

**Control devices and indicator lights  
for 22.3 mm installed diameter  
Heavy duty series  
Catalogue D-22R – Type series R**





### Caution!

The devices in this delivery range are not intended for the private consumer, i.e. they are not consumer products in the sense of the European Directives (in Germany in the Sense of § 5 GPSG, the Equipment and Product Safety Act) or other national statutory regulations.

The assembly and commissioning of the devices require personnel who have appropriate knowledge of basic electronics or have been instructed accordingly.

Technical modifications and errors reserved. The data quoted in this list are carefully checked typical series values.

Or as the old Greeks knew already:

*By no means did the gods reveal all things to mortals from the beginning, but in time, by searching, we discover better.*

Xenophanes  
(Greek philosopher, born 580/577 B.C.)

Descriptions of the control contexts, details on external controls, installation and operating information or suchlike are given to the best of our knowledge. This does not mean however that any assured properties or other claims under liability law that extend beyond the "General Delivery Conditions for Products and Services in the Electrical Industry" may be derived.

The user is not absolved of his obligation to examine our information and recommendations before using them for his own purposes. We trust you understand and will heed this information.

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# Control devices and indicator lights for 22.3 mm installed diameter to EN 60947-5-1 Pt. 6.3.1

## General description



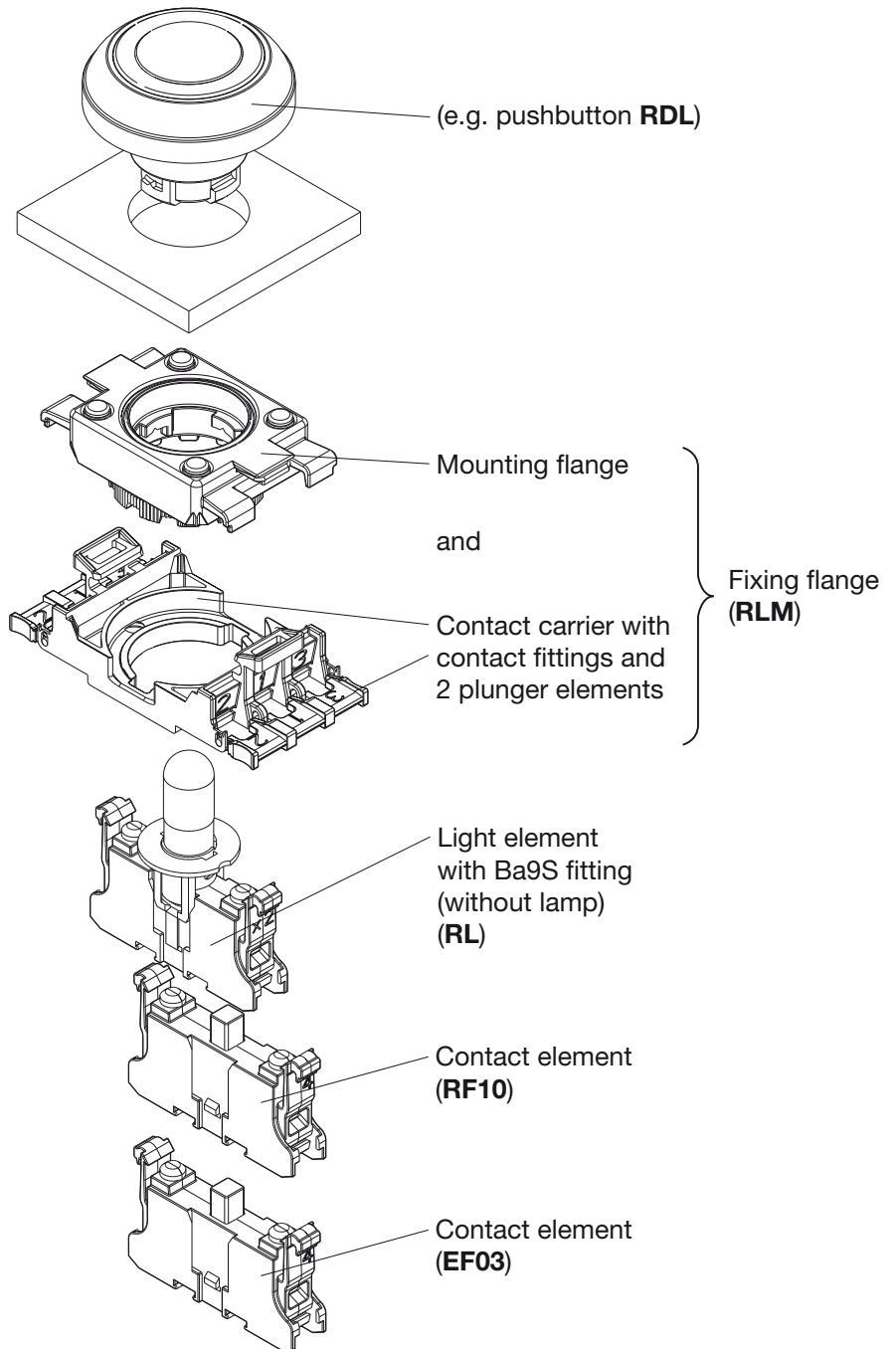
### Design

With the new development of this 22 mm control device and indicator light range, Elan provides a switching device concept to provide the user with additional device functionality, reliability and spatial use beyond the usual standard. The RF/RL contact and light element system makes a special contribution here. Traditionally tried-and-tested features in earlier Elan designs (metal bezels, glass lens covers, knobs of selector switches/pushbuttons made of impact-resistant plastic) have been improved.

ATEX-suitable devices are similarly available.

### Control devices and indicator light actuators

A variety of fully insulated pushbuttons/slam buttons/illuminated pushbuttons/selector switches/key-operated switches etc. is offered. The actuators are made of anodised aluminium with a large actuating diameter of 28 mm for pushbuttons and illuminated pushbuttons. The pushbuttons are made of anodised aluminium. The lens covers of the illuminated pushbuttons and indicator lights are made of glass. In addition to the high mechanical strength, this material selection permits an above-average degree of resistance to heat and chemical effects (such as from cleaning, lubricating and cooling agents).



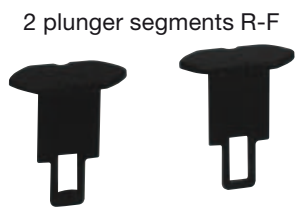
### Type of protection

The front seal of these devices corresponds to type of protection IP 65 in accordance with EN DIN 60529. The design features of the device sealing guarantee the high type of protection over a long period of time, also under extreme conditions, e.g. through oil, organic and inorganic grease residue, grinding dust and high switching frequency.

### Structure of range

A control and indicator device consists of actuator, mounting flange and contact or light element. The type designation for this type series starts with R..., e.g. RDT for a pushbutton. The mounting flange (divided into two, type RLM) is not part of the scope of delivery of the actuators.





RLM\*

**One-hole fixing**

The devices are designed in accordance with DIN EN 50047 for single bore holes of a 22.3 + 0.4 mm diameter. An additional cut-out to prevent rotation is not required.

**Grid dimensions**

It is possible to install several devices with minimum dimensions as follows:

Minimum distance between fixing holes to DIN EN 50047:

- Horizontal: 40 mm
- Vertical: 50 mm

Exceptions: selector switches/pushbuttons with long knob, emergency stop buttons RDR 50 and RDRZ45 rt.

The installation depth with 3 contacts is 45 mm (see page 18 bottom).

**Device installation**

The actuator is accurately aligned and firmly plugged into the bore hole. The retention lugs have a self-holding function so that the mounting flange can be pushed up from the rear of the front panel and then rotated into locked position using the supplied fixing tool.

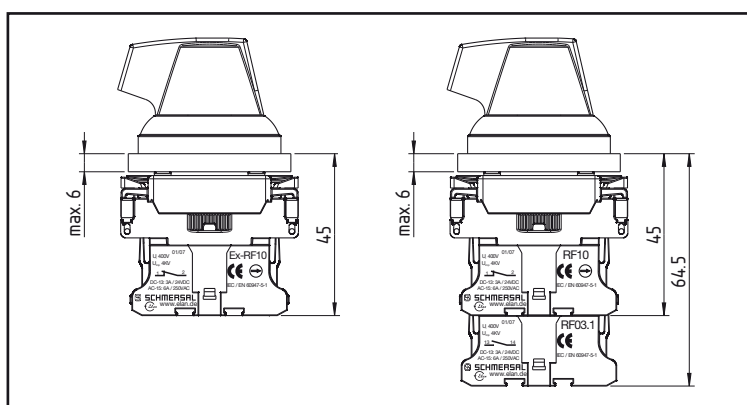
The contact bracket serves to preassemble the contact elements RF or the light element RL. The fixing flange includes mounting flange, contact bracket and the two plunger segments.

In the case of two or three contact elements arranged beside each other (1<sup>st</sup> layer), 1 plunger segment (in the case of two contacts) or 2 plunger segments (in the case of three contacts) were attached by simply pushing them onto the middle contact element in the trapezoid groovings left and right of the housing. This plunger segments serve to actuate the contact elements located in positions 2 and 3. No plunger segments are required for contact elements arranged beneath each other. After snapping on the elements to the contact brackets, they are pushed onto the mounting flange. Using the contact lugs attached to the right and the left-hand side, the contact elements are additionally fixed so that incorrect assembly or detachment in the case of strong vibrations is not possible.

With contact multiplication (starting from the 4th contact) the NC contact elements should be fitted to the uppermost row, i.e. next to the bezel so that the above described mechanical securing is effective (particularly for EMERGENCY STOP devices).



