutting saw)



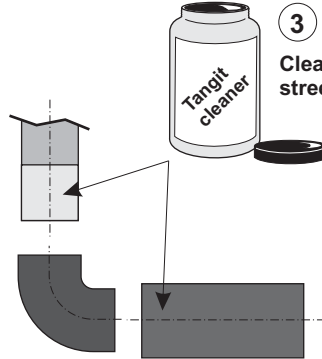
Suction tube (PVC-red)
R-2519, R-3218, R-4019

Suction tube halogen free (optional available)
ABSR-2518, ABSR-3220, ABSR-4025

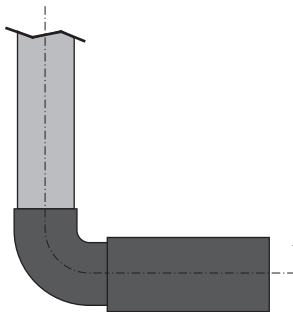
- 2** Burring



- 3**
Clean tube
street fittings!

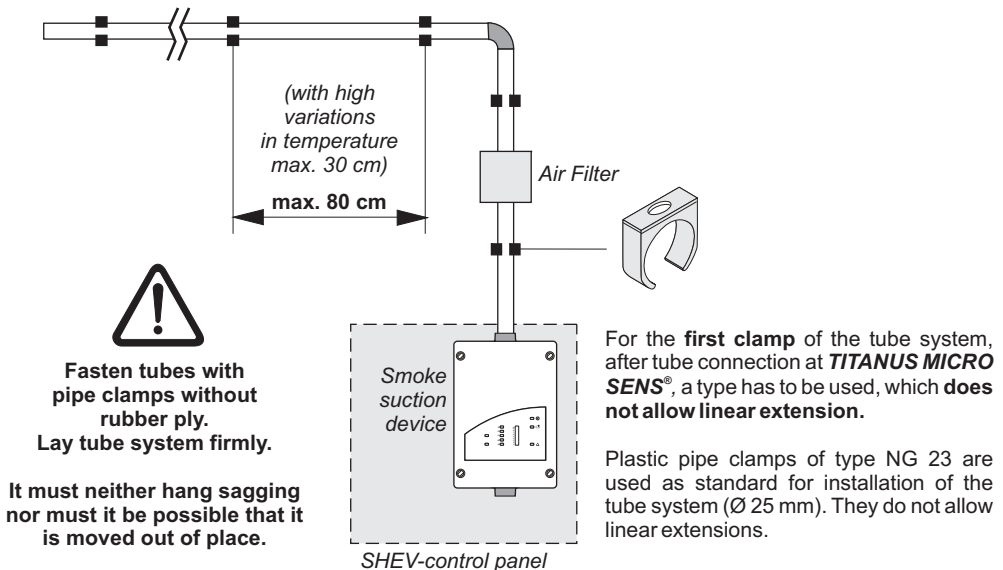


- 4**
After cleaning,
glue tube street
fittings airtight
together!



Mount reflux valve,
always horizontally
if used in lift shaft,
that dust and dirt will
not be necessarily whirled up
in the shaft pit with blowing
through of the tube system.

4.3 Pipe Clamps



4.4 Checking of Tube Systems

- For leaks (as from damage)
- For bad connections
- For the correct planning of intake openings
- Confirm certain detection with actuation tests in critical applications. Also check whether air is passing through the individual intake openings
- If the pipe system does not correspond to the planning guidelines laid out here due to structural constraints, D+H will bill separately on a case-by-case basis
- As a function check, use a smoke pen to check whether an alarm is triggered after complete installation and commissioning. An **RST-80000** smoke pen set is available from D+H



Attention!

Before commissioning the **MICRO SENS®**, the entire pipe system must be blown clean using the Pipe Clean (see page 20) to make sure no soiling particles enter the intake system. This is particularly important if the pipe system was already installed before commissioning.

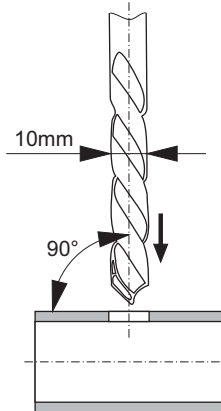
Concrete dust is especially liable to permeate the **MICRO SENS®** filter and contaminate the evaluation unit. The evaluation unit must then be sent to D+H Mechatronic AG for cleaning.

4.5 Suction Openings

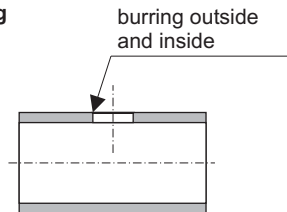
Chose set-up of suction opening (suction boring) and position of tube system according to the

requisition of the project and with observing of the project planning guidelines.

1 Bore 10 mm hole



2 Burring

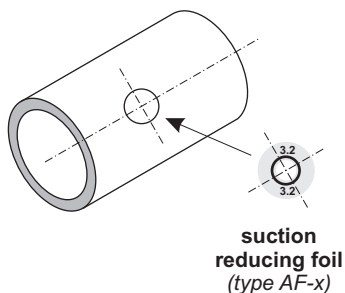


3

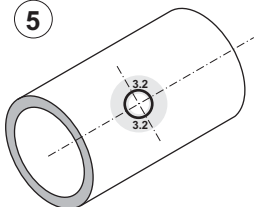
Afterwards clean boring area from fat and dust over entire tube surfaces



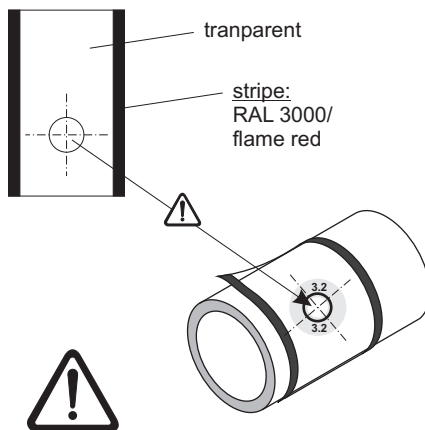
4 Glue on suction reducing foil



5



6 Glue on revenue stamp (type AF-BR) over suction reducing foil



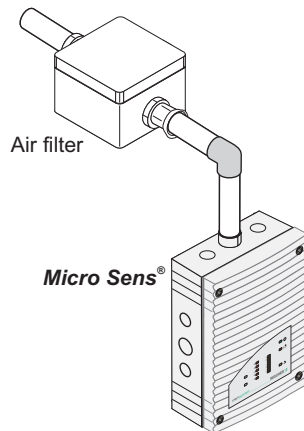
The holes of the suction reducing foil and the revenue stamp must be exactly over the suction boring.
The diameter of opening in the suction reducing foil must not be changed.

For keeping the adherend of foils dust- and fat free, avoid any touching.

4.6 Air Filter LF-AD

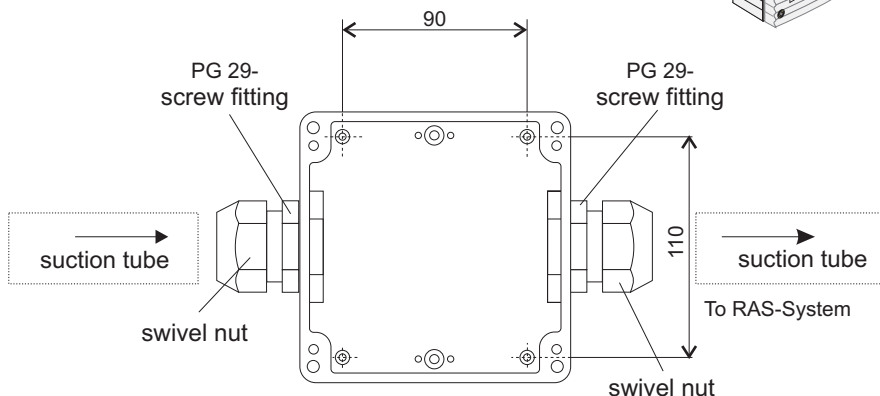


Observe flowing-through direction
of the filter with mounting!
(label on housing outside)



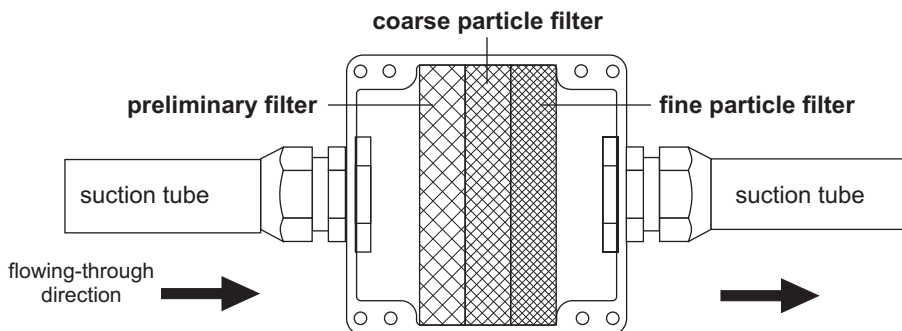
Mounting

1. Unscrew swivel nut of PG29-screw fittings
2. Stick suction tubes into both sides
3. Screw down again swivel nuts
4. Screw filter housing directly on wall with housing lower part



Exchange of Air Filters

1. Unscrew the 4 screws on housing cover
2. Remove housing cover
3. Remove filter elements
4. Clean carefully housing inside from dust deposits
5. Put in new filter elements in correct order (*see indicating label on housing bottom*)
6. Place housing cover upon housing and screw down again



4.7 Free-Blowing Device

In areas, in which increased dust particles are to be expected, a blowing free of the suction tube system and its suction openings can be necessary. The ball valve will be required for blowing free with compressed air.

Change-over will take place between fire recognition (*position 0°*) and free-blowing (*position 180°*). It will be fastened with the transitional screw-fitting in the tube system.

4.8 Titanus Pipe•Clean



A specially developed tube cleaning device for blowing-through of the suction tube in a lift shaft. The compressed-air device will be operated with 230 VAC. Only with this efficient compressed-air device is a building-up of a sufficient pressure volume possible for best possible cleaning.

The compressed-air device is available at D+H with the designation Pipe•Clean.

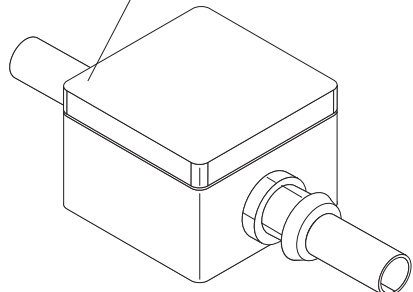
Free-blowing process of tube system

1. Connect compressed air supply via the free connection to the three-way ball valve in LSC control box.
2. Separate tube system to be blown free from the respective device using the three-way ball valve. For this, switch over the lever of the ball valve from operating position 0° to position 180°.
3. Blow through the tube system for 6 minutes through the compressed-air device.
(3 minutes blowing through, 3 minutes suction)
4. Wait for approx. 20 seconds!
Whirled up dust and dirt will deposit in tube system and can no longer be whirled up by suction via the smoke suction system.
5. Connect again the blown free tube system within further 10 seconds with the respective device. For this, place ball valve again on position 0°.



Separate the TITANUS MICRO SENS® from tube system before blowing free of the tube system, because otherwise the air flow detector will be damaged.

Air filters for
ADx and TITANUS®



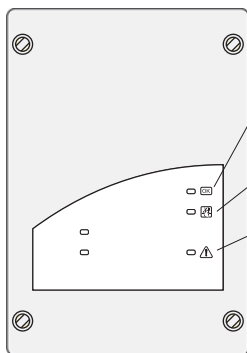
5.0 **Micro-Sens®** type smoke extraction system



Content

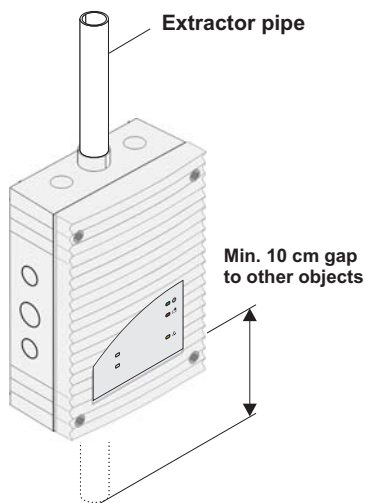
- Smoke aerosol **detector module**
- **Air flow sensor** for monitoring the pipe system for breakage and blockage (the air flow sensor is integrated into the detector module)
- **Extraction unit** for moving air samples to the detector module

Display

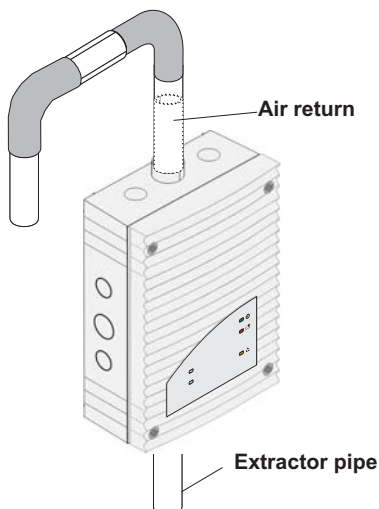


	LED lights up	LED does not light up
	LED signalling operation	
	MICRO-SENS® is ready for use	Voltage supply is interrupted
	LED - "ALARM"	
	Alarm triggering by the detector module	- no alarm -
	LED signalling a fault	
	Malfunction in the pipe system - Ventilator breakdown <i>or</i> - Malfunction in the detector module The fault message is transmitted by MICRO-SENS® after a time delay of about two minutes.	- no malfunction - After the fault has been remedied, the LED may take up to two minutes to switch off.

Extraction from above



Extraction from below



5.1 Smoke extraction system, intake direction

Extraction from above

Make sure that there are no obstacles to air exiting the smoke extraction. Keep a gap of at least 10 cm between the **TITANUS MICRO SENS®** air outlet and other objects (such as walls).

