



EN Operating instructions.pages 1 to 6
Original

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1. About this document

1.1 Function

This operating instructions manual provides all the information you need for the mounting, set-up and commissioning to ensure the safe operation and disassembly of the safety switchgear. The operating instructions must be available in a legible condition and a complete version in the vicinity of the device.

1.2 Target group: authorised qualified personnel

All operations described in this operating instructions manual must be carried out by trained specialist personnel, authorised by the plant operator only.

Please make sure that you have read and understood these operating instructions and that you know all applicable legislations regarding occupational safety and accident prevention prior to installation and putting the component into operation.

The machine builder must carefully select the harmonised standards to be complied with as well as other technical specifications for the selection, mounting and integration of the components.

1.3 Explanation of the symbols used



Information, hint, note:
This symbol is used for identifying useful additional information.



Caution: Failure to comply with this warning notice could lead to failures or malfunctions.
Warning: Failure to comply with this warning notice could lead to physical injury and/or damage to the machine.

1.4 Appropriate use

The products described in these operating instructions are developed to execute safety-related functions as part of an entire plant or machine. It is the responsibility of the manufacturer of a machine or plant to ensure the correct functionality of the entire machine or plant.

The safety switchgear must be exclusively used in accordance with the versions listed below or for the applications authorised by the manufacturer. Detailed information regarding the range of applications can be found in the chapter "Product description".

1.5 General safety instructions

The user must observe the safety instructions in this operating instructions manual, the country specific installation standards as well as all prevailing safety regulations and accident prevention rules.



Further technical information can be found in the Schmersal catalogues or in the online catalogue on the Internet: www.schmersal.net.

The information contained in this operating instructions manual is provided without liability and is subject to technical modifications.

There are no residual risks, provided that the safety instructions as well as the instructions regarding mounting, commissioning, operation and maintenance are observed.

1.6 Warning about misuse



In case of improper use or manipulation of the safety switchgear, personal hazards or damages to machinery or plant components cannot be excluded. The relevant requirements of the standard ISO 13850 must be observed.

1.7 Exclusion of liability

We shall accept no liability for damages and malfunctions resulting from defective mounting or failure to comply with this operating instructions manual. The manufacturer shall accept no liability for damages resulting from the use of unauthorised spare parts or accessories.

For safety reasons, invasive work on the device as well as arbitrary repairs, conversions and modifications to the device are strictly forbidden; the manufacturer shall accept no liability for damages resulting from such invasive work, arbitrary repairs, conversions and/or modifications to the device.

2. Product description

2.1 Ordering code

This operating instructions manual applies to the following types:

RD ① ② ③ ④

No.	Option	Description
①	R	latching
②	Z	Release by pulling only
③	45	Head diameter 45 mm
④	RT	Red colour



Only if the information described in this operating instructions manual are realised correctly, the safety function and therefore the compliance with the Machinery Directive is maintained.

2.2 Special versions

For special versions, which are not listed in the order code below 2.1, these specifications apply accordingly, provided that they correspond to the standard version.

2.3 Purpose

The RDRZ45 RT series emergency stop command devices are designed for use in emergency stop circuits to ISO 13850.

2.4 Technical data

Pushbutton

Standards:	ISO 13850, IEC 60947-5-1, IEC 60947-5-5, IEC 60947-1
Design:	Emergency stop pushbutton with latching for front plate mounting
Unlocking type:	Draw unlocking
Snap-action mechanism:	integrated
Fully insulated:	Yes
Mounting-Ø:	22.3 mm
Mechanical life:	100.000 operations
Switching frequency:	600 s/h
Actuating force:	approx. 25 N
Material:	
- Material of the operating unit:	anodised aluminium
- Material of the front ring:	anodised aluminium
Colours:	
- Operating unit colour:	red
- Front ring colour:	gold
Dimensions:	
- Height:	27.5 mm
- Diameter of control button:	45 mm
- Hole, diameter:	22.3 mm + 0.4 mm
- Shape:	Round
Connection:	Mounting flange EFM
Max. tightening torque:	0.6 Nm
Front plate thickness:	
- min. front plate thickness:	1 mm
- max. front plate thickness:	6 mm
Grid dimensions:	50 × 50 mm
Mounting position:	random
Temperature range:	-25°C ... +75°C
Protection class:	IP65
Sealing type:	Lip gaskets, flat gaskets
Climatic resistance to DIN EN 60068:	Part 2-30