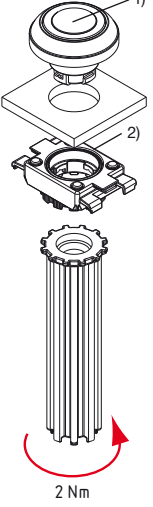
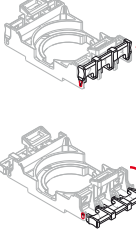
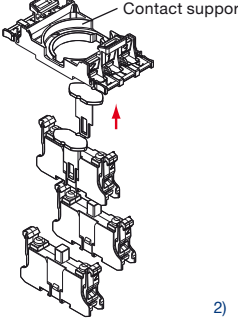
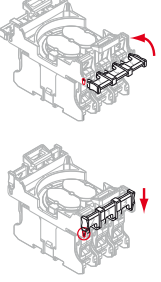
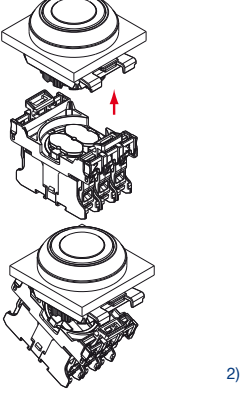
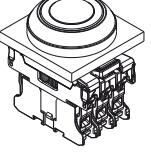
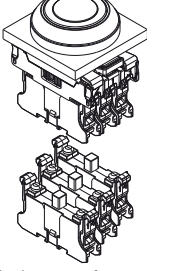
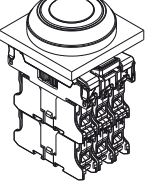
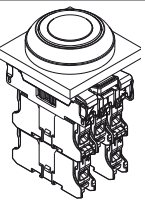
\* belongs to the scope of delivery of the device heads



- Installation depths:
- left: with 1 contact level
  - right: with 2 contact levels

# Control devices and indicator lights for installation diameter 22.3 mm in accordance with EN 60947-5-1 pt. 6.3.1 Assembly and dismantling information

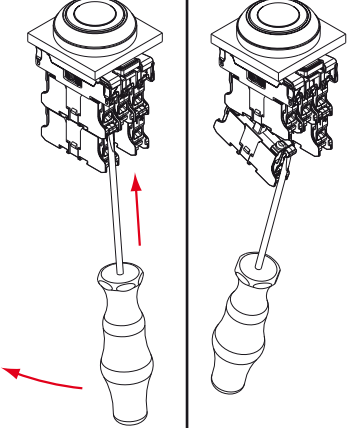
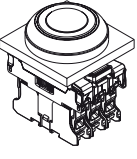
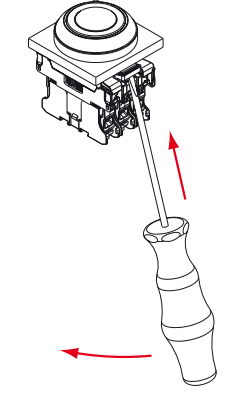
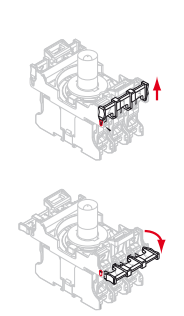
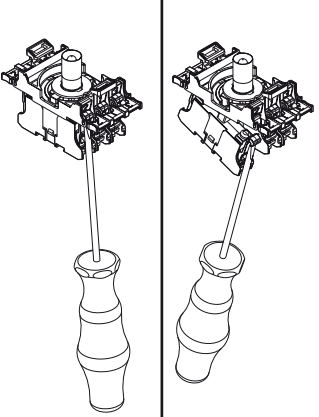
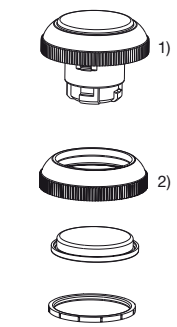
Assembly of the control devices/pilot lights/pushbuttons (upper row) or the illuminated pushbuttons (below) for front plate thickness 1 ... 6 mm<sup>1)</sup>

1. Assembly of operating element and mounting flange with aid of the mounting tool RMW (p. 19) through "clockwise twist"	2. Opening of the contact locking devices	3. Preliminary assembly of light/contact elements to the contact support	4. Folding and downpressing of the contact locking devices	5. Assembly of the pre-assembled contact support to the mounting flange	6. First row ready assembled (with 3 contact elements or with 1 light element and 2 contact elements)	7. Assembly at the second contact element level	8. Second contact element level ready assembled (with 2 or 3 contact elements)
 <p>1) Control head 2) Mounting flange</p>		 <p>Before assembly of the contact elements onto the contact support the two plunger segments should be mounted onto the central contact element through simple insertion in the trapezoidal grooves left and right. Snap this contact element onto the central position (1) of the contact support. In the case of light element RL/RLDE this tappet is already pre-assembled. This light element must always be on the center position of the contact support (pos. 1). Further contact elements can be mounted to positions 2 and 3 on the contact support.</p>	 <p>The wiring of the contact and light elements can be formed.</p>	 <p>The contact locking devices left and 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 (refer also to point 4 of this assembly information).</p> <p>Engage the contact support on mounting flange on one side. Then repeat this process on the opposite side.</p>	 <p>The contact locking devices are automatically also fixed once the contact support has been snapped onto the mounting flange. This precludes incorrect assembly. Correct assembly should be checked once again.</p>	 <p>In the case of contact duplication (from 4<sup>th</sup> contact) the NC contact elements should be mounted in the top row (i.e. the closest to the front panel) so that the previously described mechanical locking is effective (in particular for emergency-stop devices).</p> <p>3 additional elements are possible in the case of 3 contact elements in the 1<sup>st</sup> row. 2 additional elements are possible in the 2<sup>nd</sup> row (not under light element) in the case of a light element in the first row.</p>	 <p>Push button with max. number of contacts (6 contact elements)</p>  <p>Illuminated push-button with max. number of contacts (4 contact elements)</p>



- 1) Assembly only on clean, fat-free underground!
- 2) Attention: After assembly of the contact and light elements the both contact locking devices (left and right next to the contact elements) must be folded 90° up and then dragged down to allow a locking. To guarantee a slight disassembling of the contact support we recommend a screwdriver with a width of 5.5 mm.

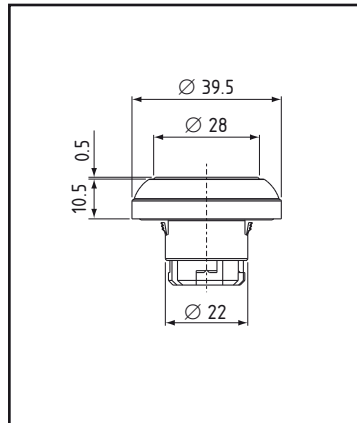
## Dismantling of the RF/RL elements (EF is dismantled "from above")

1. + 2. Dismantling of the contact elements in the second row	3. Second row dismantled	4. Dismantling of the contact support from the mounting flange	5. Dismantled contact support and opening of the contact locking devices	6. + 7. Dismantling of the contact/light elements in the first row	Membrane exchange
					
<p>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.</p> <p><b>4</b></p>		<p>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.</p>	<p>By lifting both contact locking devices these are released from the catch mechanism and can be folded back 90°. Thereafter the contact or light elements can be dismantled.</p>	<p>Dismantling of the contact elements is now possible as described in 1. and 2. The outer contact elements should be dismantled first. Thereafter the central contact or light element can be dismantled.</p>	<p>1) Front ring 2) Membrane R-M (1187517)</p> <ul style="list-style-type: none"> <li>• Screw off front ring from device head</li> <li>• Exchange membrane R-M</li> <li>• Screw front ring in reverse order</li> </ul>

## Pushbuttons and pushbuttons with diaphragm Type series RDT .. and RDM ..



Pushbutton RDT ..

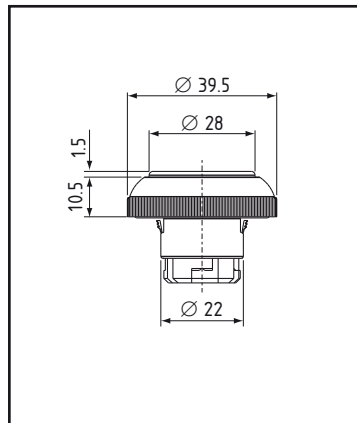


Pushbutton RDT ..

The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads.**



Pushbutton with diaphragm RDM ..



Pushbutton with diaphragm RDM ..

Pushbuttons				
Brief description	Colour	Type	Catalogue no.	Order no.
Pushbutton, button of Al, diameter 28 mm	black	RDT sw	083 0010	1188248
	yellow	RDT gb	083 0015	1188247
	red	RDT rt	083 0020	1188240
	green	RDT gn	083 0025	1188243
	white	RDT ws	083 0030	1188237
	blue	RDT bl	083 0035	1188245

Pushbuttons with diaphragm				
Brief description	Colour	Type	Catalogue no.	Order no.
Pushbutton with diaphragm button of Al, diameter 8 mm. The diaphragm protects the button from grinding dust or other pasty, viscous media. Symbols are still easily legible.	black	RDM sw	083 0410	1188272
	yellow	RDM gb	083 0415	1188265
	red	RDM rt	083 0420	1188270
	green	RDM gn	083 0425	1188 266
	white	RDM ws	083 0430	1188261
	blue	RDM bl	083 0435	1188271
Diaphragm as spare part		R-M	083 9350	118 7599

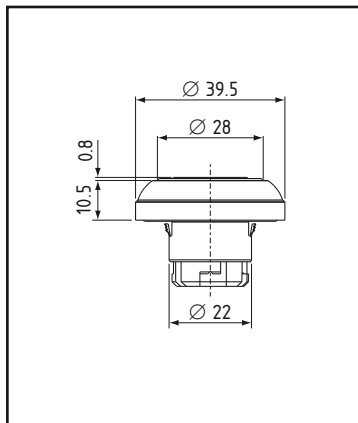
Contact elements: See page 18

Technical data: See page 28

## Illuminated pushbuttons and illuminated pushbuttons with diaphragm Type series RDL .. and RDLM ..



Illuminated pushbuttons RDL ..

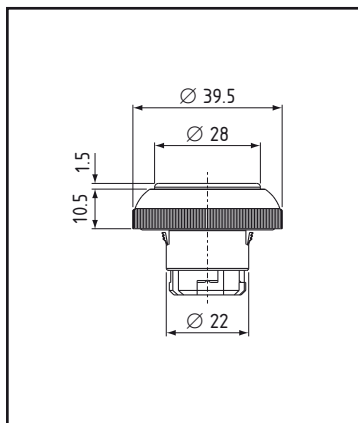


Illuminated pushbuttons RDL ..

