



Module control panel

MZ3 Basic

Installation Manual



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1 General

These instructions are intended to ensure correct mounting and correct operation. Before starting work, these instructions must be read and observed.

STG-BEIKIRCH assumes no liability for losses arising from failure to follow these instructions. Nonetheless, should difficulties arise please contact STG-BEIKIRCH directly.

The descriptions and specifications in this manual are Subject to technical modifications without notice.

Store the instructions carefully so they are available if required.

2 Safety

2.1 Intended use

The MZ3 modular control panel is exclusively intended for the following intended use.

NSE* (natural smoke and heat extraction): Modular centre for opening and closing smoke extraction flaps/facade elements in the event of fire and ventilation. Control of 24 V DC drives with own load or limit stop, with integrated "Wind direction-dependent smoke and heat extraction" function.

Natural aeration and ventilation: Ventilation control via immediately activated sensors and actuators* or via a BMS* (building management system) in combination with the KNX* (EIB*) bus technology / LON* technology.

Deviating uses and installation in non-approved areas are improper. Any claims for liability or warranty against STG-BEIKIRCH are thereby excluded.

2.2 Explanation of symbols

The following symbols for hazards and mandatory warnings can appear in part or completely in the instructions. It is essential to heed these symbols.

Hazard symbols					
	Warning of a hazardous area		Warning of dangerous voltage		Warning of hand injuries
	Warning of suspended load		Warning of property damage		
Mandatory warnings					
	Prior to work, switch off		Follow these instructions		

The following signs are used for better understanding and highlighting handling instructions.

Identification					
	Note		Working step	–	Information on the working step
•	Listing				

2.3 Fundamental safety regulations

The safety information and warning instructions in this manual must be heeded and followed.

The installation work must be carried out in accordance with the current technical rules for workplaces ASR A 2.1.

Only use approved ladders, lifting platforms, safety equipment and aids.

2.4 Electrical safety

- Cable laying and electrical connection by electrician only.
- Mains supply cables 230 / 400 V AC fused separately on site.

During the installation, the corresponding laws, requirements, guidelines and standards must be heeded, such as:

- Sample cable installation guideline (MLAR / LAR / RbALei)
- VDE 0100 (Erection of power installations with nominal voltages up to 1000 V)
- VDE 0815 (Wiring cables for telecommunication and data processing systems)
- VDE 0833 (Alarm systems for fire, intrusion and hold-up)

Specify cable types with the local acceptance authorities, energy supply companies or fire prevention authorities.

Cables for extra-low voltages (24 V DC) must be laid separately from low voltage cables (230 V AC).

Flexible cables must be laid so that they are not sheared, twisted or kinked during operation.

Implement the cable types, lengths and cross-sections in accordance with the technical specifications.

Energy supplies, control equipment and junction boxes must be accessible for maintenance work.



Caution

Before working on the system, the mains voltage and the emergency power supply (e.g. accumulators) must be all-pole disconnected and secured against being accidentally switched back on.



Note

Never operate the drives, control systems, control elements and sensors at operating voltages and on connections contrary to the specifications of the operating instructions. There is a danger to life and can destroy the components.

2.5 Responsibilities and quality requirements

2.5.1 Duties of the Operator

Duties of the Operator

- The modular control panel MZ3 must be operated in a proper state.
- Maintenance intervals must be adhered to and malfunctions remedied without delay.
- Provide personal protection equipment in sufficient quantity and make sure that it is worn.
- The documentation of the smoke and heat extraction system (SHE*) must be available at all times.
- Only deploy qualified and trained personnel.



Caution

Any unauthorised modifications or conversions to the MZ3 modular control panel are not allowed for safety reasons.

Physical injury and material damage.

Unauthorised modifications and conversions are deemed misuse. Any claims for liability or warranty against STG-BEIKIRCH are thereby excluded.

2.5.2 Obligation to undertake maintenance work and service

NSHES* and SHE* systems are safety installations for precautionary fire protection. They must be checked by a visual inspection and maintenance at regular intervals. Any repairs must be carried out immediately after damage has been determined.

	Please note! Repairs may only be carried out by ESSMANN / STG-BEIKIRCH trained specialists.
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Maintenance work must only be carried out by a specialist company authorised for this system, with a valid certificate of competence from the manufacturer.

The certificate of competence and the necessary maintenance credits can be obtained from the manufacturer.

	Please note! Non-adherence to these maintenance requirements can impair the performance and service life of the product.
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Measures	Period between two visual inspections/maintenance activities or repairs	Qualification of maintenance personnel
Visual inspection	6 months at the latest	Instructed person (Operator) or specialist
Maintenance	12 months at the latest	Trained specialist for NSE*
Repair	As required	Trained specialist for NSE*

2.5.3 Further information concerning maintenance

- See FVLR directive "Maintenance work on natural smoke (NSE) and heat extraction systems (SHE*)"
- ZVEI leaflet 82009 "Guideline for the maintenance of natural smoke extraction systems (NSE)"
- DIN 18232 Part 2
- DIN 31051 Fundamentals of maintenance

2.6 Signalling of the maintenance intervals

The maintenance intervals are signalled at the SHE manual call points by flashing of the yellow LED indicator. The yellow LED indicator flashes approx. once per second, the green "OK" LED indicator lights permanently.

SHE manual call point signal	Cause	Measure
• Yellow "Malfunction" LED indicator flashes once a second. • Green "OK" LED indicator lights permanently.	Service timer expired	• Have maintenance carried out. • The maintenance counter is reset.

3 Product description

Modular SHE* and ventilation control panels with integrated BUS system for controlling drives up to a maximum current output of 192 A. Versatile options for aeration and ventilation as well as fire protection scenarios. Additional interfaces to the LON* BUS system enable remote structure of a control system for implementing the requirements for smoke extraction.

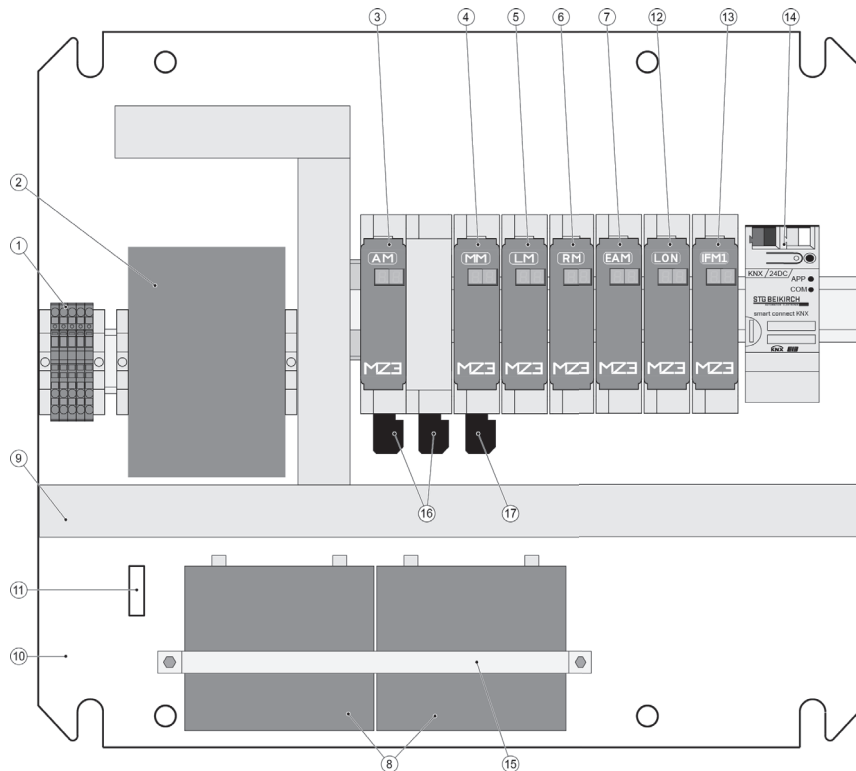


Fig.: 1 Product description of the MZ3 modular control panel (example of a small modular control panel)

1	Mains supply with internal disconnection device	10	Mounting plate
2	Power supply	11	Temperature sensor
3	Accumulator module (AM)	12	LON* module (LON*), optional
4	Motor module (MM)	13	IFM1 module, optional
5	Ventilation module (LM)	14	Smart connect KNX* module, optional
6	SHE module (RM)	15	Mounting bracket for accumulators
7	Input/output module (IOM)	16	Power supply power pack
8	Emergency power accumulators	17	Power supply between the AM and MM modules
9	Cable ducts		

Properties:

- Modern, modular and freely configurable digital control system for SHE* systems, for natural aeration and ventilation of the building management system
- Local configuration with a PC and the corresponding software
- Subsequent modification possible at any time with intelligent configuration software program
- Further functions: integrated maintenance function, transmission of messages, wind/rain detector, evaluation of the wind/rain detector and stroke limitation
- Configuration, reading in and out, saving via Windows configuration software
- Several SHE* and ventilation groups
- Several motor and ventilation circuits
- Installed power supply, emergency power accumulators and charger unit for 72 hours
- Operational readiness in the event of mains failure with optical malfunction message
- Installed ready for connection in the sheet steel housing with lock
- Development in accordance with the specifications of the European standards prEN 12101-9 12/2004 and EN 12101-10

4 Technical specifications

4.1 Switch cabinet dimensions

Output current (Ampere)	A Depth (mm)	B Height (mm)	C Width (mm)
16	210	600	400
32	210	800	600
48 / 64	210	800	600
80 / 96	210	800	800
112 / 128 / 144	300	1200	1000
160 / 176 / 192	Upon request		



Note

The dimensions of the switch cabinet can vary depending on the equipment of the MZ3 modular control panel.

Switch cabinet housing material	
Housing	Steel plate housing for installation on wall
Halogen-free	YES
Silicone-free	YES
RoHS-compliant	YES

4.2 Weights

The weight of the MZ3 modular control panel varies according to specification and equipment. After completion of the MZ3 modular control panel, the actual weight can be determined.

4.3 Electrical connection

The following connections must be available on site for the installation.

Mains - supply voltage
230 V AC 50 Hz, ($\pm 15\%$) for output currents ≤ 64 A
400 V AC 50 Hz, ($\pm 15\%$) for output currents ≥ 80 A
Separate mains fusing, max. 16 A per phase

Minimum IP (electrical protection category) according to EN 60529
42

Electrical connection				
Type/output power	Output voltage	Input current	Input power	Outer conductor
MZ3 / 16 A	27 V DC (rated) (-25% / +10%)	2.5 A	540 W	1
MZ3 / 32 A		5 A	1080 W	1
MZ3 / 48 A		7.5 A	1620 W	1
MZ3 / 64 A		10 A	2160 W	1
MZ3 / 80 A		2 x 5 A + 1 x 2.5 A	2700 W	3
MZ3 / 96 A		3 x 5 A	3240 W	3
MZ3 / 112 A		2 x 7.5 A + 1 x 2.5 A	3600 W	3
MZ3 / 128 A		2 x 7.5 A + 1 x 5 A	4320 W	3
MZ3 / 144 A		3 x 7.5 A	4860 W	3
MZ3 / 160 A		2 x 10 A + 1 x 5 A	5400 W	3
MZ3 / 176 A		2 x 10 A + 1 x 7.5 A	5940 W	3
MZ3 / 192 A		3 x 10 A	6480 W	3

4.4 Accumulators

The emergency power supply via accumulators is ensured through proper design and regular maintenance. If the mains supply voltage fails, the MZ3 modular control panel can open the connected SHE drives at least 2x and close 1x after 72 hours.



Note

Only VdS-approved accumulators must be used.

Accumulators			
Type	Emergency power operation	Charge time	Fuse
12 Volt 12 Ah lead gel	72 h	8 h for emergency power operation	FKS 40 A
12 Volt 18 Ah lead gel	72 h	8 h for emergency power operation	FKS 40 A



Note

Change-over between mains and accumulator operation < 1 ms.

4.5 Manual call points output

Manual call points	RBH/3A
Voltage	24 V rated
Current max.:	150 mA, 100 % ED
Connection terminal	See accompanying switching diagram for the centre
Line monitoring	Active end module
Number max.	15 pieces per assigned function element
Emergency power supply	Yes

4.6 Automatic detector output

Sensors	Smoke detector
Voltage	24 V rated
Max. current	150 mA, 100 % ED
Connection terminal	See accompanying switching diagram for the centre
Line monitoring	Active end module
Number max.	15 pieces per assigned function element
Emergency power supply	Yes

4.7 Wind/rain detector output

Sensors	WRM/2 24 V, RM/2 24 V
Voltage	24 V rated, 20 V to 30 V
Max. current	Max. 100 mA, 100% ED
Connection terminal	See accompanying switching diagram for the centre
Line monitoring	None
Emergency power supply	No
Fuse	No
Contact load	Max. 30 V / 2 A

4.8 Technical data for power supply

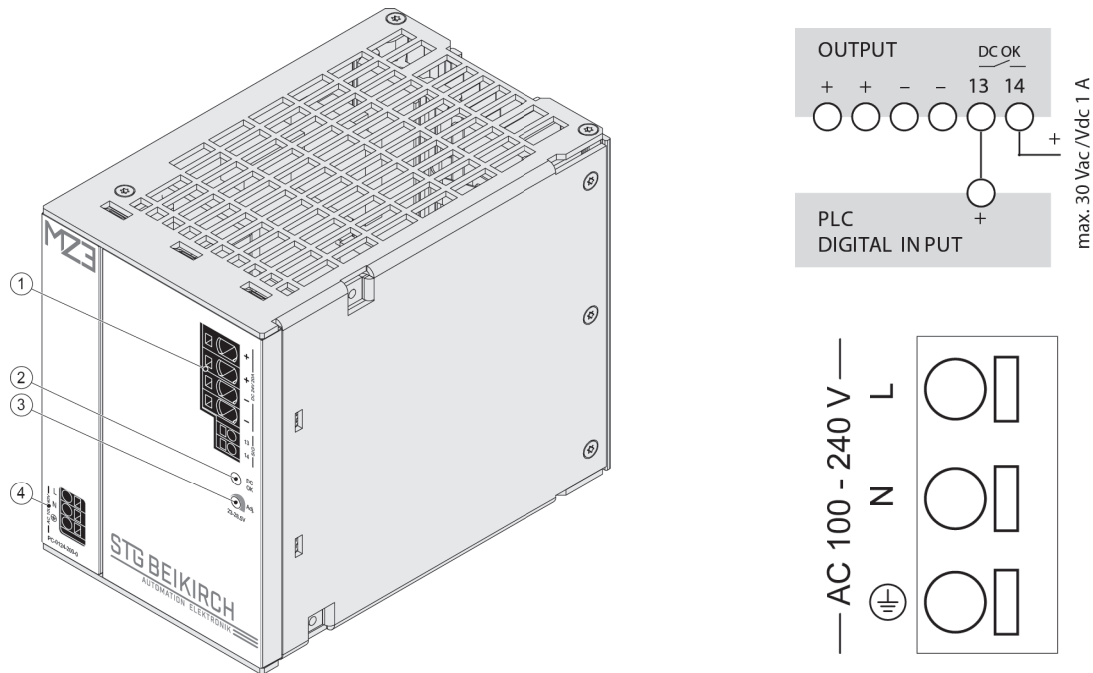


Fig.: 2 Power supply***

1	DC outputs (++) and potential-free "DC OK" contact	3	Setting of the output voltage
2	"DC OK" LED status indicator	4	AC mains input (L N PE)

Input data	PC-0124-200-0
Input voltage	100 - 240 Vac
Input voltage range	85 - 264 Vac (120 - 372 Vdc *)
Input voltage derating	-2.5 %/Vac < 100 Vac
Rated frequency range	47 Hz – 63 Hz / 0 Hz
Rated input current (nominal load)	5.56 A (100 Vac) / 2.23 A (230 Vac)
Inrush current limitation	< 30 A, NTC
Activation time after applying the mains voltage	0.45 s (100 Vac) / 0.2 s (230 Vac)
Mains failure bridging time (nominal load)	8 / 20 ms (100 / 230 Vac)
Internal input fuses	10 AT
Recommended circuit breaker (characteristic)	10 A, 16 A (B,C)
Transient overvoltage protection varistor	✓
Input connections	Push-in, max. 2.5 mm ²
Output data	
Rated output voltage	24 Vdc ± 1%
Output voltage range	23 ... 28.5 Vdc
Output current	20 A
Output current limitation	typ. 22 A
Constant current	
Can be connected in parallel	✓
Can be connected in series	✓
Idle/rated load power loss	7.2 W / 42.4 W (230 Vac)
Max. power loss	68.3 W (100 Vac / 24 V / 20 A)
Efficiency	typ. 92 %
Residual ripple (nominal load)	typ. 70 mVss
Return voltage resistance	max. 35 Vdc
Protection against internal overvoltage (OVP)	max. 40 Vdc
Output connections	Push-in, max 6 mm ²

Signalling	
Green "DC OK" LED status indicator lights permanently	U _{out} > 21.5 V
"DC OK" relay signal output, contact closed:	U _{out} > 21.5 V max. 30 V / 1 A
Signalling connections	Push-in, max 2.5 mm ²
Environmental	
Storage temperature	-25 °C ... +85 °C
Ambient temperature	-25 °C ... +70 °C start-up at -40 °C type-tested
Derating	-5 %/K > +60 °C (196 ... 264 Vac) -2.5 %/K > +50 °C (85 ... 195 Vac)
Convection cooling	✓
Humidity, non-condensing	5 ... 96 %
Required minimum distance (lateral)	---
Required minimum distance (top/bottom)	50 mm
General data	
Protection category according to IEC 60529	IP 20
Protection class according to EN 61140	I
Overvoltage category	III
Use in areas with pollution degree 2	✓
Use copper cable with min. 75 °C for connecting	✓
Standards	
Safety	EN 61558-2-16, EN 60950-1
EMC	EN 61204-3
Safety extra-low voltage (SELV/PELV)	IEC 60364-4-41 (DIN VDE 0100-410)
CE in accordance with 2014/30/EU and 2014/35/EU	✓
Test mark	
UL	UL/CSA 60950 recognised (E213214), UL 508 listed (E219022) UL notes: Overcurrent protection is to be supplied max. 16 A. Output disconnecting means shall be provided during installation.
GL	GL (Germanischer Lloyd) classified, Environmental category: C.
	EMC2
Mechanical data	
Fitted on DIN T 35H standard mounting rail	✓
Weight	1.6 kg
Dimensions (W x H x D) depth including TH 35-7.5 DIN rail	95 x 127 x 159 mm

* An appropriate DC fuse is necessary for DC input voltage.

** EMC1 only in conjunction with the HFE 156-230/10 filter.

*** Powered by BLOCK.

4.9 Fitting and installing cable sensors

The measuring principle of the temperature sensor is based on the internal sensor emitting a temperature-dependent resistance signal. The type of internal primary sensor determines the output signal. The Pt1000 resistance sensor is used in the MZ3 modular control panel. For cable sensors, the temperature sensor is installed in a stainless steel sleeve.



Fig.: 3 Cable temperature sensors



Please note!

All temperature sensors must basically be protected against inadmissible overheating. The following standard guideline values apply for the individual construction elements depending on the choice of material in a neutral atmosphere and under other normal conditions.

Pt1000 resistance characteristic curves			
°C	Ohm	°C	Ohm
-50	803.10	50	1194.00
-40	842.70	60	1232.40
-30	882.20	70	1270.00
-20	921.60	80	1308.90
-10	960.90	90	1347.00
0	1000.00	100	1385.00
10	1039.00	110	1422.00
20	1077.90	120	1460.60
25	1097.40	130	1498.20
30	1116.70	140	1535.80
40	1155.40	150	1573.10

4.10 Micro SD Card



Fig.: 4 Micro SD Card

Specifications of the Micro SD Card	
Memory size [GB]	1 (32 Bit)
Interface	SD
Design type oder Form factor	Industrial Micro SD, Wear Leveling, SLC-NAND
Type	AF1GUDI5AC1G*
Ambient temperature	-40 up to +85 C°, SLC-NAND Waterproof / dustproof Dust-tight and splash-proof) according to IP57 / IP67 (IE60529) Insensitivity to electrostatic discharge
Write speed [MB/s]	16,62
Readings speed [MB/s]	18,42
Dimensions [mm]	15 x 11 x 1
MTBF value [h]	5000000
TBW value [TB]	40
Memorytype	Single-Level-Cell (SLC)

* Compatible with Mirco SD Card

4.11 Requirements on the installation site

Installation and ambient conditions according to DIN 12101-9	
Environment	Inside area, clean and dry
Temperature range	-5°C to + 40°C

The modular control panel must not fall, be knocked or exposed to vibrations, humidity, aggressive vapours or harmful environments.

	Material damage! The MZ3 modular control panel is not suitable for outdoor installation.
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4.12 Approvals and certificates

Certification	Standards and guidelines
CE conformity	Low voltage directive 2014/35/EC EMC directive 2014/30/EC
Classification	DIN prEN 12101-9 12/2004 DIN EN 12101-10

4.12.1 Declaration of performance (EEC Construction Products Regulation, German BauPVO)

We herewith confirm that the device complies with the recognised rules of technology. For the electrical device, you may request a declaration of performance from the manufacturer.

If the device is part of a machine as defined in Machinery Directive 2006/42/EC, it does not release the distributor / installer from producing the necessary declarations of incorporation, labels, documents and certificates in accordance with this directive.

5 Packaging, transport and storage

The modular control panel is packed in a cardboard box or wrapped in film on a pallet and lashed.

- The packaging is intended to protect the modular control panel.
- Do not destroy the packaging and only remove just before the installation.

5.1 Disposing of the packaging

National and regional laws/directives must be followed when disposing of the packaging.

