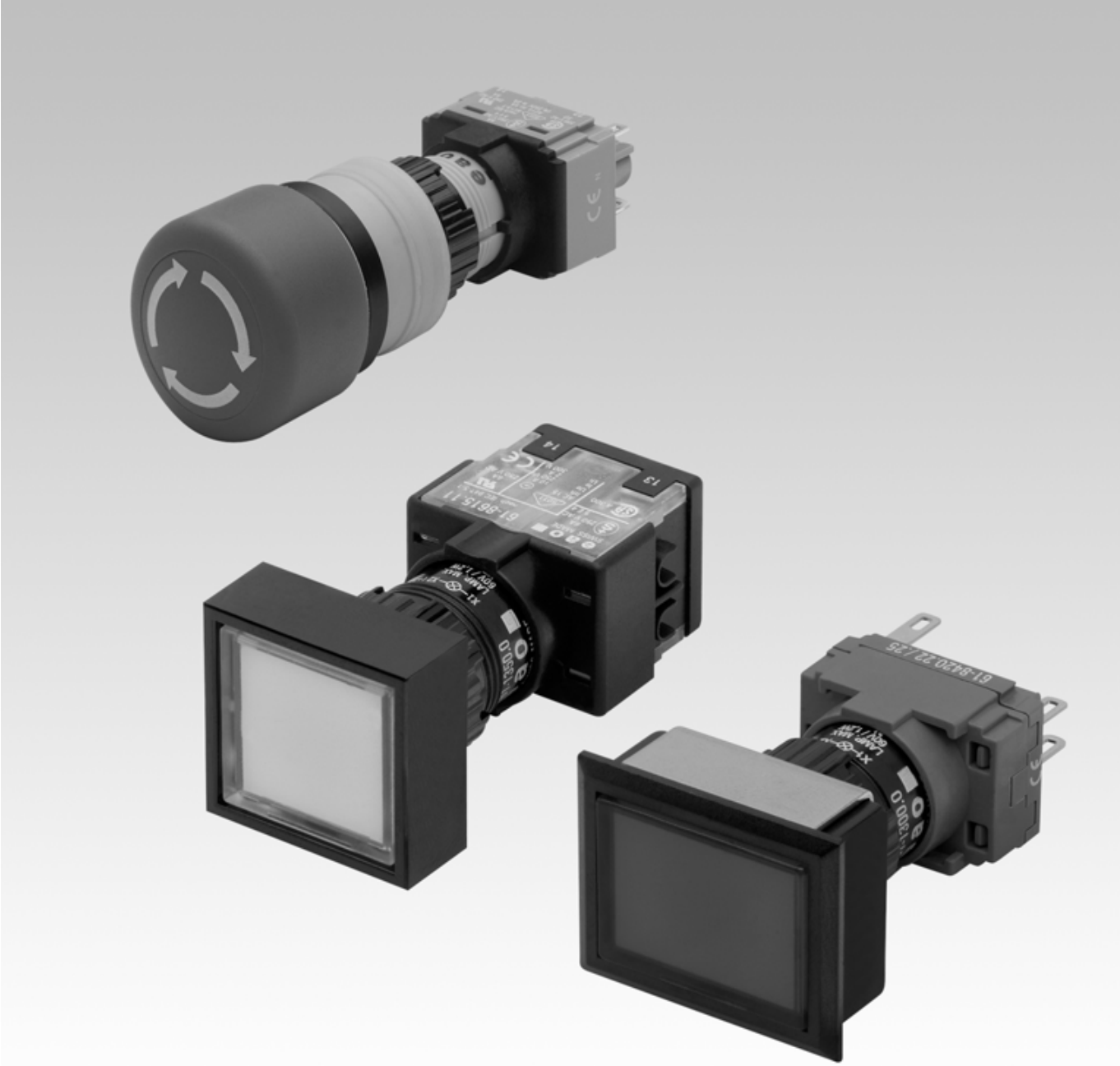




## EAO Product Information

Series 61



## Index

### Series 61

<b>Description</b>	<b>Page 425</b>
<b>Product Assembly</b>	<b>Page 426</b>
<b>Product Range</b>	
- pushbuttons for standard mounting	<b>Page 427</b>
- pushbuttons for flush mounting	<b>Page 434</b>
- accessories / spare parts	<b>Page 440</b>
<b>Technical Data</b>	<b>Page 453</b>
<b>Technical Drawing / Dimension / Layouts</b>	<b>Page 457</b>
<b>Circuit Drawing</b>	<b>Page 467</b>
<b>Typical Applications</b>	<b>Page 473</b>
<b>Marking</b>	<b>Page 475</b>

# Description

## General Notes

The indicators, illuminated pushbuttons, selector switches, keylock switches and emergency stop switches with spray-water protection at the front (IP 65) are modular and consist of an actuator and switching element. In addition to the standard switching elements (gold-plated silver contact with universal soldering or plug-in terminals), forced-opening, slow-make switching elements with gold or silver contacts and soldering or plug-in terminals are available. They can be supplied with screw terminals and silver contacts too. The front dimensions of the units in this series are 24 x 24 mm, 24 mm dia., 18 x 24 mm, 18 x 18 mm or 18 mm dia. For flush mounting the dimensions 25 mm dia., 24 x 30 mm and 24 x 24 mm can be supplied.

## Mounting

All switch actuators are mounted from the front by pushing them through the mounting hole in the front panel. They are then fixed from the back with a fixing nut and the mounting tool typ no. 01-907. Max. tightening torque 50 Ncm. For mounting dimensions and grid size see as of page 462.

The preassembled switching element with the connecting wires in a single plane can be clipped on afterwards. For block or series mounting aids are available.

For switching elements with 2.8 mm plug-in terminals, we offer plug-in bases, which when soldered to a PCB enable a plug-in connection to the button. All actuators are provided with an anti-rotation device.

