



EN Operating instructions..... pages 1 to 6
Translation of the original operating instructions

FR Vous trouverez la version actuelle du mode d'emploi dans votre langue nationale officielle sur l'Internet, www.schmersal.net.

ES Encontrará el manual de instrucciones actual en su idioma oficial de la UE en nuestra página de Internet www.schmersal.net.

NL U vindt de huidige versie van de gebruikshandleiding in uw officiële landstaal op het Internet, www.schmersal.net.

IT Il manuale d'istruzioni aggiornato nella vostra lingua (lingua ufficiale UE) è scaricabile in Internet all'indirizzo www.schmersal.net.

JP EU公用語で書かれた最新の取扱説明書は、インターネット(www.schmersal.net)からダウンロードできます。

Content

1 About this document	
1.1 Function	1
1.2 Target group: authorised qualified personnel	1
1.3 Explanation of the symbols used	1
1.4 Appropriate use	1
1.5 General safety instructions	1
1.6 Warning about misuse	1
1.7 Exclusion of liability	1
2 Product description	
2.1 Ordering code	2
2.2 Special versions	2
2.3 Destination and use	2
2.4 Technical data	2
2.5 Safety classification	2
3 Mounting	
3.1 General mounting instructions	2
3.2 Dimensions	4
4 Electrical connection	
4.1 General information for electrical connection	4
4.2 Contact variants	4
5 Set-up and maintenance	
5.1 Functional testing	4
5.2 Maintenance	4
6 Disassembly and disposal	
6.1 Disassembly	5
6.2 Disposal	5
7 Appendix	
7.1 EC Declaration of conformity	5

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 proper functionality of the entire machinery 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 Elan catalogues or in the online catalogue on the Internet: www.elan.de

The information contained in this operating instructions manual is provided without liability. 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 inadequate or improper use or manipulations of the safety switchgear, personal hazards or damage to machinery or plant components cannot be excluded. The relevant requirements of the standard EN 1088 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 Destination and use

The RDRZ45 RT series emergency stop command devices are designed for use in emergency stop circuits to EN 13 850:2006.

2.4 Technical data

Actuating elements	
Standards:	EN 60 947, EN 13 850
Design:	round
Installed∅ to DIN EN 50007:	22.3 mm
Spacing:	50 × 50 mm
Front plate area:	1 ... 6 mm
Connection:	with mounting flange
Max. tightening torque:	2 Nm
Mounting position:	any
Temperature range:	–25 °C ... +75 °C
Climate resistance:	to DIN EN 60 068, Part 2-30
Protection class:	IP 65
Sealing type:	Lip gaskets, flat gaskets
Fully insulated:	yes
Material mushroom button:	Al anodised
Front ring execution:	PA GV
Max. tightening torque for the knurled nut:	1 Nm
Actuating force:	approx. 25 N
Mechanical life:	1 × 10 ⁵ operations
Contact elements	
Standards:	EN 60 947
Rated operating voltage U _e max.:	400 V
Utilisation category to DIN VDE 0660 Part 200:	AC-13, DC-15
Rated operating current I _e depending on the utilisation category and the test voltage:	8 A, AC-15, 250 VAC 5 A, DC-13, 24 VDC

Thermal nominal current I _{th} (in air):	10 A
Max. fuse rating:	gG 10 A
Air clearances and creepage distances to DIN EN 60 664:	4 kV/3
Evidence of the positive break:	2.5 kV impulse voltage
Positive break travel:	approx. 2 mm after the opening point
Switching of low voltages:	min. 24 VDC/5 mA
Switching frequency to DIN VDE 0660 Part 200:	1,200 s/h
Temperature range:	–25 °C ... +60 °C
Climate resistance:	to DIN EN 60 066, Part 2-30
Mounting position:	any
Mechanical life to DIN VDE 0660 Part 200:	10 × 10 ⁶ operations
Switch travel:	approx. 3.5 mm
Resistance to shock:	30 g/16 ms
Resistance to vibrations:	20 g/10 ... 150 Hz
Wiring configuration:	to EN 60 947
Actuating force at stroke end:	approx. 9 N
Switching points:	NC contact: approx. 1 mm NO contact: approx. 2.5 mm
Enclosure material:	PA GV self-extinguishing, hardly flammable
Termination:	Screw connection
Cable section:	solid wire: 2 × (0.5 ... 2.5 mm ²) stranded wire with conductor ferrules: 2 × (0.5 ... 1.5 mm ²)
Tightening torque:	Connecting screw max. 1 Nm
Rated insulation voltage U _i :	for degree of pollution 3 to EN 60 947: 400 V
Protection class:	Connections: IP 20 (finger-safe) Switching elements: IP 40
Protection against accidental contact with live parts:	available (to EN 50 274 and BGV A2)
Approvals:	cULus

