



**EN** Operating instructions..... pages 7 to 12  
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](http://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](http://www.schmersal.net).

**NL** U vindt de huidige versie van de gebruikshandleiding in uw officiële landstaal op het Internet, [www.schmersal.net](http://www.schmersal.net).

**IT** Il manuale d'istruzioni aggiornato nella vostra lingua (lingua ufficiale UE) è scaricabile in Internet all'indirizzo [www.schmersal.net](http://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](http://www.schmersal.net)) からダウンロードできます。

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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 damages 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.schmersal.net](http://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 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 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:

EDR① ② ③ ④		
No.	Option	Description
①	R	Latching only in combination with EFR, turn and pull to unlock
	RZ	Latching only in combination with EFR, turn to unlock
	Z	Turn to unlock, without EFR
	RS	With cylinder lock, unlocking only by key, only by pulling, with EFR
②	50	Head diameter 49 mm
	40	Head diameter 38.5 mm
③		Mounting hole 22.3 mm
	VH	Mounting hole 30.5 mm
④	RT	Red colour

Not all component variants, which are possible according to this order code, are available.

 Only if the information described in this operating instructions manual is 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 EDR series emergency stop command devices are designed for use in emergency stop circuits to EN 13850.

**2.4 Technical data**

Standards:	IEC 60947-5-1, IEC 60947-5-5, IEC 60947-1, EN ISO 13850
Design:	round
Mounting Ø:	22.3 mm
Spacing:	for head Ø 40 mm: 50 × 40 mm, for head Ø 50 mm: 50 × 50 mm
Front plate thickness:	1 ... 6 mm
Mounting position:	any
Climate resistance to DIN EN 60068:	Part 2-30
Ambient temperature:	-25°C ... +75°C
Protection class to IEC 605290:	IP 65
Fully insulated:	yes

Material mushroom button:	Al anodised
Fixing:	with mounting flange
Max. tightening torque for the ELM fixing screws:	0.6 Nm
Actuating force:	approx. 25 N
Mechanical life:	1 x 10 <sup>5</sup> operations
Rohs compliant:	yes
<b>Contact elements</b>	
Standards:	IEC/EN 60947-5-1
Rated operating voltage U <sub>e</sub> max.:	400 V
Rated insulation voltage U <sub>i</sub> for degree of pollution 3 to EN 60947-1:	400 V
Rated impulse withstand voltage U <sub>imp</sub> :	4 kV
Thermal nominal current I <sub>the</sub> (in air):	10 A
Rated operating current I <sub>e</sub> depending on the utilisation category and rated operating voltage U <sub>e</sub> :	8 A, AC-15, 250 VAC 5 A, DC-13, 24 VDC
Contact reliability:	5 VDC / 1 mA
Max. fuse rating:	gG 10 A
Evidence of the positive break:	2.5 kV impulse voltage
Positive break travel:	approx. 2 mm after the opening point
Air clearances and creepage distances to DIN EN 60664 1:	4 kV/3
Switching points:	depending on the contact execution
Temperature range:	-25°C ... +60°C
Climate resistance to DIN EN 60068:	Part 2-30
Mounting position:	any
Mechanical life:	10 x 10 <sup>6</sup> operations
Actuating force at stroke end:	approx. 9 N
Terminal labelling:	to IEC 60947-1
Termination:	Screw connection Flat plug-in connector Clamp connection
Cable section:	solid wire: 2 × (2 ... 2 mm <sup>2</sup> ) stranded wire (with conductor ferrules): 2 × (0.5 ... 1.5 mm <sup>2</sup> )
Tightening torque for the connecting screw:	max. 1 Nm
Shock-protection:	available (to EN 50274 and BGV A2)
Protection class:	Connections: IP 20 (finger-safe) Switching elements: IP 40
Approvals:	cULus (save cage clamp connection)

**2.5 Safety classification**

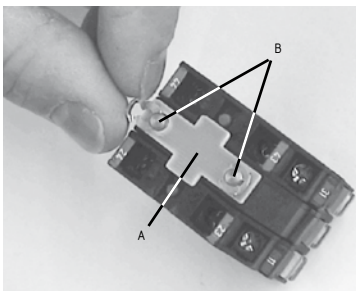
Standards:	EN ISO 13849-1
B <sub>10d</sub> (NC contact):	100,000
Service life:	20 years

