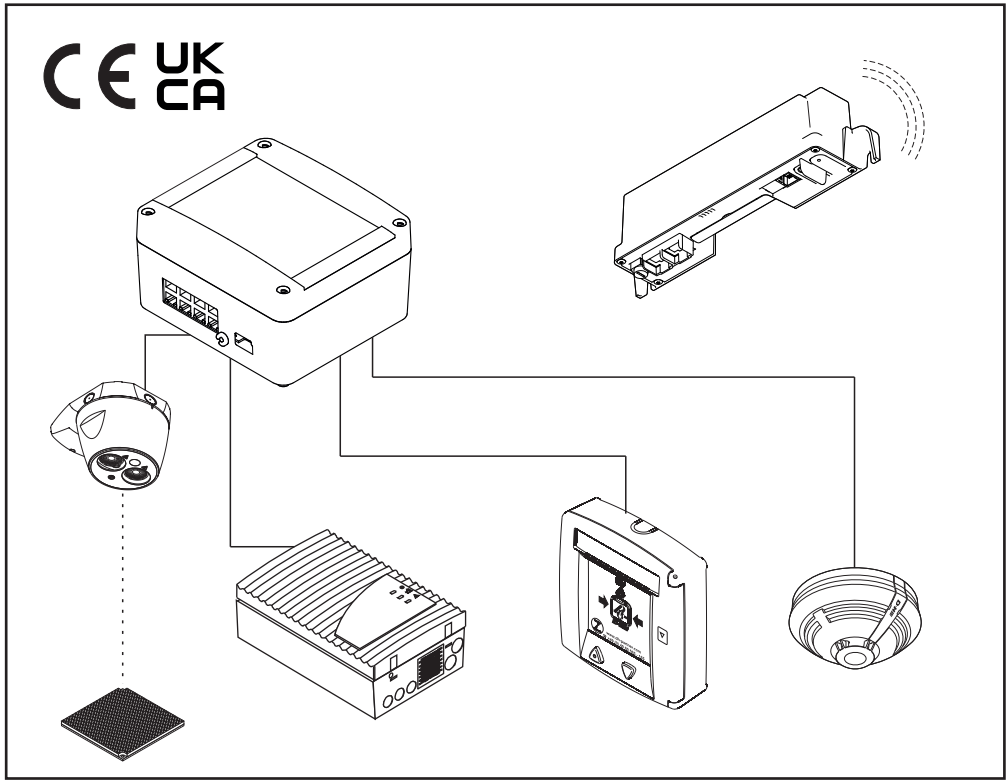
Bluekit Downloads

L-AIO



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99.828.97 1.0/02/24

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Declaration of Conformity

We declare under our sole responsibility that the product described under “Technical Data” is in conformity with the following regulations:

2014/30/EU, 2014/35/EU, 2011/65/EU

S.I. 2016/1091, S.I. 2016/1011, S.I. 2012/3032

Technical file at:
D+H Mechatronic AG, D-22949 Ammersbek

Dirk Dingfelder
CEO
20.01.2023

Maik Schmees
CTO

Safety notes

All persons involved in maintenance and testing must know and observe the company's internal and national safety regulations.In addition to protective clothing, the following safety equipment must also be worn:

- Safety helmet
- Safety goggles
- Safety shoes
- Full body safety harness
- Protective gloves
- hearing protection

Operating voltage 230 VAC!
Risk of injury due to electric shock!

- Connection may only be carried out by an authorised electrically skilled person.
- Only suitable for installation indoors.
- Only use unmodified D+H original parts.

Intended use

- Intelligent ventilation system for lift shafts
- Only suitable for installation indoors

Functional Description

- The BlueKit L-AIO system is used in lift shafts for the detection of a fire with smoke development and for ventilation. The system consists of a control panel (BK-AIO), a ventilation element (installed horizontally or vertically) and additional components. The following components are possible:

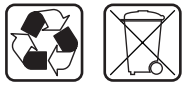
- SD-L-F1 (smoke detection in the shaft by infrared beam)
- ASD (aspiration smoke detector)
- LST-CO_2-V3 (lift status transmitter; transmitter unit on the car roof)
- Point detector
- Operation panel (RT 45/-RJ-LT / RT 45/-RJ)

Important regulations

The VDE 0833 for danger/risk signalling systems, VdS 2221, VDE 0100 for electrical attachments, DIN 18232 for SHEV systems, the regulations of the local fire brigade and the EVU for mains connection must be observed.

Disposal

Electrical devices, accessories, batteries and packaging should be sorted for environmental-friendly recycling. Do not dispose electrical devices and batteries into household waste!
Only for EC countries:
According the European Guideline 2012/19/EU for waste, electrical and electronic equipment and its implementation into national right, electrical devices that are no longer usable must be collected separately and disposed of in an environmentally correct manner.



WARNING

Read all safety warnings, instructions, illustrations and specifications provided with this product.
Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.
Save all warnings and instructions for future reference.

Examples of application

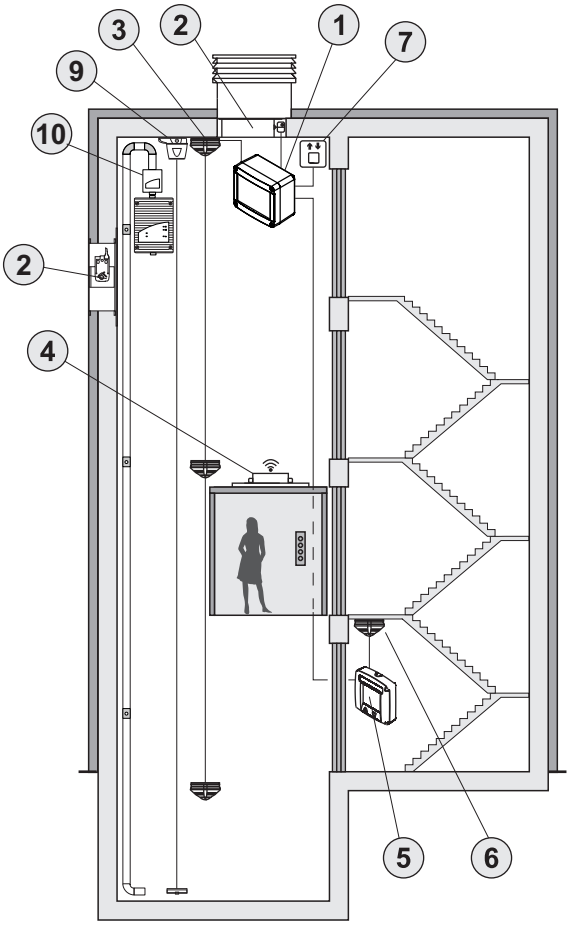


Fig. without machine room

Notice/information:
The system is not shown here with all available components. If available, the timer and thermostat must be installed near the central unit. The key switch must be installed in consultation with the operator.

1	Central unit (BK-AIO)
2	Horizontal ventilation element Vertical ventilation element
3	Smoke detector
4	Lift-Status-Transmitter (LST-CO_2-V3)
5	Smoke vent button (RT 45/-RJ-LT)
6	Smoke detector at main evacuation level
7	Connection to the lift controller
8	Lift-Status-Repeater (LSR)
9	Aspiration smoke detector (ASD)
10	SD-L-F1 Infrared fire detector (with reflector at the bottom of the shaft)

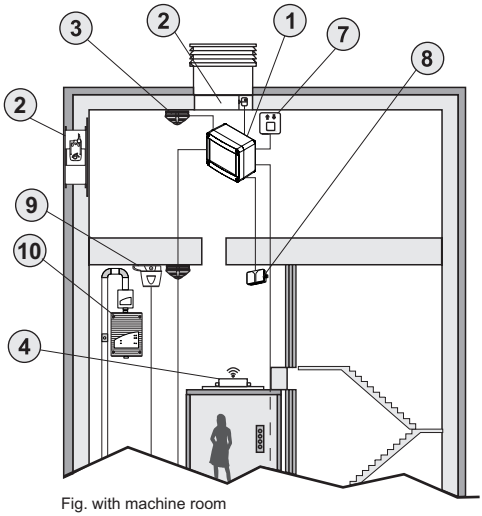
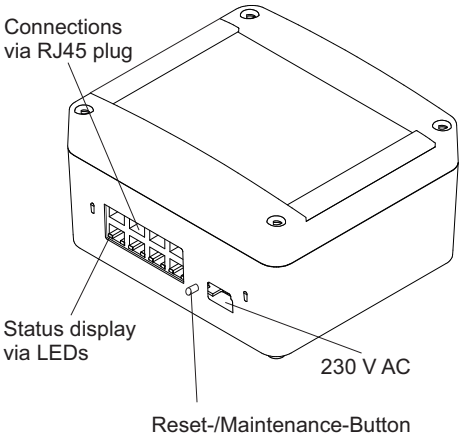


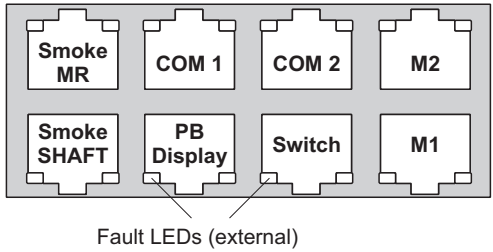
Fig. with machine room

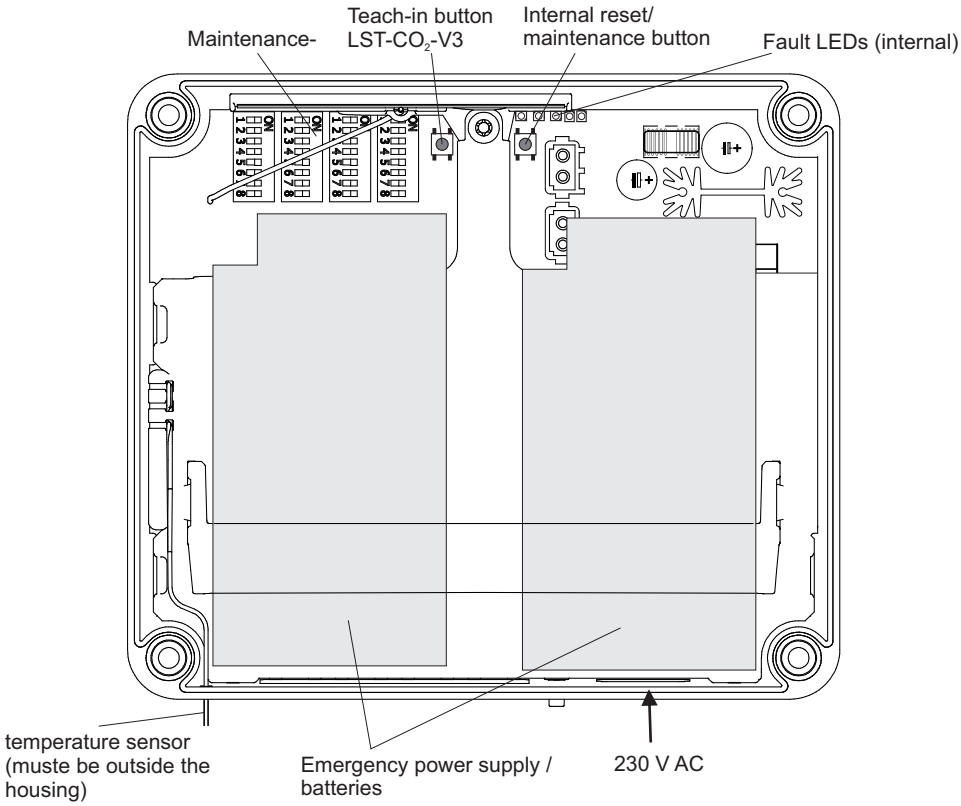
Overview Central Unit

All connections in the compact housing are realised via RJ45 plugs (with the exception of the mains plug, which is designed as 230 V AC). Emergency power batteries are required in the following cases: DC drives 24V DC and systems with skylights.



Connections (RJ45 plug)

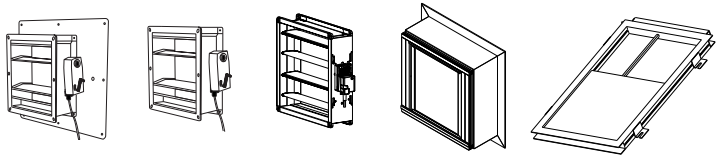




System components – overview

1.

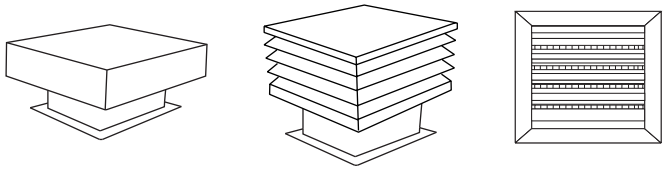
JK-180[1, 2] JK-190[1, 2] NK-SL[1] Louvre window[2] Slideflap[2]



[1] spring return motor [2] 24V DC drive

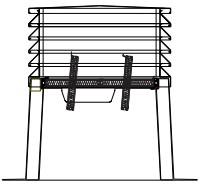
2.

HVC HVL ALAS



3.

Thermoflap[2]



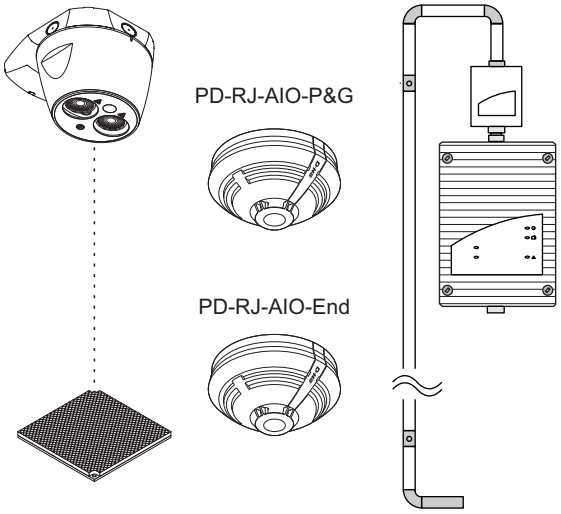
[2] 24V DC drive

4.

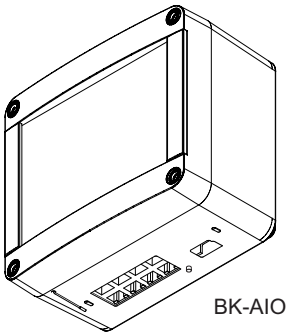
SD-L-F1 ASD

PD-RJ-AIO-P&G

PD-RJ-AIO-End

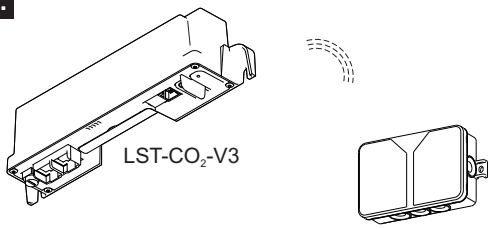


5.