5.2 Safety instructions for transport

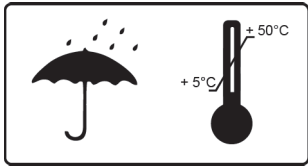
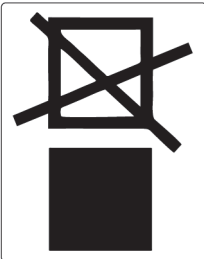
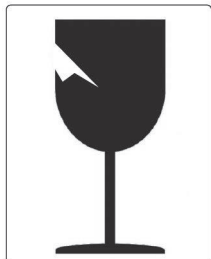
The modular control panels can be transported with a trolley or a lift truck. With larger modular control panels, the steel plate housing can be lifted and moved with a crane or lifting gear.

	Note The modular control panels are always transported in the upright position
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- With large switch cabinets, the modular control panel must only be lifted and moved on the marked positions (crane hooks or eyelets).
- Only use suitably dimensioned means of transport.
- Transport by trained personnel only.

	Caution Suspended or raised loads can fall. Death or serious injury! Never remain under suspended or raised loads.
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5.2.1 Symbols on the packaging

Protect against moisture	Do NOT load	Fragile
		

5.3 Intermediate storage (short-term storage)

The modular control panel must be stored under the following conditions:

- Store in the original packaging.
- Do not store outdoors.
- Only store in dry and dust-free rooms.
- Do not expose to aggressive substances.
- Protect against solar radiation.
- Protect against rain and humidity.
- Only deposit on load-bearing ground.

6 Installation

The installation must only be carried out by trained and expert electricians taking into account the recognised rules of engineering as well as this technical documentation.

The operation-safe functioning of the product is thus ensured.

Proper fixing of mechanical components must be checked.

Immediately after the installation, the electrical and mechanical components must be checked for proper functioning and the checks and results documented.

6.1 Installing the switch cabinet

The modular control panels are installed horizontally on the wall, or standing depending on the size.

Wall installation

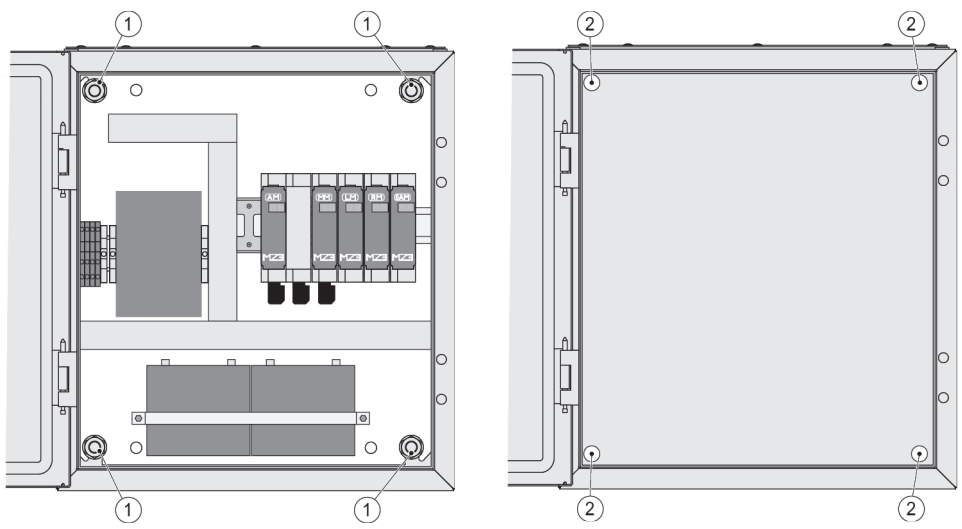


Fig.: 5 Removing the switch cabinet mounting plate

1	Hexagon nut	2	Fixing holes
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Caution
Installation on the ceiling is **NOT** permitted.

- ▶ Remove the mounting plate from the switch cabinet.
- ▶ Affix the switch cabinet in accordance with the fixing holes with suitable dowels and screws.
- ▶ Install the mounting plate in the switch cabinet.
- ▶ Connect the earth connection.



Note
The earth connection between the mounting plate and the switch cabinet housing must be established.

6.2 Electrical connection

The mains feed of modular control panel MZ3 must be fused separately on site and equipped with an all-pole disconnection device (external). Modular control panel MZ3 is equipped ex-factory with a disconnecting device and knife connector.

	Caution! Disconnect the mains voltage on all poles by using the external disconnection device and the emergency power supply (accumulators) before working on modular control panel MZ3. Secure modular control panel MZ3 against unintentional restart.
	Caution! If the internal disconnection device should be disconnected, the external disconnection device must be disconnected on all poles. The internal disconnection device must not be turned off under load.
	Warning! Improper working on live components may cause electric shock! Severe or fatal injuries from electric shock! The supply must be connected in the switch cabinet by qualified electricians.

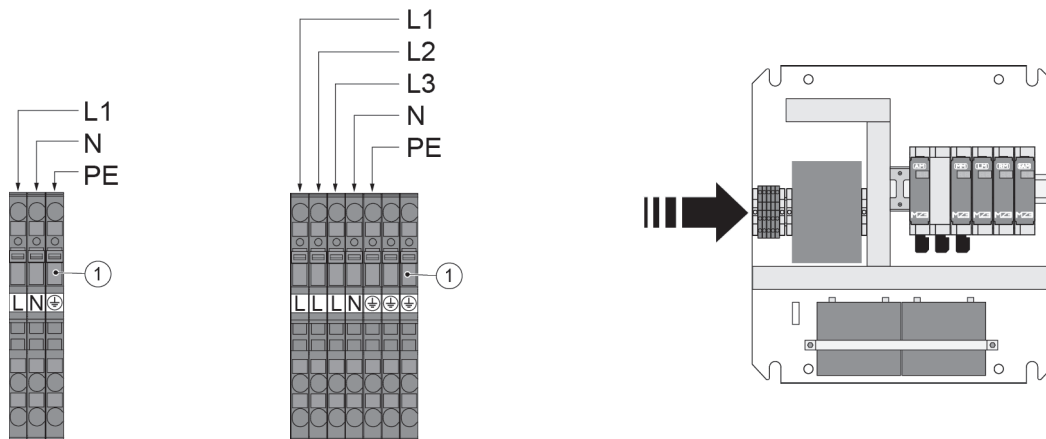


Fig.: 6 Mains connection 220 Volt AC / 400 Volt AC

1	Knife connectors (internal disconnecting device)
---	--

6.3 Electrical connection of components outside the building

For all products that are mounted outside the building (WRM, RM, wind direction encoder), the lightning protection must be taken into account on site.

	Material damage! Components/products that are mounted outside the building must be mounted and secured in accordance with DIN EN 62305/ VDE 0185-305:2006 Electrical and electronic systems in structural systems.
---	---

6.4 Sample cabling diagram

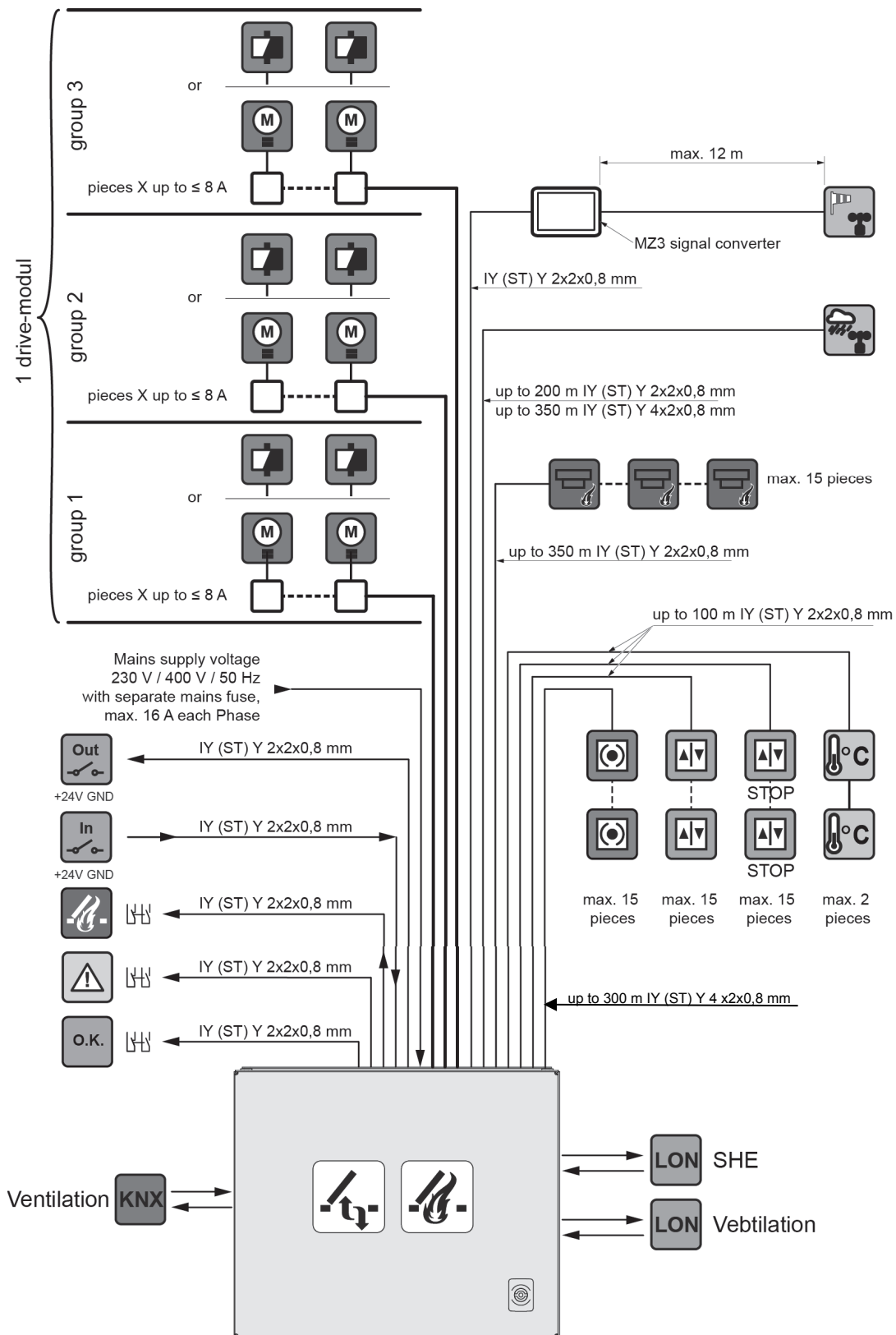


Fig.: 7 Example cabling diagram for the MZ3 modular control panel

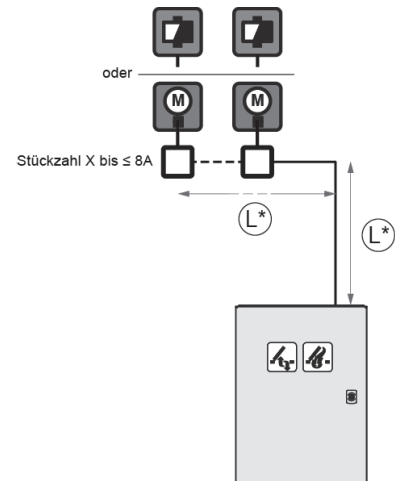
The valid provisions regarding cabling with 30 min. or 90 min. functional integrity must be observed. Deviations for this purpose must be coordinated in every case with the construction management, with the local approving authorities, energy supply companies, fire prevention authorities or the trade association. The specified line cross-sections must not be reduced. They are specified for an ambient temperature of 20 °C. For higher temperatures, increase the cross-sections. The line cross-sections must be adapted to the requirements of the manufacturer of the cable for E90 (E30). All lines to the control centre (except the mains supply line) have 24 V DC and must be laid separately from the mains supply line. The respective VDE requirements must be observed when laying the line.

6.5 Cable cross-section calculation

Formula for cable cross-section calculation

$$[m] ([A]) = \frac{[mm^2] \times [V]}{\left[\frac{\Omega \times mm^2}{m} \right] \times [A]}$$

$$L(I) = \frac{A_L \times U}{2^* \times \rho \times I}$$



* The feed and return connecting wires are taken into account in the calculation formula, therefore only calculate a single line length.

Fig.: 8 Formula for cable cross-section calculation

Definition	Dimension symbol	Unit symbol
Cable cross-section	A	²
Specific resistance		(Ω· ²)/
Line length	L	
Current strength		
Voltage		

Maximum voltage drop on the cable 2.5 Volt. Specific resistance value of copper cable 0.0175 (Ω·²)/.

6.6 Cable length diagram

In order to determine the required cable cross-section depending on the line length and the sum of the rated currents of the actuators.

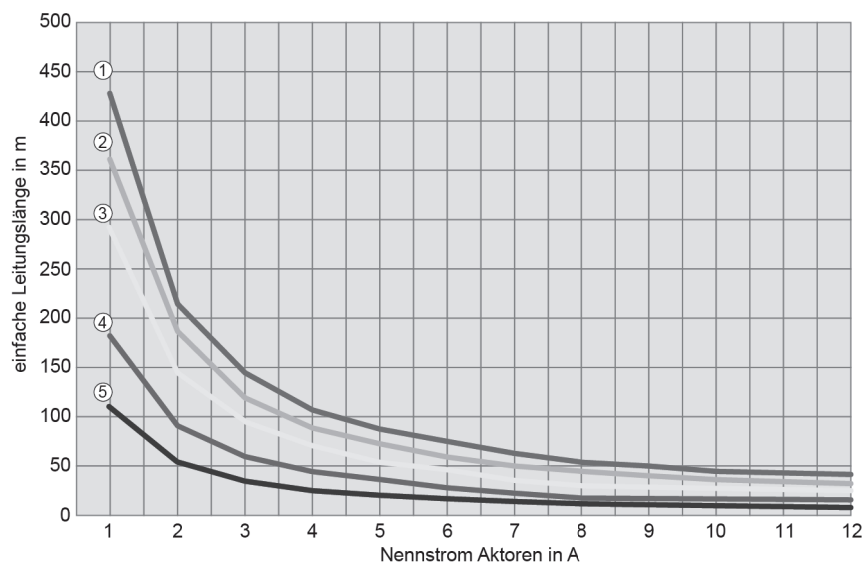


Fig.: 9 Cable diagram

1		6 mm ²	4		2.5 mm ²
2		2 x 2.5 mm ²	5		1.5 mm ²
3		4 mm ²			

6.7 Cable cross-section table

Cable cross-section A [mm ²]					
	1.5	2.5	4.0	2 x 2.5	6
Current I [A]	Line length L [m]				
1	107	179	286	357	429
2	54	89	143	179	234
3	36	60	95	119	143
4	27	45	71	89	107
5	21	36	57	71	86
6	18	30	48	60	71
7	15	26	41	51	61
8	13	22	36	45	54
9	12	20	32	40	48
10	11	18	29	36	43
11	10	16	26	32	39
12	9	15	24	30	36



Note

Increased currents in the starting torque must be factored into the calculation of the cable cross-sections for the actuators.

6.8 Connection of actuators to the motor module (MM)

The line is monitored by means of monitoring diodes installed in the junction boxes.

The actuators* can be connected at any level.



Please note!

When connecting the actuators*, the maximum 8 amps per level must not be exceeded.

Connection of the actuators*	
Motor output 1	Channel 1
Motor output 2	Channel 2
Motor output 3	Channel 3

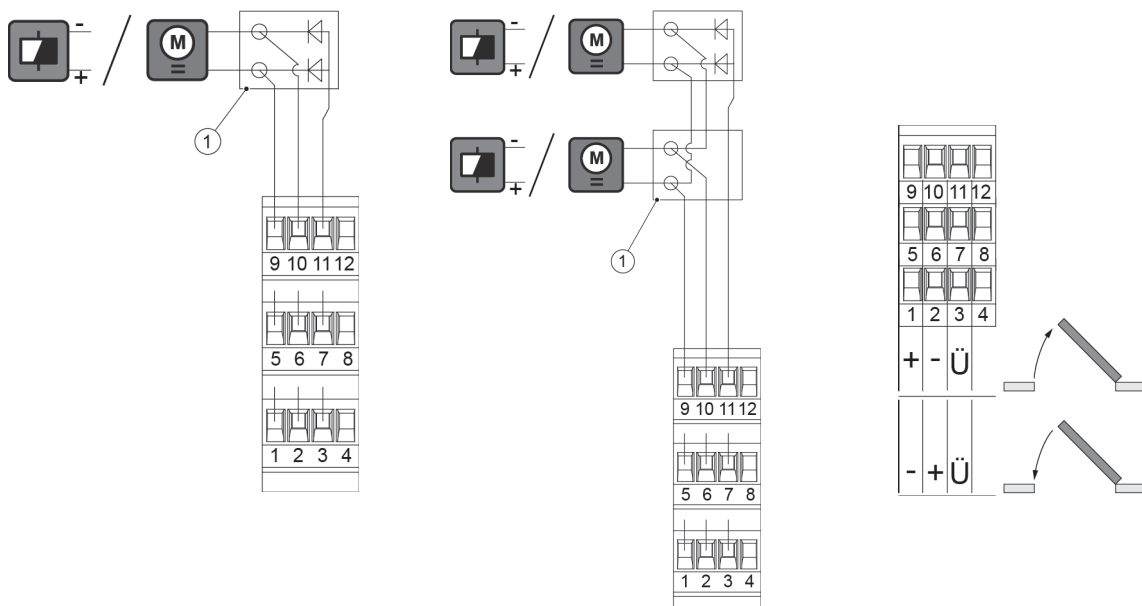


Fig.: 10 Switching diagram for connecting actuators to the motor module

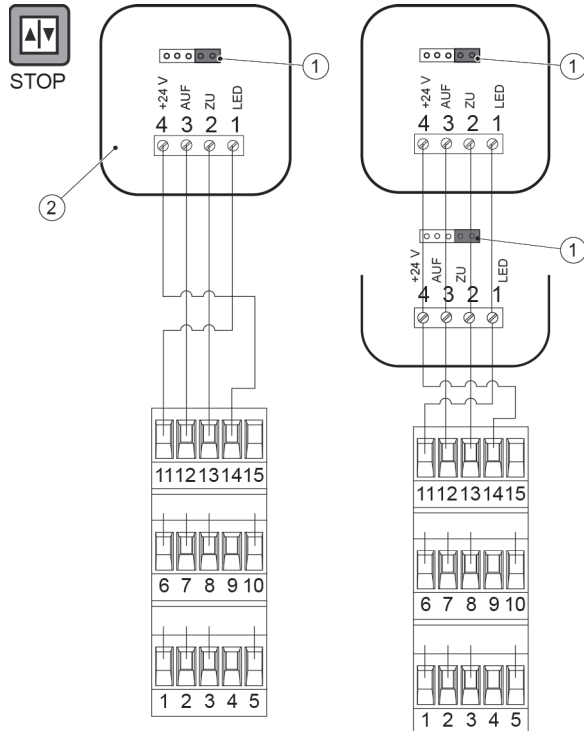
1	Junction box		
---	--------------	--	--

6.9 Connection to the ventilation module (LM)

The sensors* can be connected at any level.

3 different sensor circuits can be connected per ventilation module.