The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads.**



Illuminated pushbuttons with diaphragm RDLM ..



Illuminated pushbuttons with diaphragm RDLM ..

Illuminated pushbuttons				
Brief description	Colour	Type	Catalogue no.	Order no.
Illuminated pushbuttons, swivel of glas, diameter 28 mm	yellow	RDL gb	0835015	1188253
	red	RDL rt	0835020	1188254
	green	RDL gn	0835025	1188257
	white	RDL ws	0835030	1188251
	blue	RDL bl	0835035	1188259

Illuminated pushbuttons with diaphragm				
Brief description	Colour	Type	Catalogue no.	Order no.
Illuminated pushbuttons with diaphragm, swivel of glas, diameter 28 mm. The diaphragm protects the button from grinding dust or other pasty, viscous media. Symbols are still easily legible.	yellow	RDLM gb	0835215	1188169
	red	RDLM rt	0835220	1188170
	green	RDLM gn	0835225	1188171
	white	RDLM ws	0835230	1188167
	blue	RDLM bl	0835235	1188172
Diaphragm as spare part		R-M	0839350	1187599

Light elements: See page 18

Technical data: See page 28

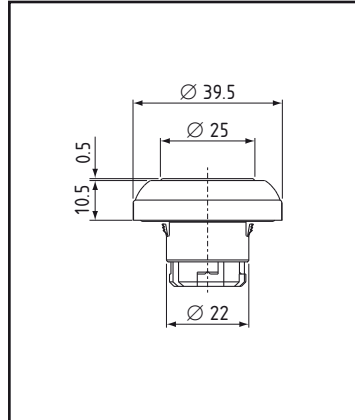
Ba9S-LED's: See page 19

## Pilot lights with flat swivel

### Type series RMLF ../RMEF ..



Pilot light RMLF ..

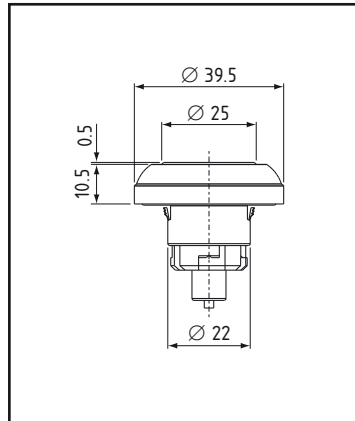


Pilot light RMLF ..

The mounting flange **RLM**, consisting of mounting flange, contact bracket with contact lug and two contact links, **belong to the scope of delivery of the device heads.**



Pilot light RMEF ..



Pilot light RMEF ..

Pilot lights with flat swivel				
Brief description	Colour	Type	Catalogue no.	Order no.
Pilot light for Ba9S-LEDs, flat swivel of glass	yellow	RMLF gb	0836015	1188293
	red	RMLF rt	0836020	1188294
	green	RMLF gn	0836025	1188295
	white	RMLF ws	0836030	1188292
	blue	RMLF bl	0836035	1188296
LED pilot light with integrated LEDs 24 VAC/DC, flat swivel of glass	yellow	RMEF gb	0837088	1188316
	red	RMEF rt	0837079	1188318
	green	RMEF gn	0837086	1188319
	white	RMEF ws	0837080	1188313
	blue	RMEF bl	0837082	1188320

Light elements: See page 18

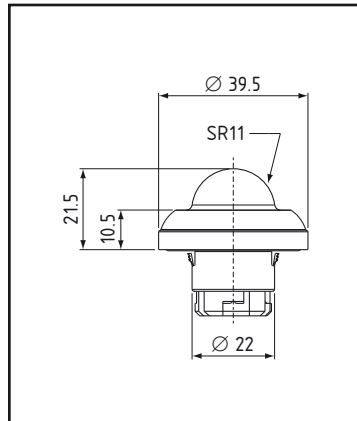
Technical data: See page 28

Ba9S-LED's: See page 19

## Pilot lights with protruding swivel Type series RMLH ../RMEH



Pilot light RMLH ..

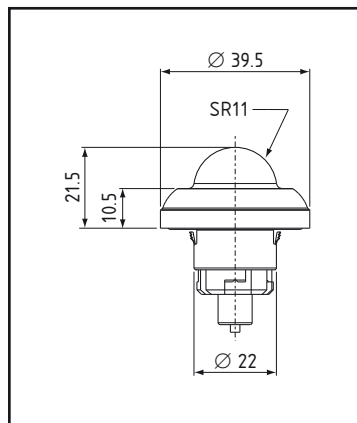


Pilot light RMLH ..

The mounting flange **RLM**, consisting of mounting flange, contact bracket with contact lug and two contact links, **belong to the scope of delivery of the device heads.**



Pilot light RMEH ..



Pilot light RMEH ..

Pilot lights with protruding swivel				
Brief description	Colour	Type	Catalogue no.	Order no.
Pilot light for Ba9S-LEDs, protruding swivel of impact-resistant plastics <sup>1</sup>	yellow	RMLH gb	0836115	1188298
	red	RMLH rt	0836120	1188299
	green	RMLH gn	0836125	1188310
	white	RMLH ws	0836130	1188297
	blue	RMLH bl	0836135	1188311
LED pilot light with integrated LEDs 24 VAC/DC, protruding swivel of impact-resistant plastics <sup>1</sup>	yellow	RMEH gb	0837040	1195069
	red	RMEH rt	0837036	1195070
	green	RMEH gn	0837038	1195071
	white	RMEH ws	0837045	1195068
	blue	RMEH bl	0837050	1195072

1) conditionally chemical-resistant (see table page 31)

Light elements: See page 18

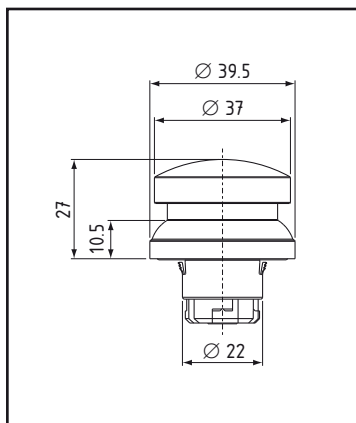
Technical data: See page 28

Ba9S-LED's: See page 19

## Mushroom-head impact buttons without latching Type series RDP40 ..



Mushroom-head impact button without latching RDP40 ..



Mushroom-head impact button without latching RDP40 ..

The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads.**

Mushroom-head impact buttons without latching				
Brief description	Colour	Type	Catalogue no.	Order no.
Mushroom-head impact button without latching, mushroom-diameter 39.5 mm	black	RDP40 sw	0830810	1188289
	yellow	RDP40 gb	0830815	1188288
	red	RDP40 rt	0830820	1188286
	green	RDP40 gn	0830825	1188287
	white	RDP40 ws	0830830	1188284
	blue	RDP40 bl	0830835	1188290

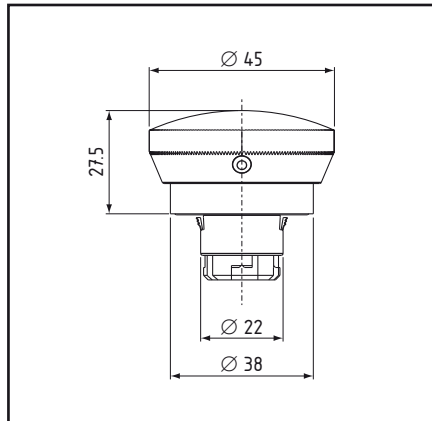
Contact elements: See page 18

Technical data: See page 28

## Mushroom-head impact buttons with latching Type series RDRZ45 ..



Mushroom-head impact button with latching RDRZ45 ..



Mushroom-head impact button with latching RDRZ45 ..

The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads.**

Mushroom-head impact buttons with latching				
Brief description	Colour	Type	Catalogue no.	Order no.
Mushroom-head impact buttons with latching, released by pulling	black	RDRZ45 sw	083 1310	1195097
	yellow	RDRZ45 gb	083 1315	1195098
	green	RDRZ45 gn	083 1325	1195099

Other colours: On request.

Contact elements: See page 18 (max. 4 contact elements are to be used)

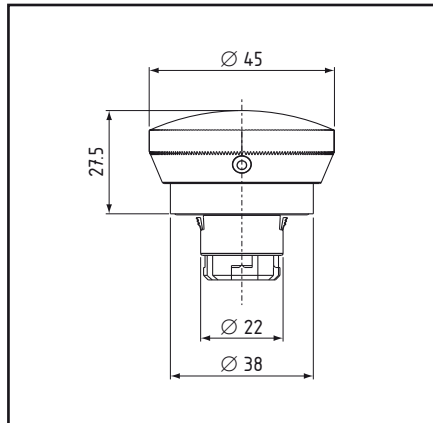
Technical data: See page 30



**EMERGENCY STOP mushroom-head impact button according to EN ISO 13850: 2006**  
**Type RDRZ45 rt**



EMERGENCY STOP mushroom-head button  
RDRZ45 rt



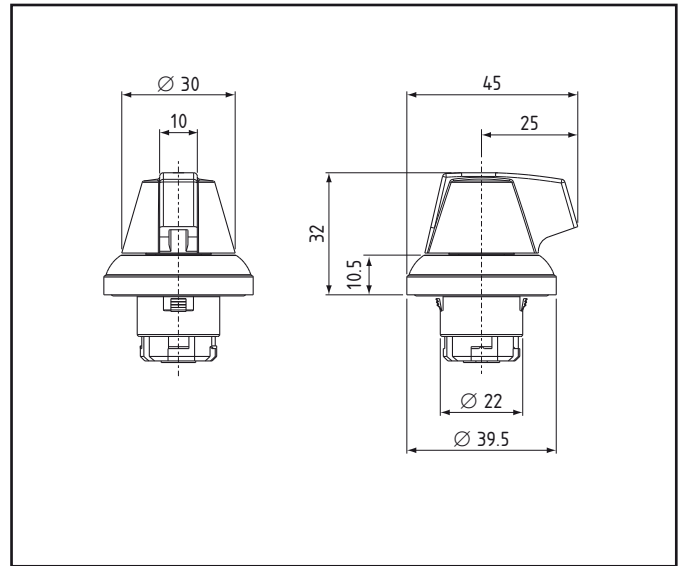
EMERGENCY STOP mushroom-head button  
RDRZ45 rt