## Lenses

The flat or concave lenses are available in various colours and a transparent or translucent version. The lens surface is non-reflecting (matt). Lenses 19.7 mm dia. can be supplied also in aluminium.

## Marking

For engraving, hot stamping and film inserts, see page 475 under "Marking".

## Illumination

The midget-grooved T 1 3/4 incandescent lamp (6-48 V, 1.2 W) ensures perfect illumination of the lenses, which are supplied in various colours.

Midget-grooved T 1 3/4 Multi-LED (6, 12, 24, 48 V) are also available in white, red, yellow and green.

For supply voltages above 60 V, it is necessary to use a voltage reduction element (external series resistor, capacitor or transformer). Do not solder the terminals directly, because of the high surface temperature.

## Position indication

When the switch with maintained action is actuated, the lens snaps into place mechanically. The position of contacts can always be determined by the position of the lens.

## Keylock switch

Standard lock (index D)

1 standard number 311. If the lock number is not specified, we will supply no. 311. An additional 134 special locks (index X) are available on request. Master keys for locks no. 311 - 445 may be ordered by quoting no. 31-989.300.

Two keys are supplied with each keylock switch.

Spare keys for DOM standard locks may be ordered by quoting no. 31-989 (please state the lock number).

## Emergency stop switch foolproof with key to unlock

Kaba safety lock. Standard lock number is 1001. Locks with other numbers are available on request.

Spare keys for KABA locks may be ordered under no. 14-987 (please state the lock number).

## Specimen order

### Indicator complete

- indicator complete, soldering terminal, 18 x 24 mm 61-0030.02

### Recommended accessories:

- lens plastic, 18 x 24 mm, clear 61-9331.7

- LED, 6 chips, 6 VDC, yellow 10-5306.3254

All dimensions in mm.

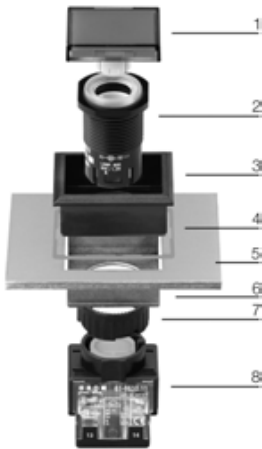
We reserve the right to modify technical data.