Vent switch LTA 25



Vent switch LTA 11

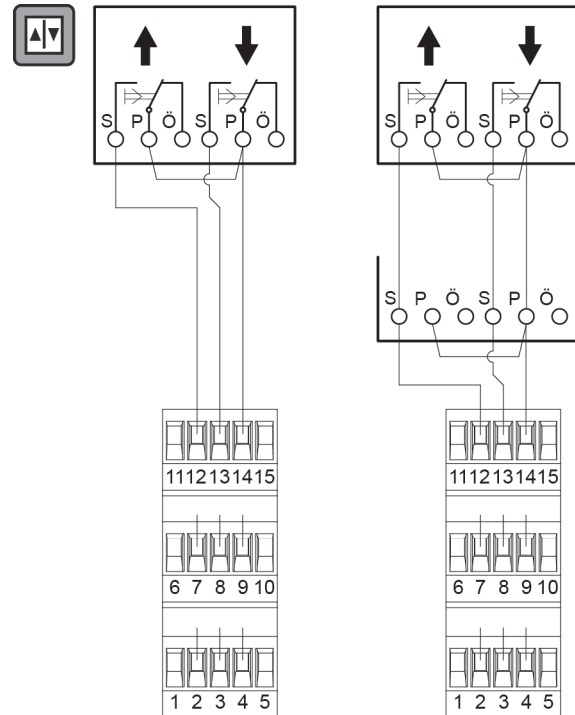
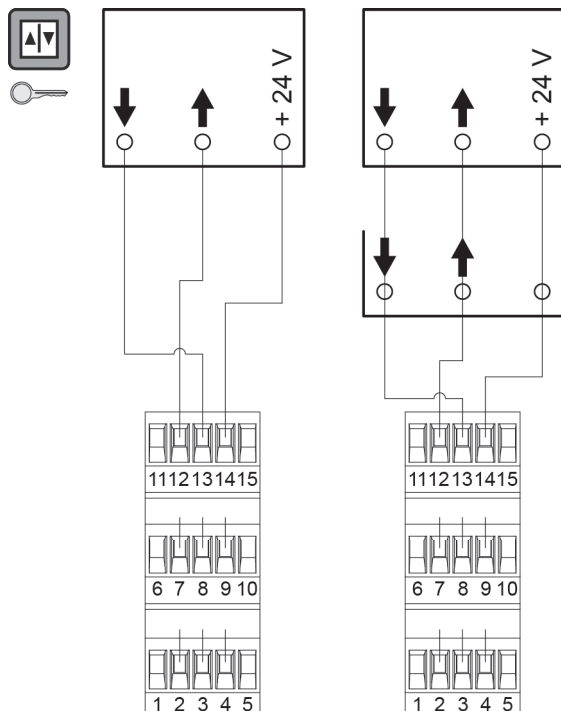


Fig.: 11 Switching diagram for connecting sensors to the ventilation module

1	Remove jumper configuration from respective TI*	2	Rear view of vent switch
---	---	---	--------------------------

**Ventilation key-operated push button LTA12
/ventilation key-operated push button LTA13/AP**



Temperature sensor TS-1030

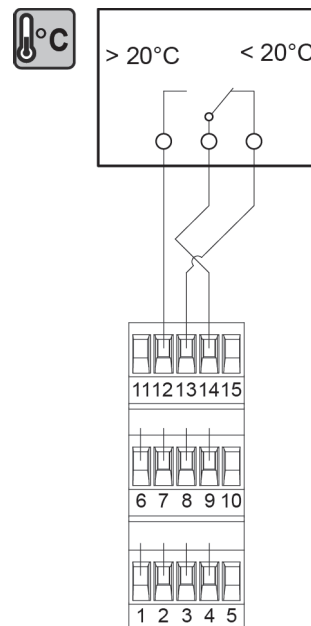


Fig.: 12 Switching diagram for connecting sensors to the ventilation module

With a TS 1030 temperature sensor

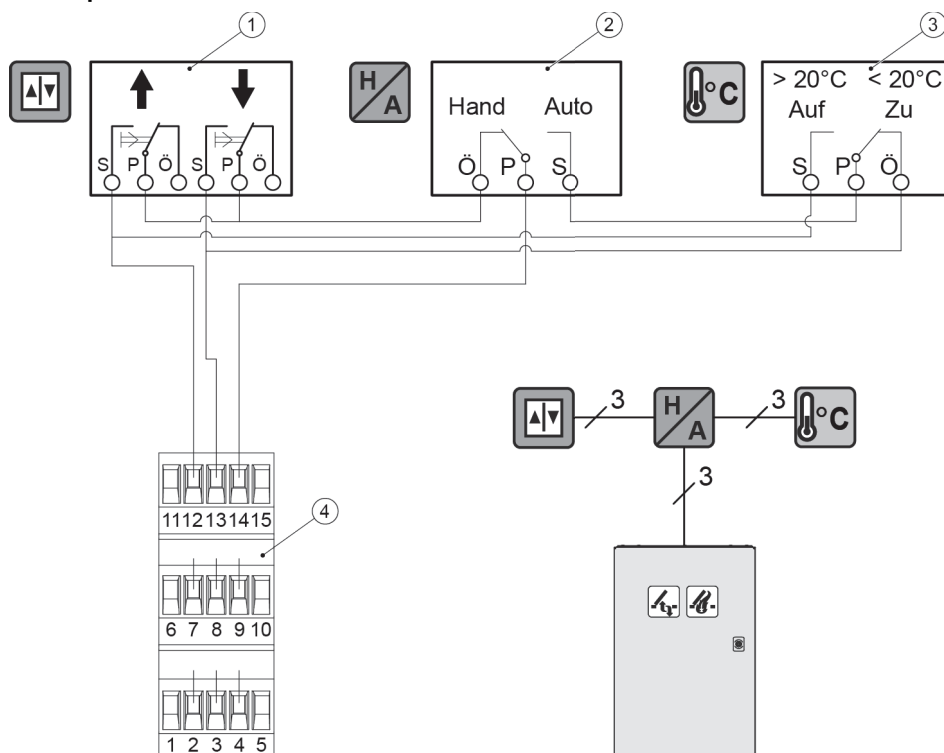


Fig.: 13 Switching diagram for connecting sensors to the ventilation module

1	Vent switch LTA 11	3	Temperature sensor T 1030
2	Selector switch WHA 14	4	Ventilation module (LM)

With two TS 1030 temperature sensors

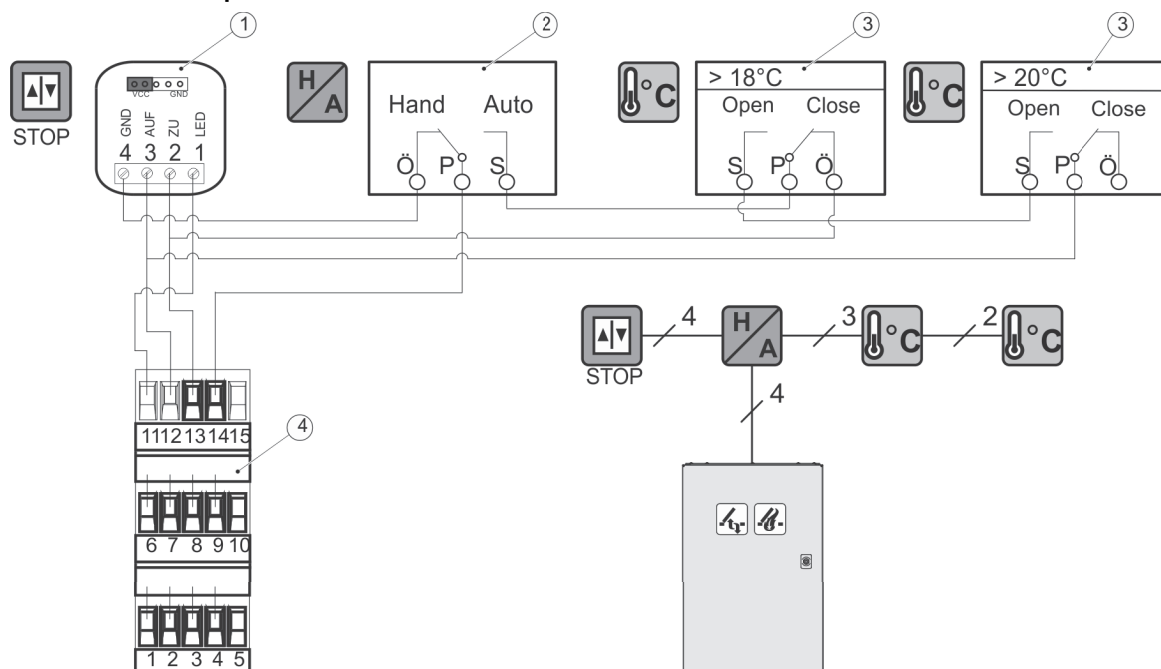
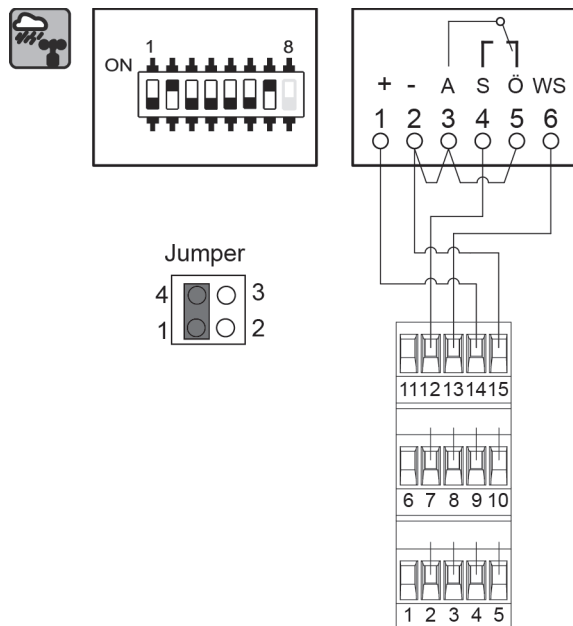


Fig.: 14 Switching diagram for connecting sensors to the ventilation module

1	Vent switch LTA 25	3	Temperature sensor T 1030
2	Selector switch WHA 14	4	Ventilation module (LM)

Wind/rain detector type WRM/2 24V



Rain detector type RM/2 24 V

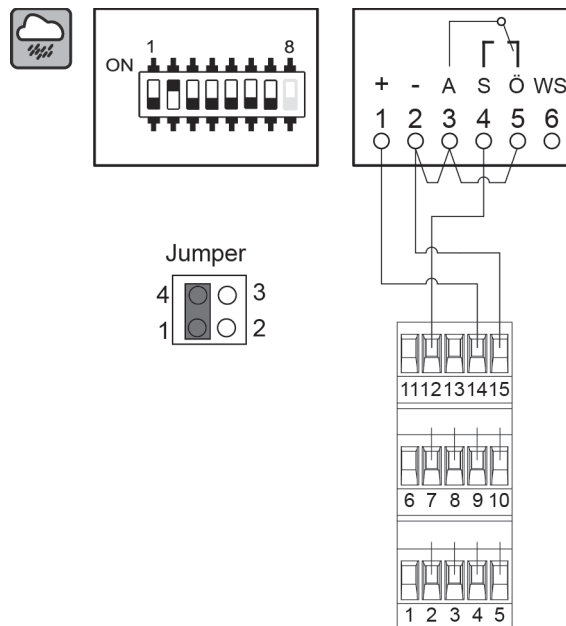


Fig.: 15 Switching diagram for connecting sensors to the ventilation module



Material damage!

The wind/rain detector WRM/2 24 V and rain detector RM/2 24 V must be installed and secured according to DIN EN 62305/VDE 0185-305:2006.

Wind direction encoder and MZ3 signal converter

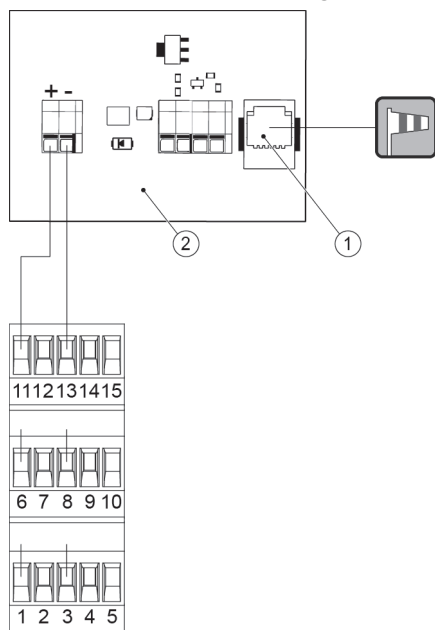


Fig.: 16 Switching diagram for connecting sensors to the ventilation module

1	RJ 12 socket	2	MZ3 signal converter
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Note

The signal converter and wind direction encoder must be ordered separately from STG-BEIKIRCH.



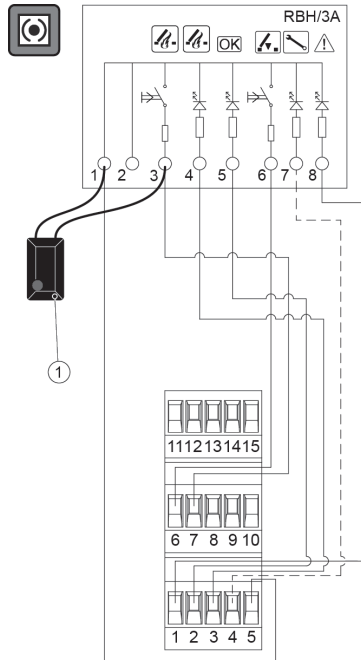
Material damage!

The wind direction encoder must be installed and secured according to DIN EN 62305/VDE 0185-305:2006.

6.10 Connection to the SHE module (RM)

	Please note! The SHE manual call points are always connected to channel 1.
---	--

An SHE manual call point type RBH/3A



Several SHE manual call points type RBH/3A

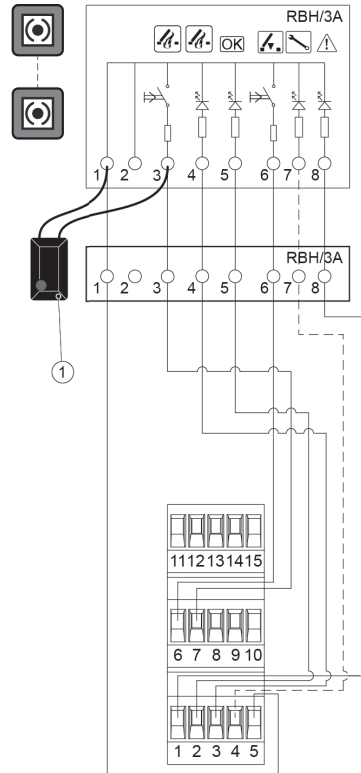
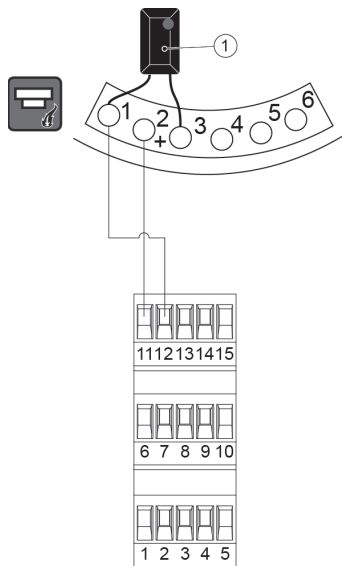


Fig.: 17 Switching diagram for connecting sensors to the SHE module

1	Active end module/2*		
---	----------------------	--	--

	Please note! The automatic detectors are always connected to channel 5.
---	---

An automatic detector MSD 523, UTD 523



Several automatic detectors MSD 523, UTD 523

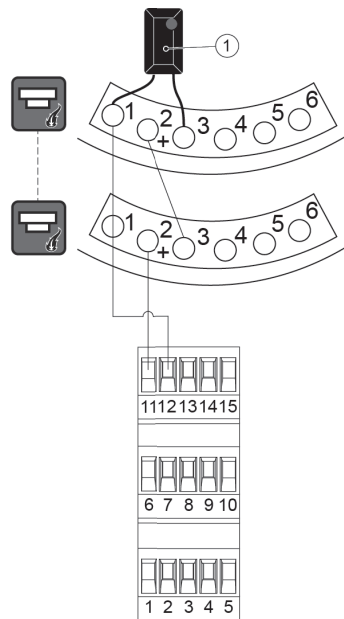


Fig.: 18 Switching diagram for connecting sensors to the SHE module

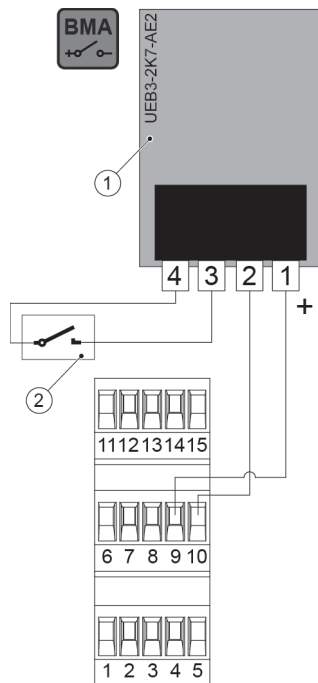
1	Active end module/2*		
---	----------------------	--	--



Please note!

The BMA contact with the UEB3-2K7-AE is always connected to channel 3.

Connection of the fire detection system (FDS)



The UEB3-2K7-AE module is installed in the fire detection system.

Fig.: 19 Switching diagram for connecting sensors to the SHE module

1	UEB3-2K7-AE	2	FDS switch contact on site
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6.11 Connection to the IOM module (IOM)

The input/output module (IOM) is intended for the following function:

- Exchanging digital states with other systems.

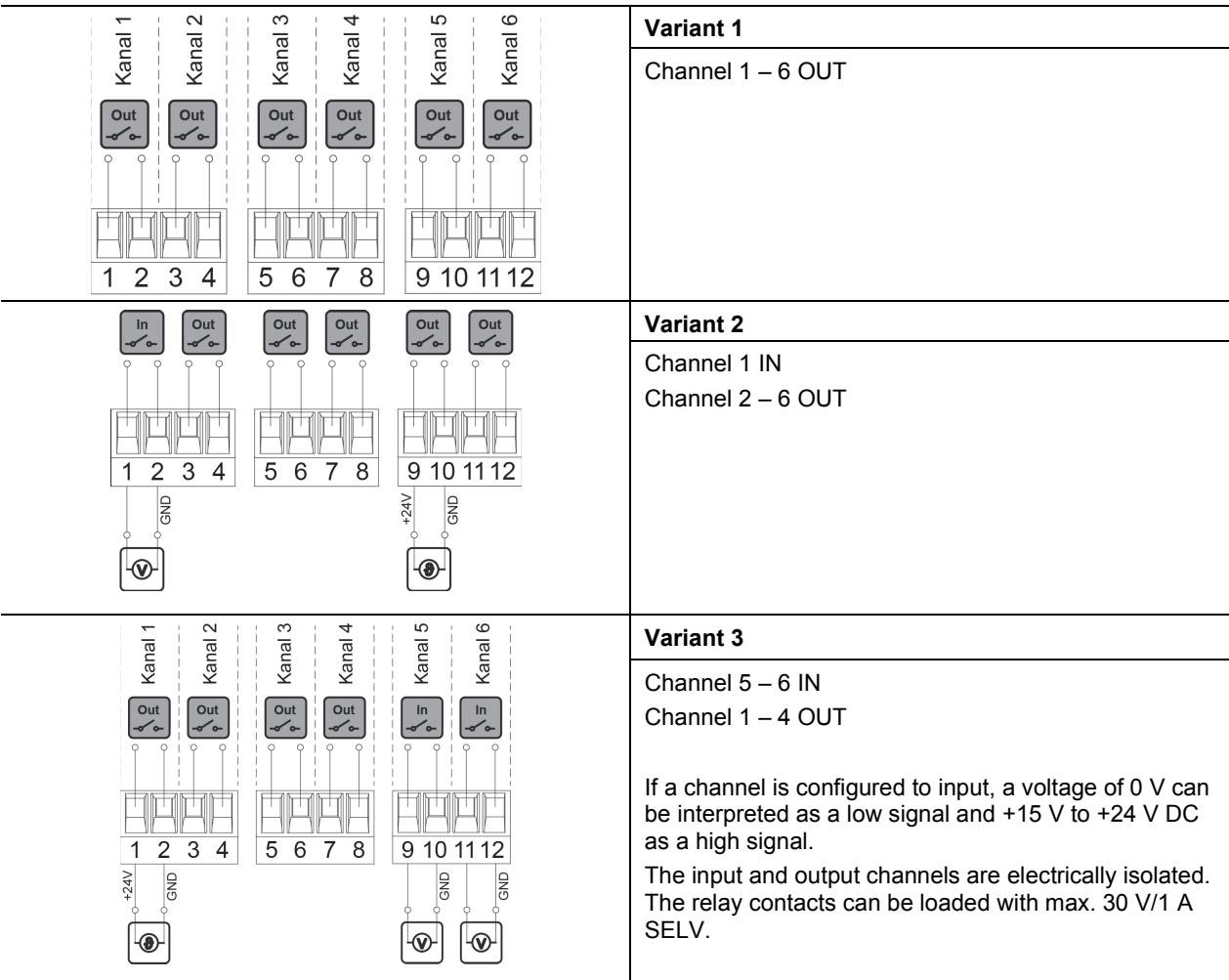


Fig.: 20 Switching diagram for connecting sensors to the IOM module

6.12 Connection to the installation bus (EiB*) – Konnex (KNX*) module

Connection of the combination of IFM1 module with STG-BEIKIRCH smart connect KNX*

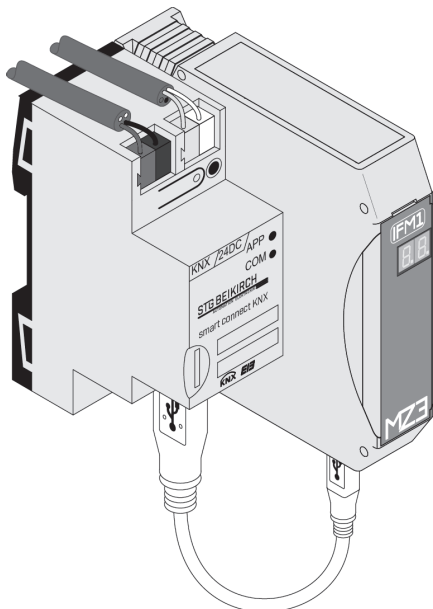


Fig.: 21 Switching diagram for connecting sensors to the SHE module

7 Commissioning

7.1 Preparatory measures

Before commissioning the MZ3 modular control panel, the following installation work must be completed and checked:

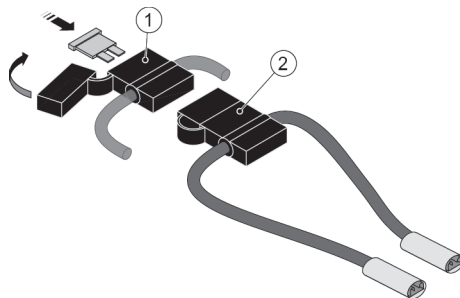


Note

If external components are not connected correctly, this can cause malfunctions of the MZ3 modular control panel.

- External components are installed and correctly connected.

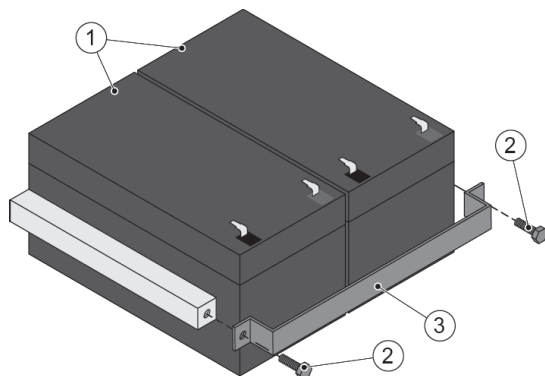
7.2 Installing the accumulators



- Insert fuse in the fuse holder and close.

