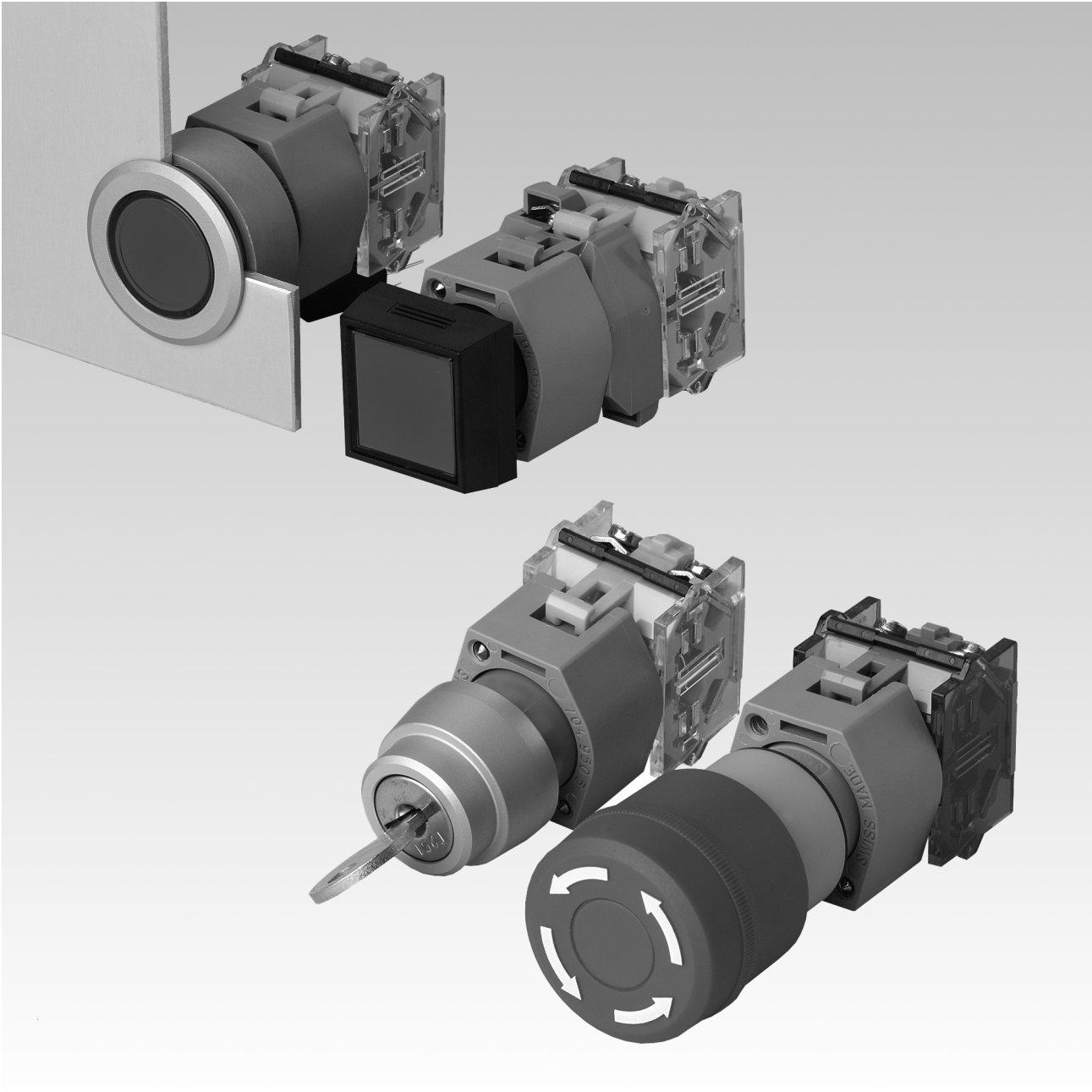


EAO Product Information

Series 04



Index

Series 04

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Description

General Notes

Series 04, a modular switching system, offers users a wide range of possible combinations. A broad variety of actuators is available, round or square in shape, for use as pushbuttons, illuminated pushbuttons, keylock switches or lever-operated switches, and indicators. Other special actuators, such as mushroom heads or emergency stop switches and buzzers can also be supplied.

Configuration

Max. 3 switching elements, as snap-action or slow-make switches, can be clipped as modules to each actuator. Each switching element is equipped with 1 or 2 independent switching system with normally closed or normally open contact. The standard contact material is hard silver.

Mounting

The Series 04 standard pushbuttons are mounted in a 22,5 mm dia. cut-out. Flush mounted pushbuttons are mounted in a 30,5 mm dia cut-out.

Terminals

The switching elements and the lamp blocks can be supplied with screw or plug-in terminals.

Lenses

Lenses of transparent plastic or aluminium are available in various standard colours.

Marking

For engravings, hot stamping, film inserts with standard legends or symbols, see page 143.

Illumination

Illuminated pushbuttons or indicators can be supplied with lamps Ba 9s (6-130 V), Multi-LED lamps Ba 9s (6, 15, 24, 48 V) or with neon lamps Ba 9s.

Position indicating

When a switch with maintained action is actuated, the lens remains in the depressed position mechanically. The state of the switch is apparent at all times from the position of the lens

Keylock switch

Standard lock No. = 251 with ending of part No. 0 (example 704.335.0). Following lock No. also available (lock No./ending of part No.) 252/1, 253/2, 254/3, 255/4, 256/5, 257/6, 259/8, 260/9. 2 keys will be delivered per keylock switch.

Rotary switch

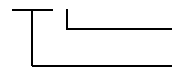
The rotary switches of Series 04 are ideal control and instrument switches. The switch types (CG4-1) are suitable special for switch for small voltages. They comply with the rules IEC 947-3 and VDE 0660, part 107.

The axial arrangement of the connector block gives the opportunity to mount the switches side-by-side or next to the cable duct. The contact marking remains legible in mounted situation too.

The required space of this switch is very small.

Number structure

704.XXX.X



Lens colour

Switch variant

704.9XX.X

Switching element

Example:

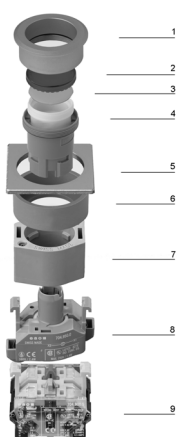
-Illuminated pushbutton; round, momentary action, plastic front ring, black; lens red
704.029.2

-Snap-action switching element, 1 normally open contact, screw terminals, hard silver
704.900.1

All dimensions in mm.

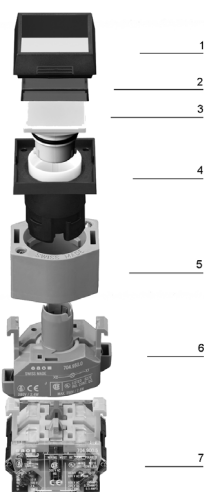
We reserve the right to modify technical data.

illuminated pushbutton for flush mounting



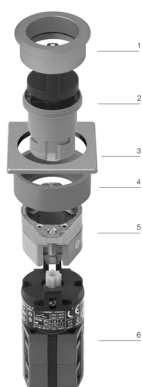
- 1 front bezel set for flush mounting
- 2 lens
- 3 marking plate
- 4 actuator housing
- 5 front plate
- 6 pressure ring
- 7 bayonet flange
- 8 lamp element
- 9 switching element

illuminated pushbutton



- 1 front bezel
- 2 lens
- 3 lens holder
- 4 actuator housing
- 5 bayonet flange
- 6 lamp element
- 7 switching element

rotary switch for flush mounting

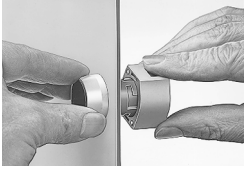


- 1 front bezel set for flush mounting
- 2 rotary switch actuator
- 3 front panel
- 4 pressure ring
- 5 mounting flange
- 6 rotary switch element

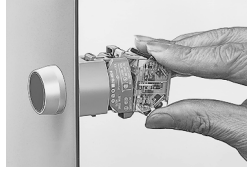
rotary switch



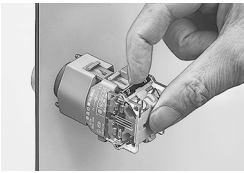
- 1 rotary switch actuator
- 2 mounting flange
- 3 rotary switch element



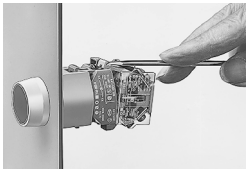
The actuator is inserted from the front through the mounting hole and locked at the rear by twisting the boyonet flange. The switch is fixed and positioned by evenly tightening the two screws in the mounting flange to a max torque of 25 Ncm. A reducing ring can be used to fit 22.5 mm switches into a 30.5 mm hole.



The switching elements (max. 3) or transformers can easily be snapped in position without tools. Lamps, neon lamps or Multi-Led lamps, as well as marking caps can be inserted or fitted from the front.

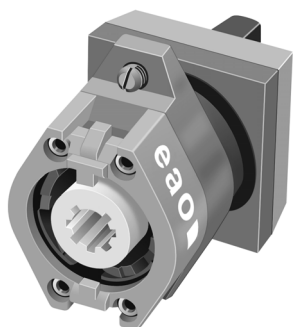


We can supply switching elements with terminal labels inserted .



To dismantle the switches or transformers one arm of the snap-on system is eased up with a screwdriver so that the snapped-on parts can be easily removed.

Rotary switch



Actuator

Mounting instructions, installation in Ø 22.5 mm hole

Step 1

Mounting the actuator element

1. Insert actuator from the front into the mounting hole Ø 22.5 mm.
2. Push mounting flange onto the actuator from the back and latch with bayonet.
3. Screw flange on with the two threaded pins.
4. Put lever into the reference position (9 o'clock).



Rotary switch element

Step 2

Snap rotary switch onto the actuator:

1. First check switch number with circuit diagram.
2. Put switching position of the cam at 9 o'clock.
3. Snap rotary switch element onto the mounting flange, pay attention to the position of the driver.
4. Check to see that the two snap-action legs have engaged.
5. Check the switching action in accordance with the switching sequence.

indicator compact, full face illumination



☞ filament lamp page 104

☞ LED page 104

	illumination	lens cap/marketing cap	colour of lens cap	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
indicator compact, full face illumination with plastic lamp cap	for neon lamp, max. 250 V	transparent ribbed diffuser	blue	704.021.6	1	1	1	0,020
			yellow	704.021.4	1	1	1	0,020
			green	704.021.5	1	1	1	0,020
			clear	704.021.7	1	1	1	0,020
			red	704.021.2	1	1	1	0,020
	for incandescent lamp max.2.6 W, or for Multi-LED lamp	translucent diffuser	blue	704.020.6	1	1	1	0,020
			yellow	704.020.4	1	1	1	0,020
			green	704.020.5	1	1	1	0,020
			clear	704.020.7	1	1	1	0,020
			red	704.020.2	1	1	1	0,020
with integrated lamp protective series resistor (125/60 V) and plastic lamp cap	for incandescent lamp 60 V, max. 2.6 W	translucent diffuser	blue	704.024.6	1	1	1	0,025
			yellow	704.024.4	1	1	1	0,025
			green	704.024.5	1	1	1	0,025
			clear	704.024.7	1	1	1	0,025
			red	704.024.2	1	1	1	0,025
with integrated lamp protective series resistor (220/130 V) and plastic lamp cap	for incandescent lamp 130 V, max. 2.6 W	translucent diffuser	blue	704.022.6	1	1	1	0,025
			yellow	704.022.4	1	1	1	0,025
			green	704.022.5	1	1	1	0,025
			clear	704.022.7	1	1	1	0,025
			red	704.022.2	1	1	1	0,025

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

indicator/flasher full face illumination



- 🛒 filament lamp page page 104
- 🛒 LED page 104
- 🛒 flasher element page 102

	colour of front bezel/ ring	lens cap/marketing cap	colour of lens cap	⌀ 30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	⌀ 0,050
indicator/flasher full face illumination with plastic lamp cap and front bezel, for filament lamp or multi-LED	grey	transparent/translucent	blue	704.200.6		1	2	2	0,050
			yellow	704.200.4		1	2	2	0,050
			green	704.200.5		1	2	2	0,050
			clear	704.200.7		1	2	2	0,050
			red	704.200.2		1	2	2	0,050
	black	transparent/translucent	blue	704.199.6		1	2	2	0,050
			yellow	704.199.4		1	2	2	0,050
			green	704.199.5		1	2	2	0,050
			clear	704.199.7		1	2	2	0,050
			red	704.199.2		1	2	2	0,050
with plastic lamp cap, for neon lamp	without	transparent, ribbed	blue		704.001.6	1	2	2	0,050
			yellow		704.001.4	1	2	2	0,050
			green		704.001.5	1	2	2	0,050
			clear		704.001.7	1	2	2	0,050
			red		704.001.2	1	2	2	0,050
with plastic lamp cap, for filament lamp or multi-LED	without	transparent/translucent	blue		704.000.6	1	2	2	0,050
			yellow		704.000.4	1	2	2	0,050
			green		704.000.5	1	2	2	0,050
			clear		704.000.7	1	2	2	0,050
			red		704.000.2	1	2	2	0,050

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

indicator/flasher front illumination



- filament lamp page 104
- LED page 104
- flasher element page 102

	colour of front bezel/ring	lens/markings foil	colour of lens	Ø 30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing technical drawing mounting dimensions			
indicator/flasher front illumination with plastic lens and front bezel, for neon lamp	grey	transparent, ribbed	blue	704.203.6		1	2	2	0,050
			yellow	704.203.4		1	2	2	0,050
			green	704.203.5		1	2	2	0,050
			clear	704.203.7		1	2	2	0,050
			red	704.203.2		1	2	2	0,050
	black	transparent, ribbed	blue	704.207.6		1	2	2	0,050
			yellow	704.207.4		1	2	2	0,050
			green	704.207.5		1	2	2	0,050
			clear	704.207.7		1	2	2	0,050
			red	704.207.2		1	2	2	0,050
with plastic lens and front bezel, for filament lamp or multi-LED	grey	transparent/translucent	blue	704.202.6		1	2	2	0,050
			yellow	704.202.4		1	2	2	0,050
			green	704.202.5		1	2	2	0,050
			clear	704.202.7		1	2	2	0,050
			red	704.202.2		1	2	2	0,050
	black	transparent/translucent	blue	704.206.6		1	2	2	0,050
			yellow	704.206.4		1	2	2	0,050
			green	704.206.5		1	2	2	0,050
			clear	704.206.7		1	2	2	0,050
			red	704.206.2		1	2	2	0,050
with plastic lens and front ring, for neon lamp	grey	transparent, ribbed	blue		704.003.6	1	2	2	0,050
			yellow		704.003.4	1	2	2	0,050
			green		704.003.5	1	2	2	0,050
			clear		704.003.7	1	2	2	0,050
			red		704.003.2	1	2	2	0,050
	black	transparent, ribbed	blue		704.007.6	1	2	2	0,050
			yellow		704.007.4	1	2	2	0,050
			green		704.007.5	1	2	2	0,050
			clear		704.007.7	1	2	2	0,050
			red		704.007.2	1	2	2	0,050

Continued on next page

	colour of front bezel/ring	lens/markings foil	colour of lens	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing			technical drawing			mounting dimensions			
indicator/flasher front illumination with plastic lens and front ring, for filament lamp or multi-LED	grey	transparent/translucent	blue		704.002.6	1	2	2	2	2	2	2	2	0,050	
			yellow		704.002.4	1	2	2	2	2	2	2	2	0,050	
			green		704.002.5	1	2	2	2	2	2	2	2	2	0,050
			clear		704.002.7	1	2	2	2	2	2	2	2	2	0,050
			red		704.002.2	1	2	2	2	2	2	2	2	2	0,050
	black	transparent/translucent	blue		704.006.6	1	2	2	2	2	2	2	2	2	0,050
			yellow		704.006.4	1	2	2	2	2	2	2	2	2	0,050
			green		704.006.5	1	2	2	2	2	2	2	2	2	0,050
			clear		704.006.7	1	2	2	2	2	2	2	2	2	0,050
			red		704.006.2	1	2	2	2	2	2	2	2	2	0,050