Extraction from below

Make sure that no foreign objects and no water drops can enter the upward-pointing air outlet with the **TITANUS MICRO SENS®** installed with the intake from below. Use a short tube bent downwards for this purpose.

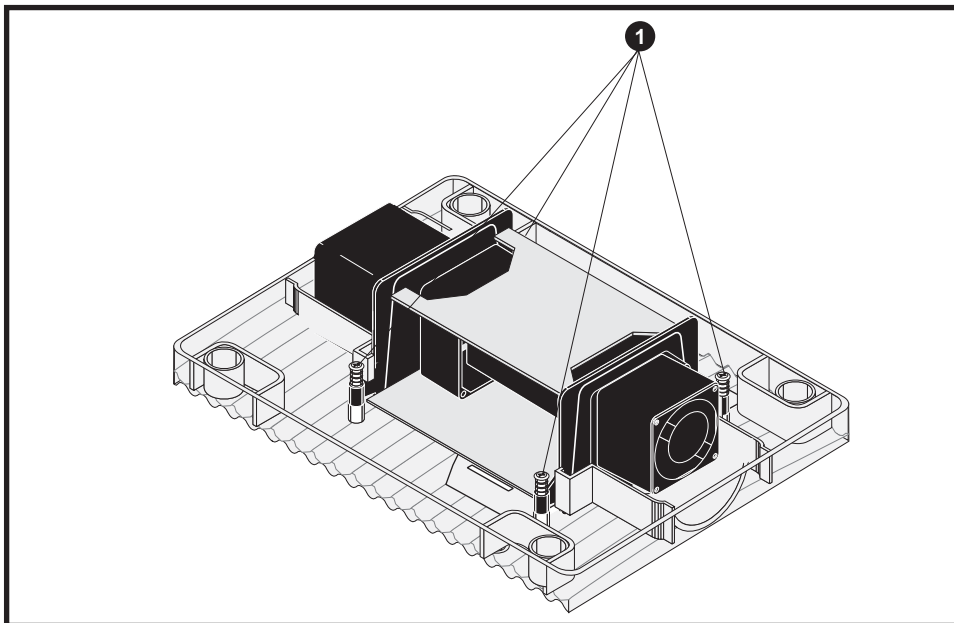


Fig.: Turn the cover of the **TITANUS MICRO SENS®** detector unit

Turn cover

- 1 Unscrew the four screws
- 2 Now turn the cover and screw the detection unit back down with the four screws

5.2 Smoke extraction system attachment

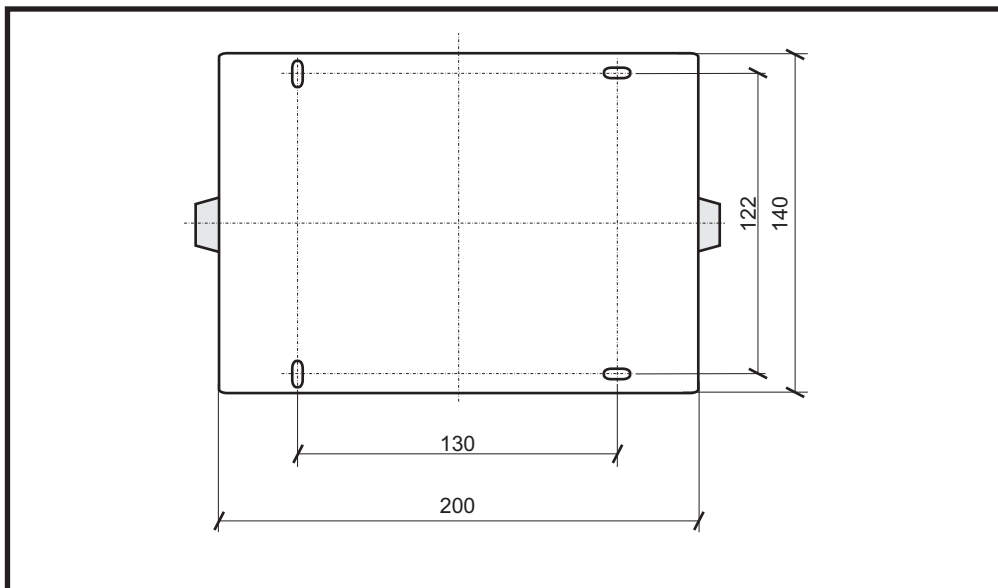
Mounting hardware

TITANUS MICRO SENS®

Pan or flathead screws
Thread diameter max. 4 mm
Head diameter max. 8 mm

Drilling distance

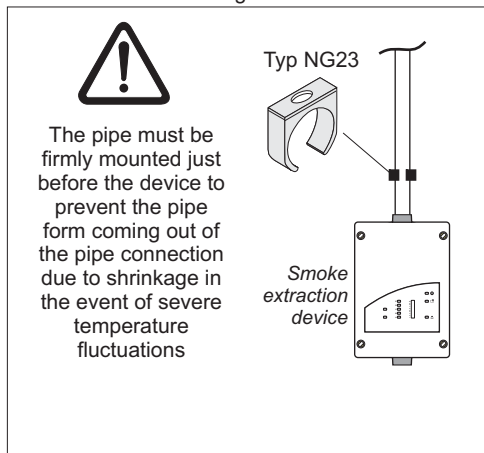
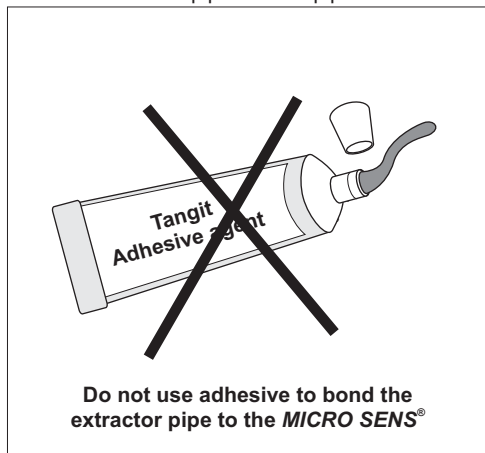
The dimensions (in mm) of the holes to drill for mounting the **TITANUS MICRO SENS®** are shown in the following illustrations.



Drilling distance, **TITANUS MICRO-SENS®** base

Extractor pipe connection to **MICRO SENS®**

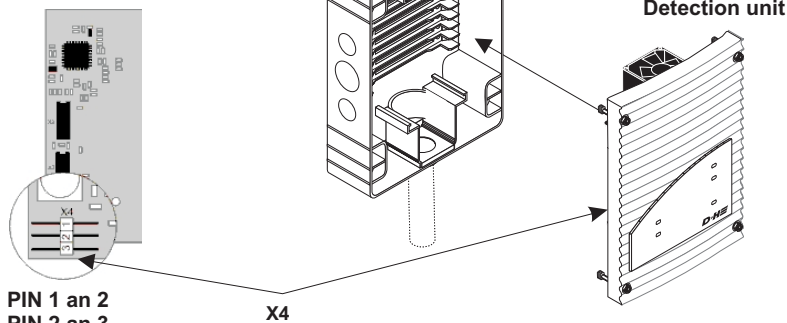
Insert the extractor pipe into the pipe connection on the **MICRO SENS®** housing



5.3 Plug-and-play commissioning

The standard settings remain unchanged in plug-and-play commissioning.

Jumper X4 (PIN 1, 2 or PIN 2, 3) must be plugged into the **TITANUS MICRO SENS®** detection unit on commissioning. Air flow adjustment will then be performed automatically.



The green operating light will flash when the **TITANUS MICRO SENS®** is initializing. The light will stop flashing and remain on once initialization is complete. Avoid influencing the **TITANUS MICRO SENS®** air flow during the initialization phase.

TITANUS MICRO SENS® air flow initialization has been successfully completed when the following condition has been maintained for two minutes:

- No lift travel
- Temperature fluctuation less than 0.1K
- Air flow does not fluctuate excessively (temperature control)
- Ventilator voltage may be set properly, the ventilator and ventilator transformer work properly

Air flow initialization is immediately cancelled in the event of one of these faults:

- Temperature measurement defective
- Air flow measurement defective
- Ventilator control defective

Alarm detection is fully functional during the learning phase. The operating light will flash during this period, and nothing must be allowed to influence the air flow.

After initialization is complete, the operating light will switch to steady; the air flow sensor has now determined a target value for the connected pipe system.

Commissioning with the diagnostic tool

Presets may be changed in commissioning using the diagnostic tool. Air flow can then be adjusted depending on air pressure, or independently. Use the diagnostic tool to start air flow initialization. Once commissioning is complete, a test log should be generated with the diagnostic tool.

The DIAG 3 diagnostic tool is optionally available from D+H Mechatronic.

Testing the **TITANUS MICRO SENS®**

Once initialization has been successfully completed, you can function-test it by blowing smoke from a cigarette or the D+H smoke pen set into one of the pipe intake openings.

Attention!

The **MICRO SENS®** must be set for the right sensitivity depending on the system.

This adjustment must be performed separately using the diagnostic software. See the planning instructions on page 13.

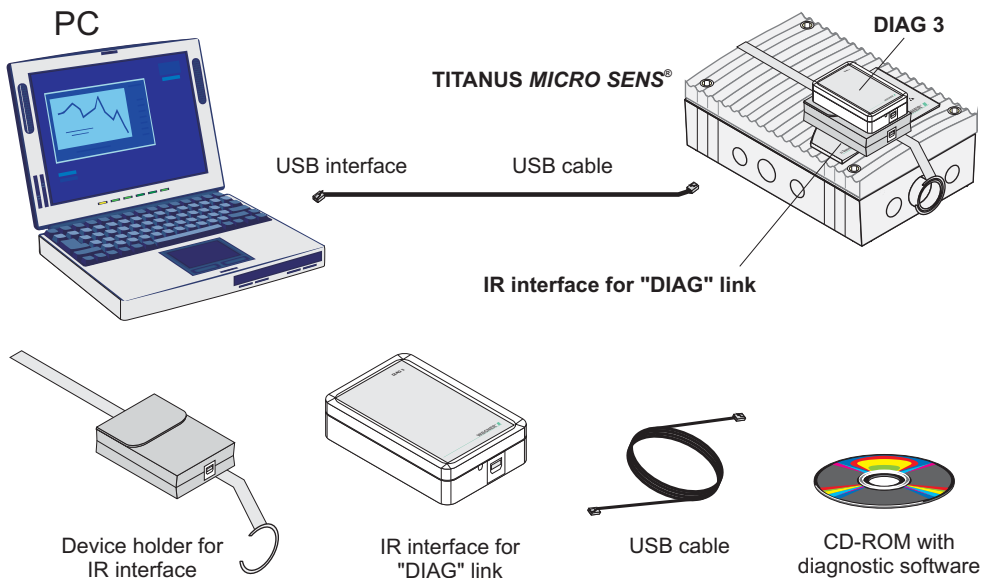


5.4 Commissioning using the DIAG 3 diagnostic tool

MICRO-SENS® configuration may be changed using the DIAG 3 diagnostic tool during commissioning. You may use a PC or laptop to view the stored and current device status and fault messages from the **MICRO SENS®** during maintenance and service using the diagnostic software. The **MICRO SENS®** has an IR interface for data transfer to the diagnostic unit.

A USB cable is provided for data transfer from the diagnostic unit to the PC/laptop. Diagnostic messages may be deleted at any time using the DIAG 3 diagnostic tool. If not deleted, fault messages will be stored in the **MICRO SENS®** for 72 hours. This allows you to evaluate short, sporadic faults (such as with changed operating conditions).

DIAG3 diagnostic tool



Presets may be changed using the diagnostic tool during commissioning. Air flow may be adjusted depending on air pressure, or independently. Air flow initialization is started using the DIAG3 diagnostic tool.

- Set the IR interface on the **MICRO SENS®** and connect to the PC
- Start the software on the PC
- The connection will be set up (green LED on the **MICRO SENS®** starts to flash)
- Data from will be automatically transferred from the **MICRO SENS®** to the software (if this does not work, choose another interface in the software)
- Data can now be changed or modified (caution – do not change the ventilator voltage)

Initialization using the diagnostic tool is activated in the "Settings" area in the lower area. Initialization may be started when "Settings" has been selected here. During initialization, "Initialization active" will flash in the software during initialization. Initialization is only complete when this light goes off (the green LED on the IR interface will continue to flash; this just shows that the link to the software is active).

6.0 Control system LSC 4503



6.1 Brief description of the LSC 4503

When using **LSC-Basic**, the central control panel may be mounted on the **ground floor or an upper floor** next to the elevator door. A SHEV trigger button and ventilator button are already integrated in the control centre.

LSC-Basic may be used when the main evacuation level is monitored on-site or not at all. The shaft head may be controlled against overheating using a room temperature controller.

The heart of the lift shaft smoke extraction system is the central control panel for ventilation and smoke extraction. Here, all signals from the sensors come together and are processed and acted on in order of priority. This provides continuous monitoring of the lift shaft and maximum safety and convenience together with the smoke extraction system, which continually draws air from the shaft and tests for smoke particles using the associated evaluation unit.