Fig.: 22 Inserting the fuse in the fuse holder

1	FKS 40 A fuse	2	Cable bridge with fuse holder
---	---------------	---	-------------------------------



- Place the accumulators at the installation position provided and fix in place with the holding bracket.



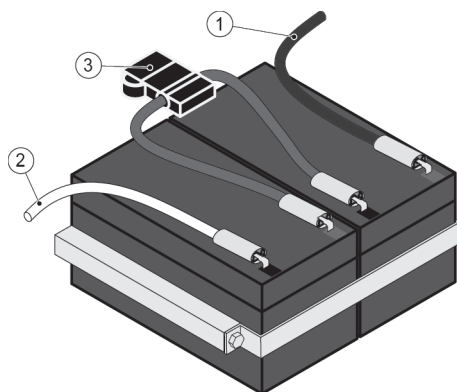
Caution

Accumulators must be charged for min. 8 hours prior to commissioning.

Fig.: 23 Installing the accumulators

1	Accumulators	3	Mounting bracket
2	Hexagon screw		

- Turn on the mains
- The drives must not move.



Caution

Reversing the poles of the accumulators will cause a short-circuit and destroy the accumulators.

- Plug the accumulator cable onto the accumulators.

Fig.: 24 Connecting the accumulators

1	Accumulator connecting cable, blue (+ pole)	3	Cable bridge with fuse holder
2	Accumulator connecting cable, white (- pole)		

- Check display indicators on the master, slave modules and power pack, see Chapter "Module description of RM and LM modules".
- If errors are displayed, remedy these according to the "Troubleshooting" table.



Master
module (RM
or LM)



Slave module
(AM, MM, LM
and EAM)



Module not configured

Fig.: 25 MZ3 modular control panel ready for operation

- The modules are in operating mode, no error is present.
- The MZ3 modular control panel is in operation.

When commissioning, the MZ3 modular control panel must be notified so that the actuators* (drives) are closed in the "CLOSE direction" during their drive run time.



Note

After closing the actuators (drives), at least 3 minutes **must** be waited.

The following control elements can generate a CLOSE command:

Generating a "CLOSE command"	
SHE manual call point	Actuate the SHE* "CLOSE command" button on the manual call point
Vent switch	Actuate the "CLOSE direction" button
Automatic detectors	Actuate the reset button for automatic detectors on the RM module

7.3 Functional test and test run

	Note Depending on the configuration, opening widths, times and reactions can vary.
---	--

7.3.1 Functional test of the vent switch

Function	Actual status	Operation	Result
The assigned vent switches in the area must be actuated in the "OPEN direction".	Assigned actuators* are closed.	▶ Actuate the vent switch in the "OPEN direction".	The linked actuators* (such as motor outputs) move to the "OPEN position".
The assigned vent switches in the area must be actuated in the "CLOSE direction".	Assigned actuators* are open.	▶ Actuate the vent switch in the "CLOSE direction".	The linked actuators* (such as motor outputs) move to the "CLOSE position".
Stop the assigned actuators*.	The assigned actuators* are energised in the "OPEN" or "CLOSE" direction.	▶ While opening or closing, actuate the "Stop button".	The linked actuators* must stop.

	Note For vent switches with "OPEN" or "CLOSE" ventilation display, this is controlled.
---	--

7.3.2 Functional test of ventilation key-operated push button

Function	Actual status	Operation	Result
The assigned vent switches in the area must be actuated in the "OPEN direction".	The assigned actuators* are closed.	▶ The assigned ventilation key-operated push button in the area must be actuated in the "OPEN direction".	The linked actuators* (such as motor outputs) move to the "OPEN position".
The assigned vent switches in the area must be actuated in the "CLOSE direction".	Assigned actuators* are open.	▶ When opening or closing, actuate the ventilation key-operated push button again within 90 sec. in the "OPEN direction" or "CLOSE direction".	The linked actuators* (such as motor outputs) move to the "CLOSE position".
Stop the assigned actuators*.	The assigned actuators* are energised in the "OPEN" or "CLOSE" direction.	▶ Actuate the ventilation key-operated push button in the "CLOSE direction" or "OPEN direction".	The linked actuators* must stop.

	Note If there is a mains or accumulator failure, the assigned drives are closed immediately.
---	--

7.3.3 Functional test of the SHE* manual call point

Function	Actual status	Operation	Result
SHE* triggering.	The SHE* manual call point is ready for operation, the green LED indicator (ready for operation) lights.	▶ Actuate the red "SHE* OPEN" button on the assigned SHE* manual call point.	The linked actuators* (such as motor outputs) move to 100 % in the "OPEN position". Actuators* (such as magnetic clamps) are de-energised. The red LED indicator (SHE* OPEN display) and green LED indicator (ready for operation) light; optionally a buzzer can be activated.

	Note For vent switches with "OPEN" or "CLOSE" ventilation display, this is controlled. Rapid flashing means a SHE* triggering.
	Note The resetting (VdS function) is activated in the event of SHE* triggering. Resetting is carried out every 2 min.
	Note The functions of the ventilation button and wind/rain detector are disabled during SHE* triggering.

Function	Actual status	Operation	Result
Resets SHE* triggering.	The linked actuators* (such as motor outputs) are in the "OPEN position" to 100 %. Actuators* (such as magnetic clamps) are de-energised. The red LED indicator (SHE* OPEN display) and green LED indicator (ready for operation) light; optionally a buzzer can be activated.	▶ Actuate the "SHE* CLOSE" button on the SHE manual call point. ▶ Brings the magnetic clamps back into home position.	The linked actuators* (such as motor outputs) move in the "CLOSE position" to 0 %. Actuators* (such as magnetic clamps) are energised again. The red LED indicator (SHE* OPEN display) goes out and the green LED indicator (ready for operation) lights.

	Note For vent switches with "OPEN" or "CLOSE" ventilation display, this is controlled. After switching off the drive control, these goes out.
---	--

7.3.4 Functional test of the automatic detector

Function	Actual status	Operation	Result
SHE* triggering by automatic detector.	SHE* is ready for operation. The SHE* manual call point is ready for operation, the green LED indicator (ready for operation) lights.	► Set the assigned automatic detector in revision mode. Spray the automatic detector with test aerosol.	The linked actuators* (such as motor outputs) move to 100 % in the "OPEN position". Actuators* such as magnetic clamps are de-energised. The red LED indicator (SHE* OPEN display) and green LED indicator (ready for operation) light; optionally a buzzer can be activated.



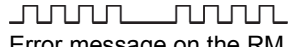
Note

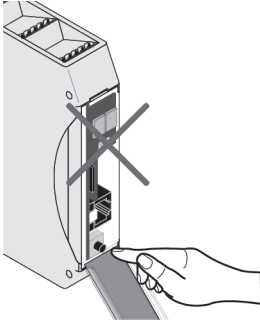
For vent switches with ventilation display "OPEN", this is controlled. Rapid flashing means a SHE* triggering.



Note

The resetting (VdS function) is activated upon SHE* triggering. Resetting is carried out every 2 min.

Function	Actual status	Operation	Result
Resets SHE* triggering on the automatic detector.	SHE* is ready for operation. The SHE* manual call point is ready for operation, the green LED indicator (ready for operation) lights.	► Brings the magnetic clamps back into home position. ► Actuate the "SHE* CLOSE" button on the SHE* manual call point.	The linked actuators* (such as motor outputs) move to 0 % in the "CLOSE position". Actuators* (such as magnetic clamps) are energised again. The green LED indicator (ready for operation) and the red LED indicator (SHE* OPEN display) go out. The yellow LED indicator flashes (SHE* malfunction display).  Error message on the RM module display. 

Reset of the automatic detector.	The linked actuators* (such as motor outputs) are in the "CLOSE position" to 0 %. The yellow LED indicator flashes (SHE* malfunction display).	► Clear the automatic detector of smoke. A reset of the automatic detector is possible on the RM module or an external reset "Automatic detector" reset input. 	The red LED indicator in the automatic detector goes out. The green LED indicator (ready for operation) lights.
----------------------------------	--	---	---

	Note The functions of the ventilation button and wind/rain detector are disabled during SHE* triggering.
---	---

7.3.5 Functional test of rain detector/ wind/rain detector

Check function of the assigned ventilation button and rain detector/wind/rain detector in the area.

Function	Actual status	Operation	Result
Triggering of rain and wind detectors.	Assigned actuators are open.	► Moisten the rain detector and or simulate wind on the wind detector.	The linked actuators* (such as motor outputs) move to 0 % in the "CLOSE position".
Simulation of rain and wind.	Assigned actuators are closed.	► Assigned vent switches must be actuated in the area in "OPEN direction".	The "OPEN command" of the assigned vent switches is disabled.
Dry the rain surface again, do not simulate wind.	Assigned actuators are closed.	► Assigned vent switches must be actuated in the area in "OPEN direction".	The assigned actuators* are given the "OPEN command".

	Caution Should the mains or accumulator voltage and SHE* triggering fail, the ventilation function is disabled to preserve the accumulators.
---	---

7.3.6 Functional test of the emergency power

Function	Actual status	Operation	Result
Simulates emergency power operation.	Mains voltage present.	► Power down the MZ3.	Error message on the AM module display. 
	Mains voltage on MZ3 modular control panel switched off.	► Actuate the assigned vent switch in the "OPEN direction".	The assigned actuators* are not given an "OPEN command".
SHE* trigger simulation on the SHE* manual call point.	Mains voltage on MZ3 modular control panel switched off.	► Actuate the red "SHE* OPEN" button on the assigned SHE* manual call point.	The linked actuators* (such motor outputs) move to 100 % in the "OPEN position". Actuators* (such as magnetic clamps) are de-energised. The red LED indicator (SHE OPEN display) lights. The green LED indicator does not light. The MZ3 modular control panel is in emergency power operation. The yellow LED indicator flashes on the assigned SHE manual call points.  For vent switches with ventilation display "OPEN", this is controlled. Rapid flashing means a SHE* triggering.
	Mains voltage on MZ3 modular control panel switched off. SHE* trigger simulation.	► Actuate the "SHE* CLOSE" button on the SHE manual call point. ► Brings the magnetic clamps back into home position.	The linked actuators* (such as motor outputs) move to 0 % in the "CLOSE position". Actuators* (such as magnetic clamps) are energised again. The red LED indicator (SHE* OPEN display) goes out. The green LED indicator does not light. The MZ3 modular control panel is in emergency power operation. For vent switches with ventilation display "OPEN", this is controlled. Slow flashing means the MZ3 modular control panel is in emergency power operation.

Function	Actual status	Operation	Result
Deactivates emergency power operation.	Mains voltage on MZ3 modular control panel switched off.	► Turn on the MZ3 mains voltage.	Error message on the AM module display on the module disappears. 0,6s 0,6s 0,6s  The yellow LED indicator goes out on the assigned SHE* manual call points. For vent switches with ventilation indicator "OPEN", the indicator goes out. The green LED on the assigned SHE* manual call points lights. The MZ3 modular control panel is back in normal operation.

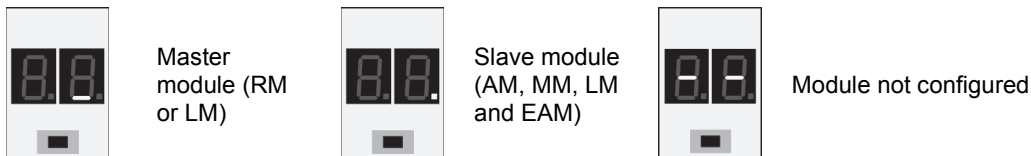


Fig.: 26 MZ3 modular control panel ready for operation

► The modules are in operating mode, no errors are present.

	Note If other control elements or sensors are connected or installed, proceed according to their operating instructions.
	Note If malfunctions occur, the functional test and test run must be repeated. The functional test and test run must be repeated until they run without any errors.

Concluding work

- Install the lock discs on the SHE* manual call points.
- Fill out the commissioning log.
- Close the door of the centre.
- Stick the contact data of the troubleshooting service on the MZ3 modular control panel.

7.3.7 MZ3 modular control panel reset

See subchapter "Menu guidance", reset the system or reset an individual module.

8 Operation

8.1 Functional description of the modules

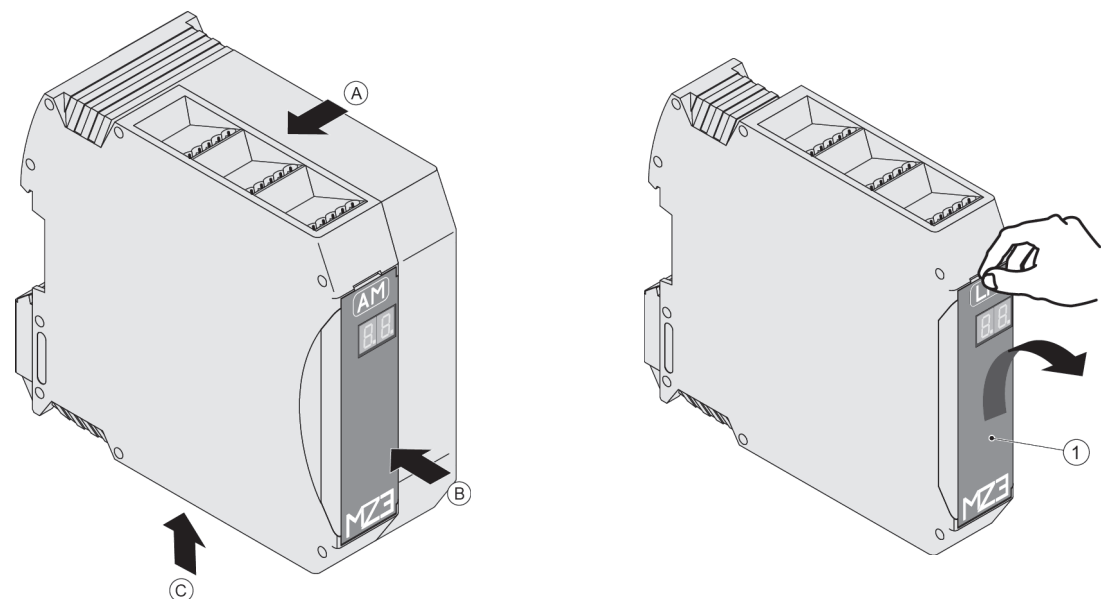


Fig.: 27 Description of the modules

1	Flap	B	Module front
A	Customer connection side	C	Connection in the factory (for service technicians only)

8.1.1 Accumulator module (AM)

The accumulators module (AM) is intended for the following functions:

- Charging and monitoring the connected accumulators.
- In the event of mains failure, the module switches to emergency operation with accumulators.
- Supply of motor modules* with energy.
- Potential-free signal contacts for, e.g. SHE* triggering, malfunction and wind/rain detector.

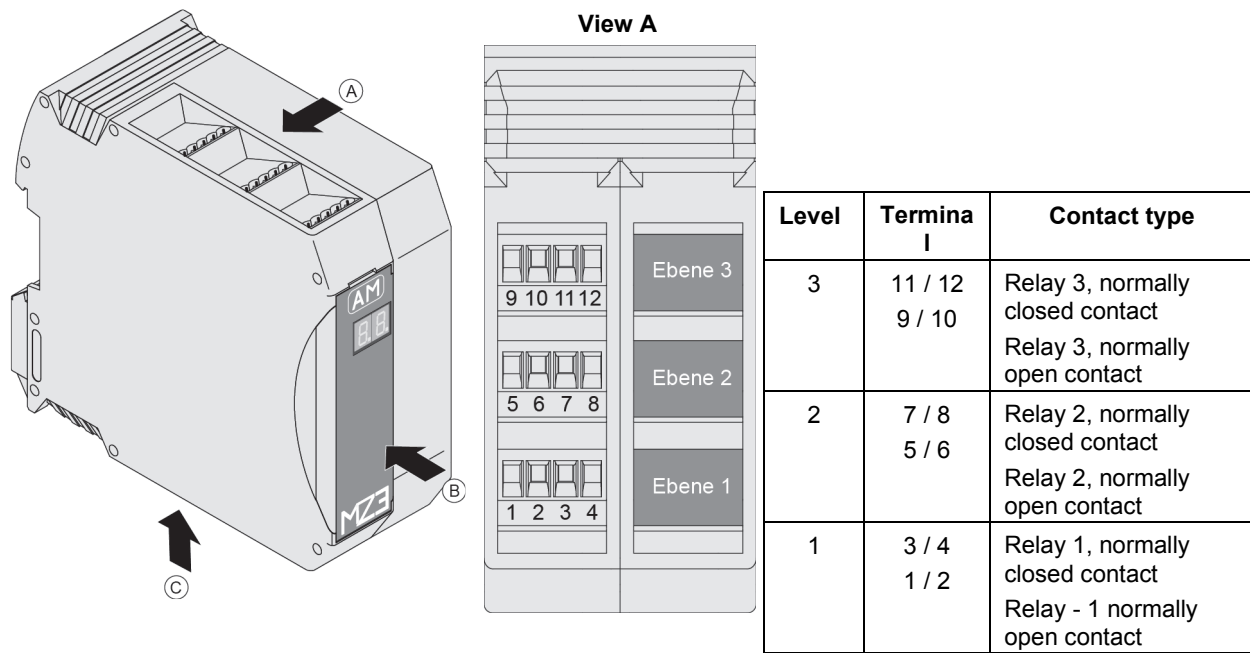


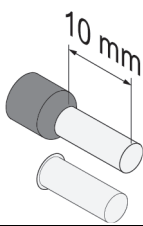
Fig.: 28 Description of the accumulators module (AM)

1	Potential-free signal contacts	3	Button
2	Display	4	Service port
A	View A		



Please note!

The potential-free contacts can be configured freely on the 3 levels.

Connection data	
Cable cross-section rigid and flexible	0.2 – 2.5 mm ²
Cable cross-section flexible with wire end sleeve with/without plastic sleeve	0.25 – 2.5 mm ²
	Use of wire end sleeve with stripped length = 10 mm
Contact load	
The relay contacts can be loaded with max. 30 V DC / 24 V AC / 30 W.	

8.2 Motor module (MM)

The motor module (MM) is intended for the following functions:

- Control of actuators*, e.g. motors, magnetic clamps.

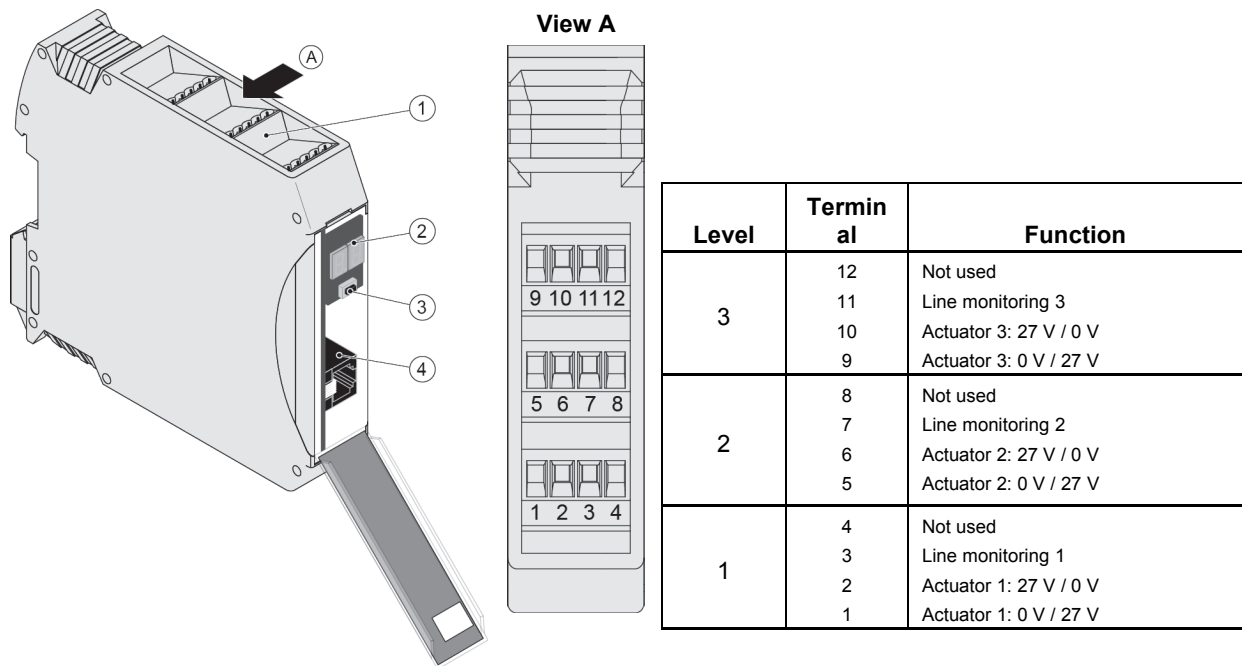


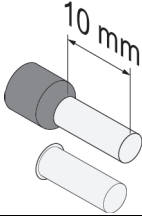
Fig.: 29 Description of the motor module (MM)

1	Outputs	3	Button
2	Display	4	Service port
A	View A		

The current output can be increased by bridging the levels.

Bridging the levels					
Level		Level		Level	
3	8 A	1 + 2 or 2 + 3	14 A	3 + 2 + 1	20 A
2	8 A				
1	8 A	1	8 A		

	Please note! The power supply must be designed for bridged levels.
--	--

Connection data	
Cable cross-section rigid and flexible	0.2 – 2.5 mm ²
Cable cross-section flexible with wire end sleeve with/without plastic sleeve	0.25 – 2.5 mm ²
	Use of wire end sleeve with stripped length = 10 mm
Current output	
	8 ampere per channel

8.3 Ventilation module (LM)

The ventilation module (LM) is intended for the following function:

- Control of sensors* that are connected for natural/mechanical aeration and ventilation.