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

pushbutton actuator



switching element page 101

	switching action	material/colour of front bezel/ring	material/colour of lens	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions			
pushbutton actuator	M	aluminium, natural	aluminium, blue		704.011.6	2	3	2	0,040		
			aluminium, yellow		704.011.4	2	3	2	0,040		
			aluminium, green		704.011.5	2	3	2	0,040		
			aluminium, natural		704.011.8	2	3	2	0,040		
			aluminium, red		704.011.2	2	3	2	0,040		
			aluminium, black		704.011.0	2	3	2	0,040		
			plastic, blue		704.012.6	2	3	2	0,040		
			plastic, yellow		704.012.4	2	3	2	0,040		
			plastic, green		704.012.5	2	3	2	0,040		
			plastic, clear		704.012.7	2	3	2	0,040		
		plastic, red		704.012.2	2	3	2	0,040			
		plastic, black		704.012.0	2	3	2	0,040			
		aluminium, natural with protective cover	plastic, blue		704.013.6	2	3	2	0,040		
			plastic, yellow		704.013.4	2	3	2	0,040		
			plastic, green		704.013.5	2	3	2	0,040		
			plastic, clear		704.013.7	2	3	2	0,040		
			plastic, red		704.013.2	2	3	2	0,040		
		plastic, grey	plastic, blue		704.210.6	704.010.6	2	3	2	0,040	
			plastic, yellow		704.210.4	704.010.4	2	3	2	0,040	
			plastic, green		704.210.5	704.010.5	2	3	2	0,040	
			plastic, clear		704.210.7	704.010.7	2	3	2	0,040	
			plastic, red		704.210.2	704.010.2	2	3	2	0,040	
			plastic, black		704.210.0	704.010.0	2	3	2	0,040	
		plastic, black	plastic, blue		704.209.6	704.009.6	2	3	2	0,040	
			plastic, yellow		704.209.4	704.009.4	2	3	2	0,040	
			plastic, green		704.209.5	704.009.5	2	3	2	0,040	
			plastic, clear		704.209.7	704.009.7	2	3	2	0,040	
			plastic, red		704.209.2	704.009.2	2	3	2	0,040	
				plastic, black		704.209.0	704.009.0	2	3	2	0,040

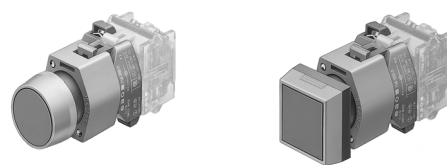
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pushbutton actuator	switching action	material/colour of front bezel/ring	material/colour of lens	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	IP	
pushbutton actuator	MA	aluminium, natural	aluminium, blue		704.041.6	3	3	2	0,040	
			aluminium, yellow		704.041.4	3	3	2	0,040	
			aluminium, green		704.041.5	3	3	2	0,040	
			aluminium, natural		704.041.8	3	3	2	0,040	
			aluminium, red		704.041.2	3	3	2	0,040	
			aluminium, black		704.041.0	3	3	2	0,040	
			plastic, blue		704.042.6	3	3	2	0,040	
			plastic, yellow		704.042.4	3	3	2	0,040	
			plastic, green		704.042.5	3	3	2	0,040	
			plastic, clear		704.042.7	3	3	2	0,040	
			plastic, red		704.042.2	3	3	2	0,040	
			plastic, black		704.042.0	3	3	2	0,040	
			aluminium, natural with protective cover	plastic, blue		704.043.6	3	3	2	0,040
				plastic, yellow		704.043.4	3	3	2	0,040
		plastic, green			704.043.5	3	3	2	0,040	
		plastic, clear			704.043.7	3	3	2	0,040	
		plastic, red			704.043.2	3	3	2	0,040	
		plastic, black			704.043.0	3	3	2	0,040	
		plastic, grey	plastic, blue	704.240.6	704.040.6	3	3	2	0,040	
			plastic, yellow	704.240.4	704.040.4	3	3	2	0,040	
			plastic, green	704.240.5	704.040.5	3	3	2	0,040	
			plastic, clear	704.240.7	704.040.7	3	3	2	0,040	
			plastic, red	704.240.2	704.040.2	3	3	2	0,040	
			plastic, black	704.240.0	704.040.0	3	3	2	0,040	
		plastic, black	plastic, blue	704.239.6	704.039.6	3	3	2	0,040	
			plastic, yellow	704.239.4	704.039.4	3	3	2	0,040	
			plastic, green	704.239.5	704.039.5	3	3	2	0,040	
			plastic, clear	704.239.7	704.039.7	3	3	2	0,040	
			plastic, red	704.239.2	704.039.2	3	3	2	0,040	
			plastic, black	704.239.0	704.039.0	3	3	2	0,040	

switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

illuminated pushbutton actuator



- ☞ filament lamp page 104
- ☞ LED page 104
- ☞ switching element page 101

	switching action	material/colour of front bezel/ ring	material/colour of lens	∅ 30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
illuminated pushbutton actuator with plastic lens	M	aluminium, natural	plastic, blue		704.032.6	4	4	2	0,056
			plastic, yellow		704.032.4	4	4	2	0,056
			plastic, green		704.032.5	4	4	2	0,056
			plastic, clear		704.032.7	4	4	2	0,056
			plastic, red		704.032.2	4	4	2	0,056
		aluminium, natural with protective cover	plastic, blue		704.033.6	4	4	2	0,056
			plastic, yellow		704.033.4	4	4	2	0,056
			plastic, green		704.033.5	4	4	2	0,056
			plastic, clear		704.033.7	4	4	2	0,056
			plastic, red		704.033.2	4	4	2	0,056
	plastic, grey	plastic, blue		704.230.6	704.030.6	4	4	2	0,056
		plastic, yellow		704.230.4	704.030.4	4	4	2	0,056
		plastic, green		704.230.5	704.030.5	4	4	2	0,056
		plastic, clear		704.230.7	704.030.7	4	4	2	0,056
		plastic, red		704.230.2	704.030.2	4	4	2	0,056
	plastic, black	plastic, blue		704.229.6	704.029.6	4	4	2	0,056
		plastic, yellow		704.229.4	704.029.4	4	4	2	0,056
		plastic, green		704.229.5	704.029.5	4	4	2	0,056
		plastic, clear		704.229.7	704.029.7	4	4	2	0,056
		plastic, red		704.229.2	704.029.2	4	4	2	0,056

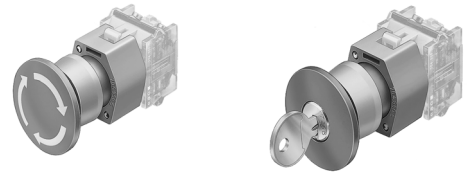
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	switching action	material/colour of front bezel/ ring	material/colour of lens	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
illuminated pushbutton actuator with plastic lens	MA	aluminium, natural	plastic, blue		704.062.6	5	4	2	0,056
			plastic, yellow		704.062.4	5	4	2	0,056
			plastic, green		704.062.5	5	4	2	0,056
			plastic, clear		704.062.7	5	4	2	0,056
			plastic, red		704.062.2	5	4	2	0,056
		aluminium, natural with protective cover	plastic, blue		704.063.6	5	4	2	0,056
			plastic, yellow		704.063.4	5	4	2	0,056
			plastic, green		704.063.5	5	4	2	0,056
			plastic, clear		704.063.7	5	4	2	0,056
			plastic, red		704.063.2	5	4	2	0,056
	plastic, grey	plastic, blue	704.260.6	704.060.6	5	4	2	0,056	
		plastic, yellow	704.260.4	704.060.4	5	4	2	0,056	
		plastic, green	704.260.5	704.060.5	5	4	2	0,056	
		plastic, clear	704.260.7	704.060.7	5	4	2	0,056	
		plastic, red	704.260.2	704.060.2	5	4	2	0,056	
	plastic, black	plastic, blue	704.259.6	704.059.6	5	4	2	0,056	
		plastic, yellow	704.259.4	704.059.4	5	4	2	0,056	
		plastic, green	704.259.5	704.059.5	5	4	2	0,056	
		plastic, clear	704.259.7	704.059.7	5	4	2	0,056	
		plastic, red	704.259.2	704.059.2	5	4	2	0,056	

switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

emergency stop switch actuator



switching element for emergency stop switch page 102

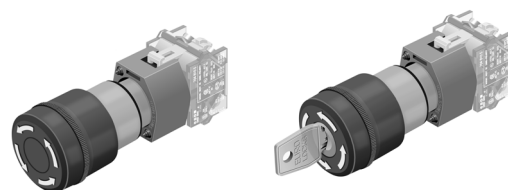
label for emergency stop switch page 106

	switching action	unlocking	material of front ring	marking of mushroom-head cap	40 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
emergency stop switch actuator with red mushroom-head cap, unlocking clockwise	MA	twist to release	aluminium	arrows	704.075.2	6	5	3	0,047
				stop	704.075.3	6	5	3	0,047
			plastic	arrows	704.074.2	6	5	3	0,047
				stop	704.074.3	6	5	3	0,047
with red mushroom-head cap, standard lock 251, unlocking clockwise	MA	key to release	aluminium	without	704.078.0	6	6	3	0,063
			plastic	without	704.076.0	6	6	3	0,063

switching action : maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

emergency stop switch actuator foolproof, EN 418



🛒 switching element for emergency stop switch page 102

🛒 label for emergency stop switch page 106

🛒 protective shroud for emergency stop switch page 106

	switching action	unlocking	marking of mushroom-head cap	37 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
emergency stop switch actuator foolproof, EN 418 as per EN 418 red mushroom-head cap, yellow actuator, unlocking anti-clockwise, max. 2 slow-make elements can be clipped on	MA	twist to release	arrows	704.064.2	6	7	4	0,300
as per EN 418 red mushroom-head cap, yellow actuator, standard lock no. 9500 unlocking anti-clockwise, max. 2 slow-make elements can be clipped on	MA	key to release	arrows	704.066.2	6	8	4	0,300

switching action : maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

pushbutton actuator with mushroom-head cap



🛒 switching element page 101

	switching action	material of front ring	colour of mushroom-head cap	40 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
pushbutton actuator with mushroom-head cap	M	aluminium anodized	yellow	704.071.4	2	5	3	0,044
			green	704.071.5	2	5	3	0,044
			red	704.071.2	2	5	3	0,044
			black	704.071.0	2	5	3	0,044
		plastic	yellow	704.070.4	2	5	3	0,044
			green	704.070.5	2	5	3	0,044
			red	704.070.2	2	5	3	0,044
			black	704.070.0	2	5	3	0,044
	MA	aluminium anodized	yellow	704.073.4	3	5	3	0,044
			green	704.073.5	3	5	3	0,044
			red	704.073.2	3	5	3	0,044
			black	704.073.0	3	5	3	0,044
		plastic	yellow	704.072.4	3	5	3	0,044
			green	704.072.5	3	5	3	0,044
			red	704.072.2	3	5	3	0,044
			black	704.072.0	3	5	3	0,044

switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

illuminated pushbutton actuator with mushroom-head cap



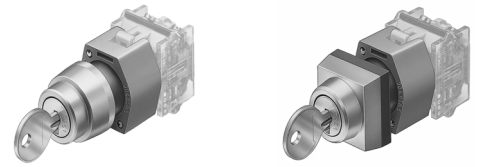
- ☞ filament lamp page 104
- ☞ LED page 104
- ☞ switching element page 101

	switching action	material of front ring	colour of mushroom-head cap	40 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
illuminated pushbutton actuator with mushroom-head cap	M	plastic	blue	704.084.6	4	9	3	0,044
			yellow	704.084.4	4	9	3	0,044
			green	704.084.5	4	9	3	0,044
			clear	704.084.7	4	9	3	0,044
			red	704.084.2	4	9	3	0,044
	MA	plastic	blue	704.086.6	5	9	3	0,044
			yellow	704.086.4	5	9	3	0,044
			green	704.086.5	5	9	3	0,044
			clear	704.086.7	5	9	3	0,044
			red	704.086.2	5	9	3	0,044

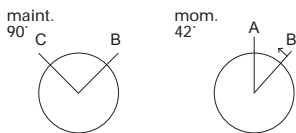
switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

keylock switch actuator 2 positions



switching element page 101



	switching action	key removable in	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
keylock switch actuator 2 positions position A: basic position position B: momentary action 42° standard lock 251, other lock numbers on request	M	A	704.343.0	704.123.0	7	10	2	0,070
position C + B: maintained action 90° standard lock 251, other lock numbers on request	MA	B	704.340.0	704.120.0	8	10	2	0,070
		C	704.341.0	704.121.0	8	10	2	0,070
		C+B	704.342.0	704.122.0	8	10	2	0,070

switching action : momentary action = M, maintained action = MA
standard lock No. = 251 with ending of part No. 0 (example 704.335.0).

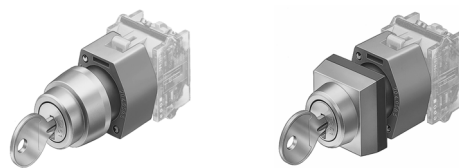
Following lock No. also available (lock No./ending of part No.)

252/1, 253/2, 254/3, 255/4, 256/5, 257/6, 259/8, 260/9.

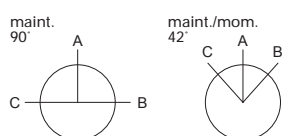
Spare key 704.989 can be ordered. Indicate lock no.

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

keylock switch actuator 3 positions



switching element page 101



	switching action	key removable in	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
keylock switch actuator 3 positions position C + B: momentary action 45° position A: basic position standard lock 251, other lock numbers on request	momentary - 0 - momentary	A	704.335.0	704.115.0	10	10	2	0,070
	maintained - 0 - maintained	C+A+B	704.333.0		9	10	2	0,070
position C + B: maintained action 42° position A: basic position standard lock 251, other lock numbers on request	maintained - 0 - maintained	A	704.334.0	704.114.0	9	10	2	0,070
		C+B	704.336.0	704.116.0	9	10	2	0,070
position C + B: maintained action 90° position A: basic position standard lock 251, other lock numbers on request	maintained - 0 - maintained	C+A+B		704.113.0	9	10	2	0,070
position C: momentary action 42° position A: basic position position B: maintained action 42° standard lock 251, other lock numbers on request	momentary - 0 - maintained	A	704.338.0	704.118.0	12	10	2	0,070
position C: maintained action 42° position A: basic position position B: momentary action 42° standard lock 251, other lock numbers on request	maintained - 0 - momentary	C	704.337.0	704.117.0	11	10	2	0,070
		C + A	704.344.0	704.124.0	11	10	2	0,070

switching action

standard lock No. = 251 with ending of part No. 0 (example 704.335.0).

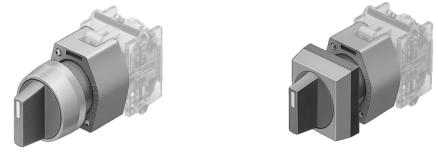
Following lock No. also available (lock No./ending of part No.)

252/1, 253/2, 254/3, 255/4, 256/5, 257/6, 259/8, 260/9.

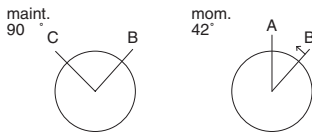
Spare key 704.989 can be ordered. Indicate lock no.