BK-AIO

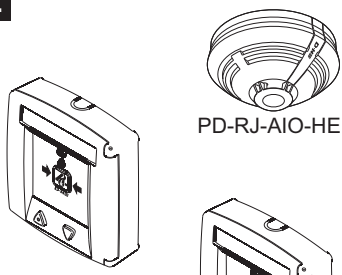
6.



LST-CO_2-V3

LSR

7.



PD-RJ-AIO-HE

RT 45/-RJ-LT

RT 45/-RJ

System components – Description

1. **Ventilation element (NSHEV)**
   - Containment of power losses by closing the opening in the lift shaft.
   - Ventilates and discharges smoke if necessary.
   - For vertical or horizontal installation.
   - With or without weather protection, depending on the building type

   Spring return motor or 24V DC drive:
   JK-180 - Blind with installation frame for integrated installation
   JK-190 - Blind for mounted installation

   Spring return motor
   NK-SL – Blind for mounted installation

   24V DC drive:
   Louvre window
   Slideflap

2. **Weather protection**
   HVC – Weather protection canopy for horizontal installation
   HVL – Louvre bonnet for horizontal installation
   ALAS – Weather louvre for vertical installation

3. **Canopy Thermoflap**
   Pre-installed combination of weather protection bonnet, louvre (24V DC drive) and mounting ring as a ready-to-install solution.

4. **Smoke Detector**
   - Smoke detection over the entire height of the shaft and forwarding of the signal to the central unit.
   - Point detector or infrared detector (SD-L-F1).
   - Selectable depending on shaft dimensions and requirements in the building

   PD-RJ-AIO-P&G – Optical smoke detector
   PD-RJ-AIO-End – Optical smoke detector with integrated terminal resistor
   SD-L-F1 – Infrared fire detector (up to 100 m shaft height)
   ASD – Aspiration smoke detector

5. **Central unit BK-AIO**
   - Receiving and forwarding the trigger signal for opening the ventilation element
   - Central unit with integrated temperature sensor and extended connection options
   - Central unit with integrated wireless receiver

6. **Lift Status Transmitter**
   - Check the CO_2 content directly at the lift car.
   - Additional monitoring of movement or malfunctions of the lift.
   - If required, signal for ventilation to the central unit.
   - Integrated temperature sensor, humidity sensor, CO_2 sensor and acceleration sensor.
   - Time-controlled and usage-dependent ventilation functions.
   - Wireless radio connection to the central unit.

   LST-CO_2-V3 – Lift Status Transmitter
   LSR – Lift Status Repeater (from shaft height 70m or no line of sight required see page 16)

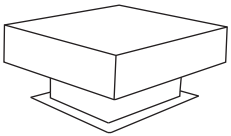
7. **Smoke vent button with status display**
   - Manual triggering of a ventilation or smoke extraction command and display of the system status.
   - LED status display depending on system and variant: ventilation, alarm and fault

   RT 45/-RJ – Smoke vent buttonRT
   RT 45/-RJ-LT – smoke vent button with integrated ventilation button
   PD-RJ-AIO-HE – Optical smoke detector for the main evacuation level

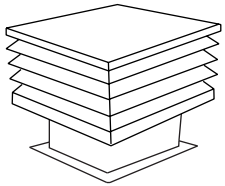
Installation – weather protection HVC, HVL, ALAS

If there is no weather protection in front of the ventilation opening on site, appropriate weather protection must be professionally fitted to the outer shell of the building. The ALAS grille can be guided through the wall opening from the inside and inserted into the opening. Then pull the ALAS grille towards the outer wall and fasten it to the wall with mounting brackets.

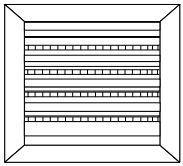
HVC
Weather protection roof bonnet



HVL
Louvre bonnet



ALAS
Weather protection grille
Wall installation



Installation – Thermoflap

The three subcomponents of the TF (see illustration) are pre-installed and supplied in one unit as a ready-for-installation solution.

- Place the TF roof bonnet on the opening.
- Ensure that the connection cable of the louvre points into the lift shaft.
- Attach the TF roof cowl to the ceiling using the mounting ring and wall anchors.

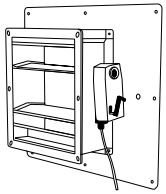
The thermal sealing to the mounting ring can now be carried out (thermal sealing is part of the roof insulation and is always a service provided by the customer).

Installation – blind JK 180, JK 190, NK-SL

JK-180 – Blind with spring return motor with installation frame for integrated installation

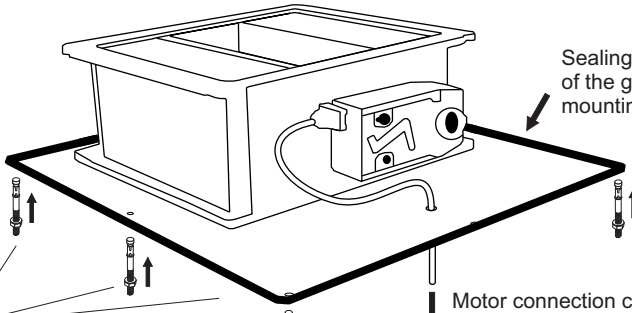
JK-190, NK-SL – Blind with spring return motor for mounted installation

JK-180



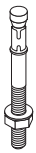
JK-190

NK-SL



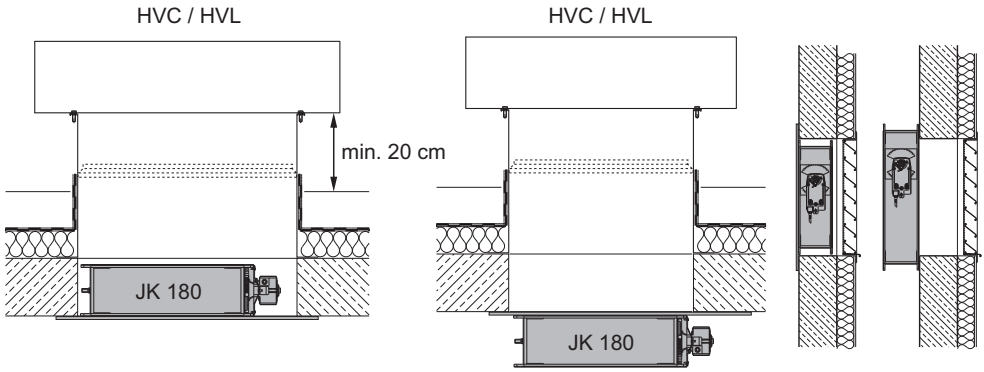
Sealing tape onto the edge of the glue the edge of the mounting plate.

Motor connection cable lay on the shaft side



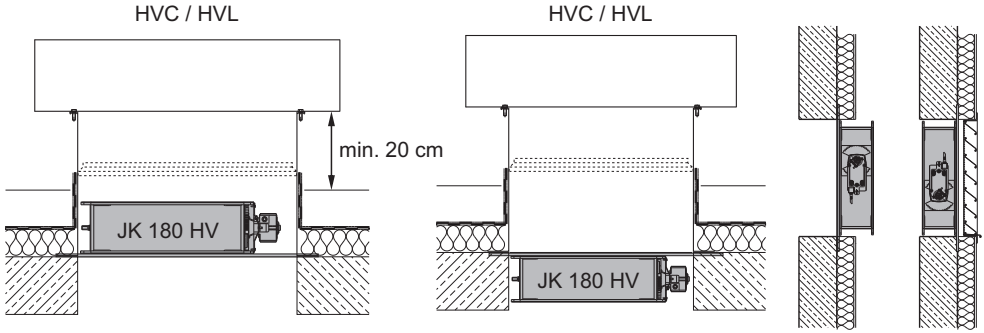
6x
Plug-in anchor
M8x65

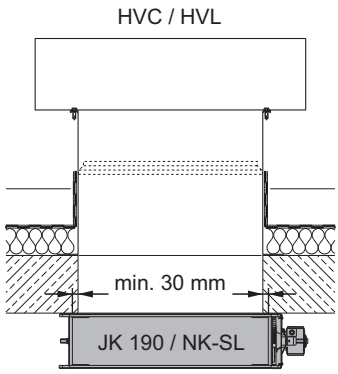
Installation – blind JK 180, JK 190, NK-SL



Standard installation JK-180:
flap is inserted into the ceiling or wall from the inside.If the existing opening is too small, the blind with motor can also be installed in the shaft. Ensure that there is sufficient protective space in the top of shaft!

Optional: The flap is installed from above, if the top of shaft is too high or difficult to reach, the blind with the motor is placed on the opening.





Standard installation JK-190, NK-SL:
Flap is mounted from the inside in front of the ventilation opening. The mounting direction is not relevant. Maintain a safety clearance for drilling of at least 30 mm between the flange and the opening on both sides. Observe the required protective space in the top of shaft!

Overview and installation of point detectors

Point detectors are installed at regular intervals in the shaft and report detected smoke to the central unit (BK-AIO).

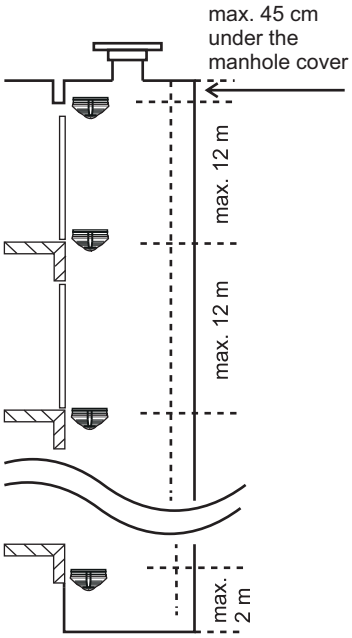
Installation in the machine room

The point detector for the machine room is only equipped with an RJ45 cable and labelled with a "PM MR" sticker. Attach the point detector in the machine room directly to the centre of the ceiling using the base without installation bracket. If this installation location is occupied on site, an installation location on the ceiling must be determined; a minimum distance of 50 cm must be maintained from surrounding walls. The installation bracket supplied serves as an alternative installation aid; do not mount the angle on the wall! Connect the point detector to the "Smoke MR" socket on the central unit using RJ45 cable extensions.

Installation in the lift shaft

If possible, arrange the point detectors vertically in a line (the maximum distance between 2 point detectors is 12 m). The corresponding RJ cable lengths with coupling are supplied depending on the shaft height. A maximum of 14 smoke detectors are possible per line.

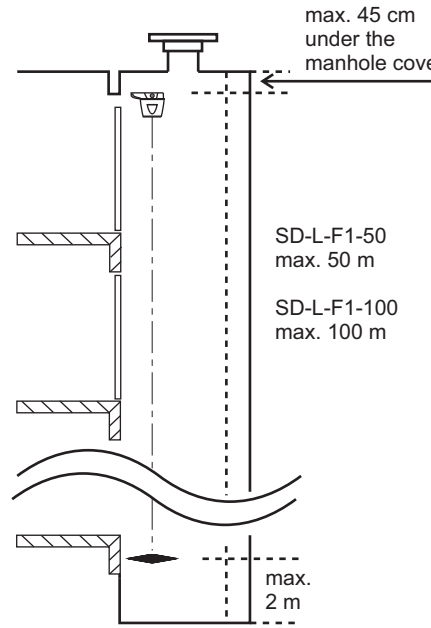
Protect the RJ45 plug from dust during installation (especially during drilling). Mount the point detector on the lift shaft wall using the installation brackets in the shaft pit. Allow a clearance of 13.5 cm. Connect the RJ45 cables of the point detectors to each other and fasten them to the shaft wall using mounting plugs and tension clamps. Connect the RJ45 cable of the top point detector in the top of shaft to the "Smoke SHAFT" socket on the central unit.

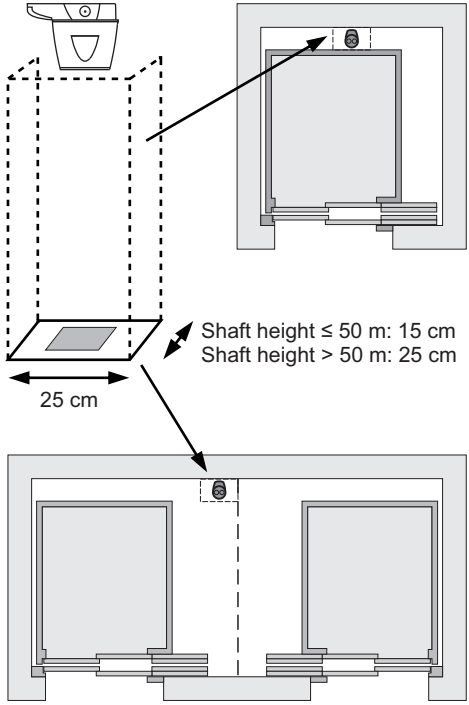


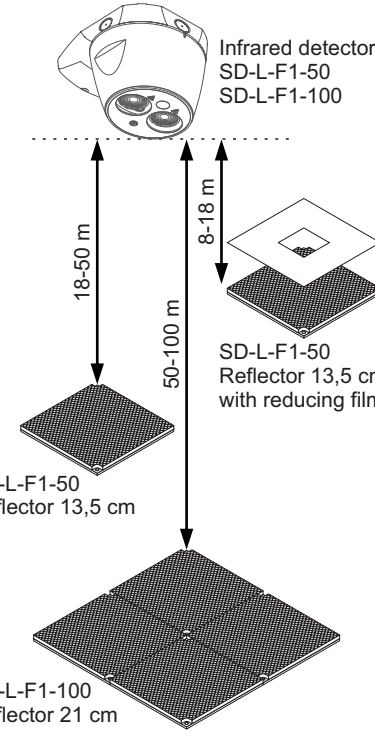
Overview and installation of infrared detectors

The smoke detection system with optical infrared beam SD-L-F1 consists of 2 components:

- Infrared detector: installed in the shaft head and connected to the central unit of the ventilation system, emits an infrared beam to the reflector in the shaft pit. The SD-L-F1 may be installed a maximum of 45 cm below the shaft ceiling.
- Reflector shaft pit: reflects infrared beam back to the detector via a prism.
- The reflector size depends on the distance to the infrared detector.
- The reflector may be installed a maximum of 2 metres above the shaft floor.
- Arrange the detector and reflector vertically in a line.
- Connect the detector to the "Smoke Shaft" socket on the central unit.
- Clean the reflector after installation.
- Align the infrared beam with the reflector.
- A minimum area between the shaft wall and the lift car must be ensured over the entire shaft height to allow the infrared beam to pass through without interference.