2.5 Safety classification

Standards:	EN ISO 13 849-1
B _{10d} (NC contact):	100,000
Service life:	20 years

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

3 Mounting

3.1 General mounting instructions

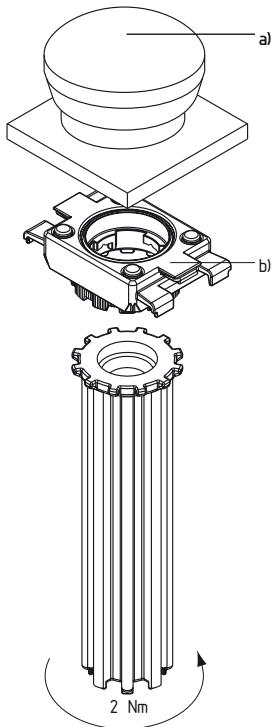
The device head is plugged in permanently and accurately in the mounting hole. The lugs are self-latching so that the mounting flange is directly put on the back of the front plate and screwed into the bayonet. Turn the supplied mounting tool to the right to fix the mounting flange.

The contact bracket serves to preassemble the RF contact elements. The fixing flange includes mounting flange, contact bracket and the 2 plunger segments. In the case two or three contact elements are arranged beside each other (1st layer), 1 plunger element (in the case of two contacts) or 2 plunger elements (in the case of three contacts) are fitted onto the middle contact element by simply plugging them in the trapezoid groovings left and right of the housing. These plunger segments serve to actuate the contact elements located in position 2 and 3. No plunger segments are required for contact elements arranged beneath each other.

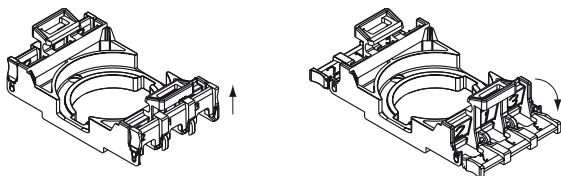
After snapping the elements onto the contact brackets, the contact fittings installed to the left and the right are tipped up (90°) and snapped into place by pushing. By snapping the contact carrier onto the mounting flange, the contact elements are additionally fixed. In this way, incorrect assembly or detachment of the elements due to vibrations is not possible.

In case of a contact multiplication (starting from the 4th contact), the NC contact elements should be fitted in the uppermost row (i.e. the row closest to the front plate) in order for the above-described mechanical fixing becoming effective.

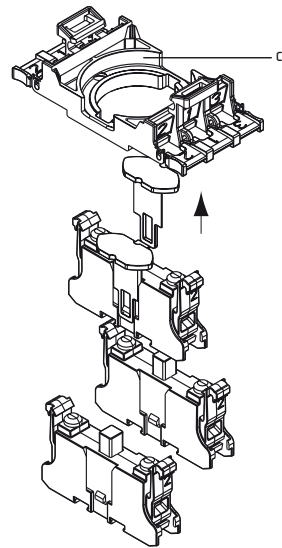
Assembly of the command devices (top row) for front plate thickness 1...6 mm



1. Assembly of operating element and flange by turning the RMW mounting tool to the right (a = actuating head, b = mounting flange)

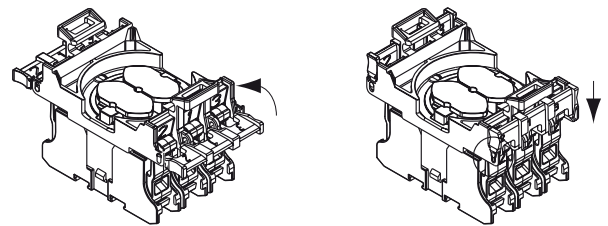


2. Opening the contact lug



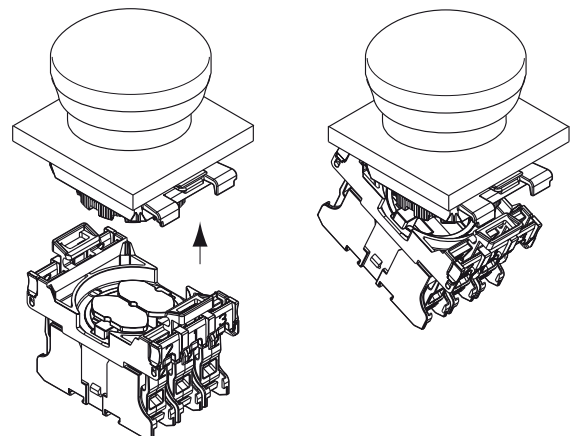
3. Preliminary assembly of the contact elements on the contact carrier (c)

Prior to the assembly of the contact elements onto the contact carrier, the two plunger segments must be fitted onto the central contact element through simple insertion in the trapezoid groovings to the left and the right. Snap this contact element onto the central position (1) of the contact carrier. Other contact elements can be fitted onto the contact carrier in position 2 and 3.