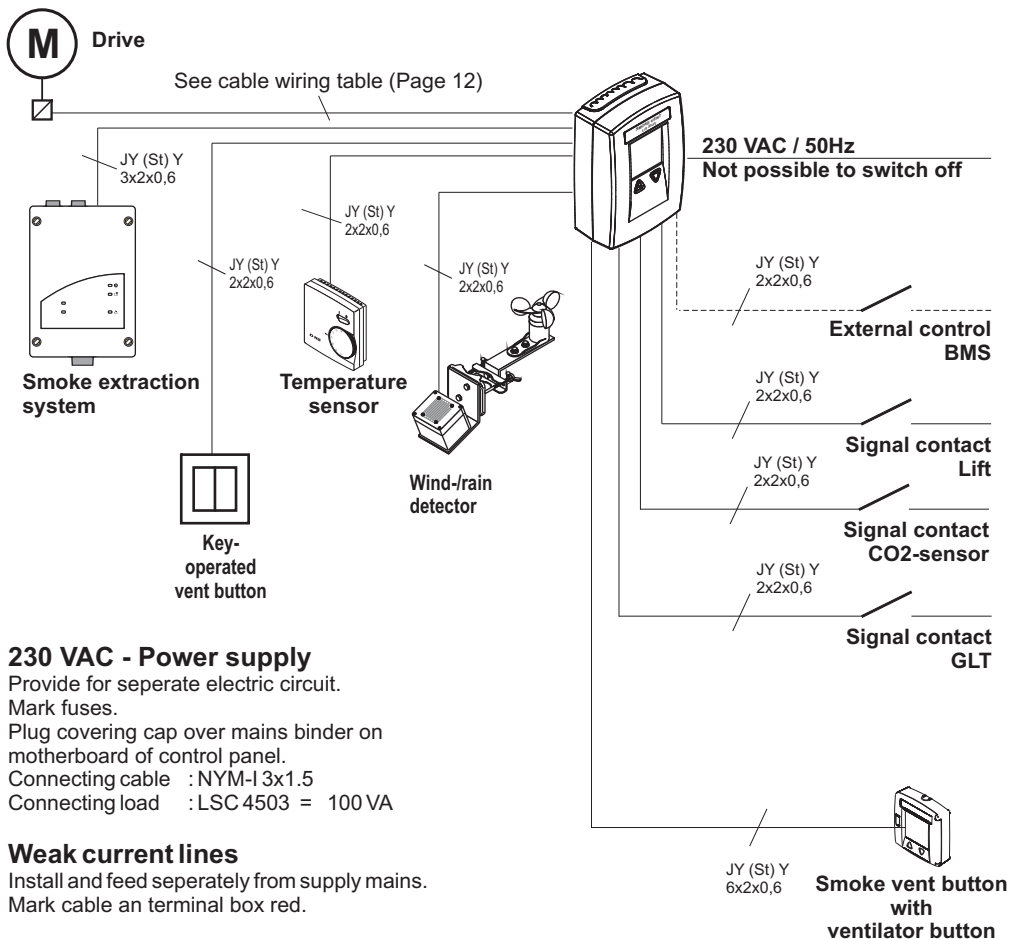
6.2 LSC 4503 installation location

- Displays must be easily visible
- Near shafts
- Sheltered and easily accessible for maintenance
- Not in door **opening areas**

The operating keyboard must also be accessible. It may be necessary to install a separate operating unit (RT 45).

If the LSC 4503 central button control is not installed on the ground floor, a suitable installation location must be found in consultation with fire protection authorities, the operator, or the lift manufacturer.

6.3 Wiring Plan



Symbol Description



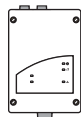
LSC 4503 surface or flush type
(230 VAC / 24 VDC) near the smoke vent flap



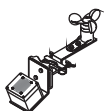
Smoke vent button (RT 45)
24 VDC circa 1,2 m above upper edge firm flooring (at flush type by others 55 mm flush socket)



Vent button 24 VDC (e.g. LT 43) circa 1,2 m above upper edge firm flooring (at flush type by others 55 mm flush socket)



MICRO-SENS® smoke extraction system



Rain or Wind-/Rain detector



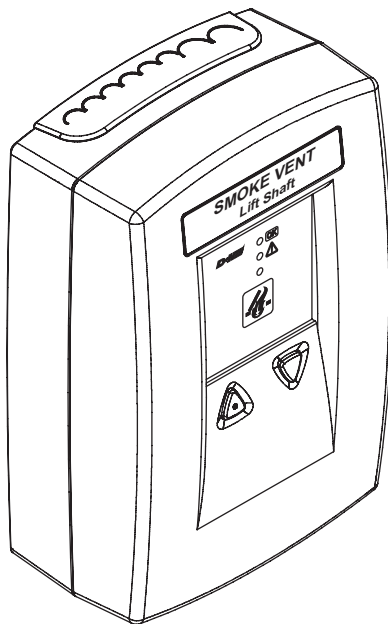
Drive 24 VDC at smoke vent flap
(Lines must end in flush mounted distribution box, see symbols above)

6.4 SHEV control panel Type LSC 4503

The LSC 4503 SHEV control panel is the core of an electrically driven lift shaft smoke ventilation system, and takes commands from external manual or automatic sensors, processes them, and actuates the motors of the smoke extraction devices accordingly. The SHEV control panel can also be used for ventilation.

Safety system protects both property and life. Have functional testing performed once a year by a specialist company authorized by the manufacturer.

We recommend having connection, mounting and functional testing performed by a specialist company authorized by the manufacturer. The green pilot LEDs in the buttons must shine constantly; if not, see "Commissioning instructions."



Technical data LSC 4503

Rated voltage	: 230 VAC, 50 Hz (+10%, -15%)
Rated capacity	: 100 VA
Capacity consumption standby	: < 5 W
Interfering emission	: EN 61000-6-3 (08.02)
Res. to jamming	: EN 61000-6-2 (08.02)
Protective category	: I (with function grounding)
Temp. range	: -5 bis +40 °C
Ingress protection	: IP30

Class of rating	
- Monitoring	: Continuous duty
- Emergency state/ventilation	: Short-time duty
Output voltage	: 24 VDC / res.ripple < 5%
Safe output - rated current	: 2 A (30% power-on time)*
Dimensions	: 156 x 83 x 232 (W x D x H)

*see site 37

24 VDC - Emergency supply

Emergency power supply
Seventy-two hours without smoke extraction system
Use VdS approved storage batteries only!

1x min. 12 VDC / 3,2 Ah (Type 8)

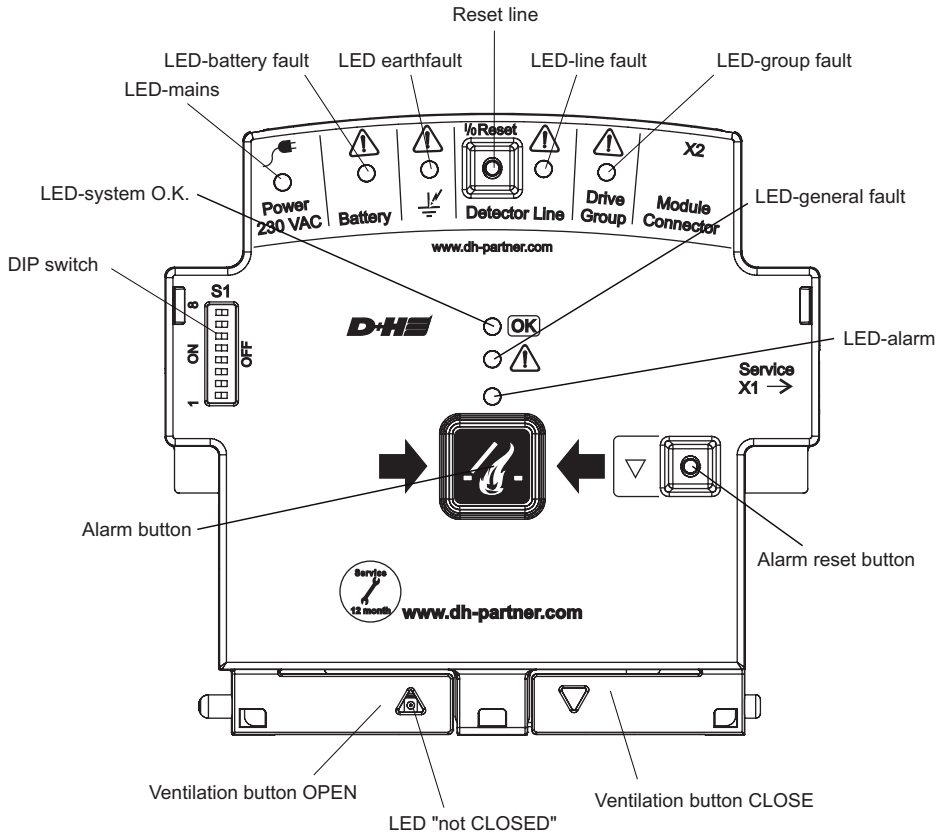
When connecting alarm devices:
2 A total current must not be exceeded; poss. reduce the drive current.

The emergency power time may fall short of 72 hours during an alarm. The total quiescent current (alarms and smoke extraction system) must not exceed 0.25 A.

Scope of delivery

- 1 x Pre-assembled control panel
- 1 x Pre-assembled housing
- 1 x Breaking glass
- 3 x Hanger bolt
- 6 x Hexagonal nut M5 DIN 6923-8
- 1 x Mounting tool
- 1 x Sheet "smoke vent lift shaft" different languages
- 2 x Key

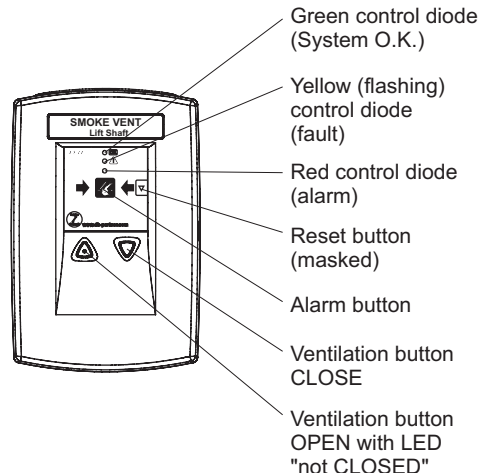
6.5 Control panel, inside view



Rights to technical modifications reserved

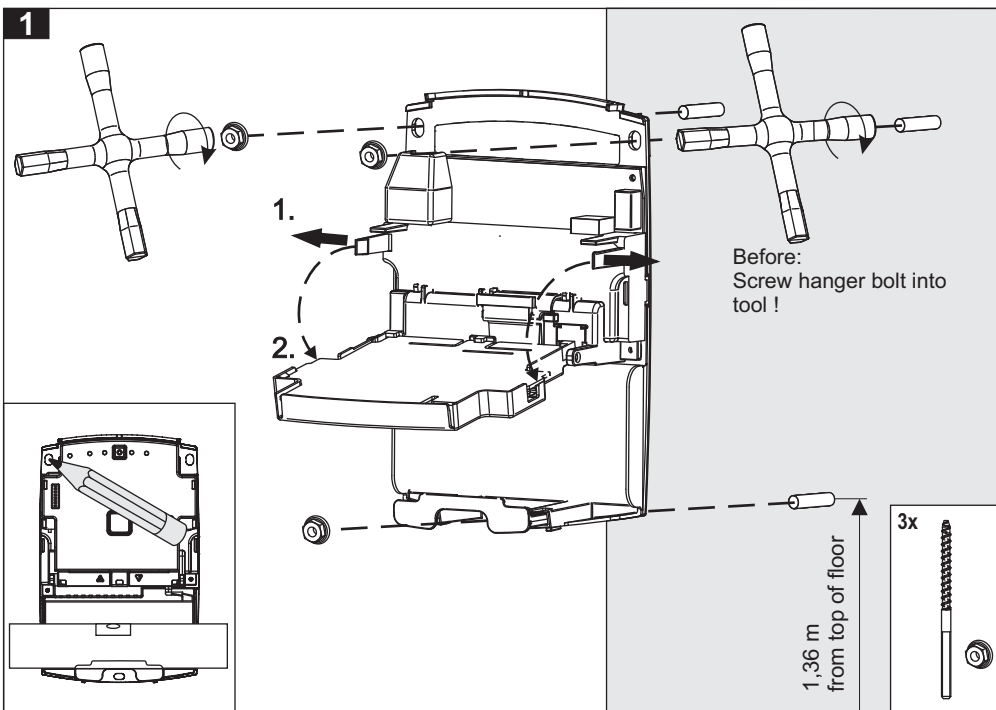
Pictograms

	Smoke and heat vent alarm
	Control panel O.K.
	Fuse actuator
	Mains drive
	Vent button function "ON"
	Vent / smoke vent function "CLOSE"
	Fault
	Charging voltage controller