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 2 positions, lever short



switching element page 101

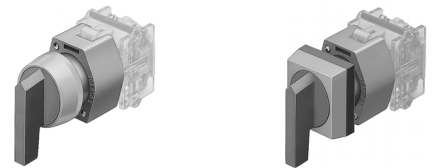


	switching action	lever	front bezel/ring	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
selector switch actuator 2 positions, lever short position A: basic position position B: momentary action 42° position C + B: maintained action 90°	M	black	aluminium		704.413.0	13	11	2	0,045
			plastic, grey	704.512.0	704.412.0	13	11	2	0,045
	MA	black	aluminium		704.411.0	14	11	2	0,045
			plastic, grey	704.510.0	704.410.0	14	11	2	0,045

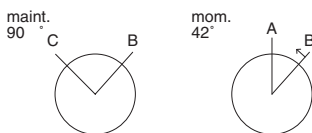
switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 2 positions, lever long



switching element page 101



	switching action	lever	front bezel/ring	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
selector switch actuator 2 positions, lever long position A: basic position position B: momentary action 42° position C + B: maintained action 90°	M	black	aluminium		704.103.0	13	12	5	0,045
			plastic, grey	704.302.0	704.102.0	13	12	5	0,045
	MA	black	aluminium		704.101.0	14	12	5	0,045
			plastic, grey	704.300.0	704.100.0	14	12	5	0,045

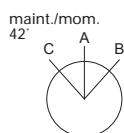
switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 3 positions, short lever



shopping cart icon switching element page 101

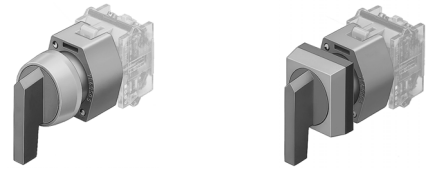


	switching action	lever	front bezel/ring	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing			technical drawing			mounting dimensions		
selector switch actuator 3 positions, short lever position C + B: momentary action 42° position A: basic position	momentary - 0 - momentary	black	aluminium		704.405.0	16	11	2	0,045					
			plastic, grey	704.504.0	704.404.0	16	11	2	0,045					
position C + B: maintained action 42° position A: basic position	maintained - 0 - maintained	black	aluminium		704.403.0	15	11	2	0,045					
			plastic, grey	704.502.0	704.402.0	15	11	2	0,045					
position C: momentary action 42° position A: basic position position B: maintained action 42°	momentary - 0 - maintained	black	aluminium		704.409.0	19	11	2	0,045					
			plastic, grey	704.508.0	704.408.0	18	11	2	0,045					
position C: maintained action 42° position A: basic position position B: momentary action 42°	maintained - 0 - momentary	black	aluminium		704.407.0	17	11	2	0,045					
			plastic, grey	704.506.0	704.406.0	17	11	2	0,045					

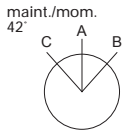
switching action: momentary action = M, maintained action = MA, 0 = basic position

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 3 positions, lever long



🛒 switching element page 101

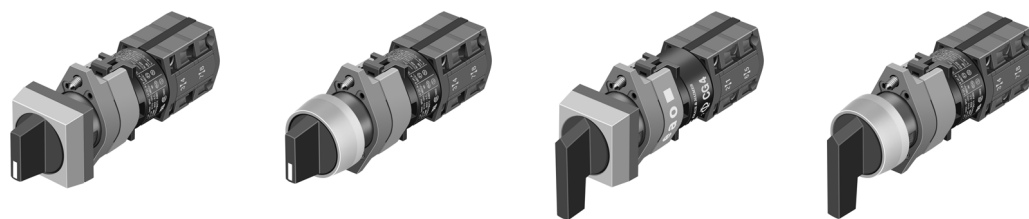


	switching action	lever	front bezel/ring	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
selector switch actuator 3 positions, lever long position C + B: momentary action 42° position A: basic position	momentary - 0 - momentary	black	aluminium		704.095.0	16	12	5	0,045
			plastic, grey	704.294.0	704.094.0	16	12	5	0,045
position C + B: maintained action 42° position A: basic position	maintained - 0 - maintained	black	aluminium		704.093.0	15	12	5	0,045
			plastic, grey	704.292.0	704.092.0	15	12	5	0,045
position C: momentary action 42° position A: basic position position B: maintained action 42°	momentary - 0 - maintained	black	aluminium		704.099.0	19	12	5	0,045
			plastic, grey	704.298.0	704.098.0	19	12	5	0,045
position C: maintained action 42° position A: basic position position B: momentary action 42°	maintained - 0 - momentary	black	aluminium		704.097.0	17	12	5	0,045
			plastic, grey	704.296.0	704.096.0	17	12	5	0,045

switching action: momentary action = M, maintained action = MA, 0 = basic position

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

rotary selector switch actuator



☞ rotary selector switch element 30° page 103

☞ rotary selector switch element 45° page 103

☞ rotary selector switch element 60° page 103

	lever	front bezel/ring	30 x 30 mm Typ-Nr.	29 mm dia. Typ-Nr.	technical drawing	mounting dimensions	
rotary selector switch actuator	short	aluminium natural		704-411.1KN	13	6	0,045
		plastic, grey	704-510.1KN		13	6	0,045
	long	aluminium natural		704-101.1KN	13	6	0,045
		plastic, grey	704-300.1KN		13	6	0,045

hint: 0-position: 9 o'clock

technical drawings from page 122, mounting dimensions from page 129

buzzer



	operation voltage	front cap	connection method	example for using	29 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
buzzer IP 65	24 VDC	plastic, black	PT	Anw0427	14-810.002	20	14	2	0,016
		brass chromium-plated	PT	Anw0427	14-810.902	20	14	2	0,016

connection method : plug-in terminal = PT

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

indicator/flasher for flush mounting



🛒 filament lamp page 104

🛒 LED page 104

🛒 flasher element page 102

	illumination	colour of front ring	lens/markings foil	colour of lens	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
indicator/flasher for flush mounting with aluminium front ring and plastic lens	for incandescent lamp or Multi-LED	aluminium natural	transparent/translucent	blue	704.006.618	1	15	7	0,061
				yellow	704.006.418	1	15	7	0,061
				green	704.006.518	1	15	7	0,061
				clear	704.006.718	1	15	7	0,061
				red	704.006.218	1	15	7	0,061

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

pushbutton actuator for flush mounting



🛒 switching element page 101

	switching action	material/colour of front ring	material/colour of lens	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
pushbutton actuator for flush mounting	M	aluminium natural	aluminium, blue	704.011.618	2	16	7	0,051
			aluminium, yellow	704.011.418	2	16	7	0,051
			aluminium, green	704.011.518	2	16	7	0,051
			aluminium, natural	704.011.818	2	16	7	0,051
			aluminium, red	704.011.218	2	16	7	0,051
			aluminium, black	704.011.018	2	16	7	0,051
			plastic, blue	704.012.618	2	16	7	0,051
			plastic, yellow	704.012.418	2	16	7	0,051
			plastic, green	704.012.518	2	16	7	0,051
			plastic, clear	704.012.718	2	16	7	0,051
			plastic, red	704.012.218	2	16	7	0,051
			plastic, black	704.012.018	2	16	7	0,051
			MA	aluminium natural	aluminium, blue	704.041.618	3	16
	aluminium, yellow	704.041.418			3	16	7	0,051
	aluminium, green	704.041.518			3	16	7	0,051
	aluminium, natural	704.041.818			3	16	7	0,051
	aluminium, red	704.041.218			3	16	7	0,051
	aluminium, black	704.041.018			3	16	7	0,051
	plastic, blue	704.042.618			3	16	7	0,051
	plastic, yellow	704.042.418			3	16	7	0,051
	plastic, green	704.042.518			3	16	7	0,051
	plastic, clear	704.042.718			3	16	7	0,051
	plastic, red	704.042.218			3	16	7	0,051
	plastic, black	704.042.018			3	16	7	0,051

switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

illuminated pushbutton actuator for flush mounting



- 🛒 filament lamp page 104
- 🛒 LED page 104
- 🛒 switching element page 101

	switching action	material/colour of front ring	material/colour of lens	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
illuminated pushbutton actuator for flush mounting	M	aluminium natural	plastic, blue	704.032.618	4	17	7	0,067
			plastic, yellow	704.032.418	4	17	7	0,067
			plastic, green	704.032.518	4	17	7	0,067
			plastic, clear	704.032.718	4	17	7	0,067
			plastic, red	704.032.218	4	17	7	0,067
	MA	aluminium natural	plastic, blue	704.062.618	5	17	7	0,067
			plastic, yellow	704.062.418	5	17	7	0,067
			plastic, green	704.062.518	5	17	7	0,067
			plastic, clear	704.062.718	5	17	7	0,067
			plastic, red	704.062.218	5	17	7	0,067

switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

emergency stop switch actuator for flush mounting



🛒 switching element for emergency stop switch page 102

	switching action		front ring	marking of mushroom-head cap	40 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions
emergency stop switch actuator for flush mounting	MA	unlocking		arrows	704.075.218	6	18	7
		twist to release	aluminium, natural	stop	704.075.318	6	18	7
			aluminium, black	stop	704.075.310	6	18	7

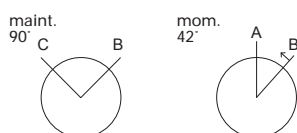
switching action : maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

keylock switch actuator with 2 positions for flush mounting



🛒 switching element page 101



	switching action	key removable in	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions
keylock switch actuator with 2 positions for flush mounting position A: basic position position B: momentary action 42° standard lock 251, other lock numbers on request	M	A	704.123.018	7	19	7
position C + B: maintained action 90° standard lock 251, other lock numbers on request	MA	B	704.120.018	8	19	7
		C	704.121.018	8	19	7
		C+B	704.122.018	8	19	7

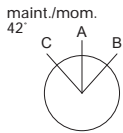
switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

keylock switch actuator 3 positions for flush mounting



🛒 switching element page 101



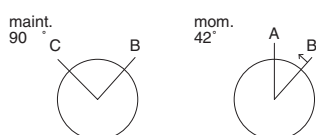
	switching action	key removable in	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
keylock switch actuator 3 positions for flush mounting position C + B: momentary action 42° position A: basic position standard lock 251, other lock numbers on request	momentary - 0 - momentary	A	704.115.018	10	19	7	0,099
position C + B: maintained action 42° position A: basic position standard lock 251, other lock numbers on request	maintained - 0 - maintained	A	704.114.018	9	19	7	0,099
		C+B	704.116.018	9	19	7	0,099
position C + B: maintained action 90° position A: basic position standard lock 251, other lock numbers on request	maintained - 0 - maintained	C+A+B	704.113.018	9	19	7	0,099
position C: momentary action 42° position A: basic position position B: maintained action 42° standard lock 251, other lock numbers on request	momentary - 0 - maintained	A	704.118.018	12	19	7	0,099
position C: maintained action 42° position A: basic position position B: momentary action 42° standard lock 251, other lock numbers on request	maintained - 0 - momentary	C	704.117.018	11	19	7	0,099
		C + A	704.124.018	11	19	7	0,099

switching action: momentary action = M, maintained action = MA, 0 = basic position
 circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 2 positions for flush mounting, short lever



switching element page 101

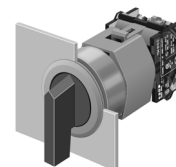


	switching action	lever	front ring	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
selector switch actuator 2 positions for flush mounting, short lever position A: basic position position B: momentary action 42°	M	short, black	aluminium natural	704.413.018	13	20	7	0,056
position C + B: maintained action 90°	MA	short, black	aluminium, natural	704.411.018	14	20	7	0,056

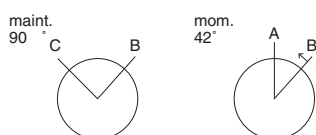
switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 2 positions for flush mounting, long lever



switching element page 101

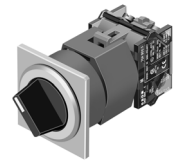


	switching action	lever	front ring	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
selector switch actuator 2 positions for flush mounting, long lever position A: basic position position B: momentary action 42°	M	long, black	aluminium natural	704.103.018	13	20	7	0,056
position C + B: maintained action 90°	MA	long, black	aluminium, natural	704.101.018	14	20	7	0,056

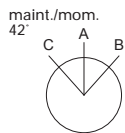
switching action : momentary action = M, maintained action = MA

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 3 positions for flush mounting, lever short



🛒 switching element page 101

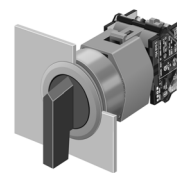


	switching action	lever	front ring	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
selector switch actuator 3 positions for flush mounting, lever short position C + B: momentary action 42° position A: basic position	momentary - 0 - momentary	short, black	aluminium natural	704.405.018	16	20	7	0,056
			aluminium black	704.405.010	16	20	7	0,056
position C + B: maintained action 42° position A: basic position	maintained - 0 - maintained	short, black	aluminium natural	704.403.018	15	20	7	0,056
			aluminium black	704.403.010	15	20	7	0,056
position C: momentary action 42° position A: basic position position B: maintained action 42°	momentary - 0 - maintained	short, black	aluminium natural	704.409.018	19	20	7	0,056
			aluminium black	704.409.010	19	20	7	0,056
position C: maintained action 42° position A: basic position position B: momentary action 42°	maintained - 0 - momentary	short, black	aluminium natural	704.407.018	17	20	7	0,056
			aluminium black	704.407.010	17	20	7	0,056

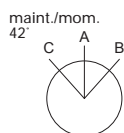
switching action: momentary action = M, maintained action = MA, 0 = basic position

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

selector switch actuator 3 positions for flush mounting, long lever



switching element page 101



	switching action	lever	front ring	circuit drawing	35 mm dia. Typ-Nr.	technical drawing	mounting dimensions	
selector switch actuator 3 positions for flush mounting, long lever position C + B: momentary action 42° position A: basic position	momentary - 0 - momentary	long, black	aluminium natural		704.095.018	20	8	0,056
			aluminium black		704.095.010	20	8	0,056
position C + B: maintained action 42° position A: basic position	maintained - 0 - maintained	long, black	aluminium natural		704.093.018	20	8	0,056
			aluminium black		704.093.010	20	8	0,056
position C: momentary action 42° position A: basic position position B: maintained action 42°	momentary - 0 - maintained	long, black	aluminium natural		704.099.018	20	8	0,056
			aluminium black		704.099.010	20	8	0,056
position C: maintained action 42° position A: basic position position B: momentary action 42°	maintained - 0 - momentary	long, black	aluminium natural		704.097.018	20	8	0,056
			aluminium black		704.097.010	20	8	0,056

switching action: momentary action = M, maintained action = MA, 0 = basic position

technical drawings from page 122, mounting dimensions from page 129

rotary selector switch actuator for flush mounting



rotary selector switch element 30° page 103

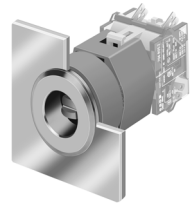
rotary selector switch element 45° page 103

rotary selector switch element 60° page 103

	lever	front ring	35 mm dia. Typ-Nr.	technical drawing	mounting dimensions	
rotary selector switch actuator for flush mounting	short	aluminium natural	704.411.118KN	21	9	0,056
	long	aluminium natural	704.101.118KN	21	9	0,056

technical drawings from page 122, mounting dimensions from page 129

key insert switch actuator 2 positions for flush mounting

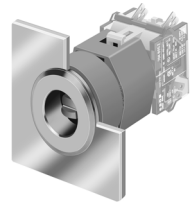


switching element page 101

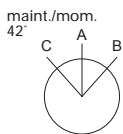
	switching action	38 mm dia. Typ-Nr.	technical drawing	mounting dimensions	
key insert switch actuator 2 positions for flush mounting	0 - M 45°	704.103.0x28	22	7	0,500
	0-main 90°	704.101.0x28	22	7	0,500

switching action : momentary action = M
 max. dimensions of the rotor 9 x 9 mm
 technical drawings from page 122, mounting dimensions from page 129

key insert switch actuator 3 positions for flush mounting



switching element page 101



	switching action	38 mm dia. Typ-Nr.	technical drawing	mounting dimensions	
key insert switch actuator 3 positions for flush mounting	momentary 45° - 0 - momentary 45°	704.095.0x28	22	7	0,500
	momentary 45° - 0 - maintained 45°	704.099.0x28	22	7	0,500
	maintained 45° - 0 - momentary 45°	704.097.0x28	22	7	0,500
	maintained 45° - 0 - maintained 45°	704.093.0x28	22	7	0,500

switching action: momentary action = M
 max. dimensions of the rotor 9 x 9 mm
 technical drawings from page 122, mounting dimensions from page 129

buzzer for flush mounting IP40



	operation voltage	front cap	connection method	35 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
buzzer for flush mounting IP40	24 VDC	plastic black	PT	14-810.910	20	23	7	0,016
		brass chromium-plated	PT	14-810.918	20	23	7	0,016

connection method : plug-in terminal = PT

circuit drawings from page 131, technical drawings from page 122, mounting dimensions from page 129

at front

front bezel-set for flush mounting

	use	material	colour	35 mm dia. Typ-Nr.	mounting dimensions	
front bezel-set for flush mounting	for indicator, pushbutton	aluminium anodized	natural	704.955.1	7	0,016
			black	704.955.0	7	0,016
		stainless steel	natural	704.955.9	7	0,029



mounting dimensions from page 129

legend plate

	use	front dimension	part no.	
legend plate adhesive, aluminium anodized, natural, can also be engraved	for pushbuttons for standard mounting	30 x 42 mm for 22.5 mm dia.mounting hole	704.962.0	0,002
		42 x 42 mm for 22.5 mm dia. mounting hole	704.962.5	0,003
		48 x 48 mm for 22.5 mm dia. mounting hole	704.962.7	0,004
	for pushbuttons for flush mounting	42 x 48 mm for 30.5 mm dia. mounting hole	704.962.6	0,004