4. Close and push down the contact lug

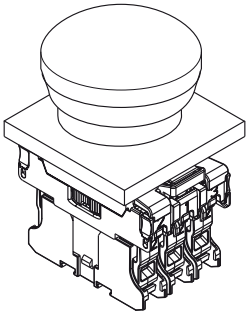
The contact elements can be wired.



5. Assembly of the preassembled contact carrier on the mounting flange

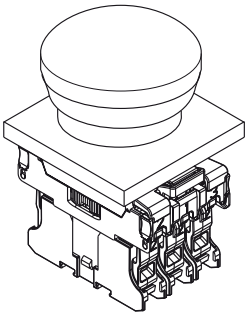
The contact lugs to the left and the right are folded up 90° and then pressed down until they engage. This means that the contact elements are additionally mechanically secured to the contact support (also refer to item 4 of this mounting instructions manual).

Engage the contact support on the mounting flange on one side. Then repeat this process on the opposite side.



6. First row ready mounted (with 3 contact elements)

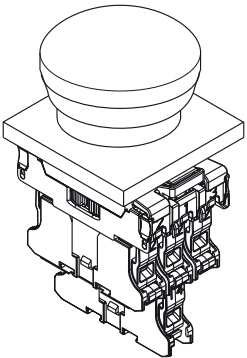
The contact lugs are automatically additionally fixed once the contact support has been snapped onto the mounting flange. In this way, incorrect assembly is prevented. The correct assembly must be checked once again.



7. Assembly at second contact element level

In case of a contact multiplication (starting from the 4th contact), the NC contact elements should be fitted in the uppermost row (i.e. the row closest to the front plate) in order for the above-described mechanical fixing becoming effective.

3 additional elements are possible if 3 contact elements are installed in the 1st row.



8. Second contact element level ready mounted (with 2 or 3 contact elements)

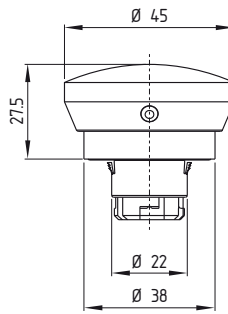
Pushbutton with max. number of contacts (6 contact elements)



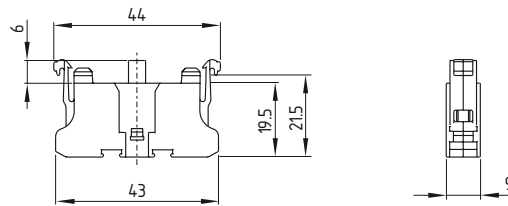
- 1) Only fit onto clean, grease-free surface!
- 2) **Caution:** after fitting of the contact elements, both contact lugs (to the left and right of the contact elements) must be folded up 90° and then pressed down until they engage. To ensure a smooth disassembly of the contact carrier, we recommend using a slot screwdriver of 5.5 mm wide.

3.2 Dimensions

Dimensions of the RDRZ 45 RT emergency stop command device



Dimensions of the contact element RF ..



4 Electrical connection

4.1 General information for electrical connection



The electrical connection may only be carried out by authorised personnel in 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 element
- RF 10: 1 NC element

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:

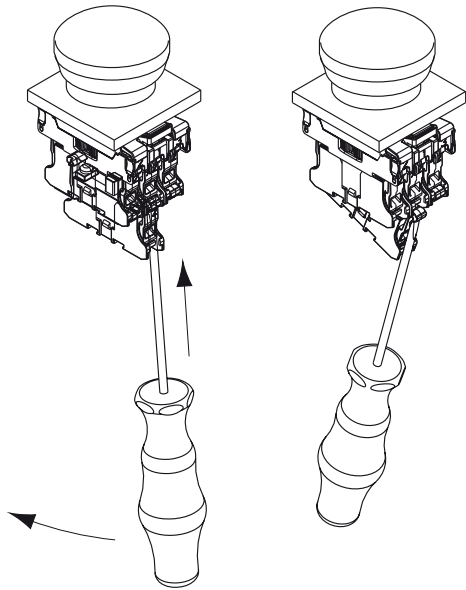
1. Check the correct fixing of the emergency stop command device and the contact element
2. Remove particles of dust and soiling
3. Check cable entry and connections

Damaged or defective components must be replaced.