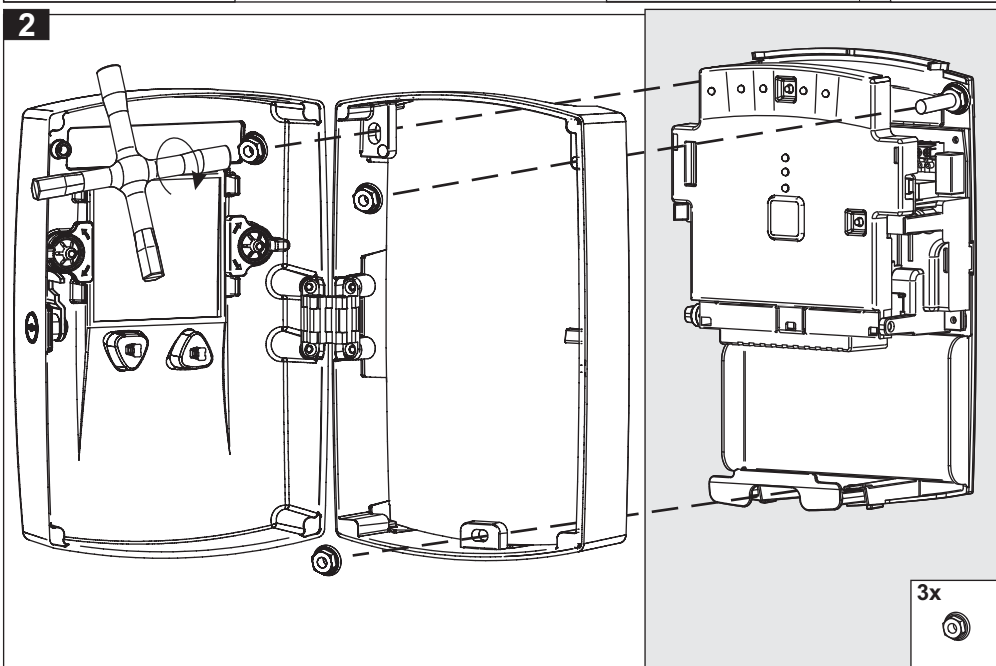


6.6 Control panel installation

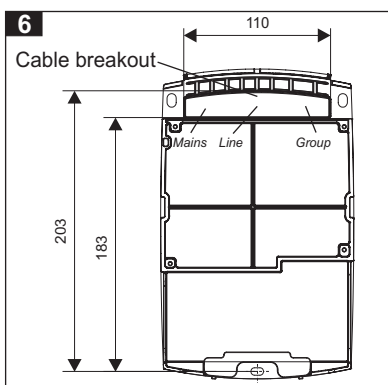
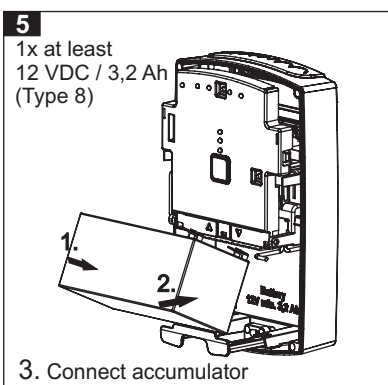
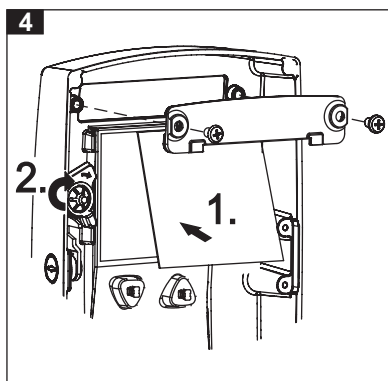
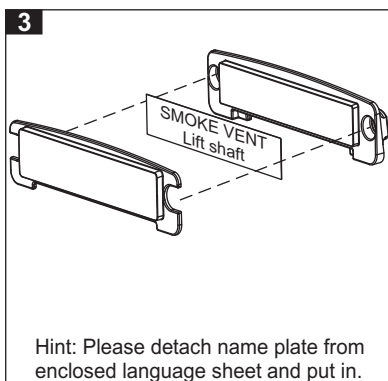
1



2



6.6 Control panel installation



Connection

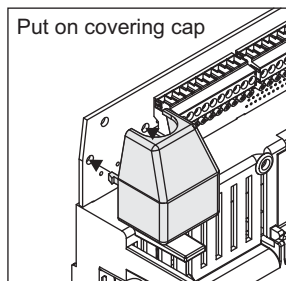
The unit is equipped with 1 x 12 VDC / 3.2 Ah emergency battery (Type 8)

Power supply connection



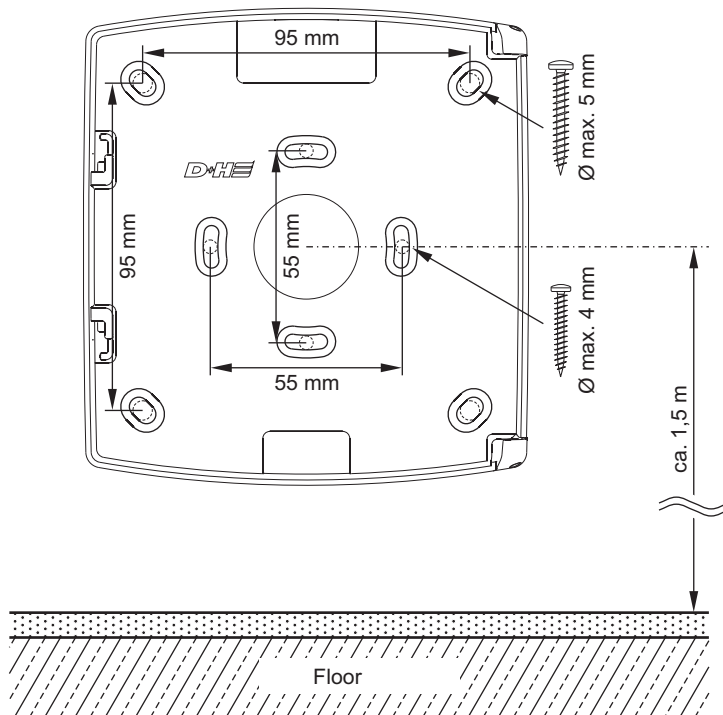
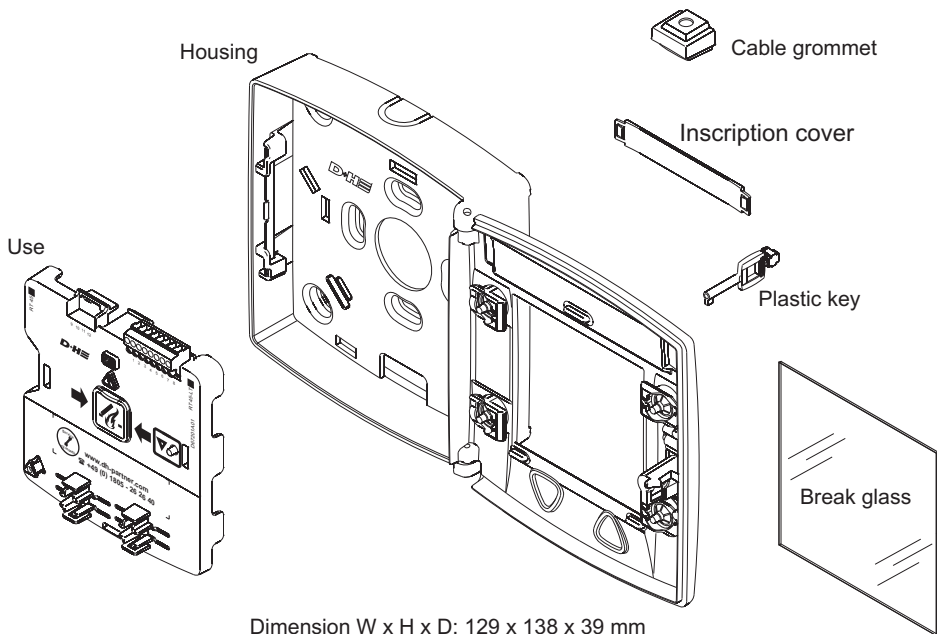
Attention

- Incorrect polarity of the batteries will damage the battery unit as well as the control panel
- The batteries are maintenance-free and must be replaced **every four years**
- Use only batteries approved by the manufacturer. Mark the installation date on the batteries



Connect the mains power via the L1, N and PE terminals.
These are protected by a micro-fuse.
Check the supply voltage after switching on.

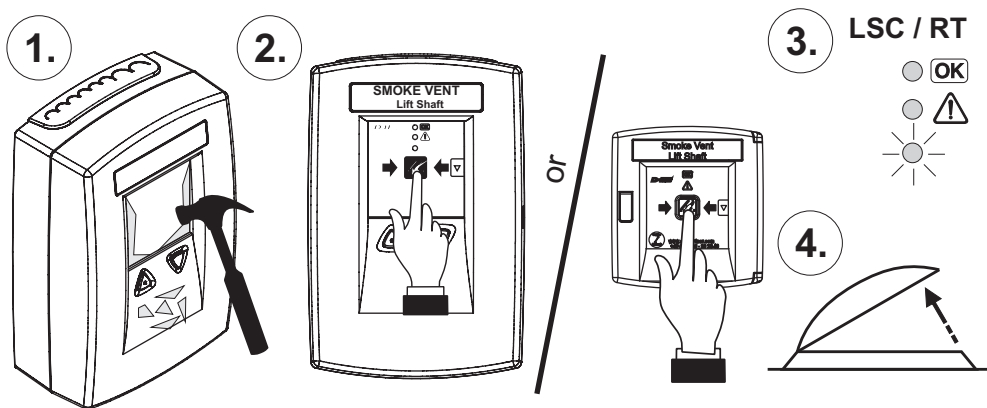
6.7 RT 45 trigger button installation



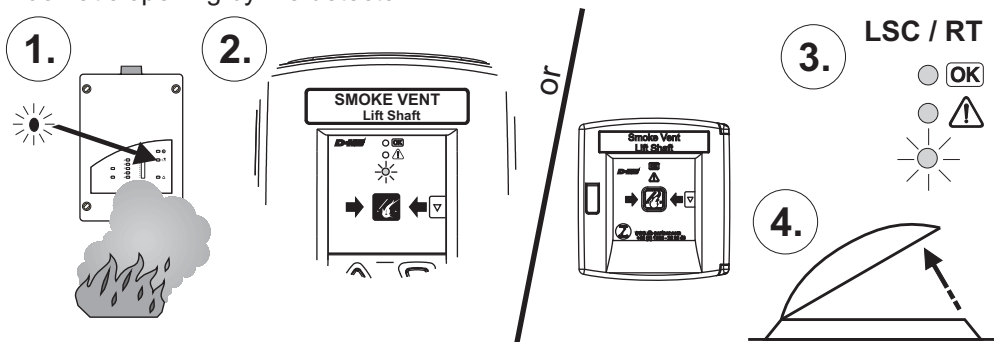
6.8 LSC 4503 Operation

Release in case of alarm

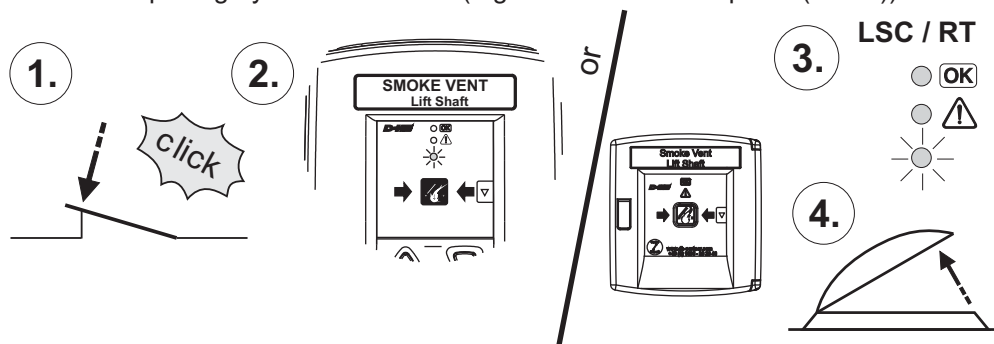
Manual opening by smoke vent button:



Automatic opening by fire detector:



Automatic opening by external control (e.g. fire alarm control panel (FACP)):

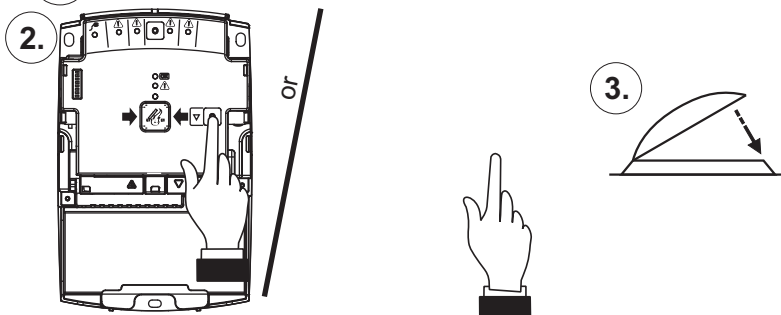


6.8 LSC 4503 Operation (continuation)

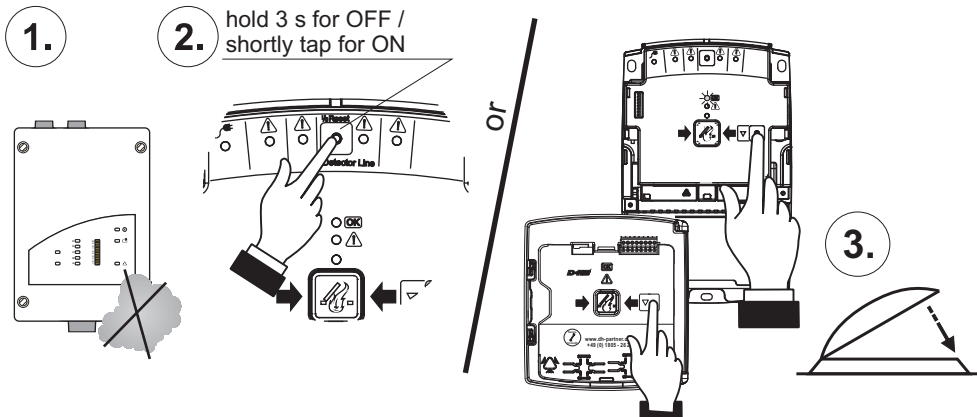
Closing after alarm

With manual release:

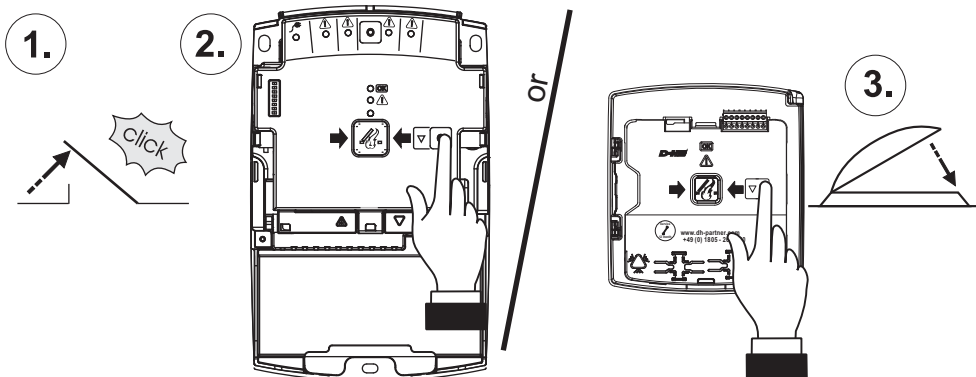
1. Opening the housing (LSC 4503 / RT) with supplied key:



Automatic opening by external control:



In case of automatic release by external control (e.g. FACP):

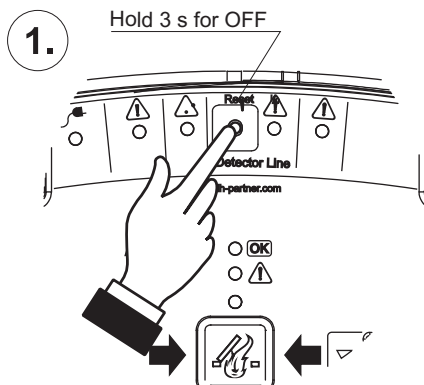


6.9 Emergency closing



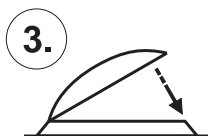
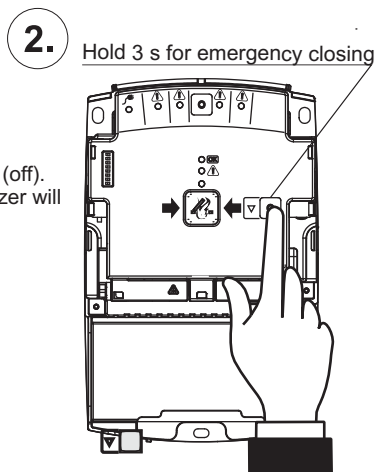
Attention

In some cases it may be necessary to override the "Open" priority. This may occur if the roof vent opens due to a false alarm, power outage etc., or if storm winds or rain make emergency closing necessary to prevent damage.