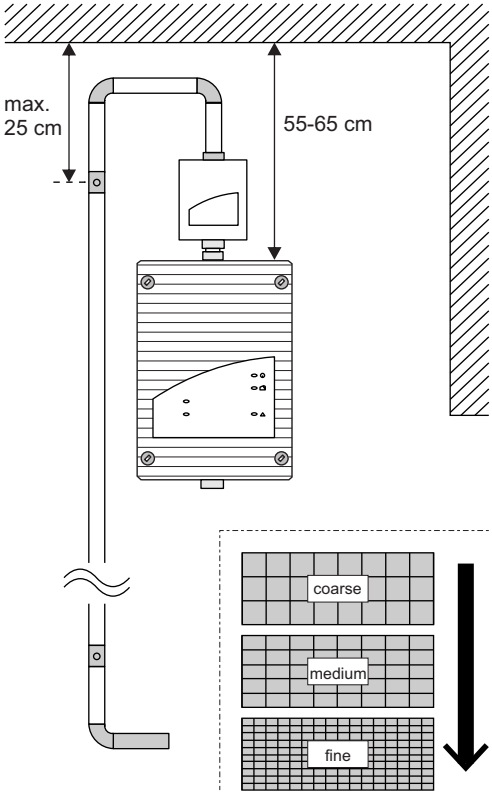
Overview and installation aspiration smoke detector (ASD)

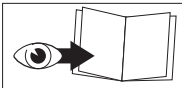
The aspiration smoke detector (ASD) consists of the components central unit, air filter and a pipe system. The pipe system is mounted in the lift shaft and draws air out of the lift shaft via openings in the pipe system to detect smoke in the shaft.
If the system is used with pipe lengths of over 90 metres or a U-shaped pipe installation, a separate project planning certificate is required.

Notice/information:
Before installing the central unit of the ASD, ensure that there is a clear alignment from the location for the installation of the end of the intake pipe to the shaft pit.

Installation:

1. Mount the ASD central unit between 55 and 65 cm from the shaft cover (see diagram opposite).
2. Fit the fine dust filter. Ensure that the air intake direction is correct (fit the finest filter towards the central unit).
3. Take two angles and two 25 cm pipes from the accessory bag set, glue the ends of the intake pipes all round with the supplied glue (free of dust and grease) and fit as shown in the figure on the right. Once the glue has been applied, glue the pipes after a maximum of 4 minutes.
4. Remove excess adhesive.
5. Lay the end of the intake pipes according to the numbering and glue them in the same way.
6. Fit the end of the intake pipes in the centre and approx. 40 cm from each connecting socket using tension clamps.
7. The pipes must be immobile in the bracket lie.
8. At the end, glue an angle, a 25 cm pipe and the and the non-return valve (free of dust and grease, within 4 minutes).
9. Connect the RJ45 cable of the ASD central unit to the "Smoke SHAFT" socket on the central unit.





For more information see also Installation instructions BK-ASD

- Installation of reducing film
- Installation and connection of relay module

Safety information

Caution: Incorrect use of the adhesive can result in danger/risk. Follow the adhesive instructions. Do not inhale glue. Keep ignition sources away from the adhesive. Use safety goggles.

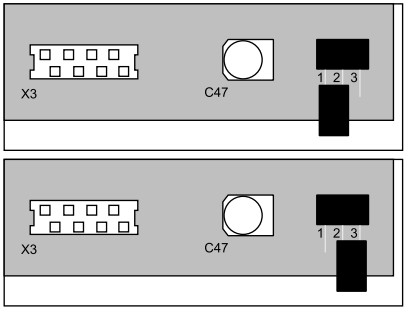
Initialisation – aspiration smoke detector

The project planning of the TITANUS MICRO SENS® and TITANUS PRO SENS® smoke aspiration systems was carried out with the boundary conditions and parameters specified in the table in accordance with the requirements of EN 54-20 Class A and is compliant with this standard.

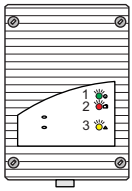
	MICRO SENS®	PRO SENS®
Module type	DM-TM-10-xx	DM-Tx-10
Sensitivity	0,100 %LT/m	
Fan voltage	9 V	
Filter	LF-AD	
Pipe accessories	None	
Pipe system	I-pipe	
Max. Pipe length	40 m	200 m

Aspiration smoke detector Micro Sens® (max. 40 m shaft height)

Change the position of the jumper: PIN 1/2 to PIN 2/3 or PIN 2/3 to PIN 1/2, the jumper then no longer needs to be reset. The automatic initialisation of the aspiration smoke detector may take a few minutes, depending on the disposition. After successful initialisation, the operating indicator changes to continuous light (green LED). The green LED flashes during calibration.



LED display – ASD



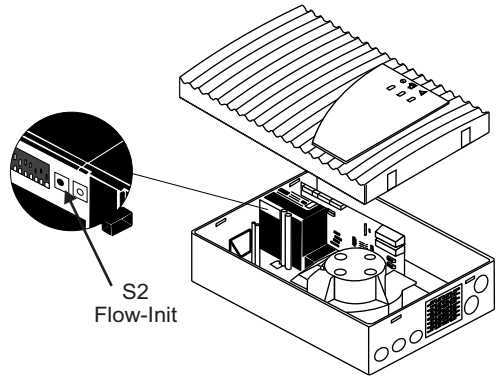
Device is calibrated
the green (1) LED lights up

+ Device is defective
green (1) + yellow (3) LEDs light up

+ Fire alarm
green (1) + red (2) LEDs light up

Aspiration smoke detector Pro Sens® (max. 200 m shaft height)

1. Ensure that the device has been in operation for at least 30 minutes to reach operating temperature before starting the air flow initialisation.
2. Confirm the flow init button S2 (see illustration) to initialise the connected duct system. Result: green operating display of the appliance starts to flash.
3. After successful initialisation, the operating display changes to continuous light (green LED).
4. No more changes may be made to the pipe system during and after initialisation. The fan voltage of the device itself must also not be changed after initialisation has been completed, otherwise the initialisation must be carried out again.
5. The green LED flashes during calibration.



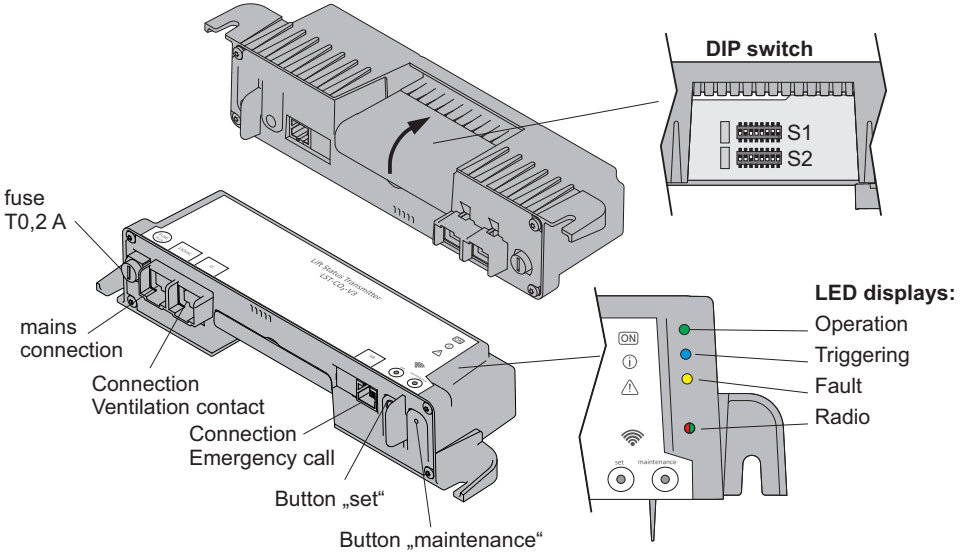
Overview and installation Lift Status Transmitter LST-CO_2-V3

The LST-CO_2-V3 is used to detect and report lift use (breakdown, maintenance, travel), the presence of passengers in the cabin by pressing the emergency call button and to monitor the CO_2 content, humidity and air temperature in the cabin. The resulting ventilation requirement is signalled to the central unit via a radio link.

Performance features:

- Motion detection of the lift car
- Setting the ventilation functions via DIP switches
- Ventilation contact is switched in the event of CO_2 triggering, temperature triggering, humidity triggering, in maintenance mode and in the event of a breakdown
- Failure detection with passenger inclusion
- Monitoring of the air quality in the car via integrated CO_2 sensor
- Temperature measurement in the cabin
- Fail-safe: automatic opening of the NSHEV if there is no radio contact with the central unit
- Maintenance mode: automatic opening of the NSHEV
- Integrated LED indicators

The LST-CO_2-V3 is mounted on the cabin roof, e.g. on the rear of the door operator.



LED displays – LST-CO_2-V3

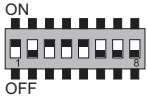
○ = LED does not light ● = LED lights up ◐ = LED flashes

ON	1x ◐	Normal operation
	2x ◐	Normal operation; movement in the last 10 min
	3x ◐	Maintenance mode
	4x ◐	Maintenance mode; movement in the last 10 min
ⓘ	○	There is no triggering.
	1x ◐	Triggering - increased air humidity
	2x ◐	Triggering - increased CO_2 content
	3x ◐	Triggering - increased temperature
	4x ◐	Triggering - registered breakdown
	5x ◐	There are several triggerings

⚠	○	There are no faults.
	1x ◐	Central processing unit communication fault
	2x ◐	CO_2 sensor communication disrupted
	3x ◐	Acceleration sensor system communication faulty
	4x ◐	Temperature sensor communication faulty
	5x ◐	Communication air humidity sensor faulty
	6x ◐	There are various faults.
	● green	Good connection quality to the central processing unit
	● orange	Average connection quality to the central processing unit
	● red	Poor connection quality or no connection

DIP switch settings – LST-CO_2-V3

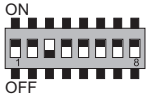
S1



Factory settings

DIP switches S1		de-livery
S1.1	Monitoring the emergency call button input	ON
S1.2	Configuration of the connected central processing unit	OFF
S1.3	Temperature monitoring	ON
S1.4	Air humidity monitoring	ON
S1.5	Monitoring the CO_2 content	ON
S1.6	Threshold value for temperature monitoring ON = 28 °C, OFF = 32 °C	OFF
S1.7	Threshold value for air humidity ON = 50 % RH, OFF = 60 % RH	OFF
S1.8	Threshold value for the CO_2 content ON = 1000 ppm, OFF = 1500 ppm	OFF

S2



Factory settings

DIP switches S2 Only relevant for the configuration of the connected central processing unit **(S1.2)**.			de-livery
Ventilation dependency	**S2.1**	**S2.2**	
No dependency	OFF	OFF	
Utilisation-dependent ventilation: If the lift is used during the set ventilation interval (S2.5/S2.6), ventilation takes place at the end of the interval for the set ventilation duration (S2.3/S2.4).	OFF	ON	
Time-dependent ventilation: After the ventilation interval (S2.5/S2.6) has drained, ventilation always takes place during a ventilation period (S2.3/S2.4).	ON	OFF	
Combined ventilation: Without lift movement, ventilation every 10 hours for 10 minutes. In addition, if there is a lift movement in a running hour: ventilation for 5 minutes at the end of the hour.	ON	ON	X
Ventilation duration	**S2.3**	**S2.4**	
5 min	OFF	OFF	
10 min	OFF	ON	X
15 min	ON	OFF	
20 min	ON	ON	
Lüftungsintervall	**S2.5**	**S2.6**	
1 h	OFF	OFF	
3 h	OFF	ON	
5 h	ON	OFF	
10 h	ON	ON	X

S2.7	ON = Ventilation contact "NO“, OFF = Ventilation contact "NC"	ON
S2.8	without function	ON

Configuration of the connected central processing unit

When using several LST-CO_2-V3 on a central unit, ensure that only one LST-CO_2-V3 is configured for the configuration of the connected central unit (DIP switch S1.2).

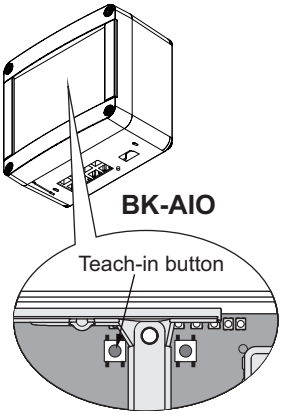
Changes to the DIP switches are only taken into consideration on this LST-CO_2-V3. After changing the settings, set DIP switch S1.2 to "ON" and briefly press the "maintenance" button to synchronise new data.

The "radio" LED lights up green for 3 seconds to confirm synchronisation. If the LED lights red, press the "maintenance" button again. Then set the DIP switch S1.2 back to "OFF".

Technical data – LST-CO_2-V3

Power Supply	230 V AC, 50 Hz (195 ... 253 V AC)
Power	9,2 VA
Rel. air humidity (operation)	20 %RH ... 90 %RH
Temperature range	-5 °C... +40 °C
Ingress protection	IP 32
Protection class	II
Ventilation connection	max. 30 V DC / 1 A (resistive load)
Signal relay	max. 30 V DC / 0,1 A (resistive load)
Emergency call	0 ... 30 V DC / max. 7 mA / Typ. trigger threshold 4 V DC
Measuring range CO_2 content	400 ppm ... 2.000 ppm (±150 ppm)
Measuring range temperature	-5 °C ... +40 °C (±1,5 °C)
Measuring range rel. air humidity	0 %RH ... 100 %RH (±10 %RH)

Initialisation – LST-CO_2-V3



Delete all LST-CO_2-V3:

1. Press and hold the tune-in button on the central unit until you hear a long beep. This cancels all LST-CO_2-V3s.

Teach-in of the LST-CO_2-V3:

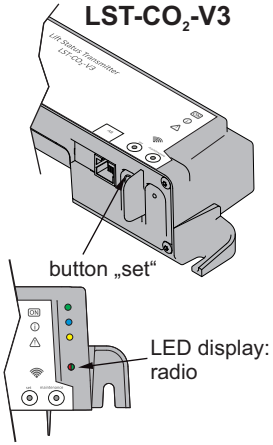
1. Connect the LST-CO_2-V3 to 230 V AC.

2. After 5 seconds, press the tune-in button on the central unit until you hear a short signal tone. The signal tone is repeated and the central unit is in teach mode.

3. Press the set button on the LST-CO_2-V3 for 2 seconds.

4. The green "Radio" LED on the LST-CO_2-V3 lights up for 3 seconds, the central unit confirms with a short beep. The LST-CO_2-V3 is now programmed. If the "Radio" LED flashes red, press the set button on the LST-CO_2-V3 again.

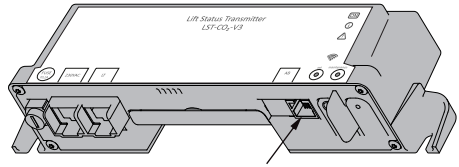
Notice/information: when programming several LST-CO_2-V3s, repeat steps 3 and 4.



5. Briefly press the teach-in button on the central unit. The central unit and LST-CO_2-V3 are now in normal operating mode.

