

# Operating Manual

*Hold-open system control*

**RZ3 / RZ4**

**manual, motorised**



Operating Manual RZ3, RZ4 Version 06-DE

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## 2. About this guide

The hold-open system RZ3 / RZ4 control unit is also referred to as a system or plant in the following.

These operating instructions are considered an integral part of the product and must be stored in such a way that rapid access is possible at all times.

### Security

The personnel must have read and understood the operating instructions before starting any work. It contains important information that protects the operator against possible dangers or explains interrelationships. Observe the warning and safety notes.





### Illustrations

The illustrations are for basic understanding and may differ from the actual design depending on the system.


### 2.1. Explanation of symbols

#### Safety instructions

Warning and safety instructions in this manual are identified by special symbols.

<b>CAUTION</b>	
	Indication of possibly dangerous situations, the consequence of which may be slight (reversible) injuries.
<b>WARNING</b>	
	Indication of possibly dangerous situations, the consequence of which may be serious (irreversible) injuries or even death.
<b>DANGER</b>	
	Indication of immediately dangerous situations, the consequence of which can be serious injury or even death if the situation is not avoided.
<b>NOTE</b>	
	Reference to possibly dangerous situations, the consequence of which may be damage to property or the environment.

#### Information / Recommendations

	References to useful information and recommendations that serve efficient as well as trouble-free operation.
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#### Clarification of terms

In the section "Clarification of terms", useful terms and definitions for the reader are explained.

## 3. General

### 3.1. For which products are these instructions valid?

#### Hold-open system control RZ3 / RZ4 manual, motorized

The hold-open system control RZ3 / RZ4 consists of an external control module suitable for wall mounting with integrated power supply unit and batteries (RZ3) or without power supply unit and batteries (RZ4). The control is optionally equipped with a motor card.

### 3.2. Warranty

The warranty is described in the General Terms and Conditions of the manufacturer. Deviating agreements require the contractual regulation in writing.



The limitation period for claims for defects can be extended by a maintenance contract concluded with the manufacturer or with a service partner authorized by the manufacturer. Wear parts are excluded from this.

## 4. Security

### 4.1. Intended use

The hold-open system control RZ3 / RZ4 are exclusively intended for indoor operation of conveyor system closures (in exceptional cases for automatic smoke barriers, fire doors and gates and flexible fire curtains). See also general building authority approvals: abZ: Z-6.510-2627/-2626.

### 4.2. Use contrary to the intended purpose

Any use deviating from the intended use is considered misuse.

Other applications, inserts and modifications are not permitted for safety reasons for the protection of the user and third parties and may impair safety and function.

### 4.3. Authorized personnel

Basically, a distinction is made between different qualifications of people involved with the system during its product life cycles.

#### WARNING



Danger due to insufficient personnel qualification.

The system may only be operated or functionally tested by adequately qualified personnel.

Work reserved for specialist personnel may only be carried out by personnel authorized by the manufacturer.

## Operator

Operators are all persons who are at least 18 years of age and have been instructed in the operation of the equipment by the manufacturer or an authorized representative. They must have read and understood these instructions completely.

Operators are assigned the following tasks:

- Operation of the system in other modes besides automatic mode
- Operating the controls on the controller
- Monthly function check
- Partial elimination of malfunctions or initiation of measures to eliminate malfunctions.

## Specialized personnel

Qualified personnel are all persons who have appropriate knowledge of hold-open systems due to their professional training, professional experience and recent professional activity and who are trained and authorized by the manufacturer to perform installation and maintenance work on the control system. The qualified personnel must be qualified for this work due to their professional training, experience and technical knowledge in the field of hold-open systems.

In addition to the operator's authority, the following tasks are assigned to the technical personnel:

- Elimination of malfunctions that go beyond the operator's troubleshooting measures
- Assembly work
- Maintenance

## 4.4. Unauthorized personnel (unauthorized persons)

### WARNING



Operation or other work on the system performed by unauthorized persons can result in considerable danger to persons and even death.

For example, an installation or conversion measure carried out by unauthorized persons and thus improperly can result in malfunctions of the system in the event of fire.

The manufacturer accepts no liability for damage caused by measures carried out by unauthorized persons.

## 4.5. Monthly function check / maintenance intervals

A regular check of the function as well as maintenance of the system guarantee the reliable function of the control module in case of fire and thus the safety of the building and persons.

### Monthly function check (operator)

### WARNING



If the system is damaged, the manufacturer or the authorized service partner must be notified immediately in order to replace the damaged parts. Otherwise, the safe functioning of the system in case of fire is not guaranteed, which may result in serious injuries or even death.

The system must be subjected to a monthly function check. The operator must document the function check in the log (see test logbook).

The following points must be examined:

- Proper function (opening / closing)
- Optional assemblies (e.g.: Safety contact strip, area light scanners, optical and acoustic signal transmitters).
- Visual inspection for damage (connections, housing, guide rails, end strip and fabric)



The function check is performed for the entire system (combination of fire protection product and control components) and noted in the corresponding log of the installed fire protection product.

### **Annual maintenance (qualified personnel)**

The control module must be serviced at least once a year by qualified personnel authorized by the manufacturer.

Maintenance must be documented in the maintenance log (see inspection log).

## **4.6. Responsibility of the operator**

### **Operator**

An operator is anyone who operates the plant for commercial or economic purposes or who allows third parties to use it.

### **Operator duties**

According to the Ordinance on Industrial Safety and Health, the operator of work equipment or systems requiring monitoring (special attention is paid to the hazard moments of pressure, explosion protection, fire protection and lifting of persons and goods) is responsible for their safe provision.

Among other things, the operator must ensure that (the list mentions the most important points and does not claim to be exhaustive):

- The equipment is only operated for its intended use
- All persons who have to do with the system have been instructed in its safe handling and have read and understood these instructions.
- The system is only operated by instructed persons
- The plant is always kept in technically perfect condition
- Necessary inspection openings are available (e.g. for maintenance or repair) and all work on the system can be carried out without restriction
- Inspection and maintenance intervals specified by the manufacturer are adhered to and documented
- No conversion measures are carried out without first consulting the manufacturer
- all performed modifications, any defects and repairs are documented
- Damaged or defective parts are replaced immediately by personnel authorized by the manufacturer
- fire load free zones are maintained if necessary
- all information and warning signs are visibly displayed on or near the equipment

Personnel involved in the installation, maintenance and repair of the system must:

- have the appropriate training
- always have access to the parts of the operating instructions that are relevant to them
- Comply with applicable laws, standards and regulations

All national and international laws, standards and regulations, directives and codes of practice relevant to the system and the place of installation must be complied with, even if they are not expressly mentioned here.

### Instruction / supervision of the operators

The operator must instruct the personnel regularly and always ensure quick access to these operating instructions.