## illuminated-/pushbutton



- 1 lens
- 2 actuator case
- 3 fixing nut
- 4 switching element

## illuminated-/pushbutton for flush mounting



- 1 lens
- 2 actuator housing
- 3 front bezel
- 4 sealing
- 5 front panel
- 6 fixing bow
- 7 fixing nut
- 8 switching element

## indicator complete



- 🛒 lens plastic page 440
- 🛒 front ring page 443
- 🛒 filament lamp page 448
- 🛒 LED page 449

	connection method					circuit drawing	technical drawing	mounting dimensions		
	☐	18 x 24 mm Typ-Nr.	24 x 24 mm Typ-Nr.	24 mm dia. Typ-Nr.	18 x 18 mm Typ-Nr.	18 mm dia. Typ-Nr.	1	1	1	0,005
<b>indicator complete</b>	-	<b>61-0030.02</b>	<b>61-0050.02</b>	<b>61-0040.02</b>	<b>61-0020.02</b>	<b>61-0010.02</b>	1	1	1	0,005

connection method : soldering-/plug-in terminal = -

Accessorie front ring only requested for 24mm dia.

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## indicator actuator



- 🛒 lens plastic page 440
- 🛒 front ring page 443
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 lamp element page 445
- 🛒 diode element page 445
- 🛒 flasher element page 445

						circuit drawing	technical drawing	mounting dimensions		
	☐	18 x 24 mm Typ-Nr.	24 x 24 mm Typ-Nr.	24 mm dia. Typ-Nr.	18 x 18 mm Typ-Nr.	18 mm dia. Typ-Nr.	1	2	1	0,005
<b>indicator actuator</b>		<b>61-0039.0</b>	<b>61-0059.0</b>	<b>61-0049.0</b>	<b>61-0029.0</b>	<b>61-0019.0</b>	1	2	1	0,005

Accessorie front ring only requested for 24mm dia.

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## illuminated-/pushbutton actuator



- ☞ lens plastic page 440
- ☞ lens metal with window page 441
- ☞ lens metal page 441
- ☞ front ring page 443
- ☞ filament lamp page 448
- ☞ LED page 449
- ☞ switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446

	switching action	□	⌀		⌀		circuit drawing	technical drawing	mounting dimensions	0,005
		18 x 24 mm Typ-Nr.	24 x 24 mm Typ-Nr.	24 mm dia. Typ-Nr.	18 x 18 mm Typ-Nr.	18 mm dia. Typ-Nr.				
<b>illuminated-/push-button actuator</b>	M	<b>61-1130.0</b>	<b>61-1150.0</b>	<b>61-1140.0</b>	<b>61-1120.0</b>	<b>61-1110.0</b>	2	3	1	0,005
	momentary-/maintained action*	<b>61-1330.0</b>	<b>61-1350.0</b>		<b>61-1320.0</b>	<b>61-1310.0</b>	2	3	1	0,005
	MA	<b>61-1230.0</b>	<b>61-1250.0</b>	<b>61-1240.0</b>	<b>61-1220.0</b>	<b>61-1210.0</b>	3	3	1	0,005

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

Accessorie front ring only requested for 24mm dia.

\* convertible from momentary to maintained action

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## emergency stop switch actuator foolproof, EN IEC 60947-5-5

application as per EN 60204-1 and EN 418



- 🛒 label for emergency stop switch page 450
- 🛒 switching element for emergency stop switch page 447
- 🛒 protective shroud for emergency stop switch page 450

	switching action	unlocking	marking of mushroom-head cap	27 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
<b>emergency stop switch actuator foolproof, EN IEC 60947-5-5</b> without legend plate	MA	twist to release	arrows	<b>61-3440.4/1</b>	4	4	2	0,038
			stop	<b>61-3440.4/2</b>	4	4	2	0,038
without legend plate, with green ring	MA	twist to release	arrows	<b>61-3440.4/5</b>	4	4	2	0,038
without legend plate standard lock 1001, other lock numbers on request	MA	key to release	stop	<b>61-5441.4/K</b>	4	4	2	0,038

switching action : maintained action = MA

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## pushbutton actuator with mushroom-head cap