Determination of lift malfunction with passenger entrapment

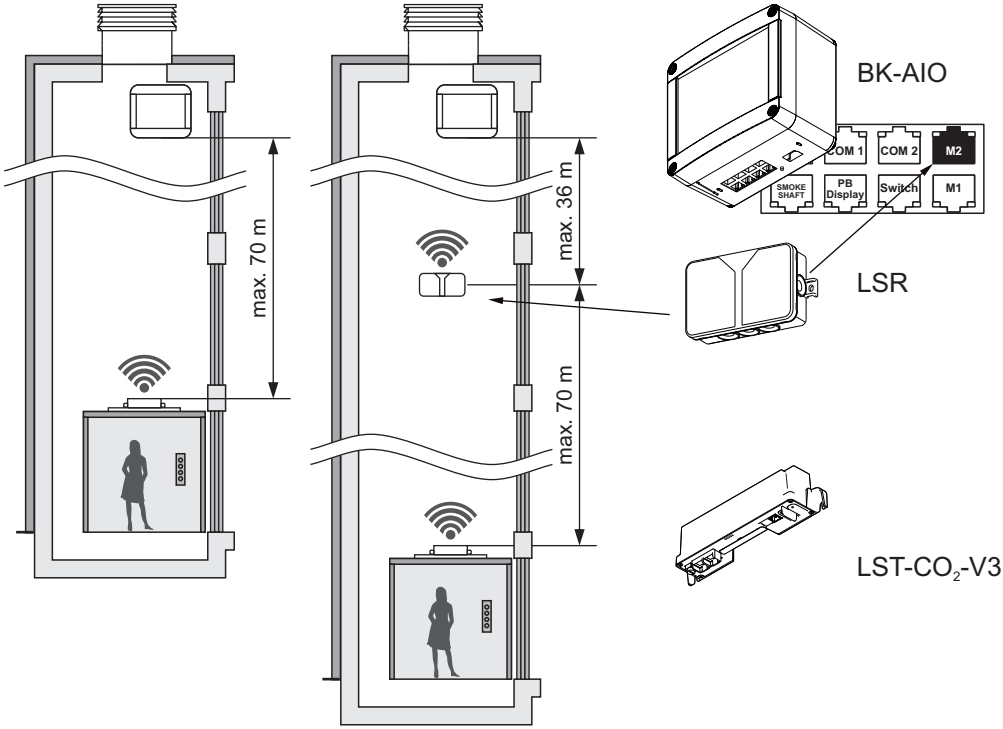
During operation of the emergency call button in the cabin, an emergency call potential, often in the shape of a supply voltage for an emergency call bell, can generally be tapped on the cabin roof and fed into the LST-CO_2-V3 via an RJ11 patch cable. This emergency call supply voltage is forwarded via just two connection wires and must be between 4 and 30 V DC. The potential assignment is irrelevant.



Emergency "call" connection

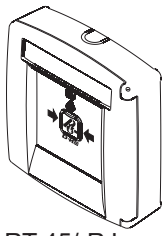
Overview and mounting Lift-Status-Repeater LSR

For attachments with a radio distance between the LST-CO_2-V3 and the BK-AIO central unit of more than 70 m, the radio signal must be amplified by a lift status repeater (LSR). The same applies to the installation of the control panel in the machine room.
The LSR is installed in the shaft. Connect the RJ45 cable of the LSR to the "M2" socket on the central unit. If the socket is occupied, use a RJ45 splitter (article No. 31.611.12).

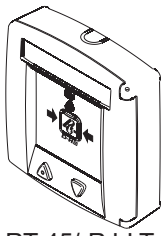


Overview and mounting control point

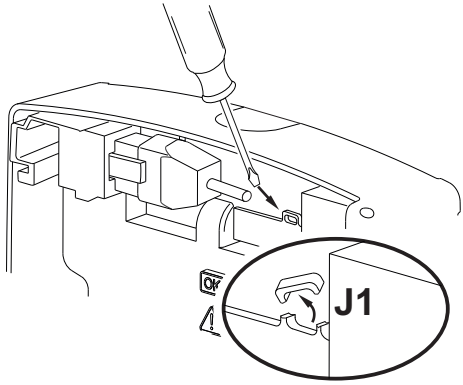
- The smoke vent button (RT 45/-RJ-LT / RT 45/-RJ) can be used to initiate manual ventilation and reset an alarm.
- Up to 8 smoke evacuation buttons can be connected in series.
- Smoke monitoring of the main evacuation level is carried out with a smoke detector, which can be connected directly to the RT/45-RJ / RT/45-RJ-LT.
- A monitoring resistor is used to monitor the line.
- The PCB jumper J1 must only be removed if another smoke evacuation button or smoke detector is connected to the smoke evacuation button!
- Connect the smoke vent button to the "PB Display" socket on the central unit.

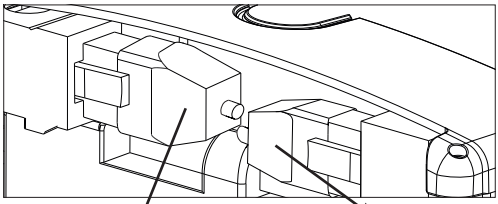


RT 45/-RJ

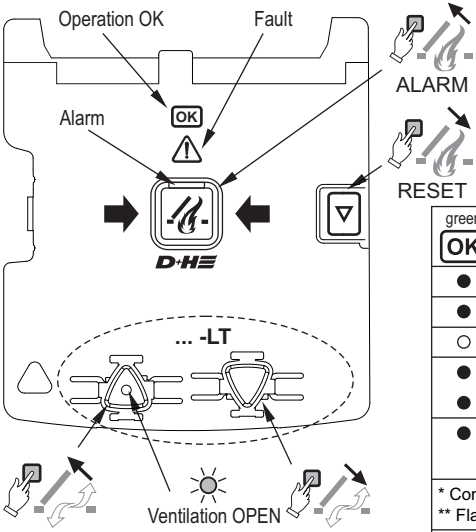


RT 45/-RJ-LT





1 RT	not remove J1
> 1 RT	Last RT: not remove J1 All other RTs: Remove J1
1 RT + smoke detector	Remove J1
> 1 RT + smoke detector	All RTs: Remove J1



green OK	red	yellow ⚠	blue ☼	Description
●	○	○	○	System OK
●	●	○	◐	Fire alarm
○	○	◐	◐	Fault*
● ●	○ ○	◐ ○	○ ●	Hygienic ventilation: Manual opening (ventilation button) Automatic opening (RTR)
●	○	○	◐	Emergency ventilation**: Ventilation alarm, radio connection faulty Shaft temperature too high

* Control panel is only partially operational, contact After Sales service
** Flap cannot be closed by manual ventilation button.

○ = LED does not light up ● = LED lights up ◐ = LED flashes

Central processing unit Technical data

Type	BK-AIO		
supply	230 V AC, 50 Hz, +10 %, -15 %		
Performance	75 W, 127 VA		
Power in standby	6,5 W, 12,0 VA		
output voltage	depending on temperature, max. 27,0 V		
ripple	0,4 V bei 2,0 A Load		
nominal output current	2,3 A		
Number of lines / groups	3 / 2 (stairs, shaft, MR / shaft, MR)		
Fire detector engine room line	max. 5 pcs.		
Fire detector staircase line	max. 5 pcs.		
Shaft line fire detector	max. 14 pcs.		
SHEV button Staircase line	max. 8 pcs.		
Output current groups*	max. 2,0 A		
Load signalling contacts	60 V DC / 1 A		
mode of operation			
- Monitoring	continuous duty		
- Alarm / ventilation	short-time duty, 30 % ED		
Housing	Polycarbonate, L=170 mm, W=150 mm, H=92 mm		
Type of protection	IP30		
Protection class	II, with functional earth		
Temperature range	-5 °C ... +40 °C		
Periphery connection	Patch cable 4x2 AWG26 7 strands (1 strand: A = 0,129 mm²; 7 strands A = 0,903 mm²)		
Cable lengths Drive group connection	Group current 0.2 A: Cable length 110 m Group current 0.5 A: Cable length 45.0 m Group current 1.0 A: Cable length 22 m		
Securing the groups	Glass tube fuse: 5x20 mm F1.6 A		
Maximum current consumption from battery	2.0 A group current + 0.3 A for monitoring + control panel = 2.3 A		
Emergency power supply (battery)	2x 12 V / Min. 0.8 Ah, Max. 1.0 Ah		
System voltages			
Designation	Connection	Max.	Min.**
Shaft group	Port 7: 4/5-7/8	27,0 V	19,1 V
Engine room group	Port 8: 4/5-7/8	27,0 V	19,1 V
Shaft detector supply voltage	Port 1: 7/8-4/5	26,6 V	17,5 V
Line voltage shaft detector	Port 1: 1-2	11,7 V	11,6 V
Line voltage machine room	Port 2: 5-4	25,6 V	18,5 V
Line voltage stairwell	Port 3: 5-4	25,6 V	19,7 V

* The maximum output current is divided between the two groups and must not be exceeded.

** The central unit is operated with 21.0 V at the battery connections and 2.0 A at the motor groups. motor groups.

Central processing unit Technical data (continued)

Positioning requirements for the groups depending on faults		
Fault	Shaft group M1	Engine room group M2
Earth fault	open	open
Battery	open	open
Shaft group	open	-
Engine room group	-	open
Shaft line	open	-
Engine room line	-	open

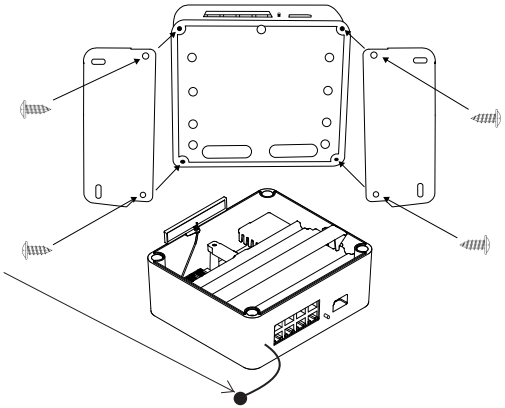
Control sequence in the event of mains outage

1. Start: Mains outage is detected.
2. The detected mains outage is ignored for 35 seconds (mains outage bypass or switching problems from the power supply).
3. Central fault flag mains outage is set. The groups are run up for 120 seconds.
4. The central unit continues to operate from the battery for 445 seconds (groups continue to run up).
5. Any alarm follow-up (blockade function) is completed.
6. Central unit is shutdown.

Time balance without active blockade function: t = 35 sec. + 120 sec. + 445 sec. = 600 sec. = 10 minutes

Installation central unit in the shaft head area or the machine room

Fasten the installation brackets supplied in the installation set of the central unit to the housing of the central unit using self-tapping screws.
Place the central unit at eye level on the wall in the top of shaft (highest cabin position) or in the machine room.
Ensure that the LEDs between the RJ45 sockets are visible. Attach the central unit to the wall using impact dowels through the drillings in the installation brackets.
Ensure that the wire of the temperature sensor is outside the housing (if necessary, lead it out of the housing through the existing opening as shown in the figure).
If the SD-L-F1 is used, the central unit should be installed max. 60 cm apart (otherwise an additional RJ45 cable is required).



Safety information: Select an installation location that is not affected by heat from individual components of the lift equipment (such as the braking resistor). Protect the RJ45 plug from dust during installation (especially during drilling).

Recommended installation sequence

1. Ventilation element(s) - installation according to specification
2. Central unit (BK-AIO)
3. Smoke detection system depending on the application (point detector in the lift shaft, SD-L-F1, aspiration smoke detector (ASD) or point detector in the machine room)
4. Operation panel (RT 45/-RJ-LT / RT 45/-RJ)
5. If applicable point detector at main evacuation level
6. If applicable key switch
7. If applicable timer
8. If applicable thermostat
9. Lift status transmitter LST-CO_2-V3, with LSR module(s) if applicable
10. Connection to mains voltage

Central processing unit Assignment of RJ45 connections

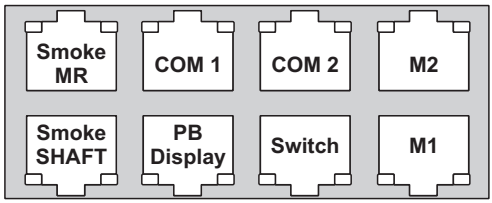
Notice/information:
A spring return motor or a DC motor can be connected to sockets M1 and M2.

M1 is preferably used for attachments without a machine room.

M1 should also be used for attachments with a machine room where the shaft ventilates via the machine room.

In attachments with a machine room, where the shaft and machine room are ventilated separately, the motor in the shaft should be connected to M1 and the motor in the machine room to M2.

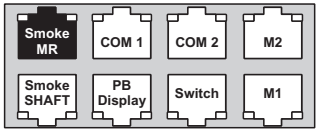
Each M socket can control 2 motors via the 2M function module (31.623.00) max. 2 DC motors or 6 spring return motors with max. total current consumption of 2.0 A, which can be distributed equally between M1 and M2.



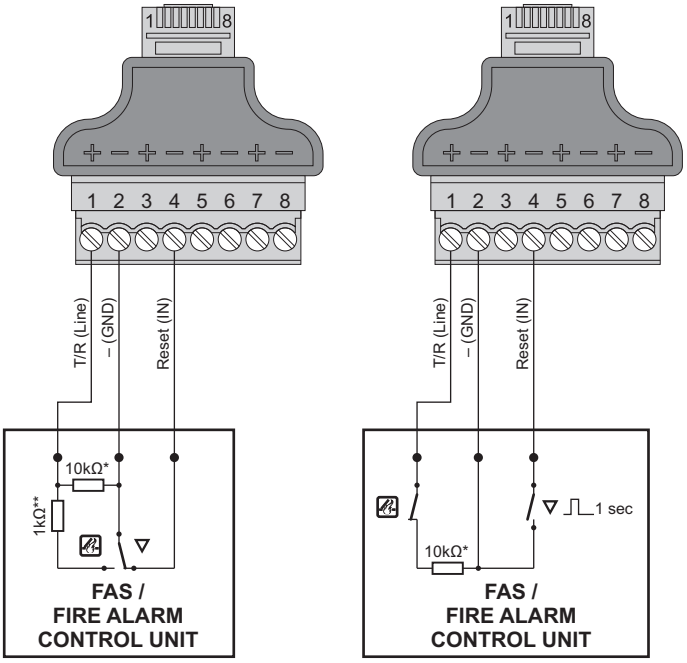
Front RJ connector row	Smoke MR	Connection of point detectors in the machine room
	COM 1	Signalling relay: general malfunction OPEN/CLOSED ventilation element Incoming messages: Lift moves (optional)
	COM 2	Signalling relay: collective alarm Signalling contact: Flashing light, siren Incoming messages: Lift malfunction, maintenance, lift moves
	M2	Connection for machine room group and Lift-Status-Repeater (LSR)
Rear RJ connector row	Smoke SHAFT	Connection SD-L-F1, ASD or point detector in the lift shaft
	PB Display	Operation panel connection (RT 45/-RJ-LT / RT 45/-RJ)
	Switch	Connection of other components such as thermostat, humidity sensor, key switch, etc.
	M1	Connection 24 V drives, see note

Connection – FAS and BMS input

Connection of fire alarm system
The central unit can be controlled by an on-site FAS. (DIP switch S1.5 = "ON").
If the lift shaft is only monitored by fire detectors of the FAS, e.g. installation condition in Austria, the shaft line, connection "Smoke SHAFT“ must be deactivated (DIP switch S1.4 = "OFF").