The safe work of the operators must be checked by the operator at sufficiently recurring intervals.

## 4.7. Protection and safety devices

### WARNING



Risk of serious injury  
- Never override protection and safety devices

### Acoustic signal generator

The acoustic signal generator indicates the closing of the system.

### Optical signal transmitter (optional)

The optical signal generator (flashing light) indicates the closing of the system.

### Language module (optional)

In addition to the acoustic signal transmitter, the voice module indicates the closing process of the system. An individual recorded voice output is emitted through a loudspeaker.

### Monitoring clamping area (optional)

The monitoring of the closing area (e.g. light barriers, proximity switches) is used to detect the free area.

## 4.8. Dangers

Even with proper installation and proper condition of the control unit, not all danger points on the system can be covered. The following points out the residual dangers.

### Electric current

### DANGER



Danger to life due to electric current  
- Work on the system may only be carried out by qualified personnel.  
- Never bypass fuses or bypass protective devices.  
- Opening of control unit housings only by qualified personnel  
- Before opening the control unit housing, disconnect it from the power supply and secure it against being switched on again.  
- Keep moisture away from electrical parts.

### Risk of danger from personnel

Increased risk of operator danger exists:


- if children, elderly or disabled persons can operate the equipment,
- when it is not possible to teach, train or supervise the operators,
- if it is not possible to select persons authorized to operate the equipment,
- when the number of people using the facility is very high,
- for modifications to the product

No modifications, such as additions or conversions, may be made to the system without the prior approval of the manufacturer. Any unauthorized structural or operational modification will invalidate the operating permit.





#### 4.9. After the fire

After a fire, the equipment must be inspected for damage by qualified personnel if the equipment in the affected fire area was exposed to the influence of fire or smoke.

	Contact the manufacturer or a maintenance partner authorized by the manufacturer immediately.
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#### 4.10. Spare parts

WARNING	
	Risk of injury due to the use of incorrect spare parts! The use of incorrect, faulty spare parts or spare parts not approved for the equipment may result in danger to personnel, malfunction or total failure of the equipment.

NOTE	
	The use of non-approved spare parts will void the manufacturer's warranty.

Obtain the spare parts from the manufacturer (see 5.4.) or customer service.

## 5. Product labeling

### 5.1. Product and type designation

Product designation (depending on the version):

- Hold-open system control RZ3 (manual / motorized)
- Hold-open system control RZ4 (manual / motorized)

### 5.2. Marking on the product

On the cover of the terminal box there are the following designations:

- System and type designation: smoke control panel RZ3 (RZ4)
- Manufacturer
- Input voltage
- Current consumption
- Output voltage
- Power output
- Year of manufacture
- CE marking
- Ü marking

### 5.3. Technical data



The technical data of the equipment are given in the corresponding test book.

#### Power supply characteristics MC-EV1 (RZ3):

##### Input voltage

- Nominal value AC 230 V
- Permissible range 198...253 V

##### Mains frequency

- Nominal value 50/60 Hz
- Permissible range 47...63 Hz

##### Environmental conditions

- Ambient temperature 0°C ... 35°C
- Rel. humidity 95 %

##### Input current at 230V

- Nominal value at no load 35 mA
- Nominal value at 1.0 A load 370 mA
- Nominal value at 1.8 A load 510 mA
- Inrush current max. 10

##### Output current

- Control loop 2:
  - Battery charging current max. 450 mA

- Control loop 1:
  - Consumer current 1,765 A

This is composed of:

- Self-consumption 60 mA
- Terminal board + control board 180 mA
- Motor board 25 mA
- External consumers max. 1.5 A

**connected battery**

- 2xHP 2.2-12 (2.2 Ah 12 V)
- or 2xHP 7.2-12 (7.2 Ah 12 V)

Only VdS-approved, maintenance-free batteries are used for hazard detection systems (in accordance with printed matter VdS-2140).

**Reporting thresholds**

- Mains fault Mains input voltage < 80 V AC  
(a mains fault causes automatic switching from mains operation to battery operation).
- Reset mains fault Mains input voltage > 85 V AC
- (when this threshold value is reached -network return-, the system automatically switches from battery operation to mains operation).
- Battery fault U<sub>Bat</sub> < 24 V  
(If jumper J1 on the RZ3-MC-KL is set to ON, a trip occurs).
- Deep discharge protection U<sub>Bat</sub> < 21.8 V

Charging characteristics as a function of temperature

Housing	RZ3: Bopla Combicard Plus 7000 RZ4: Bopla Combicard Plus 6000
Degree of protection	IP64

**Characteristics of smoke detection panel MC-Z (RZ3):**

The MC-Z board, which can be plugged into the power supply, evaluates the line current of the fire detectors and transmits the trigger signal to the control board in the event of a fault or alarm.

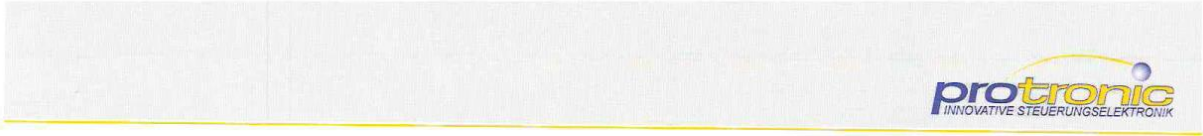
Triggering at:

- Alarm I > 12 mA
- Interruption I < 3.0 mA
- Short circuit current max. 45 mA
- Quiescent current (terminating resistor = 4k7) I = 4.5 mA
- Line voltage U<sub>Lin</sub> = 20.5...21.3 V

**5.4. Name and address of the manufacturer**

Protronic GmbH	Tel: info@protronic-gmbh.de
Grimmaische Str. 92	Tel.: 034383 63 15-0
D-04828 Bennewitz	Fax: 034383 63 15-50
Internet: <a href="http://www.protronic-gmbh.de">www.protronic-gmbh.de</a>	

## 6. Declaration of Conformity



### KONFORMITÄTSERKLÄRUNG

Hersteller: Protronic Innovative Steuerungselektronik GmbH  
Anschritt: Grimmaische Str. 92  
04828 Pausitz  
DEUTSCHLAND

Produkte: **Elektronikbaugruppen RZ7-NT24, RZ7-FAA, RZ7-BMZ2, RZ7-OP, RZ3, RZ4 für die Feststallanlage „RZ3/RZ4, RZ7 FA“ und „RZ3/RZ4, RZ7 BT“**

Beschreibung: **Die RZ3/RZ4, RZ7 FA ist eine Feststallanlage für Feuerschutzabschlüsse im Zuge bahngelbundener Förderanlagen.  
Die RZ3/RZ4, RZ7 BT ist eine Feststallanlage für Feuer- und Rauchschtutzabschlüsse**