The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads.**

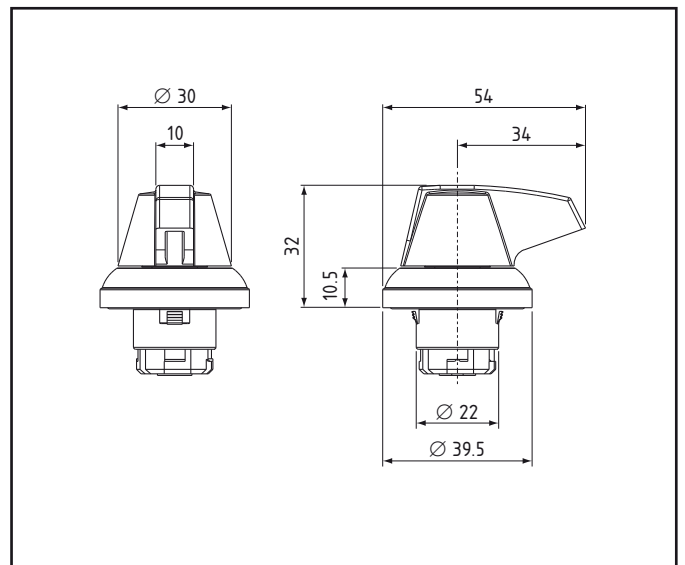
EMERGENCY STOP mushroom-head impact button				
Brief description	Colour	Type	Catalogue no.	Order no.
EMERGENCY STOP mushroom-head button with latching, released by pulling	red	RDRZ45 rt	083 1350	1193576

Contact elements: see page 18 (max. 4 contact elements are to be used)

**Selector switches/spring-return rotary selector switch/maintained spring-return rotary selector switch with short or long toggle**  
**Type series RWT.../RWS...**

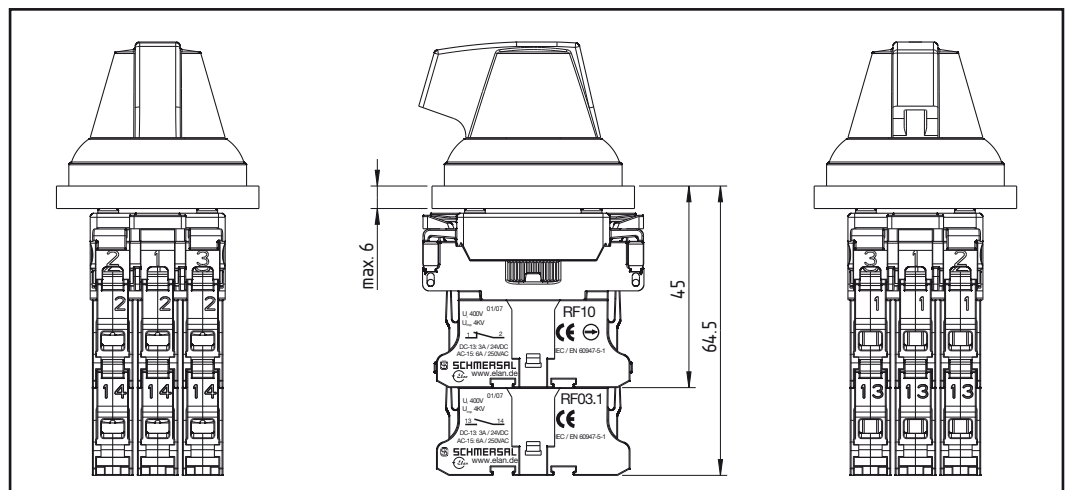


Spring-return rotary selector switch RWT 21/32 and selector switch RWS 21/32 with standard toggle (short)

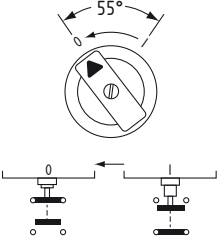
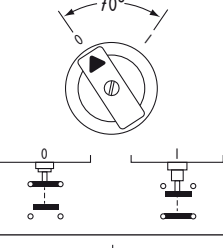
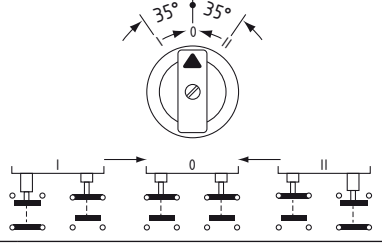
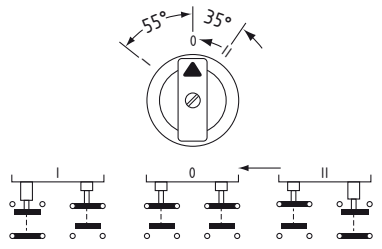
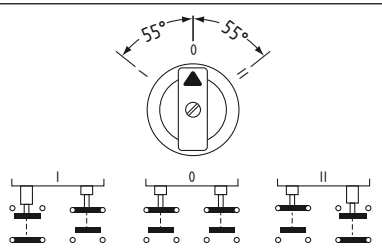
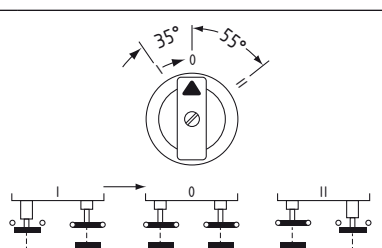


Maintained spring-return rotary selector switch RWT 21.1/32.1 and selector switch RWS 21.1/32.1 with long toggle

The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads.**



**Selector switches/spring-return rotary selector switches/maintained spring-return rotary selector switches/  
selector switch pushbuttons**

Brief description	Switching angle		Type	Catalogue no.	Order no.
Spring-return rotary selector switch with 2 positions	1 × 55°		RWT 21	0832000	1195518
			RWT 21.1	0832010	1195333
Selector switch with 2 latched positions	1 × 70°		RWS 21	0832060	1188350
			RWS 21.1	0832070	1195517
Maintained spring-return rotary selector switch with 3 positions	2 × 35°		RWT 32	0832020	1195593
			RWT 32.1	0832030	1195594
Selector switch push-button with 3 positions; right: latching, left: switching	right 35° left 55°		RWST 32	0832035	1195591
			RWST 32.1	0832040	1195592
Selector switch with 3 positions	2 × 55°		RWS 32	0832080	1188353
			RWS 32.1	0832090	1195590
Maintained spring-return rotary selector switch with 3 positions, right: switching, left: latching	right 55° left 35°		RWTS 32	0832045	1195595
			RWTS 32.1	0832050	1195596

.1-versions with long toggle (54 mm)

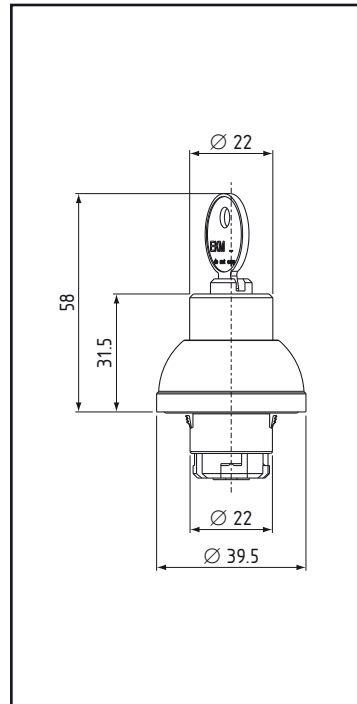
Selector switches/maintained spring-return rotary selector switches with long toggle need a grid dimension of 50 × 60 mm.

Contact elements: See page 18

Technical data: See page 28

## Key-operated selector switches/key-operated maintained spring-return selector switches/Key-operated switches

Type series RS.....



The mounting flange **RLM**, consisting of mounting flange, contact bracket, contact lug and two contact links, **belong to the scope of delivery of the device heads** (refer to page 19).

Key-operated selector switch RSS...21/...32 and key-operated switches RST...21/...32 with standard closure EKM 30; 2 keys belong to the delivery range of the standard closure EKM 30

Key-operated selector switches/selector switch pushbuttons					
Brief description		Key-withdrawal position	Type	Catalogue no.	Type no.
Key-operated selector switch with 2 latched positions		only left	RSS21S1	083 2170	119 5197
		only right	RSS21S2	083 2180	119 5283
		in both positions	RSS21S12	083 2190	119 5363
Key-operated selector switch with 3 latched positions		left	RSS32S1	083 2200	119 5365
		middle	RSS32S2	083 2210	119 5366
		right	RSS32S3	083 2220	119 5367
		in all 3 positions	RSS32S123	083 2230	119 5375
Key-operated spring-return selector switch with 1 touch position, automatic return to the zero position, latch position 55°		only left	RST21S1	083 2100	119 5364
Key-operated spring-return selector switch with 2 touch positions left and right, automatic return to the zero position		only middle	RST32S2	083 2140	119 5378
Key-operated selector switch pushbutton, touch position 35°, latch position 55° – left switching, right latching		S1 = only left	RSST32S1	083 2240	119 5379
		S2 = only middle	RSST32S2	083 2250	119 5381
Key-operated selector switch pushbutton with 3 positions, touch position 35°, latch position 55° – left switching, right latching		S2 = only middle	RSTS32S2	083 2260	119 5383
		S3 = only right	RSTS32S3	083 2270	119 5384
Spare key EKM 30 for CES lock (for RSS../RST.., standard for the above listed versions)			SDS2	072 1191	100 1629

Special locks and master key function available: On request

Contact elements: See page 18

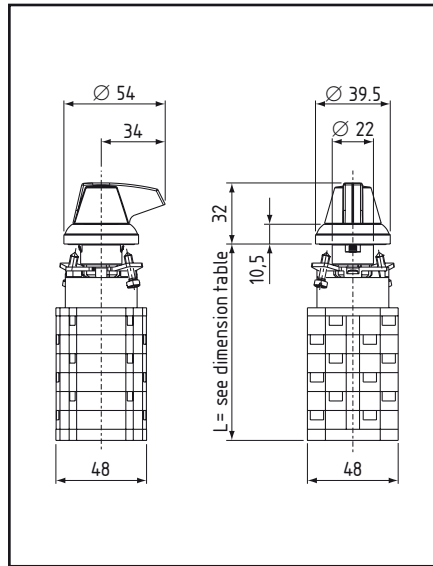
Technical data: See page 28

2 keys belong to the delivery range of the above listed devices

## Step switch with 2 ... 12 positions Type series RWSE..



Step switch RWSE..