Notice/information:
Forwarding a FAS as an alarm requires precise consideration of both the fire protection concept and the safety requirements of the lift directive.
According to EN 81-20:2014, it is prohibited to ventilate rooms adjacent to the lift shaft via the lift shaft or the machine room.

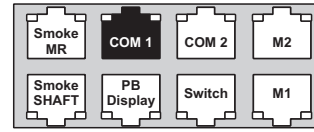


Alternative connection:
Alarm contact = normally closed contact
Alternative connection: Alarm notification from FAS if DIP switch S1.7 = ON (line fault = ALARM)

Reset contact = normally open contact (optional)

* Terminal resistor for cable monitoring
** alarm resistor

Connection - General status messages COM 1

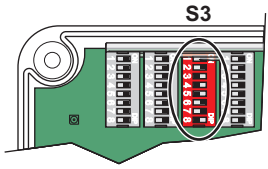


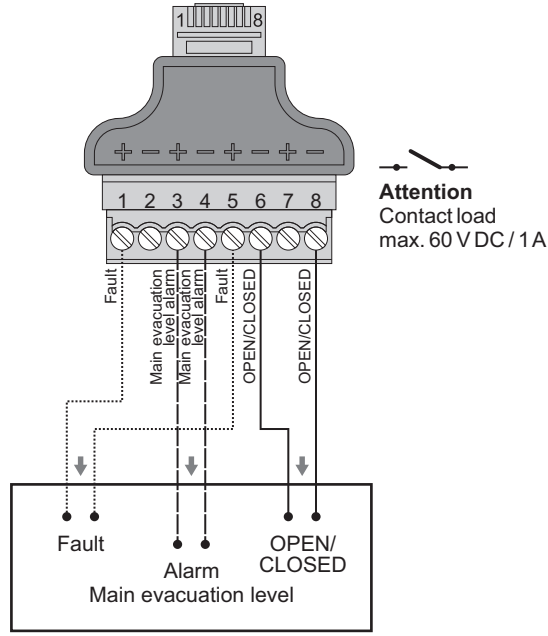
Edition of various status messages via isolated contacts in the BK-AIO.

Output - fault message:
Can be set via DIP switches S3.1 and S3.2. Isolated contact in the central unit closes in the event of a fault. The contact is open in the event of mains outage.

Output - OPEN/CLOSED signal of the ventilation element:
Isolated contact in the central unit closes as soon as the ventilation element is open. The contact is open when the ventilation element is closed.

Output - alarm notification at main evacuation level:
If smoke vent buttons and optionally a smoke detector are installed on the main evacuation level, an alarm notification from this line can be issued separately. Isolated contact in the central unit closes in the event of an alarm. The contact is open in the event of mains outage.

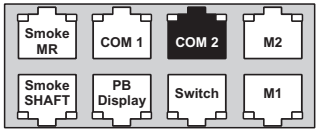




DIP switches S3		
Signalling relay 1: COM 1	**S3.1**	**S3.2**
Free / OFF	OFF	OFF
OPEN signal: Group shaft	ON	OFF
OPEN signal: Machine room group	OFF	ON
OPEN signal: Shaft group or machine room group	**ON**	**ON**
Signalling relay 2: COM 1	**S3.3**	**S3.4**
Free / OFF	OFF	OFF
Fault shaft detector or fault group 1 (shaft group)	ON	OFF
LST-CO_2-V3 fault	OFF	ON
General malfunction	**ON**	**ON**

Connection – lift shaft control COM 2

Connection to the lift controller for incoming and outgoing signals.

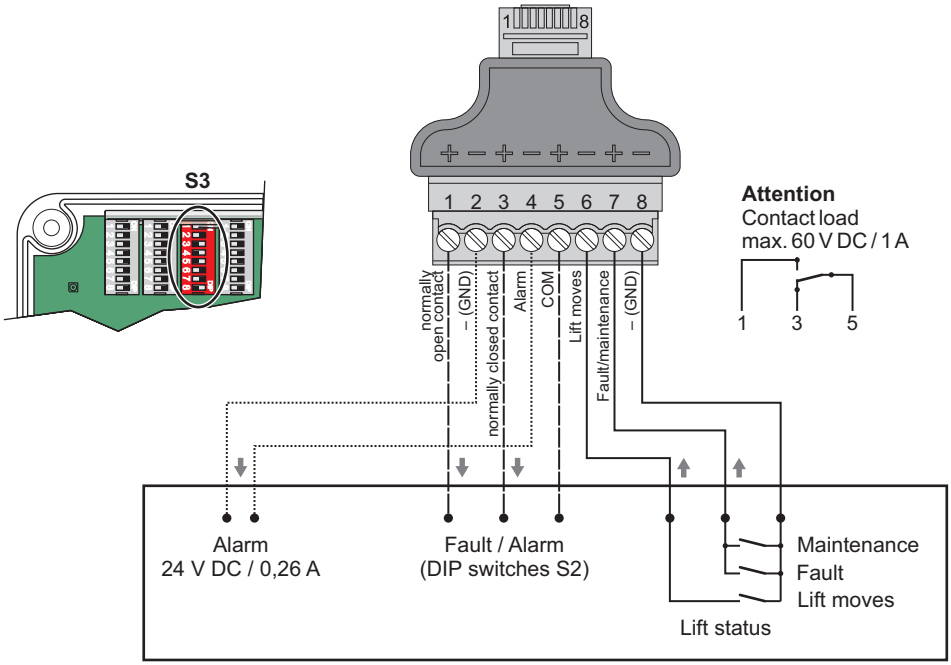


Output - 24 V DC alarm:
For connection of visual or audible alarms (flashing light, siren, etc.).

Output - fault / alarm:
Edition of a fault or an alarm via an isolated changeover contact. The function can be set via DIP switch S2.

Input - lift moves:
For operation of the ventilation element depending on lift use. Signalling of change between travel and stop by the lift controller via isolated contact.

Input - lift fault / maintenance:
The ventilation element is opened by the lift controller in the event of a maintenance or fault signal. Signal from the lift controller via isolated contacts.

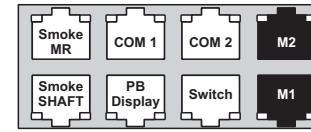


DIP switches S3

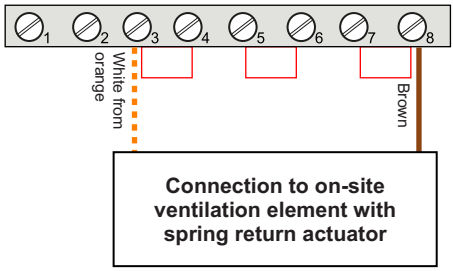
Signalling relay 3: COM 2	**S3.5**	**S3.6**	**S3.7**
General malfunction (contact 1-5: normally closed contact; contact 3-5: normally open contact)	OFF	OFF	OFF
Shaft group fault (contact 1-5: normally open contact; contact 3-5: normally closed contact)	ON	OFF	OFF
Machine room group fault (contact 1-5: normally open contact; contact 3-5: normally closed contact)	OFF	ON	OFF
Fault line stairwell: (contact 1-5: normally closed contact; contact 3-5: normally open contact)	ON	ON	OFF
Collective alarm (contact 1-5: normally open contact; contact 3-5: normally closed contact)	**OFF**	**OFF**	**ON**
Linear alarm shaft (contact 1-5: normally open contact; contact 3-5: normally closed contact)	ON	OFF	ON
Line alarm machine room (contact 1-5: normally open contact; contact 3-5: normally closed contact)	OFF	ON	ON
Linear alarm stairwell / Rt45 (contact 1-5: normally open contact; contact 3-5: normally closed contact)	ON	ON	ON

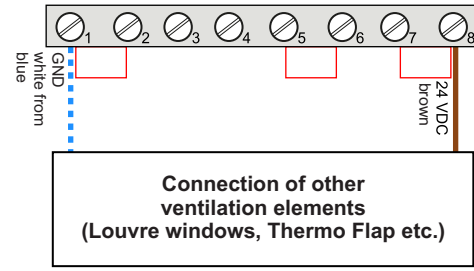
Output: M1 & M2

For the forwarding of:
- existing NSHEVs on site
- the lift controlleran external fire alarm system
- a building control centre
- of RT 45/-RJ-LT, flashing light, siren, ventilation switch etc. not directly
  on the lift shaft
- Components with cable guidance through empty conduits



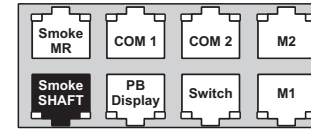
Connection of 24 V spring return drives and 24 V DC drives





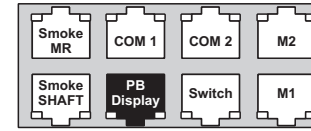
Connection: Smoke SHAFT

For forwarding smoke detection components, e.g.:
- SD-L-F1
- Point detector in the lift shaft
- ASD



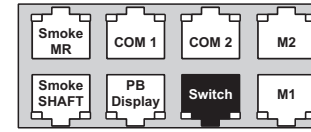
Connection: PB Display

For forwarding an operation panel (RT 45/-RJ-LT / RT 45/-RJ)



Connection: Switch

For forwarding additional components, e.g.:
- Thermostat
- Humidity sensor
- Key switch



Notice/information:
Further information on the connection to the RJ45 sockets can be found in the instructions for the relevant components.

Setting the coding switch on the central processing unit

All systems are supplied with the following DIP configuration:
- Lift system without machine room
- a ventilation element connected to the RJ45 socket M1
- one connected RT 45/-RJ-LT / RT 45/-RJ operating point

ON corresponds to switch position 1. The software version used is printed on a sticker inside the central unit.

Coding switch S1 (1st from left, acts on M1)	**Status**	**DIP**
Shaft group alarm delay (60 s)	ON / OFF*	1
Shaft group: OPEN running time limit	ON / OFF*	2
Shaft group (ventilation time limitation 15 minutes):	ON / OFF*	3
Group shaft (group fault = alarm):	ON / OFF*	4
Shaft group (alarm follow-up):	ON* / OFF	5
Main evacuation level detector triggers staircase line	ON* / OFF	6
Line SmokeShaft active (ON = active / OFF = not active)	ON* / OFF	7
Line fault = alarm, all lines	ON / OFF*	8

Coding switch S2 (2nd from left, acts on M2)	**Status**	**DIP**
Engine room group M2 active (ON = active / OFF = not active)	ON / OFF*	1
Machine room group: OPEN running time limit	ON / OFF*	2
Machine room group: ventilation time limitation (15 min)	ON / OFF*	3
Machine room group: Group fault = alarm	ON / OFF*	4
Machine room group: Alarm follow-up clocks	ON / OFF*	5
Time-limited alarm (5 min., alarm output port 6 / pin 2)	ON / OFF*	6
Assignment of line SmokeMR to group M1	ON / OFF*	7
free	ON / OFF*	8

Coding switch S3 (3rd from left, OPEN signals) **Signalling relay 1: COM 1**	**DIP 1**	**DIP 2**
Free / OFF	OFF	OFF
OPEN signal: Group shaft	ON	OFF
OPEN signal: Machine room group	OFF	ON
OPEN signal: Shaft group or machine room group	ON*	ON*

* delivery state

Setting the coding switch on the central processing unit (continued)

Coding switch S3 (3rd from left) Signalling relay 2: COM 1	**DIP 3**	**DIP 4**
Free / OFF	OFF	OFF
Fault shaft detector **or** fault group 1 (shaft group)	ON	OFF
LST-CO_2-V3 fault	OFF	ON
general malfunction	ON*	ON*

Coding switch S3 (3rd from left) Signalling relay 3: COM 2	**DIP 5**	**DIP 6**	**DIP 7**
General malfunction (contact 1-5: normally closed contact; contact 3-5: normally open contact)	OFF	OFF	OFF
Shaft group fault (contact 1-5: normally open contact; contact 3-5: normally closed contact)	ON	OFF	OFF
Machine room group fault (contact 1-5: normally open contact; contact 3-5: normally closed contact	OFF	ON	OFF
Fault line stairwell: (contact 1-5: normally closed contact; contact 3-5: normally open contact)	ON	ON	OFF
Collective alarm (contact 1-5: normally open contact; contact 3-5: normally closed contact)	OFF*	OFF*	ON*
Linear alarm shaft (contact 1-5: normally open contact; contact 3-5: normally closed contact)	ON	OFF	ON
Line alarm machine room (contact 1-5: normally open contact; contact 3-5: normally closed contact)	OFF	ON	ON
Linear alarm stairwell/RT45 (contact 1-5: normally open contact; contact 3-5: normally closed contact)	ON	ON	ON

Coding switch S3 (3rd from left, classification of power supply)	**Status**	**DIP**
ON: battery operation; OFF: no battery, only spring return motors	ON / OFF*	8

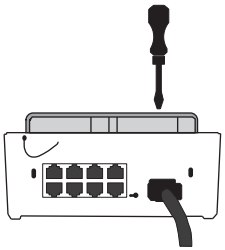
Coding switch S4	**Status**	**DIP**
Maintenance button ON / OFF	ON* / OFF	1
Central alarm (lines)	ON* / OFF	2
Staircase line "PB Display" active ON = with RT 45 OFF = without RT 45	ON* / OFF	3
Engine room line ON = with machine room OFF = without machine room	ON / OFF*	4
Internal temperature sensor: triggering all lines at 72 °C	ON* / OFF	5
Internal temperature sensor: Ventilation threshold: OFF = approx. 30 °C; ON = approx. 35 °C	ON / OFF*	6

Coding switch S4 Assignment: Internal temperature sensor for ventilation	**DIP 7**	**DIP 8**
No allocation (OFF)	OFF	OFF
Shaft group	ON	OFF
Machine room group	OFF	ON
Shaft group and machine room group	ON*	ON*

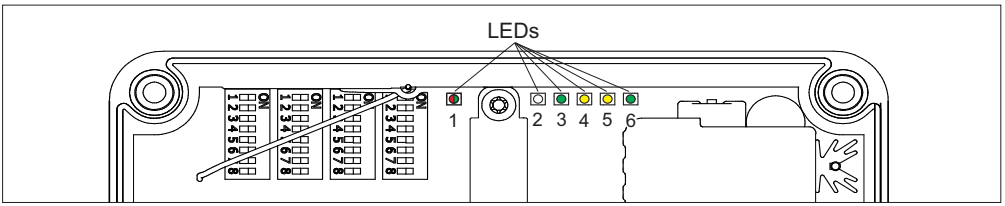
* delivery state

Commissioning central processing unit

Wire the mains voltage using the cable supplied. Connect the 230 V AC plug to the central unit. Check the display of LEDs 3 and 6 in the housing of the central unit.