Hiermit erklären wir die Konformität der oben bezeichneten Produkte mit den EU-Richtlinien 2014/35/EU und 2014/30/EU im speziellen mit nachfolgenden Normen, soweit sie anwendbar sind:

**EN 61000-6-3:2012-11**

- Elektromagnetische Verträglichkeit (EMV) - Teil 6-3: Fachgrundnormen - Störaussendung für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe

**EN 61000-6-2:2011-09**

- Elektromagnetische Verträglichkeit (EMV) - Teil 6-2: Fachgrundnormen - Störfestigkeit für Industriebereiche

**DIN EN 60335-1:2012-10**

- Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 1: Allgemeine Anforderungen

**DIN EN 61000-3-2:2019-12**

- Elektromagnetische Verträglichkeit (EMV) - Teil 3-2: Grenzwerte - Grenzwerte für Oberschwingungsströme

**DIN EN 61000-3-3:2014-03**

- Elektromagnetische Verträglichkeit (EMV) - Teil 3-3: Grenzwerte - Begrenzung von Spannungsänderungen, Spannungsschwankungen und Flicker in öffentlichen Niederspannungs-Versorgungsnetzen für Geräte mit einem Bemessungsstrom  $\leq 16$  A je Leiter, die keiner Sonderanschlussbedingung unterliegen

Diese Erklärung gilt bei bestimmungsgemäßer Verwendung, Einbau und Gebrauch des Prüfgegenstandes.

Pausitz, den 17.02.2023

Protronic Innovative Steuerungselektronik GmbH

Unterschrift



Name des Unterzeichnenden  
Position im Unternehmen

Thomas Wegner  
Geschäftsführer

Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.

## 7. General functional description

The following chapter provides an overview of the display and operating elements, characteristic data and controlled modules of the RZ3 hold-open system for conveyor system closures.

### NOTE



For detailed information about connections of the RZ3 / RZ4, please refer to the wiring diagrams.

### 7.1. Overview of display and operating elements

The RZ3 hold-open system contains the following display and control panels:

- Power supply (1)
- Smoke control panel (2)
- Release device (3)
- Horn Reset (4)
- Motor (5)

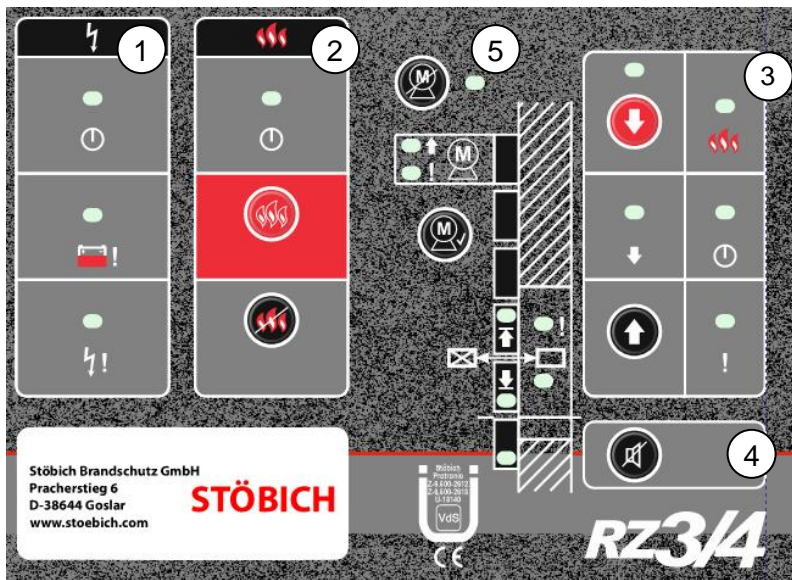


Figure 1 - Display and operating elements of the hold-open system (control) type RZ3

### 7.2. Power supply display field

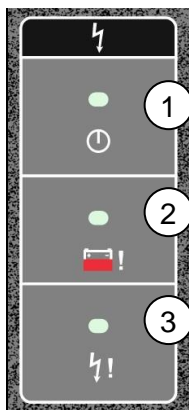


Figure 2 - Power supply

**The "Power supply" display field contains the following optical signals (LED):**

- Operation (mains) (1)
- Fault (collective fault power supply) (2)
- Network fault (3)

### 7.3. Functions

**Disturbances:**

In the event of a mains fault, both the LED fault (2) and the LED mains fault (3) light up. In the event of a battery fault, only the LED fault (2) lights up.

A mains fault is indicated when the mains supply (230VAC) falls below a value that allows the batteries to be charged. A battery fault is indicated when the battery voltage drops below a value of approx. 24.0V during the active battery test (approx. every 70s), during which the battery is briefly loaded.

**New value alert:**

When a fault occurs, the internal acoustic signal is activated. At the same time, the collective fault output (X1:25/26/27) is switched.

The acoustic signal can be reset by pressing the horn button:



be switched off.

At the same time, the collective fault output is also reset. If a new fault occurs, the horn and the collective fault output are activated again.

The mains fault output and the fault display remain switched on until the fault is eliminated or until the next successful battery test is performed. If the battery is discharged, the fault indicator remains switched on until the battery has reached a state of charge greater than 24.5V.

**NOTE**



If the battery charge level is too low, a controlled closing sequence with possible freeing of the conveyor system cannot be guaranteed.

**Battery:**

The batteries used are maintenance-free lead-acid batteries that have been tested and approved by VdS for hazard alarm systems. The service life of 5 years specified by the battery manufacturer refers to an ambient temperature of 20°C. The service life is reduced at higher temperatures. At higher temperatures, the service life is reduced. At an ambient temperature of 20°C, depending on the load on the system, the ambient temperature of the battery is 30°C-35°C and thus the service life is 3-4 years. At an ambient temperature of 45°C, the service life is already less than 2 years. The battery is protected against deep discharge. If the battery voltage falls below approx. 21.8V, the control is switched off. Charging takes place with a charging curve controlled via ambient temperature.



## 7.4. Display and control panel smoke control panel

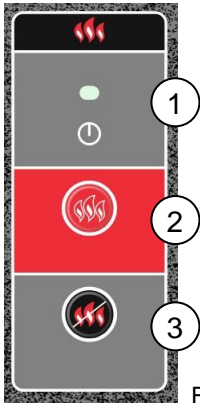


Figure 3 - Smoke control panel



The "Smoke control panel" display and control panel contains the following visual signals (LED) and operating elements (buttons):

### "Operation" - optical signal (1)

LED "Operation" (green) indicates that the fire alarm loop is correctly connected, i.e. there is no short circuit, no open circuit and no fire alarm.