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

**3 Mounting**

**3.1 General mounting instructions**

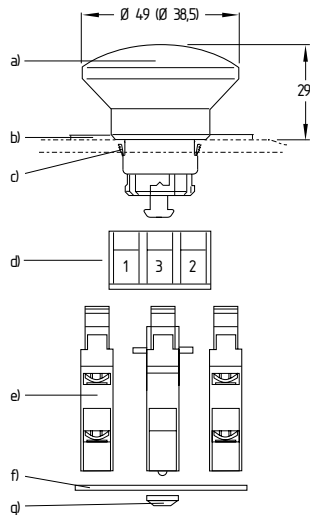
- Fit the EDR EFR emergency stop actuator in non-actuated condition by means of the EFM mounting flange, align and tighten (max. 0.6 Nm).
- Snap the EFR spring element in the middle position of the EFM mounting flange (position 3). The EFR spring element is supplied in tensioned condition.
- The EDRR EFR actuator is latched, i.e. mechanically fixed, to the EFR spring element by actuation. By rotating to the right and consecutive pulling, the spring element is retensioned and the emergency stop command device is brought back to its basic position.
- Snap the EF contact element(s) into position(s) 1 (and/or 2) of the EFM mounting flange.
- EFR spring element: to avoid fitting errors, we recommend to fit the enclosed locking plate (A) by means of both locking rings (B) 4 mbo 09 after the contacts have been snapped on (see photo). No special tools are required. This locking plate ensures a proper fitting and fixation of the contact elements.



- The emergency stop device is now ready for operation.

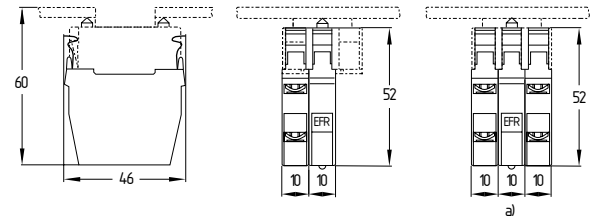
**3.2 Dimensions**

**Dimensions of the EDRR emergency stop command device**



- a) EDRR. emergency stop actuator
- b) Emergency stop label
- c) Clamping element
- d) ELM mounting flange
- e) 2 x EF contact element (Pos. 1 + 2),  
1 x EFR spring element (middle, Pos. 3)
- f) Locking plate
- g) Locking rings 4 mbo 09

**Dimensions of the EF contact elements in fitted condition**



- a) Maximum number of contacts (2 contact elements, max. 4 contacts)

**4 Electrical connection**

**4.1 Important notes**

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.

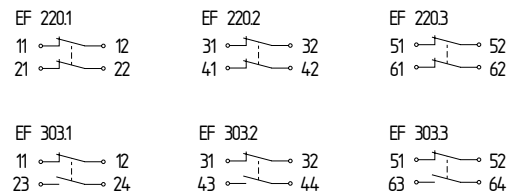
After wiring, the contact elements must be cleaned (i.e. remove excess cables etc.).

The fixing screws of the contact element must be tightened with 0.8 Nm tightening torque.

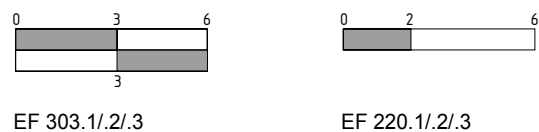
**4.2 Contact variants**

The following contact combinations may be used:

- Screw or plug-in terminals:
  - 1 x EF 303 (1 NC/1 NO contact) + 1 x EF 220 (2 NC contacts) or
  - 2 x EF 303 (1 NC/1 NO contact) or
- EFK cage clamp: contact data upon request



**4.3 Switch travel**



**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:

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

**5.2 Maintenance**

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

- Check the correct fixing of the emergency stop command device and the contact element
- Remove particles of dust and soiling
- Check cable arrangement and connections

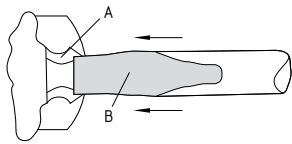
**Damaged or defective components must be replaced.**

**6 Disassembly and disposal**

**6.1 Disassembly**

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


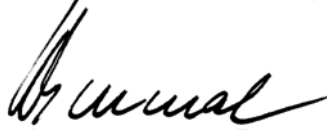
- Disassembly of the EF... contact element(s)
- Actuate/snap in EDR emergency stop actuator and turn
- Spread the spring (A) between the EDRR actuator plunger and the EFR spring element by means of a screwdriver (B) or similar (refer to drawing). The actuator jumps back into basic position.
- Snap off the EFR spring element, disassembly the actuating head if necessary.



**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

	
<b>EC Declaration of conformity</b>	
Translation of the original operating instructions valid as of December 29, 2009	Elan Schaltelemente GmbH & Co. KG Im Ostpark 2 · 35435 Wettenberg Germany Internet: <a href="http://www.elan.de">www.elan.de</a>
We hereby certify that the hereafter described safety components both in its basic design and construction conforms to the applicable European Directives.	
<b>Name of the safety component:</b>	EDR EFR
<b>Description of the safety component:</b>	Emergency stop pushbutton with latching
<b>Harmonised EC-Directives:</b>	2006/42/EC EC-Machinery Directive
<b>Person authorized for the compilation of the technical documentation:</b>	Ulrich Loss Mödinghofs 30 42279 Wuppertal
<b>Place and date of issue:</b>	Wuppertal, October 6, 2009
	 Authorised signature Heinz Schmersal Managing Director



**Note**

The currently prevailing Declaration of Conformity can be downloaded from the Internet: [www.elan.de](http://www.elan.de)



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