Caution
The plug is engaged. If the plug is pulled out incorrectly, the plug and socket may be damaged. Before pulling out the plug, open the plug latch with a flat-blade screwdriver while the housing is normally closed.



LED 1	teach mode LST-CO_2-V3, (red / green)
LED 2	Fault: Memory error / error in programme sequence / oscillator error (yellow)
LED 3	Central processing unit OK (green)
LED 4	Fault LST-CO_2-V3 (yellow)
LED 5	Fault battery (yellow; without function during battery-less operation)
LED 6	Mains voltage (green)

Maintenance and cleaning

Once a year by a specialist company authorised by the device manufacturer.
Renew the inspection plate and keep a log book.
Inspection and maintenance must be carried out in accordance with the D+H maintenance instructions.
Only original D+H spare parts may be used. Repairs are carried out exclusively by D+H.
Only carry out cleaning work in a de-energised state.
Wipe off dirt with a dry, soft cloth.Do not use cleaning agents or solvents.

Preparation:
- Use safety equipment.
- Visual inspection of the site.
- Inform the person responsible for the building about the maintenance work.
- If the system is connected to an on-site fire alarm system, initiate shutdown of the corresponding line.
- Attach information signs to each lift shaft door.
- If maintenance or repair work is to be carried out on the ventilation element, disconnect the central unit from the power supply.

Carry out the following testing:
- Visual inspection for damage, tightness and dirt.
- Check clearances in the shaft between lift components and ventilation element in accordance with EN 81-20.
- Check the protective spaces between the car and the ventilation element in accordance with EN 81-20.
- Function test of the system components.
- Check all relevant voltage supply units.
- Logging of professional maintenance work and identification in accordance with customer specifications.

Fault test of the components
- Pull out all components connected via RJ45 plugs one after the other.
- A fault, possibly with an alarm, is immediately displayed on the RJ45 socket LEDs of the central unit and on the smoke vent button (if present).
- Re-insert the plug. The fault goes out. If necessary, reset an alarm with the reset button.
- If the red LED on the "Smoke SHAFT" socket flashes, the central unit is in maintenance mode.

Set maintenance mode, function test ventilation elements

1. Press the reset button for 3 seconds (maintenance level 1 is active).
- The ventilation element opens.
- The LED test is performed, all LEDs on the ports light up for approx. 4 seconds.
- Pending alarms are reset.
- LED A flashes red once per second = Maintenance level 1.

2. Press the reset button again for 3 seconds (maintenance level 2 is active).
- The ventilation element remains closed (e.g. blower door test).
- LED A flashes red 2x per second = Maintenance level 2.
- The ventilation element closes.

3. Check that the louvres of the ventilation element close airtight (visual inspection). In the event of thicknesses of damage to the seals/gaskets that no longer guarantee airtight closure of the flap, the entire flap must be replaced.
The rubber seals of the louvres cannot be replaced.

4. Activate maintenance level 1 again (press the reset button for 1 second).
- The ventilation element opens again.

5. Carry out a visual inspection of the ventilation flaps (see next page).

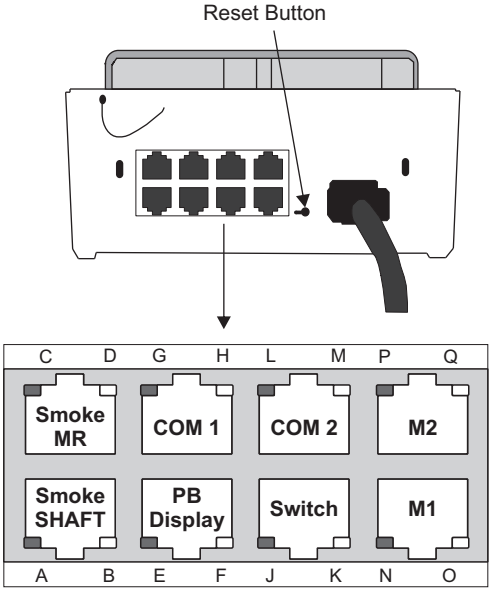
6. Deactivate maintenance level 1 (press the reset button for 1 second).
The central unit is back in normal operating mode.

7. Carry out further testing:
Additional components, emergency power supply (option)

Work during initial testing after installation

Check clearances in the shaft:
- Check clearances in the shaft between lift components and ventilation flap in accordance with EN 81-20.

Shelters:
- Check the protective spaces between the cabin and the ventilation flap in accordance with EN 81-20.

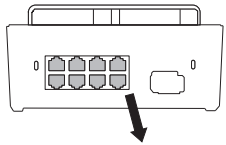


Shaft wall

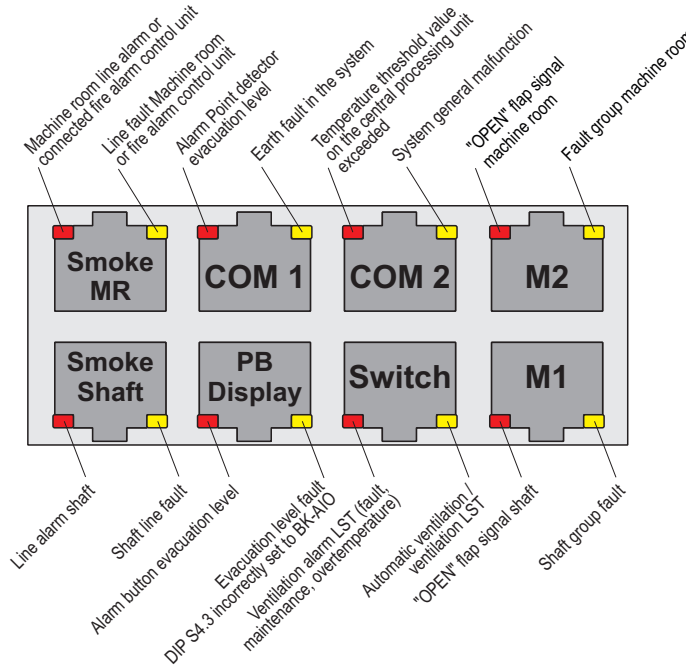
Maintenance of drives for D+H ventilation elements JK-180 / JK-190 / NK-SL

1. The drives of the JK-180 / JK-190 / NK-SL ventilation elements are designed for at least 60,000 "OPEN/CLOSED" cycles.
2. If this number of cycles is exceeded, the return spring or the drive mechanism may fail.
   In this case, the drive must be replaced.
3. Read off the number of cycles (see page 32)
4. Enter the number of cycles in the maintenance manual. The counter cannot be set to zero.
5. If the motor has been replaced, the counter position must be noted in the maintenance manual during commissioning.
6. The replacement must be documented in a traceable manner.

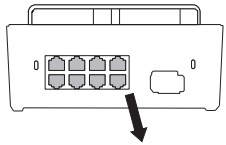
Status displays (normal operation)



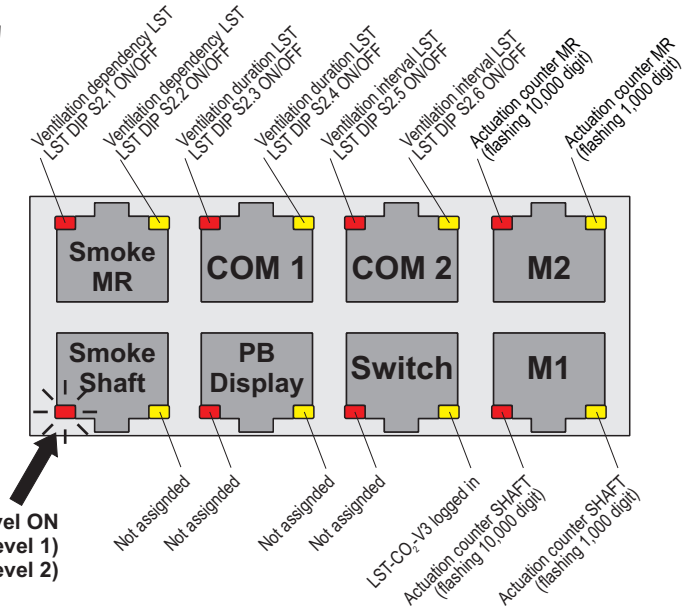
The display of the LEDs depends on the setting of the LST.



Status displays (maintenance level 1)



The display of the LEDs depends on the setting of the LST.



Maintenance drives external ventilation elements

1. External, electrically driven ventilation elements such as louvre windows and skylight domes have only been tested up to 11,000 cycles each (CE certificate in accordance with EN 12101-2).
2. Maintenance of a Slide Flap ventilation element required after 20,000 double strokes.
3. If this number of cycles is exceeded, the drive mechanism may fail.
4. When the maximum number of cycles specified by the manufacturer is reached, either the motor or the motor including the ventilation element must be replaced.

Observe the relevant manufacturer's instructions.

5. Read off the number of cycles (see below).
6. If the motor has been replaced, the counter position must be noted in the maintenance manual during commissioning.
7. Document exchange in a traceable manner.

Cycle counting of the motor strokes on the central processing unit (BK-AIO)

1. Ventilation element drive M1
Red LED (N) flashes for 10,000 digit (e.g. 2x = 20,000)
Yellow LED (O) flashes for 1,000 digit (e.g. 7x = 7,000)

1. Ventilation element drive M2
Red LED (P) flashes for 10,000th digit
Yellow LED (Q) flashes for 1,000th digit

Maintenance SD-L-F1

Checking a fire alarm	1. Cover the reflector so slowly that it takes more than 5 seconds to cover it. 2. The detector triggers a fire alarm after 10 seconds. **Notice/information:** The alarm filter of the SD-L-F1 commissioning set can be used to test the 25%, 35% and 55% alarm thresholds.

Notice/information:
The detector automatically compensates for dust deposits by adjusting the ACG level. If the limit value of the ACG level is reached, the detector indicates a fault and must be cleaned.Clean the lens window and reflector at regular intervals with a soft, lint-free cloth.

If the detector is in fault status after cleaning, the signal strength of the ACG level may have exceeded the upper threshold value. In this case, realign the detector.

Maintenance and cleaning aspiration smoke detector

Replacement or cleaning of the filter pads is recommended every 12 months. Ensure that the central unit system is not in a maintenance level.

In areas with an increased occurrence of dust particles, it may be necessary to blow out the intake pipe system and its intake openings. This requires a PipeClean system or a hoover with a pressurised air spray can.

Carry out the following steps for the air purge:
1. Disconnect the central unit system and ASD from the supply.
2. Remove all filters from the filter box before cleaning the pipe, otherwise the smoke sensor will be damaged.
   Cleaning with PipeClean:
- Plug the flexible pipe of the PipeClean into the pipe opening of the filter in the direction of the pipe run. Do not remove the end plug.
- Leave PipeClean in operation for 2 minutes
  Cleaning with air pressure spray can and hoover:
- Blow out the intake openings with the pressurised air spray can.
- Secure the hoover. Leave the hoover in operation for 2-5 minutes.
3. Insert new filters (coarse to the outside, fine to the inside) and close the filter housing again. Switch on the supply.

Function test of additional components

RT 45/-RJ-LT / RT 45/-RJ signalling button
1. Operate the push-button alarm.
   Red "Fire alarm" LED lights up.
   If the red LED is not lit: Replace the push-button detector, if necessary carry out a function check of the central unit.
2. Cancel the alarm with the reset button.

Thermostat in the top of shaft / machine room
1. Note the default temperature.
2. Reduce the temperature setting on the thermostat below the shaft / room temperature.
   Ventilation element opens (blue "Ventilation" LED display on RT 45/-RJ-LT / RT 45/-RJ).
   If ventilation element does not open: Replace thermostat, function check central unit if necessary.
3. Close the ventilation element: reset the default temperature on the thermostat.

Notice/information:
The temperature alarm only goes out after a hysteresis time of approx. 20 minutes has drained. If premature resetting of the ventilation timer is desired, the central unit must be de-energised.

Timer (optional)
1. Compare the time displayed on the timer with the current time.
2. If there is a deviation of more than one minute, correct the time on the timer (see operating instructions for the timer).

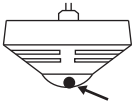
Smoke detection system function test

Prerequisite: System is in normal operating status
If connected to an on-site fire alarm control unit, arrange for the shutdown of the corresponding line of the fire alarm system by the person responsible for the building. Arrange for forwarding to the fire alarm system again after the test.

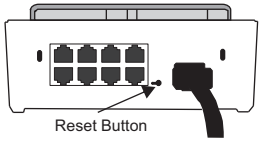
Function test – Point detector (smoke test)

Notice/information:
According to DIN 14675 and DIN 14677, optical smoke detectors must be replaced:
Type SD-O 371: every 8 years (as self-compensating)

Typ: SD-O 371

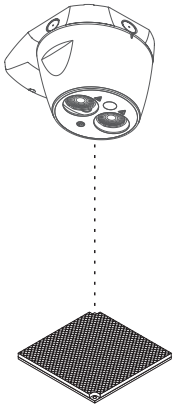


1. Spray the point detector for 1 second with a test smoke spray near the point detector. Repeat this process after 10 seconds until the point detector reacts (max. 10 times).
   LED on the point detector lights up red >>> Central unit reports fire (Smoke SHAFT socket LED lights up red).The ventilation element opens completely.
2. Blow out the signalling head so that the test smoke can escape.
3. Repeat the smoke test for each point detector in the system.
   After the first signal, the central unit (LED socket "Smoke SHAFT") and the operation panel (RT 45/-RJ-LT / RT 45/-RJ) already indicate a fire alarm.
4. Reset the fire alarm using two possible reset commands until it no longer recurs:
   Press the reset button on an operation panel (RT 45/-RJ-LT / RT 45/-RJ).
   Press the reset button on the central unit for approx. 3 seconds to access maintenance level 1.
   Then press the reset button for 1 second to return to normal operating mode.



Function test – SD-L-F1 smoke detector

SD-L-F1



1. Cover the reflector so slowly that it takes more than 5 seconds to cover it.
2. The detector triggers a fire alarm after 10 seconds.

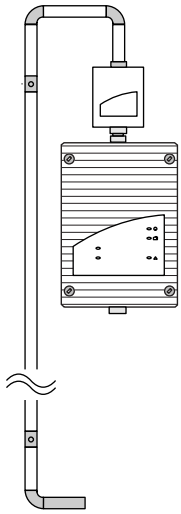
Notice/information
The alarm filter of the SD-L-F1 commissioning set can be used to test the 25%, 35% and 55% alarm thresholds.