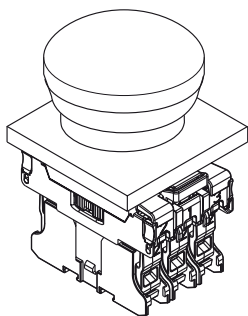
6 Disassembly and disposal

6.1 Disassembly

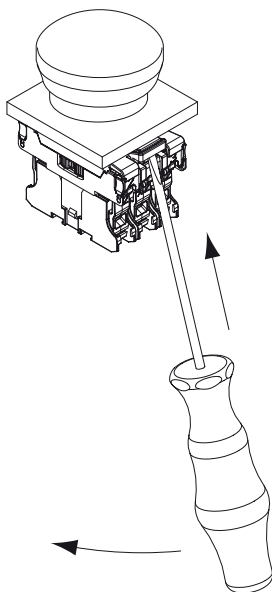
Disassembly of the RF.. elements



1. + 2. Disassembly of the contact elements of the second row
 Place the screwdriver in the latch of the contact element. The latch is pressed outwards through slight movement of the screwdriver in the direction of the contact element. This releases the contact element from the one above. If necessary this should be repeated on the opposite side

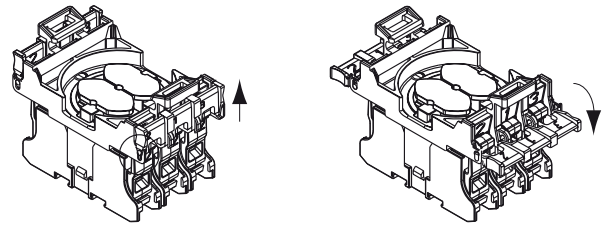


3. Second row disassembled



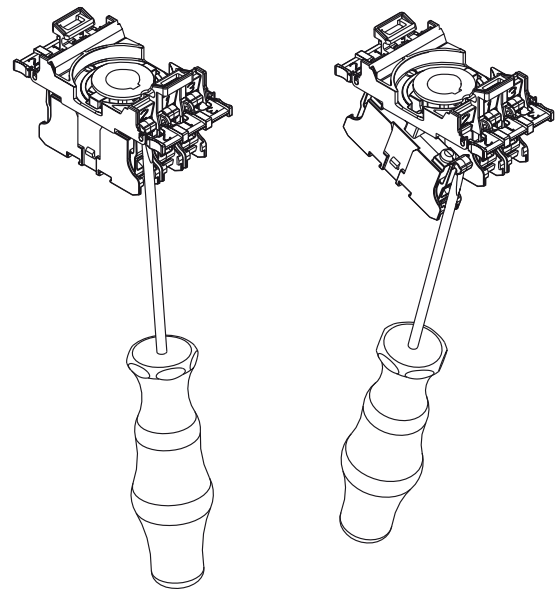
4. Disassembly of the contact carrier from the mounting flange

Insert the screwdriver in the latch of the contact support. The unlocking device is opened through slight pressure against the mounting flange. Now additionally move the screwdriver gently in the direction of the contact support – this releases the contact support from the mounting flange. This procedure should be repeated on the opposite side. 5. Disassembled contact carrier and opening of the contact lug



By lifting both contact lugs, these are released from the latching mechanism and can be folded back 90°. Now, the contact elements can be disassembled.

6. + 7. Disassembly of the contact elements of the first row





The disassembly of the contact elements is now possible as described in 1. and 2. The outer contact elements should be disassembled first. After that, the central contact element can be disassembled as well.

6.2 Disposal

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

7.1 EC Declaration of conformity

	
<h2>EC Declaration of conformity</h2>	
Translation of the original declaration of conformity valid as of December 29, 2009	Elan Schaltelemente GmbH & Co. KG Im Ostpark 2 · 35435 Wettenberg Germany Internet: www.elan.de
We hereby certify that the hereafter described safety components both in its basic design and construction conforms to the applicable European Directives.	
Name of the safety component:	RDRZ45 RT
Description of the safety component:	Emergency stop pushbutton with latching
Harmonised EC-Directives:	2006/42/EC EC-Machinery Directive
Person authorized for the compilation of the technical documentation:	Ulrich Loss Möddinghofe 30 42279 Wuppertal
Place and date of issue:	Wettenberg, May 11, 2009
RDRZ45RT-B-EN	
	Authorised signature Heinz Schmersal Managing Director



Note

The currently prevailing Declaration of Conformity can be downloaded from the Internet: www.elan.de



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