To do this, open the control panel door, hold the line reset button down for 3 seconds (yellow diodes for fault und line will flash)

Then hold the alarm reset button down for 3 seconds (off). The yellow "Drive Group" diode will flash and the buzzer will sound for 10 seconds, and cannot be deactivated. The vent close under motor control.




**Customer
service**

Press the line reset button again briefly to deactivate emergency closing.

7.0 Demand-optimized ventilation

The shaft has a permanent opening at the top that serves to release smoke in case of fire, but allows heated air to escape uncontrolled. You can avoid uncontrolled energy losses and substantially lower your operating costs using the LSC system.

The shape of the lift shaft and the air flow caused by the movement of the lift up and down in the shaft makes ventilation and smoke extraction of the shaft very important.

If necessary, ventilation may be intelligently controlled using sensors in the shaft.

Shaft ventilation must be assured during maintenance work at the top of the shaft. Before maintenance, the service technician shuts off the SHEV line with the reset button in the LSC 4503 (hold for 3 sec). The ventilation flap will open automatically until the SHEV line is reactivated after maintenance work (hold for 3 sec again).

This ensures good air quality in the shaft for maintenance work.

The system makes it possible to use the SHEV for ventilation as well. There are several ways to do this.

Controlled shaft ventilation

The LSC system may be equipped with a CO₂ sensor in the shaft for permanent air quality monitoring and air exchange control.

In addition, any desired ventilation intervals may be programmed by an optional timer, although an automatic function makes this almost superfluous. The ventilation flap may be opened for fifteen minutes every five hours for regular air exchange.

Room thermostat

A room thermostat may be used to monitor the temperature in the shaft head or the machine room to set an upper temperature of up to 30°C.

If this limit value is exceeded, the 24 VDC electric drive will move the ventilation and smoke extraction flap to the open position.

Optional automatic ventilator operation is possible with other sensors.

The LSC 4503 is a fail-safe system.

The system's control is designed for the ventilation and smoke extraction flaps to move to the open position automatically. There are conditions that may lead to complete opening of the flaps (including a dome skylight) for functional reasons such as SHEV actuation. This may lead to rain damage in the elevator shaft. Roof flaps should be planned and installed in such a way that no electrical components (elevator drive or mechanism) are located directly underneath.

If necessary, consult your D+H service and sales partner to install rain-proof roof flaps.

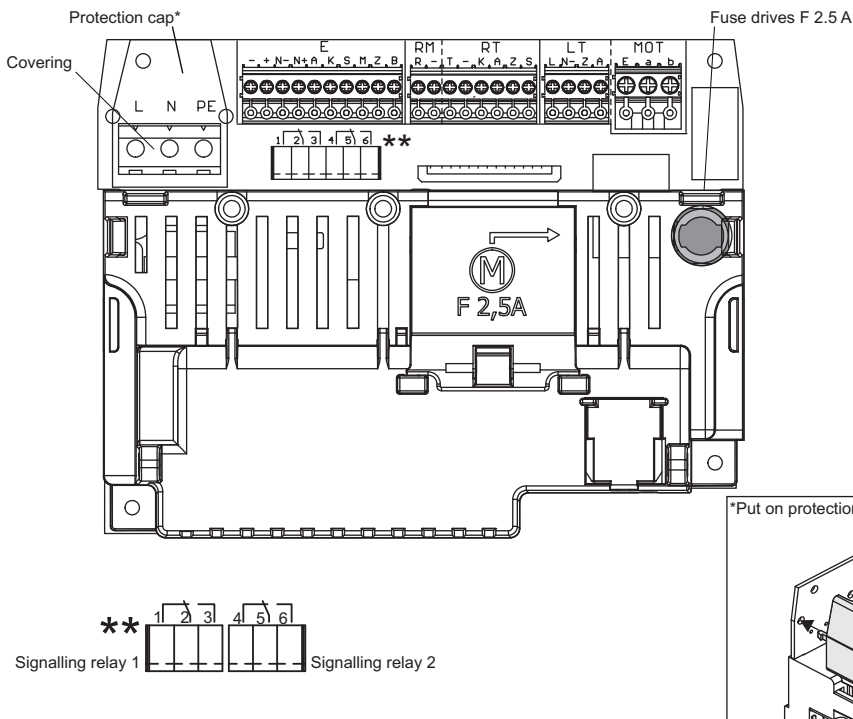
An alternative solution is the installation of a permanent opening using standard ventilation hoods, and then fitting it with a closure flap on the inside on the shaft ceiling (e.g. louver element).

It is also possible to reduce the opening angle as long as the necessary opening cross-section is retained.

An opening in the shaft wall is always preferable.



7.1 View of main PCB



Note:

An additional KM 45 LSC connection PCB is available for attaching external components. This allows any external products to be connected directly while maintaining the various priorities.

The use of the proven RZN 4503-T SHEV control panel for lift shaft smoke extraction provides the control system with a factory-programmed application software package for implementing important functions – this is the LSC 4503 control type.

Connected smoke detectors, a central fire alarm system or the smoke extraction system triggers the smoke detector line of the control panel. The internal or externally connected RT buttons trigger the RT detector line of the control panel.

Additional sensors may be connected to the ventilator button input and input Z of the E plug area and the optional KM 45 LSC connection PCB.

Potential-free reports may be given parameters and used.

Factory setting: Changeover 1 = Alarm, Changeover 2 = OK/fault

The control panel has a maximum 2.0 A output current for 24 VDC operation.

7.2 LSC 4503 functional description

1. Smoke extraction system

The smoke extraction system is supplied via signal + and N-. The system triggers the RM line of the control panel. The system is reset using separate reset lead. The reset lead is connected to the "Monitor" signal on the E plug area of the control panel.

Output K can no longer be used on the E plug area.

1. Power failure OPEN

The group switches to Ventilation stroke limit or 100% open depending on DIP switch 1.5 one minute after detection of a power failure.

Smoke extraction is also switched off. This does not trigger an alarm.

Power failure OPEN is activated using DIP switch S1.7.

Note: The group cannot be reclosed during a power failure (except for emergency closing using emergency power). The green "Power 230" LED extinguishes one minute after power failure.

After power is restored, the control panel runs the group to "Closed" for 60 seconds.

The position order CLOSED can then be superseded by the connected sensors (such as CO2 or temperature sensor).

Depending on the position of DIP switch 1.1. (autom. ventilation clocking ON), the flap only closes after fifteen minutes since ventilation has priority.

2. Service work in the shaft

Line off - as soon as the line is switched off, the group goes to "Ventilation stroke limit" or "100% open" depending on DIP switch 1.5.

Note: The group cannot be closed with the line switched off.

3. Line fault

Depending on DIP switch 1.2 and 1.5 the group moves as follows As soon as there is a line fault:

- Open (stroke limit) or 100% open "Line fault = alarm" DIP switch 1.3 in ON position

Note: The group cannot be closed with a line fault.

4. Group

The ventilator button function buttons are set for memory operation. The control includes a ventilator clock to open the group for fifteen minutes every five hours, and may be activated by DIP switch S1.1 (factory setting ON). The blue LED on the button (and the L message) flashes during the fifteen minutes.

5. Group fault

If there is a group fault, depending on DIP switch 1.2 and 1.5 the group goes to

- Open (stroke limit) or 100% open "Line fault = alarm" DIP switch 1.4 in ON position

Note: The group cannot be closed as long as the fault persists.

6. Battery fault

Depending on DIP switch 1.2, the group switches to the following status if a battery fault is detected:

- 100% open DIP switch 1.2 in **OFF** position

- Ventilation stroke limit (limited opening) DIP switch 1.2 and 1.5 in **ON** position

Note: The group cannot be closed as long as the fault persists.

7. Fault message from lift control

A fault message from the lift control is connected via PCB KM 45 LSC

7.2 LSC 4503 functional description

Function of input ZZ

The group is closed regardless of status in the ventilator button inputs.

8. Service timer

When the service timer is activated and expired, the expiry of the **service period** is shown by the **yellow fault LED flashing (green OK LED stays on)**.

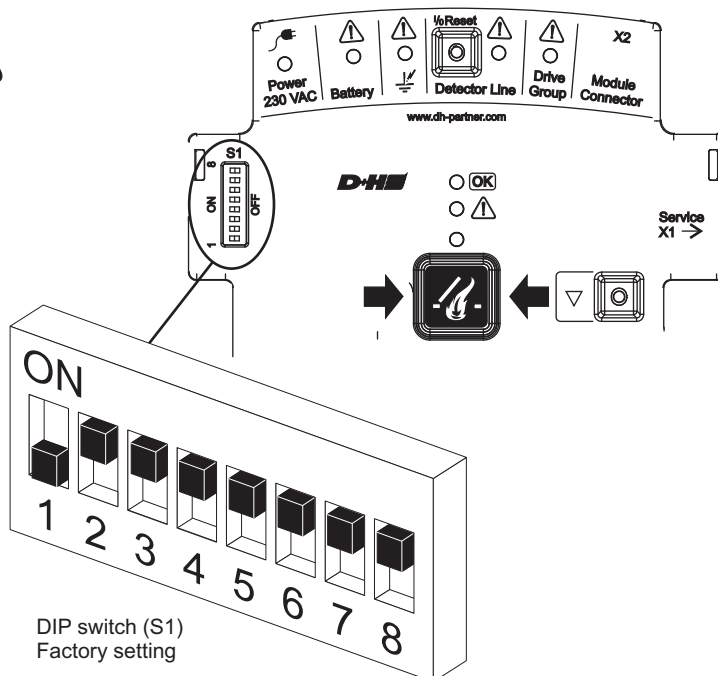
The "Ventilation open" function remains active and cannot be deactivated.

9. Alarm reset

When the opening time limit is activated (DIP switch 1.5 opening time limit = ON), the group is referenced after an alarm. I.e., the drive is shut for 180 sec. after reset of an alarm. Ventilation is not possible during this period.

When the opening time limit is deactivated (DIP switch 1.5 opening time limit = OFF), the group is closed only if the system shows central OK and there is no external "Ventilation open" signal (LT open not active).

7.3 Factory setting DIP-switch



7.4 Codification of control panel

The following functions are set by the DIP switch S1 on the PCB at the control panel, or can be set by a D+H distributor with the D+H PDA service tool:

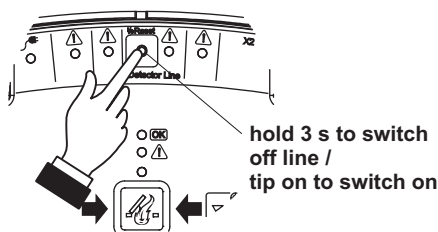
Ventilation clock Automatic ventilation function Every five hours the ventilation flap is opened for 15 minutes. The times in this function cannot be altered.	S1.1 ON = Ventilation clock active S1.1 OFF = Ventilation clock off
Opening time limit in case of power outage and fault If there is a power outage, battery fault, line fault or group fault, the drives will only run within the opening time limit for safety reasons (limited stroke) (S1.2 = ON). Alternatively, the drives may be set to 100 % "Open" (S1.2 = OFF). Note: Make sure that no rainwater can enter the shaft.	S1.2 ON = activated S1.2 OFF = deactivated (100%)
Line fault = alarm In case of a line fault the control panel will be switched to alarm and the smoke vent opens (e.g. at an interrupted button line). Depending on DIP switch 1.3 "Line fault = alarm", a fault will trigger an alarm and the group will open to the opening limit set by DIP switch 1.2.	S1.3 ON = activated S1.3 OFF = deactivated
Group fault = alarm If there is a group fault (e. g. interruption in motor circuit), the control panel is switched to alarm depending on DIP switch 1.4 and the group opened to the opening limit set by DIP switch 1.2., i.e. the smoke extraction flap opens.	S1.4 ON = activated S1.4 OFF = deactivated
OPEN-running time limitation in ventilation operation If the vent button is actuated in direction OPEN, the drives open for 10 s (factory-set). This running time can be edited by D+H PDA servicetool.	S1.5 ON = activated S1.5 OFF = deactivated
Ventilation time limitation The drives will automatically close again after the time set (factory-set 15 min). This time can be edited by the D+H PDA servicetool.	S1.6 ON = activated S1.6 OFF = deactivated
Power failure OPEN 1 minute after detection of a power failure, the group goes to "100% open" depending on DIP switch 1.2. The smoke extraction system is switched off.	S1.7 ON = activated S1.7 OFF = deactivated
Integrated vent buttons are activated Integrated vent buttons are deactivated	S1.8 ON S1.8 OFF
OPENrunning time retriggering (factory-set: deactivated) RAS-alarm remote reset (factory-set: activated)	Programmable by D+H Distributor with D+H PDA servicetool
Lamp test Alarm re-clocking (factory-set: activated) Hint: In case of alarm the smoke vent is triggered with an OPEN pulse every 2 minutes for a duration of 30 minutes according to VdS 2581. For this, the drive must be protected against blockage according to VdS 2580 par. 4.7. . All D+H drives meet this precondition.	