### Test - Push button (2)

WARNING	
	<p>Pressing the button  simulates a fire alarm and triggers the closing process. If conveyor technology is used (optional), all required conveyor technology is also switched off.</p>




### Trigger reset - pushbutton (3)


Pressing the button resets  the fire alarm if the alarm conditions are no longer present.

The RZ3 has two different ways of triggering a fire.

#### Var.1:

Triggering by fire alarm loop or button Test  This triggering is stored by the control system. The optical signal Operation (1) goes out, the red LED in the control panel Triggering device  Triggering lights up and the contact Fire alarm (X1:6/7/8) switches.

#### Var. 2:

Triggering via input X1:23/24. In this case, the optical signal Operation (1) does not go out, the red LED in the control panel Triggering device  Triggering lights up and the contact Fire alarm (X1:6/7/8) does not switch. This function is used to link several RZ3. In this case, the fire alarm is reset at the control panel triggered by the fire alarm loop. The optical signal Operation (1) does not light up on this control!

## 7.5. Display panel smoke control panel for conveyor termination

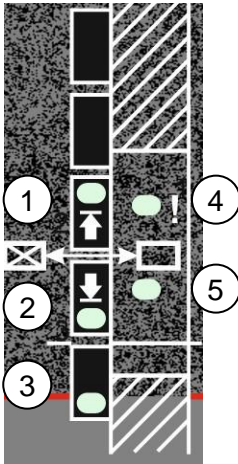


Figure 4 - Smoke control panel

The "Smoke control panel for conveyor closure" display panel contains the following visual signals (LED):

### Opened (1)

LED "↑" indicates that the movable sealing element is open and the associated control element is activated accordingly.

### Closed (2)

LED "↓" indicates that the movable sealing element is closed and the associated control element is activated.

### Scraper basic position (3)

LED indicates that the clearing arm (if a conveyor clearing system is installed) is in home position.

### Closing range malfunction (4)

LED "!" indicates that the closing range of the isolation is occupied for longer than 120s, there is a short circuit against +24V or the monitoring of the light barrier is disturbed.

#### NOTE



When the light barrier inputs are not in use, they must be bridged with the relevant slide switch.

### Closed area Free (5)

LED indicates that the closing area of the partition is free, e.g. in the case of monitoring by light barrier.



## 7.6. Display and control panel Triggering device

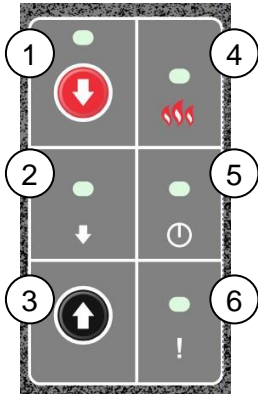



Figure 5 - Release device

The "Triggering device" display and control panel contains the following optical signals (LED) and buttons:


"↓" - Closing - optical signal and control element (1)

Button  - manual closing initiates controlled closing process without activating emergency power. LED closing lights up during the closing process.


↓ Remote closing - optical signal (2)

LED "↓" - remote closing indicates active closing command by remote control (e.g. by conveyor control or actuation of the remote pushbutton)


"↑" - Open - control element (3)

Button  - Open resets manual closing and starts the opening procedure.

Triggering - optical signal (4)

LED  Triggering lights up in case of: Fire alarm, short circuit or interruption of the fire alarm loop. The "Test" button has been pressed.

Operation - optical signal (5)

LED  -operation lights up when the voltage supply of the controller unit is switched on.

Fault - optical signal (6)

LED "!" -fault indicates general error of the CPU.

## 7.7. Reset horn

WARNING	
	<p>Fire alarm, electrical fault / danger to life                      Do not continue working when the horn sounds an acoustic warning signal.                      ⇒ Stop work / Use escape routes</p>

### Fire alarm / malfunction

If the internal horn sounds, there may be danger to life. The fire alarm has been triggered or there is a technical malfunction. Follow the emergency plan in case of fire!

### Acoustic signal

The internal horn sounds in the following cases:

- Fire alarm
- Power supply failure
- Malfunction of the closing edge monitoring
- Control malfunction



Figure 6 - Reset horn

### Horn reset - control element (1)

The "Reset horn" control panel contains the following control element (button):

The button Reset horn switches off the internal horn, e.g. after a fire alarm. At the same time, the collective fault message (K4 X1: 25, 26, 27) is reset. This is a new value alarm. A newly occurring fault switches the horn on again. The visual indication of the fault remains until the fault is eliminated.

## 7.8. Display and control panel Motor

(RZ3, RZ4 motorized)

The "Motor" display and control panel contains the following optical signals (LED) and buttons:

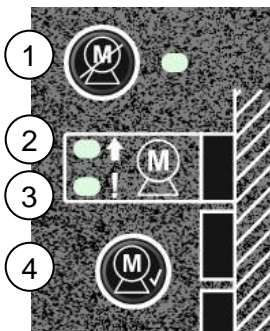




Figure 7 - Motor control panel



**- Motor off - optical signal and control element (1)**

Pushbutton  - Motor off interrupts the power supply to the drive. The associated LED remains lit until this state is reset by pressing the button. 



**- Reset motor off - Control element (4)**

When the button is pressed, the "Actuator off" state is reset.

**"↑" Motor on - optical signal (2)**

LED "Motor on" indicates that the motor is switched on for opening.

**"!" - motor fault - optical signal (3)**

LED "Motor fault" indicates that the motor is in overload. Simultaneously with this indication, the signal "Motor off" is set.

## 7.9. Function variant personal protection

The personal protection function variant is activated via the DIL switch DIL 3 in the OFF position.

The mode of operation to the "web-bound conveyor variant" differs as follows:

There is one input for external closing. The second input is used for an optional contact strip for monitoring the closing area. The "Closed" output 35/36 is fed back to input 60/61, which means that only one light barrier input is available for monitoring the closing area with a light barrier.

The stop function of the optional contact strip is switched off when the "Closed" limit switch is reached, so that the closure can close completely.

The indicator (3) in the standard version used as "scraper in basic position" (Fig. 4 Smoke control panel) lights up when the contact strip is not actuated.

The closing of the closing device can be interrupted at any time both by the occupied light barrier and by the triggered contact strip. The closing process is not continued until the occupancy of the light barrier and/or the triggering of the contact strip has ended.

If a fault is detected in the light barrier or the contact strip before a fire alarm is triggered, this is indicated acoustically and visually. If a fire alarm is subsequently triggered, the faulty monitoring device concerned is ignored and the closing device is closed.

See also subitem 8.7 Function of the DIL switches.

## 7.10. Omnicompact function variant

The Omnicompact functional variant is used for the conveyor system closures and fire protection closures of the Omnicompact type.

The mode of operation differs only slightly from the mode of operation of the standard RZ3 / RZ4.

