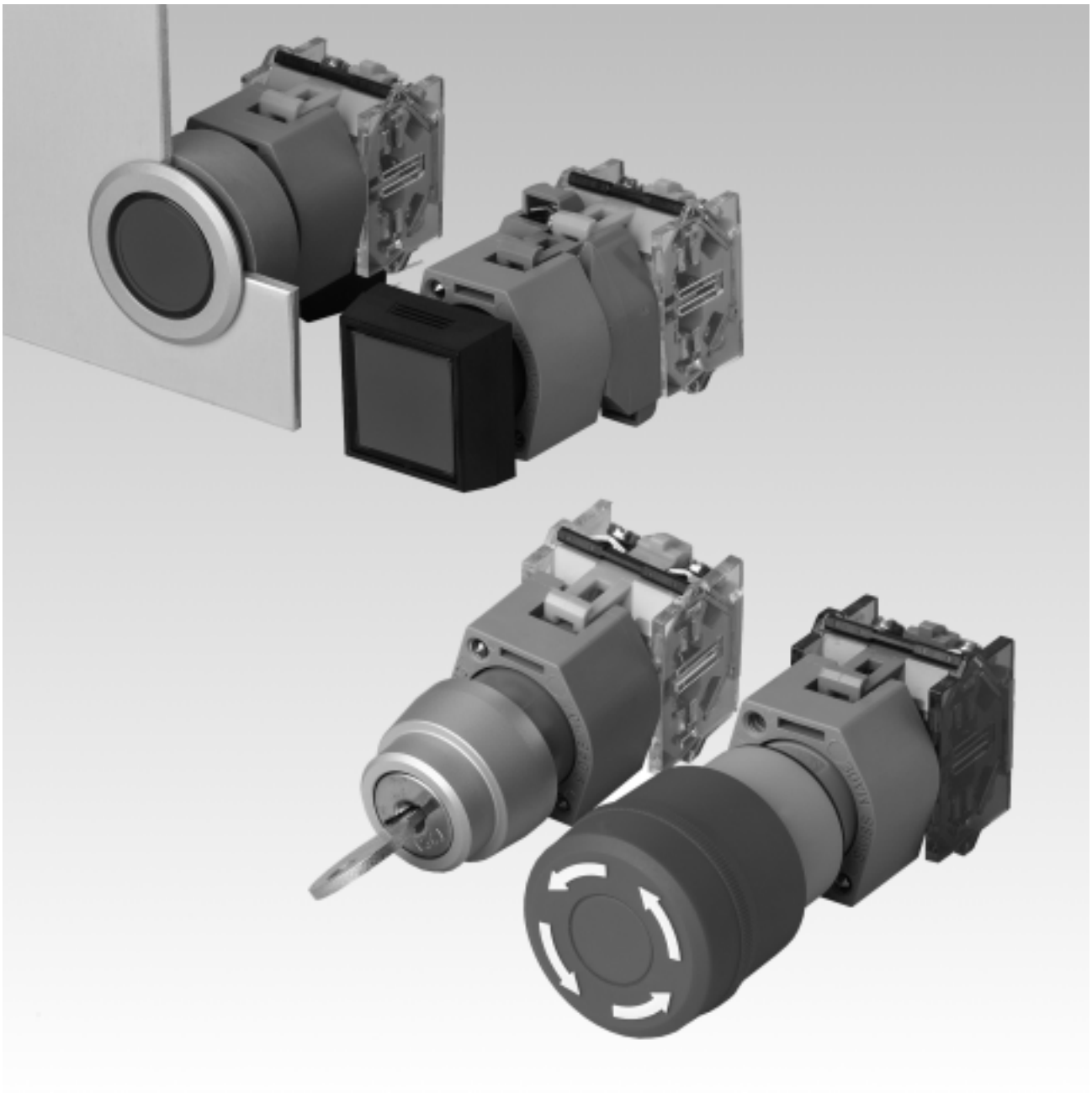


Index

Series 04

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-oparated 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 pushbuttons of series 04 can be pushed through the mounting hole 22,5 mm dia. or, with a suitable adaptor, can be mounted in a hole 30,5 mm dia.

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 327.

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.

Number structure

704.XXX.X

- Lens colour
- Switch variant

704.9XX.X — Switching element

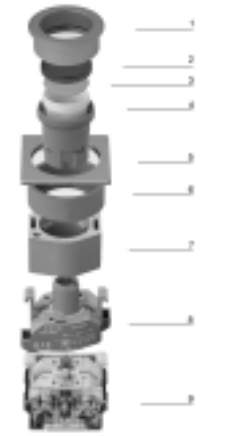
Example:

-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 text panel
4 actuator housing
5 front plate
6 pressure ring
7 bayonet flange
8 lamp element
9 switching element

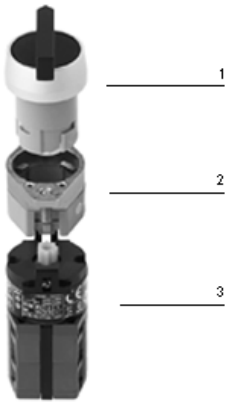
illuminated pushbutton

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

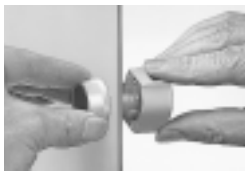
rotary switch for flush mounting

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

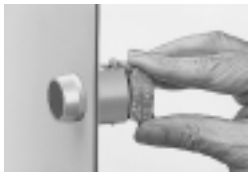
rotary switch

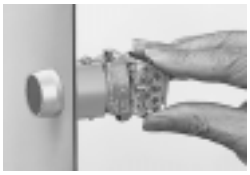


1 rotary switch actuator
2 mounting flange
3 rotary switch element



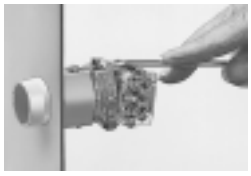
The actuator is inserted from the front through the mounting opening 22.5 mm dia. and locked at the rear with the bayonet flange by twisting. For fixing and positioning the screws provided in the flange have to be screwed in (max. torque 25 Ncm). For prepared front panels with a 30.5 mm dia. opening we can offer a reducing ring.





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

Rotary switch element

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).

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

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

	illumination	lens cap/marking cap	colour of lens cap	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
indicator compact full face illumination with built-in series resistor (125/60 V) and plastic lens cap	for incandescent lamp 60 V, max. 2.6 W	translucent diffuser	blue	**704.024.6**	1	1	1	0,025
			clear	**704.024.7**	1	1	1	0,025
			green	**704.024.5**	1	1	1	0,025
			red	**704.024.2**	1	1	1	0,025
			yellow	**704.024.4**	1	1	1	0,025
with built-in series resistor (220/130 V) and plastic lens cap	for incandescent lamp 130 V, max. 2.6 W	translucent diffuser	blue	**704.022.6**	1	1	1	0,025
			clear	**704.022.7**	1	1	1	0,025
			green	**704.022.5**	1	1	1	0,025
			red	**704.022.2**	1	1	1	0,025
			yellow	**704.022.4**	1	1	1	0,025
with plastic lens cap	for incandescent lamp max.2.6 W, or for Multi-LED lamp	translucent diffuser	blue	**704.020.6**	1	1	1	0,020
			clear	**704.020.7**	1	1	1	0,020
			green	**704.020.5**	1	1	1	0,020
			red	**704.020.2**	1	1	1	0,020
			yellow	**704.020.4**	1	1	1	0,020
	for neon lamp, max. 250 V	transparent ribbed diffuser	blue	**704.021.6**	1	1	1	0,020
			clear	**704.021.7**	1	1	1	0,020
			green	**704.021.5**	1	1	1	0,020
			red	**704.021.2**	1	1	1	0,020
			yellow	**704.021.4**	1	1	1	0,020

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

indicator/flasher full face illumination

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

flasher element → 291

	colour of front bezel/ ring	lens cap/marking cap	colour of lens cap	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
indicator/flasher full face illumination with plastic lens cap and front bezel, for incandescent lamp or Multi-LED	black	transparent/translucent	blue	**704.199.6**		1	2	2	0,050
			clear	**704.199.7**		1	2	2	0,050
			green	**704.199.5**		1	2	2	0,050
			red	**704.199.2**		1	2	2	0,050
			yellow	**704.199.4**		1	2	2	0,050
	grey	transparent/translucent	blue	**704.200.6**		1	2	2	0,050
			clear	**704.200.7**		1	2	2	0,050
			green	**704.200.5**		1	2	2	0,050
			red	**704.200.2**		1	2	2	0,050
			yellow	**704.200.4**		1	2	2	0,050
with plastic lens cap, for incandescent lamp or Multi-LED	without	transparent/translucent	blue		**704.000.6**	1	2	2	0,050
			clear		**704.000.7**	1	2	2	0,050
			green		**704.000.5**	1	2	2	0,050
			red		**704.000.2**	1	2	2	0,050
			yellow		**704.000.4**	1	2	2	0,050
with plastic lens cap, for neon lamp	without	transparent, ribbed	blue		**704.001.6**	1	2	2	0,050
			clear		**704.001.7**	1	2	2	0,050
			green		**704.001.5**	1	2	2	0,050
			red		**704.001.2**	1	2	2	0,050
			yellow		**704.001.4**	1	2	2	0,050

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

indicator/flasher front illumination

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

flasher element → 291

	colour of front bezel/ring	lens/marking foil	colour of lens	⌀ 30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
indicator/flasher front illumination with plastic lens and front bezel, for incandescent lamp or Multi-LED	black	transparent/translucent	blue	**704.206.6**		1	2	2	0,050
			clear	**704.206.7**		1	2	2	0,050
			green	**704.206.5**		1	2	2	0,050
			red	**704.206.2**		1	2	2	0,050
			yellow	**704.206.4**		1	2	2	0,050
	grey	transparent/translucent	blue	**704.202.6**		1	2	2	0,050
			clear	**704.202.7**		1	2	2	0,050
			green	**704.202.5**		1	2	2	0,050
			red	**704.202.2**		1	2	2	0,050
			yellow	**704.202.4**		1	2	2	0,050
with plastic lens and front bezel, for neon lamp	black	transparent, ribbed	blue	**704.207.6**		1	2	2	0,050
			clear	**704.207.7**		1	2	2	0,050
			green	**704.207.5**		1	2	2	0,050
			red	**704.207.2**		1	2	2	0,050
			yellow	**704.207.4**		1	2	2	0,050
	grey	transparent, ribbed	blue	**704.203.6**		1	2	2	0,050
			clear	**704.203.7**		1	2	2	0,050
			green	**704.203.5**		1	2	2	0,050
			red	**704.203.2**		1	2	2	0,050
			yellow	**704.203.4**		1	2	2	0,050
with plastic lens and front ring, for incandescent lamp or multi-LED	black	transparent/translucent	blue		**704.006.6**	1	2	2	0,050
			clear		**704.006.7**	1	2	2	0,050
			green		**704.006.5**	1	2	2	0,050
			red		**704.006.2**	1	2	2	0,050
			yellow		**704.006.4**	1	2	2	0,050
	grey	transparent/translucent	blue		**704.002.6**	1	2	2	0,050
			clear		**704.002.7**	1	2	2	0,050
			green		**704.002.5**	1	2	2	0,050
			red		**704.002.2**	1	2	2	0,050
			yellow		**704.002.4**	1	2	2	0,050
with plastic lens and front ring, for neon lamp	black	transparent, ribbed	blue		**704.007.6**	1	2	2	0,050
			clear		**704.007.7**	1	2	2	0,050
			green		**704.007.5**	1	2	2	0,050
			red		**704.007.2**	1	2	2	0,050
			yellow		**704.007.4**	1	2	2	0,050
	grey	transparent, ribbed	blue		**704.003.6**	1	2	2	0,050
			clear		**704.003.7**	1	2	2	0,050
			green		**704.003.5**	1	2	2	0,050
			red		**704.003.2**	1	2	2	0,050
			yellow		**704.003.4**	1	2	2	0,050

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

pushbutton actuator

recommended accessories:
switching element → 290

	switching action	material/colour of front bezel/ring	material/colour of lens	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
pushbutton actuator	main	aluminium, natural	aluminium, black		**704.041.0**	2	3	2	0,040
			aluminium, blue		**704.041.6**	2	3	2	0,040
			aluminium, green		**704.041.5**	2	3	2	0,040
			aluminium, natural		**704.041.8**	2	3	2	0,040
			aluminium, red		**704.041.2**	2	3	2	0,040
			aluminium, yellow		**704.041.4**	2	3	2	0,040
			plastic, black		**704.042.0**	2	3	2	0,040
			plastic, blue		**704.042.6**	2	3	2	0,040
			plastic, clear		**704.042.7**	2	3	2	0,040
			plastic, green		**704.042.5**	2	3	2	0,040
			plastic, red		**704.042.2**	2	3	2	0,040
			plastic, yellow		**704.042.4**	2	3	2	0,040
		aluminium, natural with protective cover	plastic, black		**704.043.0**	2	3	2	0,040
			plastic, blue		**704.043.6**	2	3	2	0,040
			plastic, clear		**704.043.7**	2	3	2	0,040
			plastic, green		**704.043.5**	2	3	2	0,040
			plastic, red		**704.043.2**	2	3	2	0,040
			plastic, yellow		**704.043.4**	2	3	2	0,040
		plastic, black	plastic, black	**704.239.0**	**704.039.0**	2	3	2	0,040
			plastic, blue	**704.239.6**	**704.039.6**	2	3	2	0,040
			plastic, clear	**704.239.7**	**704.039.7**	2	3	2	0,040
			plastic, green	**704.239.5**	**704.039.5**	2	3	2	0,040
			plastic, red	**704.239.2**	**704.039.2**	2	3	2	0,040
			plastic, yellow	**704.239.4**	**704.039.4**	2	3	2	0,040
		plastic, grey	plastic, black	**704.240.0**	**704.040.0**	2	3	2	0,040
			plastic, blue	**704.240.6**	**704.040.6**	2	3	2	0,040
			plastic, clear	**704.240.7**	**704.040.7**	2	3	2	0,040
			plastic, green	**704.240.5**	**704.040.5**	2	3	2	0,040
			plastic, red	**704.240.2**	**704.040.2**	2	3	2	0,040
			plastic, yellow	**704.240.4**	**704.040.4**	2	3	2	0,040
	mom	aluminium, natural	aluminium, black		**704.011.0**	3	3	2	0,040
			aluminium, blue		**704.011.6**	3	3	2	0,040
			aluminium, green		**704.011.5**	3	3	2	0,040