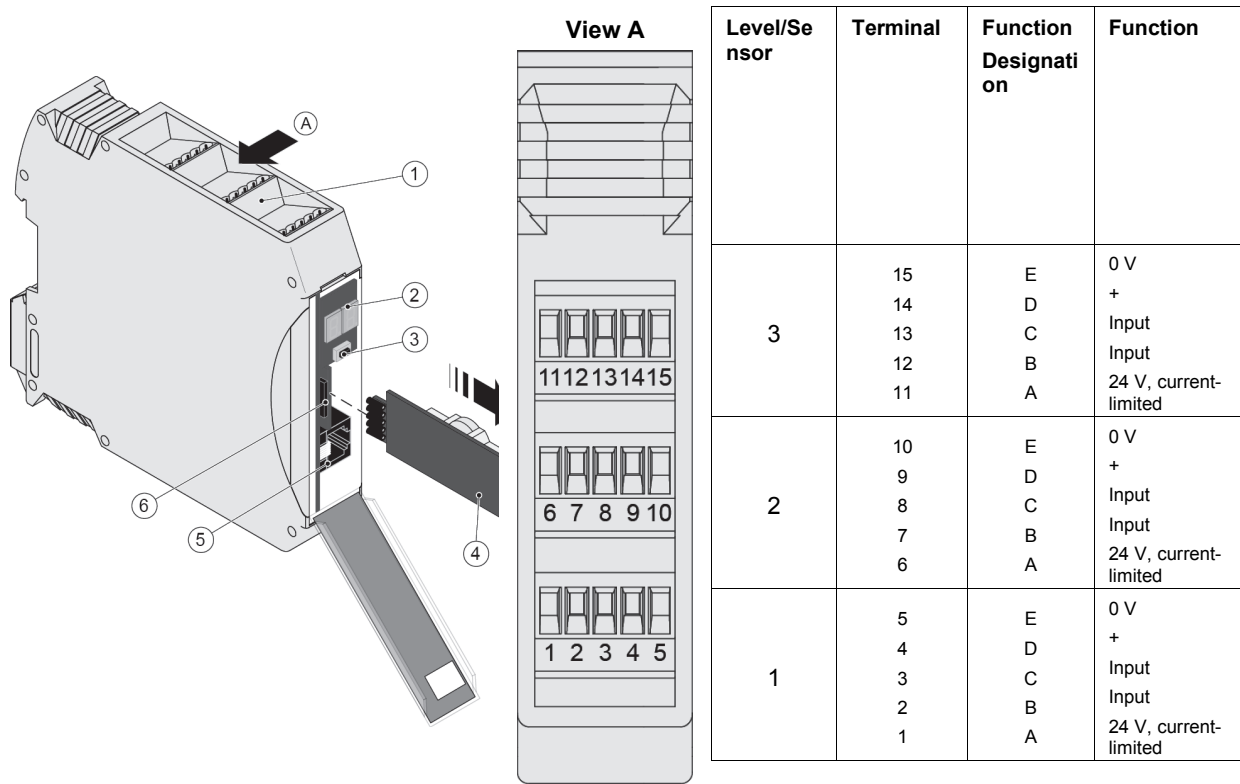


Fig.: 30 Description of the ventilation module (LM)

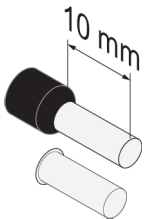
1	Sensors input	4	Board with button battery
2	Display	5	Service port
3	Button	6	SD memory card insert + micro SD memory card
A	View A		

As can be seen in the description of the ventilation module (LM), the connections for each level are identical. The connection options to each level are shown in the following table.

Terminal positions	A	B	C	D	E
Vent switch	Connection LED	OPEN	CLOSE	+24 V 1)	GND (if needed)
Temperature sensor (or other sensors with 2 switch contacts)	-	OPEN	CLOSE	24 V for switch contact	GND
Wind/rain detector	-	Rain switch contact	Wind speed pulse	+24 Volt voltage supply	GND
Wind direction encoder	+24 Volt supply voltage	-	4 - 20 mA wind direction/speed		Davis
Humidity (not with switch contact but, e.g. with 4-20 mA) evaluation	-	-	-	-	-
Temperature (not with switch contact but, e.g. with 4-20 mA) evaluation		-	-	-	-
Air quality (not with switch contact but, e.g. with 4-20 mA) evaluation	-	-	-	-	-

1) The vent switches (LT) can be operated with a common 24 V supply or GND. This can be set on the LT by means of a jumper. The LT must be set so that the 24 V is connected to inputs B + C.

Key detection with ventilation function factory setting	
OPEN	100 ms
STOP detection with ventilation push button with STOP button	100 ms
STOP detection with simultaneous pressing of the OPEN and CLOSE buttons	600 ms
CLOSE	100 ms

Connection data	
Cable cross-section rigid and flexible	0.14 – 1.5 mm ²
Cable cross-section flexible with wire end sleeve with plastic sleeve	0.25 – 0.5 mm ²
Cable cross-section flexible with wire end sleeve without plastic sleeve	0.25 – 1.5 mm ²
	Use of wire end sleeve with stripped length = 10 mm

8.4 SHE module (RM)

The SHE module (RM) is intended for the following function:

- Connection of SHE* manual call points.
- Connection of automatic detectors*.
- Connection of a fire detection system (BMA*) with monitored coupling via an UEB3-2K7-AE* module.

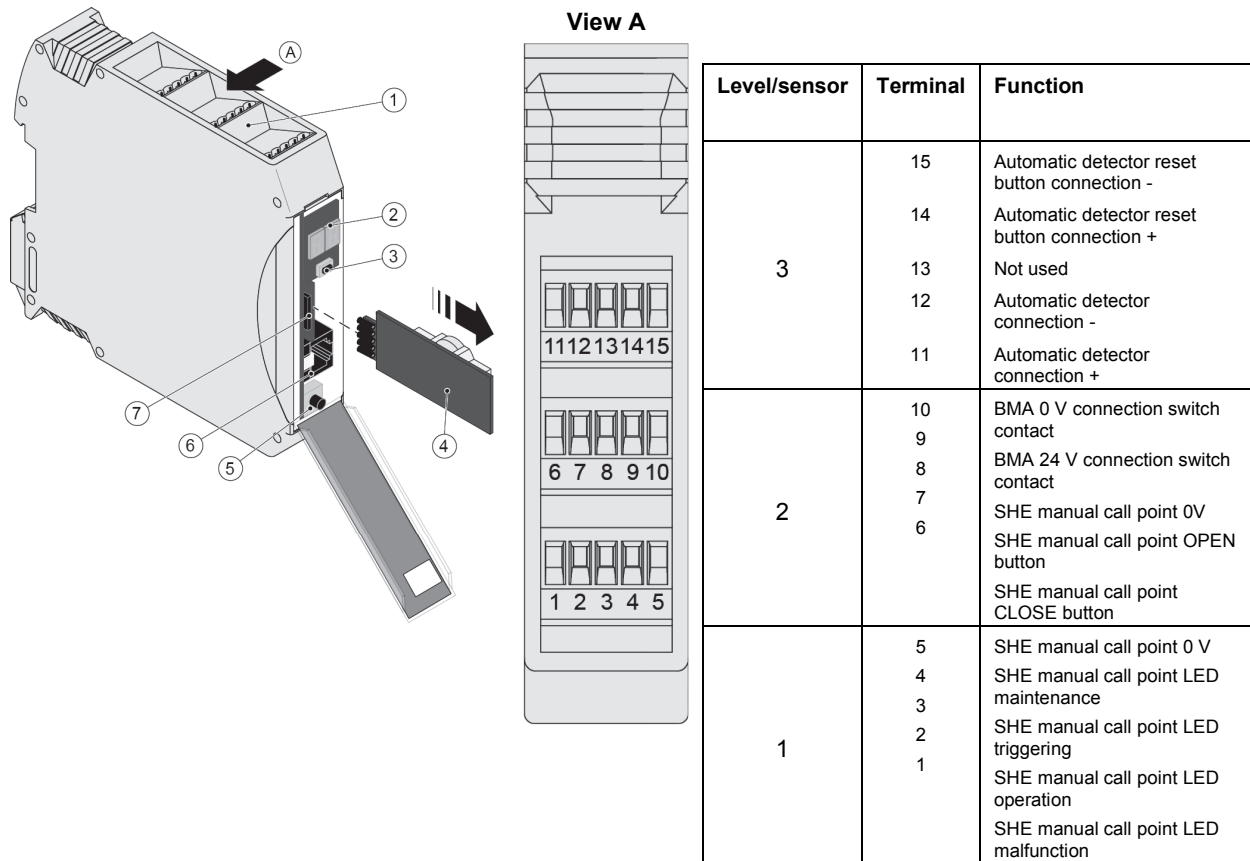
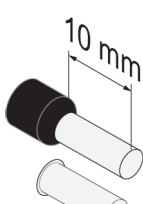


Fig.: 31 Description of the SHE module (SHE)

1	Inputs	5	Reset button for automatic detector*
2	Display	6	Service port
3	Button	7	SD memory card insert + Micro SD memory card
4	Board with button battery for storing the system time		View A

Connection data	
Cable cross-section rigid and flexible	0.14 – 1.5 mm ²
Cable cross-section flexible with wire end sleeve with plastic sleeve	0.25 – 0.5 mm ²
Cable cross-section flexible with wire end sleeve without plastic sleeve	0.25 – 1.5 mm ²
	Use of wire end sleeve with stripped length = 10 mm

8.5 Board with button battery

The board with button battery is intended for the following function:

- Storing the system time.

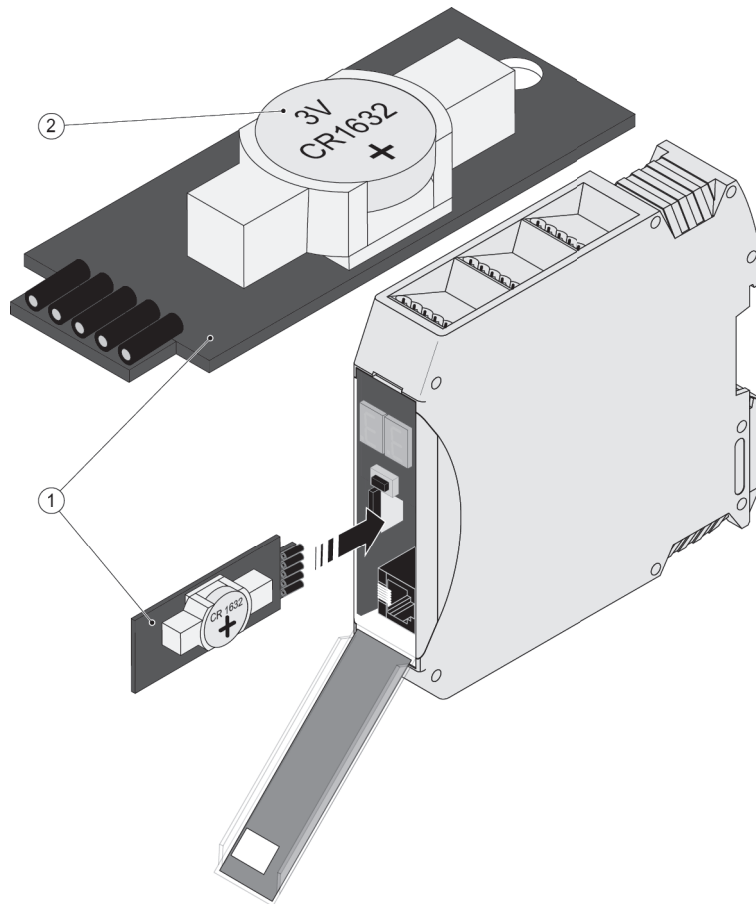


Fig.: 32 Description Board with button battery

1	Board with button battery	2	Button battery 3 V lithium CR1632 Renata
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8.6 Input/output module (IOM)

The input/output module (IOM) is intended for the following function:

- Exchanging digital states from and with other systems.

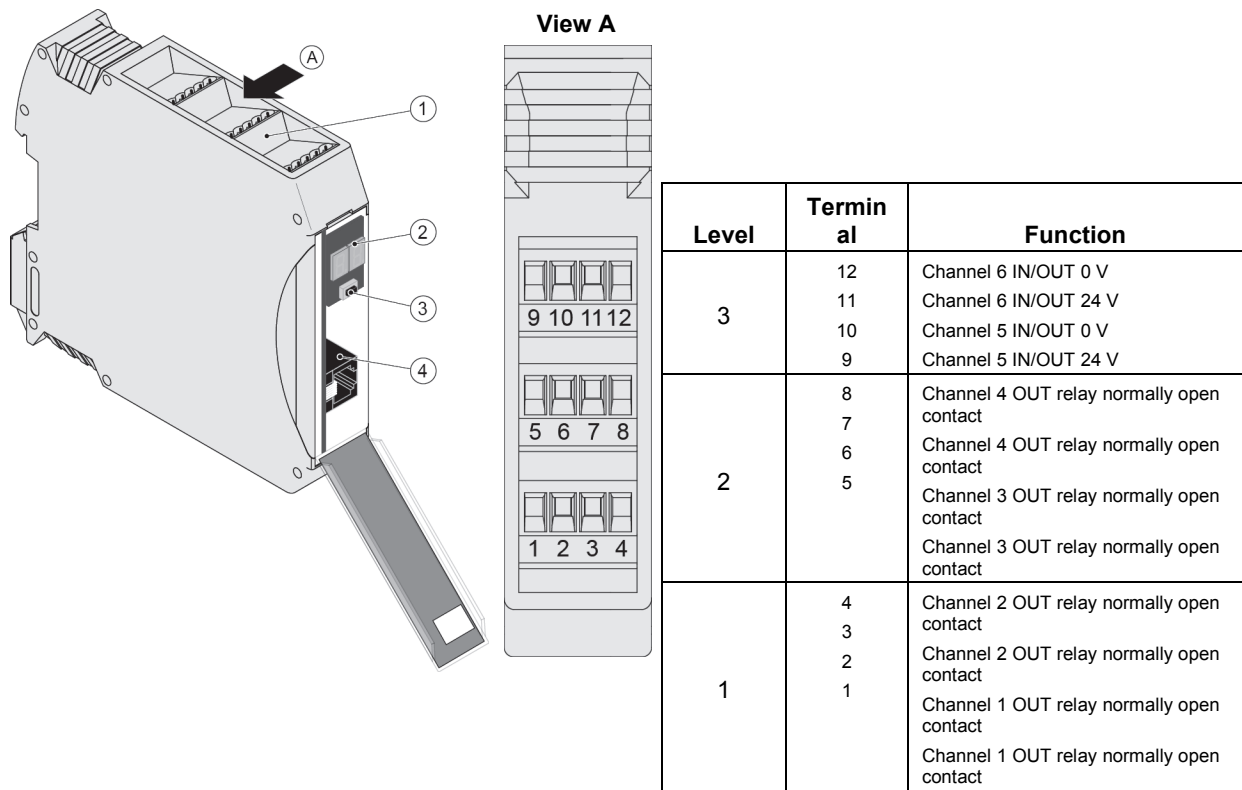
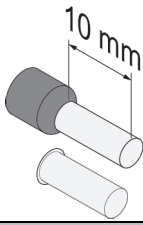


Fig.: 33 Description of the input/output module (IOM)

1	Potential-free signal contacts	3	Button
2	Display	4	Service port
A	View A		

Connection data	
Cable cross-section rigid and flexible	0.2 – 2.5 mm ²
Cable cross-section flexible with wire end sleeve with/without plastic sleeve	0.25 – 2.5 mm ²
	Use of wire end sleeve with stripped length = 10 mm
Contact load	
	The relay contacts can be loaded with max. 30 V/1 A.

8.7 Combination of smart connect KNX* and IFM1 modules

The combination of the smart connect module and the IFM1 module is intended for the following function:

- The IFM1 module is an interface module for communicating with KNX* networks. The interface from the KNX* networks to the MZ3 modular control panel is only possible with both modules.

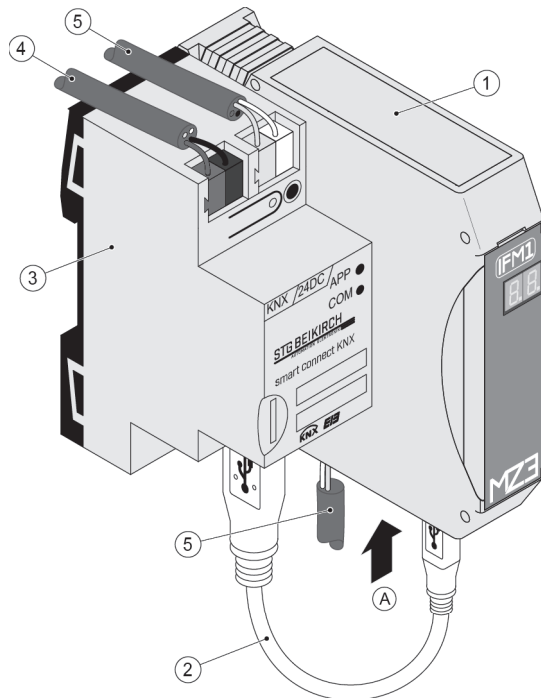
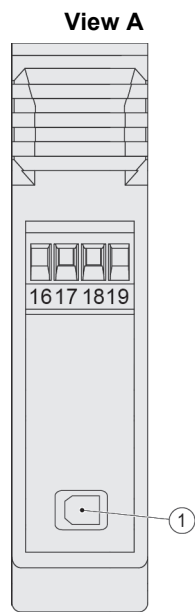


Fig.: 34 Description of the EIB/KNX module and the IFM1 module

1	IFM1 module	4	KNX* cable
2	USB connection cable from USB-A to USB-B	5	Voltage supply for the smart connect KNX* module
3	STG-BEIKIRCH smart connect KNX* module	View A	



Level	Terminal	Function
1	16	+ 24 V supply
	17	GND supply
	18	+ 24 V supply
	19	GND supply

Fig.: 35 Switching diagram for connecting sensors to the SHE module

1	USB-B connection to the smart connect module
---	--

The mapping of the data points to the KNX communication objects is specified in the following table.

	Area	STG	STG object	CO	Name	Object function	Length	C	R	W	T	U	Data type	Priority	Cycle
1	0	0	Central – Maintenance	1	Central – Maintenance	Maintenance due	1 bit	C	R		T		1.002 DPT_Bool	LOW	1
2	0	0	Central – Maintenance	2	Central – Maintenance	Time to maintenance (h)	2 Byte	C	R		T		7.007 DPT_TimePeriodHrs	LOW	
3	1-8	1	Area 1 – Change												2
4	1-8	2	Area 1 – Ventilation	10	Area 1 – Ventilation	Ventilation control	4 bit	C		W			3.007 DPT_Control_Dimming	LOW	
5	1-8	2	Area 1 – Ventilation	11	Area 1 – Ventilation	Ventilation control (Open/Closed)	1 bit	C		W			1.009 DPT_OpenClose	LOW	
6	1-8	2	Area 1 – Ventilation	12	Area 1 – Ventilation	Ventilation control stop	1 bit	C		W			1.002 DPT_Bool	LOW	
7	1-8	2	Area 1 – Ventilation	13	Area 1 – Ventilation	Ventilation control %	1 Byte	C		W			5.001 DPT_Scalingpercentage (0..100%)	LOW	
8	1-8	2	Area 1 – Ventilation	14	Area 1 – Ventilation	Ventilation status (Open/Closed)	1 bit	C	R		T		1.009 DPT_OpenClose	LOW	
9	1-8	2	Area 1 – Ventilation	15	Area 1 – Ventilation	Ventilation status (blocked)	1 bit	C	R		T		1.002 DPT_Bool	LOW	
10	1-8	2	Area 1 – Ventilation	16	Area 1 – Ventilation	Ventilation status %	1 Byte	C	R		T		5.001 DPT_Scalingpercentage (0..100%)	LOW	
11	1-8	3	Area 1 – Shading	17	Area 1 – Shading	Shading control	4 bit	C		W			3.008 DPT_Control_Blinds	LOW	
12	1-8	3	Area 1 – Shading	18	Area 1 – Shading	Shading control (Open/Closed)	1 bit	C		W			1.008 DPT_UpDown	LOW	
13	1-8	3	Area 1 – Shading	19	Area 1 – Shading	Shading control stop	1 bit	C		W			1.002 DPT_Bool	LOW	
14	1-8	3	Area 1 – Shading	20	Area 1 – Shading	Shading control %	1 Byte	C		W			5.001 DPT_Scalingpercentage (0..100%)	LOW	
15	1-8	3	Area 1 – Shading	21	Area 1 – Shading	Shading status (Open/Closed)	1 bit	C	R		T		1.008 DPT_UpDown	LOW	
16	1-8	3	Area 1 – Shading	22	Area 1 – Shading	Shading status (blocked)	1 bit	C	R		T		1.002 DPT_Bool	LOW	
17	1-8	3	Area 1 – Shading	23	Area 1 – Shading	Shading status %	1 Byte	C	R		T		5.001 DPT_Scalingpercentage (0..100%)	LOW	
18	1-8	4	Area 1 – SHE triggering	24	Area 1 – SHE triggering	SHE triggering	1 bit	C	R		T		1.005DPT_Alarm	LOW	
19	1-8	5	Area 1 - Malfunction	25	Area 1 – Malfunction	Malfunction active	1 bit	C	R		T		1.005DPT_Alarm	LOW	
20	1-8	5	Area 1 - Malfunction	26	Area 1 – Malfunction	Malfunction code	2 Byte	C	R		T		16-bit unsigned value 7.x	LOW	
21	1-8	6	Area 1 – Rain	27	Area 1 – Rain	Rain alarm	1 bit	C	R		T		1.005DPT_Alarm	LOW	
22	1-8	7	Area 1 – Wind direction	28	Area 1 – Wind	Wind direction	1 Byte	C	R		T		5.003 DPT_Angle	LOW	
23	1-8	8	Area 1 – Wind speed	29	Area 1 – Wind	Wind speed	1 Byte	C	R		T		9.005 DPT_Value_Wsp	LOW	

Communication takes place according to the master/slave principle. The master in this case is always the KNX gateway from the STG-BEIKIRCH smart connect KNX * module.