Step switch RWSE..

### Design

Step switch with 2 to 12 positions consisting of a selector switch actuator and switching elements in cam switch design with latching (without zero position).

The 2-step switch has 3 poles; all other versions 1 pole.

If a zero position is required, we recommend selecting Step 1 (contact 1) for this and not to assign it.

Step switch						
Brief description	Number of steps	Switching angle	Length of the cam switch L (mm)	Type	Catalogue no.	Order no.
Step switch with 2 ... 12 positions, versions with long knob	2	60°	69.5	RWSE2K.1	0833100	1195856
	3	60°	60.0	RWSE3K.1	0833105	1195857
	4	60°	60.0	RWSE4K.1	0833110	1195858
	5	60°	69.5	RWSE5K.1	0833115	1195859
	6	60°	69.5	RWSE6K.1	0833120	1195860
	7	45°	78.0	RWSE7K.1	0833125	1195861
	8	45°	78.0	RWSE8K.1	0833130	1195862
	9	30°	87.5	RWSE9K.1	0833135	1195863
	10	30°	87.5	RWSE10K.1	0833140	1195864
	11	30°	97.0	RWSE11K.1	0833145	1195865
	12	30°	97.0	RWSE12K.1	0833150	1195866

With long knob (54 mm) as standard, shorter knob (45 mm): On request.

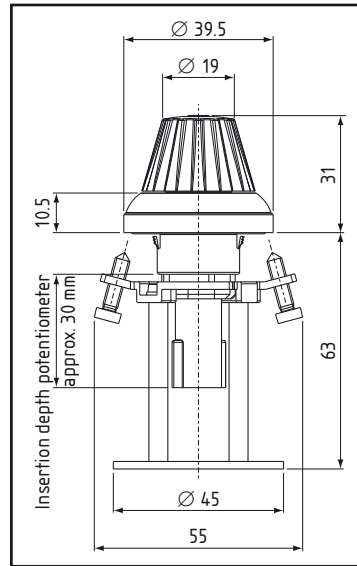
Lieferausführung komplett mit Befestigungsflansch and Schaltelement.

Technical data: See page 28

# Rotary drive for potentiometer Type RDAN6



Rotary drive with mounting flange for potentiometer RDAN6



Rotary drive with mounting flange for potentiometer RDAN6

Rotary drive for potentiometer					
Brief description	Shaft length	Shaft diameter	Type	Catalogue no.	Order no.
Rotary drive for potentiometer, grid dimension 50 × 60 mm	30 ... 40 mm	bis 6 mm	RDAN6	0832201	1188331

Shortened version behind front plate: On request.

## Design

This device consists of a ribbed rotating knob and a potentiometer holder with integrated mounting flange. The potentiometer itself does not belong to the scope of delivery.

The potentiometer holder consists of the mounting flange function, i.e. the supply of the actuators is therefore without the standard mounting flange RLM.

The rotary actuator for potentiometers is supplied in two assemblies:

- A rotary head switch with additional position display;
- Potentiometer holder with integrated mounting flange.

## Fitting instructions

The potentiometers are not part of the scope of delivery and must be procured from the respective manufacturers (see page 19).

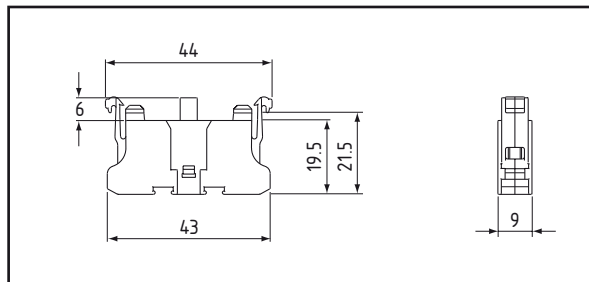
## Contact and light terminal blocks System RF.../RL...



Contact element RF 10...





Contact element RF 03...



Contact element RF...

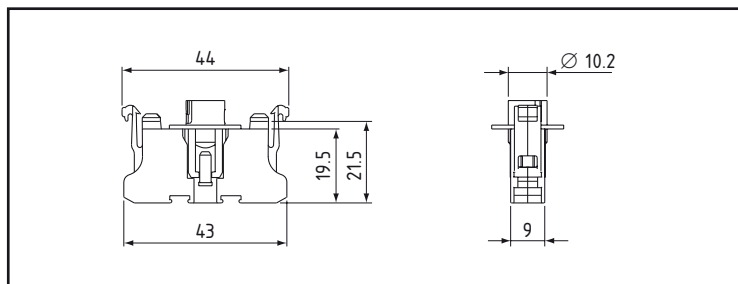
### Contact blocks with screw connection terminal

Function/contact path diagram	Contact label	Plunger colour	Type	Catalogue no.	Type no.
1 NC 	1, 2	red	RF 10 <sup>3</sup>	0280015	1190086
	11, 12	red	RF 10.1 <sup>3</sup>	0280016	1195133
1 NO 	3, 4	green	RF 03 <sup>3</sup>	0280045	1190087
	13, 14	green	RF 03.1 <sup>3</sup>	0280046	1195131

Contact with other connections: On request.



Light element RL



Light element RL

### Light terminal block with screw connection terminal

Brief description	Type	Catalogue no.	Order no.
Light terminal block with socket Ba9S (for LEDs or bulbs to max. 2 W)	RL <sup>1-3</sup>	0280195	1190088

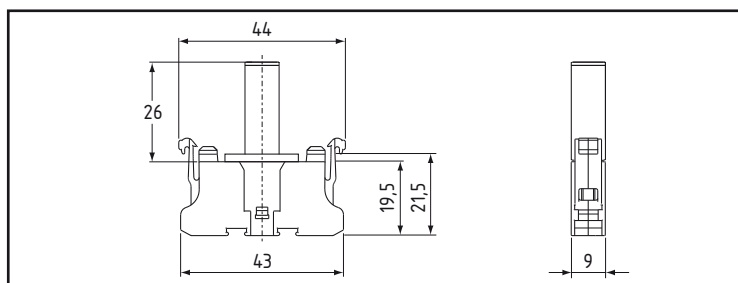
1) Bulb middle contact = X1

2) Bulbs max. 2 W (socketed LEDs recommended – see page 19)

3) Clipping in of label shields at the rear side possible (we recommend: Murr Plastik type KMR 6/15 86401022 or WGO 5/10-5 86401810).



Light terminal block  
RLDE .. 24



Light terminal block RLDE .. 24

### Light terminal blocks with integrated Multi-LEDs for pilot lights RMLH and illuminated pushbuttons RDL ../RDLM ..

Function/voltage	Colour	Type	Catalogue no.	Order no.
24 VDC/AC 	white	RLDE ws 24	0276600	1195136



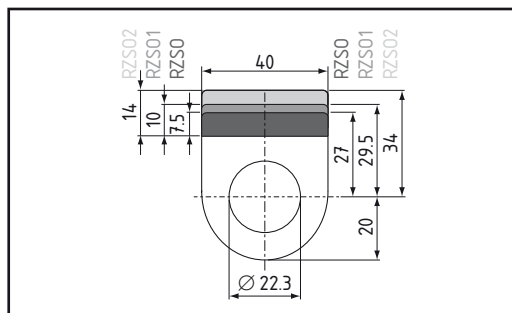
## Accessories for type series R



LED LE24/9 WS

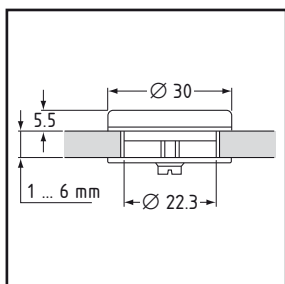


Mounting tool RMW

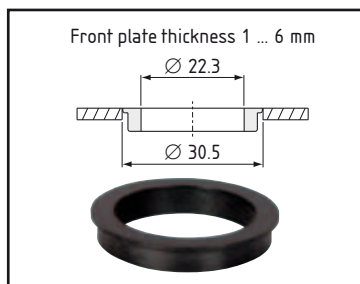


Labels:

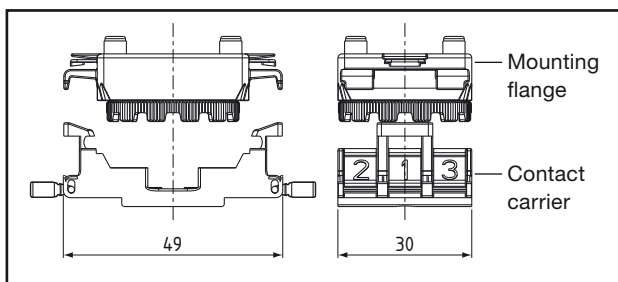
- RZSO: for 1-line inscriptions in horizontal and vertical (distance between centres  $\geq 50$  mm) arrangement in housing installation and individual arrangement
- RZSO1: for 1- and 2-line inscriptions in vertical arrangement (distance between centres  $\geq 50$  mm) in housing installation and individual arrangement
- RZSO2: for 2- and 3-line inscriptions in horizontal asymmetrical arrangement in housing installation and individual arrangement



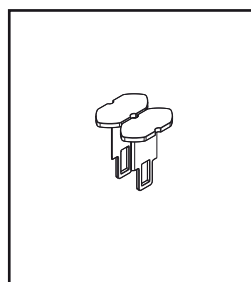
Blind plug MBN



Adapter ring RUE  
(30.5 mm to 22.3 mm)



Mounting flange RLM  
(belongs to the scope of delivery of the device heads)



2 plunger segments  
type R-F (belongs to the  
scope of delivery of the  
device heads)