To be continued on next side

	switching action	material/colour of front bezel/ring	material/colour of lens	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
pushbutton actuator	mom	aluminium, natural	aluminium, natural		**704.011.8**	3	3	2	0,040
			aluminium, red		**704.011.2**	3	3	2	0,040
			aluminium, yellow		**704.011.4**	3	3	2	0,040
			plastic, black		**704.012.0**	3	3	2	0,040
			plastic, blue		**704.012.6**	3	3	2	0,040
			plastic, clear		**704.012.7**	3	3	2	0,040
			plastic, green		**704.012.5**	3	3	2	0,040
			plastic, red		**704.012.2**	3	3	2	0,040
			plastic, yellow		**704.012.4**	3	3	2	0,040
		aluminium, natural with protective cover	plastic, black		**704.013.0**	3	3	2	0,040
			plastic, blue		**704.013.6**	3	3	2	0,040
			plastic, clear		**704.013.7**	3	3	2	0,040
			plastic, green		**704.013.5**	3	3	2	0,040
			plastic, red		**704.013.2**	3	3	2	0,040
			plastic, yellow		**704.013.4**	3	3	2	0,040
		plastic, black	plastic, black	**704.209.0**	**704.009.0**	3	3	2	0,040
			plastic, blue	**704.209.6**	**704.009.6**	3	3	2	0,040
			plastic, clear	**704.209.7**	**704.009.7**	3	3	2	0,040
			plastic, green	**704.209.5**	**704.009.5**	3	3	2	0,040
			plastic, red	**704.209.2**	**704.009.2**	3	3	2	0,040
			plastic, yellow	**704.209.4**	**704.009.4**	3	3	2	0,040
		plastic, grey	plastic, black	**704.210.0**	**704.010.0**	3	3	2	0,040
			plastic, blue	**704.210.6**	**704.010.6**	3	3	2	0,040
			plastic, clear	**704.210.7**	**704.010.7**	3	3	2	0,040
			plastic, green	**704.210.5**	**704.010.5**	3	3	2	0,040
			plastic, red	**704.210.2**	**704.010.2**	3	3	2	0,040
			plastic, yellow	**704.210.4**	**704.010.4**	3	3	2	0,040

switching action: main = maintained action, mom = momentary action

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

illuminated pushbutton actuator

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

switching element → 290

	switching action	material/colour of front bezel/ ring	material/colour of lens	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
illuminated pushbutton actuator with plastic lens	main	aluminium, natural	plastic, blue		**704.062.6**	4	4	2	0,056
			plastic, clear		**704.062.7**	4	4	2	0,056
			plastic, green		**704.062.5**	4	4	2	0,056
			plastic, red		**704.062.2**	4	4	2	0,056
			plastic, yellow		**704.062.4**	4	4	2	0,056
		aluminium, natural with protective cover	plastic, blue		**704.063.6**	4	4	2	0,056
			plastic, clear		**704.063.7**	4	4	2	0,056
			plastic, green		**704.063.5**	4	4	2	0,056
			plastic, red		**704.063.2**	4	4	2	0,056
			plastic, yellow		**704.063.4**	4	4	2	0,056
		plastic, black	plastic, blue	**704.259.6**	**704.059.6**	4	4	2	0,056
			plastic, clear	**704.259.7**	**704.059.7**	4	4	2	0,056
			plastic, green	**704.259.5**	**704.059.5**	4	4	2	0,056
			plastic, red	**704.259.2**	**704.059.2**	4	4	2	0,056
			plastic, yellow	**704.259.4**	**704.059.4**	4	4	2	0,056
		plastic, grey	plastic, blue	**704.260.6**	**704.060.6**	4	4	2	0,056
			plastic, clear	**704.260.7**	**704.060.7**	4	4	2	0,056
			plastic, green	**704.260.5**	**704.060.5**	4	4	2	0,056
			plastic, red	**704.260.2**	**704.060.2**	4	4	2	0,056
			plastic, yellow	**704.260.4**	**704.060.4**	4	4	2	0,056
	mom	aluminium, natural	plastic, blue		**704.032.6**	5	4	2	0,056
			plastic, clear		**704.032.7**	5	4	2	0,056
			plastic, green		**704.032.5**	5	4	2	0,056
			plastic, red		**704.032.2**	5	4	2	0,056
			plastic, yellow		**704.032.4**	5	4	2	0,056
		aluminium, natural with protective cover	plastic, blue		**704.033.6**	5	4	2	0,056
			plastic, clear		**704.033.7**	5	4	2	0,056
			plastic, green		**704.033.5**	5	4	2	0,056
			plastic, red		**704.033.2**	5	4	2	0,056
			plastic, yellow		**704.033.4**	5	4	2	0,056
		plastic, black	plastic, blue	**704.229.6**	**704.029.6**	5	4	2	0,056
			plastic, clear	**704.229.7**	**704.029.7**	5	4	2	0,056
			plastic, green	**704.229.5**	**704.029.5**	5	4	2	0,056

To be continued on next side

	switching action	material/colour of front bezel/ ring	material/colour of lens	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
illuminated pushbutton actuator with plastic lens	mom	plastic, black	plastic, red	**704.229.2**	**704.029.2**	5	4	2	0,056
			plastic, yellow	**704.229.4**	**704.029.4**	5	4	2	0,056
		plastic, grey	plastic, blue	**704.230.6**	**704.030.6**	5	4	2	0,056
			plastic, clear	**704.230.7**	**704.030.7**	5	4	2	0,056
			plastic, green	**704.230.5**	**704.030.5**	5	4	2	0,056
			plastic, red	**704.230.2**	**704.030.2**	5	4	2	0,056
			plastic, yellow	**704.230.4**	**704.030.4**	5	4	2	0,056

switching action: main = maintained action, mom = momentary action
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

emergency stop switch actuator

recommended accessories:

switching element for emergency stop switch → 291

label for emergency stop switch → 296

	switching action	unlocking	material of front ring	marking of mushroom-head cap	40 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
emergency stop switch actuator with red mushromm head, unlocking clockwise.	main	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, standard lock 251 unlocking clockwise.	main	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: main = maintained action
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

emergency stop switch actuator foolproof

recommended accessories:

switching element for emergency stop switch → 291

label for emergency stop switch → 296

	switching action	unlocking	marking of mushroom-head cap	37 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
emergency stop switch actuator foolproof as per EN 418 red mushroom-head cap, yellow actuator, standard lock no. 9500 unlocking anti-clockwise. max. 2 switching elements for clipping	main	key to release	arrows	**704.066.2**	6	8	4	0,300
as per EN 418 red mushroom-head cap, yellow actuator, unlocking anti-clockwise. max. 2 switching elements for clipping	main	twist to release	arrows	**704.064.2**	6	7	4	0,300

switching action: main = maintained action

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

pushbutton actuator with mushroom-head cap

recommended accessories:
switching element → 290

	switching action	material of front ring	colour of mushroom-head cap	40 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
pushbutton actuator with mushroom-head cap	main	aluminium anodized	black	**704.073.0**	2	5	3	0,044
			green	**704.073.5**	2	5	3	0,044
			red	**704.073.2**	2	5	3	0,044
			yellow	**704.073.4**	2	5	3	0,044
		plastic	black	**704.072.0**	2	5	3	0,044
			green	**704.072.5**	2	5	3	0,044
			red	**704.072.2**	2	5	3	0,044
			yellow	**704.072.4**	2	5	3	0,044
	mom	aluminium anodized	black	**704.071.0**	3	5	3	0,044
			green	**704.071.5**	3	5	3	0,044
			red	**704.071.2**	3	5	3	0,044
			yellow	**704.071.4**	3	5	3	0,044
		plastic	black	**704.070.0**	3	5	3	0,044
			green	**704.070.5**	3	5	3	0,044
			red	**704.070.2**	3	5	3	0,044
			yellow	**704.070.4**	3	5	3	0,044

switching action: main = maintained action, mom = momentary action
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

illuminated pushbutton actuator with mushroom-head cap

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

switching element → 290

	switching action	material of front ring	colour of mushroom-head cap	40 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
illuminated pushbutton actuator with mushroom-head cap	main	plastic	blue	**704.086.6**	4	9	3	0,044
			clear	**704.086.7**	4	9	3	0,044
			green	**704.086.5**	4	9	3	0,044
			red	**704.086.2**	4	9	3	0,044
			yellow	**704.086.4**	4	9	3	0,044
	mom	plastic	blue	**704.084.6**	5	9	3	0,044
			clear	**704.084.7**	5	9	3	0,044
			green	**704.084.5**	5	9	3	0,044
			red	**704.084.2**	5	9	3	0,044
			yellow	**704.084.4**	5	9	3	0,044

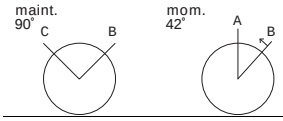
switching action: main = maintained action, mom = momentary action

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

keylock switch actuator 2 positions

recommended accessories:

switching element → 290

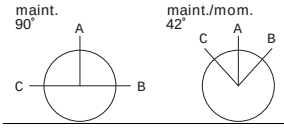
	switching action	key removable in	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
keylock switch actuator 2 positions pos. A: basic position pos. B: momentary action 42° standard lock 251, other lock numbers on request	mom	A	**704.343.0**	**704.123.0**	7	10	2	0,070
pos. C +B: maintained action 90° standard lock 251, other lock numbers on request	main	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: main = maintained action, mom = momentary action
spare key 704.989 can be ordered. Indicate lock no.
description see page 257
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

keylock switch actuator 3 positions

recommended accessories:

switching element → 290

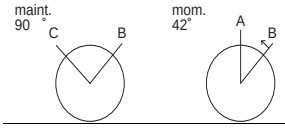
	switching action	key removable in	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
keylock switch actuator 3 positions pos. C + B: maintained position 90° pos. A: basic position standard lock 251, other lock numbers on request	main-0-main	C+A+B	**704.333.0**	**704.113.0**	12	10	2	0,070
pos. C + B: momentary action 42° pos. A: basic position standard lock 251, other lock numbers on request	main-0-main	A	**704.334.0**	**704.114.0**	12	10	2	0,070
		C+B	**704.336.0**	**704.116.0**	12	10	2	0,070
	mom-0-mom	A	**704.335.0**	**704.115.0**	9	10	2	0,070
pos. C: maintained action 42° pos. A: basic position pos. B: momentary action 42° standard lock 251, other lock numbers on request	main-0-mom	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
pos. C: momentary action 42° pos. A: basic position pos. B: maintained action 42° standard lock 251, other lock numbers on request	mom-0-main	A	**704.338.0**	**704.118.0**	10	10	2	0,070

switching action: mom = momentary action, main = maintained action, 0 = basic position
spare key 704.989 can be ordered. Indicate lock no.

description see page 257
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 2 positions, lever short

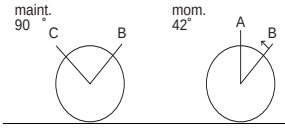

recommended accessories:
switching element → 290

	switching action	lever	front bezel/ring	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 2 positions, lever short		black	plastic, grey		**704.412.0**	13	11	2	0,045
pos. A: basic position pos. B: momentary action 42°	mom	black	aluminium		**704.413.0**	13	11	2	0,045
			plastic, grey	**704.512.0**		13	11	2	0,045
pos. C + B: maintained action 90°	main	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: main = maintained action, mom = momentary action
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 2 positions, lever long


recommended accessories:
switching element → 290

	switching action	lever	front bezel/ring	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 2 positions, lever long	mom	black	aluminium		**704.103.0**	13	12	5	0,045
pos. A: basic position pos. B: momentary action 42°			plastic, grey	**704.302.0**	**704.102.0**	13	12	5	0,045
pos. C + B: maintained action 90°	main	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: main = maintained action, mom = momentary action
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 3 positions, short lever

recommended accessories:

switching element → 290

maint./mom. 42° C A B	switching action	lever	front bezel/ring	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 3 positions, short lever pos. C + B: maintained action 42° pos. A: basic position	main-0-main	black	aluminium		**704.403.0**	19	11	2	0,045
			plastic, grey	**704.502.0**	**704.402.0**	19	11	2	0,045
pos. C + B: momentary action 42° pos. A: basic position	mom-0-mom	black	aluminium		**704.405.0**	16	11	2	0,045
			plastic, grey	**704.504.0**	**704.404.0**	16	11	2	0,045
pos. C: maintained action 42° pos. A: basic position pos. B: momentary action 42°	main-0-mom	black	aluminium		**704.407.0**	18	11	2	0,045
			plastic, grey	**704.506.0**	**704.406.0**	18	11	2	0,045
pos. C: momentary action 42° pos. A: basic position pos. B: maintained action 42°	mom-0-main	black	aluminium		**704.409.0**	17	11	2	0,045
			plastic, grey	**704.508.0**	**704.408.0**	15	11	2	0,045

switching action: main = maintained action, mom = momentary action, 0 = basic position