Contact elements RF

Standards:	IEC 60947-1, IEC 60947-5-1
Material:	
- Material of the housings:	PA GV self-extinguishing, hardly flammable
- Material of the contacts:	fine silver, spring bronze or brass carrier
Utilisation category:	AC-15: 250 V / 6 A; DC-13: 24 V / 3 A
Rated insulation voltage U_i :	400 V
Rated impulse withstand voltage U_{imp} :	4 kV
Degree of pollution:	3
Overvoltage category:	III
Suitable low voltage:	min. 5 VDC / 1 mA
Thermal test current I_{the} :	6 A
Max. fuse rating:	gG 6 A
Climatic resistance to DIN EN 60068:	Part 2-30
Temperature range:	-25° C ... +60° C
Switch travel:	
- NC:	approx. 1 mm
- NO:	approx. 2.5 mm
Positive break travel:	2 mm
Test voltage enclosed:	2500 VAC
Actuating force at stroke end:	approx. 9 N
Switching frequency:	1.200 s/h
Mechanical life:	10,000,000 operations
Resistance to shock:	30 g / 18 ms
Resistance to vibration:	20 g/10 ... 150 Hz
Wiring configuration:	to IEC 60947-1
Connection:	screw terminals
Tightening torque for the connecting screw:	max. 1 Nm
Cable sections:	
- Single-strand:	2 × (0.5 ... 2.5 mm ²)
- Double-strand:	2 × (0.5 ... 1.5 mm ²)
Protection class:	
- Connections:	IP20 (finger-safe)
	Wiring compartments: IP40
Approvals:	cULus

2.5 Safety classification

Standards:	ISO 13849-1
B_{10D} (NC contact):	100,000
Service life:	20 years

$$MTTF_D = \frac{B_{10D}}{0,1 \times n_{op}} \quad n_{op} = \frac{d_{op} \times h_{op} \times 3600 \text{ s/h}}{t_{cycle}}$$

(Specifications can vary depending on the application-specific parameters h_{op} , d_{op} and t_{cycle} as well as the load.)

3. Mounting

3.1 General mounting instructions

1. Mount control elements and mounting flange by tightening both screws of mounting flange using size 2 cross-point screwdriver (see fig. 1)



When tightening the screws, ensure the mounting flange is screwed on evenly and does not move.

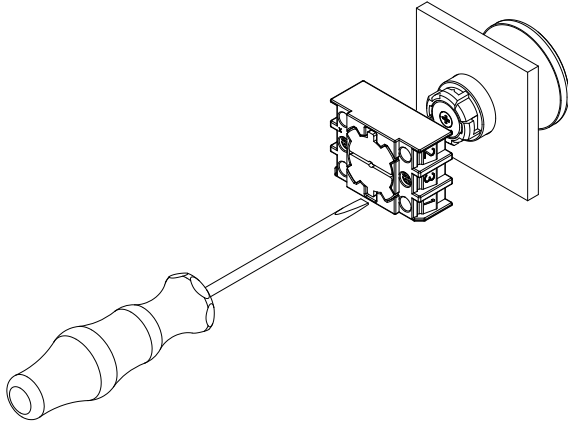


Fig. 1

2. Mount contact elements of RF contact system by snapping on in positions 1 to 3 to mounting flange (see fig. 2).

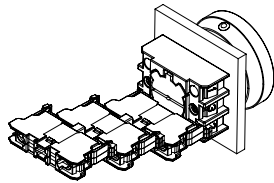


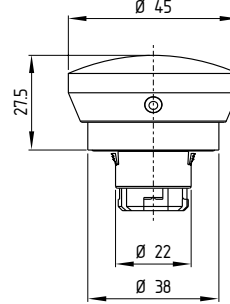
Fig. 2



Only fit onto clean and grease-free surface! Contact elements of the RF contact system are fitted in the first locking position and, therefore, lie flush on the mounting flange after fitting.

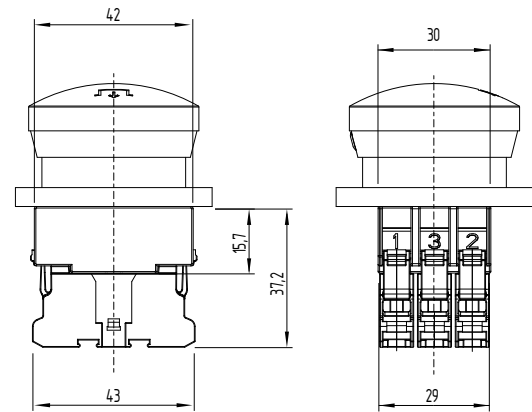
3.2 Dimensions

Dimensions of the RDRZ 45 RT emergency stop command device

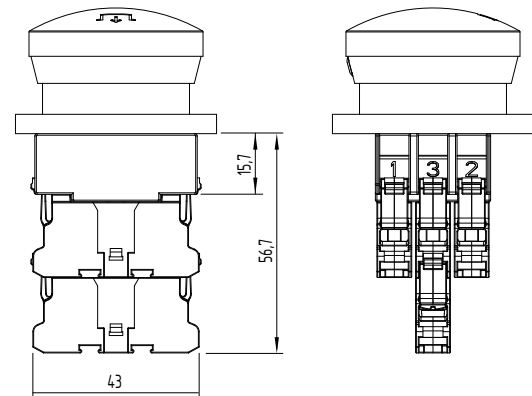


RF contact system (for R programme)