If a change is signalled, the values of the STG objects of the area for which active assignment to the KNX is configured are read.

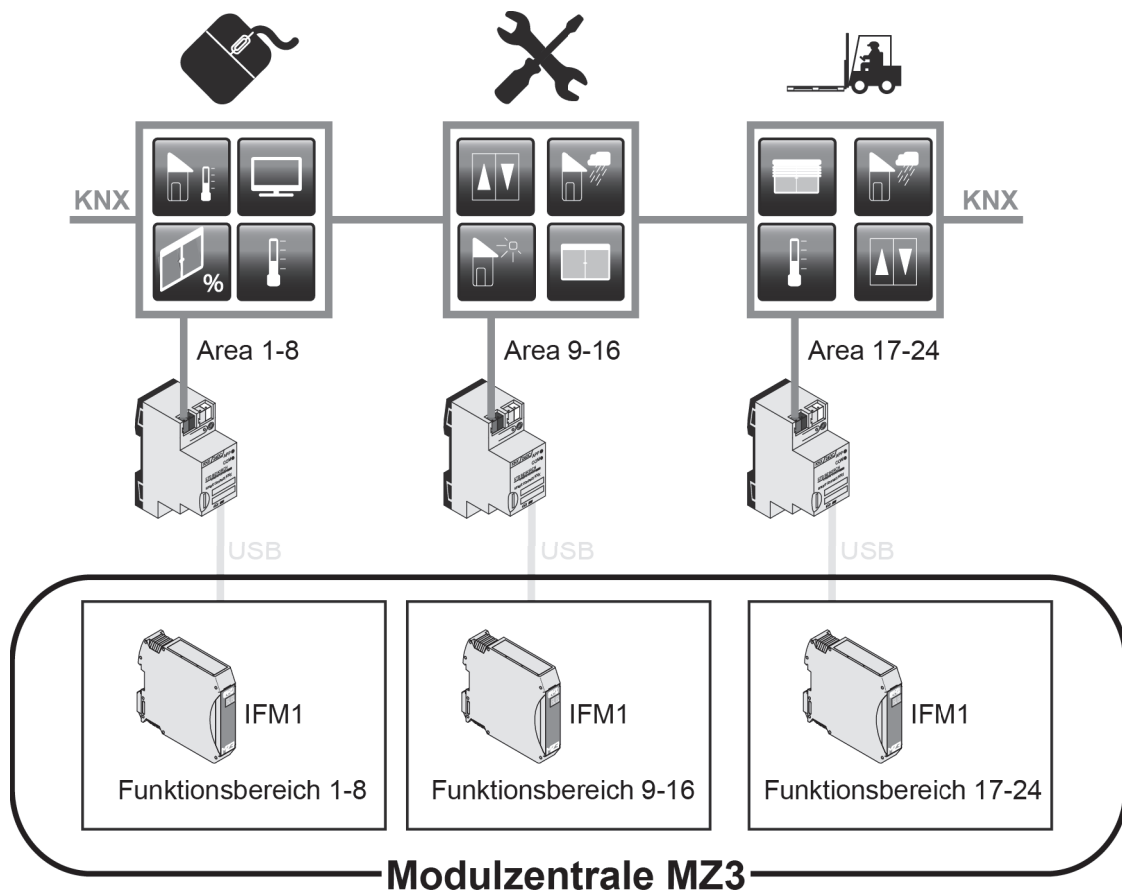


Fig.: 36 MZ3 modular control panel – KNX gateway

8.8 Smart connect module

The smart connect module is intended for the following function:

- Interface for the STG-BEIKIRCH KNX network.

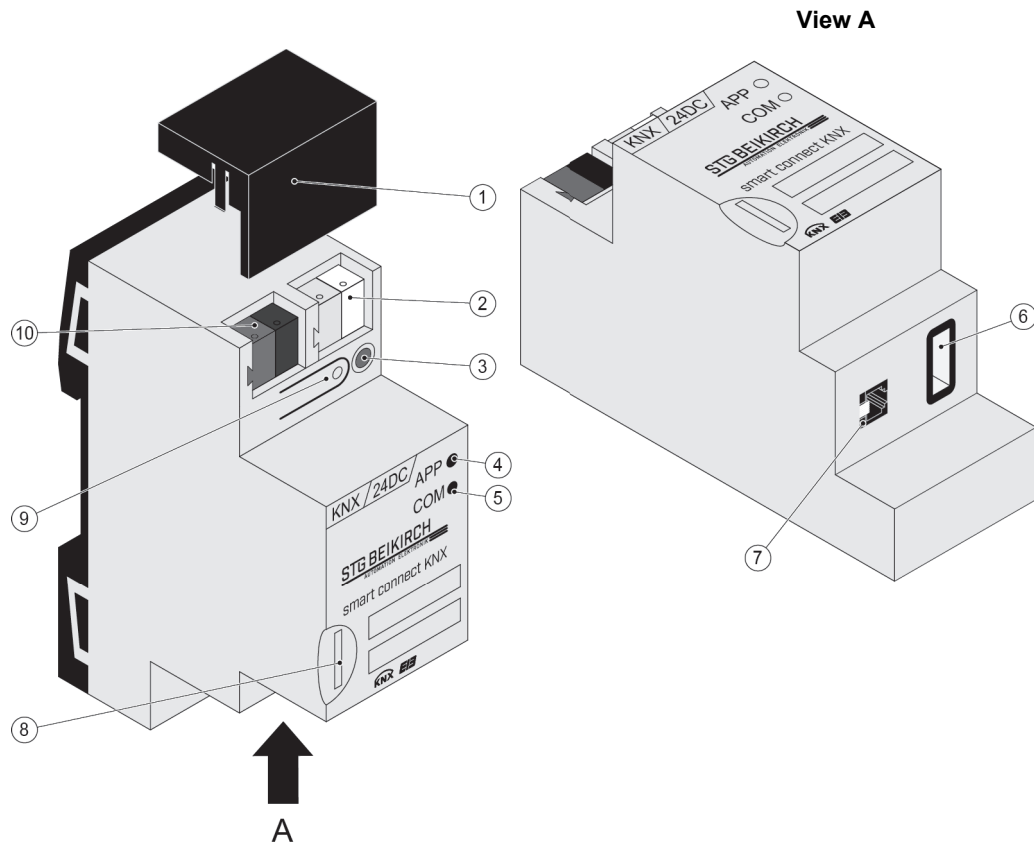


Fig.: 37 Description of the smart connect module

1	Cover cap	6	Ethernet connection [JR 45 socket]
2	External voltage supply connection	7	USB-A network connections
3	Programmer LED	8	Micro SD memory card
4	APP= Indicator for the status of the application	9	Programmer button
5	COM: Traffic (KNX and IP) communication indicator	10	KNX connection

8.9 IFM1 module

The IFM1 module is intended for the following function:

- The IFM1 module is an interface module for communicating with KNX networks. The interface from the KNX networks to the MZ3 modular control panel is only possible with both modules.

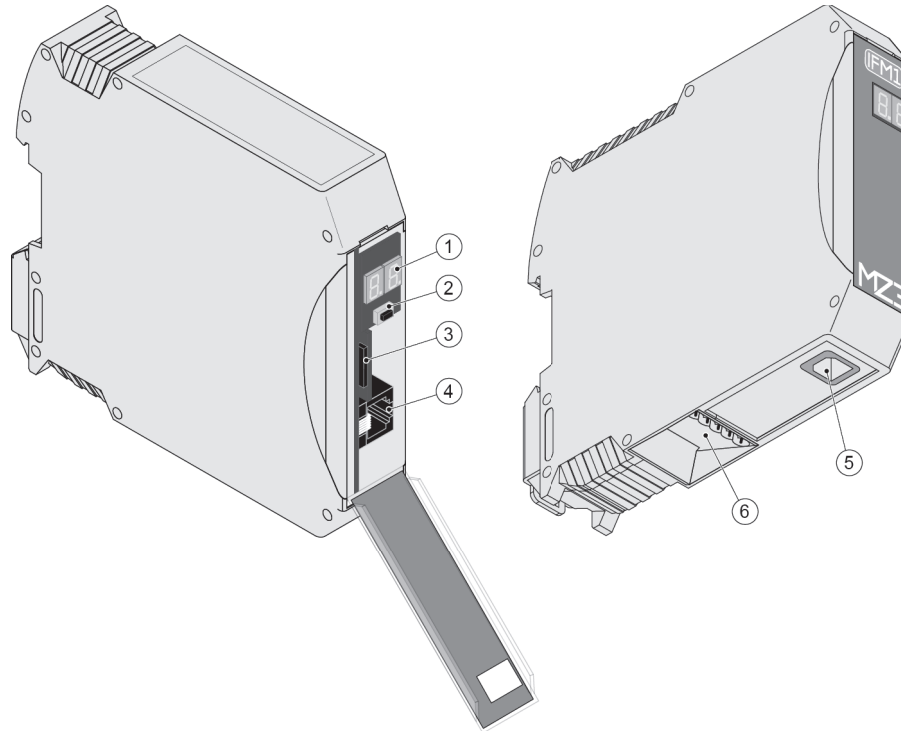


Fig.: 38 Description of the IFM1 module

1	Display	4	Service port
2	Button	5	USB-B
3	Micro SD memory card insert	6	smart connect KNX power supply

8.10 Configuration options of the modules

The MZ3 modular control panel is configured in the factory as the planning and project planning had intended. The configuration options of the function elements are described in the following subchapter. This is an example without any special function such as automatic ventilation, stroke limiters, shading. Special functions can be configured via the function elements of the modular control panel "MZ3 tool".



Note

The user is liable for any damage resulting from incorrect configuration settings.
Any claims for liability or warranty against STG-BEIKIRCH GmbH & Co. KG are thereby excluded.

8.10.1 Example configuration of the modules

There are no default settings for the MZ3 modular control panel. The MZ3 modular control panel is freely configurable and can be specifically adapted to any area/object. Further settings are possible through additional functions. The example illustrated below is a basic configuration.

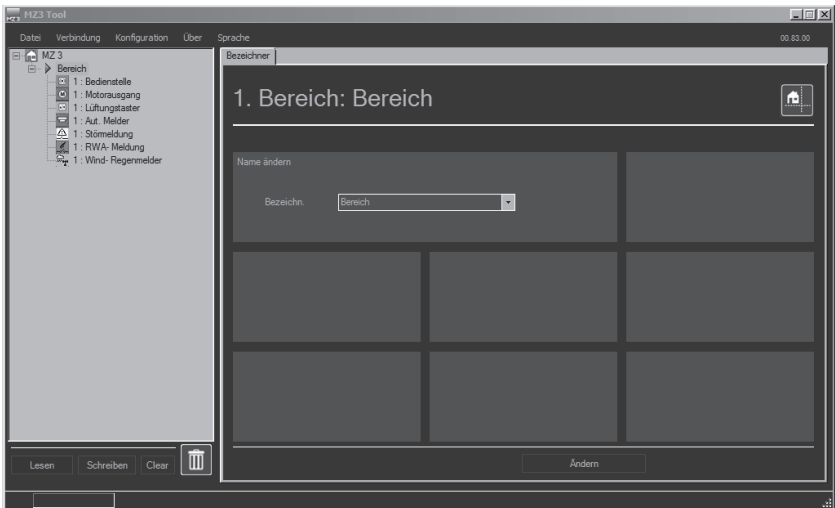


Fig.: 39 Example of a basic configuration illustrated in the MZ3 tool

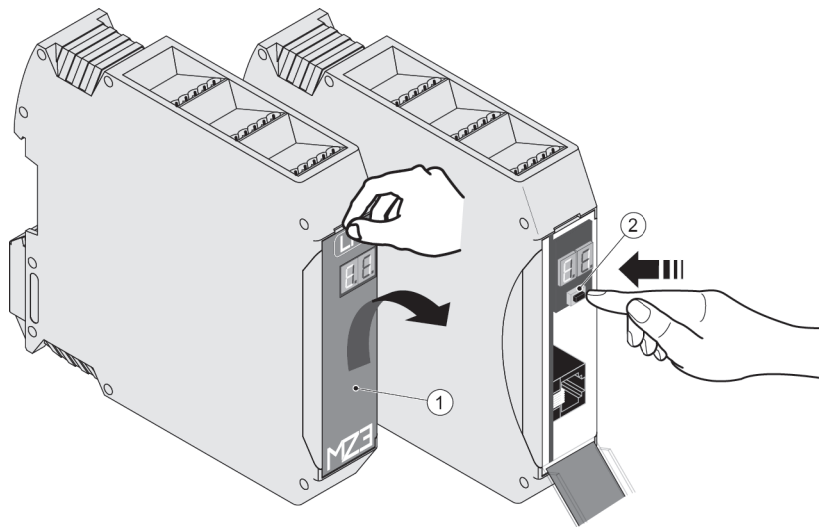
Area
Assignment of areas such as warehouse, production, office, facades etc...
Function elements
SHE* manual call point, used for evaluating connected SHE* manual call points.
Motor output, used for controlling linked actuators* (motor outputs).
Vent switch, connection of button and key-operated switches.
Automatic detector, used for evaluating fibre optic, thermal and thermal differential detectors.
Malfunction message, signalling of errors of linked function elements such as SHE* manual call point, motor output, vent switch, etc...
SHE* message, signalling of SHE* triggering of assigned areas.
Wind/rain detector, used for coupling a wind/rain detector to an MZ3 modular control panel.

8.10.2 Special items

Further functions can be configured through further selection options in the MZ3 tool (function elements). All function elements in the areas communicate with each other.

- Wind direction-dependent smoke and heat extraction and ventilation are integrated as standard and can be individually adjustable for each actuator output.
- Sensors* e.g. temperature, CO₂, humidity... can be integrated directly via a 4-20 mA interface.
- Motor modules with 3 outputs with max. 8 amps each that can be coupled via the MZ3 software.
- Selection of various ventilation priorities.
- Independent input for BMA* normally open contact.
- Energy-saving.
- Configurable status messages for each area (malfunction, SHE*, wind/rain, positions of actuators) optional via relay contact or as a control signal.
- Position messages of the connected drives.

8.11 Menu guidance



The menu guidance of the modules is always controlled via the buttons (2).

- Short button press: To menu
- Renewed button press: Next menu item
- Long button press: Execute menu item
- No button press for more than 10 secs.: Jump out of menu

Fig.: 40 Menu guidance for all module types

1	Flap	2	Button
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The physical address of a module is used for unique recognition and communication of modules among each other and always comprises a subnet (switch cabinet) and a module number.

Menu structure of the master module	Function	Operation/Result
	Start address assignment	Ad 1 x short button press = current address of the module (all modules) Ad 1 x long button press = start the new address assignment of the modules (only possible with master module)
	Delete the addresses	Ar 1 x long button press = delete the addresses of the system configuration (only possible with master module)
	Set subnet number	So 1 x long button press = manual setting option of the subnet number (only possible with master module)
	Set module number address	Ao 1 x long button press = manual setting option of the physical address (only possible with master module)
	Remove Micro SD memory card	Sd 1 x long button press = safe ejection of the memory card (Micro SD memory card) (only possible with master module)
	Reset the system or reset an individual module	r 1 x long button press = reset the entire system with restart (only possible with master module) or a reset of individual modules with restart (slave modules)



Note

The master module can be either an LM or SHE module, each cabinet (subnet) needs exactly one master module.

8.12 MZ3 tool software

The "MZ3 tool" software is required for the planning and configuration of the MZ3 modular control panel. A converter is connected for communication between the centre and the software.

8.12.1 System requirements

- Microsoft Windows XP SP3 / Windows Vista / Windows 7, Windows 8,10 ⁴⁾
- PC with MS.Net Framework 3.5¹⁾²⁾ and MS Installer 3³⁾ runtime environment installed
- At least 50 MB free memory on the hard drive
- CPU with at least 700 MHz clocking frequency and 265 K memory
- A free USB port

¹⁾ MS.Net 3.5 is available for the Microsoft Windows operating system and is mostly pre-installed as a component part of the operating system.

²⁾ MS.Net can be obtained free of charge from Microsoft.

³⁾ Installer 3 is mostly pre-installed as a component part of the operating system. If this is not the case, it can added to the operating system separately.

⁴⁾ System requirement for Windows 8.x MS Net Framework 4 .03/.5.

8.12.2 Disclaimer

ESSMANN / STG-BEIKIRCH assumes no responsibility for property damage and financial damage arising from the use of the MZ3 tool. Especially not for damage to networks, software and hardware as well as the loss of data. This applies analogously to damage to third parties. The rights to the images, logos and brand names used here lies with the manufacturers. The functions, connections and descriptions mentioned here are provided for information only. The operating instructions and specifications of the respective manufacturer must be heeded.

8.12.3 Checking the operating system

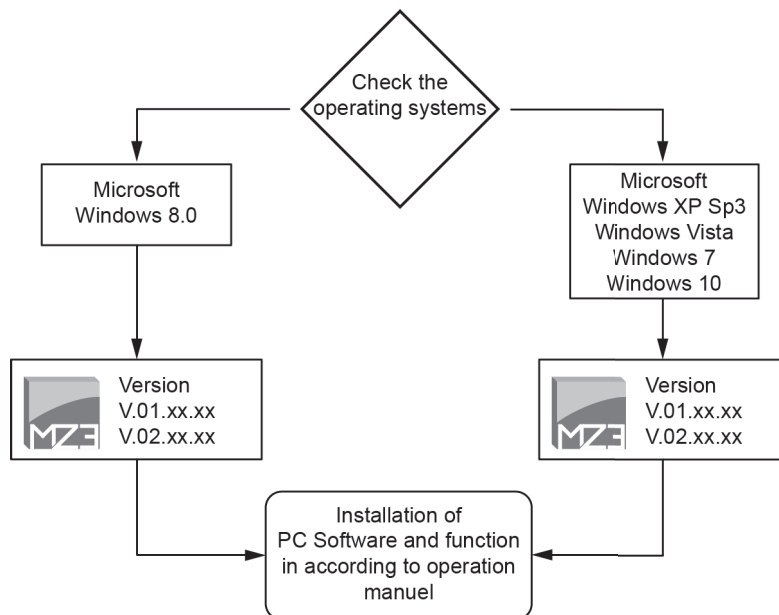
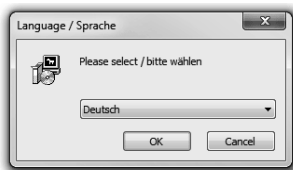


Fig.: 41 Checking the operating system

1. Check the system requirements.
2. Start the "MZ3Setup.exe" file from the main directory.

8.12.4 Installing the software

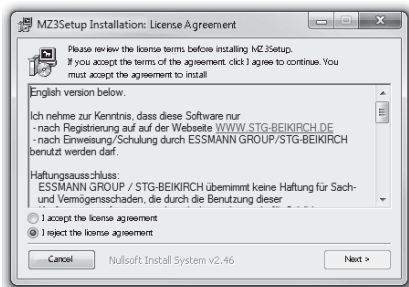


- Select the installation language.
- Confirm with "OK".



Note

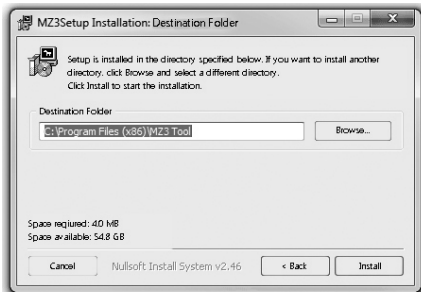
Please read the license agreement before installing the MZ3 tool software. If you accept all of the conditions of the agreement, select the corresponding option and press the "Continue" button.



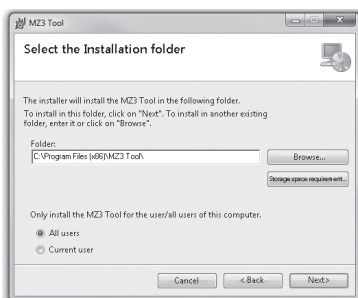
- Agree to the licensing conditions.
- Confirm with "Next".

Select the target directory and press the "Install" button to start the installation. The default file path is C:\Program Files(x86)\MZ Tool installed. If you want to install the program in a different directory, click the "Browse" button and select a different directory. Click "Installation" to continue the installation.

The required storage space and the available space of your hard disk are displayed in the bottom part of the window.



- Target directory "C:\Program Files(x86)\MZ Tool".
- Select the "Install" button.

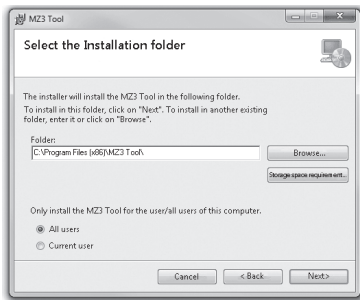


- The rest of installation runs automatically. Heed notices and the instructions of the Set-up wizard.
- Select the "Next" button.