There is one input for external closing. The second input is used for an optional contact strip for monitoring the closing area. The "Closed" output 35/36 is fed back to input 60/61, which means that only one light barrier input is available for monitoring the closing area with a light barrier.

The stop function of the optional contact strip is switched off when the "Closed" limit switch is reached, so that the closure can close completely.

The indicator (3) in the standard version used as "scraper in basic position" (Fig. 4 Smoke control panel) lights up when the contact strip is not actuated.


Pushbuttons "Manual opening" (3) and "Manual closing" (1) (Figure 5. "Release device") are switched in the so-called "dead man's mode". This means that the gate opens / closes only as long as the button is pressed. In order to ensure this function, automatic opening must of course not be switched on. The jumper that may have been installed for this purpose at the "Remote opening" input 68/69 on the MC-MABM motor control board must be removed.

## 8. Signals to be observed

The fire protection conveyor closure has standard audible and visual signals to indicate a fire alarm.

### 8.1. Acoustic signals

#### Horn in case of fire / malfunction

<b>WARNING</b>	
	Fire alarm, electrical fault / danger to life Do not continue to work when an acoustic warning signal is emitted by the horn. ⇒ Stop work / Use escape routes


If the internal horn sounds, there may be danger to life. A fire alarm has been triggered or there is a technical malfunction. Follow the emergency plan in case of fire!

The internal horn sounds in the following cases:

- Fire alarm
- Power supply failure
- Malfunction of the closing edge monitoring
- Controller malfunction
- Malfunction of the locking range monitoring
- Fault overload motor

#### Horn during test run of the hold-open system

The horn also sounds when the conveyor closure is test triggered.

<b>NOTE</b>	
	If you have caused a fire alarm, the fire alarm loop must be reset before the control is enabled again.

If you want to trigger a fire alarm for test purposes, inform the relevant personnel beforehand.

### 8.2. Visual signals

#### LED of the hold-open system

The display and control panels of the hold-open systems (control) contain LEDs to indicate operating states of the FAA.

The meaning of the respective display elements is described in chapter 7 "Hold-open system (RZ3 control)".

### 8.3. Manual opening of the FAA

If the gate was closed manually by pressing the button  , the LEDs 4 light up. After pressing the button



and actuating the pull-up device, the FAA is opened and held open via the hold-open device. When the opening process is completed, the LEDs 3 light up. Opening is only possible if no closing signal is present (closing, remote closing, fire alarm, on-site fire alarm). Closing has priority over the open signal.



### 8.6. Relay function

No.	Designation	Function	Condition
MC-EV1 circuit board			
K2	Fault EV X1: 3/4/5	a 3/5 closed  from 4/5 closed	No fault EV  EV fault (mains fault, battery too low, battery defective. Passive battery test every approx. 5s., active battery test with load every 30 minutes).
K3	Triggering control panel  smoke  Fire alarm X1: 6/7/8	A 6/8 closed  from 7/8 closed	No smoke control panel triggering (reset via "Reset triggering" button)  Triggering of smoke control panel (triggering of fire alarm loop 11/12 or on-site triggering 9/10)
MC-KL circuit board		Fire alarm	6/8 closed
K4	X1: 6/7/8	From 7/8 closed = Horn on  From 26/27 closed	Collective fault (fault EV, trip RZ, fault closing range, stop, fault motor, fault controller)  New value alarm = is set again when new fault occurs No collective fault or after pressing the "Reset horn" button.
K5	ES closed X1: 35/36	A 35/36 closed  from 35/36 open	ES "closed" actuated (34/46 closed)  ES "closed" not actuated (34/46 open)
K1	Holding termination X1:40/41  magnet	A +24V an 40  From No potential at 40  Function for light barrier systems and clearing systems the same (DIL2)	Immediately On, if no trip RZ, no on-site trip, no closing, no remote closing.  -on RZ trip or on-site trip or close or remote close. -if closing range free: after Tv + 3s - if closing range not free: after forcing + 3s



K2	<p>Holding magnet scraper X1: 42/43</p> <p>Release X1:28/29</p>	<p>A +24V at 42 28/29 closed</p> <p>From No potential at 42 28/29 open</p>	<p>no trip RZ, no on-site trip, no closing, no remote closing -on only after additional ES "open" pressed once</p> <p>Immediately off on trip RZ or on-site trip or closing or remote closing</p>
K3	<p>Holding magnet immersion roller X1: 55/56</p> <p>Safety interlock</p> <p>Open X1:30/31</p>	<p>A +24V at 55 30/31 closed</p> <p>From No potential at 55 30/31 open</p>	<p>1s briefly on after reset Trip RZ, no on-site trip, no closing, no remote closing Function for light barrier systems (DIL2 off) permanently on only actuated after additional ES open Function for clearing systems (DIL2 on) permanently on only after additional ES "open" and ES "clearer" actuated</p> <p>in case of trip RZ or on-site trip or closing or remote closing Function for light barrier systems (DIL2 off): if clamping area free &gt; after Tv or if ES "Open" not actuated if clamping area not free &gt; after forcing or if ES "Open" not actuated Function for clearing systems (DIL2 on): if clamping area free &gt; after Tv or if ES "Open" or if ES "Scraper" not actuated if clamping area not free &gt; after forcing or if ES "Open" or if ES "Scraper" not actuated</p>



## 8.7. Function of the DIL switches

Function of the DIL switches

- Changeover switch DIL1 (only before software version RSZ016 10.06) "Drive off" delayed (0.05 s)

DIL1 "decelerated motor off"

= 0 (on) => with delay

= 1 (off) => without delay

As of version RSZ016 10.06:

DIL1 "Stop / Open" (K3 Safety interlock / Open 55/56, 30/31)

= 0 (on) => K3 1s on after trip reset

= 1 (off) => off

-switch DIL2

on => with clearing system

off => without clearing system

Function without clearing system and without personal protection (most common application):

In the event of a triggering / fire alarm, K2 is switched off immediately. So, the output "clearer" X1: 42 is de-energized and the potential-free contact "release" X1:28 / 29 drops out.

Depending on the inputs "Closing area free" (light barrier X1:48, X1:60), K3 is switched off after forced closing time (Tzwang) when the closing area is occupied and K1 is switched off after a further + 3s. Thus, the output "dipping roller" X1:55 and 3s later output "closing" X1:40 is de-energized. With a free closing range, K3 is switched off after the delay time (Tv) and K1 after a further +3s.

After resetting the trip, K1 is immediately switched on again. Thus, output X1:40 is switched on +24V. The relays K2 and K3, i.e., outputs scraper X1:42 and immersion roller X1:55, are only switched on after the "open" limit switch has been actuated, without taking the "scraper" limit switch into account.