- 🛒 mushroom-head cap page 441
- 🛒 front ring page 443
- 🛒 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446

	switching action	32 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
<b>pushbutton actuator with mushroom-head cap</b>	M	<b>61-1140.0</b>	2	5	2	0,006
	MA	<b>61-1240.0</b>	3	5	2	0,006

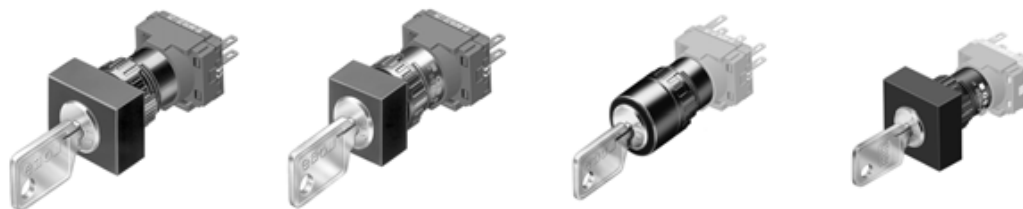
switching action : momentary action = M, maintained action = MA

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462



## keylock switch actuator 2 positions

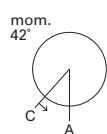
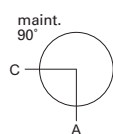
if installed with anti-twist device, the lug is on the left page.



keylock front bezel page 441

switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446

anti-twisting ring page 450



	switching action	key removable in	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>keylock switch actuator 2 positions</b> position A: basic position position C: momentary action standard lock 311, other lock numbers on request	M	A	<b>61-2101.0/D</b>	5	6	1	0,065
position A: basic position position C: maintained action standard lock 311, other lock numbers on request	MA	A	<b>61-2201.0/D</b>	6	6	1	0,065
		C	<b>61-2203.0/D</b>	6	6	1	0,065
		C + A	<b>61-2205.0/D</b>	6	6	1	0,065

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

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## keylock switch actuator 3 positions

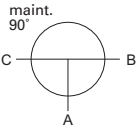
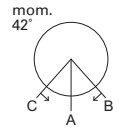
if installed with anti-twist device, the lug is on the left page.



🛒 keylock front bezel page 441

🛒 switching element for keylock-/selector switch 3 positions page 447

🛒 anti-twisting ring page 450

	switching action	key removable in	part no.	circuit drawing	technical drawing	mounting dimensions	
  <p><b>keylock switch actuator 3 positions</b>                      position C: momentary action                      position A: basic position                      position B: momentary action                      standard lock 311</p>	momentary - 0 - momentary	A	<b>61-2501.0/D</b>	7	6	1	0,065
position C: momentary action position A: basic position position B: maintained action standard lock 311	momentary - 0 - maintained	A	<b>61-2801.0/D</b>	10	6	1	0,065
		A+B	<b>61-2804.0/D</b>	10	6	1	0,065
		B	<b>61-2802.0/D</b>	11	6	1	0,065
position C: maintained action position A: basic position position B: momentary action standard lock 311, other lock numbers on request	maintained - 0 - momentary	A	<b>61-2701.0/D</b>	9	6	1	0,065
		C	<b>61-2703.0/D</b>	9	6	1	0,065
		C + A	<b>61-2705.0/D</b>	9	6	1	0,065
position C: maintained action position A: basic position position B: maintained action standard lock 311, other lock numbers on request	maintained - 0 - maintained	A	<b>61-2601.0/D</b>	8	6	1	0,065
		A+B	<b>61-2604.0/D</b>	8	6	1	0,065
		B	<b>61-2602.0/D</b>	8	6	1	0,065
		C	<b>61-2603.0/D</b>	8	6	1	0,065
		C + A	<b>61-2605.0/D</b>	8	6	1	0,065
		C+A+B	<b>61-2607.0/D</b>	8	6	1	0,065
C+B	<b>61-2606.0/D</b>	8	6	1	0,065		

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

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## selector switch actuator 2 positions

if installed with anti-twist device, the lug is on the left page.