Spare key SDS 2

Accessories			
Brief description	Type	Catalogue no.	Order no.
Socketed Ba9S-LEDs, 24 V	LE24/9 WS	0690030	1030894
Socketed Ba9S-LEDs, 230 V	LE230/9 WS	0690031	1186864
Label 47 mm high	RZSO	0839000	1205579
49.5 mm high	RZSO1	0839006	1192207
54 mm high	RZSO2	0839002	1205031
Mounting tool for mounting flange	RMW	0839005	1188787
Membrane	R-M	0839350	1187517
Blind plug Al for 22.3 mm hole	MBN	0716201	1009241
Blind plug Al for 30.5 mm hole	BN	0710300	1009118
Adapter ring of POM for use of $\varnothing 22$ mm operation heads with 30.5 mm control devices	RUE	0839010	1192392
Spare key for key-operated switches (see page 15), EKM 30 standard	SDS2	0721191	1001629
Mounting flange, consisting of mounting flange, contact carrier with contact lug and 2 plunger segments	RLM	0839015	1188815
1 plunger segment for „take-along“ the contacts on pos. 2 and 3	R-F	0839020	1196132

\* Bulbs (max. 2 W): on request

## Accessories

### for EMERGENCY STOP control devices RDRR50 rt

#### Protective collar against unintended actuation

Short description:

- Contrast colour yellow
- Bezel thickness max. 3 mm
- Protective collar height 27.5 mm

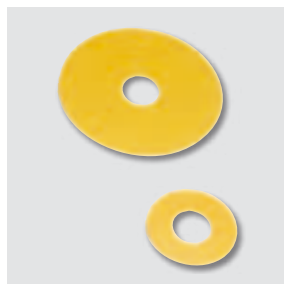


Protective collar EDRR-2

#### EMERGENCY STOP plates

Short description:

- Aluminium painted yellow to RAL 1012
- Without lettering.



EMERGENCY STOP plates MDP-6 (top) and MDP-8

Supply tables				
Brief description	Version	Type	Catalogue no.	Order no.
Housing light metal encapsulated (see page 21)	Empty housing with yellow lid, bore holes	MBG 311/GB	064 5214	100 8292
Protective collar – for operating parts up to head- $\varnothing$ 49 mm	for installed diameter 22.3 mm	EDRR-2	071 3253	102 4271
EMERGENCY STOP plates – for installed diameter 22.3 mm	53 mm outside diameter 100 mm outside diameter	MDP-8 MDP-6	070 1939 070 1921	100 1336 100 9084
– for installed diameter 22.3 mm, high-grade steel	70 mm outside diameter	NDP-70	080 1310	117 0003

# EMERGENCY STOP equipment

## Housings (mounting boxes) and accessories

### Light metal encapsulated housing

This housing (top view and fixing holes: See drawing/ overall height 80 mm) is made of solid cast light metal to make it tough and resistant. The sealing is provided in such a way that the fixing holes of the housing are outside the lid sealing so that the reliable encapsulation cannot be impaired. The design enables a protection type of IP 65.



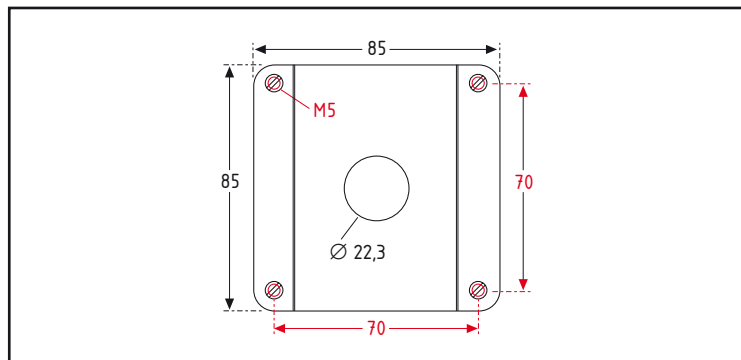
MBG 311/GB



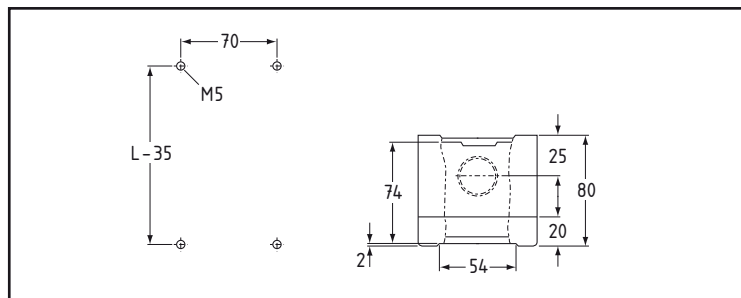
MBGH 311/GB

The housing and lid are painted inside and out with corrosion-proof stove-enamel coating:

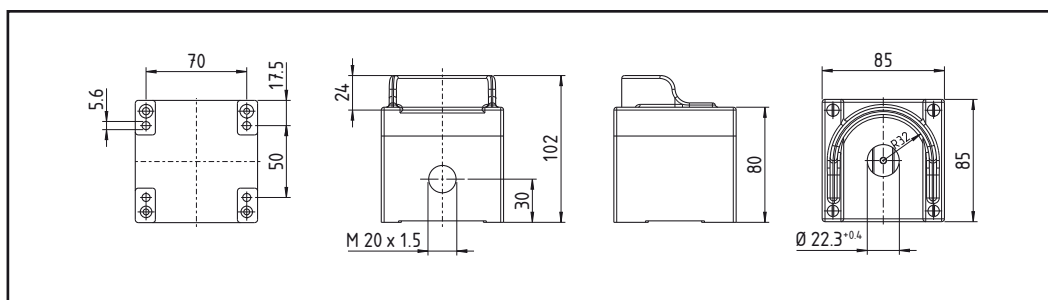
- Basic housing: dark grey RAL 7012
- Lid: yellow similar to RAL 1012



### Dimensions and fixing holes EMERGENCY STOP equipment housings



### Dimensions and fixing holes equipment housings with protective shroud



## Light-metal panel mounting boxes



MBG 311

These housings consist of a strong light alloy casting. They are therefore robust and rugged. The seal is designed in such a way that the fixing holes for the housing lie outside the lid seal and the reliable encapsulation is thus not impaired. The design provides protection to class IP 65. If identification plates are used, the seals supplied should be inserted.

The housing and lid are coated inside and out with corrosion-resistant stove-enamelled paint as follows:

- Basic housing:  
dark grey RAL 7012
- Lid or front panel:  
silver grey RAL 9006

Control and indicator devices can be accommodated in the boxes in widely differing arrangements. The size of the housing is therefore determined by the required fitting hole centres either 40 mm or 50 mm (without RZSO).

The front cover, once removed, can only be screwed back on in one specific unmistakable position. This is achieved by means of a cast projecting lug on the shorter side of the housing.

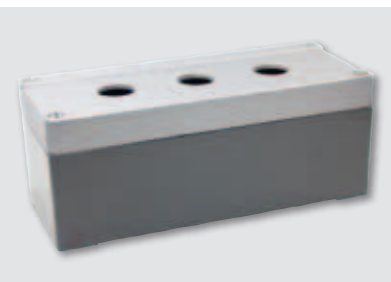
### M-cable gland holes

Mounting box with 1 lid fitting hole M20; from box-length 245 mm M25 on the shorter side bottom or right at horizontal arrangement (without compression gland fittings).

On request and at extra costs, panel mounting boxes are available with the following tapped holes and also with metal compression gland fittings:

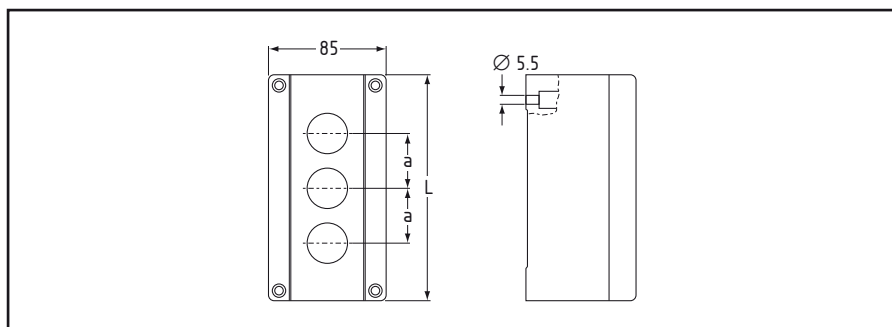
On one or both shorter sides

- 2 × M20 × 1.5 or
- 1 × M25 × 1.5.

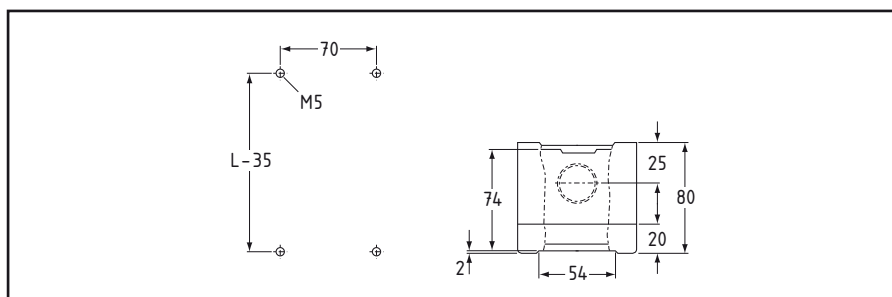


MBG 433

### Dimensions light-metal panel mounting boxes



### Dimensions and fitting holes light-metal panel mounting boxes



# Light-metal panel mounting boxes

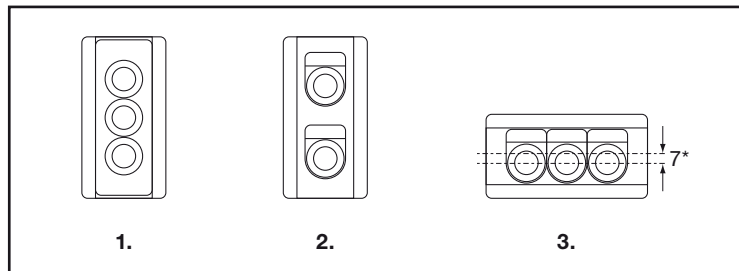
## Versions, inscriptions and symbols

In addition to the colouring of the control devices and indicator lights, further identification by means of symbols and inscriptions is often advisable and appropriate.