For function with clearing system and without personal protection:

After the fire alarm has been triggered, a clearing arm, which is released by a holding solenoid (K2), removes any conveyed material lying in the closing area. Output "clearer" X1:42 is therefore immediately de-energized. Only after the closing area is free (the clearing arm has reached its end position and switches free via a limit switch or, if necessary, a light barrier signals "Closing area free") does the control system switch output "Dipping roller" X1:55 (K3) and 3s later output "Closing" X1:40 de-energized (K1) (if necessary, additionally time-delayed via tv).

If there is no clearance signal until the forced closing time tz (adjustable up to max. 6min 43s) has elapsed, the control system initiates forced closing. Attention: The 6 min 43 s setting is not covered by the general approval (approval-compliant up to max: 120 s).

The safety interlock with the conveyor (K3) is only released again when there is no more closing command or triggering, the closure is open and the clearing arm is back in its home position.

If there is no clearance signal until the forced closing time tz (adjustable up to max. 6min 43s) has elapsed, the control system initiates forced closing.

The safety interlock with the conveyor (K3) is only released / switched on again when there is no more closing command or triggering and the closure is open.

-switch DIL3

on => without personal protection  
 off => with personal protection

In the case of personal protection, actuation of the safety device causes the closing process to stop. If the actuation takes place before triggering with the door open, a fault message is displayed immediately. In the event of a malfunction of the safety device before triggering, the system closes on triggering without taking the safety device into account.

Without personal protection, the monitoring of the closing area is carried out as described above. The safety devices (e.g. light barriers) are monitored for wire breakage, short circuit and continuous occupancy (120s). A fault is indicated. If the safety device is occupied, the closing process is delayed or closed after forced closing time.

- 2 "Forced closing time" changeover switch Forced closing after triggering and occupied closing range (K1, K3 holding solenoids 40/41, 55/56)

(34 s; 1 min 7 s; 2 min 0 s; 6 min 43 s)

DIL4	DIL5	
0 (on)	0 (on)	=> 34 s
0	1 (off)	=> 1 min 7 s
1	0	=> 2 min 0 s
1	1	=> 6 min 43 s

Specifies the maximum delay time for the holding solenoids to drop after being triggered if the closing range is occupied. If the closing range is free, this time is ignored.

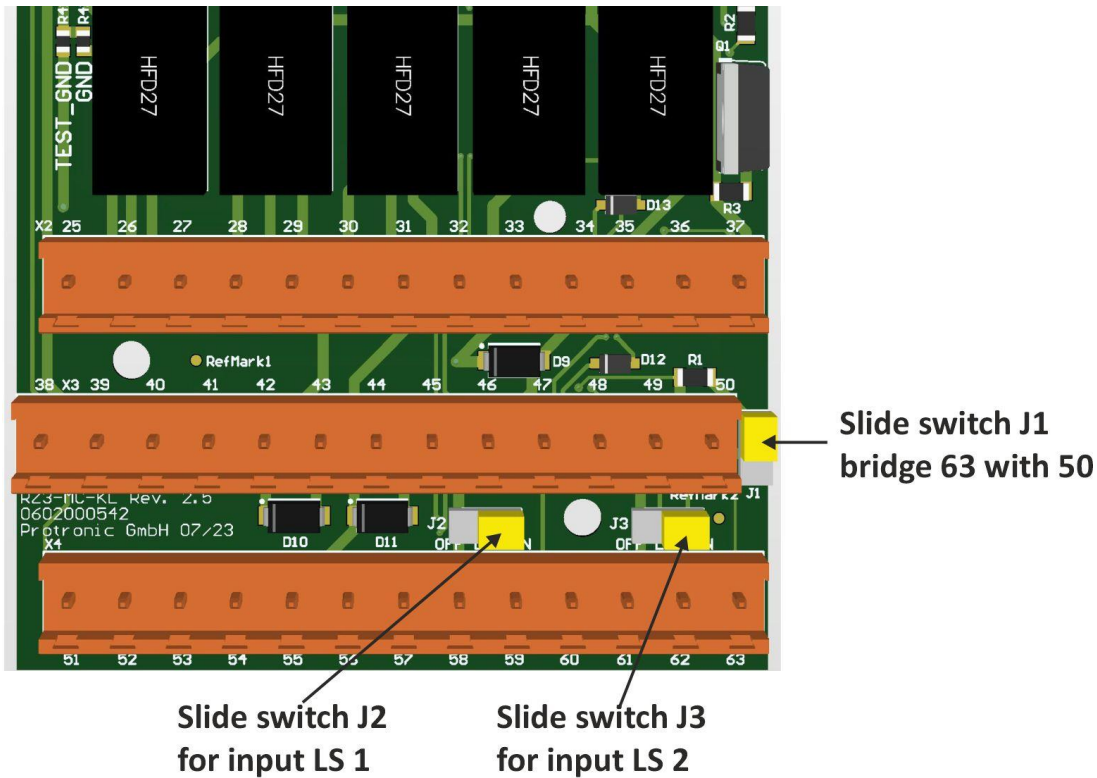
- 2 "delayed closing" Tv changeover switches after tripping (K1, K3 holding solenoids 40/41, 55/56)

(0s; 8.4 s; 16.8 s; 25.2 s)

DIL6	DIL7	
0 (on)	0 (on)	=> no delay
0	1 (off)	=> 8,4 s
1	0	=> 16,8 s
1	1	=> 25,2 s

Delays the release of the holding solenoids at K1 or K3 after triggering by the set time.

### 8.8. Function of the sliding jumpers for the light barriers 1 and 2



The two light barriers are permanently monitored for wire breakage and short circuit to +24V. If no light barrier is connected to the input, the monitoring would report an error.

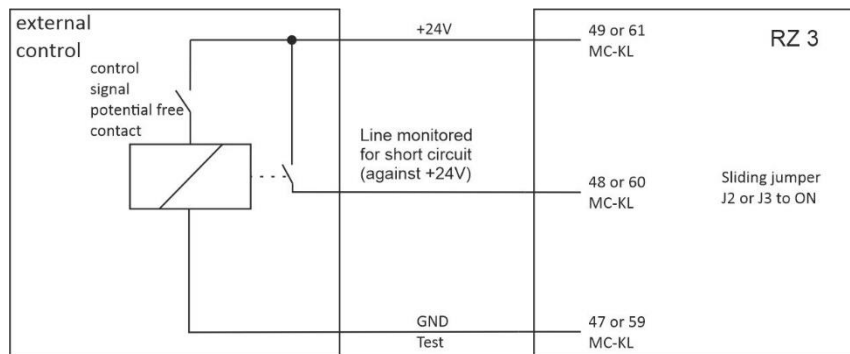
terminals	device	sliding jumper	function
47,48,49	light barrier 1	J2 -> ON	light barrier function with monitoring of permanent occupancy and short-circuit against +24V
48,49	wire jumper	J2 -> OFF	No function, monitoring for permanent occupancy and short-circuit to +24V are deactivated
48	external +24V signal	J2 -> OFF	On-site signal (+24V) without monitoring for short-circuit to +24V
59,60,61	light barrier 2	J3 -> ON	Light barrier function with monitoring of permanent occupancy and short-circuit against +24V
60,61	Wire jumper	J3 -> OFF	No function, monitoring for permanent occupancy and short-circuit to +24V are deactivated
60	external +24V signal	J3 -> OFF	On-site signal (+24V) without monitoring for short-circuit to +24V

The sliding jumper on the right side of the board bridges the terminals 50 and 63 when it is in the upper position ON (as shown in the picture). In the lower position OFF, the connection between terminals 50 and 63 is removed, for use with contact strip evaluator. When using a contact strip, the slide jumper for input LS2 must always be in the right position ON.