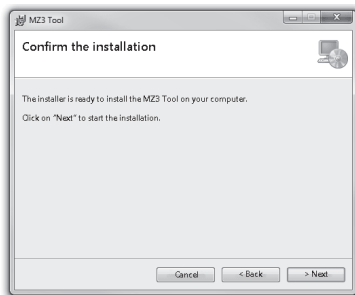


Caution

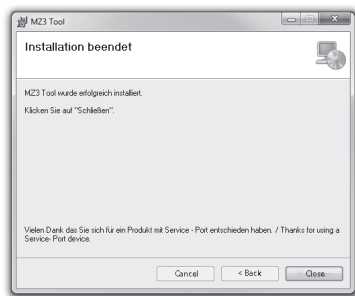
User group for the "MZ3 Tool" software **must** be selected before "Confirm installation".



- ▶ Select the default target directory "C:\Program Files(x86)\MZ Tool" again.
- If you want to install the program in a different directory, click the "Browse" button and select a different directory.
- ▶ Select the user group.
- ▶ Confirm with "Next".



- Confirm the installation.
- ▶ Confirm with "Next".
- The installation is started.



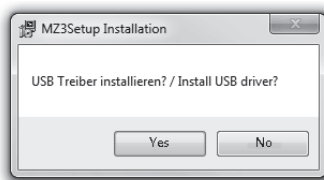
- After successful installation.
- ▶ Select the "Close" button.

8.12.5 Installing the converter

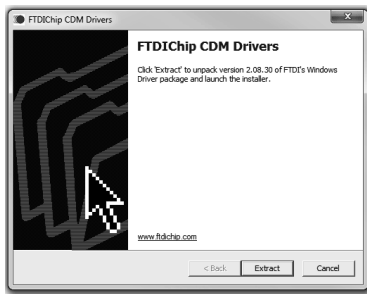


Note

If the MZ3 Tool or the STG-BEIKIRCH Service Port software is already installed or an update is carried out with this installation, this installation step can be skipped.



- ▶ Confirm with "Yes".



- ▶ Unpack the FTDIChip CDM driver.
- ▶ Confirm with Unpack ("Extract").



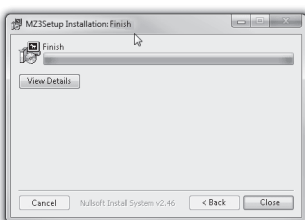
- Confirm the installation.
- ▶ Confirm with "Next".
- The installation is started.



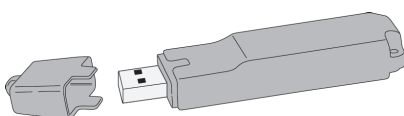
- The installation is successful if "FTDI Drivers were successful" or "FTDI Driver is ready to use" is displayed in the confirmation window.
- ▶ Select the "Finish" button.



- ▶ Insert the USB converter in the USB port.
- ▶ Confirm with "OK".
- ✓ The driver is installed.



- The installation window of the "MZ3 tool" opens.
- ▶ Confirm with "Close".
- ✓ The "MZ3 tool" software is installed.



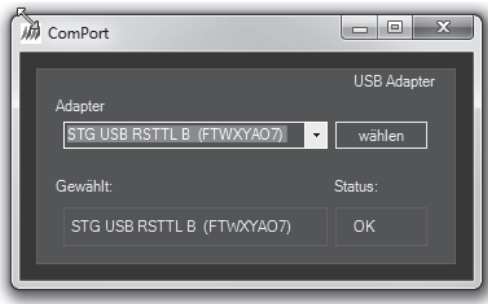
- ▶ Connect the converter to the computer.



- ▶ Start the MZ3 tool.

**Note**

The selection window is displayed. This can take up to 60 sec.



- ▶ Mark the STG USB RSTTLV (XXXXXXX) adapter.
- ▶ Click the "Select" button.
- The selected adapter is accepted in the "Selected" selection list. "OK" appears in the status window.
- ▶ Confirm with "OK".
- The COMPort window is closed.
- ✓ The adapter is permanently registered on the computer.



- The start menu opens.
- Three operating interfaces are available depending on the license.
- Planning: For all customers.
- Status: For customers with certificate of competence.
- Configuration: For trained customers with certificate of competence.

8.12.6 De-installing the software

**Note**

The MZ3 tool is always fully de-installed regardless of the operating system. No object-specific data is saved.

8.12.7 De-installing the software under Windows XP

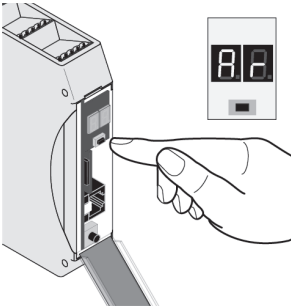
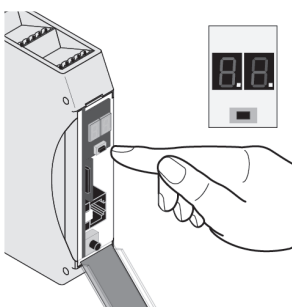
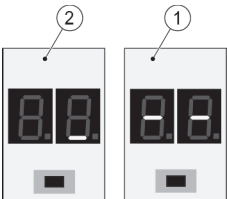
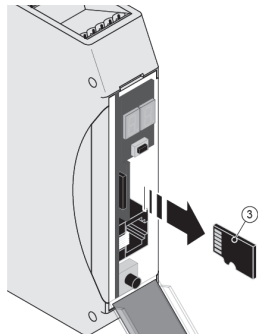
- Execute the FTClean program under Start/Programme/Service Port/USB Tools.
- Confirm deletion of the drivers.
- Under Start/Settings/Control Panel/Software, select the "Service Port" entry and click the "Remove" button.
- Confirm the removal of the software.
- Under Start/Settings/System Control/Software, select the "Windows Driver Package FTDI CDM..." entry and select the "Remove" button.

8.12.8 De-installing the software under Windows 7 and higher

- Control panel/All control panel elements: "Select programs and functions".
- Select the "MZ3 tool" program.
- Select "De-install".
- Confirm de-installation with "Yes".

8.13 Object data/configuration data of the MZ3 tool

8.13.1 Installing new configuration data

1. 
 - Delete addresses.
 - ▶ On the master module, press the top button 3x until "Ar" appears on the display.
2. 
 - ▶ Then keep the button pressed until both points appear.
3. 
 - ▶ The master module of the MZ3 modular control panel deletes the old addressing. The displays shown on the left appear on the displays of the modules.
 - Power down the modular control panel.
 - ▶ First disconnect the accumulators, then the mains voltage.
4. 
 - ▶ Push the SD memory card to unlock and remove it.

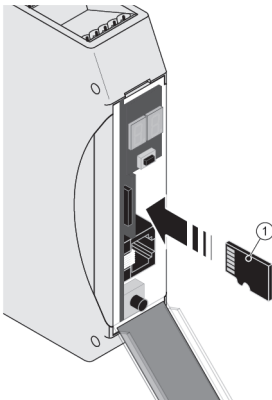
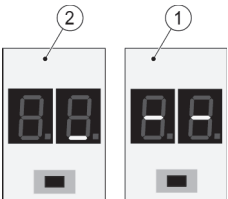
1	Slave modules	3	Micro SD memory card
2	Master modules		



Note

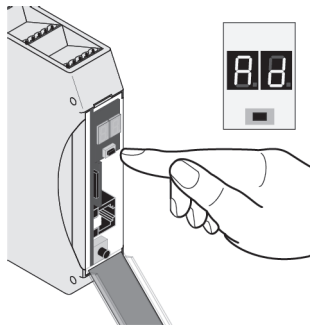
To process the Micro SD memory card, a corresponding, optional USB card reader must be used.

- ▶ Copy all files from the Micro SD memory card to a backup directory.
- ▶ Delete the data on the Micro SD memory card.
- ▶ The data must be copied directly onto the Micro SD memory card. Do not create subdirectories.
- ▶ Copy the unpacked ZIP archive and all the data contained onto the Micro SD memory card.
- ▶ Safely de-register the USB card reader from the operating system.

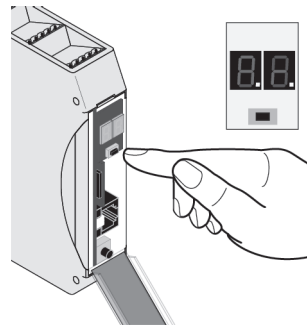
- 
- ▶ Insert the Micro SD memory card in the master module
 - Supply the modular control panel with voltage.
 - ▶ Connect the mains voltage first and then the accumulators.
- 
- The displays shown on the left appear on the displays of the modules.

1	Micro SD memory card
---	----------------------

8.13.2 Re-assigning the address assignment of the modules



- Reassign the addressing.
- ▶ On the master module, press the top button 2x until "Ad" appears on the display.



- ▶ Then keep the button pressed until both points appear.

- ▶ The addresses are requested bit by bit on the individual modules.

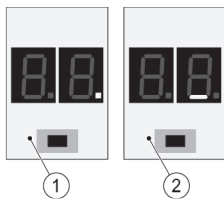


Caution

The module addresses are assigned within 5 seconds. The address on the modules must be confirmed within this time.

If an address is skipped, the address assignment must be restarted.

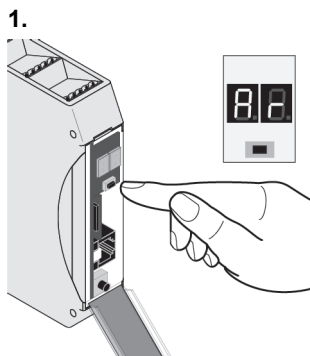
Once all addresses are assigned, the modular control panel loads the configuration into the modules and then goes into the operating condition. The displays shown on the left appear on the displays of the modules.



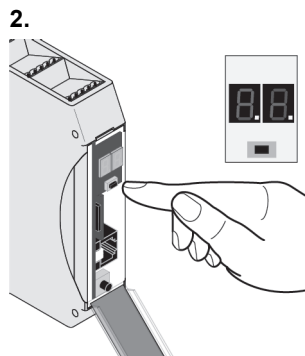
The new configuration is installed.

1	Slave	2	Master
---	-------	---	--------

8.13.3 Replacing the configuration data by a programmed Micro SD memory card



- Delete the addresses.
- ▶ On the master module, press the top button 3x until "Ar" appears on the display.



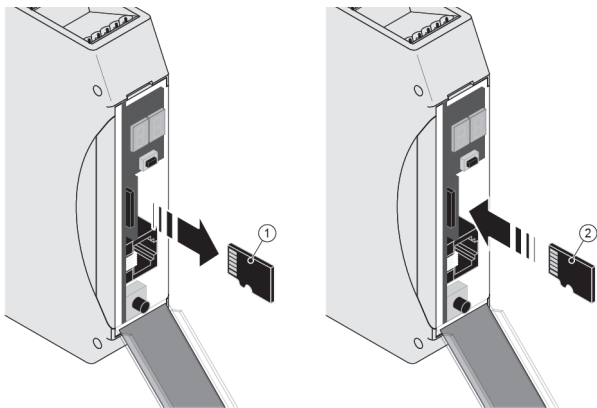
- ▶ Then keep the button pressed until both points appear.
- The MZ3 tool deletes the old addressing.



- ▶ The master module displays "Ar".



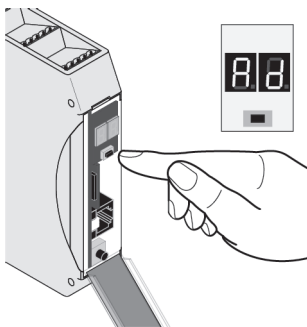
- ▶ All other modules display "Ar".



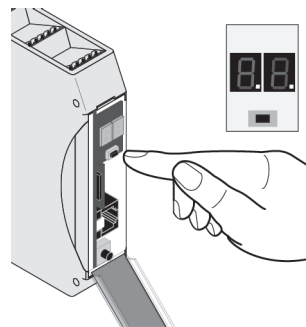
- Power down the modular control panel.
- ▶ Disconnect the accumulators first.
- ▶ Then disconnect the mains supply cable.
- ▶ Push the old Micro SD memory card to unlock and remove it.
- ▶ Insert a new Micro SD memory card in the master module.
- Supply the modular control panel with voltage.
- ▶ Connect the mains supply cable.
- ▶ Connect the accumulators.

Fig.: 42 Replacing a programmed Micro SD memory card

1	Old Micro SD memory card	2	New programmed Micro SD memory card
---	--------------------------	---	-------------------------------------



- Reassign the addresses again.
- ▶ On the master module, press the top button 2x until "Ad" appears on the display.



- ▶ Then keep the button pressed until both points appear.

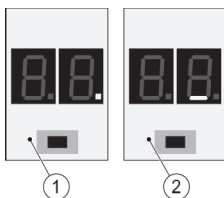
- ▶ The addresses are requested bit by bit on the individual modules.



Caution

The module addresses are assigned within 5 seconds. The address on the module must be confirmed within this time.
If an address is skipped, the address assignment must be restarted.

Once all addresses are assigned, the modular control panel loads the configuration into the modules and then goes into the operating condition. The displays shown on the left appear on the displays of the modules.

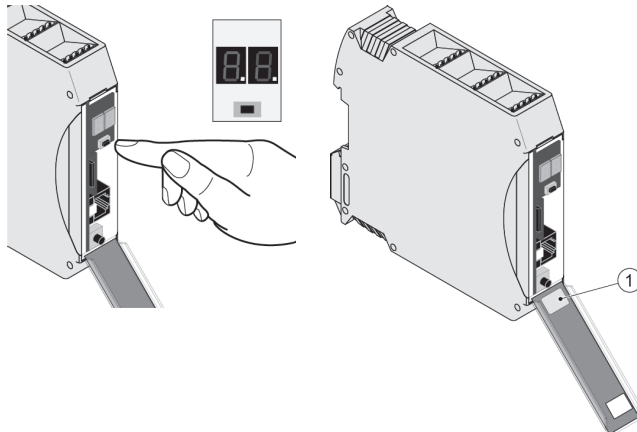


The new configuration is installed.

1	Slave	2	Master
---	-------	---	--------

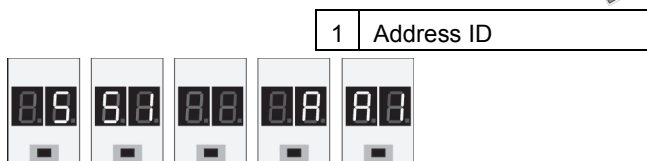
8.13.4 Replacing the configuration data via USB converter

- ▶ Check that the module IDs on the modules are present as address stickers.
- ▶ If there are no stickers in the flaps of the modules, the module IDs for each module must be read and noted.

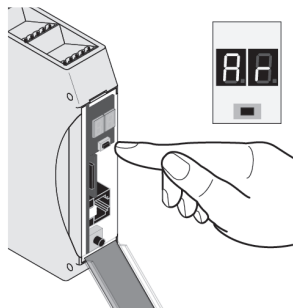


Reading the module IDs

- ▶ Press the top button 1x on the modules.

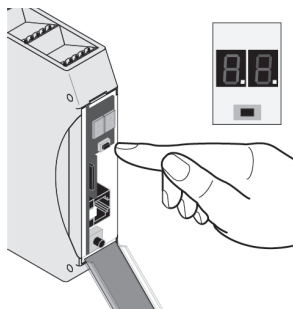


- The module ID appears on the display.
- ▶ Note the module IDs.



Deleting the addresses

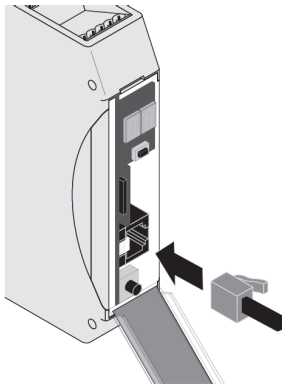
- ▶ On the master module, press the top button 3x until "Ar" appears on the display.



- ▶ Then keep the button pressed until both points appear.
- The MZ3 tool deletes the old addressing.



- The master module displays " _".
- All other modules display "- -".

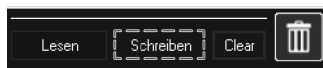
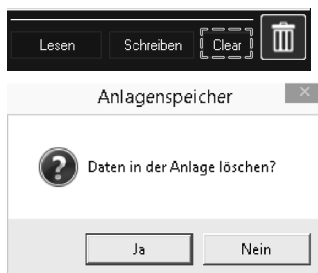


Connecting the service port

- ▶ Insert the RJ plug in the socket of the master module.
- ▶ Connect the USB plug to the PC.

Reading the new configuration

- ▶ Start the MZ3 tool in configuration mode.
- ▶ Click the "Clear" button.
- ▶ Confirm with "Yes"



- An 8 and a circulating bar appears. This process can take a few minutes.
- Wait until the process has completed.

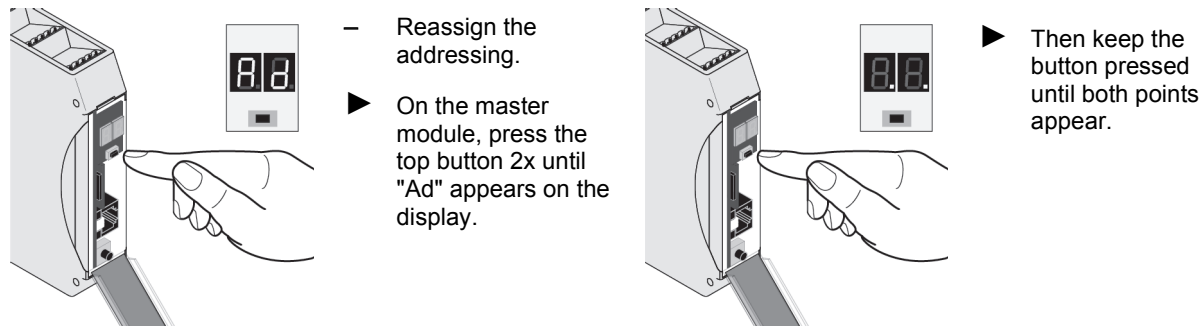
- ▶ Confirm with "No".

- ▶ Load the required configuration.
- ▶ Click the "Write" button.

- Wait until the 8 and the circulating bar no longer appear on the display.

- ▶ Wait until the process has completed.

8.13.5 Assigning the address assignment of the modules



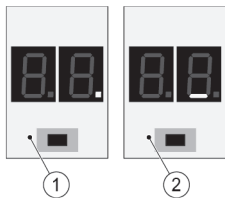
- ▶ The MZ3 tool asks for the individually assigned addresses.
- ▶ Assign the module addresses noted beforehand to the modules one after the other.
- ▶ This process is repeated until all addresses are assigned.



Caution

The module addresses are assigned within 5 seconds. The address on the modules must be confirmed within this time.
If an address is skipped, the address assignment must be restarted.

Once all addresses are assigned, the modular control panel loads the configuration into the modules and then goes into the operating condition. The displays shown on the left appear on the displays of the modules.



The new configuration is installed.

1	Slave	2	Master
---	-------	---	--------

9 Maintenance and repairs

NSHEs* and SHE* systems are safety installations for precautionary fire protection. They must be checked by a visual inspection and maintenance at regular intervals. Any repairs must be carried out immediately after damage has been determined.



Please note!

Repairs may only be carried out by ESSMANN / STG-BEIKIRCH trained specialists.

Maintenance work must only be carried out by a specialist company authorised for this system, with a valid certificate of competence from the manufacturer.

The certificate of competence and the necessary maintenance credits can be obtained from the manufacturer.



Please note!

Non-adherence to these maintenance requirements can impair the performance and service life of the product.

Measures	Period between two visual inspections/maintenance activities or repairs	Qualification of maintenance personnel
Visual inspection	6 months at the latest	Instructed person (Operator) or specialist
Maintenance	12 months at the latest	Trained specialist for NSE*
Repair	As required	Trained specialist for NSE*

9.1 Further information concerning maintenance

- See FVLR directive "Maintenance work on natural smoke (NSE) and heat extraction systems (SHE*)"
- ZVEI leaflet 82009 "Guideline for the maintenance of natural smoke extraction systems (NSE)"
- DIN 18232 Part 2
- DIN 31051 Fundamentals of maintenance

9.2 Signalling of the maintenance intervals

The maintenance intervals are signalled at the SHE manual call points by flashing of the yellow LED indicator. The yellow LED indicator flashes approx. once per second, the green "OK" LED indicator lights permanently.

SHE manual call point signal	Cause	Measure
• Yellow "Malfunction" LED indicator flashes once a second. • Green "OK" LED indicator lights permanently.	Service timer expired	• Have maintenance carried out. • The maintenance counter is reset.

If the product is used in safety systems, such as smoke and heat extraction systems (SHE*), it must be checked at least once a year, maintained and repaired if necessary in accordance with the manufacturer's instructions or according to DIN 18232-2 Smoke and heat control systems, for example. This is also recommended for pure ventilation systems. If the product is used in other safety systems, shorter maintenance intervals may be necessary.

Systems composed of control devices, opening units, control sections, etc. and all components that interact directly with each other must be included in the maintenance procedure. Maintenance must be performed in full according to the specifications provided by the manufacturer and the applicable documentation.

Access to components to be maintained must be ensured. Defective equipment must be repaired by the manufacturer only, or by companies authorised by the manufacturer. Only use original spare parts. All components that are subject to a stipulated operating time (e.g. rechargeable batteries) must be replaced within this time (see "Technical data") by original parts or by spare parts approved by the manufacturer. Operational readiness must be checked regularly. A maintenance agreement with STG-BEIKIRCH or a recognised installation company is advisable.