legend plate

	use	front dimension	part no.	
legend plate adhesive, aluminium anodized, natural, can also be engraved	for pushbuttons for standard mounting	30 x 42 mm for 22.5 mm dia.mounting hole	704.962.0	0,002
		42 x 42 mm for 22.5 mm dia. mounting hole	704.962.5	0,003
		48 x 48 mm for 22.5 mm dia. mounting hole	704.962.7	0,004
	for pushbuttons for flush mounting	42 x 48 mm for 30.5 mm dia. mounting hole	704.962.6	0,004




protective cover

	use	29 mm dia. Typ-Nr.	technical drawing	
protective cover hinged, transparent, with means for sealing	for pushbuttons	704.925.0	24	0,007
	for selector switch short lever	704.925.2	24	0,007
	for pushbuttons, selector switch short lever with self "retourning"	704.925.3	24	0,007



technical drawings from page 122


protective cover for flush mounting

	use	colour	35 mm dia. Typ-Nr.	
protective cover for flush mounting hinged, transparent, with means for sealing aluminium anodized	for pushbuttons with spring	natural	704.928.18	0,020
	for pushbutton, selector switch short lever	natural	704.928.38	0,020
	for pushbuttons, selector switch short lever with self "retourning"	natural	704.928.28	0,020



protective front ring


for pushbutton/indicator front illumination

	material	29 mm dia. Typ-Nr.	
protective front ring with transparent silicone membrane (to resist sea water) temperature resistance: -40°C to + 85°C	brass, nickel plated	704.600.2	0,005
with transparent silicone membrane temperature resistance: -40°C to + 85°C	aluminium anodized	704.600.3	0,005



protective front ring for flush mounting

for pushbutton/indicator

	material	35 mm dia. Typ-Nr.	
protective front ring for flush mounting with transparent silicone membrane	aluminium anodized, natural	704.955.3	0,016
	aluminium anodized, black	704.955.4	0,016



blind plug

	colour	30 x 30 mm Typ-Nr.	28 mm dia. Typ-Nr.	mounting dimensions	
blind plug	black	704.964.7	2	0,004	
			2	0,009	



mounting dimensions from page 129

spare key

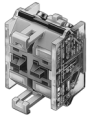
standard lock 251, others available on request

	part no.	
spare key	704.989.0	0,006



at back

switching element



switching element	switching system	contacts	connection method	material of contacts	part no.	circuit drawing	technical drawing	
switching element	SA	1 NO	plug-in terminal 6.3 mm	hard silver	704.905.1	21	25	0,021
				gold/silver	704.901.1	21	25	0,021
				hard silver	704.900.1	21	25	0,021
				silver/palladium	704.902.1	21	25	0,021
		1 NC	plug-in terminal 6.3 mm	hard silver	704.905.2	22	25	0,021
				gold/silver	704.901.2	22	25	0,021
				hard silver	704.900.2	22	25	0,021
				silver/palladium	704.902.2	22	25	0,021
		1 NC + 1 NO	plug-in terminal 6.3 mm	hard silver	704.905.5	25	25	0,028
				gold/silver	704.901.5	25	25	0,028
				hard silver	704.900.5	25	25	0,028
				silver/palladium	704.902.5	25	25	0,028
	2 NO	plug-in terminal 6.3 mm	hard silver	704.905.3	23	25	0,028	
			gold/silver	704.901.3	23	25	0,028	
			hard silver	704.900.3	23	25	0,028	
			silver/palladium	704.902.3	23	25	0,028	
	2 NC	plug-in terminal 6.3 mm	hard silver	704.905.4	24	25	0,028	
			gold/silver	704.901.4	24	25	0,028	
			hard silver	704.900.4	24	25	0,028	
			silver/palladium	704.902.4	24	25	0,028	
	SM	1 NO	plug-in terminal 6.3 mm	hard silver	704.915.1	21	25	0,021
				gold/silver	704.911.1	21	25	0,021
				hard silver	704.910.1	21	25	0,021
				silver/palladium	704.912.1	21	25	0,021
1 NC		plug-in terminal 6.3 mm	hard silver	704.915.2	22	25	0,021	
			gold/silver	704.911.2	22	25	0,021	
			hard silver	704.910.2	22	25	0,021	
			silver/palladium	704.912.2	22	25	0,021	
1 NC + 1 NO		plug-in terminal 6.3 mm	hard silver	704.915.5	25	25	0,028	
			gold/silver	704.911.5	25	25	0,028	
			hard silver	704.910.5	25	25	0,028	
			silver/palladium	704.912.5	25	25	0,028	
2 NO	plug-in terminal 6.3 mm	hard silver	704.915.3	23	25	0,285		
		gold/silver	704.911.3	23	25	0,028		
		hard silver	704.910.3	23	25	0,028		
		silver/palladium	704.912.3	23	25	0,028		
2 NC	plug-in terminal 6.3 mm	hard silver	704.915.4	24	25	0,028		
		gold/silver	704.911.4	24	25	0,028		
		hard silver	704.910.4	24	25	0,028		
		silver/palladium	704.912.4	24	25	0,028		

switching system: SA = snap-action switching element, SM = slow-make element

connection method: S 6.3 = plug-in terminal 6.3 mm, ST = screw terminal

contacts: NC = normally closed, NO = normally open

circuit drawings from page 131, technical drawings from page 122

switching element for emergency stop switch

	switching system	contacts	connection method	material of contacts	part no.	circuit drawing	technical drawing	kg
switching element for emergency stop switch	SM	1 NO	plug-in terminal 6.3 mm	hard silver	704.915.1	21	25	0,021
			ST	gold/silver	704.911.1	21	25	0,021
				hard silver	704.910.1	21	25	0,021
				silver/palladium	704.912.1	21	25	0,021
		1 NC	plug-in terminal 6.3 mm	hard silver	704.915.2	22	25	0,021
			ST	gold/silver	704.911.2	22	25	0,021
				hard silver	704.910.2	22	25	0,021
				silver/palladium	704.912.2	22	25	0,021
		1 NC + 1 NO	plug-in terminal 6.3 mm	hard silver	704.915.5	25	25	0,028
			ST	gold/silver	704.911.5	25	25	0,028
				hard silver	704.910.5	25	25	0,028
				silver/palladium	704.912.5	25	25	0,028
	2 NO	plug-in terminal 6.3 mm	hard silver	704.915.3	23	25	0,285	
		ST	gold/silver	704.911.3	23	25	0,028	
			hard silver	704.910.3	23	25	0,028	
			silver/palladium	704.912.3	23	25	0,028	
2 NC	plug-in terminal 6.3 mm	hard silver	704.915.4	24	25	0,028		
	ST	gold/silver	704.911.4	24	25	0,028		
		hard silver	704.910.4	24	25	0,028		
		silver/palladium	704.912.4	24	25	0,028		



switching system: SA = snap-action switching element, SM = slow-make element

connection method: S 6.3 = plug-in terminal 6.3 mm, ST = screw terminal

contacts: NC = normally closed, NO = normally open

circuit drawings from page 131, technical drawings from page 122

flasher element

	operation voltage	connection method	part no.	technical drawing	kg
flasher element lamp voltage 130 V, 20 mA ambient temperature 0-50°C flasher frequency 1.5 Hz pulse ratio 1:1	230 VAC + 6%/-10%, 50-60 Hz	ST	704.943.0	26	0,024
lamp voltage 24 V; 10 mA-85 mA ambient temperature 0-50°C flasher frequency 1.5 Hz pulse ratio 1:1	24 VDC +/-15%	ST	704.943.5	26	0,024
lamp voltage 60 V, 33 mA ambient temperature 0-50°C flasher frequency 1.5 Hz pulse ratio 1:1	115 VAC +/-10%, 50-60 Hz	ST	704.943.1	26	0,024



technical drawings from page 122

rotary selector switch element 30°

	contacts	start / end position	part no.
rotary selector switch element 30°	9 (1 pole)	a/i	704-8A236
	10 (1 pole)	a/k	704-8A237
	11 (1 pole)	a/l	704-8A238
	12 (1 pole)	a/m	704-8A239
		a/without limit	704-8A639



rotary selector switch element 45°

	contacts	start / end position	part no.
rotary selector switch element 45°	7 (1 pole)	a/g	704-8A234
	7 (2 pole)	a/g	704-8A254
	8 (1 pole)	a/h	704-8A235
	8 (2 pole)	a/h	704-8A255




rotary selector switch element 60°

	contacts	start / end position	part no.
rotary selector switch element 60°	3 (1 pole)	a/c	704-8A230
	3 (1 pole, d. c. separated)	a/c	704-8A730
	3 (2 pole)	a/c	704-8A250
	3 (3 pole)	a/c	704-8A270
	4 (1 pole)	a/d	704-8A231
	4 (1 pole, d. c. separated)	a/d	704-8A731
	4 (2 pole)	a/d	704-8A251
	4 (3 pole)	a/d	704-8A271
	5 (1 pole)	a/e	704-8A232
	5 (2 pole)	a/e	704-8A252
	5 (3 pole)	a/e	704-8A272
	6 (1 pole)	a/f	704-8A233
	6 (2 pole)	a/f	704-8A253




connecting diagrams as of page 137

terminal cover

	use	part no.	
terminal cover	for screw terminal	704.964.5	0,003




terminal marking

	Inscription	part no.	
terminal marking	13/21 33/41	704.965.9	0,001
	22/14 42/34	704.966.0	0,001
1 NC + 1 NO (for 1. or 2. switching element)	53/61 73/81	704.966.1	0,001
	62/54 82/74	704.966.2	0,001
2 NO (for 1. or 2. switching element)	13/23 33/43	704.965.1	0,001
	24/14 44/34	704.965.2	0,001
2 NO (for 3. or 4. switching element)	53/63 73/83	704.965.3	0,001
	64/54 84/74	704.965.4	0,001
2 NC (for 1. or 2. switching element)	11/21 31/41	704.965.5	0,001
	22/12 42/32	704.965.6	0,001
2 NC (for 3. or 4. switching element)	51/61 71/81	704.965.7	0,001
	62/52 82/72	704.965.8	0,001




for illumination

Filament lamp

	voltage/current	part no.	
Filament lamp base Ba9s	6 AC/DC/200 mA	10-1406.1369	0,002
	12 AC/DC/100 mA	10-1409.1329	0,002
	24 AC/DC/50 mA	10-1412.1279	0,002
	36 AC/DC/56 mA	10-1416.1289	0,002
	48 AC/DC/42 mA	10-1419.1249	0,002
	60 AC/DC/33 mA	10-1420.1219	0,002
	110 AC/DC/22 mA	10-1422.1179	0,002
	130 AC/DC/20 mA	10-1424.1179	0,002



LED

	number of chips	voltage/current	colour	part no.	
LED base Ba9s	1 chip	24 VDC/14 mA	white	10-2412.3139	0,002
		28 VDC/14 mA	white	10-2413.3139	0,002
		230 VAC/3 mA	red	10-2H25.2042	0,002
		230 VAC/3 mA	yellow	10-2H25.2044	0,002
		230 VAC/3 mA	green	10-2H25.2045	0,002
		230 VAC/3 mA	blue	10-2H25.2046	0,002
		230 VAC/3 mA	white diffuse	10-2H25.2049	0,002
		130 VAC/5 mA	red	10-2H24.2052	0,002
		130 VAC/5 mA	yellow	10-2H24.2054	0,002
		130 VAC/5 mA	green	10-2H24.2055	0,002
		130 VAC/5 mA	blue	10-2H24.2056	0,002
		130 VAC/5 mA	white diffuse	10-2H24.2059	0,002
		8 chips	6 VDC/80 mA	red	10-6406.3312
	yellow			10-6406.3314	0,002
	green			10-6406.3315	0,002
	12 VDC/40 mA		red	10-6409.3242	0,002
			yellow	10-6409.3244	0,002
			green	10-6409.3245	0,002
	24 VDC/19 mA		red	10-6412.3162	0,002
		yellow	10-6412.3164	0,002	
green		10-6412.3165	0,002		
28 VDC/19 mA	red	10-6413.3162	0,002		
	green	10-6413.3165	0,002		
	yellow	10-6413.3164	0,002		
48 VDC/16 mA	red	10-6419.3152	0,002		
	yellow	10-6419.3154	0,002		
	green	10-6419.3155	0,002		



Note:
For optimal illumination we strongly recommend using our new single-chip LEDs.

For new designs, only the new single-chip LEDs should be chosen. They can be found on page 669.


diode block

	connection method	part no.	circuit drawing	technical drawing	
diode block 1 N 4007	ST	704.942.5	26	27	0,019



circuit drawings from page 131, technical drawings from page 122


lamp transformer

	operation voltage	connection method	part no.	circuit drawing	technical drawing	
lamp transformer for lamp rating 24 V/50 mA SEV class 2a, 1.2 VA, 50/60 Hz	115/24 VAC	ST	704.970.3	27	28	0,100
	230/24 VAC	ST	704.970.4	27	28	0,100
	400/24 VAC	ST	704.970.5	27	28	0,100
	440/24 VAC	ST	704.970.6	27	28	0,100



circuit drawings from page 131, technical drawings from page 122


capacitor block

	operation voltage	connection method	part no.	circuit drawing	technical drawing	
capacitor block for lamp voltage 130 V/20 mA, 50 Hz	230/130 VAC	ST	704.942.0	28	27	0,018



circuit drawings from page 131, technical drawings from page 122


resistor block

	operation voltage	connection method	part no.	circuit drawing	technical drawing	
resistor block for lamp rating 130 V/20 mA	230/130 V	ST	704.941.0	29	27	0,017
for lamp rating 60 V/33 mA	125/60 V	ST	704.941.5	29	27	0,006



circuit drawings from page 131, technical drawings from page 122


resistor diode block

	operation voltage	connection method	part no.	circuit drawing	technical drawing	
resistor diode block for lamp rating 130 V/20 mA	230/130 V	ST	704.941.9	30	27	0,017



circuit drawings from page 131, technical drawings from page 122


capacitor

	value	part no.	
capacitor use with 48 V/25 mA	0,33 µF	700.003.0	0,004



Wire in accordance with local electrical safety regulations.

series resistor


	value	part no.	
series resistor use with 130 V/20 mA lamp rating	230 V/130 V	02-904.4	0,004



Wire in accordance with local electrical safety regulations.


for emergency stop switch

label for emergency stop switch

	marking	part no.	
label for emergency stop switch yellow	ARRET D'URGENCE 60 mm dia.	704.963.7	0,011
	Emergency Stop 60 mm dia.	704.963.6	0,011
	Emergency Stop 90 mm dia.	704.963.1	0,011
	NOT-AUS 60 mm dia.	704.963.5	0,011
	NOT-AUS 90 mm dia.	704.963.0	0,011




protective shroud for emergency stop switch

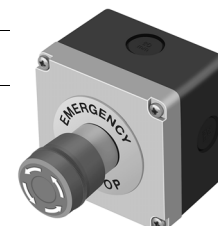
	colour	part no.	
protective shroud for emergency stop switch of aluminium anodized	yellow	704.927.4	0,500
	natural	704.927.0	0,500

use only for part no. 704.064.2 and 704.066.2



enclosure for emergency stop switch

	part no.	
enclosure for emergency stop switch colour yellow	704.944.33	140,000




assembling

anti-twisting ring for flush mounting

	part no.	
anti-twisting ring for flush mounting	704.954.0	0,002




reducing ring

	colour	part no.	
reducing ring for mounting of pushbutton 22.5 mm dia. in mounting hole 30.5 mm dia.	natural anodized	704.960.8	0,004
	black anodized	704.960.0	0,004