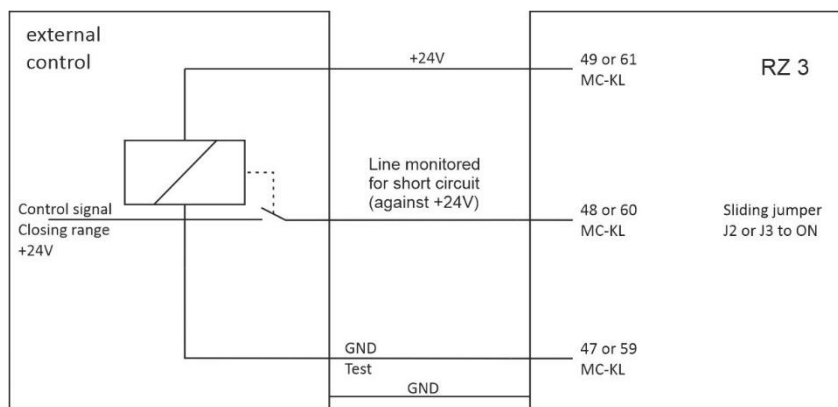
terminals	device	sliding jumper	function
35-60, 36-61	Contact strip evaluator	J3 -> ON	Contact strip function, contact strip evaluator is connected via 6-pole ribbon cable and the end position is switched closed via jumpers 35-60 and 36-61
50,63	contact bar	-	with 8k2 terminating resistor

The slide jumpers are protected against accidental adjustment after the upper parts of the terminals have been plugged in and are not visible. The position of the slide jumpers must be noted in the circuit diagram.

With the help of an additional coupling relay, the external signal for the closing range can also be monitored for short-circuits against +24V.



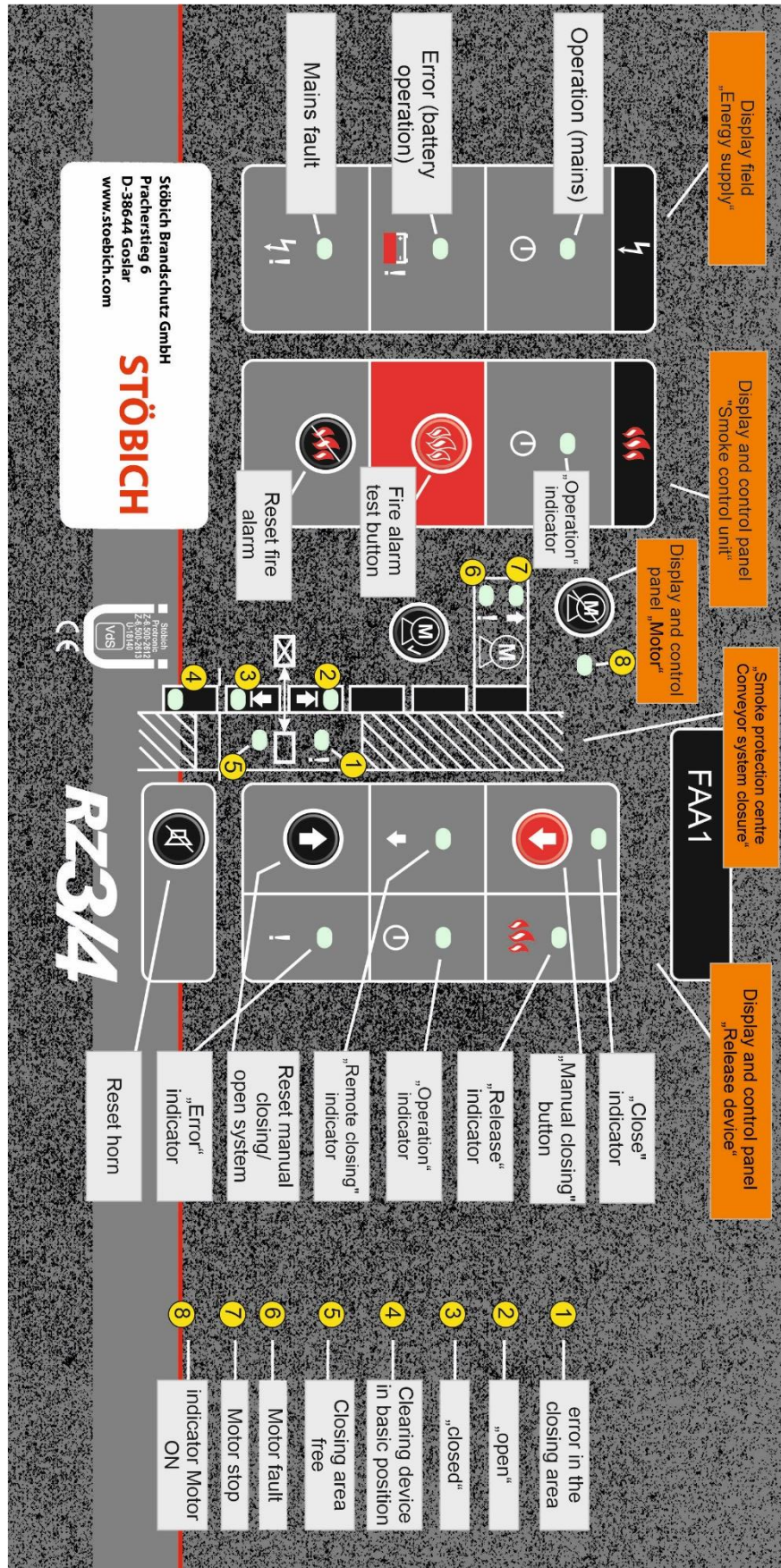
Example 1: with potential-free contact of an external control unit