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 3 positions, lever long


recommended accessories:
switching element → 290

maint./mom. 42° C A B	switching action	lever	front bezel/ring	30 x 30 mm part no.	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 3 positions, lever long pos. C + B: maintained action 42° pos. A: basic position	main-0-main	black	aluminium		**704.093.0**	19	12	5	0,045
			plastic, grey	**704.292.0**	**704.092.0**	19	12	5	0,045
pos. C + B: momentary action 42° pos. A: basic position	mom-0-mom	black	aluminium		**704.095.0**	16	12	5	0,045
			plastic, grey	**704.294.0**	**704.094.0**	16	12	5	0,045
pos. C: maintained action 42° pos. A: basic position pos. B: momentary action 42°	main-0-mom	black	aluminium		**704.097.0**	18	12	5	0,045
			plastic, grey	**704.296.0**	**704.096.0**	18	12	5	0,045
pos. C: momentary action 42° pos. A: basic position pos. B: maintained action 42°	mom-0-main	black	aluminium		**704.099.0**	17	12	5	0,045
			plastic, grey	**704.298.0**	**704.098.0**	17	12	5	0,045

switching action: mom = momentary action, main = maintained action, 0 = basic position
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

rotary selector switch actuator




recommended accessories:
rotary selector switch element 30° → 292; rotary selector switch element 45° → 292; rotary selector switch element 60° → 292; rotary selector switch element 90° → 293

	lever	front bezel/ring	30 x 30 mm part no.	29 mm dia. part no.	technical drawing	mounting dimension	kg
rotary selector switch actuator	long	aluminium natural		**704-101.1KN**	13	6	
		plastic, grey	**704-300.1KN**		13	6	
	short	aluminium natural		**704-411.1KN**	13	6	
		plastic, grey	**704-510.1KN**		13	6	

hint: 0-position: 9 o'clock
technical drawing as of page 312, mounting dimensions as of page 319

buzzer

recommended accessories:
-

	operation voltage	front cap	connection method	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
buzzer IP 65	24 VDC	brass chromium-plated	PT	**14-810.902**	20	14	2	0,016
		plastic, black	PT	**14-810.002**	20	14	2	0,016

connection method: PT = plug-in terminal
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

indicator/flasher for flush mounting

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

flasher element → 291

	illumination	colour of front ring	lens/marking foil	colour of lens	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
indicator/flasher for flush mounting with aluminium front ring and plastic lens	for incandescent lamp or Multi-LED	aluminium natural	transparent/translucent	blue	**704.002.618**	1	15	7	0,061
				clear	**704.002.718**	1	15	7	0,061
				green	**704.002.518**	1	15	7	0,061
				red	**704.002.218**	1	15	7	0,061
				yellow	**704.002.418**	1	15	7	0,061

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

pushbutton actuator for flush mounting

recommended accessories:
switching element → 290

	switching action	material/colour of front ring	material/colour of lens	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
pushbutton actuator for flush mounting	main	aluminium natural	aluminium, black	**704.041.018**	2	16	7	0,051
			aluminium, blue	**704.041.618**	2	16	7	0,051
			aluminium, green	**704.041.518**	2	16	7	0,051
			aluminium, natural	**704.041.818**	2	16	7	0,051
			aluminium, red	**704.041.218**	2	16	7	0,051
			aluminium, yellow	**704.041.418**	2	16	7	0,051
			plastic, black	**704.042.018**	2	16	7	0,051
			plastic, blue	**704.042.618**	2	16	7	0,051
			plastic, clear	**704.042.718**	2	16	7	0,051
			plastic, green	**704.042.518**	2	16	7	0,051
			plastic, red	**704.042.218**	2	16	7	0,051
			plastic, yellow	**704.042.418**	2	16	7	0,051
	mom	aluminium natural	aluminium, black	**704.011.018**	3	16	7	0,051
			aluminium, blue	**704.011.618**	3	16	7	0,051
			aluminium, green	**704.011.518**	3	16	7	0,051
			aluminium, natural	**704.011.818**	3	16	7	0,051
			aluminium, red	**704.011.218**	3	16	7	0,051
			aluminium, yellow	**704.011.418**	3	16	7	0,051
			plastic, black	**704.012.018**	3	16	7	0,051
			plastic, blue	**704.012.618**	3	16	7	0,051
			plastic, clear	**704.012.718**	3	16	7	0,051
			plastic, green	**704.012.518**	3	16	7	0,051
			plastic, red	**704.012.218**	3	16	7	0,051
			plastic, yellow	**704.012.418**	3	16	7	0,051

switching action: main = maintained action, mom = momentary action
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

illuminated pushbutton actuator for flush mounting

recommended accessories:

incandescent lamp → 293; neon lamp → 294; LED → 294

switching element → 290

	switching action	material/colour of front ring	material/colour of lens	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
illuminated pushbutton actuator for flush mounting	main	aluminium natural	plastic, blue	**704.062.618**	4	17	7	0,067
			plastic, clear	**704.062.718**	4	17	7	0,067
			plastic, green	**704.062.518**	4	17	7	0,067
			plastic, red	**704.062.218**	4	17	7	0,067
			plastic, yellow	**704.062.418**	4	17	7	0,067
	mom	aluminium natural	plastic, blue	**704.032.618**	5	17	7	0,067
			plastic, clear	**704.032.718**	5	17	7	0,067
			plastic, green	**704.032.518**	5	17	7	0,067
			plastic, red	**704.032.218**	5	17	7	0,067
			plastic, yellow	**704.032.418**	5	17	7	0,067

switching action: main = maintained action, mom = momentary action

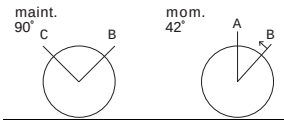
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

keylock switch actuator with 2 positions for flush mounting

recommended accessories:

switching element → 290

anti-twisting ring for flush mounting→ 296

	switching action	key removable in	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
keylock switch actuator with 2 positions for flush mounting pos. A: basic position pos. B: momentary action 42° standard lock 251, other lock numbers on request	mom	A	**704.123.018**	7	18	7	0,099
pos. C +B: maintained action 90° standard lock 251, other lock numbers on request	main	B	**704.120.018**	8	18	7	0,099
		C	**704.121.018**	8	18	7	0,099
		C+B	**704.122.018**	8	18	7	0,099

switching action: main = maintained action, mom = momentary action

description see page 257

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

To be continued on next side

keylock switch actuator 3 positions for flush mounting

recommended accessories:

switching element → 290

anti-twisting ring for flush mounting→ 296

maint./mom. 42° C A B	switching action	key removable in	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
keylock switch actuator 3 positions for flush mounting pos. C + B: maintained position 90° pos. A: basic position standard lock 251, other lock numbers on request	main-0-main	C+A+B	**704.113.018**	12	18	7	0,099
pos. C + B: momentary action 42° pos. A: basic position standard lock 251, other lock numbers on request	main-0-main	A	**704.114.018**	12	18	7	0,099
		C+B	**704.116.018**	12	18	7	0,099
	mom-0-mom	A	**704.115.018**	9	18	7	0,099
pos. C: maintained action 42° pos. A: basic position pos. B: momentary action 42° standard lock 251, other lock numbers on request	main-0-mom	C	**704.117.018**	11	18	7	0,099
		C + A	**704.124.018**	11	18	7	0,099
pos. C: momentary action 42° pos. A: basic position pos. B: maintained action 42° standard lock 251, other lock numbers on request	mom-0-main	A	**704.118.018**	10	18	7	0,099

switching action: main = maintained action, mom = momentary action, 0 = basic position

description see page 257

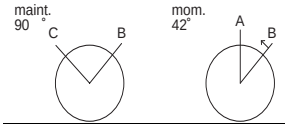
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 2 positions for flush mounting, short lever

recommended accessories:

switching element → 290

anti-twisting ring for flush mounting→ 296

	switching action	lever	front ring	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 2 positions for flush mounting, long lever pos. A: basic position pos. B: momentary action 42°	mom	short, black	aluminium natural	**704.413.018**	13	19	7	0,056
pos. C + B: maintained action 90°	main	short, black	aluminium natural	**704.411.018**	14	19	7	0,056

switching action: main = maintained action, mom = momentary action

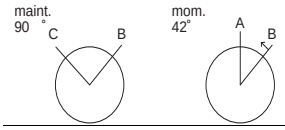
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 2 positions for flush mounting, long lever

recommended accessories:

switching element → 290

anti-twisting ring for flush mounting→ 296

	switching action	lever	front ring	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 2 positions for flush mounting, long lever pos. A: basic position pos. B: momentary action 42°	mom	long, black	aluminium natural	**704.103.018**	13	19	7	0,056
pos. C + B: maintained action 90°	main	short, black	aluminium, natural	**704.101.018**	14	19	7	0,056

To be continued on next side

switching action: main = maintained action, mom = momentary action

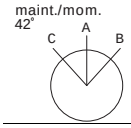
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 3 positions for flush mounting, short lever

recommended accessories:

switching element → 290

anti-twisting ring for flush mounting→ 296

	switching action	lever	front ring	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 2 positions for flush mounting, short lever pos. C + B: maintained action 42° pos. A: basic position	main-0-main	short, black	aluminium natural	**704.403.018**	19	19	7	0,056
pos. C + B: momentary action 42° pos. A: basic position	mom-0-mom	short, black	aluminium natural	**704.405.018**	16	19	7	0,056
pos. C: maintained action 42° pos. A: basic position pos. B: momentary action 42°	main-0-mom	short, black	aluminium natural	**704.407.018**	18	19	7	0,056
pos. C: momentary action 42° pos. A: basic position pos. B: maintained action 42°	mom-0-main	short, black	aluminium natural	**704.409.018**	17	19	7	0,056

switching action: main = maintained action, mom = momentary action, 0 = basic position

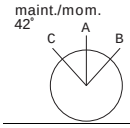
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

selector switch actuator 3 positions for flush mounting, long lever

recommended accessories:

switching element → 290

anti-twisting ring for flush mounting→ 296

	switching action	lever	front ring	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
selector switch actuator 3 positions for flush mounting, long lever pos. C + B: maintained action 42° pos. A: basic position	main-0-main	long, black	aluminium natural	**704.093.018**	19	19	8	0,056
pos. C + B: momentary action 42° pos. A: basic position	mom-0-mom	long, black	aluminium natural	**704.095.018**	16	19	8	0,056
pos. C: maintained action 42° pos. A: basic position pos. B: momentary action 42°	main-0-mom	long, black	aluminium natural	**704.097.018**	18	19	8	0,056
pos. C: momentary action 42° pos. A: basic position pos. B: maintained action 42°	mom-0-main	long, black	aluminium natural	**704.099.018**	17	19	8	0,056

switching action: mom = momentary action, main = maintained action, 0 = basic position

technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

rotary selector switch actuator for flush mounting

recommended accessories:

rotary selector switch element 30° → 292; rotary selector switch element 45° → 292; rotary selector switch element 60° → 292; rotary selector switch element 90° → 293

	lever	front ring	35 mm dia. part no.	technical drawing	mounting dimension	kg
rotary selector switch actuator for flush mounting	long	aluminium natural	**704.101.118KN**	20	9	0,056
	short	aluminium natural	**704.411.118KN**	20	9	0,056

technical drawing as of page 312, mounting dimensions as of page 319

key insert switch actuator 2 positions for flush mounting

recommended accessories:

switching element → 290

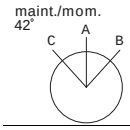
	switching action	35 mm dia. part no.	technical drawing	mounting dimension	kg
key insert switch actuator 2 positions for flush mounting	0-main 90°	**704.101.0x28**	21	7	0,500
	0-mom 42°	**704.103.0x28**	21	7	0,500

switching action: mom = momentary action, main = maintained action, 0 = basic position
x = letter for customized dimension of the rotor. At ordering please add dimensional drawing of rotor.
max. dimensions of the rotor 9x9 mm, inner circle 8
technical drawing as of page 312, mounting dimensions as of page 319

key insert switch actuator 3 positions for flush mounting

recommended accessories:
switching element → 290

	switching action	35 mm dia. part no.	technical drawing	mounting dimension	kg
key insert switch actuator 3 positions for flush mounting	main 42°-0-main 42°	**704.093.0x28**	21	7	0,500
	main 42°-0-mom 42°	**704.097.0x28**	21	7	0,500
	mom 42°-0-main 42°	**704.099.0x28**	21	7	0,500
	mom 42°-0-mom 42°	**704.095.0x28**	21	7	0,500



switching action: main = maintained action, mom = momentary action, 0 = basic position
x = letter for customized dimension of the rotor. At ordering please add dimensional drawing of rotor.
max. dimensions of the rotor 9x9 mm, inner circle 8
technical drawing as of page 312, mounting dimensions as of page 319

buzzer for flush mounting

recommended accessories:
-

	operation voltage	front cap	connection method	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	kg
buzzer for flush mounting	24 VDC	brass chromium-plated	PT	**14-810.918**	20	22	7	0,016
		plastic black	PT	**14-810.910**	20	22	7	0,016

connection method: PT = plug-in terminal
technical drawing as of page 312, mounting dimensions as of page 319, circuit drawing as of page 325