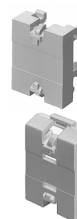
mounting plate

	part no.	
mounting plate for separate mounting of lamp transformer, resistor block or capacitor block	704.940.8	0,006




snap-on base

	DIN mounting rail	part no.	
snap-on base for clipping, for separate mounting of lamp transformer, resistor block or capacitor block	EN 50022	704.941.1	0,006
	EN 50035	704.940.9	0,006




reinforcement plate

for thin front panels and plastic case

	part no.	
reinforcement plate	704.960.9	0,014




lens remover

	part no.	
lens remover for pushbuttons for flush mounting	700.006.0	0,003




lamp remover

	part no.	 kg
lamp remover front bezel bracket for flush mounting ATTENTION A switching process might be released when replacing the lamp!	700.004.0	0,003




mounting tool for indicator 704.02x.x

	part no.	 kg
mounting tool for indicator 704.02x.x hinged, transparent, with means for sealing aluminium anodized	700.005.0	0,020



mounting tool for key insert switch

	part no.	 kg
mounting tool for key insert switch	704.990.0	0,020



for indicator compact

indicator actuator for indicator compact

	colour	29 mm dia. Typ-Nr.	circuit drawing	
indicator actuator for indicator compact with series resistor for 110/125 V and incandescent lamp 60 V/33 mA	grey	704.642.2	1	0,009
with series resistor for 220/240 V and incandescent lamp 130 V/20 mA	grey	704.642.1	1	0,020
without built-in series resistor	grey	704.642.0	1	0,006



circuit drawings from page 131

lens cap round, plastic

	shape	lens cap	colour	29 mm dia. Typ-Nr.	
lens cap round, plastic	flat	transparent	blue	704.603.6	0,003
			colourless, clear	704.603.7	0,003
			yellow	704.603.4	0,003
			green	704.603.5	0,003
			red	704.603.2	0,003



marking cap for lens cap round

	marking cap	colour	29 mm dia. Typ-Nr.	
marking cap for lens cap round front bezel bracket for flush mounting	translucent, ribbed	white	704.608.9	0,002
for neon lamps and LED's	transparent, ribbed	colourless, clear	704.608.7	0,002



for indicator round, front illumination

indicator actuator round, front illumination

	colour	29 mm dia. Typ-Nr.	
indicator actuator round, front illumination	grey	704.633.1	0,020



lens round, plastic

	shape	lens	colour	29 mm dia. Typ-Nr.	
lens round, plastic	flat	transparent	blue	704.602.6	0,001
			colourless, clear	704.602.7	0,001
			yellow	704.602.4	0,001
			green	704.602.5	0,001
			red	704.602.2	0,001




marking foil for lens round plastic

	front shape	marking plate	colour	part no.	
marking foil for lens round plastic front bezel bracket for flush mounting	round	translucent	white	704.609.9	0,001
for LED	round	transparent, ribbed	colourless, clear	704.609.7	0,001




lens round raised plastic

	shape	lens	colour	29 mm dia. Typ-Nr.	 kg
lens round raised plastic	flat	transparent	colourless, clear	704.611.7	0,002
			yellow	704-611.4	0,002
			green	704.611.5	0,002
			red	704.611.2	0,002




marking cap for lens round raised

	front shape	marking cap	colour	part no.	 kg
marking cap for lens round raised	round	translucent, ribbed	white	704.610.9	0,001
front bezel bracket for flush mounting for neon lamps and LED's	round	transparent, ribbed	colourless, clear	704.610.7	0,001




front ring

	material	colour	29 mm dia. Typ-Nr.	 kg
front ring	aluminium anodized	natural	704.600.1	0,005
		black	704.600.1A	0,005
	stainless steel	natural	704.600.9	0,006
	plastic	light grey	704.600.6	0,003
		black	704.600.0	0,003
		chromium-plated	704.600.4	0,003
front ring raised 16 mm	plastic	light grey	704.600.7	0,003



bayonet flange

	material	part no.	 kg
bayonet flange	plastic	704.950.5	0,015
	metal	704.960.5	0,025



lamp block

	connection method	part no.	circuit drawing	 kg
lamp block		704.950.1	1	0,016
	ST	704.950.0	1	0,016



circuit drawings from page 131


for indicator square, front illumination

indicator actuator square, front illumination

	colour	30 x 30 mm Typ-Nr.	
indicator actuator square, front illumination	grey	704.733.1	0,020
	black	704.733.0	0,020




lens square, plastic

	shape	lens	colour	30 x 30 mm Typ-Nr.	
lens square, plastic	flat	opaque	black	704.702.0	0,001
			white	704.702.9	0,001
		transparent	blue	704.702.6	0,001
			colourless, clear	704.702.7	0,001
			yellow	704.702.4	0,001
			green	704.702.5	0,001
			red	704.702.2	0,001




lens holder

for lens square

	lens holder	colour	part no.	
lens holder for neon lamps can be marked	transparent	clear	704.709.7	0,003
	translucent	white	704.709.9	0,003




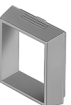
marking foil for lens square

	front shape	colour	part no.	
marking foil for lens square can be hot pressed	square	colourless, clear	704.706.7	0,001




front bezel

	front shape	material	colour	part no.	
front bezel	square	plastic	grey	704.701.6	0,002
			black	704.701.0	0,002
			chromium-plated	704.701.4	0,002



bayonet flange

	material	part no.	
bayonet flange	plastic	704.950.5	0,015
	metal	704.960.5	0,025



lamp block

	connection method	part no.	circuit drawing	kg
lamp block		704.950.1	1	0,016
	ST	704.950.0	1	0,016



circuit drawings from page 131

for indicator round, full face illumination

indicator actuator round, full face illumination

	colour	Pictograph circuit drawing	29 mm dia. Typ-Nr.	kg
indicator actuator round, full face illumination	grey		704.630.1	0,020



lens cap round, plastic

	shape	lens cap	colour	29 mm dia. Typ-Nr.	kg
lens cap round, plastic	flat	transparent	blue	704.603.6	0,003
			colourless, clear	704.603.7	0,003
			yellow	704.603.4	0,003
			green	704.603.5	0,003
			red	704.603.2	0,003



marking cap for lens cap round

	marking cap	colour	29 mm dia. Typ-Nr.	kg
marking cap for lens cap round	translucent, ribbed	white	704.608.9	0,002
front bezel bracket for flush mounting for neon lamps and LED's	transparent, ribbed	colourless, clear	704.608.7	0,002



bayonet flange

	material	part no.	kg
bayonet flange	plastic	704.950.5	0,015
	metal	704.960.5	0,025



lamp block

	connection method	part no.	circuit drawing	
lamp block		704.950.1	1	0,016
	ST	704.950.0	1	0,016



circuit drawings from page 131


for indicator square, full face illumination

indicator actuator square, full face illumination

	colour	∅ 30 x 30 mm Typ-Nr.	
indicator actuator square, full face illumination	grey	704.730.1	0,005
	black	704.730.0	0,005




lens cap square, plastic

	shape	lens cap	colour	∅ 30 x 30 mm Typ-Nr.	
lens cap square, plastic	flat	transparent	blue	704.703.6	0,003
			colourless, clear	704.703.7	0,003
			yellow	704.703.4	0,003
			green	704.703.5	0,003
			red	704.703.2	0,003




diffusor cap

for lens cap square

	colour	∅ 30 x 30 mm Typ-Nr.	
diffusor cap for neon lamp can be marked	clear	704.708.7	0,004
	white	704.708.9	0,004




marking foil for lens square

	front shape	colour	part no.	
marking foil for lens square can be hot pressed	square	colourless, clear	704.706.7	0,001




bayonet flange

	material	part no.	
bayonet flange	plastic	704.950.5	0,015
	metal	704.960.5	0,025



lamp block


	connection method	part no.	circuit drawing	
lamp block		704.950.1	1	0,016
	ST	704.950.0	1	0,016



circuit drawings from page 131


for illuminated-/pushbutton round

illuminated-/pushbutton actuator round

	switching action	colour	29 mm dia. Typ-Nr.	
illuminated-/pushbutton actuator round	M	grey	704.631.1	0,009
	MA	grey	704.632.1	0,009




lens round, plastic

	shape	lens	colour	29 mm dia. Typ-Nr.	
lens round, plastic	flat	transparent	blue	704.602.6	0,001
			colourless, clear	704.602.7	0,001
			yellow	704.602.4	0,001
			green	704.602.5	0,001
			red	704.602.2	0,001




marking plate for lens round plastic

	front shape	marking plate	colour	part no.	
marking foil for lens round plastic	round	translucent	white	704.609.9	0,001
front bezel bracket for flush mounting for LED	round	transparent, ribbed	colourless, clear	704.609.7	0,001




lens round, metal

	shape	lens	colour	29 mm dia. Typ-Nr.	
lens round, metal for pushbuttons	flat	aluminium anodized	blue	704.601.6	0,001
			yellow	704.601.4	0,001
			green	704.601.5	0,001
			natural	704.601.8	0,001
			red	704.601.2	0,001
			black	704.601.0	0,001
		stainless steel	natural	704.601.9	0,001




lens metal round with window

	shape	lens	colour	part no.	
lens metal round with window	flat	aluminium anodized	natural	704.601.81	0,001
			black	704.601.01	0,001
		stainless steel	natural	704.601.91	0,001




mushroom-head cap

	mushroom	colour	40 mm dia. Typ-Nr.	
mushroom-head cap	transparent	blue	704.614.6	0,007
		yellow	704.614.4	0,007
		green	704.614.5	0,007
		clear	704.614.7	0,007
		red	704.614.2	0,007




marking plate for mushroom-head cap

	front shape	marking plate	colour	part no.	
marking plate for mushroom-head cap	round	translucent	white	704.609.9	0,001




front ring

	material	colour	29 mm dia. Typ-Nr.	
front ring	aluminium anodized	natural	704.600.1	0,005
		black	704.600.1A	0,005
	stainless steel	natural	704.600.9	0,006
	plastic	light grey	704.600.6	0,003
		black	704.600.0	0,003
		chromium-plated	704.600.4	0,003
front ring raised	plastic	light grey	704.600.7	0,003



bayonet flange

	material	part no.	
bayonet flange	plastic	704.950.5	0,015
	metal	704.960.5	0,025



lamp block

	connection method	part no.	circuit drawing	kg
lamp block		704.950.1	1	0,016
	ST	704.950.0	1	0,016



circuit drawings from page 131

for illuminated-/pushbutton square

illuminated-/pushbutton actuator square

	switching action	colour	30 x 30 mm Typ-Nr.	kg
illuminated-/pushbutton actuator square	M	grey	704.731.1	0,008
		black	704.731.0	0,008
	MA	grey	704.732.1	0,008
		black	704.732.0	0,008



lens square, plastic

	shape	lens	colour	30 x 30 mm Typ-Nr.	kg
lens square, plastic	flat	transparent	blue	704.702.6	0,001
			colourless, clear	704.702.7	0,001
			yellow	704.702.4	0,001
			green	704.702.5	0,001
			red	704.702.2	0,001



lens holder

for lens square

	lens holder	colour	part no.	kg
lens holder for neon lamps can be marked	transparent	clear	704.709.7	0,003
	translucent	white	704.709.9	0,003




marking foil for lens square

	front shape	colour	part no.	kg
marking foil for lens square can be hot pressed	square	colourless, clear	704.706.7	0,001




front bezel

	front shape	material	colour	part no.	
front bezel	square	plastic	grey	704.701.6	0,002
			black	704.701.0	0,002
			chromium-plated	704.701.4	0,002




bayonet flange

	material	part no.	
bayonet flange	plastic	704.950.5	0,015
	metal	704.960.5	0,025



lamp block

	connection method	part no.	circuit drawing	
lamp block		704.950.1	1	0,016
	ST	704.950.0	1	0,016



circuit drawings from page 131

snap-action switching element

switching system

switching system

The double-break, snap-action switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact.

The snap-action switching element is fitted with self-cleaning contacts.

Up to 3 switching elements can be snapped to each actuator.

material

material of contacts

hardsilver, gold/silver, silver/palladium (for aggressive atmospheres)

switching element

polycarbonate PC

mechanical characteristics

connection method

screw terminals

plug-in terminals 6.3 x 0.8 mm:

max. wire cross-section: 2 x 2.5 mm²

max. wire cross-section of stranded cable: 2 x 1.5 mm²

For switches with plug-in terminals it is necessary to provide insulation sockets and to maintain a spacing of 65 mm between rows (mounting dimensions).

starting torque

screws at the mounting flange: max. 25 Ncm

screws at switching element: max. 50 Ncm

actuating force

11-20 N ± 1 N

depending on the number of switching elements, 1 to 3 elements

storage temperature

-40°C to +85°C

mechanical life

pushbuttons:

maintained action 1.5 million cycles of operation

momentary action 3 million cycles of operation

selector switch:

maintained action 1.25 million cycles of operation

momentary action 2.5 million cycles of operation

emergency stop switch: ≥ 50'000 cycles of operation

key lock switch:

maintained action 25'000 cycles of operation

momentary action 50'000 cycles of operation"

rebound time

≤ 3 ms

travel

5.8 ± 0.2 mm

resistance to shock

(single impacts, semi-sinusoidal)

30 g for 11 ms as per EN 60 947-5-1

resistance to vibration

(sinusoidal)

10 g at 10-2000 Hz, amplitude 0,75 mm as per EN 60 947-5-1

ambient air temperature

min. - 25°C (- 40° with restriction)

max. without illumination: + 80°C

max. with neon lamp + 80°C

max. with LED: + 80°C

max. with incandescent lamp: + 40°C

(as per DIN IEC 68-)

electrical characteristics

rated insulation voltage

500 VAC/600 VDC as per VDE 0100, group C

standards

The switches comply with the "Standards for low-voltage switching devices" EN 60 947-5-1

contact resistance

starting value ≤ 50 mΩ as per IEC 512-2-4

insulation resistance

≥ 10 MΩ between open contacts at 500 VDC, as per IEC 512-2-10.

continuous thermal current I_{th2}

10 A

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

switch rating max.

at switch rating AC for gold-, silver- and hard silver contacts service category AC-15 as per EN60947-5-1

(cos φ = 0.7)

voltage:	230 VAC	400 VAC	500 VAC
----------	---------	---------	---------

current:	6 A	4 A	2.5 A
----------	-----	-----	-------

at switch rating DC for gold-, silver- and hard silver contacts service category DC as per EN60947-5-1

L/R=100 ms at P>=50 W and

L/R=2 x P ms<50 W

WOP stands for switch rating in watt

voltage:	24 VDC	60 VDC	110 VDC
----------	--------	--------	---------

current:	10 A	3 A	1 A
----------	------	-----	-----

switch rating min.

gold/silver contacts:

voltage:	5 VDC	24 VDC	110 VDC
----------	-------	--------	---------

current:	15 mA	5 mA	2 mA
----------	-------	------	------

hard silver contacts:

voltage:	24 VDC	110 VDC
----------	--------	---------

current:	50 mA	10 mA
----------	-------	-------

electric strength

5000 VAC, 50 Hz, 1 min. between all terminals and earth.

approvals

approvals

- SEV 500 VAC/10 A

- CSA 300 VAC

- UL 600 VAC HD

- German Navy SAK page no.3337 on request

- German Lloyd

- CE (declaration of conformity)

- CB

slow-make switching element

switching system

switching system

The double-break, slow-make switching element is equipped with one or two independent contact systems, acting as normally open or normally closed contact.