Example 2: with a potential-loaded 24V signal from an external control unit

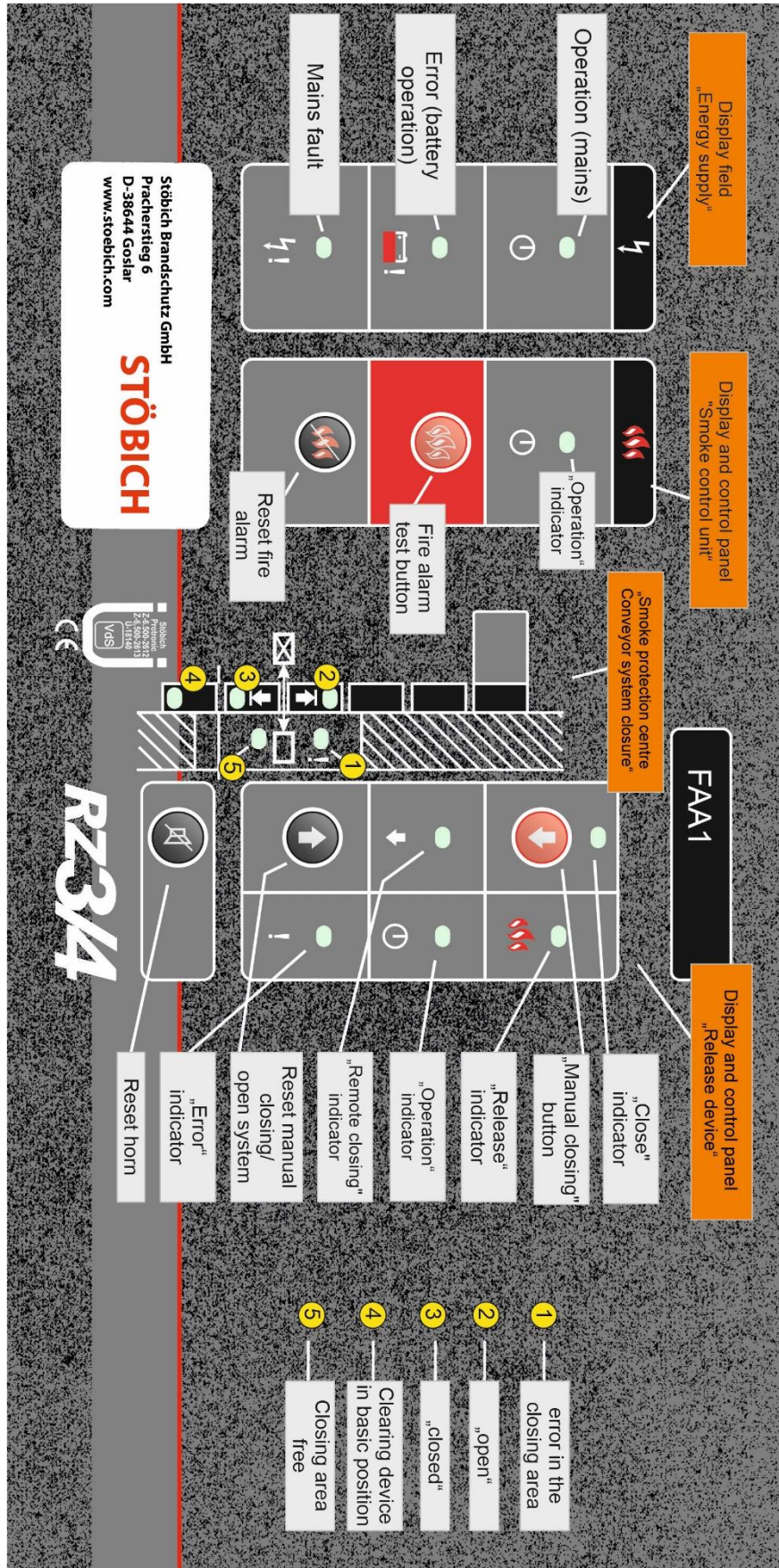


## 9. Overview operating foil RZ3/4 - with motor





## 10. Overview operating foil RZ3/4 - without motor



## 11. Assembly and installation

The RZ3 and RZ4 are mounted on the wall of the Bopla housing or in a cabinet.

When mounting, make sure that the batteries are inserted with the terminals facing upwards. This ensures the longest possible battery life. Attention: The battery life is directly dependent on the ambient temperature and is drastically reduced at higher ambient temperatures. The service life of 4 years specified by the battery manufacturer refers to an upright installation (terminals on top) at 20°C ambient temperature.

Installation of the controller in areas exposed to sunlight, cold or permanent heat will affect the service life and should be avoided.

Relay boards, contact strip evaluators and safety barriers are to be installed directly in the housing of the RZ3 / RZ4.

When installing the manual pushbutton, it is essential to ensure that no stub lines are installed from the fire alarm loop. Both wires of the fire alarm loop must always be installed to the manual pushbutton and away from the manual pushbutton. The order in which the manual pushbutton is installed in the fire alarm loop is irrelevant.

When installing components in hazardous areas, the relevant regulations for Ex installation must be observed.

Smoke switches must be wired in protected installation (e.g. cable duct).

An installation plan must be prepared for each RZ3 / RZ4 containing cable cross-sections, terminals, cable routing and system components.

## 12. Clarification of terms

### **Change**

Activity that modifies an original, involves a revision or addition to the product, or a change request to the design, resulting in a new version of the product

### **Fire alarm panel (BMZ)**

The core of a hazard detection system in preventive fire protection. The FACP receives different events from various fire detection elements, evaluates them and triggers programmed actions.

### **Limit switch**

The limit switch transmits a signal to the control system when a defined position of the fabric curtain or the end bar is reached and stops the movement.

### **Hazard**

Potential source of damage

### **Commissioning**

Measures before or in connection with the handover of a product ready for operation, including the final acceptance test; handover of drawings, instructions for operation, maintenance and repair, if necessary, training of personnel

### **Maintenance**

Combination of all technical and administrative measures to maintain a unit or product in a usable (safe for use) condition or to return it to such a condition in which it can perform the required function; this includes monitoring measures, restoring, repairing, adjusting and cleaning

### **Marking**

Marks or inscriptions identifying the type of a component or device, applied by the manufacturer of the component or device, and designating certain features of the product for its safe use

### **Reporting thresholds**

Electrical limit values to be reached that lead to a change in the control state.

### **Modification**

- a) Modification of a product to change or extend its intended use.
- b) Revision of the instructions after the modification of a product.

### **Repair**

Part of the repair in which manual activities are performed on a unit, including replacement of worn parts and remanufacturing of faulty or damaged parts or functions

### **Damage**

Physical injury or damage to the health of persons or damage to property or the environment.

### **Foreseeable misapplication**

Use of a product, application of a process or service in a manner that was not intended by the supplier but may result from readily foreseeable human conduct