The following possibilities are provided for this purpose:

- Symbols on the button or under the flat glass lens (see page 26)
- Inscriptions and symbols on the common aluminium plate MBG...
- Inscriptions on individual name plates RZSO (see page 19)

### Example



\* 7 mm outside the middle

### For panel boxes and front panels with asymmetrical arrangements of control devices and indicator lights:

- 1) with common aluminium name plate MBG... (40 mm distance between centres necessary)
- 2) with individual RZSO1 identification plates (50 mm distance between centres necessary)

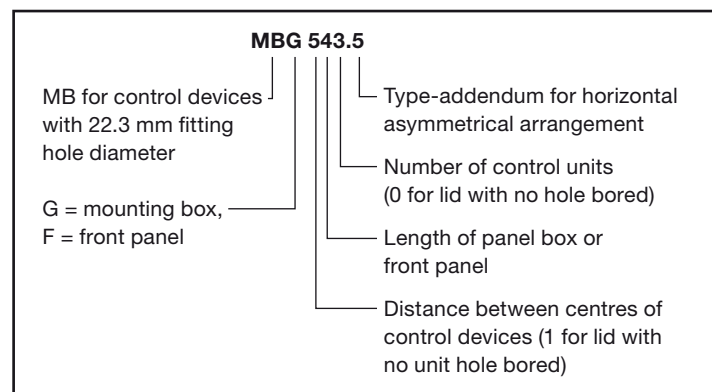
**Attention:** Engravings cannot be provided on the control device surround. They can only be provided on the moving part of the pushbutton or in illuminated pushbuttons and indicator lights.

### For panel boxes and front panels with asymmetrical arrangements of control devices and indicator lamps

- 3) with individual RZSO2 identification plates (for horizontal asymmetrical arrangement only)
- without name plates:  
**Type-addendum .5**

**Order identification plates always separately (refer to the list of the needed sizes at page 24).**

### Explanation of the type designation



### Yellow EMERGENCY STOP discs

53 mm outside diameter to fit panel boxes and front panels with a minimum hole centre distance  $a = 50$  mm necessary, see page 20.

When ordering please specify the following:

- Size of panel box or front panels.
- Details of the control devices and indicator lights to be fitted including colour, inscription and symbols on the bottom or to be fitted in the flat disk on the lens head (applies only to fitted devices).
- Details of additional or other M-cable gland tapped holes.
- Metal-compression gland fittings.
- Identification plates (EMERGENCY STOP disks), individual name plates or common aluminium name plate).

## Light-metal panel mounting boxes

### Delivery tables

Light-metal panel mounting boxes									
Control devices centre "a"	Number of control devices	Length L (mm)	Housing with lid fixing holes	Hole metric M20/M25	Catalogue no.	Order no.	Common aluminium name plate with seal	Catalogue no.	Order no.
<b>40 mm</b> for RZSO identification plates, horizontal arrangement for 1-line inscriptions (identification plates RZSO1 with asymmetrical arrangement for 2- and 3-line inscriptions)	2	125	MBG 422	M20	064 6890	100 8324	MBG-7	070 6701	101 3927
	3	165	MBG 433	M20	064 7144	100 8328	MBG-8	070 6710	101 3928
	4	205	MBG 444	M20	064 7390	100 8332	MBG-9	070 6728	101 3929
	5	245	MBG 455	M25	064 7641	100 8336	MBG-10	070 6736	101 3930
	6	305	MBG 466	M25	064 7896	100 8340	MBG-11	070 6744	101 3931
	<b>50 mm</b> for RZSO identification plates for horizontal arrangement and RZSO1 only for vertical arrangement (RZSO for 1-line inscriptions, RZSO1 for 1- and 2-line inscriptions)	2	165	MBG 532	M20	064 8299	100 8344	MBG-12	070 6752
3		205	MBG 543	M20	064 8540	100 8349	MBG-13	070 6761	101 3933
4		245	MBG 554	M25	064 8795	100 8353	MBG-14	070 6779	101 3934
5		305	MBG 565	M25	064 9040	100 8357	MBG-15	070 6787	101 3935
With protective collar against unintentional actuation		1	85	MBGH 311	M20	064 4995	100 8286		
	MBGH 311 GB			M20	064 4997	100 8287			

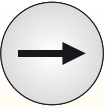
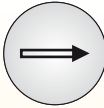


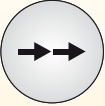
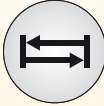
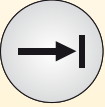
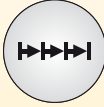
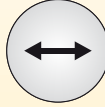
Availability of individual front panels, mounting boxes without lid fitting holes and front panels without lid fitting holes: On request.

1 With yellow front panel available, too.


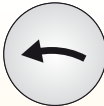





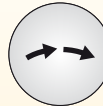

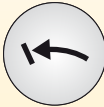
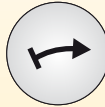

## Notes

# Symbols

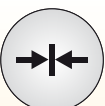
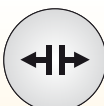




## Linear motion

	101 Working motion feed		102 Rapid motion or idling		103 Rapid motion		104 Feed
	105 Interrupted motion jogging		106 Reciprocating motion				
	107 Limited motion		108 Indexing		109 Motion in 2 directions		





## Rotary motion

	201 Continuous clockwise rotation		202 Anti-clockwise rotation		203 Clockwise rotation STOP		204 Anti-clockwise rotation STOP
	205 1 revolution clockwise		206 Anti-clockwise		207 Rotary indexing		208 Interrupted rotary motion
	209 Clockwise motion restricted		210 Anti-clockwise motion restricted		211 Clockwise motion from a restriction		212 Anti-clockwise motion from a restriction

## Additional options

	301 Clamping, chucking		302 Release		303 Braking		304 Release brake
	305 Unlock		306 Lock				






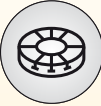
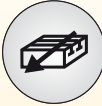




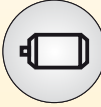
## Arabic numerals<sup>1</sup>

	700		701		702		
	801		802		803		








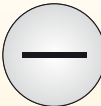




<sup>1</sup> Other numerals available, e.g. part no. 709 for number 9










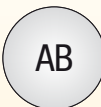




## Drives

	401 Electric motor		402 Pump general		403 Gear pump		405 Coolant
	406 Oil lubrication		407 Rotary indexing table		408 Shuttle table forward		409 Backwards
	410 Brake fan		411 Caution - live		412 Clamp table rectangular		413 Electrical machine





## Signals

	501 On		502 Jog		503 Automatic		504 Off
	505 Everything off		506 On - off		507 Increase of a variable		508 Decrease of a variable
	509 Pause (time elapse)		510 Manual operation		511 Visual		512 Hydraulics

## Words

	513		514		515		516
	517		518		519		520
	521		522		523		524

## Letters<sup>1</sup>

	901		902		903		904
---	-----	---	-----	---	-----	---	-----

<sup>1</sup> Further letters available

## Technical data

Control elements	
Regulations	<ul style="list-style-type: none"> <li>• IEC/EN 60947-5-1</li> <li>• IEC 60947-1</li> </ul>
Design	round
Installation diameter	22.3 mm
Grid dimension	<ul style="list-style-type: none"> <li>• 40 × 50 mm</li> <li>• 50 × 60 mm (selector switches, mushroom-head impact buttons with latching)</li> </ul>
Front plate thickness	1 ... 6 mm
Installation position	random
Designation	Identification plates, symbols
Climatic resistance to DIN EN 60068	part 2-30
Ambient operating temperature	<ul style="list-style-type: none"> <li>• Pushbutton: -25 °C ... +75 °C</li> <li>• Illuminated pushbutton with LED (by Elan): -25 °C ... +75 °C</li> <li>• Pilot light mit bulb: -25 °C ... +45 °C</li> <li>• Pilot light with LED (by Elan): -25 °C ... +75 °C</li> <li>• Impact button: -25 °C ... +75 °C</li> <li>• Selector switch/ rotary drive for potentiometer: 0 °C ... +75 °C</li> <li>• Key-operated switch: 0 °C ... +75 °C</li> </ul>
Switching frequency	1,000 s/h
Protection type to IEC 60529	IP 65
Full insulation	yes
Materials	<ul style="list-style-type: none"> <li>• Swivel: glas</li> <li>• Swivel (plastics): PC (Chemikalienbeständigkeit see page 31)</li> <li>• Frontring/buttons: Al anodized</li> </ul>
Type of fixing	with mounting flange
Max. torque for mounting	2 Nm
Shock resistance to IEC 60068-2-27	<ul style="list-style-type: none"> <li>• Device without bulb: &lt; 50 g</li> <li>• Device with bulb: &lt; 30 g</li> </ul>
Vibration resistance to IEC 60068-2-6	5 g
Actuating stroke	4 mm
Actuating force	<ul style="list-style-type: none"> <li>• Pushbutton: approx. 1.5 N</li> <li>• Pushbutton with diaphragme: approx. 2 N</li> <li>• Pilot light: approx. 1.5 N</li> <li>• Key-operated switch: approx. 0.2 N</li> <li>• Selector switch: approx. 0.2 N</li> <li>• Impact button: approx. 2 N</li> </ul>
Mechanical life	<ul style="list-style-type: none"> <li>• Pushbutton: 10 × 10<sup>6</sup> switching cycles</li> <li>• Illuminated pushbutton: 5 × 10<sup>6</sup> switching cycles</li> <li>• Selector switch: 3 × 10<sup>5</sup> switching cycles</li> </ul>
Rohs-conformity	yes

Step switch RWSE..		Dimension table	
Device heads	See page 16	<b>Number of steps</b>	<b>Installed depth L</b>
Dimensions device heads	see above	2	69.5 mm
Cam switches	Make: Kraus & Naimer, type series CA10	3	60.0 mm
per step	1 NO contact (2-step switch, 3-pole)	4	60.0 mm
Regulations	to IEC 60947-3 (VDE 0660 part 107)	5	69.5 mm
Insulation voltage U <sub>i</sub>	690 V	6	69.5 mm
Thermal rated current	20 A	7	78.0 mm
Power	AC-23: 7.5 A AC-3: 5.5 A	8	78.0 mm
Shock hazard protection	EN DIN 50274 (VDE 0660 part 514)	9	87.5 mm
Corrosion protection of the electrical parts	Corrosion protection for the electrical elements behind the front plate cannot be guaranteed.	10	87.5 mm
		11	97.0 mm
		12	97.0 mm