The detector automatically compensates for dust deposits by adjusting the ACG level. If the limit value of the ACG level is reached, the detector indicates a fault and must be cleaned.
Clean the lens window and reflector at regular intervals with a soft, lint-free cloth.

If the detector is in fault status after cleaning, the signal strength of the ACG level may have exceeded the upper threshold value.
In this case, realign the detector.

Function test – aspiration smoke detector (ASD)

ASD



Fault:

1. Cover the intake hole with your finger - LED flashes.
2. After 20 seconds, the yellow LED lights up continuously and the ventilation element opens – release the end of the intake pipe.
3. The yellow LED goes out, green LED lights up (= ASD evaluation unit ok)

Firealarm:

Ensure that the central unit system is not in a maintenance state.
(Replacement or cleaning of the filter pads is recommended every 12 months.)
Check the operating status of the LED display.

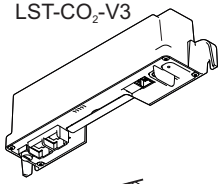
1. Check the smoke aspiration pipe, clean any dirty smoke aspiration openings.
2. Carry out a smoke test: Spray the smoke test spray into the top intake opening for 2-3 seconds, repeat the process after 5 seconds (max. 10 times).
3. The LED of the evaluation unit of the smoke aspiration system indicates „Fire alarm".
4. The central unit signals fire (red LED), the ventilation element opens completely.
5. Reset the fire alarm using two possible reset commands until it no longer recurs:

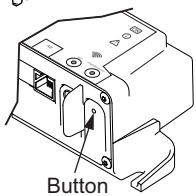
- Press the reset button on an RT 45/-RJ-LT / RT 45/-RJ signalling button **OR**
- Press the reset button on the central unit for approx. 3 seconds to access maintenance level 1.

6. Then press the reset button for 1 second to return to normal operating mode.

Function test – Lift status transmitter LST-CO_2-V3

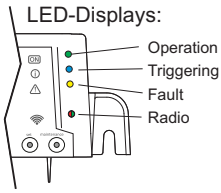
LST-CO_2-V3





Button
„maintenance“

LED-Displays:



Prerequisite: System is in normal operating mode

- Operate the emergency call button.
- Ventilation element must open.

After operation of the emergency call button, the ventilation element remains open for 3 hours. However, this time is reset with activation of the "Maintenance" function on the LST-CO_2-V3.

- Press the "maintenance" button for 5 seconds to activate the "maintenance" function.
- The "operation" LED indicates maintenance mode (flashes 3x or 4x)
- The 3-hour timer is reset.
- The ventilation element remains open.
- Triggering events or faults are still displayed.
- Press the "maintenance" button for 5 seconds to switch the "maintenance" function off again.
- If there are no trigger events, the ventilation element closes.

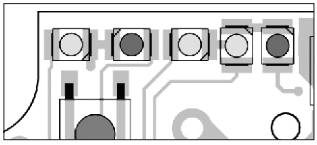
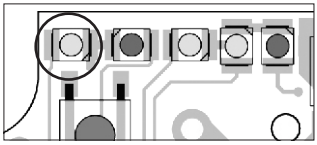
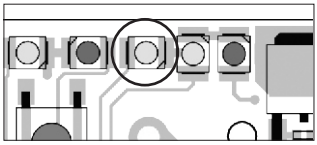
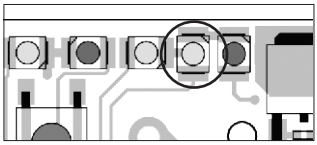
If the "maintenance" function is not deactivated manually, it switches off automatically after approx. 2 hours so that the ventilation element does not remain permanently open.

Completion of maintenance

1. if not already done, reset the system to normal operating mode (press the "Reset" button on the central unit for 1 second).
2. remove information signs from each shaft door of the lift.
3. inform the person responsible for the building that the maintenance work has been completed.

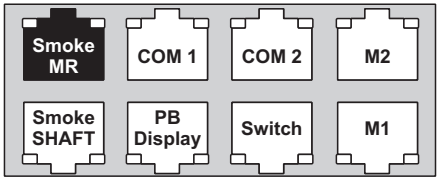
Troubleshooting Fault indications (internal)

Before Checking a fault, open the housing cover of the central unit.

Fault	Cause	Remedy
No LED lights up 	Mains voltage 230 V interrupted	Check the mains fuse in the fuse distribution board
LED 2 “Fault” lights up 	Memory error Errors in the programme sequence Oscillator error	Restart control panelContact service if necessary
LED 4 "Communication" lights up 	Recess of the radio connection to the LST / LSR	Check LST / LSR components
LED 5 "Emergency power supply" lights up 	Emergency power supply fault	Check the mains fuse in the fuse distributor Check battery charge, replace battery if necessary

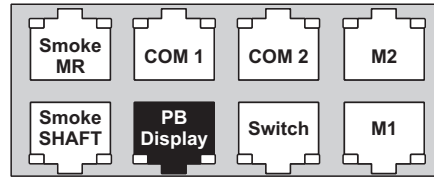
Notice/information:
LED 3 "Central unit" and LED 6 "Mains voltage", which are not mentioned here, light up green in normal operation and therefore do not indicate a fault. If these two LEDs do not light up, the mains voltage is interrupted (see fault "No LED lights up“).

Troubleshooting Fault indications (external)



Fault (lines)

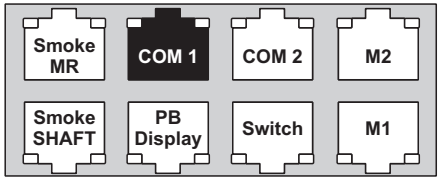
LED (yellow) when
- RJ45 plug connection recessed
- Point detector removed
- Fault message from the ASD-/SD-L-F1
- Connection to the FAS interrupted



Fault (line RT / RM stairwell)

LED (yellow) when
- RJ45 plug connection recessed
- RT operating button removed
- Point detector stairwell removed
- Mini switch on RT circuit board has wrong position
- Circuit board jumper on last RT circuit board removed

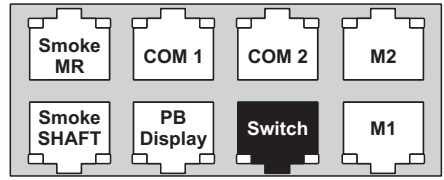
Testing of:
- Connection / cable of fire alarm components
- Regulator componentsSD-L-F1 settings
- ASD pipe system > Air flow



Fault (earth fault)

LED (yellow) for
- System component or cable connection has an insulation fault
- Electrical connector with protective earth or earth potential

Testing of:
Earth connection to components or cable connection.
For localisation, disconnect the RJ45 plug one after the other, for example, while observing the LED.



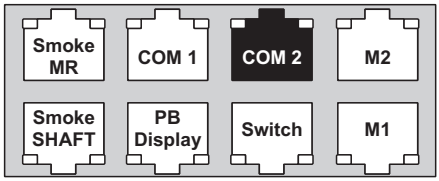
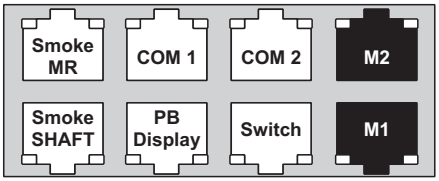
Status (ventilation)

LED (yellow) for
- LST-CO_2-V3 Temperature message > 35 °C/35 °C
- Ventilation interval active

LED (red = ventilation alarm) for
- Communication error (radio)
- Emergency call button triggered
- Approved air quality > 1500 ppm / > 1000 ppm

- With ventilation signal (yellow): Wait for interval time
- In the event of a ventilation alarm (red): eliminate the corresponding cause

Troubleshooting Fault indications (external, continued)

	
Status (ambient temperature)	Fault / status (motor group)
LED (yellow = signal) for - general malfunction LED (red) for - Ambient temperature in the shaft or machine room > 30 °C / < 72 °C LED (flashing red) for - ambient temperature in central unit > 72 °C	LED (yellow) when - RJ45 plug connection to motor recessed - Central unit fuse motor defective LED (red) for - OPEN signal: ventilation flap is not closed
For system test temporarily DIP 4.7 = OFF DIP 4.8 = OFF switch. **Restore delivery state after system check!**	Testing of: - Connection of the motors - Central unit fuse Motor

Fault rectification Alarm notification SD-L-F1 (set point function)

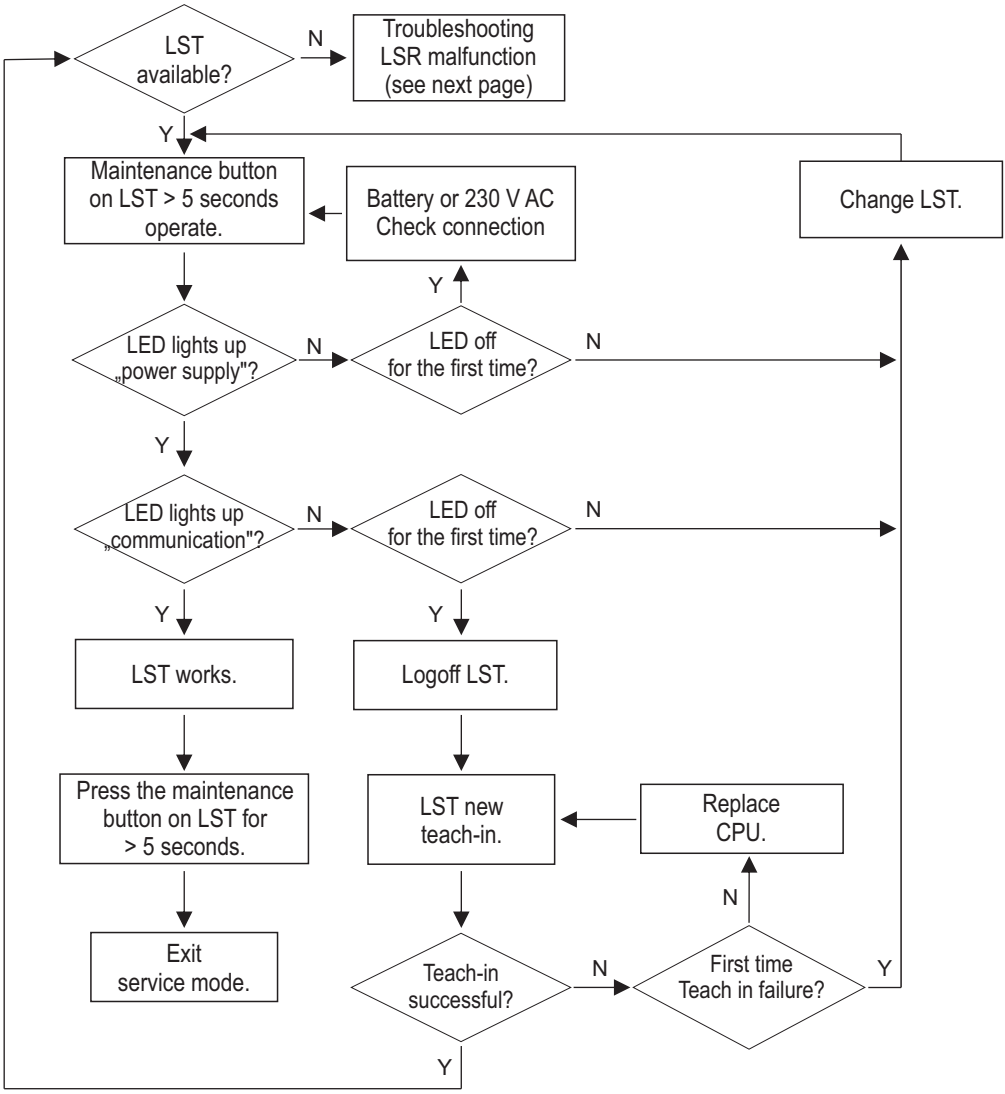
Background:
If an alarm notification is displayed during the fault test, perform the set point function:
When installing the SD-L-F1, rapid coverage of the prism should result in a fault on the SD-L-F1. The SD-L-F1 detects this by the very low signal level (< 15 %), which is caused when the retroreflector is covered quickly (within 2 seconds).
In some installations, the SD-L-F1 displays a FIRE signal instead of an ERROR signal when the prism is covered quickly. This is due to the installation having other "scattering" reflective surfaces near the beam path and affecting the measurement.
The Set-Point function is a software function within the SD-L-F1 that allows the system to compensate for scattered reflections.

Setting the set point:
After the detector is installed and equipped, quickly cover the prism. If the SD-L-F1 shows a FIRE signal instead of a FAULT signal, remove the cover on the prism again. Then press and hold the left and right direction buttons on the SD-L-F1 simultaneously. The centre LED above the buttons on the SD-L-F1 flashes 3 times. Then release the buttons. A further fault and fire test is then required for checking.

Troubleshooting Malfunction of the LST-CO_2-V3

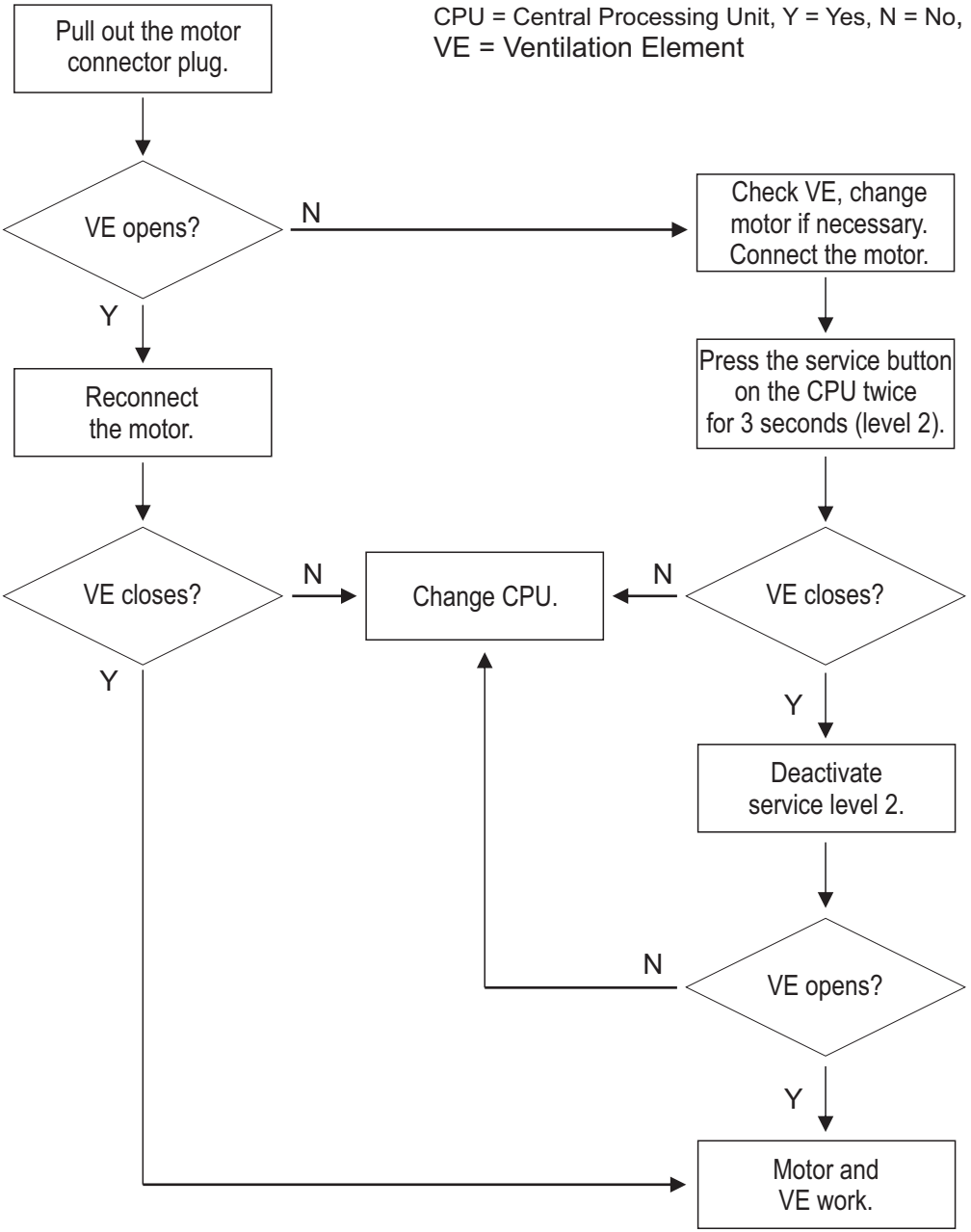
Initial situation: Troubleshooting - fault indications (internal / external) has been completed.