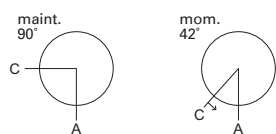
🛒 lever page 441

🛒 filament lamp page 448

🛒 LED page 449

🛒 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446

🛒 anti-twisting ring page 450



	switching action	18 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
<b>selector switch actuator 2 positions</b> position C: momentary action position A: basic position	M	<b>61-4110.0</b>	12	7	1	0,006
position C: maintained action position A: basic position	MA	<b>61-4210.0</b>	13	7	1	0,006

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

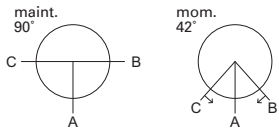
circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## selector switch actuator 3 positions

if installed with anti-twist device, the lug is on the left page.



- 🛒 lever page 441
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 switching element for keylock-/selector switch 3 positions page 447
- 🛒 anti-twisting ring page 450



	switching action	18 mm dia. Typ-Nr.	circuit drawing	technical drawing	mounting dimensions	
<b>selector switch actuator 3 positions</b> position C: momentary action position A: basic position position B: momentary action	momentary - 0 - momentary	<b>61-4510.0</b>	14	7	1	0,006
position C: momentary action position A: basic position position B: maintained action	momentary - 0 - maintained	<b>61-4810.0</b>	17	7	1	0,006
position C: maintained action position A: basic position position B: momentary action	maintained - 0 - momentary	<b>61-4710.0</b>	16	7	1	0,006
position C: maintained action position A: basic position position B: maintained action	maintained - 0 - maintained	<b>61-4610.0</b>	15	7	1	0,006

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

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## indicator complete for flush mounting



- 🛒 lens plastic for flush mounting page 440
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 front bezel set for indicators and illuminated pushbuttons for flush mounting page 442

	connection method	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>indicator complete for flush mounting</b>	-	<b>61-0000.02</b>	1	8	3	0,006

connection method : soldering-/plug-in terminal = -  
 circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## indicator actuator for flush mounting



- 🛒 lens plastic for flush mounting page 440
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 lamp element page 445
- 🛒 diode element page 445
- 🛒 flasher element page 445
- 🛒 front bezel set for indicators and illuminated pushbuttons for flush mounting page 442

	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>indicator actuator for flush mounting</b>	<b>61-0009.0</b>	1	9	3	0,005

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## illuminated-/pushbutton actuator for flush mounting



- 🛒 lens plastic for flush mounting page 440
- 🛒 lens metal with window page 441
- 🛒 lens metal page 441
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446
- 🛒 front bezel set for indicators and illuminated pushbuttons for flush mounting page 442

	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>illuminated-/pushbutton actuator for flush mounting</b>	M	<b>61-1100.0</b>	18	10	3	0,005
	momentary-/maintained action*	<b>61-1300.0</b>	19	10	3	0,005
	MA	<b>61-1200.0</b>	18	10	3	0,005

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

\* convertible from momentary to maintained action

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## pushbutton actuator with mushroom-head cap



- 🛒 mushroom-head cap page 441
- 🛒 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446
- 🛒 front bezel set for indicators and illuminated pushbuttons for flush mounting page 442

	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>pushbutton actuator with mushroom-head cap</b>	M	<b>61-1100.0</b>	2	11	2	0,006
	momentary-/maintained action*	<b>61-1300.0</b>	3	11	2	0,006
	MA	<b>61-1200.0</b>	2	11	2	0,006