Slow-make contacts with forced action are ideal for high switch ratings. Up to 3 switching elements can be snapped to each actuator. Up to 3 switching elements can be snapped to each actuator.

material

material of contacts

hardsilver, gold/silver, silver/palladium (for aggressive atmospheres)

switching element

polycarbonate PC

mechanical characteristics

connection method

screw terminals
 plug-in terminals 6.3 x 0.8 mm:
 max. wire cross-section: 2 x 2.5 mm²
 max. wire cross-section of stranded cable: 2 x 1.5 mm²
 For switches with plug-in terminals it is necessary to provide insulation sockets and to maintain a spacing of 65 mm between rows (mounting dimensions).

starting torque

screws at the mounting flange: max. 25 Ncm
 screws at switching element: max. 50 Ncm

actuating force

13-36 N ± 1 N
 depending on the number of switching elements, 1 to 3 elements

storage temperature

-40°C to + 85°C

mechanical life

pushbuttons:
 maintained action 1.5 million cycles of operation
 momentary action 3 million cycles of operation
 selector switch:
 maintained action 1.25 million cycles of operation
 momentary action 2.5 million cycles of operation
 emergency stop switch: >= 50'000 cycles of operation
 key lock switch:
 maintained action 25'000 cycles of operation
 momentary action 50'000 cycles of operation"

travel

5.8 ± 0.2 mm

resistance to shock

(single impacts, semi-sinusoidal)
 30 g for 11 ms as per EN 60 947-5-1

resistance to vibration

(sinusoidal)
 10 g at 10-2000 Hz, amplitude 0,75 mm as per EN 60 947-5-1

rebound time

<= 1 ms

ambient air temperature

min. - 25°C (- 40° with restriction)
 max. without illumination: + 80°C
 max. with neon lamp + 80°C
 max. with LED: + 80°C
 max. with incandescent lamp: + 40°C

electrical characteristics

rated insulation voltage

500 VAC/600 VDC as per VDE 0100, group C

standards

The switches comply with the Rules for low-voltage switching devices" EN 60 947-5-1

contact resistance

starting value <= 50 mΩ as per IEC 512-2-4

insulation resistance

>= 100 MΩ between open contacts at 500 VDC, as per IEC 512-2-10.

continuous thermal current I_{th2}

10 A

The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

switch rating max.

at switch rating AC for gold-, silver- and hard silver contacts service category AC-15 as per EN60947-5-1 (cos φ = 0.7)

voltage:	230 VAC	400 VAC	500 VAC
current:	7 A	5 A	4 A

at switch rating DC for gold-, silver- and hard silver contacts service category DC as per EN60947-5-1
 L/R=100 ms at P>=50 W and
 L/R=2 x P ms<50 W

WOP stands for switch rating in watt

voltage:	24 VDC	60 VDC	110 VDC
current:	10 A	5 A	2.5 A

switch rating min.

gold/silver contacts:
 voltage 24 VDC 110 VDC
 current: 10 mA 2 mA

hard silver contacts:
 voltage 24 VDC 110 VDC
 current: 50 mA 10 mA

electric strength

5000 VAC, 50 Hz, 1 min. between all terminals and earth

approvals

approvals

- SEV 500 VAC/10 A
- CSA 300 VAC
- UL 600 VAC HD
- German Navy SAK page no.3337 on request
- German Lloyd
- CE (declaration of conformity)
- CB

buzzer

buzzer system

system
Piezo disc

material

alarm buzzer case
polyamide

front cap
plastic: polyamide
metal: nickel-plated brass
sea-water proof

mechanical characteristics

connection method
plug-in terminal 2.8 x 0.5 mm

operating temperature
-25°C to + 50°C

storage temperature
-25°C to + 50°C

degree of protection
IP 40 as per IEC 529 (flush mounting)
IP 65 (raised fitting) as per IEC 529

electrical characteristics

frequency (tone)
ca. 2.8 kHz continuous tone only

sound pressure
95 db (A) ± 8 at a distance of 0.1 m

operation voltage/current
operation voltage: t24 VDC ± 10%
operation current: ≤ 25 mA

actuator

material

front ring
polyamide, aluminium or chromium-plated nickel steel

mounting flange
polyethylene terephthalate

actuator case
polycarbonate, polyamide

mechanical characteristics

actuating force
snap-action switching element: 11-20 N ± 1 N
slow-make switching element: 13-36 N ± 1 N
depending on the number of snap-action elements

storage temperature
-30°C to + 85°C

mechanical life

pushbutton: ≥ 3 million operations
selector switch: ≥ 2.5 million operations
Emergency stop switch: ≥ 50'000 operations
keylock switch: ≥ 50'000 operations

travel
5.8 ± 0.2 mm

degree of protection
front as per IEC 529: IP 65

ambient air temperature
min. -25°C
max. without illumination: + 80°C
max. with neon lamp: + 80°C
max. with LED: + 80°C
max. with incandescent lamp: + 55°C

electrical characteristics

standards
The switches comply with the "Rules for low-voltage switching devices" EN 60 947-5-1

rotary selector switch element

mechanical characteristics

number of positions
1 to 8 positions max.

number of contacts
1 to 16 max. normally open contacts
(contact positioning to the rotary plan)

switching angle
Switching position a (9⁰⁰) is basic position
maintained action switching angle
12 x 30° max.
8 x 45° max.
6 x 60° max.
4 x 90° max.
momentary action with release 24°
(provide at the beginning or at the end)

standard type of Kraus + Naimer
- CG 4 hardsilver contacts with 1 μ gold layer
- CG 4-1 hardsilver contacts with 35 μ gold layer

electrical characteristics

DC 1, resistive circuits T = 1 ms
1 contact in line
permissible voltage 24 V 48 V 60 V 110 V 220 V 440 V
rated service current I 10.0 A 6.0 A 2.5 A 0.7 A 0.3 A 0.2 A
2 contacts in line
permissible voltage 48 V 95 V 120 V 220 V 440 V 660 V
rated service current I 10.0 A 6.0 A 2.5 A 0.7 A 0.3 A 0.2 A
3 contacts in line
permissible voltage 70 V 140 V 180 V 330 V 660 V
rated service current I 10.0 A 6.0 A 2.5 A 0.7 A 0.3 A
4 contacts in line
permissible voltage 95 V 190 V 240 V 440 V
rated service current I 10.0 A 6.0 A 2.5 A 0.7 A
5 contacts in line
permissible voltage 120 V 240 V 300 V 550 V
rated service current I 10.0 A 6.0 A 2.5 A 0.7 A

6 contacts in line
 permissible voltage 144 V 290 V 360 V 660 V
 rated service current I 10.0 A 6.0 A 2.5 A 0.7 A

8 contacts in line
 permissible voltage 190 V 350 V 450 V
 rated service current I 10.0 A 6.0 A 2.5 A

inductive circuits T = 50 ms

1 contact in line
 permissible voltage 24 V 30 V 48 V 60 V 110 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

2 contacts in line
 permissible voltage 48 V 60 V 95 V 120 V 220 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

3 contacts in line
 permissible voltage 72 V 90 V 140 V 180 V 330 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

4 contacts in line
 permissible voltage 96 V 120 V 190 V 240 V 440 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

5 contacts in line
 permissible voltage 120 V 150 V 240 V 300 V 550 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

6 contacts in line
 permissible voltage 144 V 180 V 290 V 360 V 660 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

8 contacts in line
 permissible voltage 190 V 240 V 350 V 450 V
 rated service current I 6.0 A 3.0 A 1.0 A 0.7 A 0.3 A

short-circuit-proof

max. insurance (gL-characteristics) 10 A
 conditional rated short-circuit current 3 kA

rated service voltage

IEC	500 V
UL	300 V
SEV	380 V
CEE 24	380 V

rated service current I₀

10 A
 AC 21 switching of resistive load with low overload
 AC 1 non or bad inductive load
 AC 22 switching of mixed resistive and inductive load with low overload
 AC 11 switching of magnetic drives, contactors, valves, draw-in magnet

thermic rated current I_{th2}

I_{th2} = 10 A

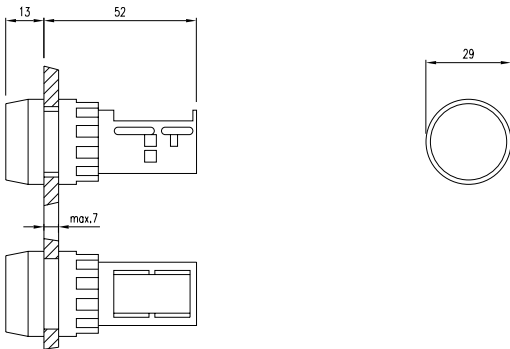
resistance/motor load

CEE 24 4/2 A

technical drawings

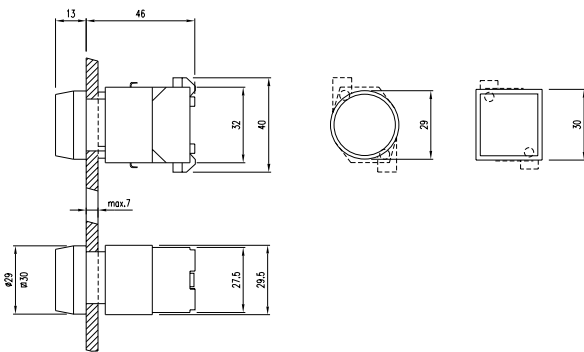
1 indicator compact full face illumination

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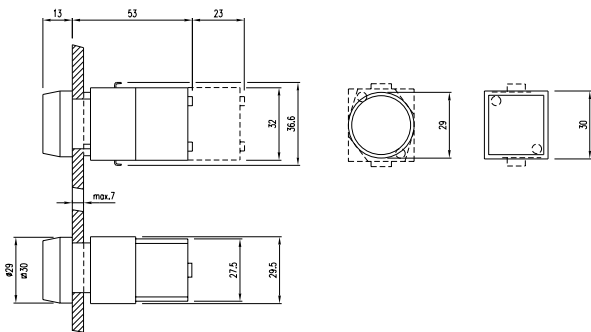
2 indicator/flasher full face illumination, indicator/flasher front illumination

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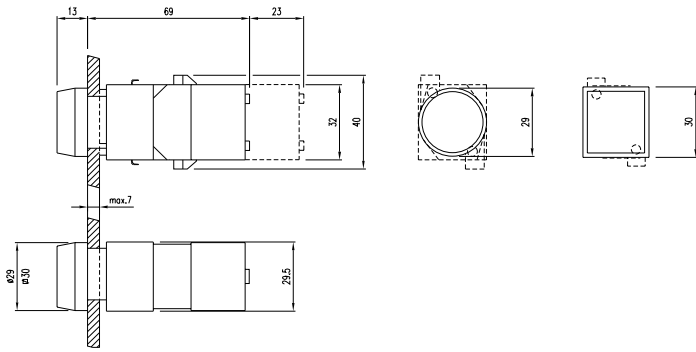
3 pushbutton actuator

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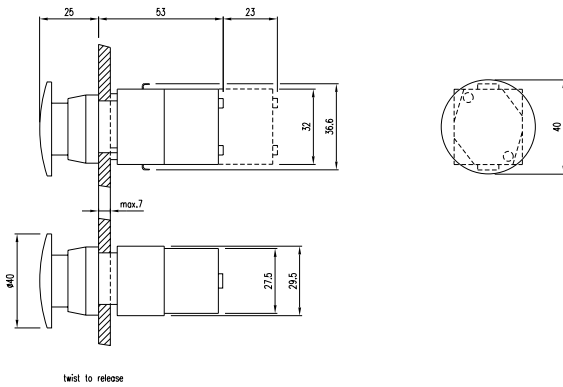
4 illuminated pushbutton actuator

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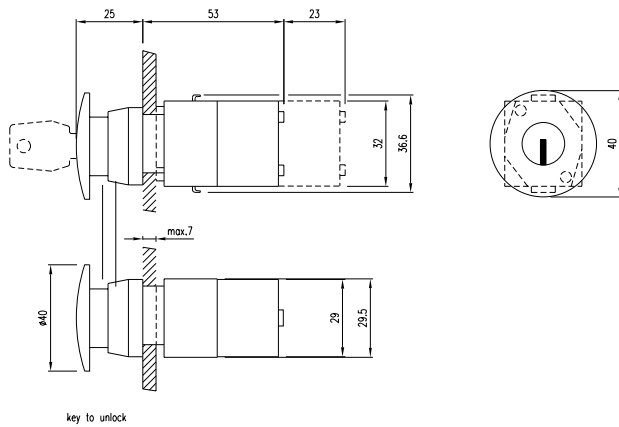
5 emergency stop switch actuator, pushbutton actuator with mushroom-head cap

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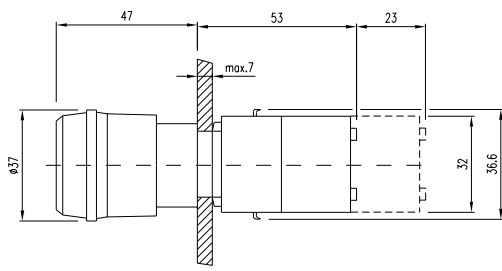
6 emergency stop switch actuator

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7 emergency stop switch actuator foolproof, EN 418

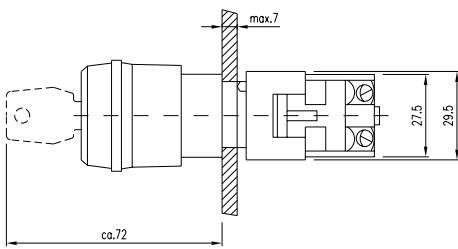
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twist to release

8 emergency stop switch actuator foolproof, EN 418

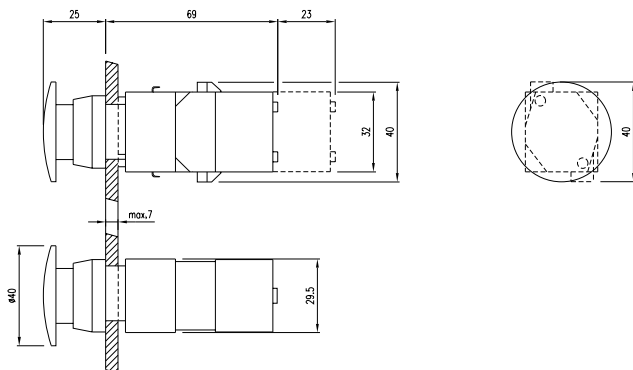
page 80



key to unlock

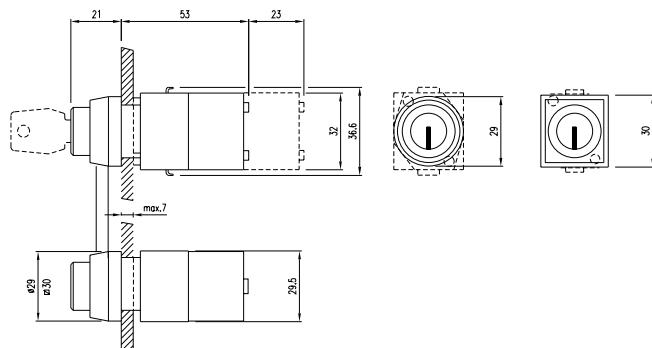
9 illuminated pushbutton actuator with mushroom-head cap

page 82

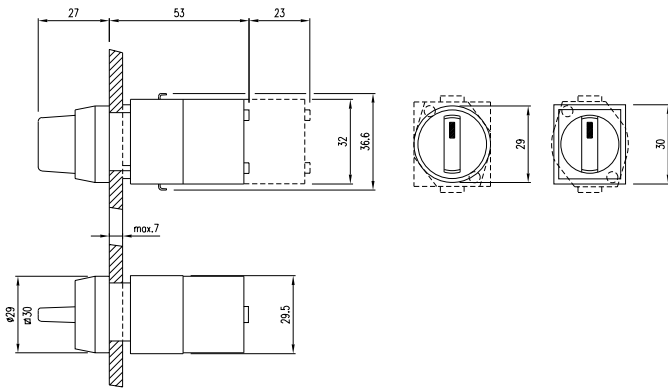


10 keylock switch actuator 2 positions, keylock switch actuator 3 positions

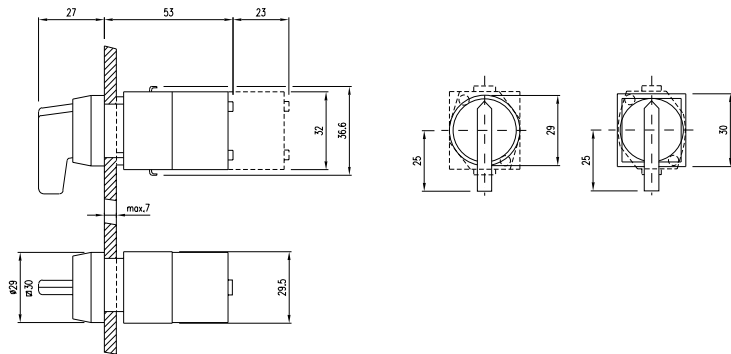
page 83, 84



11 selector switch actuator 2 positions, lever short, selector switch actuator 3 positions, short lever
page 85, 86

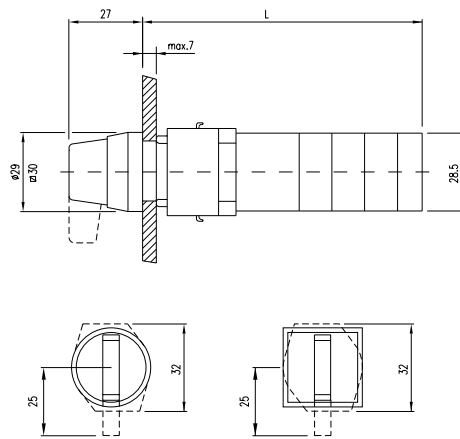


12 selector switch actuator 2 positions, lever long, selector switch actuator 3 positions, lever long
page 85, 86

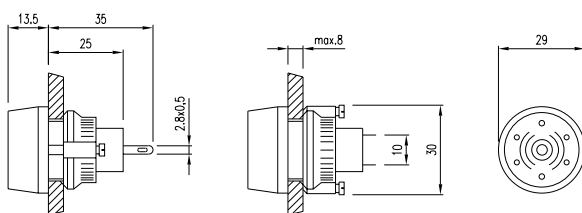


13 rotary selector switch actuator
page 88

No. of elements	Depths L
	CG 4
1	66,5
2	78,5
3	90,5
4	102,5
5	114,5
6	126,5
7	138,5
8	150,5