Maintenance
Visual inspection of the MZ3 modular control panel connecting cables of sensors, actuators and control lines.
Measure the mains (230 V) AC and accumulators (24 V) DC operating voltages.
Measure the output voltage of the power pack.
Check the charge voltage and installation date of the accumulators. Replacement of the accumulators after 4 years is stipulated. Dispose of the accumulators properly.
Plug connectors of the modules, terminal strips.
Carry out a functional check according to the enclosed switching diagram.
Check that SHE* manual call points, vent switches and sensors function properly.
Check smoke detector with test gas in accordance with the manufacturer's instructions.
Clean or replace any soiled or defective detectors.
Check that the wind/rain sensors are working properly. Correct the wind thresholds if necessary.
Reset service timer or "Service Port Software" with the corresponding software. (Depending on the license purchased)
Special functions such as automatic ventilation, stroke limiters, shading, etc. can only be checked and maintained by reading the modular control panel "MZ3 Tool" of the assigned actuators.

9.3 Transmission of messages

Before maintenance, check that transmission to a fire detection system (FDS*) or to a higher-level interface (building management system) functions correctly.

When triggering, make sure that the triggering is **not** transmitted (false alarm).

Depending on the version, the actual transmission must be tested in a suitable manner. (See systems documentation).

After completing maintenance, transmission of the triggering must be ensured again.

9.4 Spare parts

Any modification and installation of **non-original** STG-BEIKIRCH spare parts is deemed improper. Any claims for liability or warranty against STG-BEIKIRCH are thereby excluded.

	Please note! Only original STG-BEIKIRCH spare parts must be used.
---	--

9.5 Malfunction messages

Malfunctions in the control system/modular control panel are shown on the displays of the modules. Depending on the malfunction, the malfunction codes can be expanded by pressing the button. This enables a detailed display of the malfunction. Malfunction codes are described in the following table.

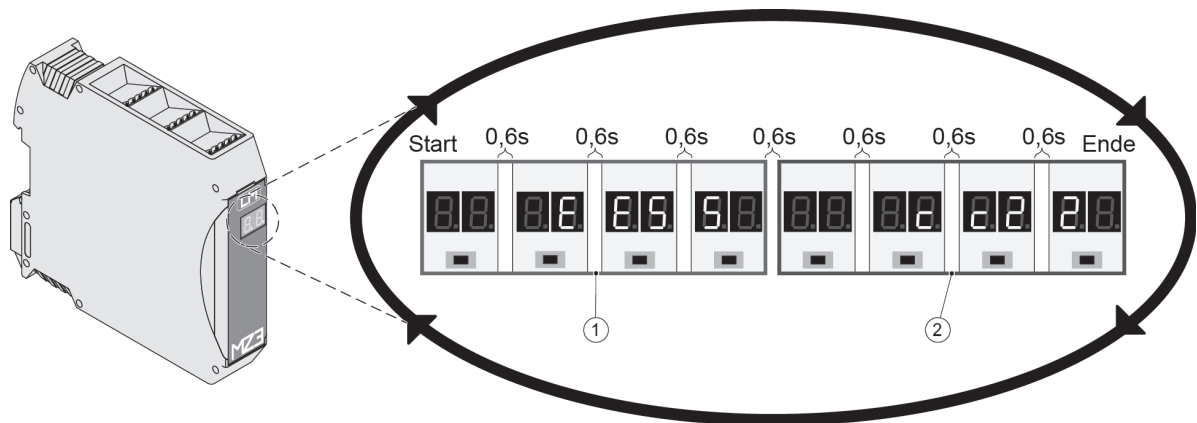
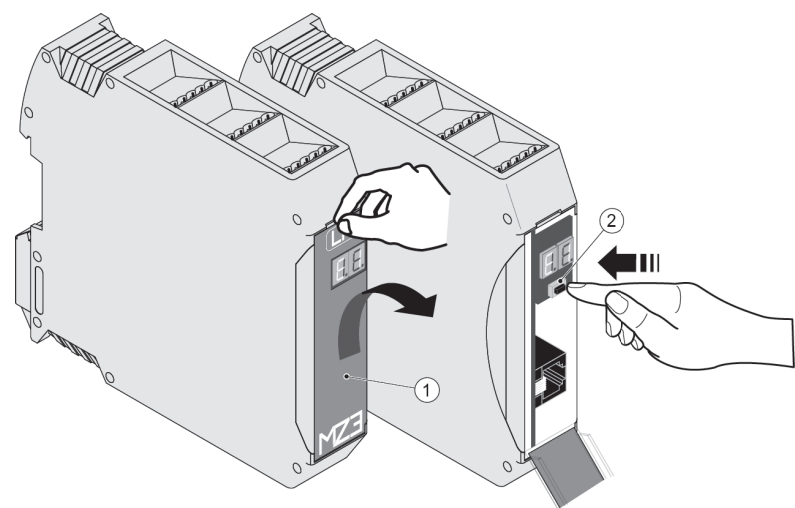


Fig.: 43 Example malfunction message "Actuator error on channel 2"

1	Main error	2	Errors assigned to the channel
---	------------	---	--------------------------------

The malfunction messages are displayed consecutively on the display of the modules. Sub-errors run through twice and then jump back to the main error.



	Please note! EE means extended error (sub-error)
--	--

Example "SHE*" manual call point
on the RM module malfunction

Main error

0,6s 0,6s 0,6s

► Open the flap of the module.

► Press the button until the point lights in the left and in the right segment display.

Segment display point.

Sub-error

0,6s 0,6s 0,6s 0,6s

"SHE*" line disconnected" sub-error is displayed twice. The main error is then displayed again.

Fig.: 44 Module display indicator in the event of malfunction

1	Flap	2	Button
---	------	---	--------

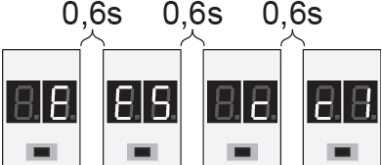
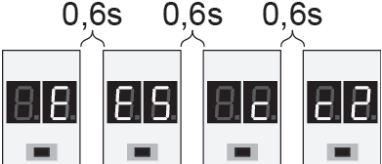
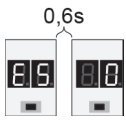
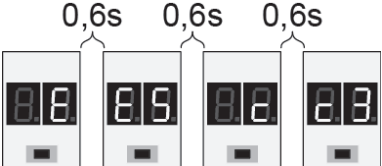
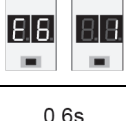
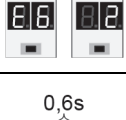
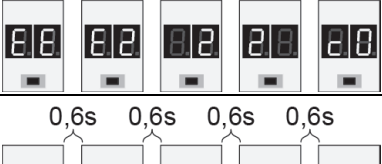
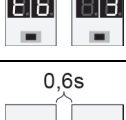
	Please note! The sub-error is only displayed twice and then jumps back to the main malfunction message.
--	---

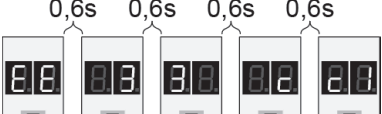
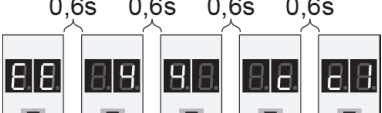
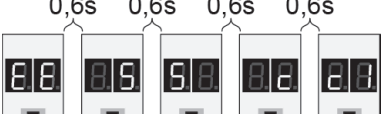
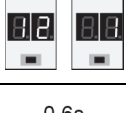
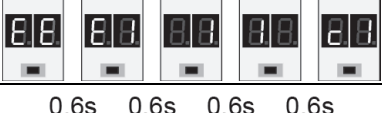
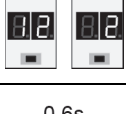
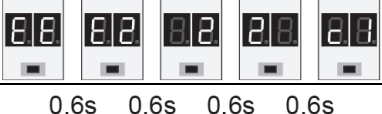


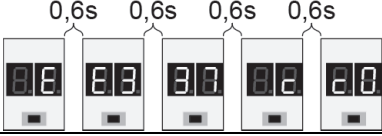
The malfunction messages are displayed at the SHE manual call points. The yellow LED indicates a flashing code.

- Assess and remedy the malfunction messages in accordance with the error code table.

Main error message	Sub-error message (EE)	Module Type	Flash code/Malfunction description
		AM	1x flashing, yellow LED
			230 / 400 Volt AC power supply has failed
		AM	2x flashing, yellow LED
			Accumulators defective
		RM	3x flashing, yellow LED
			Malfunction on assigned SHE* manual call points
		RM	3x flashing
			The SHE* manual call point has a short-circuit
		RM	3x flashing
			The SHE* manual call point has a line disconnection
		RM	4x flashing
			Automatic detector malfunction
		RM	4x flashing
			Short-circuit on the detector line
		RM	4x flashing
			Line disconnection on the detector line
		RM	4x flashing
			Detector reset required

Main error message	Sub-error message (EE)	Module Type	Flash code/Malfunction description
		MM	5x flashing
			Malfunction: Actuator 1
		MM	5x flashing
			Malfunction: Actuator 2
		MM	5x flashing
			Malfunction: Actuator 3
		All	6x flashing
			Bus malfunction – Communication of the modular control panel lost
		All	6x flashing
			Malfunction: Bus error time-out
		All	6x flashing
			Malfunction: SN bus error
		All	6x flashing
			Malfunction: BC bus error
		All	7x flashing
			Malfunction: External system
		RM	8x flashing
			Malfunction: FDS (German BMA)

Main error message	Sub-error message (EE)	Module Type	Flash code/Malfunction description
		LM	9x flashing
			Malfunction: Sensor
		LM	9x flashing
			Malfunction: Temperature of the accumulator
		LM	9x flashing
			Malfunction: Inside temperature
		LM	9x flashing
			Outside temperature
		LM	9x flashing
			Wind direction encoder
		LM/M M	9x flashing
			Sensor value missing
		RM/LM	10x flashing
			System time not set
			11x flashing
			Control system/regulation
		AM	12x flashing
			Malfunction: System supply
		AM	12x flashing
			Malfunction: AM module power supply short-circuit
		AM	12x flashing
			Error: Power supply missing
		AM	12x flashing
			Error: AM bus supply short-circuit

Main error message	Sub-error message (EE)	Module Type	Flash code/Malfunction description
		RM/LM	16x flashing
			Configuration data missing
		LON	LON communication malfunction
		IFM1	KNX communication malfunction

9.6 Troubleshooting



Caution!

Danger to life from electric shock.

Work on the mains supply must only be carried out by an electrician.

Mains connection malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 1x.	"E1 C0"	230 / 400 Volt AC power supply has failed.	Mains connection not in order. • Check mains supply cable/mains voltage. • Check mains fuses. • Check existing power packs are functional.
AM module display error message.			
Accumulators malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 2x.	"E2 C0"	Accumulators defective.	Accumulators not in order. • Check the fuse of the accumulators. • Check the accumulators cable connections. • Measure the accumulators charged current; replace if necessary.
AM module display error message.			



Please note!

To check the accumulator capacities, the current consumption must be measured in standby mode. Do not measure the current consumption directly after activation of the actuators. Standby operation is reached automatically:

- After carrying out an SHE* reset
- After carrying out the last ventilation function

SHE* manual call point malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 3-times.		The SHE* manual call point has an error.	Supply cable not in order. - Check the supply cable for damage. - Check that the connection terminals and the screw fitting are tight. - Check the active end module. If the supply cable and the cabling are in order, replace the SHE manual call point.
RM module display error message.			
RM module display error message.	"EE E1 c1"	The SHE* manual call point has a short-circuit on the cable.	
RM module display error message.	"EE E2 c1"	The SHE* manual call point has a cable break.	

Automatic detector malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 4x		Automatic detector malfunction	Supply cable not in order. - Check the supply cable for damage. - Check that the connection terminals and the screw fitting are tight. - Check active end module. If the supply cable and the cabling are in order, replace the automatic detector.
RM module display error message.	"E4"		
RM module display error message.	"EE E1 c5"	Short-circuit on the detector line	
RM module display error message.	"EE E2 c5"	Cable break on the detector cable	
RM module display error message.	"EE E3 c5"	Detector reset required	Trigger detector reset via "Reset button for automatic detector".

Actuator malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 5x		Malfunction: Actuator	Supply cable not in order. - Check the supply cable for damage. - Check that the connection terminals and the screw fitting are tight. - Check the line monitoring of the channels. - Check the monitoring diodes of the channels. If the supply cable and the cabling are in order, replace the actuators.
MM module display error message.	"E5" C1,C2,C3.....		

Bus error malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 6x		Bus malfunction: Communication of the modular control panel lost	- Check that the module sits correctly on the top-hat rail. - Check terminating resistors (terminators), to do so, power down the modular control panel and switch it back on. - Remeasure both terminating resistors (120 Ω).
All modules display error message.	"E6"		
All modules display error message.	"EE E1 c0"	Time-out	- No communication between the master and slave module. - Replace the defective module.
All modules display error message.	"EE E2 c0"	SN	
All modules display error message.	"EE E3 c0"	BC	

External system error malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 7x		External control panel or BMS has registered an error on the MZ3 modular control panel.	Check coupled control panel or BMS for cause or error.
All modules display error message.	"E7"		

FDS malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 8x		Communication between FDS and MZ3 modular control panel lost.	Supply cable not in order. - Check the supply cable for damage. - Check that the connection terminals are tight. - Check the active UEB/2 end module.
RM module display error message.	"E8"		

Sensors malfunction		Cause	Measure	
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 9x		Malfunction: Sensor	Supply cable not in order. - Check the supply cable for damage. - Check that the connection terminals and the screw fitting are tight.	
LM, EAM and AM modules display error message	"E9"			
AM module display error message	"E9 1"	Temperature of the accumulators	- Check the supply cable for damage. - Check that the connection terminals on the AM module and the screw fitting are tight. - Measure the temperature sensor.	
			°C	Value (Ω)
			0 °C	100
			20 °C	107.79
			Check the sensor setting in the MZ3 tool (AM module).	
LM and EAM modules display error message	"E9 2"	Temperature (inside) out of specification - 5 °C to 40 °C	Replace the temperature sensor.	
LM and EAM modules display error message	"E9 3"	Temperature (outside)	Replace the temperature sensor.	
LM module display error message.	"E9 4"	Wind direction encoder	Check the wind direction encoder connection.	
AM and MM modules display error message	"E9 5"	Sensor values are missing or incorrect	Check sensor, replace if necessary.	

System time not set malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 10x	"E10"	Button cell not present or discharged System time not set/incorrect	- System time does not match MZ3 tool software. Synchronise the times. - Check the button cell on the board in the master module, replace if necessary. - The 3 V Lithium CR 1632 Renata button battery must be used.
Master module display error message.			

Control system regulation malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 11x	"E11"	For future error messages, currently not active.	
Display error message			

System supply malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 12x	"E12"	Power output from the module faulty	- Check the bus contacts. - Replace the module if necessary.
AM module display error message			
AM module display error message	"E12 1"	Sub-error: AM power supply short-circuit	Check the AM power output for short-circuit.
AM module display error message	"E12 2"	Sub-error: Power supply missing	- Power supply between the AM module and MM module is disconnected or there is a short-circuit. - Check the plug contacts. Replace any defective modules if necessary.
AM module display error message	"E12 3"	Sub-error: AM bus supply short-circuit	Check bus rail for short-circuit, remove defective modules from the rail if necessary.

System supply malfunction		Cause	Measure
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 16x	"E33"	Configuration data/memory card missing or defective.	• Check the configuration. • Request the configuration data. • Check the memory card, replace if necessary. • Check that the memory card has correctly engaged.
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 16x	"E37"	LON bus error	• Check the supply cable for damage. • Check that the connection terminals and the screw fitting are tight.
The green "Operation OK" LED on the SHE* manual call point does not light. The yellow "Malfunction" LED flashes 16x	"E38"	KNX error	• No communication between the IFM1 and smart connect KNX module. • Checking the USB connection. • Check the KNX connection.

9.7 Taking out of operation

In order to take the system out of operation, the system must be disconnected from the mains and the fuse for the accumulators removed. When taking the system out of operation, the active service timer stops and saves the data. When the system is connected again, the service timer continues running as before.

10 Dismantling/Disposing

	Caution! Disconnect the mains voltage on all poles by using the external disconnection device and the emergency power supply (accumulators) before working on modular control panel MZ3. Secure modular control panel MZ3 against unintentional restart.
	Warning! Improper working on live components may cause electric shock! Severe or fatal injuries from electric shock! Certified electricians must disconnect the supply in the switch cabinet.

10.1 Disposal

The electrical device must be handed into collecting points for returning electrical and electronic waste. The German Electrical and Electronic Equipment Act for disposing of electrical devices does not apply here. Accumulators and batteries must be returned to the manufacturer or handed into a corresponding collecting point accordance with § 18 of the German Battery Act (BattG).

	Note Electrical equipment, accumulators and batteries must not be placed in household waste.
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Duty of notification according to § 18 of the German Battery Act (BattG)

In association with the sales of batteries and accumulators, we, as a dealer, are obliged to inform you as a consumer of the following in accordance with the Battery Ordinance:

- Every end consumer is legally obliged to return batteries and accumulators.
- After use, the batteries/accumulators can be returned to our factories or to a municipal collection point. Batteries containing hazardous substances are provided with a symbol consisting of struck-out waste bin and the chemical symbol (Cd, Hg or Pb) of the most important heavy metal for classification as containing hazard material.

11 Glossary

SHE	A smoke and heat extraction system (SHE) is used for precautionary fire protection and, in the event of a fire, should extract the fire smoke from buildings to the outside as quickly as possible. The term SHE indicates a complete smoke and heat extraction system that consists of the individual smoke and heat extraction system (SHE), the triggering and operating elements, the energy supply, the lines, the supply air and with large rooms, the smoke flashing ???. Electrical SHE systems consist of • electromechanical drives for windows and flaps in the facade and roof area of buildings • A central control facility with a dual energy supply. • Smoke detectors for automatic opening in the event of a fire • Manual control facilities (SHE manual call points for manual triggering)
PDS	Pressure Differential Systems (PDS) are used in the event of a fire to keep escape routes free of smoke in the vertical and horizontal direction. This includes, e.g. Indoor staircases with or without anteroom, safety staircases including gates, corridors and halls, evacuation tunnels, firemen lifts or lifts suitable for the disabled with functional integrity. PDS are also used in special buildings in which many people stay such as exhibition and trade fair buildings, event and administration buildings, railway buildings and airports, hotels and leisure centres, shopping malls and adventure centres, school buildings and kindergartens, large buildings with multifunctional use as well as special buildings in which in the event of a fire, people cannot escape by their own strength such as old people homes and retirement homes, hospitals and rehabilitation clinics, handicapped schools and homes.
NSHE	Natural smoke and heat extraction devices (NSHE) in the event of a fire extract flue gases to ensure a smoke-free area close to the ground and on escape routes. The term "Natural" is then added if the SHE system used works without additional ventilation drive.
Actuators	Components that can electrically or mechanically control, move or change objects. In the SHE field, e.g. drives for opening windows, flaps or skylight domes.
Sensors	Receiving or measuring instruments. In the SHE field, e.g. automatic detectors or SHE manual call points for manual triggering.
FDS (German BMA)	(Fire detection system) a FDS is used to detect smoke and fires within a building. The automatic fire detectors connected there inform the FDS of a potential fire. The FDS can, in turn, forward the message to a connected SHE system.
Building automation BMS	Also known as BMS for building management system or CCS for central control system, used for various components (actuators). These actuators can be heating regulators, door openers, window openers or air conditioners. They are used in most building for climate regulation via a central, computer-supported BMS with sensors connected there such as wind, rain, temperature or CO₂ sensors.
Potential-free contacts	In electronics, potential-free means "without common reference to ground". The simplest type of potential-free transfer of stated is by electronic switches (relays or optocouplers). A potential-free transfer is always required to avoid malfunctions on site (e.g. short-circuits) affecting the control units.

LON as an SHE bus system	The LON system is a bus system, based on the LonWorks® bus technology (where LON stands for Local Operating Network). A structure of remotely controlled networks is made possible with the aid of this bus engineering. The basic component is Neutron Chip from Echelon. In order to use the LON system as an SHE unit, one essential feature must be ensured - the SHE LON must not be coupled directly with other building management systems over an existing BUS. As the SHE LON is a safety installation, it is important to ensure that no undesired influences disable the SHE functions. For this reason, the STG BEIKIRCH LON system works with its own STG BEIKIRCH LON data protocol.
EIB	The European Installation Bus (EIB) is a standard based on EN50090 • that describes how with an installation, sensors and actuators must be connected together in a building. • It sets out how sensors and actuators communicate with each other (protocol).
KNX	The three capital letter KNX denote an international standard for transferring messages in house and building system engineering. The standard is the successor of EIB (European Installation Bus). KNX complies with the European and international EN 50090 and ISO/IEC 14543 standards. The networking of all components in the building system engineering is possible with this technology - from, heating, through lighting to the alarm system. The KNX system includes sensors, actuators and a bus cable that connects these together. Each connected device has its own address and communication is via 2-wire cable or wireless. The functions are determined by parametrisation.
KNX sensors	Sensors refer to all devices for registering analogue values (temperature sensor, brightness, movement) or binary information (switch setting, button pulses, messages, etc.)
UEB3-2k7-AE Modul	For connecting an on-site fire alarm system to the provided port of a SHE or PDS control panel from STG-BEIKIRCH for monitoring the connection cable for wire break. Each FAS line requires a UEB3 module. Monitoring the cable for wire breakage, installed in the FAS control panel.
Automatic detectors	Automatic detectors are detectors which record and evaluate physical characteristics which are used to form hazard messages. (Definition according to DIN VDE 0833 T1 01.89)

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