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

\* convertible from momentary to maintained action

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

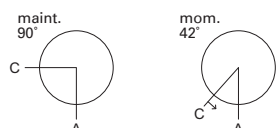
## keylock switch actuator with 2 positions for flush mounting



keylock front bezel page 441

switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446

front bezel set for keylock switch for flush mounting page 443



	switching action	key removable in	photo	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>keylock switch actuator with 2 positions</b> for flush mounting position A: basic position position C: momentary action standard lock 311, other lock numbers on request	M	A		<b>61-2101.0/D</b>	5	12	3	0,065
position A: basic position position C: maintained action standard lock 311, other lock numbers on request	MA	A		<b>61-2201.0/D</b>	6	12	3	0,065
		C		<b>61-2203.0/D</b>	6	12	3	0,065
		C + A		<b>61-2205.0/D</b>	6	12	3	0,065

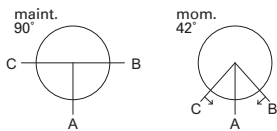
switching action : momentary action = M, maintained action = MA

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## keylock switch actuator 3 positions for flush mounting



- 🛒 keylock front bezel page 441
- 🛒 switching element for keylock-/selector switch 3 positions page 447
- 🛒 front bezel set for keylock switch for flush mounting page 443



	switching action	key removable in	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>keylock switch actuator 3 positions</b> for flush mounting position C: momentary action position A: basic position position B: momentary action standard lock 311 other lock numbers on request	momentary - 0 - momentary	A	<b>61-2501.0/D</b>	7	12	3	0,065
position C: momentary action position A: basic position position B: maintained action standard lock 311 other lock numbers on request	momentary - 0 - maintained	A	<b>61-2801.0/D</b>	10	12	3	0,065
		A+B	<b>61-2804.0/D</b>	10	12	3	0,065
		B	<b>61-2802.0/D</b>	10	12	3	0,065
position C: maintained action position A: basic position position B: momentary action standard lock 311, other lock numbers on request	maintained - 0 - momentary	A	<b>61-2701.0/D</b>	9	12	3	0,065
		C	<b>61-2703.0/D</b>	5	12	3	0,065
		C + A	<b>61-2705.0/D</b>	9	12	3	0,065
position C: maintained action position A: basic position position B: maintained action standard lock 311, other lock numbers on request	maintained - 0 - maintained	A	<b>61-2601.0/D</b>	8	12	3	0,065
		A+B	<b>61-2604.0/D</b>	8	12	3	0,065
		B	<b>61-2602.0/D</b>	8	12	3	0,065
		C	<b>61-2603.0/D</b>	8	12	3	0,065
		C + A	<b>61-2605.0/D</b>	8	12	3	0,065
		C+A+B	<b>61-2607.0/D</b>	8	12	3	0,065
		C+B	<b>61-2606.0/D</b>	8	12	3	0,065

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

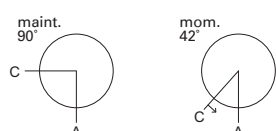
circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462



## selector switch actuator 2 positions for flush mounting



- 🛒 lever for flush mounting page 442
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions page 446
- 🛒 front bezel set for selector switch for flush mounting page 443



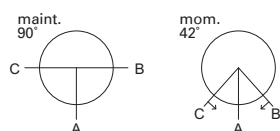
	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>selector switch actuator 2 positions</b> for flush mounting position C: momentary action position A: basic position	M	<b>61-4110.0</b>	12	13	3	0,006
position C: maintained action position A: basic position	MA	<b>61-4210.0</b>	13	13	3	0,006

switching action : momentary action = M, maintained action = MA  
 circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462

## selector switch actuator 3 positions for flush mounting

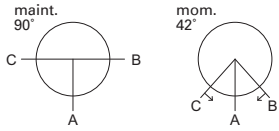


- 🛒 lever for flush mounting page 442
- 🛒 filament lamp page 448
- 🛒 LED page 449
- 🛒 switching element for keylock-/selector switch 3 positions page 447
- 🛒 front bezel set for selector switch for flush mounting page 443