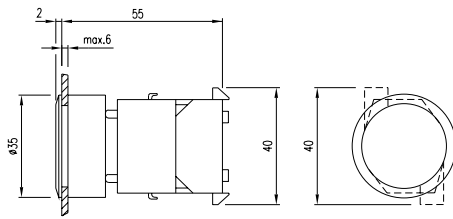


14 buzzer
page 88



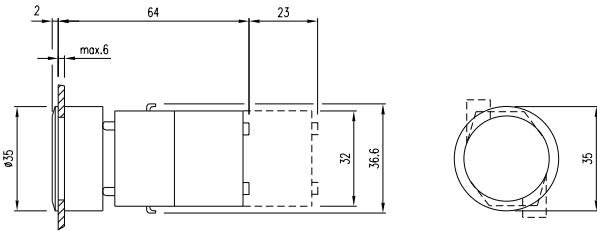
15 indicator/flasher for flush mounting

page 89



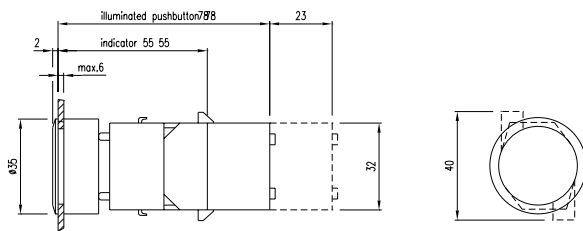
16 pushbutton actuator for flush mounting

page 90



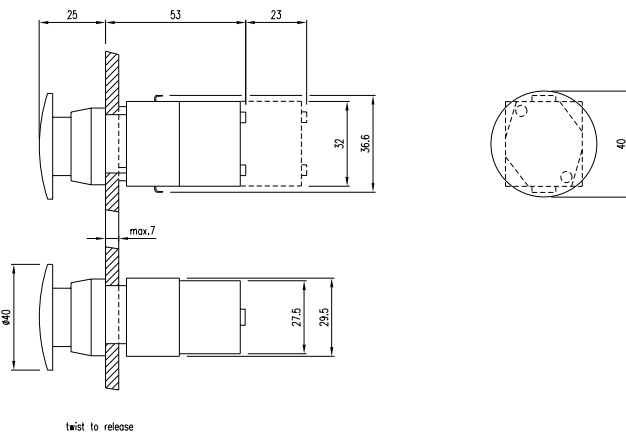
17 illuminated pushbutton actuator for flush mounting

page 91

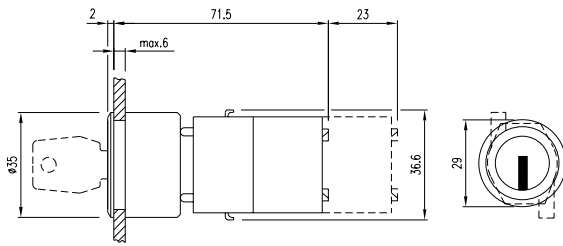


18 emergency stop switch actuator for flush mounting

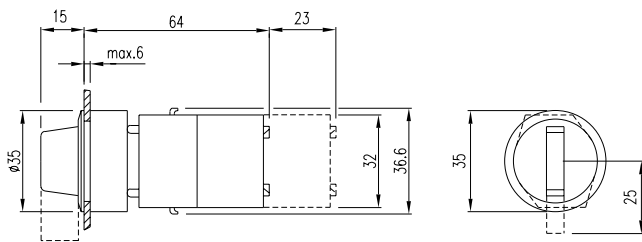
page 92



19 keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting
page 92, 93

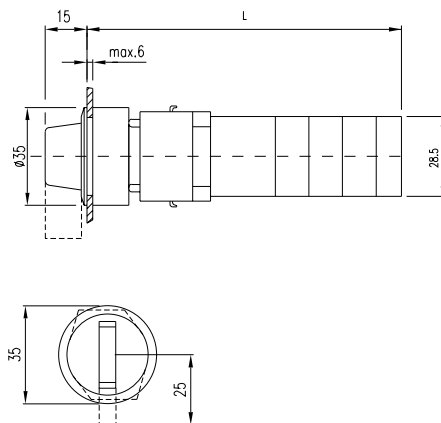


20 selector switch actuator 2 positions for flush mounting, short lever, selector switch actuator 2 positions for flush mounting, long lever, selector switch actuator 3 positions for flush mounting, lever short, selector switch actuator 3 positions for flush mounting, long lever
page 94, 94, 95, 96

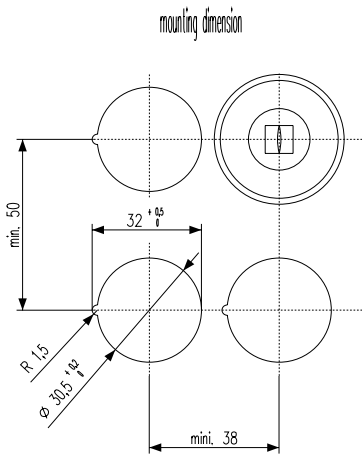


21 rotary selector switch actuator for flush mounting
page 96

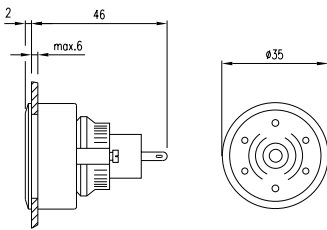
No. of elements	Depths L	
	CG 4	
1	78.5	
2	90.5	
3	102.5	
4	114.5	
5	126.5	
6	138.5	
7	150.5	
8	162.5	



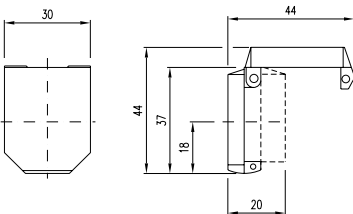
22 key insert switch actuator 2 positions for flush mounting, key insert switch actuator 3 positions for flush mounting
page 97, 97



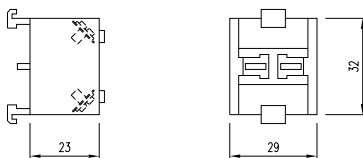
23 buzzer for flush mounting IP40
page 98



24 protective cover
page 99

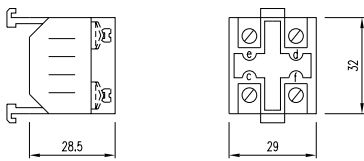


25 switching element, switching element for emergency stop switch
page 101, 102



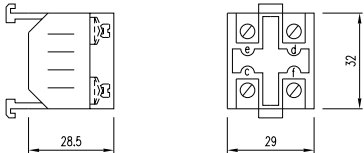
26 flasher element

page 102



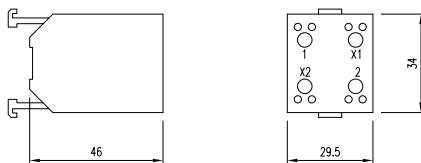
27 diode block, capacitor block, resistor block, resistor diode block

page 104, 105, 105, 105



28 lamp transformer

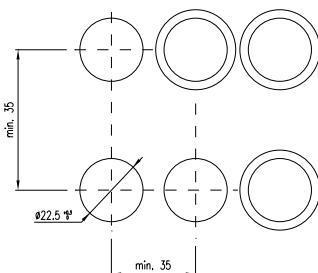
page 105



mounting dimensions

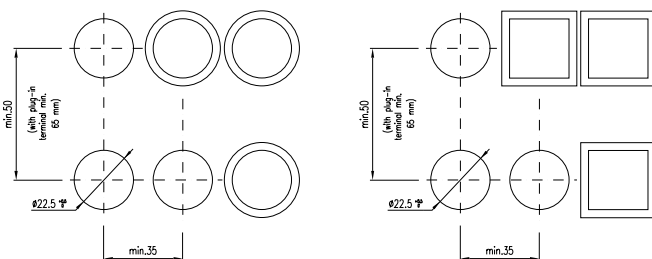
1 indicator compact full face illumination

page 72

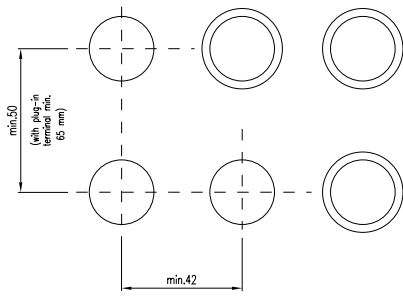


2 indicator/flasher full face illumination, indicator/flasher front illumination, pushbutton actuator, illuminated pushbutton actuator, key-lock switch actuator 2 positions, keylock switch actuator 3 positions, selector switch actuator 2 positions, lever short, selector switch actuator 3 positions, short lever, buzzer, blind plug

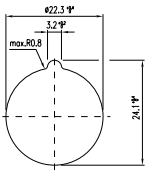
page 73, 74, 76, 78, 83, 84, 85, 86, 88, 100



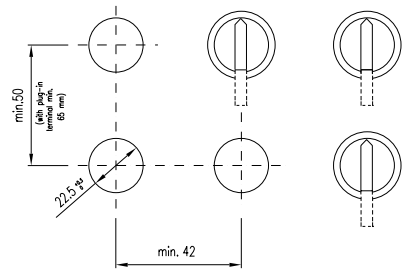
3 emergency stop switch actuator, pushbutton actuator with mushroom-head cap, illuminated pushbutton actuator with mushroom-head cap
 page 79, 81, 82



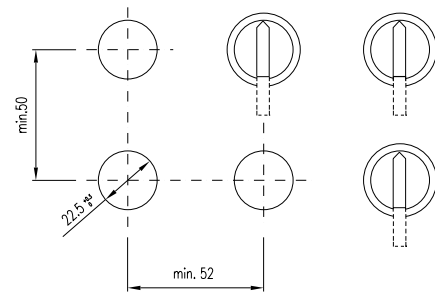
4 emergency stop switch actuator foolproof, EN 418
 page 80



5 selector switch actuator 2 positions, lever long, selector switch actuator 3 positions, lever long
 page 85, 87

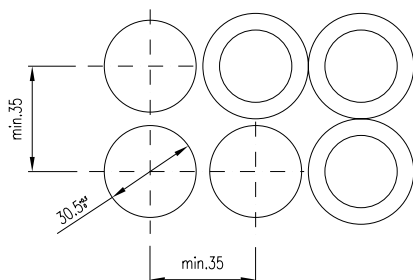


6 rotary selector switch actuator
 page 88



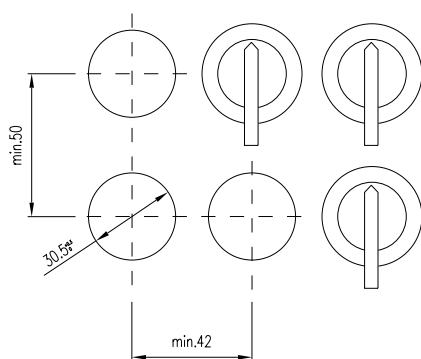
7 indicator/flasher for flush mounting, pushbutton actuator for flush mounting, illuminated pushbutton actuator for flush mounting, emergency stop switch actuator for flush mounting, keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting, selector switch actuator 2 positions for flush mounting, short lever, selector switch actuator 2 positions for flush mounting, long lever, selector switch actuator 3 positions for flush mounting, lever short, key insert switch actuator 2 positions for flush mounting, key insert switch actuator 3 positions for flush mounting, buzzer for flush mounting IP40, front bezel-set for flush mounting

page 89, 90, 91, 92, 92, 93, 94, 94, 95, 97, 97, 98, 99



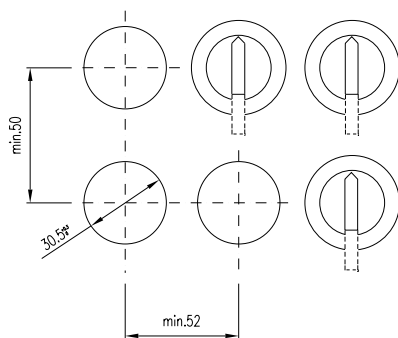
8 selector switch actuator 3 positions for flush mounting, long lever

page 96



9 rotary selector switch actuator for flush mounting

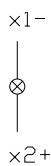
page 96



circuit drawings

1 indicator compact full face illumination, indicator/flasher full face illumination, indicator/flasher front illumination, indicator/flasher for flush mounting, indicator actuator for indicator compact, lamp block

page 72, 73, 74, 89, 109, 110



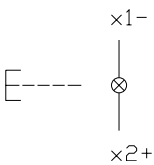
2 pushbutton actuator, pushbutton actuator with mushroom-head cap, pushbutton actuator for flush mounting
page 76, 81, 90



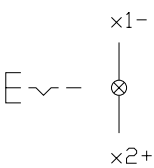
3 pushbutton actuator, pushbutton actuator with mushroom-head cap, pushbutton actuator for flush mounting
page 76, 81, 90



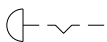
4 illuminated pushbutton actuator, illuminated pushbutton actuator with mushroom-head cap, illuminated pushbutton actuator for flush mounting
page 78, 82, 91



5 illuminated pushbutton actuator, illuminated pushbutton actuator with mushroom-head cap, illuminated pushbutton actuator for flush mounting
page 78, 82, 91



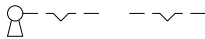
6 emergency stop switch actuator, emergency stop switch actuator foolproof, EN 418, emergency stop switch actuator for flush mounting
page 79, 80, 92



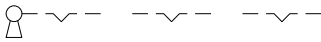
7 keylock switch actuator 2 positions, keylock switch actuator with 2 positions for flush mounting
page 83, 92



8 keylock switch actuator 2 positions, keylock switch actuator with 2 positions for flush mounting
page 83, 92



9 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting
page 84, 93



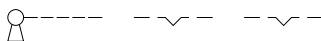
10 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting
page 84, 93



11 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting
page 84, 93



12 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting
page 84, 93



13 selector switch actuator 2 positions, lever short, selector switch actuator 2 positions, lever long, selector switch actuator 2 positions for flush mounting, short lever, selector switch actuator 2 positions for flush mounting, long lever
page 85, 85, 94, 94



14 selector switch actuator 2 positions, lever short, selector switch actuator 2 positions, lever long, selector switch actuator 2 positions for flush mounting, short lever, selector switch actuator 2 positions for flush mounting, long lever
page 85, 85, 94, 94



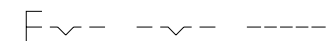
15 selector switch actuator 3 positions, short lever, selector switch actuator 3 positions, lever long, selector switch actuator 3 positions for flush mounting, lever short
page 86, 87, 95



16 selector switch actuator 3 positions, short lever, selector switch actuator 3 positions, lever long, selector switch actuator 3 positions for flush mounting, lever short
page 86, 87, 95



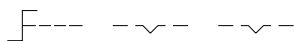
17 selector switch actuator 3 positions, short lever, selector switch actuator 3 positions, lever long, selector switch actuator 3 positions for flush mounting, lever short
page 86, 87, 95



18 selector switch actuator 3 positions, short lever
page 86

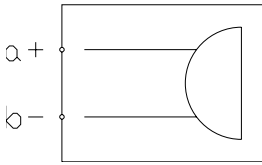


19 selector switch actuator 3 positions, short lever, selector switch actuator 3 positions, lever long, selector switch actuator 3 positions for flush mounting, lever short
page 86, 87, 95