7.4 Codification of control panel

<p>The signalling relay features the following signals: terminated alarm, delayed alarm, general fault, accumulator fault, line fault, group fault, power failure earth fault.</p> <p>Factory-set: signalling relays 1 = "alarm" signalling relays 2 = "general fault"</p>	<p>Programmable by D+H Distributor with D+H PDA servicetool</p>
<p>Akkumulator Charge (temperature-guided) Monitoring: presence, final discharging voltage Discharge control: In case of power failure and total discharge of accumulator, the control panel will switch off. In this case, smoke vent is no longer possible. In this case the LED System O.K. and the LED general fault are not on.</p> <p>Group output Three minutes after the motor group has been operated in OPEN or CLOSE direction, the potential between Mot.a and Mot.b is switched to zero potential.</p> <p>If wind or rain detector is connected. If the respective sensor releases, the group of the control panel will close. Wind velocities can be adjusted to 4-6 Bft. If the alarm is released by a smoke and heat vent system, the system will open regardless of wind and rain. Do not ventilate via smoke vent button because otherwise there is danger of damage by wind or water.</p>	<p>Functions not changeable</p>

7.5 Line switch-off

If the LED line fault flashes, the line is switched off, e.g. for service reasons. **You cannot activate the control panel in this status.** In case of an actual line error the LED line fault is permanently on. **The flap in the shaft is open during switch-off!**

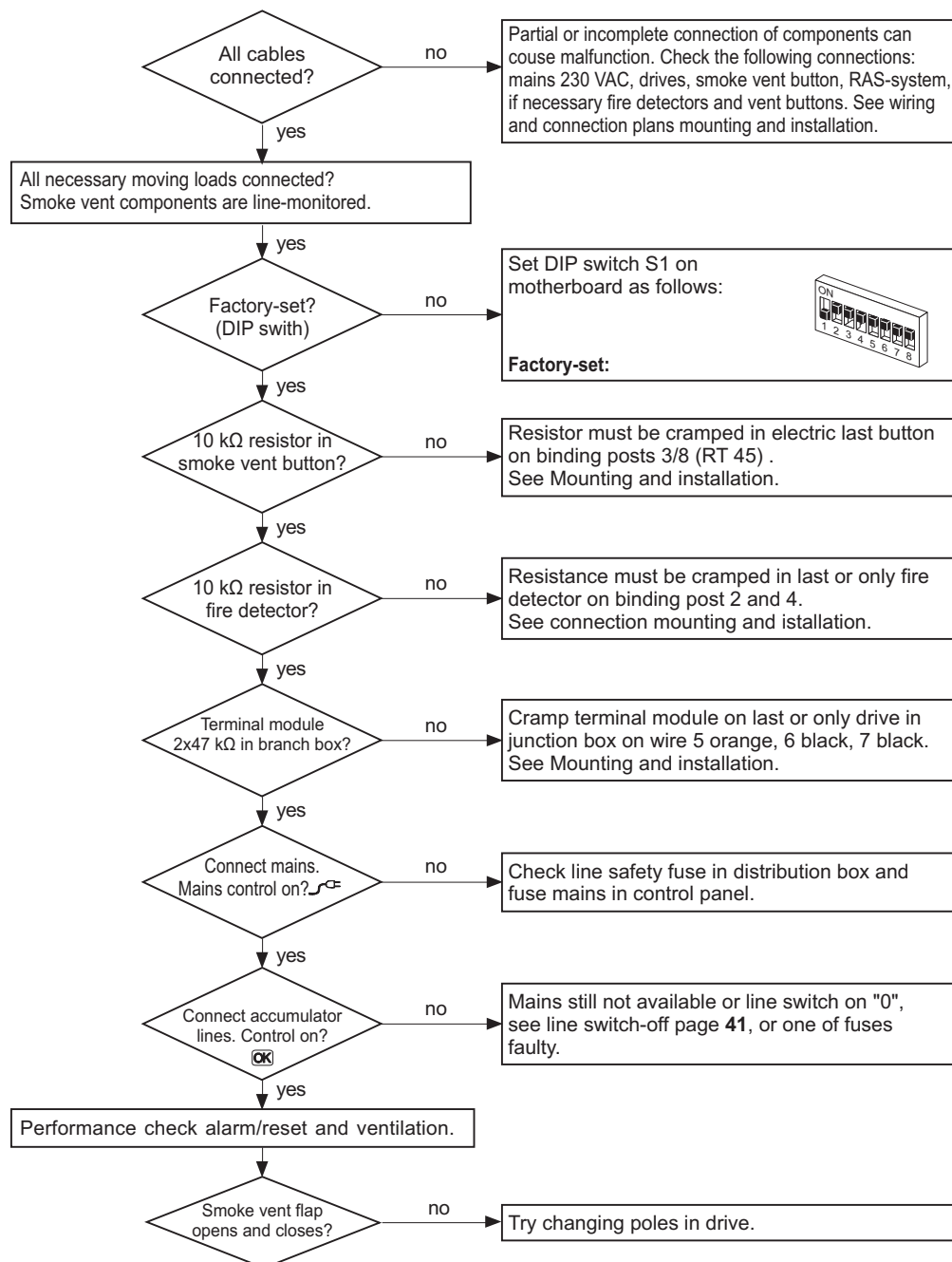


LED Indication

	LED line fault	LED OK	LED general fault
Line fault	on	off	flashing
Deactivated line	flashing	off	flashing
Servicetimer is up	off	on	flashing

7.6 Information for starting

Carry out the following sight and performance checks to switch on the smoke and heat vent control panel.



7.7 Examination

Every six months and after repair by a specialist or staff, who has been introduced to the task.
Eliminate failings at once. Keep control book.

Preperation:

Notify user that the system is out of operation before starting with inspection.
Notify user about false alarms.
Interrupt or switch off monitored alarm indication and remote controls.

Information:





An overdue maintenance of the system will be indicated by the control panel after about 16 months. The yellow control diode in the control panel as well as in the smoke vent button RT 45 will start flashing.

A malfunction in the smoke vent system will be continually indicated by the extinguished green control diodes in the smoke vent buttons. Reset can be carried out by a specialist company only who has been authorized by the appliance manufacturer.

Inspection:

Check all appliances and cable connections for outer damage and dirt accumulation. Fire detectors, smoke vent buttons, smoke vents and so on must not be impaired in their function in structural changings.

Smoke vent button:

Open smoke vent button .
Press red button, red display diode  is on in button and control panel.
Smoke vent must open.
Press masked button  (1 s), red display diode  extinguishes in button and control panel. Smoke vent must close.


Automatic fire detectors:


+ RAS-System

Release smoke detector individual by D+H smoke detector tester or with D+H smoke pen (response delay circa 20 s).


Red display diode must be on.


Smoke vent must open. For closing wait until there is no more smoke in detector.

Reset line in control panel (switch off/ switch on line), red display diode  extinguishes in button and control panel.

Press masked button  in control panel or in smoke vent button. Smoke vent must close.

The line can also be directly reset via smoke vent button, if remote reset is activated.

For this, press masked button  in smoke vent button (for 1 s).

Red display diode  extinguishes in button and in control panel.



If severe dirt accumulation is visible or there are false alarms, change the filter or replace the detector unit.

External control (optional):

Release external control.

Smoke vent must open.


Open contact in external system for closing, for example by resetting of fire detector system.

If smoke and heat exhaust do not automatically close, press masked button  in smoke vent button (1 s). Red display diode  extinguishes in button and control panel.

Smoke vent must close.

Emergency supply:

Detach fuse MAINS in power distributor.

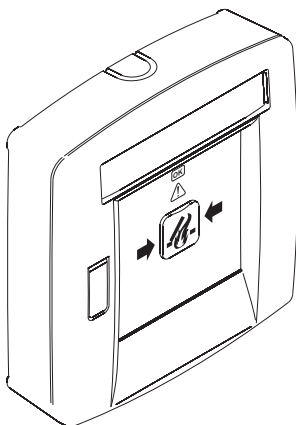
Green mains indication diode  on control panel must not be on.

Repeat functional testing.

Green control diode  in smoke vent buttons must not be on.

If "Power outage OPEN" is activated, the group will open automatically. Reset the grid fuse in the building's fuse box.

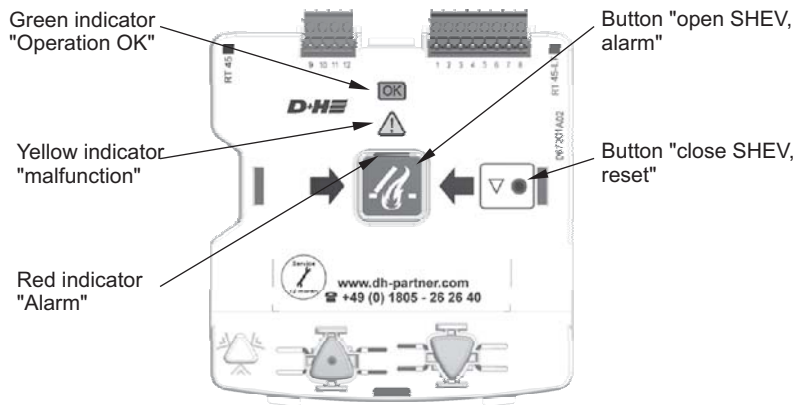
8.0 Smoke vent button RT 45



Technical data

Voltage	: 18 ... 28 VDC
Alarm resistor	: 1,1 kΩ
Alarm display (red)	: 24 VDC, 8 mA
Operating display (green)	: 24 VDC, 8 mA
Malfunction display (yellow)	: 24 VDC, 0,2 mA
Connection	: 0,5 mm ² ... 1,5 mm ²
Temperatur range	: -5 °C ... +40 °C
Ingress protection	: IP 40
Dimensions WxHxD	: 129 x 138 x 39 mm
Housing	: Aluminium die cast
Colours	: orange (RAL 2011)
	gray (RAL 7035)
	yellow (RAL 1004)