	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>selector switch actuator 3 positions</b> for flush mounting position C: momentary action position A: basic position position B: momentary action	momentary - 0 - momentary	<b>61-4510.0</b>	14	13	3	0,006
position C: momentary action position A: basic position position B: maintained action	momentary - 0 - maintained	<b>61-4810.0</b>	17	13	3	0,006

Continued on next page




	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	
<b>selector switch actuator 3 positions</b> for flush mounting position C: maintained action position A: basic position position B: momentary action	maintained - 0 - momentary	<b>61-4710.0</b>	16	13	3	0,006
position C: maintained action position A: basic position position B: maintained action	maintained - 0 - maintained	<b>61-4610.0</b>	15	13	3	0,006

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

circuit drawings from page 467, technical drawings from page 457, mounting dimensions from page 462


at front

lens plastic matt

	shape	lens/sup- port	colour	⌀ for devices 24 x 24 mm Typ-Nr.	⌀ for devices 18 mm Typ-Nr.	⌀ for devices 18 x 24 mm Typ-Nr.	⌀ for devices 25 mm Typ-Nr.	⌀ for devices 18 x 18 mm Typ-Nr.		
lens plastic matt	flat	transpa- rent/ translu- cent	blue				61-9642.6		0,002	
				61-9351.6	61-9311.6	61-9331.6		61-9321.6	0,001	
			colour- less, clear	61-9351.7	61-9311.7	61-9331.7	61-9642.7	61-9321.7	0,001	
			yellow	61-9351.4	61-9311.4	61-9331.4		61-9321.4	0,001	
							61-9642.4		0,002	
			green	61-9351.5	61-9311.5	61-9331.5		61-9321.5	0,001	
							61-9642.5		0,002	
			orange	61-9351.3	61-9311.3	61-9331.3		61-9321.3	0,001	
					61-9642.3		0,002			
	smoked				61-9642.1		0,002			
		61-9351.1	61-9311.1	61-9331.1		61-9321.1	0,001			
	red	61-9351.2	61-9311.2	61-9331.2		61-9321.2	0,001			
					61-9642.2		0,002			
		concave	transpa- rent/ translu- cent	blue			61-9336.6		61-9326.6	0,001
	colour- less, clear					61-9336.7		61-9326.7	0,001	
yellow					61-9336.4		61-9326.4	0,001		
green					61-9336.5		61-9326.5	0,001		
orange					61-9336.3		61-9326.3	0,001		
		red			61-9336.2		61-9326.2	0,001		
(not for film insert and illumination)	flat	opaque/ translu- cent	grey	61-9251.8	61-9211.8	61-9231.8		61-9221.8	0,001	
			black	61-9251.0	61-9211.0	61-9231.0		61-9221.0	0,001	
	concave	opaque/ translu- cent	grey			61-9236.8		61-9226.8	0,001	
			black			61-9236.0		61-9226.0	0,001	
(not for film insert and LED)	flat	translu- cent/ translu- cent	white	61-9251.9	61-9211.9	61-9231.9		61-9221.9	0,001	
	concave	translu- cent/ translu- cent	white			61-9236.9		61-9226.9	0,001	




lens plastic for flush mounting

	shape	lens/support	colour	⌀ for devices 24 x 30 mm Typ-Nr.	⌀ for devices 25 mm Typ-Nr.	⌀ for devices 24 x 24 mm Typ-Nr.	
lens plastic for flush mounting matt	flat	transparent/trans- lucent	blue	61-9681.6	61-9642.6	61-9671.6	0,001
			colourless, clear	61-9681.7	61-9642.7	61-9671.7	0,001
			yellow	61-9681.4	61-9642.4	61-9671.4	0,001
			green	61-9681.5	61-9642.5	61-9671.5	0,001
			orange	61-9681.3	61-9642.3	61-9671.3	0,001
			smoked	61-9681.1	61-9642.1	61-9671.1	0,001
			red	61-9681.2	61-9642.2	61-9671.2	0,001
matt (not for film insert and illumination)	flat	opaque/translu- cent	grey	61-9781.8		61-9771.8	0,001
			black	61-9781.0		61-9771.0	0,001
matt (not for film insert and LED)	flat	translucent/trans- lucent	white	61-9781.9		61-9771.9	0,001