at front

front bezel-set for flush mounting

	use	material	colour	35 mm dia. part no.	mounting dimension	kg	
front bezel-set for flush mounting	for indicator, pushbutton	aluminium anodized	black	**704.955.0**	7	0,016	
			natural	**704.955.1**	7	0,016	
		stainless steel	natural	**704.955.9**	7	0,016	

mounting dimensions as of page 319

legend plate

	front dimension	part no.	kg	
legend plate adhesive, aluminium anodized, natural, can also be engraved	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	
	42 x 48 mm for 30,5 mm dia. mounting hole	**704.962.6**	0,004	
	48 x 48 mm for 22.5 mm dia. mounting hole	**704.962.7**	0,004	

protective cover

	use	29 mm dia. part no.	technical drawing	kg	
protective cover hinged, transparent, with means for sealing	for pushbuttons	**704.925.0**	23	0,007	
	for selector switch short/long lever	**704.925.2**	23	0,007	

technical drawing as of page 312

protective cover for flush mounting

	use	35 mm dia. part no.	kg	
protective cover for flush mounting hinged, transparent, with means for sealing aluminium anodized, natural	for pushbutton, selector switch short lever	**704.928.38**	0,009	
	for pushbuttons	**704.928.18**	0,009	

protective front ring

for pushbutton/indicator front illumination

	material	Ø 29 mm part no.	kg	
protective front ring with transparent silicone membrane temperature resistance:-40°C to +85°C	aluminium anodized	**704.600.3**	0,005	
with transparent silicone membrane (to resist sea water) temperature resistance: -40°C to +85°C	brass, nickel plated	**704.600.2**	0,005	

protective front ring for flush mounting

for pushbutton/indicator

	material	Ø 35 mm part no.	kg	
protective front ring for flush mounting with transparent silicone membrane	aluminium anodized, black	**704.955.4**	0,005	
	aluminium anodized, natural	**704.955.3**	0,005	

blind plug

	colour	⍁ 30 x 30 mm part no.	28 mm dia. part no.	mounting dimension	kg	
blind plug	black		**704.960.7**	2	0,004	
		704.964.7		2	0,009	

mounting dimensions as of page 319

spare key

standard lock 251, others available on request

	part no.	kg	
spare key	**704.989.0**	0,006	

description see page 257

at back

switching element

	switching system	contacts	connection method	material of contacts	part no.	circuit drawing	technical drawing	kg	
switching element	SA	1NC	PT 6,3	hard silver	**704.905.2**	21	24	0,021	
			SCH	gold/silver	**704.901.2**	21	24	0,021	
				hard silver	**704.900.2**	21	24	0,021	
				silver/palladium	**704.902.2**	21	24	0,021	
		1NC + 1NO	PT 6,3	hard silver	**704.905.5**	24	24	0,028	
			SCH	gold/silver	**704.901.5**	24	24	0,028	
				hard silver	**704.900.5**	24	24	0,028	
				silver/palladium	**704.902.5**	24	24	0,028	
		1NO	PT 6,3	hard silver	**704.905.1**	22	24	0,021	
			SCH	gold/silver	**704.901.1**	22	24	0,021	
				hard silver	**704.900.1**	22	24	0,021	
				silver/palladium	**704.902.1**	22	24	0,021	
		2NC	PT 6,3	hard silver	**704.905.4**	23	24	0,028	
			SCH	gold/silver	**704.901.4**	23	24	0,028	
				hard silver	**704.900.4**	23	24	0,028	
				silver/palladium	**704.902.4**	23	24	0,028	
		2NO	PT 6,3	hard silver	**704.905.3**	25	24	0,028	
			SCH	gold/silver	**704.901.3**	25	24	0,028	
				hard silver	**704.900.3**	25	24	0,028	
				silver/palladium	**704.902.3**	25	24	0,028	
	T	1NC	PT 6,3	hard silver	**704.915.2**	21	24	0,021	
			SCH	gold/silver	**704.911.2**	21	24	0,021	
				hard silver	**704.910.2**	21	24	0,021	
				silver/palladium	**704.912.2**	21	24	0,021	
		1NC + 1NO	PT 6,3	hard silver	**704.915.5**	24	24	0,028	
			SCH	gold/silver	**704.911.5**	24	24	0,028	
				hard silver	**704.910.5**	24	24	0,028	
				silver/palladium	**704.912.5**	24	24	0,028	
		1NO	PT 6,3	hard silver	**704.915.1**	22	24	0,021	
			SCH	gold/silver	**704.911.1**	22	24	0,021	
				hard silver	**704.910.1**	22	24	0,021	
				silver/palladium	**704.912.1**	22	24	0,021	
		2NC	PT 6,3	hard silver	**704.915.4**	23	24	0,028	
			SCH	gold/silver	**704.911.4**	23	24	0,028	
				hard silver	**704.910.4**	23	24	0,028	
				silver/palladium	**704.912.4**	23	24	0,028	
		2NO	PT 6,3	hard silver	**704.915.3**	25	24	0,285	
			SCH	gold/silver	**704.911.3**	25	24	0,028	
				hard silver	**704.910.3**	25	24	0,028	
				silver/palladium	**704.912.3**	25	24	0,028	

switching system: SA = snap-action switching element, T = slow-make switching element
connection method: PT 6,3 = plug-in terminal 6.3 mm, SCH = screw terminal
contacts: NC = normally closed, NO = normally open
technical drawing as of page 312, circuit drawing as of page 325

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	T	1NC	PT 6,3	hard silver	**704.915.2**	21	24	0,021	
			SCH	gold/silver	**704.911.2**	21	24	0,021	
				hard silver	**704.910.2**	21	24	0,021	
				silver/palladium	**704.912.2**	21	24	0,021	
		1NC + 1NO	PT 6,3	hard silver	**704.915.5**	24	24	0,028	
			SCH	gold/silver	**704.911.5**	24	24	0,028	
				hard silver	**704.910.5**	24	24	0,028	
				silver/palladium	**704.912.5**	24	24	0,028	
		1NO	PT 6,3	hard silver	**704.915.1**	22	24	0,021	
			SCH	gold/silver	**704.911.1**	22	24	0,021	
				hard silver	**704.910.1**	22	24	0,021	
				silver/palladium	**704.912.1**	22	24	0,021	
		2NC	PT 6,3	hard silver	**704.915.4**	23	24	0,028	
			SCH	gold/silver	**704.911.4**	23	24	0,028	
				hard silver	**704.910.4**	23	24	0,028	
				silver/palladium	**704.912.4**	23	24	0,028	
		2NO	PT 6,3	hard silver	**704.915.3**	25	24	0,285	
			SCH	gold/silver	**704.911.3**	25	24	0,028	
				hard silver	**704.910.3**	25	24	0,028	
				silver/palladium	**704.912.3**	25	24	0,028	

switching system: T = slow-make switching element
connection method: PT 6,3 = plug-in terminal 6.3 mm, SCH = screw terminal
contacts: NC = normally closed, NO = normally open
technical drawing as of page 312, circuit drawing as of page 325

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	SCH	**704.943.0**	25	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%	SCH	**704.943.5**	25	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	SCH	**704.943.1**	25	0,024	

connection method: SCH = screw terminal
typical applications see page 326
technical drawing as of page 312

rotary selector switch element 30°

	contacts	start / end position	part no.	connecting diagrams	kg	
rotary selector switch element 30°	9 (1 pole)	a/i	**704-8A236**	1		
	10 (1 pole)	a/k	**704-8A237**	2		
	11 (1 pole)	a/l	**704-8A238**	3		
	12 (1 pole)	a/m	**704-8A239**	4		
		a/without limit	**704-8A639**	4		

connecting diagrams as of page 321

rotary selector switch element 45°

	contacts	start / end position	weight (g)	part no.	connecting diagrams		
rotary selector switch element 45°	7 (1 pole)	a/g		**704-8A234**	5		
	7 (2 pole)	a/g		**704-8A254**	6		
	8 (1 pole)	a/h		**704-8A235**	5		
	8 (2 pole)	a/h		**704-8A255**	6		

connecting diagrams as of page 321

rotary selector switch element 60°

	contacts	start / end position	part no.	connecting diagrams	kg	
rotary selector switch element 60°	3 (1 pole)	a/c	**704-8A230**	7		
	3 (1 pole, d. c. separated)	a/c	**704-8A730**	18		
	3 (2 pole)	a/c	**704-8A250**	8		
	3 (3 pole)	a/c	**704-8A270**	9		
	4 (1 pole)	a/d	**704-8A231**	10		
	4 (1 pole, d. c. separated)	a/d	**704-8A731**	19		
	4 (2 pole)	a/d	**704-8A251**	11		
	4 (3 pole)	a/d	**704-8A271**	12		
	5 (1 pole)	a/e	**704-8A232**	13		
	5 (2 pole)	a/e	**704-8A252**	14		
	5 (3 pole)	a/e	**704-8A272**	15		
	6 (1 pole)	a/f	**704-8A233**	16		
	6 (2 pole)	a/f	**704-8A253**	17		

connecting diagrams as of page 321

rotary selector switch element 90°

	contacts	start / end position	part no.	connecting diagrams	kg	
rotary selector switch element 90°	4 (1 pole)	a/d	**704-8A226**	-		
		a/without limit	**704-8A225**	-		

connecting diagrams as of page 321

terminal cover

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

terminal marking

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

for illumination

incandescent lamp

	voltage/current	part no.	kg	
incandescent lamp base Ba9s	6 AC/DC/200 mA	**10-1406.1369 (700.000.0)**	0,002	
	12 AC/DC/100 mA	**10-1409.1329 (700.000.1)**	0,002	
	24 AC/DC/50 mA	**10-1412.1279 (700.000.2)**	0,002	
	36 AC/DC/56 mA	**10-1416.1289 (700.000.3)**	0,002	
	48 AC/DC/42 mA	**10-1419.1249 (700.000.4)**	0,002	
	60 AC/DC/33 mA	**10-1420.1219 (700.000.5)**	0,002	
	110 AC/DC/22 mA	**10-1422.1179 (700.000.6)**	0,002	
	130 AC/DC/20 mA	**10-1424.1179 (700.000.7)**	0,002	

neon lamp

	voltage/current	colour	part no.	kg	
neon lamp base Ba9s	115 AC/0.7 mA	red	**10-7423.2012 (700.001.0)**	0,002	
	230 AC/1.2 mA	green	**10-7425.2015 (700.001.15)**	0,002	
	230 AC/1.5 mA	red	**10-7425.2022 (700.001.1)**	0,002	

LED

	number of chips	voltage/current	colour	part no.	kg	
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	
	8 chips	6 VDC/80 mA	green	**10-6406.3315**	0,002	
			red	**10-6406.3312**	0,002	
			yellow	**10-6406.3314**	0,002	
		12 VDC/40 mA	green	**10-6409.3245**	0,002	
			red	**10-6409.3242**	0,002	
			yellow	**10-6409.3244**	0,002	
		24 VDC/19 mA	green	**10-6412.3165**	0,002	
			red	**10-6412.3162**	0,002	
			yellow	**10-6412.3164**	0,002	
		28 VDC/19 mA	green	**10-6413.3165**	0,002	
			red	**10-6413.3162**	0,002	
			yellow	**10-6413.3164**	0,002	
		48 VDC/16 mA	green	**10-6419.3155**	0,002	
			red	**10-6419.3152**	0,002	
			yellow	**10-6419.3154**	0,002	

diode block

	connection method	part no.	circuit drawing	technical drawing	kg	
diode block 1 N 4007	SCH	**704.942.5**	26	26	0,019	

connection method: SCH = screw terminal
technical drawing as of page 312, circuit drawing as of page 325

lamp transformer

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

connection method: SCH = screw terminal
technical drawing as of page 312, circuit drawing as of page 325

capacitor block

	operation voltage	connection method	part no.	circuit drawing	technical drawing	kg	
capacitor block for lamp voltage 130 V/20 mA, 50 Hz	230/130 VAC	SCH	**704.942.0**	28	26	0,018	

connection method: SCH = screw terminal
technical drawing as of page 312, circuit drawing as of page 325

resistor block

	operation voltage	connection method	part no.	circuit drawing	technical drawing	kg	
resistor block for lamp rating 130 V/20 mA	230/130 V	SCH	**704.941.0**	29	26	0,017	
for lamp rating 60 V/33 mA	125/60 V	SCH	**704.941.5**	29	26	0,006	

connection method: SCH = screw terminal
technical drawing as of page 312, circuit drawing as of page 325

resistor diode block

	operation voltage	connection method	part no.	circuit drawing	technical drawing	kg	
resistor diode block for lamp rating 130 V/20 mA	230/130 V	SCH	**704.941.9**	30	26	0,017	

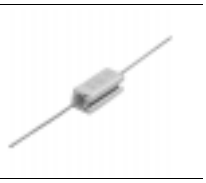
connection method: SCH = screw terminal
technical drawing as of page 312, circuit drawing as of page 325

capacitor

	value	part no.	kg	
capacitor use with 130 V/20 mA, 50 Hz lamp rating	230 V/130 V	**700.003.0**	0,004	

Wire in accordance with local electrical safety regulations.