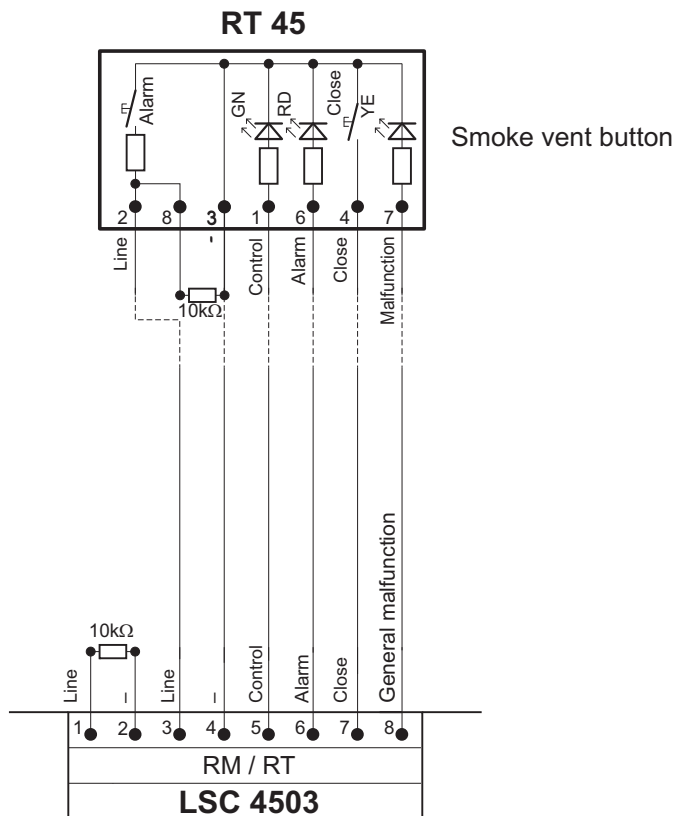
Displays and operation



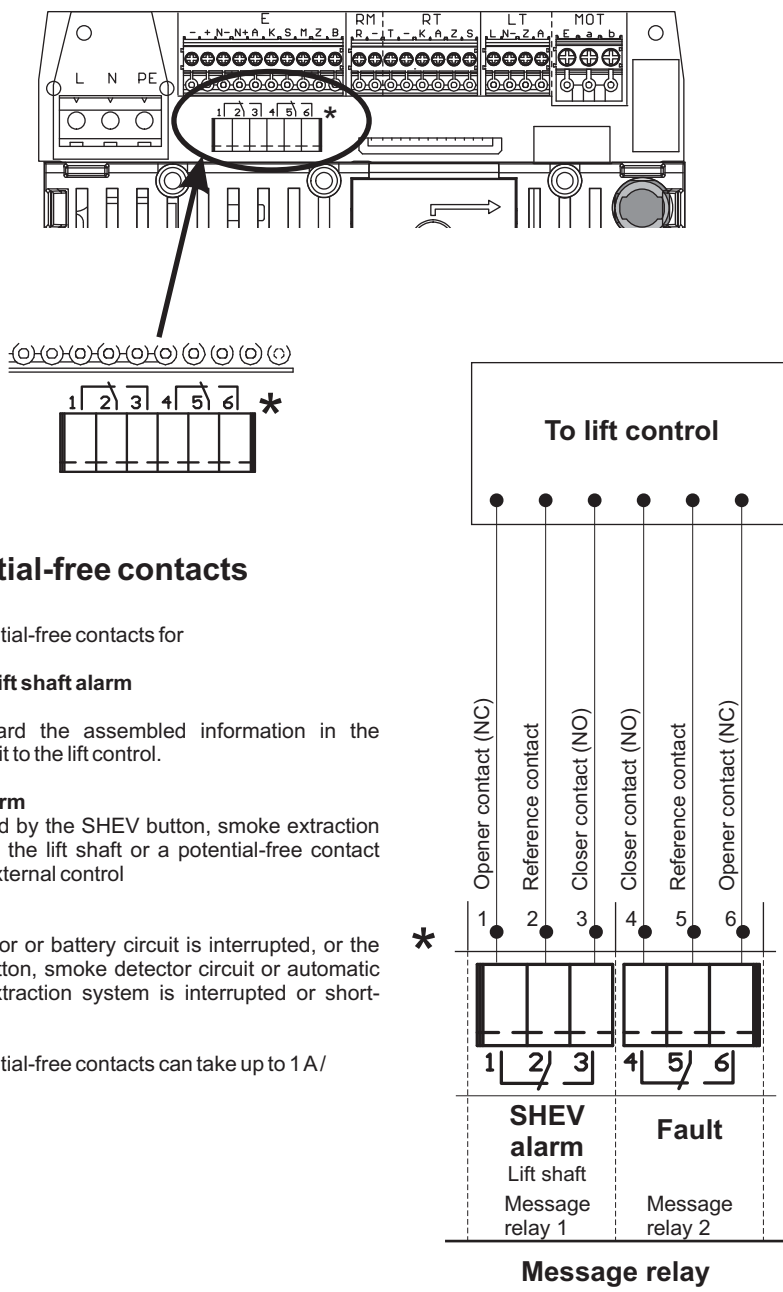
green	red	yellow	Description
●	—	—	System is operable
●	●	—	Alarm
—**	—	○	Malfunction
●	—	○	Maintenance of system due
● = Display lightens ○ = Display flashes			
** Control panel only conditional fit for use			

8.1 Connection SHEV button

- * Terminal resistors for line monitoring:
Clamped control panel for transport. Remove and connect according to plan.



8.2 Connection of Lift / external messages



Potential-free contacts

The potential-free contacts for

- **Fault**
- **SHEV lift shaft alarm**

can forward the assembled information in the control unit to the lift control.

SHEV alarm

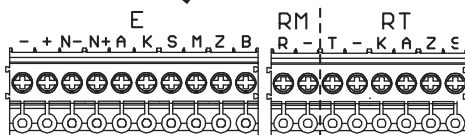
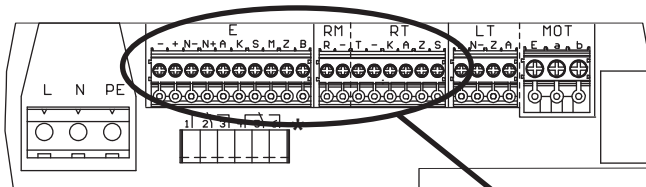
If triggered by the SHEV button, smoke extraction system in the lift shaft or a potential-free contact from an external control

Fault

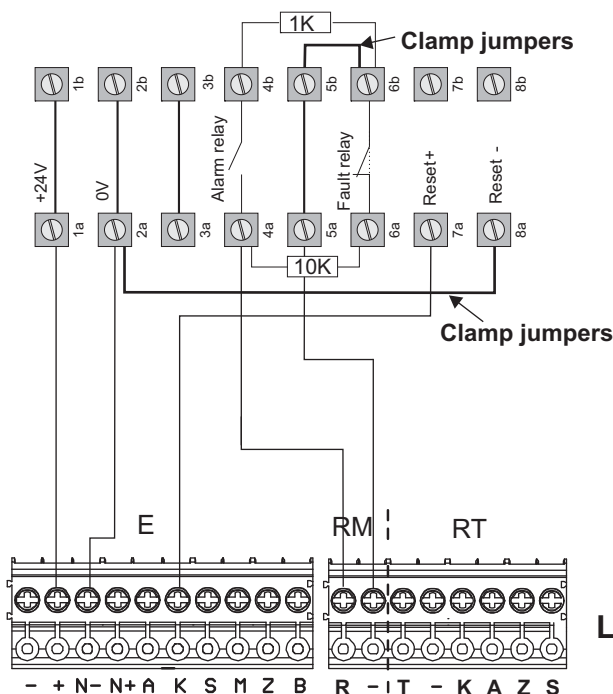
If the motor or battery circuit is interrupted, or the SHEV button, smoke detector circuit or automatic smoke extraction system is interrupted or short-circuited

The potential-free contacts can take up to 1 A / 60 VDC.

8.3 Connection of Micro Sens[®] smoke extraction system



The smoke extraction system may be connected directly to the control motherboard if there are no further external components besides the smoke extraction system (FO location monitoring, central fire alarm system). The optional KM 45 LSC connection PCB is required for connecting further components.

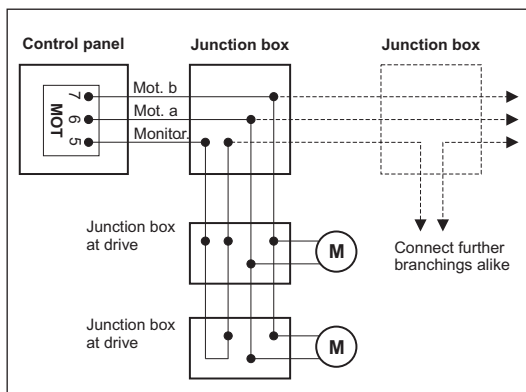
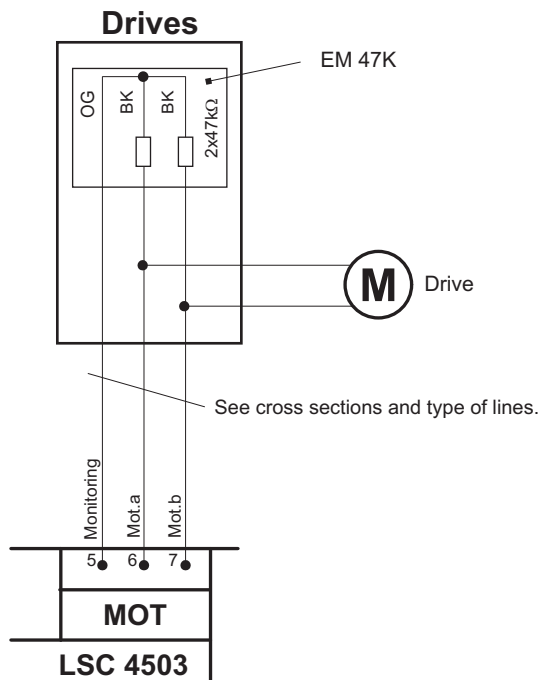


The jumpers and 1K + 10K resistors are control unit accessories.

LSC 4503

8.4 Connection drive (MOT)

Connection drives



Supply wires **Mot. a** and **Mot. b** branch off parallel.

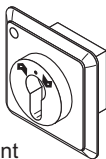
Monitoring is looped through all the cables up to the group end.

8.5 Connection vent button LT + SLT 42

The SLT 42 ventilation button serves to open or close a ventilation group manually.

SLT 42U-SD

- Ventilation button key for flush-mounted
- With integrated LED display OPEN
- Installation in deep 55 mm flush-mount switchbox, switchbox and semi cylinder are no longer in the scope of delivery.



Funktionen : OPEN-CLOSE
(Storage operation) via key
single-pole switcher
Color : white

Monitoring LED displays In the ventilating button

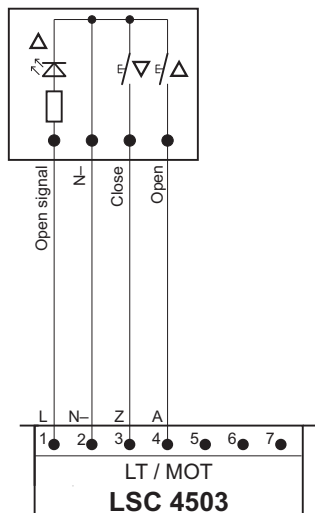
This LED lights up when the ventilation drive is run OPEN, and extinguishes when the drive is in closed condition.

On-site Ventilation control

Alternatively, the ventilation button can also be implemented with a potential-free contact in another control, such as the central building control system. (GLT, ZLT etc.)

Contact assignments to external ventilation action using the on-site central building control system. This connection can also be used for a timer for automatic ventilation.

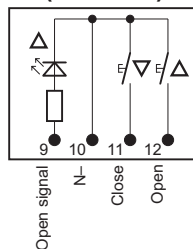
Connection LT / SLT



Pin assignment - RT LT 45

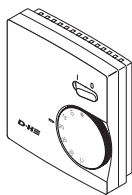


(RT LT45)



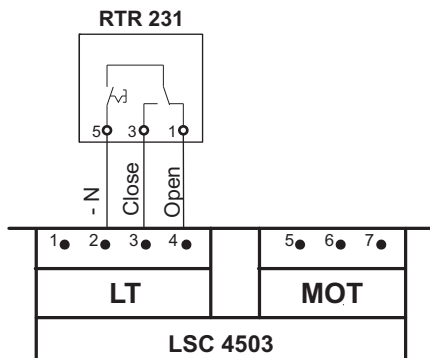
The following connection diagrams can only be used when the individual components are used individually. If multiple components are to be connected, also use the KM 45 LSC connection PCB. The PCB is available as an accessory from D+H.

8.6 Connection temperature control RTR 231

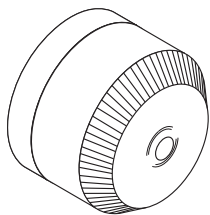


Technical data

Temp. range : 5 ... 30°C
 Ingress protection: IP 20
 Colour : RAL 9010, pure white
 Dimensions : 78 x 83 x 26 mm WxHxD



8.7 Connection alarm siren B/SE 24

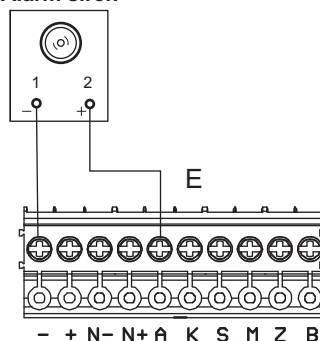


Acoustical signal transmitter
 with 26 selectable tones.

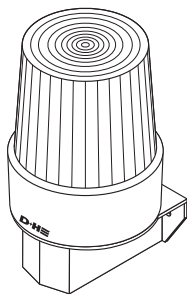
Technical data

Power supply : 10-28 VDC / 0,03 A
 Lautstärke : 80-116 dB, adjustable
 Dimensions : ø 92 mm, height 75 mm
 Ingress protection : IP 54
 Colour : Red

Alarm siren



8.8 Connection flashing light BL 41

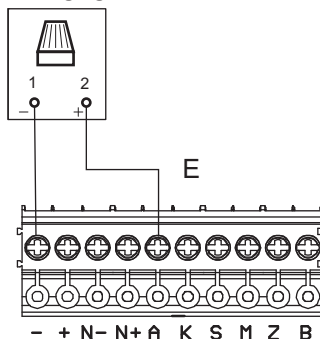


grey with orange dome suitable
 for outside mounting.