20 buzzer, buzzer for flush mounting IP40

page 88, 98



21 switching element, switching element for emergency stop switch

page 101, 102



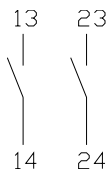
22 switching element, switching element for emergency stop switch

page 101, 102,



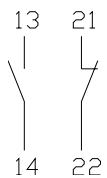
23 switching element, switching element for emergency stop switch

page 101, 102



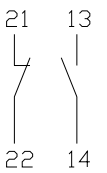
24 switching element, switching element for emergency stop switch

page 101, 102



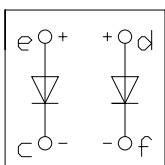
25 switching element, switching element for emergency stop switch

page 101, 102



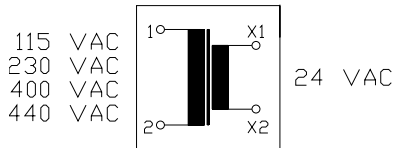
26 diode block

page 104



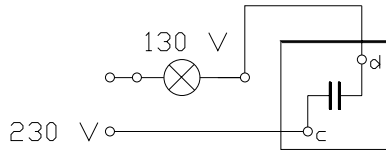
27 lamp transformer

page 105



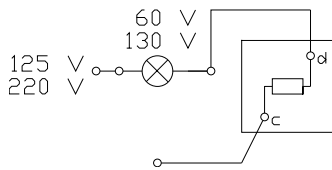
28 capacitor block

page 105



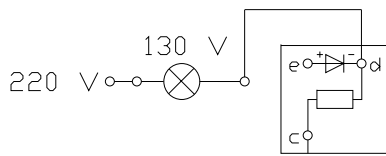
29 resistor block

page 105

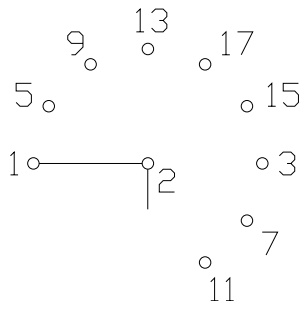


30 resistor diode block

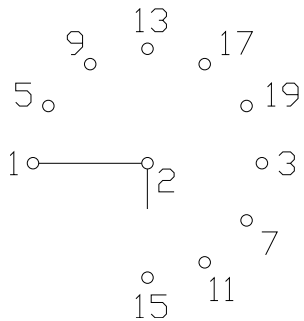
page 105



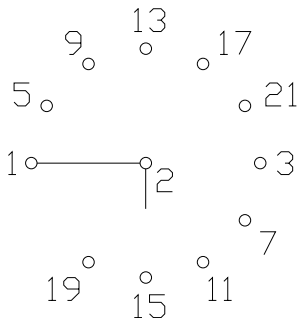
1 rotary selector switch element 30°
page 103



2 rotary selector switch element 30°
page 103



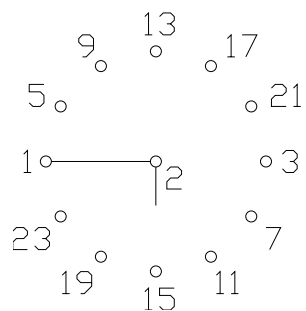
3 rotary selector switch element 30°
page 103



connecting diagrams

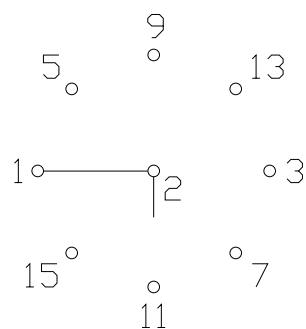
4 rotary selector switch element 30°

page 103



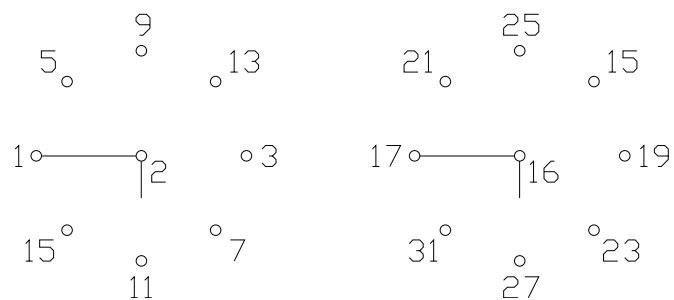
5 rotary selector switch element 45°

page 103



6 rotary selector switch element 45°

page 103



7 rotary selector switch element 60°

page 103

3_o 5_o



8 rotary selector switch element 60°

page 103

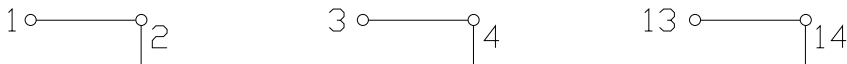
3_o 7_o 11_o 5_o



9 rotary selector switch element 60°

page 103

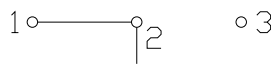
5_o 9_o 7_o 11_o 15_o 17_o



10 rotary selector switch element 60°

page 103

5_o 7_o



11 rotary selector switch element 60°

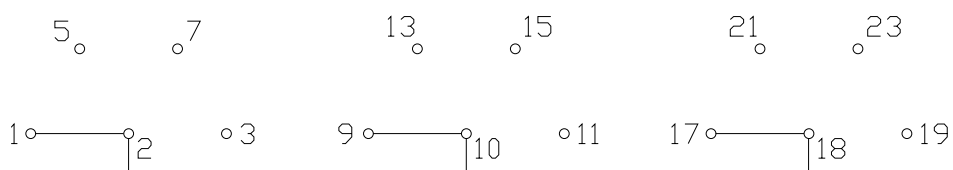
page 103

5_o 7_o 13_o 15_o



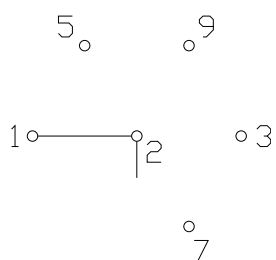
12 rotary selector switch element 60°

page 103



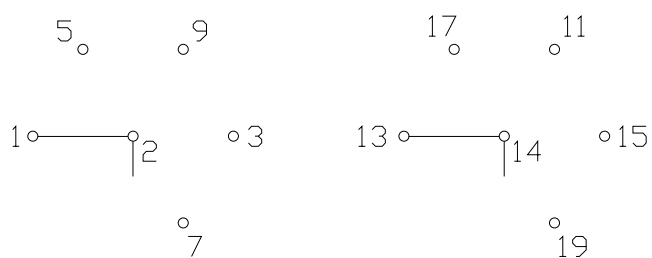
13 rotary selector switch element 60°

page 103



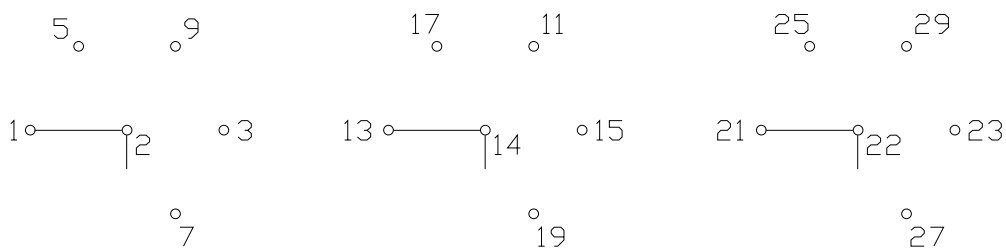
14 rotary selector switch element 60°

page 103



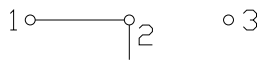
15 rotary selector switch element 60°

page 103



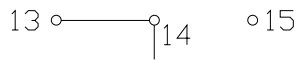
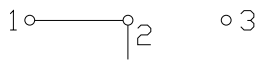
16 rotary selector switch element 60°

page 103



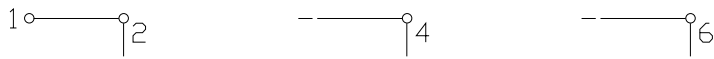
17 rotary selector switch element 60°

page 103



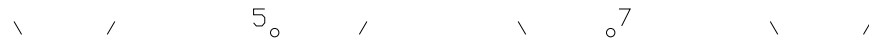
18 rotary selector switch element 60°

page 103



19 rotary selector switch element 60°

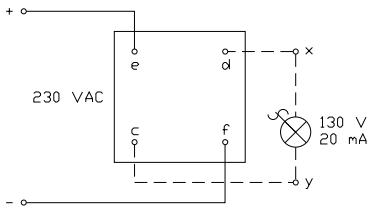
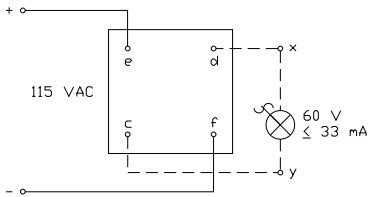
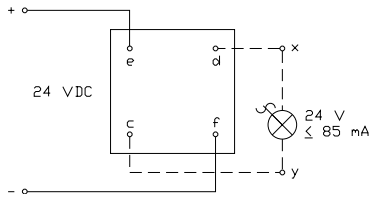
page 103



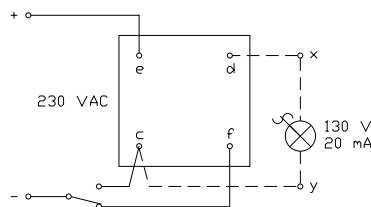
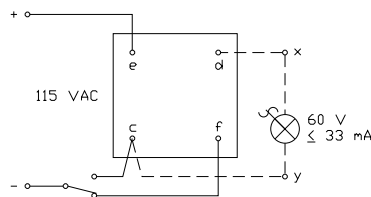
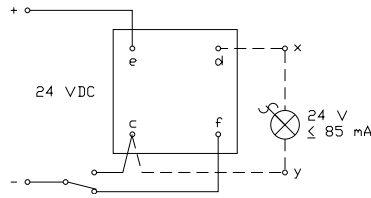
Flasher element

Applications

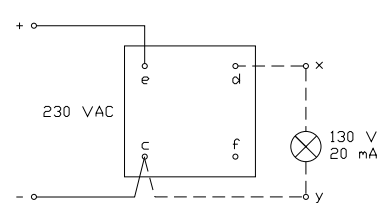
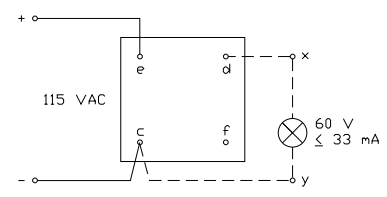
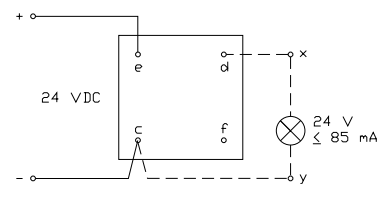
Circuit for flashing light
switchable to continuous light



Circuit for flushing light



Circuit for continuous light



Important: Terminals c and f may not be in circuit at the same time!

1. Engraving

Typefaces

In addition to the most commonly used world languages (see DIN 1451) with close spacing, the following typefaces are available: Scandinavian, Slavian, Greek, Russian.

Coloured filling of engraving

Engraved marking caps and plates have the engraving filled with black or white. Letters to be engraved should be specified on a separate order sheet. (Obtainable from us on request.)

Special symbols

A list of the special symbols available can be supplied on request.

2. Hot stamping

Standard legends and ISO symbols are hot stamped. For large batches it is worth while to have the lettering produced by hot stamping. We will be pleased to advise you.

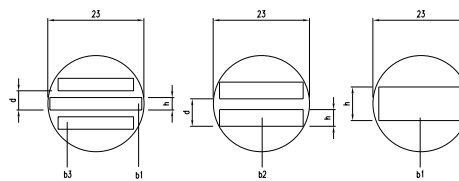
3. Film inserts (for square front only)

Instead of using engraving, the lenses can be fitted with transparent film inserts.

Film dimensions

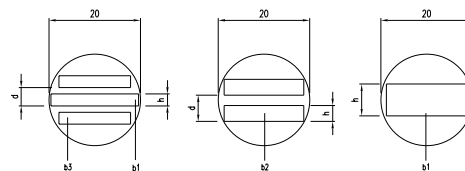
Indicator max. 24,5 x 24,5 mm
Illuminated pushbutton max. 21,5 x 21,5 mm

Indicator Engraving of marking cap



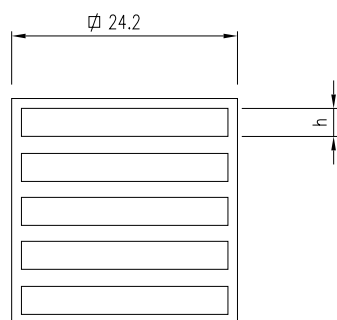
Height of letters h mm	Number of lines	Number of letters per line (approx.)			Line spacing b
		b1	b2	b3	
3	3	11	10	9	4,6
4	2	8	7	-	6,6
8	1	4	-	-	-

Pushbutton/illuminated pushbutton Engraving of marking cap



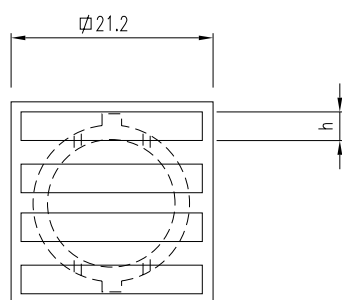
Height of letters h mm	Number of lines	Number of letters per line (approx.)			Line spacing b
		b1	b2	b3	
3	3	9	9	7	4,6
4	2	7	6	-	6,6
8	1	3	-	-	-

Indicator Engraving of diffusor cap



Height of letters h mm	Thickness of letters	Number of lines	Number of capital letters	Number of small letters
2,5	0,4	6	13	14
3	0,4	5	11	12
4	0,5	4	8	8-9
5	0,5	3	6-7	7
6	0,6	2	5-6	6
8	0,6	1	4	4-5

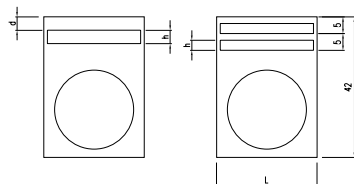
Pushbutton/illuminated pushbutton Engraving of lens holder



Height of letters h mm	Thickness of letters	Number of lines	Number of capital letters	Number of small letters
2,5	0,4	5	9	9-10
3	0,4	4	7-8	8
4	0,5	3	5-6	6
5	0,5	2	4-5	4-5
6	0,6	2	3-4	4
8	0,6	1	2-3	3

Caution! When engraving, make sure lens holder is positioned as shown.

Engraving of label



Height of letters h mm	Number of lines	Number of letters per line (approx.)		Line spacing
		L = 30 mm	L = 42 mm	
3	2	14	20	4,5
4	1	10	14	4
8	1	5	7	2





























































Standard texts for text plates

Text-Nr.

I	II	III	O	EIN	AUS
1	2	3	4	5	6
AUF	AB	START	STOP	HAND	AUTO
7	8	9	10	11	12
ZU	ON	OFF	ARRÊT	MARCHE	RESET
13	14	15	16	17	18
























Symbols as per ISO R 369 for text plates

Symbol No.

	1	Direction of linear rectilinear motion (also for \rightarrow \downarrow)		13	Direction of spindle rotation		29	Decrease of value (speed, for instance)		49	Cooling pump
	2	Linear motion in in 2 directions (also for \downarrow)		14	One revolution		30	Speed of planing cut		50	Lubricant pump
	3	Interrupted linear motion (also for \leftarrow \downarrow)		15	Number of revolutions per minute (spindle speed)		31	Speed of turning cut		51	Hydraulic system pump
	4	Limited linear motion (also for \leftarrow \downarrow)		16	Feed		32	Speed of drilling cut		52	Hydraulic motor
	5	Limited linear motion and return		17	Feed per revolution		33	Speed of milling cut (similar symbol for speed of grinding)		53	Tracer
	6	Oscillating linear motion (continuous)		18	Feed per minute		34	Conventional milling		61	Stepless regulation
	7	Direction of continuous rotation (right)		19	Reduced feed		35	Climb milling (down milling)		62	Adjustable
	7a	Direction of continuous rotation (left)		20	Rapid feed		41	Electric motor		63.1	Look or tighten
	8	Rotation in 2 directions		21	Normal feed		42	Rectangular work table or slide element		63.2	Look or tighten
	9	Direction of interrupted rotation (right)		22	Direction of feed (orientation not specified)		43	Round work table or rotating element		64.1	Unlock, unclamp
	9a	Direction of interrupted rotation (left)		24	Transverse feed		44	Turning spindle		64.2	Chuck open
	10	Limited rotation (right)		25	Vertical feed		45	Drilling spindle		65	Brake on
	10a	Limited rotation (left)		26	Rapid traverse		46	Milling spindle		66	Brake off
	11	Limited rotation and return		27	Threading		47	Grinding spindle		67	Automatic (or semi-automatic) cycle
	12	Oscillating rotary movement (continuous)		28	Increase of value (speed, for instance)		48	Pump (general symbol)		68	Hand control

Symbols as per ISO R 369 for textplates

Symbol No.

	69 Start, on		77 Open lock-nut		93 Caution!		106 Drain
	70 Stop, off		78 Engage sensor		94 Main switch		107 Oil, lubricant
	71 Start and stop with same button		79 Disengage sensor		101 Coolant fluid		108 Blast
	72 In action as long as button is operated		80 Change speed only in stopped position		102 Machine lighting		109 Suction
	74 Engaging (mechanical start)		81 Change speed only in motion		103 Weight		
	75 Disengaging (mechanical stop)		91 Shear pin construction		104 Filter opening		
	76 Close lock-nut		92 Danger (high voltage)		105 Overflow		

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