series resistor

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

enclosure for emergency stop switch

	part no.		
enclosure for emergency stop switch colour yellow	**704.944.33**		

assembling

anti-twisting ring for flush mounting

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

reducing ring

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

mounting plate

	part no.	kg	
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.	kg	
snap-on base for clipping, for seperate mounting of lamp transformer, resistor block or capacitor block	46277 p. 1	**704.940.9**	0,006	
	46277 p. 3	**704.941.1**	0,006	

reinforcement plate

for thin front panels and plastic case

	part no.	kg	
reinforcement plate	**704.960.9**	0,014	

lens remover

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

lamp remover

	part no.	kg	
lamp remover	**700.004.0**	0,003	

mounting tool for indicator

	part no.	kg	
mounting tool for indicator	**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. part no.	circuit drawing	kg	
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 drawing as of page 325

lens cap round, plastic

	shape	lens cap	colour	29 mm dia. part no.	kg	
lens cap round, plastic	flat	transparent	blue	**704.603.6**	0,003	
			colourless, clear	**704.603.7**	0,003	
			green	**704.603.5**	0,003	
			red	**704.603.2**	0,003	
			yellow	**704.603.4**	0,003	

marking cap for lens cap round

	marking cap	colour	29 mm dia. part no.	kg	
marking cap for lens cap round	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

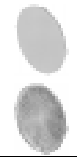
indicator actuator round, front illumination

	colour	29 mm dia. part no.	kg	
indicator actuator round, front illumination	grey	**704.633.1**	0,020	

lens round, plastic

	shape	lens	colour	29 mm dia. part no.	kg	
lens round, plastic	flat	transparent	blue	**704.602.6**	0,001	
			colourless, clear	**704.602.7**	0,001	
			green	**704.602.5**	0,001	
			red	**704.602.2**	0,001	
			yellow	**704.602.4**	0,001	

marking foil for lens round plastic

	front shape	marking plate	colour	part no.	kg	
marking foil for lens round plastic	round	translucent	white	**704.609.9**	0,001	
for neon lamps	round	transparent, ribbed	colourless, clear	**704.609.7**	0,001	

lens round raised plastic

	shape	lens	colour	29 mm dia. part no.	kg	
lens round raised plastic	flat	transparent	colourless, clear	**704.611.7**	0,002	
			green	**704.611.5**	0,002	
			red	**704.611.2**	0,002	
			yellow	**704-611.4**	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	
for neon lamps and LED's	round	transparent, ribbed	colourless, clear	**704.610.7**	0,001	

front ring

	material	colour	29 mm dia. part no.	kg	
front ring	aluminium anodized	black	**704.600.1A**	0,005	
		natural	**704.600.1**	0,005	
	plastic	black	**704.600.0**	0,003	
		chromium-plated	**704.600.4**	0,003	
		light grey	**704.600.6**	0,003	
	stainless steel	natural	**704.600.9**	0,006	
front ring raised	plastic	light grey	**704.600.7**	0,003	

bayonet flange

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

lamp block

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

connection method: PT = plug-in terminal, SCH = screw terminal
circuit drawing as of page 325

for indicator square, front illumination

indicator actuator square, front illumination

	colour	⧉ 30 x 30 mm part no.	kg	
indicator actuator square, front illumination	black	**704.733.0**	0,020	
	grey	**704.733.1**	0,020	

lens square, plastic

	shape	lens	colour	⧉ 30 x 30 mm part no.	kg	
lens square, plastic	flat	transparent	blue	**704.702.6**	0,001	
			colourless, clear	**704.702.7**	0,001	
			green	**704.702.5**	0,001	
			red	**704.702.2**	0,001	
			yellow	**704.702.4**	0,001	

lens holder

for lens square

	lens holder	colour	part no.	kg	
lens holder can be marked	translucent	white	**704.709.9**	0,003	
for neon lamps	transparent	clear	**704.709.7**	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.	kg	
front bezel	square	plastic	black	**704.701.0**	0,002	
			chromium-plated	**704.701.4**	0,002	
			grey	**704.701.6**	0,002	

bayonet flange

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

lamp block

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

connection method: PT = plug-in terminal, SCH = screw terminal
circuit drawing as of page 325

for indicator round, full face illumination

indicator actuator round, full face illumination

	colour	29 mm dia. part no.	circuit drawing	kg	
indicator actuator round, full face illumination	grey	**704.630.1**	-	0,020	

circuit drawing as of page 325

lens cap round, plastic

	shape	lens cap	colour	29 mm dia. part no.	kg	
lens cap round, plastic	flat	transparent	blue	**704.603.6**	0,003	
			colourless, clear	**704.603.7**	0,003	
			green	**704.603.5**	0,003	
			red	**704.603.2**	0,003	
			yellow	**704.603.4**	0,003	

marking cap for lens cap round

	marking cap	colour	29 mm dia. part no.	kg	
marking cap for lens cap round	translucent, ribbed	white	**704.608.9**	0,002	
for neon lamps and LED's	transparent, ribbed	colourless, clear	**704.608.7**	0,002	

bayonet flange

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

lamp block

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

connection method: PT = plug-in terminal, SCH = screw terminal
circuit drawing as of page 325

for indicator square, full face illumination

indicator actuator square, full face illumination

	colour	⎅ 30 x 30 mm part no.	kg	
indicator actuator square, full face illumination	black	**704.730.0**	0,005	
	grey	**704.730.1**	0,005	

lens cap square, plastic

	shape	lens cap	colour	⎅ 30 x 30 mm part no.	kg	
lens cap square, plastic	flat	transparent	blue	**704.703.6**	0,003	
			colourless, clear	**704.703.7**	0,003	
			green	**704.703.5**	0,003	
			red	**704.703.2**	0,003	
			yellow	**704.703.4**	0,003	

diffusor cap

for lens cap square

	colour	⎅ 30 x 30 mm part no.	kg	
diffusor cap can be marked	white	**704.708.9**	0,004	
for neon lamp	clear	**704.708.7**	0,004	

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	

bayonet flange

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

lamp block

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

connection method: PT = plug-in terminal, SCH = screw terminal
circuit drawing as of page 325

for illuminated-/pushbutton round

illuminated-/pushbutton actuator round

	switching action	colour	29 mm dia. part no.	kg	
illuminated-/pushbutton actuator round	main	grey	**704.632.1**	0,009	
	mom	grey	**704.631.1**	0,009	

switching action: main = maintained action, mom = momentary action

lens round, plastic

	shape	lens	colour	29 mm dia. part no.	kg	
lens round, plastic	flat	transparent	blue	**704.602.6**	0,001	
			colourless, clear	**704.602.7**	0,001	
			green	**704.602.5**	0,001	
			red	**704.602.2**	0,001	
			yellow	**704.602.4**	0,001	

marking foil for lens round plastic

	front shape	marking plate	colour	part no.	kg	
marking foil for lens round plastic	round	translucent	white	**704.609.9**	0,001	
for neon lamps	round	transparent, ribbed	colourless, clear	**704.609.7**	0,001	

lens round, metal

	shape	lens	colour	29 mm dia. part no.	kg	
lens round, metal for pushbuttons	flat	aluminium anodized	black	**704.601.0**	0,001	
			blue	**704.601.6**	0,001	
			green	**704.601.5**	0,001	
			natural	**704.601.8**	0,001	
			red	**704.601.2**	0,001	
			yellow	**704.601.4**	0,001	
		stainless steel	natural	**704.601.9**	0,001	

lens metal round with window

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

mushroom-head cap

	mushroom	colour	40 mm dia. part no.	kg	
mushroom-head cap	transparent	blue	**704.614.6**	0,007	
		clear	**704.614.7**	0,007	
		green	**704.614.5**	0,007	
		red	**704.614.2**	0,007	
		yellow	**704.614.4**	0,007	

marking plate for mushroom-head cap

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

front ring

	material	colour	29 mm dia. part no.	kg	
front ring	aluminium anodized	black	**704.600.1A**	0,005	
		natural	**704.600.1**	0,005	
	plastic	black	**704.600.0**	0,003	
		chromium-plated	**704.600.4**	0,003	
		light grey	**704.600.6**	0,003	
	stainless steel	natural	**704.600.9**	0,006	
front ring raised	plastic	light grey	**704.600.7**	0,003	

bayonet flange

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

lamp block

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

connection method: PT = plug-in terminal, SCH = screw terminal
circuit drawing as of page 325

for illuminated-/pushbutton square

illuminated-/pushbutton actuator square

	switching action	colour	30 x 30 mm part no.	kg	
illuminated-/pushbutton actuator square	main	black	**704.732.0**	0,008	
		grey	**704.732.1**	0,008	
	mom	black	**704.731.0**	0,008	
		grey	**704.731.1**	0,008	

switching action: main = maintained action, mom = momentary action

lens square, plastic

	shape	lens	colour	30 x 30 mm part no.	kg	
lens square, plastic	flat	transparent	blue	**704.702.6**	0,001	
			colourless, clear	**704.702.7**	0,001	
			green	**704.702.5**	0,001	
			red	**704.702.2**	0,001	
			yellow	**704.702.4**	0,001	

lens holder

for lens square

	lens holder	colour	part no.	kg	
lens holder can be marked	translucent	white	**704.709.9**	0,003	
for neon lamps	transparent	clear	**704.709.7**	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.	kg	
front bezel	square	plastic	black	**704.701.0**	0,002	
			chromium-plated	**704.701.4**	0,002	
			grey	**704.701.6**	0,002	

bayonet flange

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

lamp block

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

connection method: PT = plug-in terminal, SCH = screw terminal

circuit drawing as of page 325

snap-action switching element

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

actuating force
11-20 N ± 1 N
depending on the number of switching elements, 1 to 3 elements

ambient air temperature
min. -25°C (-40° with restriction)
max. with illumination: +80°C
max. with neon lamp +80°C
max. with LED: +55°C
max. with incandescent lamp: +40°C
(as per DIN IEC 68-)

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

mechanical life
with 1 switching element as per IEC 337-1/2:
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

resistance to shock
(single impacts, semi-sinusoidal)
10 g for 11 ms as per IEC 68-2-27

resistance to vibration
(sinusoidal)
10 g at 10-2000 Hz, amplitude 1 mm as per IEC 68-2-6

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

storage temperature
-40°C to + 85°C
(as per DIN IEC 68-)

travel
5.8 ± 0.2 mm

electrical characteristics

continuous thermal current Ith_2
10 A
The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

electric strength
3750 VAC, 50 Hz, 1 min. between all terminals and earth, as per IC 512-2-11.

insulation resistance
>= 10^{11} Ω between open contacts at 100 VDC, as per IEC 512-2-10.

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

rules
The switches comply with the "Rules for low-voltage switching devices" VDE 0660, parts 200, 201, 202, 207 as well as with IEC Publication 337-1.

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 if P<50 W then L/R=2 x P
L/R stands for time constant in ms
P stands for time constant in watt

voltage:	24 VDC	60 VDC	110 VDC
current:	10 A	3 A	1 A

switch rating min.
gold/silver contacts:

voltage:	5 V	24 V	110 V
current:	15 mA	5 mA	2 mA

hard silver contacts :

voltage:	24 VDC	110 VDC
current:	50 mA	10 mA

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

approvals

- SEV 500 VAC/10 A
- CSA 300 VAC
- UL 600 VAC HD
- Lloyds Marine Register
- German Navy SAK page no.3337 on request
- German Lloyd
- VDE 500 VAC/3 A
- CE

slow-make switching element

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

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

ambient air temperature
min. -25°C (-40° with restriction)
max. with illumination: +80°C
max. with neon lamp +80°C
max. with LED: +55°C
max. with incandescent lamp: +40°C
(as per DIN IEC 68-)

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

mechanical life
with 1 switching element as per IEC 337-1/2:
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
<= 1 ms

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

storage temperature
-40°C to + 85°C
(as per DIN IEC 68-)

electrical characteristics

continuous thermal current I_{th_2}
10 A
The maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

electric strength
3750 VAC, 50 Hz, 1 min. between all terminals and earth, as per IC 512-2-11.

insulation resistance
>= 10^{11} Ω between open contacts at 100 VDC, as per IEC 512-2-10.

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

rules
The switches comply with the "Rules for low-voltage switching devices" VDE 0660, parts 200, 201, 202, 207 as well as with IEC Publication 337-1.

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
WR=100 ms at P>=50 W and
WR=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 contakts:

voltage:	24 VDC	110 VDC
current:	50 mA	10 mA

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

approvals

- SEV 500 VAC/10 A
- CSA 300 VAC
- UL 600 VAC HD
- Lloyds Marine Register
- German Navy SAK page no.3337 on request
- German Lloyd
- VDE 500 VAC/3 A
- CE

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

degree of protection
IP 65 as per IEC 529

operating temperature
-25°C to + 50°C

storage temperature
-25°C to + 50°C
(as per DIN IEC 68-)

electrical characteristics

frequency (tone)
ca.2.8 kHz continuous tone only

operation voltage/current
operation voltage: 24 VDC ± 10%
operation current: <= 25 mA

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

actuator

material

actuator case
polycarbonate, polyamide

front ring
polyamide, aluminium or chromium-plated nickel steel

mounting flange
polyethylene terephtalate

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

ambient air temperature
min. -25°C
max. without illumination: +80°C
max. with neon lamp: +80°C
max. with LED: +55°C
max. with incandescent lamp: +55°C
(as per DIN IEC 68-)

degree of protection
front as per IEC 529: IP 65

mechanical life
with 1 switching element as per IEC 337-1/2:

pushbutton: >= 3 million operations
selector switch: >= 2.5 million operations
Emergency stop switch: >= 50´000 operations
keylock switch: >= 50´000 operations

storage temperature
-30°C to +85°C
(as per DIN IEC 68-)

travel
5.8 ± 0.2 mm

electrical characteristics

rules
The switches comply with the "Rules for low-voltage switching devices" VDE 0660, parts 200, 201, 202, 207 as well as with IEC Publication 337-1.

rotary selector switch element

mechanical characteristics

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

number of positions
1 to 8 positions max.