Technical data

Power supply : 24 VDC / 0,160 A

Flashing light



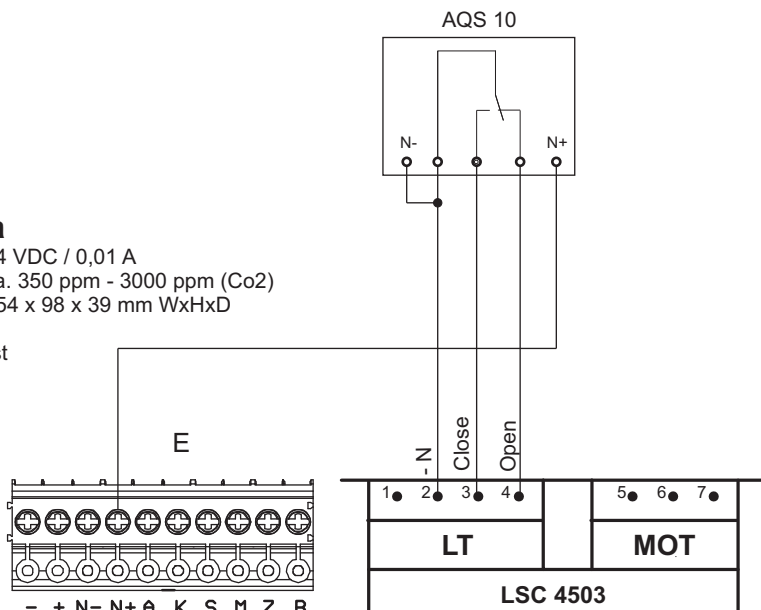
8.9 Connection Air quality sensor (optional*)



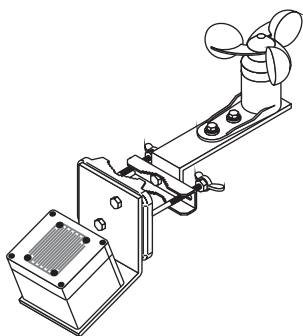
Technical data

Power supply : 24 VDC / 0,01 A
 Measurement range: ca. 350 ppm - 3000 ppm (Co₂)
 Dimensions : 154 x 98 x 39 mm WxHxD

* Available on request



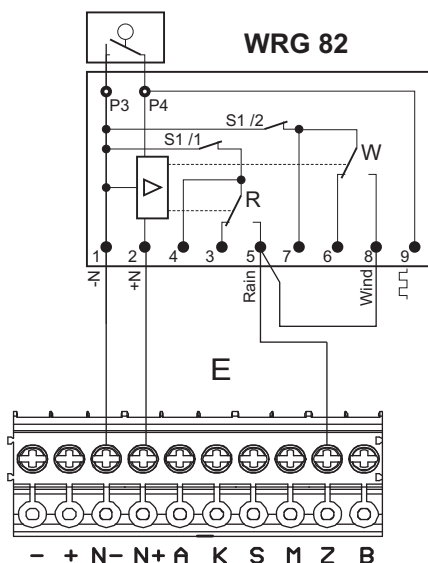
8.10 Connection Wind-rain-sensor WRG 82



Technical data

Power supply : 24 VDC / 0,2 A
 Ingress protection : IP 65
 Dimensions : 85 x 150 x 400 mm WxHxD

Wind-switching point adjustable on 4 or 6 Bft. via DIP-switch



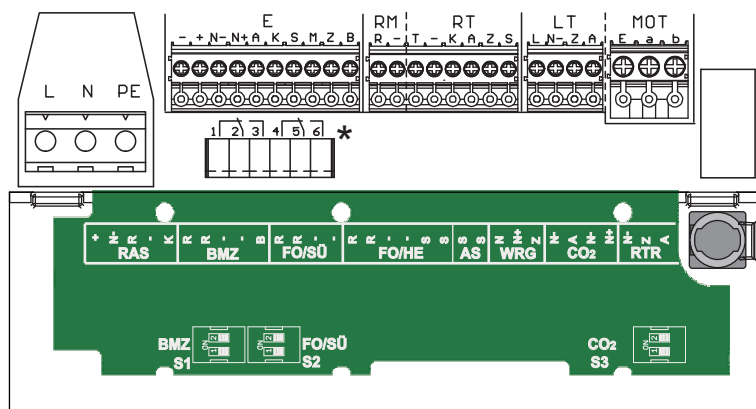
8.11 KM 45 LSC connection PCB

The PCB is available as an accessory from D+H, and is needed if multiple components are to be connected to the LSC 4503.

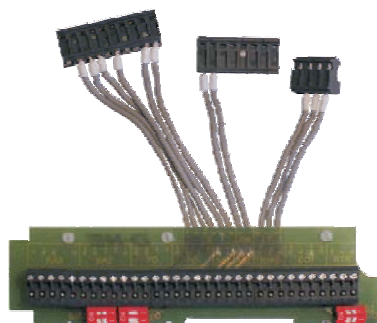
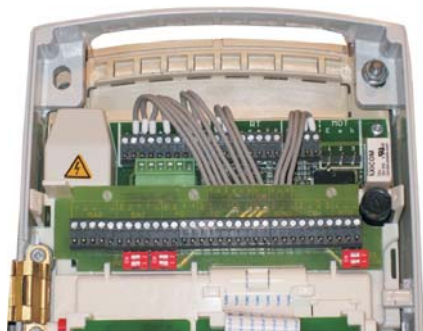
Due to the very space-saving form factor of the LSC control unit, all possible connection wires cannot be connected directly to it. To facilitate assembly, D+H has developed a special PCB for the LSC control unit delivered ready for connection.

Remove the terminal blocks on the E area, the RM and the RT, and the LT connection, and plug the terminals assembled on the KM 45 to the pins provided.

The PCB is fastened by three plastic brackets.

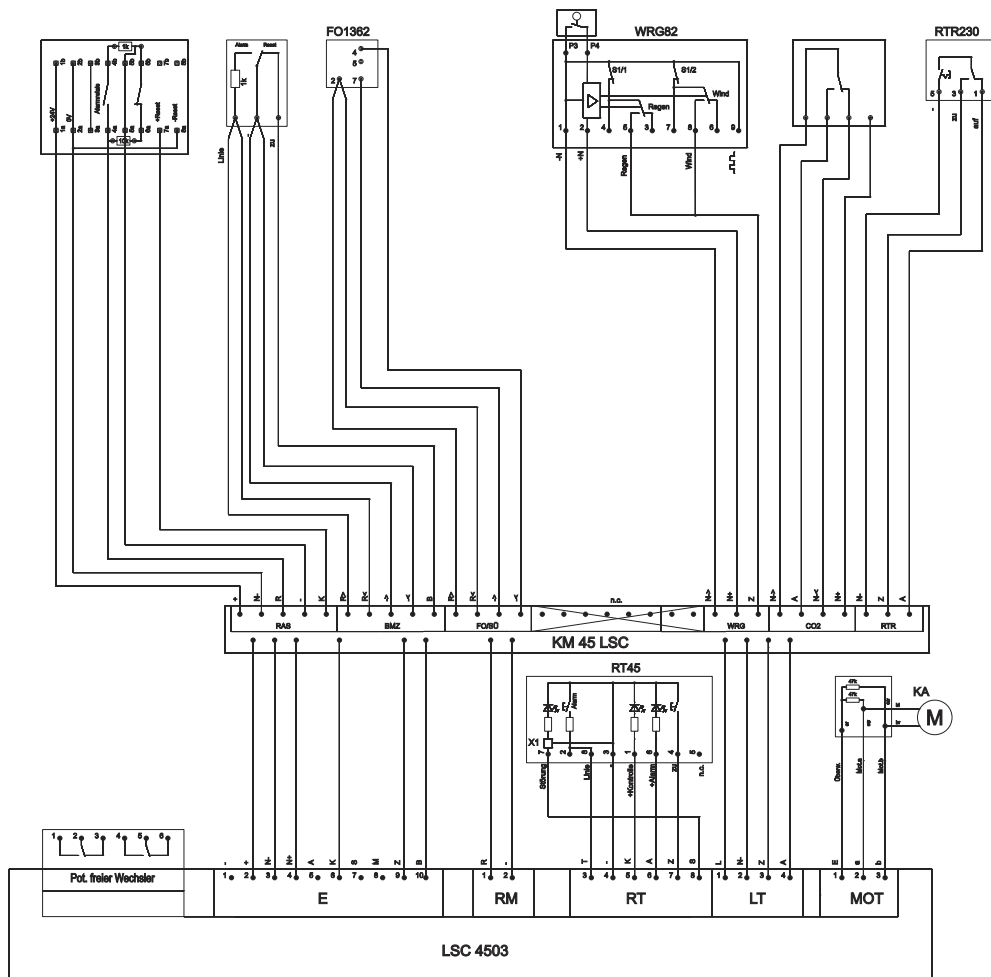


Connection PCB KM 45 LSC installed in the LSC 4503 control unit.



Connection PCB KM 45 LSC ready to install, incl. terminal blocks.

8.12 KM 45 LSC connection overview



DIP-Switch

S1		S2		S3	
	No central fire alarm system connected		No FO 1362 fire detector connected		No CO2 sensor connected
	Central fire alarm system connected		FO 1362 fire detector connected		CO2 sensor connected

9.0 Smoke Vent Device / Connecting Elements

Safe and reliable opening of the smoke vent elements in the top end of the lift shaft is of central significance in case of fire. The well tried D+H SHEV-drives, triggered from the LSC-system will

ensure reliable opening of domelights respectively louvre windows. Different operational elements and detectors are available for release and operation of the LSC-system.

9.1 Louvre Drive

Louvre windows with the electric motor driven drive serve for carrying-off of conflagration gases and for ventilation purposes. They are made of heat separated aluminium profiles with insulating glazing. Through this, a good heat insulation will be achieved in closed condition. The louvres will close flush with the frame outside.

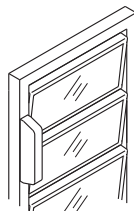


Mounting Frame

Delivery of a louvre window is always carried out with pre-assembled mounting frame. The louvre window will be pushed into an existing shell opening inside. The frame is made of aluminium-L profiles. The rest flange width is wraparound approx. 46mm. Flange fastening holes must be drilled by self.

Louvre Drive

The louvre window will be opened and closed by a 24V drive with integrated electronic limit stop.



Open geometric ventilation area:

of approx. 0,1 m² or 0,3 m²
insulating glazing with a thickness
of maximum 24 mm.

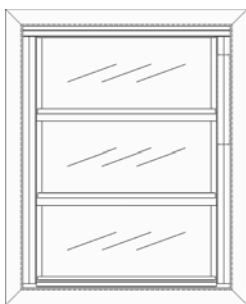
Heat protection glass ex works:

UV test certificate = 1,1 W / qmk, UV BAZ = 1,2
W/qmk, Ug rated value = 1,2 W / qmk

Surface:

fittings and frames Alu E6 EV-1

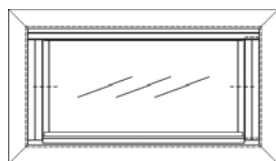
Different sizes, colours and designs are available
on request.



The free geometric suction cross-section is about 0.3 m²

Nominal size: 610 x 768 mm (WxH)

Building shell opening: 625 x 785 mm (WxH)



The free geometric suction cross-section is about 0.1 m²

Nominal size: 610 x 310 mm (WxH)

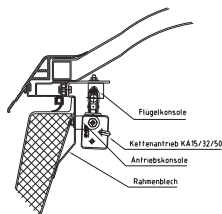
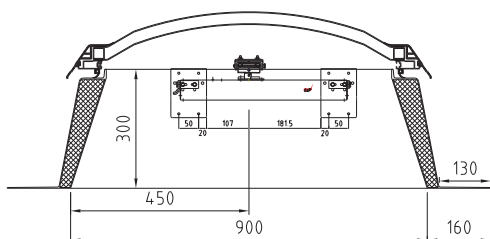
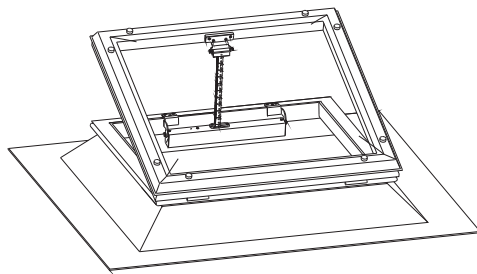
Building shell opening: 625 x 325 mm (WxH)

9.2 Domelight

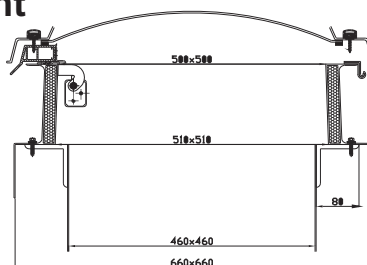
The dome skylight with electric motor is for extracting fumes and for ventilation. Its rated size is 600 x 600 mm or 900 x 600 mm, and it has a PVC collar 15-50 high for flush mounting with the roof surface. The dome consists of double opaque acrylic glass.

It offers a free geometric suction cross-section of about 0.18 or 0.3 m².

Other sizes and designs are available on request.



Superimposed dome skylight



The superimposed dome skylight is available for renovations. It is placed on the existing base of the ventilation hood. The skylight's extremely compact dimensions have a max. smoke extraction cross-section of 0.1 m². This is usually sufficient for standard lift shafts.

If there are already permanent openings in lift shaft, just the top of the ventilation hood is removed while keeping the base, so no further roofing work is needed. The flange of the ventilation hood base remains bonded to the roof skin.

The superimposed dome skylight is then pushed onto this and secured. The dome skylight has a chain drive.

This solution is not only suitable for renovations, but may also be installed on an existing concrete upturn. The dome consists of double opaque acrylic glass.

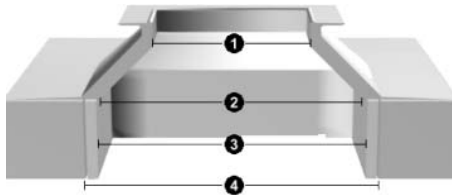
It offers a maximum free geometric suction cross-section of about 0.12 m².

Rack and pinion or chain drives

Opening width 350 to 500 mm, 24 VDC with integral end switch-off, VdS-approved

9.3 Informations for Mounting of Louvre/Domelight

- Domelight or louvre must be handled by trained specialists from the roofer- and window building trade.
- Mechanic installers must show their qualification according to the guideline of the German employer's liability insurance association in the field of power operated windows, doors and gates.
- They must be familiar with the relevant working regulations, rules for prevention of accidents and generally recognized rules of technique (e.g. VDE-rules, DIN-standards, etc.), so that the operating safety of the system will be ensured.
- Louvre windows must be always vertically installed. No mechanical stress must be exercised on the louvres by mounting.
- Alterations or repairs on the system must be only carried-out by the manufacturer. Alterations of the system, taken on one's own, are **forbidden**.
The manufacturer will be not liable for damages, which result from changes not authorized.
The warranty will extinguish.
- Highly electromagnetic fields are to be avoided in proximity of the smoke vent device.
- The smoke vent device must not be subject to shocks, concussions or vibrations.
- Furthermore, the smoke vent device must be protected against humidity like weather. This is especially important during bedding at building site and during installation!



- (1) Clearance, top edge of curb (= NS - 20 cm)
- (2) Clearance, bottom edge of curb = Nominal Size (NS)
- (3) Finished dimensions of roof opening (recommended: NS + 1 cm)
- (4) Building shell opening (nominal + 2 x 0.5 cm shadow edge + 2 x cladding thickness)

D+H is a member of the following associations:



Consulting • Service • Sales



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