Single row contact elements



Double row contact elements



A maximum of 4 contact elements may be equipped. Normally-closed contacts must be fitted in the first level.

4. Electrical connection

4.1 General information for electrical connection



The electrical connection may only be carried out by authorised personnel in a de-energised condition.

At least one contact with positive break must be integrated in the safety circuit.



After wiring, the contact elements must be cleaned (i.e. remove excess cables etc.).

The fixing screws of the contact element must be tightened with 1 Nm tightening torque.

4.2 Contact variants

RF 03: 1 NO

RF 10: 1 NC

4.3 Switch travel

1 NC



1 NO



5. Set-up and maintenance

5.1 Functional testing

The safety function of the safety components must be tested.

The following conditions must be checked and met:

1. Correct fixing of the fitted component
2. Check the integrity of the cable entry and connections
3. Check the emergency stop command device for damage.

5.2 Maintenance

A regular visual inspection and functional test, including the following steps, is recommended:

1. Check the correct fixing of the emergency stop command device and the contact element
2. Remove particles of dust and soiling
3. Check cable entry and connections

Damaged or defective components must be replaced.

6. Disassembly and disposal

6.1 Disassembly



The safety switchgear must be disassembled in a de-energised condition only.

Disassembly of the RF.. elements

1. Removal of the RF contact elements is carried out with the aid of a cross-point screwdriver with the recommended width of 5.5 mm (see Fig. 3).
2. Removal of the mounting flange is carried out by loosening both screws on the mounting flange. The mounting flange is then turned approx. 45° in anti-clockwise direction and removed (see fig. 4).

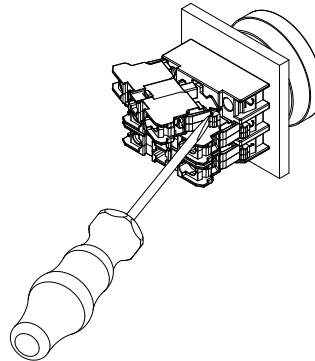


Fig. 3

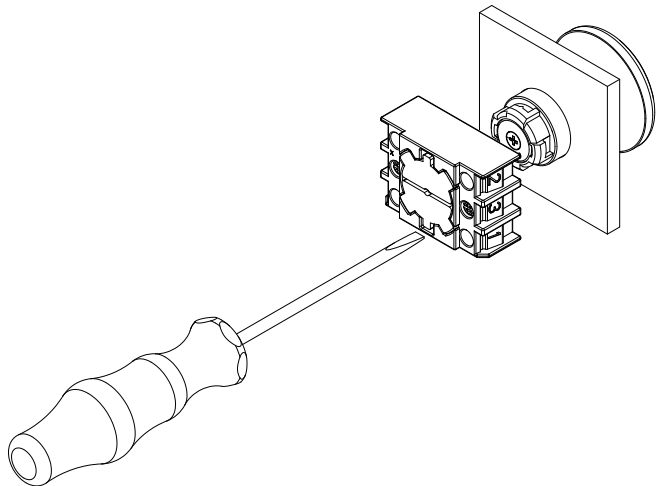


Fig. 4

6.2 Disposal

The safety switchgear must be disposed of in an appropriate manner in accordance with the national prescriptions and legislations.

7. EU Declaration of conformity

EU Declaration of conformity



Original
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We hereby certify that the hereafter described components both in their basic design and construction conform to the applicable European Directives.

Name of the component: RDRZ45RT

Type: See ordering code

Description of the component: Emergency stop pushbutton

Relevant Directives: 2006/42/EG Machinery Directive
2011/65/EU RoHS-Directive

Applied standards: DIN EN 60947-5-1:2010,
DIN EN 60947-5-5:2015,
DIN EN ISO 13850:2016

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Place and date of issue: Wuppertal, January 2, 2017

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Philip Schmersal
Managing Director

RDRZ45RT-C-EN



The currently valid declaration of conformity can be downloaded from the internet at www.schmersal.net.



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