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

switching angle
Switching position a (9^{00}) 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)

electrical characteristics

DC 1, resistive circuits T = 1 ms

1 contact in line						
permissible voltage	24	48	60	110	220	440 V
rated service current I	10,0	6,0	2,5	0,7	0,3	0,2 A
2 contacts in line						
permissible voltage	48	95	120	220	440	660 V
rated service current I	10,0	6,0	2,5	0,7	0,3	0,2 A
3 contacts in line						
permissible voltage	70	140	180	330	660 V	
rated service current I	10,0	6,0	2,5	0,7	0,3 A	
4 contacts in line						
permissible voltage	95	190	240	440 V		
rated service current I	10,0	6,0	2,5	0,7 A		
5 contacts in line						
permissible voltage	120	240	300	550 V		
rated service current I	10,0	6,0	2,5	0,7 A		
6 contacts in line						
permissible voltage	144	290	360	660 V		
rated service current I	10,0	6,0	2,5	0,7 A		
8 contacts in line						
permissible voltage	190	350	450 V			
rated service current I	10,0	6,0	2,5 A			

inductive circuits T = 50 ms

1 contact in line					
permissible voltage	24	3	48	60	110 V
rated service current I	6,0	3,0	1,0	0,7	0,3 A
2 contacts in line					
permissible voltage	48	60	95	120	220 V
rated service current I	6,0	3,0	1,0	0,7	0,3 A
3 contacts in line					
permissible voltage	72	90	140	180	330 V
rated service current I	6,0	3,0	1,0	0,7	0,3 A
4 contacts in line					
permissible voltage	96	120	190	240	440 V
rated service current I	6,0	3,0	1,0	0,7	0,3 A"
5 contacts in line					
permissible voltage	120	150	240	300	550 V
rated service current I	6,0	3,0	1,0	0,7	0,3 A
6 contacts in line					
permissible voltage	144	180	290	360	660 V
rated service current I	6,0	3,0	1,0	0,7	0,3 A
8 contacts in line					
permissible voltage	190	240	350	450 V	
rated service current I	6,0	3,0	1,0	0,7	0,3 A

rated service current I_0
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

rated service voltage

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

resistance/motor load

CEE 24 4/2 A

short-circuit-proof

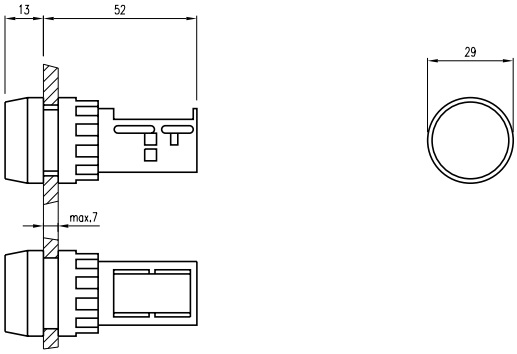
max. insurance (gL-characteristics) 10 A
conditional rated short-circuit current 3 kA

thermic rated current I_{th_2}

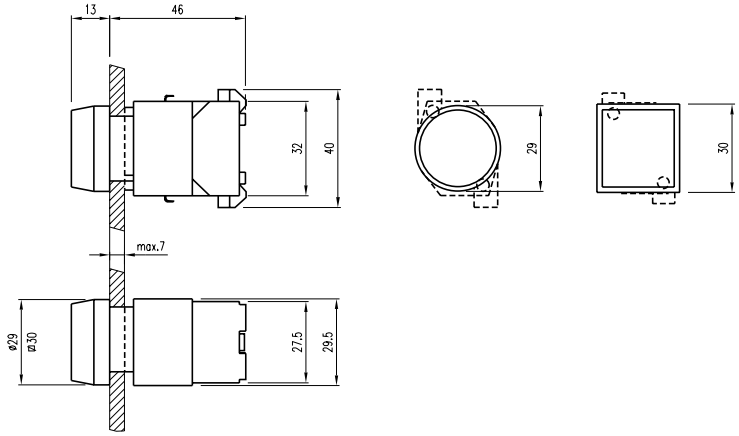
10 A

technical drawing

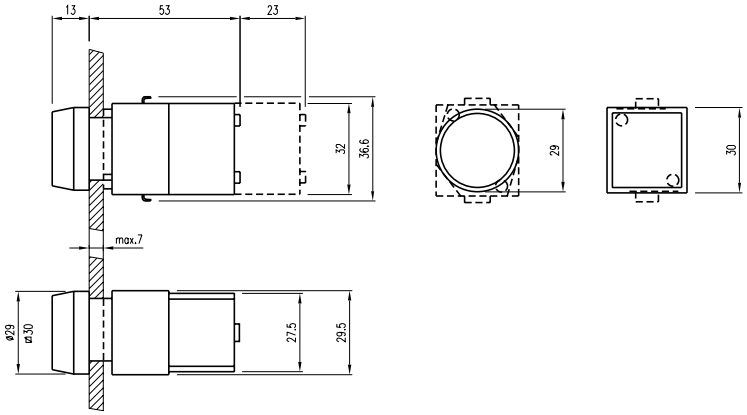
1 indicator compact full face illumination
page 262



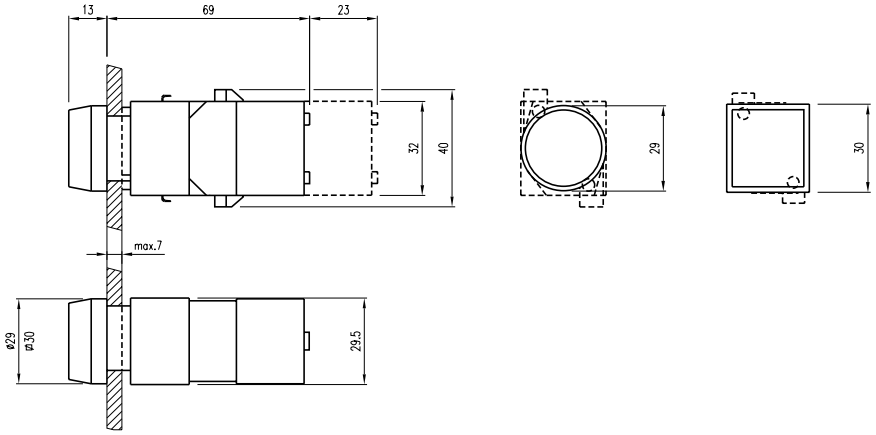
2 indicator/flasher full face illumination, indicator/flasher front illumination
page 263, 264



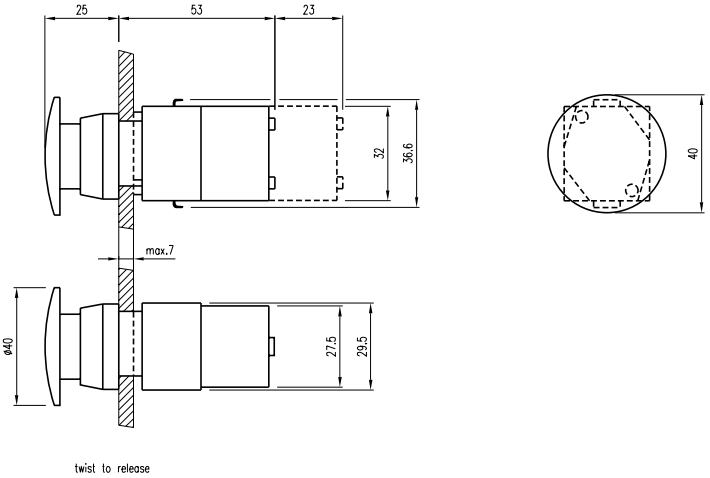
3 pushbutton actuator
page 265



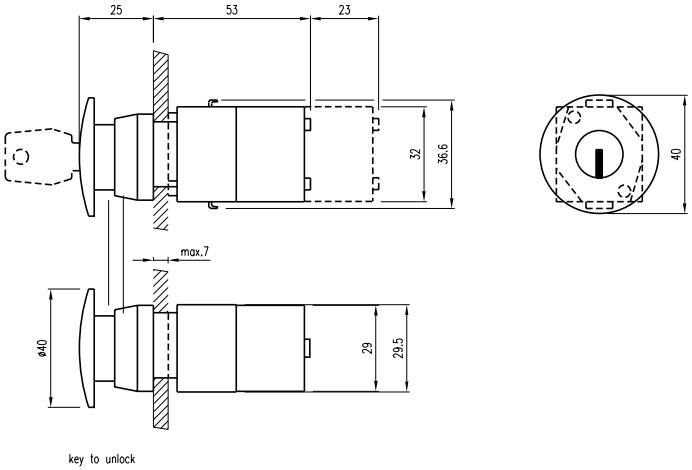
4 illuminated pushbutton actuator
page 267



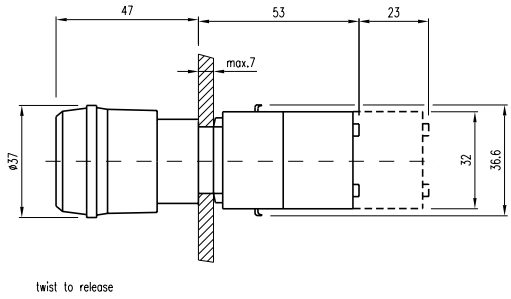
5 emergency stop switch actuator, pushbutton actuator with mushroom-head cap
page 268, 270



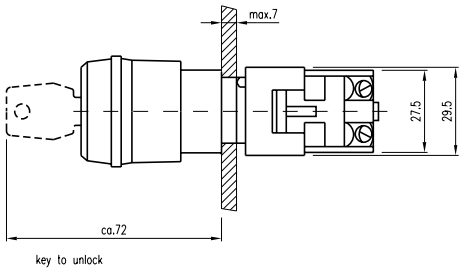
6 emergency stop switch actuator
page 268



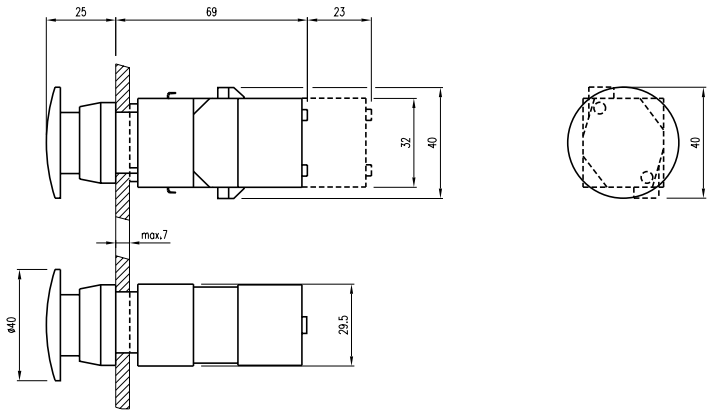
7 emergency stop switch actuator foolproof
page 269



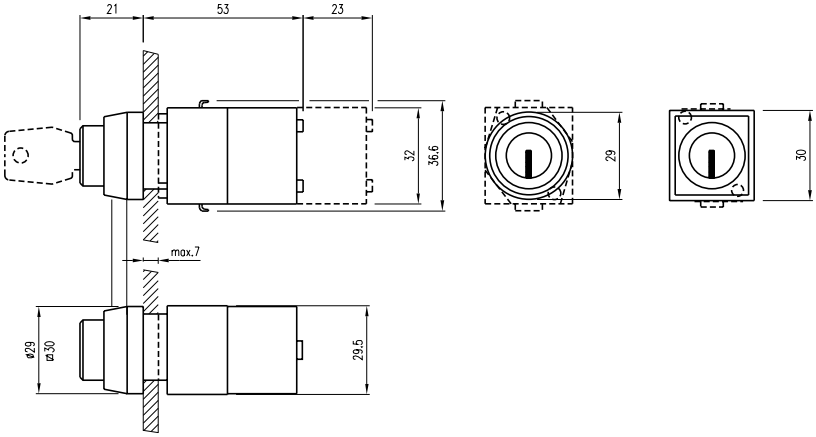
8 emergency stop switch actuator foolproof
page 269



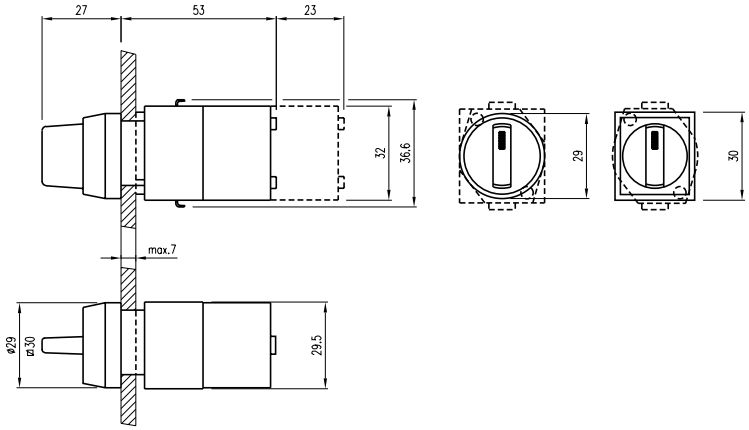
9 illuminated pushbutton actuator with mushroom-head cap
page 271