Contact-/light elements	
Regulations	IEC/EN 60947-5-1
Rated operating voltage $U_e$ max.	<ul style="list-style-type: none"> <li>• Contact element: 400 V</li> <li>• Light element: 250 V</li> </ul>
Rated insulation voltage $U_i$ at pollution degree 3 to IEC 60947-1	400 V
Rated impulse withstand voltage	$U_{imp}$ 4 kV
Thermal rated current $I_{th}$ (in air)	6 A
Rated operating current $I_e$ as dependent on the utilisation category and test voltage	<ul style="list-style-type: none"> <li>• 6 A, AC-15, 250 VAC</li> <li>• 3 A, DC-13, 24 VDC (constriction: lead cross-section max. <math>1 \times 2.5 \text{ mm}^2</math> (only equal cross-sections usable))</li> </ul>
Contact safety	5 VDC/1 mA
Short-circuit protection	gG 6 A
Proof of positive opening	2.5 kV impulse voltage
Positive opening path	approx. 2 mm after achieving opening point
Bulbs (Ba9S)	Bulb (max. 2 W), LED
Air clearance and creepage distance to DIN EN 60664-1	4 kV/3
Switching frequency	1,200 s/h
Switching points	<ul style="list-style-type: none"> <li>• NC: approx. 1 mm</li> <li>• NO: approx. 2.5 mm</li> </ul>
Temperature range	<ul style="list-style-type: none"> <li>• Contact element: <math>-25^\circ\text{C} \dots +75^\circ\text{C}</math></li> <li>• Light element (Ba9S) with LED (by Elan): <math>-25^\circ\text{C} \dots +75^\circ\text{C}</math></li> <li>• Light element (Ba9S) with bulb: <math>-25^\circ\text{C} \dots +45^\circ\text{C}</math></li> </ul>
Climatic resistance to DIN EN 60068	part 2-20
Installation position	random
Mechanical life to IEC 60947-5-1	$10 \times 10^6$ switching cycles
Actuating force at stroke end	approx. 4.5 N
Terminal designations	to IEC 60947-1
Type of mounting	screwed connection
Mounting diameter	<ul style="list-style-type: none"> <li>• Single core: <math>2 \times (0.5 \dots 2.5 \text{ mm}^2)</math></li> <li>• Dual core with wire-end ferrule: <math>2 \times (0.5 \dots 1.5 \text{ mm}^2)</math></li> </ul>
Tightening torque of the connection terminals	max. 1 Nm
Contact protection	existing (to EN 50274 and BGV A2) (except illuminated pushbutton, sole mounted)
Protection category	<ul style="list-style-type: none"> <li>• Connections: IP 20 (finger-safe)</li> <li>• Switching elements: IP 40</li> </ul>
Approvals	cULus

## Technical data

### EMERGENCY STOP equipment RDRZ45 rt

EMERGENCY STOP equipment	
Regulations (if applicable)	<ul style="list-style-type: none"> <li>• IEC/EN 60947-5-1</li> <li>• IEC/EN 60947-5-5</li> <li>• IEC 60947-1</li> <li>• EN ISO 13850</li> </ul>
Design	round
Installation diameter	22.3 mm
Grid dimension	50 × 50 mm
Front plate thickness	1 ... 6 mm
Installation position	any
Designation	Identification plates, symbols
Climatic resistance to DIN EN 60068	Part 2-30
Ambient temperature	-25 °C ... +75 °C
Protection type to IEC 60529	IP 65
Full insulation	yes
Material mushroom-button	Al anodized
Type of fixing	mounting flange
Max. torque for mounting	2 Nm
Actuating force	approx. 25 N
Mechanical life	1 × 10 <sup>5</sup> switching cycles
Rohs-conformity	yes
Contact elements	
Regulations	IEC/EN 60947-5-1
Rated operating voltage U <sub>e</sub> max.	400 V
Rated insulation voltage U <sub>i</sub> at pollution degree 3 to IEC 60947-1	400 V
Rating of surge resistance voltage	U <sub>imp</sub> 4 kV
Thermal rated current I <sub>th</sub> (in air)	10 A
Rated operating current I <sub>e</sub> as dependent on the utilisation category and test voltage	<ul style="list-style-type: none"> <li>• 8 A, AC-15, 250 VAC</li> <li>• 5 A, DC-13, 24 VDC</li> </ul>
Contact safety	5 VDC/1 mA
Short-circuit protection	gG 10 A
Proof of positive opening	2.5 kV impulse voltage
Positive opening path	approx. 2 mm after achieving opening point
Air clearance and creepage distance to DIN EN 60664-1	4 kV/3
Switching frequency	1,200 s/h
Switching points	according to contact type
Temperature range	-25 °C ... +60 °C
Climatic resistance to DIN EN 60068	part 2-30
Installation position	random
Mechanical life	10 × 10 <sup>6</sup> switching cycles
Actuating force at stroke end	approx. 9 N
Terminal designations	to IEC 60947-1
Type of mounting	screwed connection
Mounting diameter	<ul style="list-style-type: none"> <li>• Single core: 2 × (0.5 ... 2.5 mm<sup>2</sup>)</li> <li>• Dual core with wire-end ferrules: 2 × (0.5 ... 1.5 mm<sup>2</sup>)</li> </ul>
Tightening torque of the connection terminals	max. 1 Nm
Shock protection	present (to EN 50274 and BGV A2)
Type of protection	<ul style="list-style-type: none"> <li>• Connections: IP 20 (finger-safe)</li> <li>• Switching elements: IP 40</li> </ul>
Approvals	cULus

## Chemical resistance of polycarbonate

The following details are based on information from our suppliers and are merely intended as orientation of a non-binding character because the respective resistance usually depends on several influencing aspects (quantity, duration of exposure, temperature etc.).

The influence of chemicals on the part made of polycarbonate will depend on the concentration and temperature.

The resistance of a product made of polycarbonate to chemicals must be examined in individual cases if exposure to chemical (also household chemicals or food) is to be expected by the intended use.

### Test method

The object is exposed to a solution of a specific chemical at 23°C and 70°C for 28 days after which any changes to the physical properties are tested.

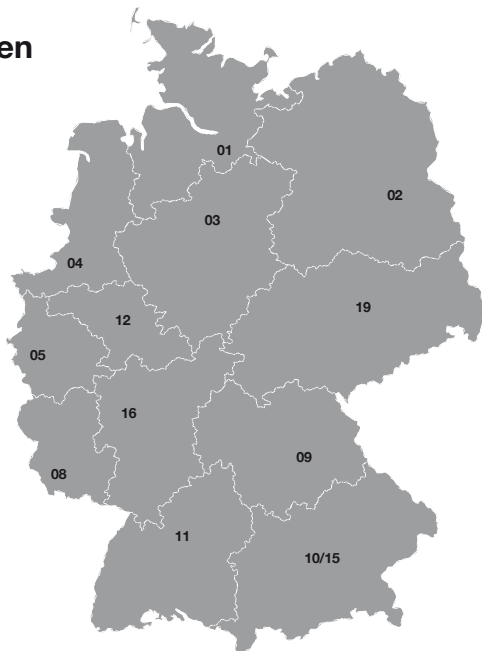
Component	Max. concentration	Immersion temperature		
		23°C	70°C	
Inorganic acids	Distilled water		O	A
	Hydrochloric acid	-10%	O	A
		-20%	O	A
	Sulfuric acid	-10%	O	A
		-30%	O	A
	Nitric acid	-10%	A	A
	-30%		X	
Alkalis	Sodium hydroxide	-1%	A	X
	Ammonium hydroxide		X	X
	Calcium hydroxide	-10%		
	Cooking salt	-10%	O	A
	Potassium chloride	-10%	O	A
	Potassium nitrate	-10%	O	A
	Potassium dichromate	-10%	A	A
Inorganic salts	Sodium sulfide	-10%	O	A
	Ammonium chloride	-10%	O	A
	Calcium chloride	-10%	O	A
	Sodium carbonate	-10%		
Alcohols	Methanol		A	
	Ethanol	-50%	O	A
	i-Propanol		O	A
	n-Butanol		O	A-O
	Ethylene glycol		O	O
	Glycerine		O	O
Organic acids	Formic acid	-10%	O	
	Acetic acid (vinegar)	-10%	O	A-X
	Oxalic acid	-10%	O	O
	Oleic acid		O	O
Organic solvents	n-Hexane		O	
	n-Heptane		O	O-A
	Cyclohexane		A	X
	Benzol		X	X
	Toluene		X	X
	Acetone		X	
	Methyl-ethyl-ketone		X	
	Butyl acetate		X	
	Methylene chloride		X	
	Carbon tetrachloride		X	X
	Gasoline		A	X
	Kerosene		O	
	Paraffin oil		O	

O Only minimal changes of the physical attributes in both tests

A Only momentary applicable

X Application not possible, swelling and decomposition

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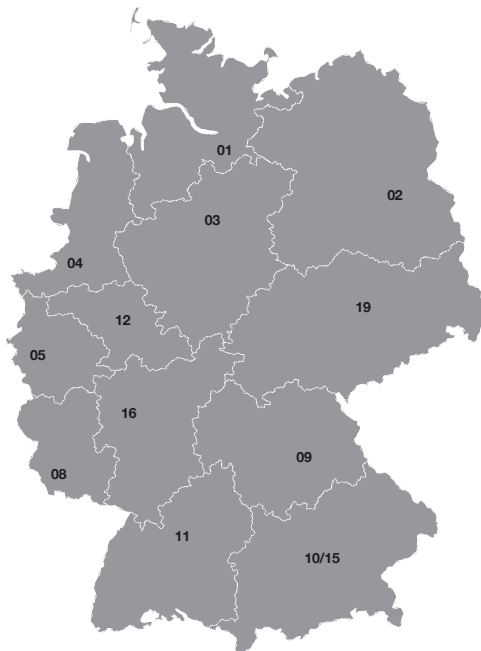
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