CPU = Central Processing Unit, Y = Yes, N = No

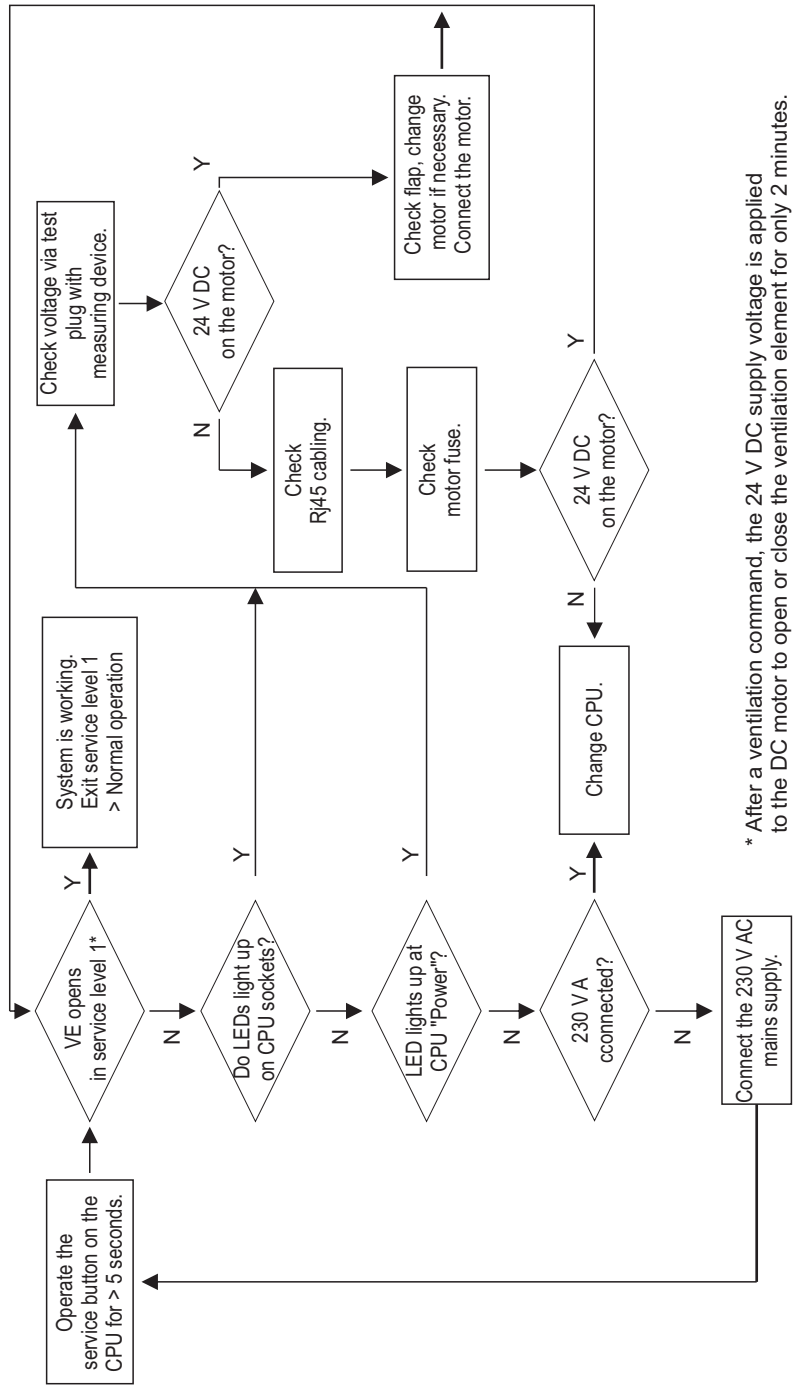


Troubleshooting Ventilation element does not open (spring return motor)

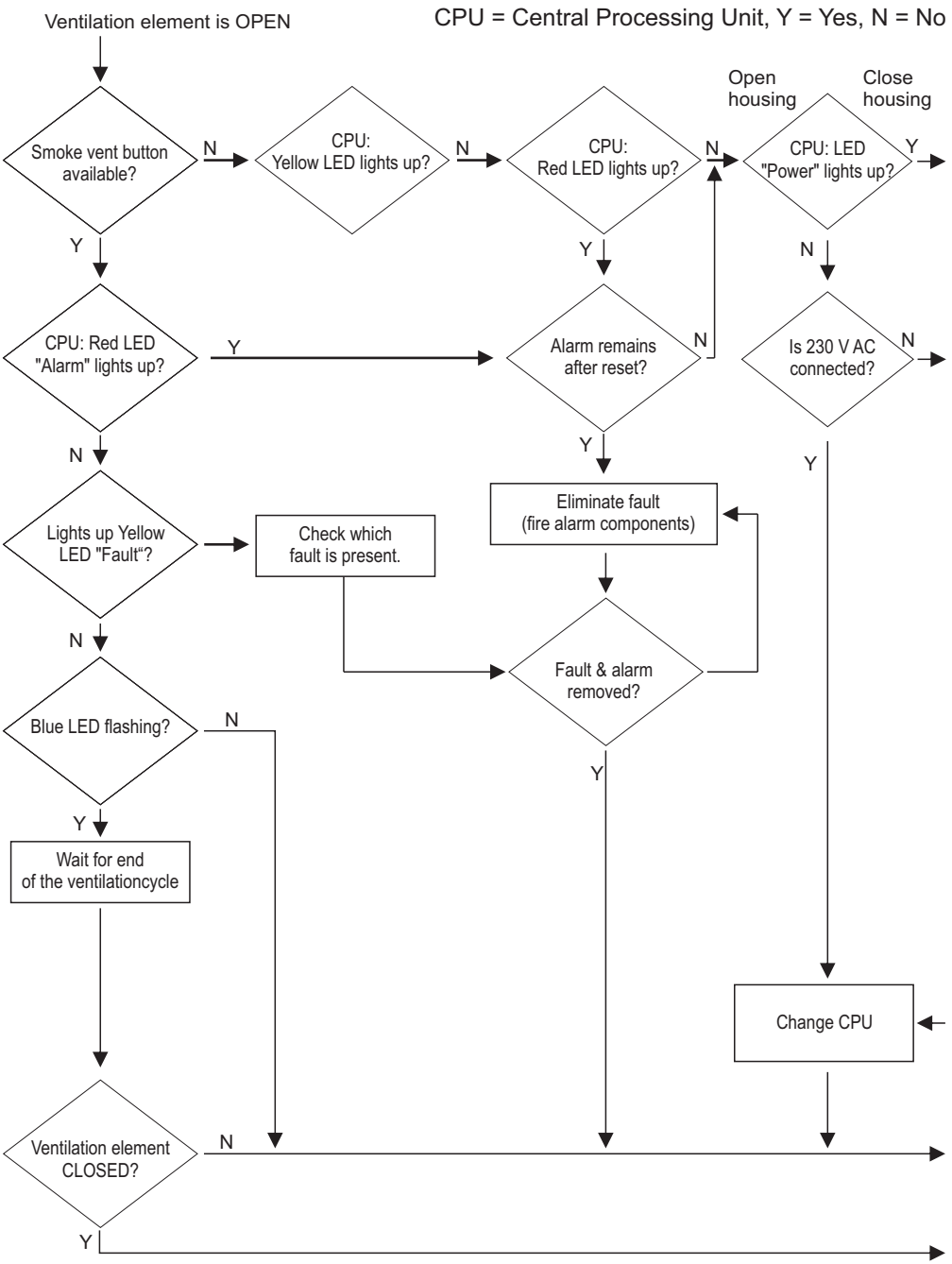
Initial situation: Flap does not open in the event of an alarm or fault, at least 1 LED on the central unit lights yellow or red.



CPU = Central Processing Unit, Y = Yes, N = No, VE = Ventilation Element

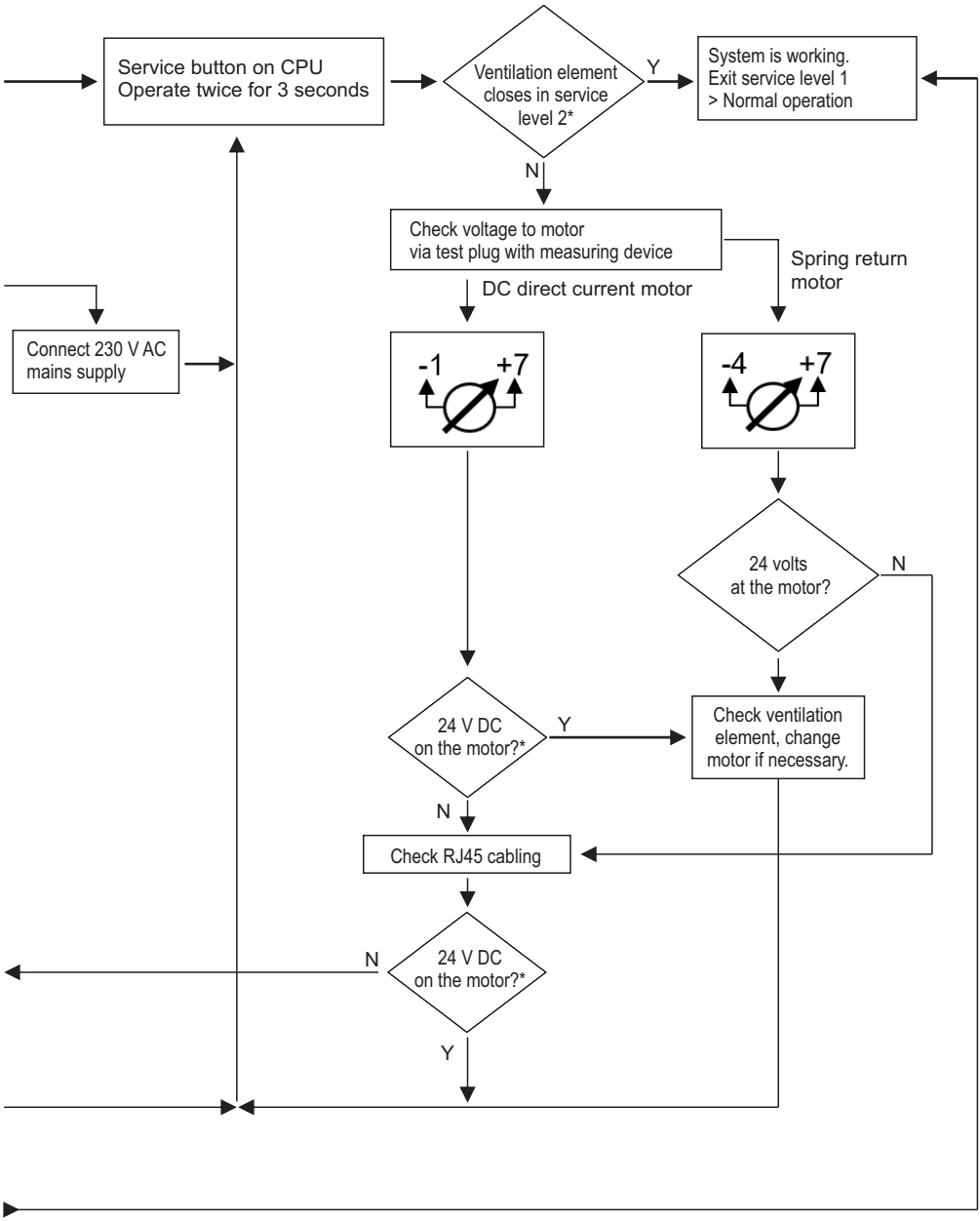


Troubleshooting Ventilation element does not close



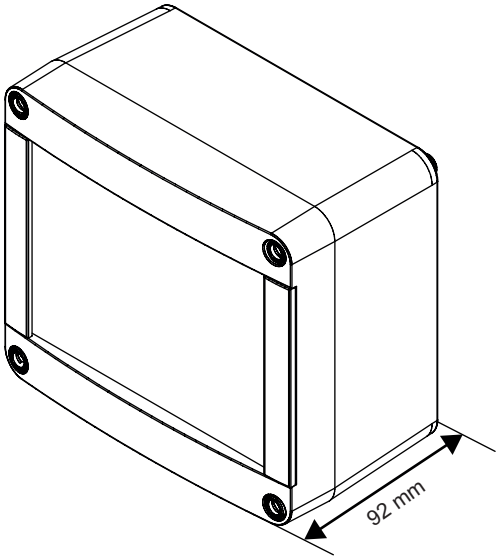
Troubleshooting Ventilation element does not close (continued)

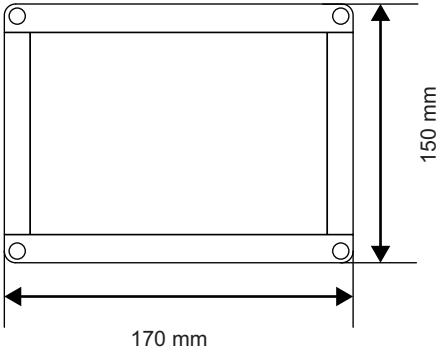
CPU = Central Processing Unit, Y = Yes, N = No



* After a ventilation command, the 24 V DC supply voltage is applied to the DC motor to open or close the ventilation element for only 2 minutes.

Dimensions





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