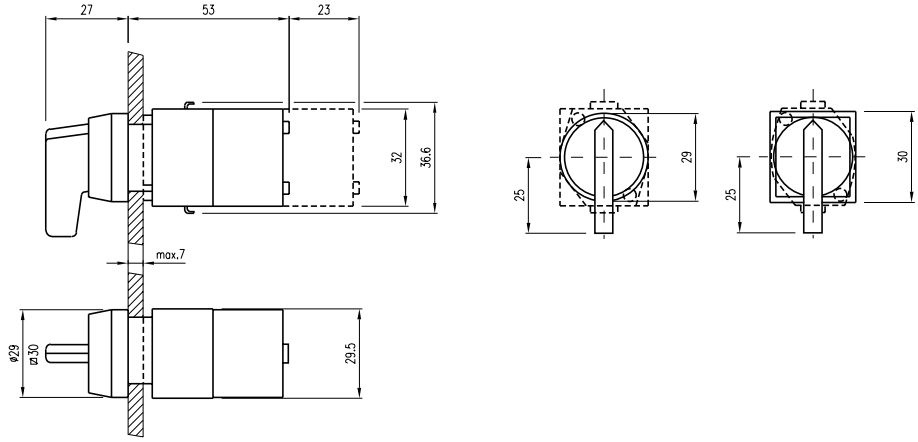
10 keylock switch actuator 2 positions, keylock switch actuator 3 positions
page 272, 273



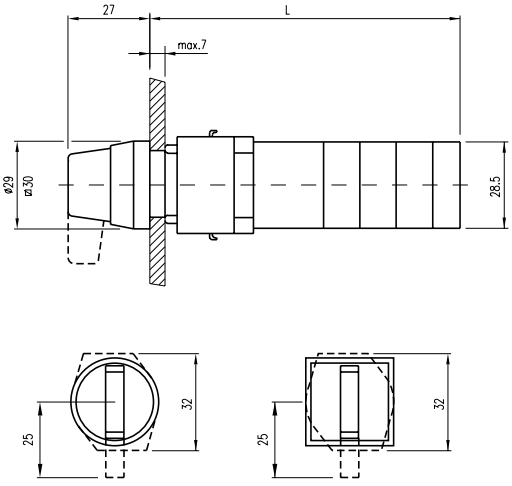
11 selector switch actuator 2 positions, lever short, selector switch actuator 3positions, short lever
page 274, 275



12 selector switch actuator 2 positions, lever long, selector switch actuator 3 positions, lever long
page 274, 276

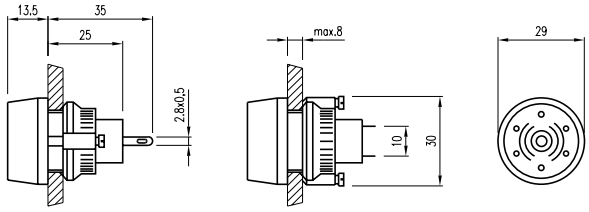


13 rotary selector switch actuator
page 276

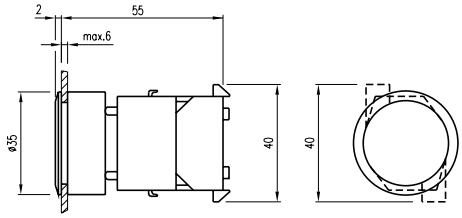


No. of elements	Depths L
	CC 4
1	66,5
2	78,5
3	90,5
4	102,5
5	114,5
6	126,5
7	138,5
8	150,5

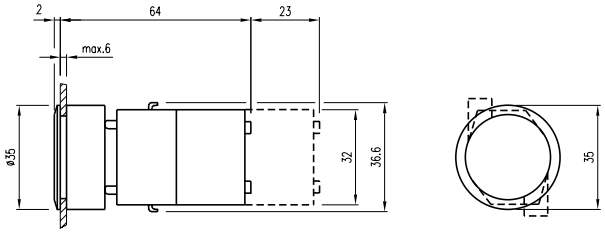
14 buzzer
page 277



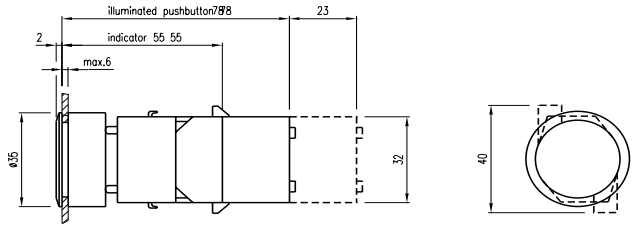
15 indicator/flasher for flush mounting
page 278



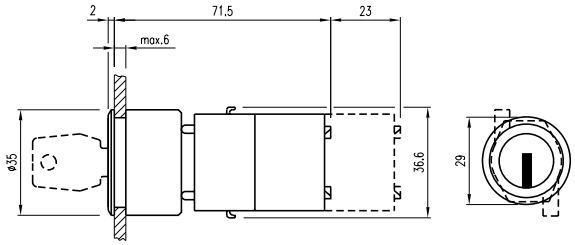
16 pushbutton actuator for flush mounting
page 279



17 illuminated pushbutton actuator for flush mounting
page 280

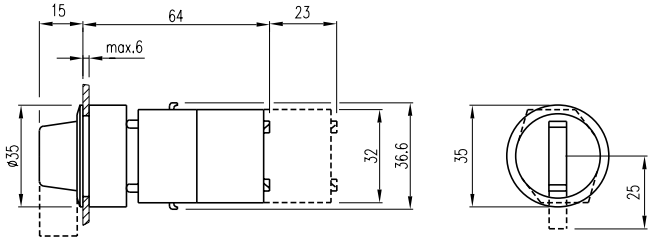


18 keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting
page 281, 282



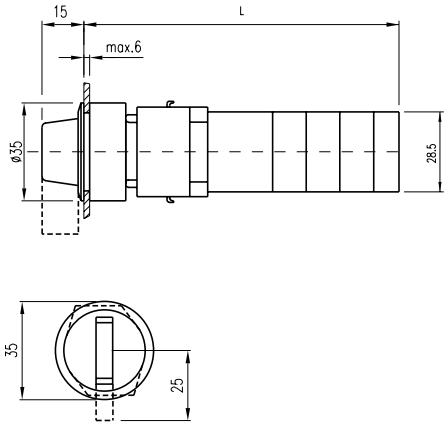
19 selector switch actuator 2 positions for flush mounting, short lever, selector switch actuator 2 positions for flush mounting, long lever, selector switch actuator 3 positions for flush mounting, short lever, selector switch actuator 3 positions for flush mounting, long lever

page 283, 284, 285



20 rotary selector switch actuator for flush mounting

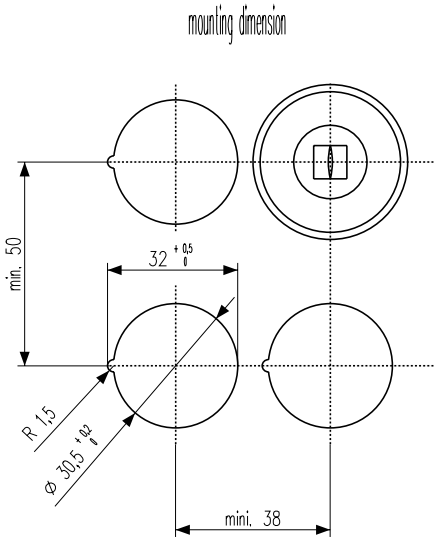
page 286



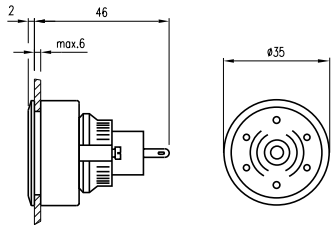
No. of elements	Depths L CG 4
1	78.5
2	90.5
3	102.5
4	114.5
5	126.5
6	138.5
7	150.5
8	162.5

21 key insert switch actuator 2 positions for flush mounting, key insert switch actuator 3 positions for flush mounting

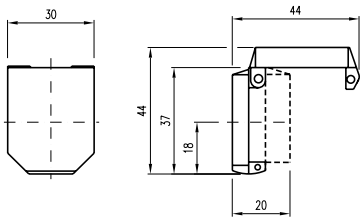
page 286, 287



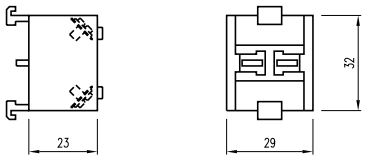
22 buzzer for flush mounting
page 287



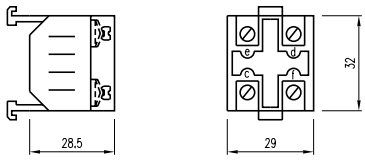
23 protective cover
page 288



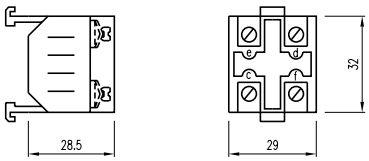
24 switching element, switching element for emergency stop switch
page 290, 291



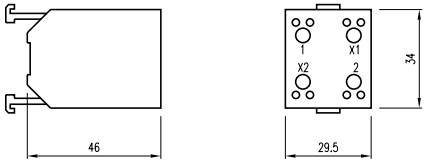
25 flasher element
page 291



26 diode block, capacitor block, resistor block, resistor diode block
page 294, 295

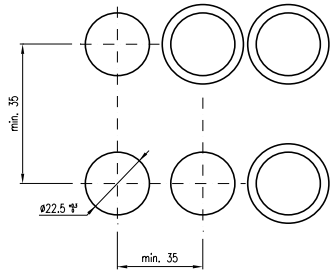


27 lamp transformer
page 294

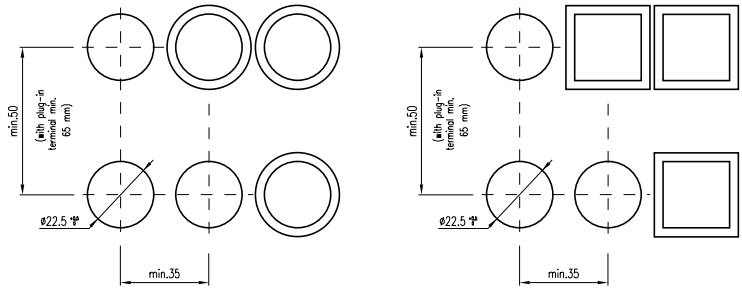


mounting dimension

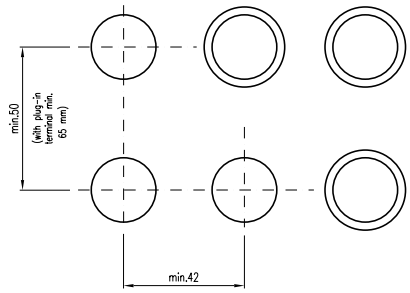
1 indicator compact full face illumination
page 262



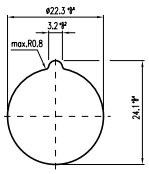
2 indicator/flasher full face illumination, indicator/flasher front illumination, pushbutton actuator, illuminated pushbutton actuator, keylock switch actuator 2 positions, keylock switch actuator 3 positions, selector switch actuator 2 positions, lever short, selector switch actuator 3 positions, short lever, buzzer, blind plug
page 263, 264, 265, 267, 272, 273, 274, 275, 277, 289



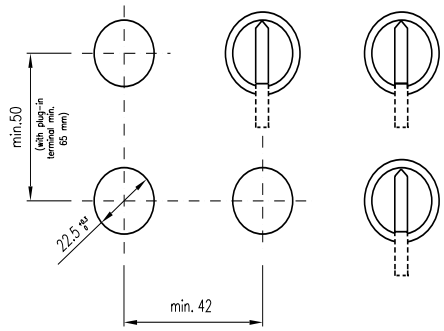
3 emergency stop switch actuator, pushbutton actuator with mushroom-head cap, illuminated pushbutton actuator with mushroom-head cap
page 268, 270, 271



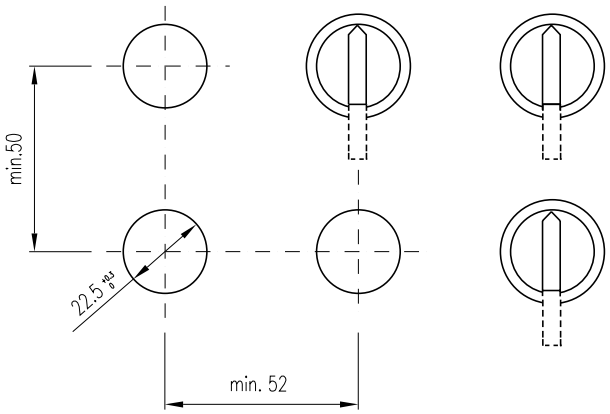
4 emergency stop switch actuator foolproof
page 269



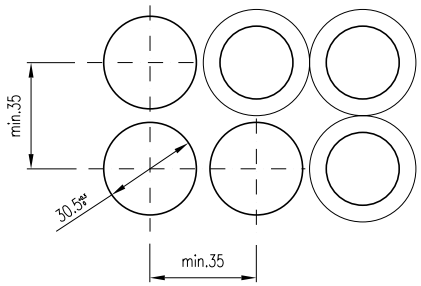
5 selector switch actuator 2 positions, lever long, selector switch actuator 3 positions, lever long
page 274, 276



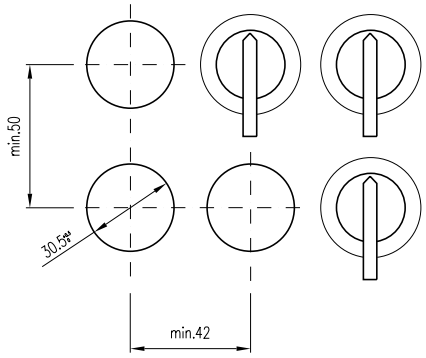
6 rotary selector switch actuator
page 276



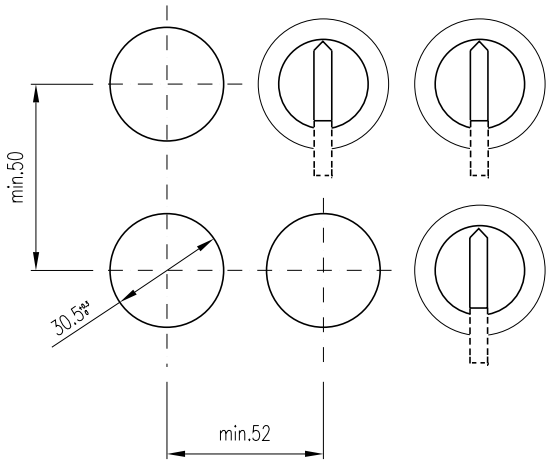
7 indicator/flasher for flush mounting, pushbutton actuator for flush mounting, illuminated pushbutton actuator for flush mounting, keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting, selector switch actuator 2 positions for flush mounting, short lever, selector switch actuator 2 positions for flush mounting, long lever, selector switch actuator 2 positions for flush mounting, short lever, key insert switch actuator 2 positions for flush mounting, key insert switch actuator 3 positions for flush mounting, buzzer for flush mounting, front bezel-set for flush mounting
page 278, 279, 280, 281, 282, 283, 284, 286, 287, 288



8 selector switch actuator 3 positions for flush mounting, long lever
page 285

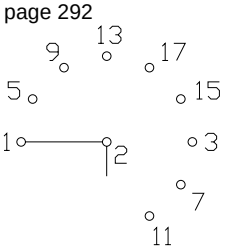


9 rotary selector switch actuator for flush mounting
page 286

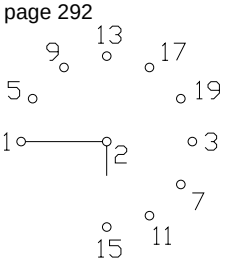


connecting diagrams

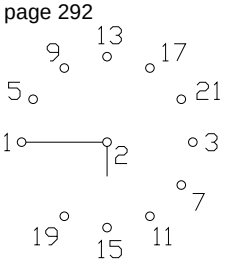
1 rotary selector switch element 30°
page 292



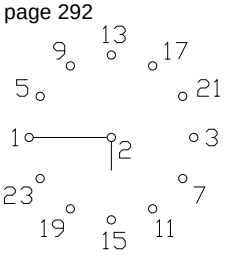
2 rotary selector switch element 30°
page 292



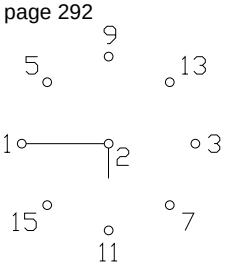
3 rotary selector switch element 30°
page 292



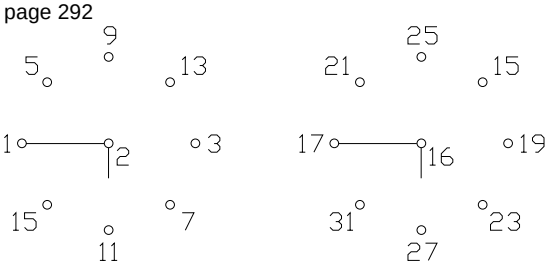
4 rotary selector switch element 30°
page 292



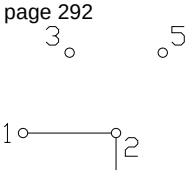
5 rotary selector switch element 45°
page 292



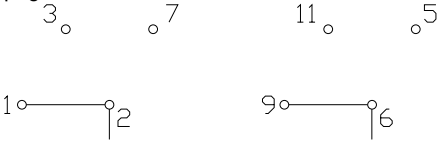
6 rotary selector switch element 45°
page 292



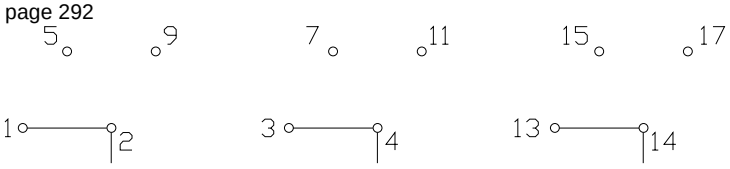
7 rotary selector switch element 60°
page 292



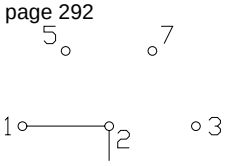
8 rotary selector switch element 60°
page 292



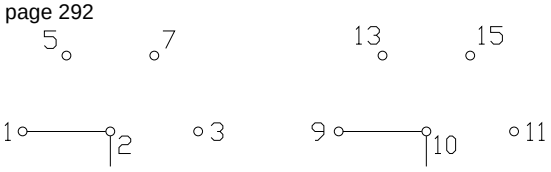
9 rotary selector switch element 60°
page 292



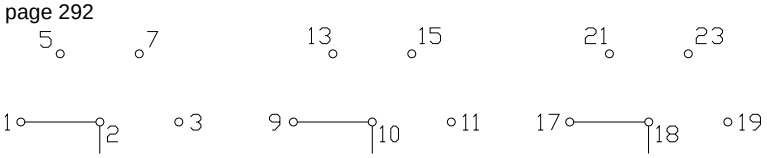
10 rotary selector switch element 60°
page 292



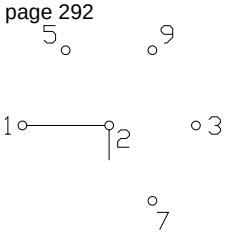
11 rotary selector switch element 60°
page 292



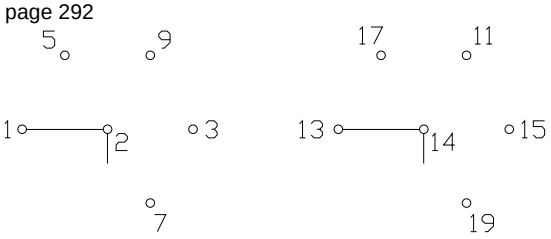
12 rotary selector switch element 60°
page 292



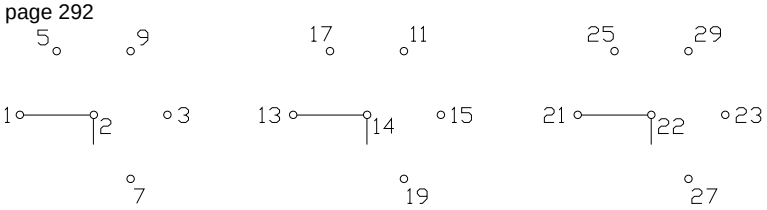
13 rotary selector switch element 60°
page 292



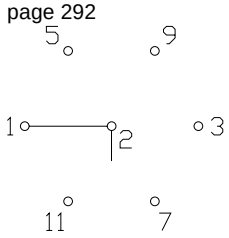
14 rotary selector switch element 60°
page 292



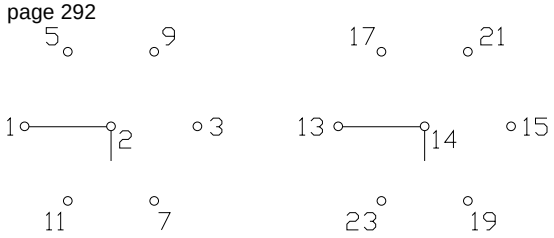
15 rotary selector switch element 60°
page 292



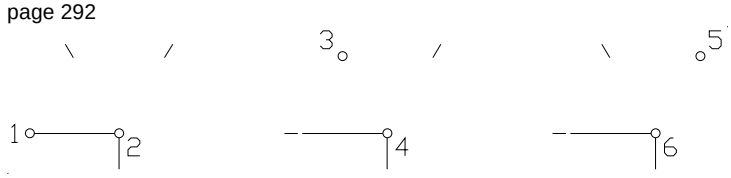
16 rotary selector switch element 60°
page 292



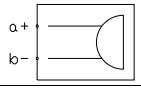
17 rotary selector switch element 60°
page 292

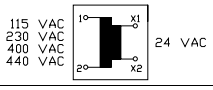
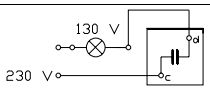
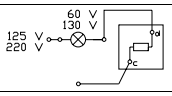
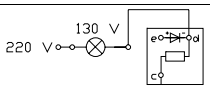


18 rotary selector switch element 60°
page 292



19 rotary selector switch element 60°
page 292

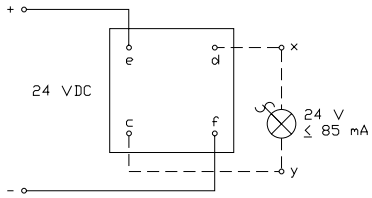
	circuit drawing
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

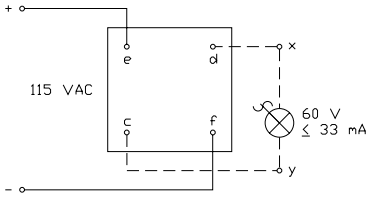
	circuit drawing
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

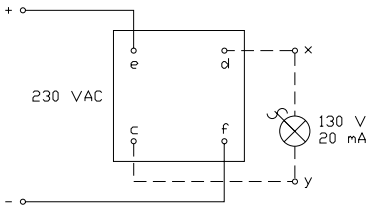
Flasher element

Applications

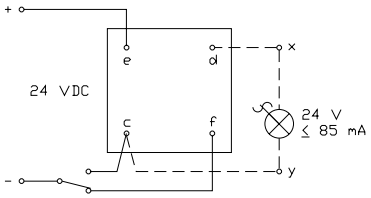
Circuit for flashing light
switchable to continuous light

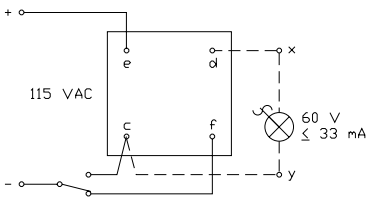


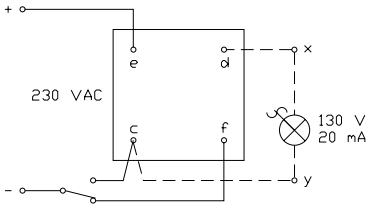




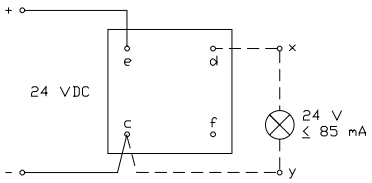
Circuit for flushing light

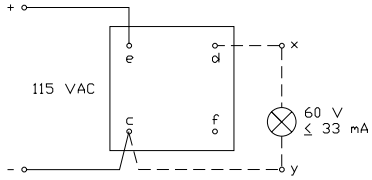


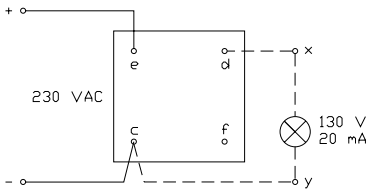




Circuit for continuous light







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 seperate 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.

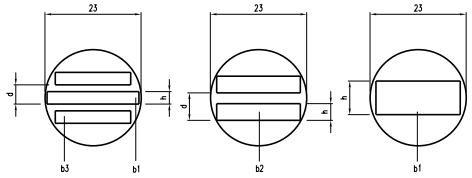
3. Film inserts (for square front only)

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

Film dimensions

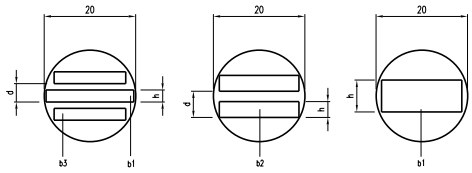
Indicator max. 24,5 x 24,5 mm
Illuminatrd pushbutton max. 21,5 x 21,5 mm

Indicator
Engraving of marking cap



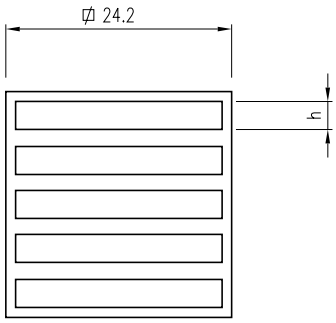
Height of letters h mm	Number of lines	Number of letters per line (approx.)			Line spacing b
		b1	b2	b3	
3	3	11	10	9	4,6
4	2	8	7	-	6,6
8	1	4	-	-	-

Pushbutton/illuminated pushbutton
Engraving
of marking cap



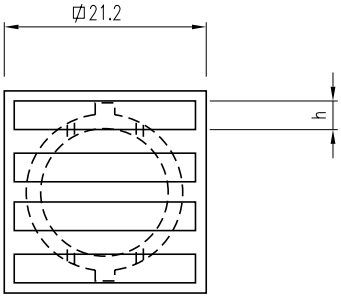
Height of letters h mm	Number of lines	Number of letters per line (approx.)			Line spacing b
		b1	b2	b3	
3	3	9	9	7	4,6
4	2	7	6	-	6,6
8	1	3	-	-	-

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

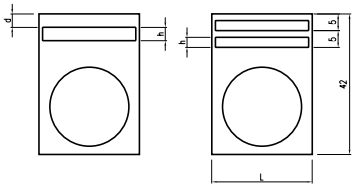
Pushbutton/illuminated pushbutton
Engraving of lens holder



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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

EAO:
704.032.418