## lens metal with window

	shape	lens	colour	25 mm dia. Typ-Nr.	
<b>lens metal with window matt</b>	flat	aluminium anodized	natural	<b>61-9841.8A</b>	0,002




## lens metal

	shape	lens	colour	25 mm dia. Typ-Nr.	
<b>lens metal matt</b>	flat	aluminium anodized	blue	<b>61-9841.6</b>	0,002
			yellow	<b>61-9841.4</b>	0,002
			green	<b>61-9841.5</b>	0,002
			natural	<b>61-9841.8</b>	0,002
			red	<b>61-9841.2</b>	0,002
			black	<b>61-9841.0</b>	0,002







## mushroom-head cap

	mushroom	colour	32 mm dia. Typ-Nr.	
<b>mushroom-head cap plastic</b>	opaque	yellow	<b>61-9593.4</b>	0,004
		green	<b>61-9593.5</b>	0,004
		red	<b>61-9593.2</b>	0,004
		black	<b>61-9593.0</b>	0,004



## keylock front bezel

for keylock switch actuator

	 18 x 24 mm Typ-Nr.	 18 x 18 mm Typ-Nr.	18 mm dia. Typ-Nr.	 24 x 24 mm Typ-Nr.	
<b>keylock front bezel for standard mounting</b>	<b>61-9130.0</b>	<b>61-9120.0</b>	<b>61-9110.0</b>	<b>61-9250.0</b>	0,001
<b>for flush mounting</b>	<b>61-9230.0</b>	<b>61-9220.0</b>	<b>61-9210.0</b>		0,001



## lever

	colour	colour of bar	part no.	
<b>lever with marking dot and transparent bar</b>	grey	blue	<b>52-929.60</b>	0,001
		yellow	<b>52-929.40</b>	0,001
		grey	<b>52-929.8</b>	0,001
		green	<b>52-929.50</b>	0,001
		orange	<b>52-929.30</b>	0,001
		red	<b>52-929.20</b>	0,001
		white	<b>52-929.9</b>	0,001
		black	blue	<b>52-928.60</b>
	yellow		<b>52-928.40</b>	0,001
	green		<b>52-928.50</b>	0,001
	orange		<b>52-928.30</b>	0,001
	red		<b>52-928.20</b>	0,001
	black		<b>52-928.0</b>	0,001
	white, translucent		<b>52-928.9</b>	0,001




**lever for flush mounting**

	colour	colour of bar	part no.	
<b>lever for flush mounting</b> with marking dot and transparent bar	grey	blue	<b>61-9029.60</b>	0,001
		yellow	<b>61-9029.40</b>	0,001
		grey	<b>61-9029.8</b>	0,001
		green	<b>61-9029.50</b>	0,001
		orange	<b>61-9029.30</b>	0,001
		red	<b>61-9029.20</b>	0,001
		white	<b>61-9029.9</b>	0,001
	black	blue	<b>61-9028.60</b>	0,001
		yellow	<b>61-9028.40</b>	0,001
		green	<b>61-9028.50</b>	0,001
		orange	<b>61-9028.30</b>	0,001
		red	<b>61-9028.20</b>	0,001
		black	<b>61-9028.0</b>	0,001
		white, opaque	<b>61-9028.9</b>	0,001




**marking plate**

for lens round, 61-9642...

	front shape	marking plate	colour	part no.	
<b>marking plate</b> clear, of plastic, can be hot pressed	round	transparent	clear	<b>61-9707.7</b>	0,001




**legend plate**

	front dimension	part no.	
<b>legend plate</b> adhesive, aluminium anodized, natural, can also be engraved	30 x 42 mm for 22.5 mm dia. mounting hole	<b>704.962.0</b>	0,002
	42 x 42 mm for 22.5 mm dia. mounting hole	<b>704.962.5</b>	0,003




**front bezel**

for selector switch square front

	material	colour	∅ 24 x 24 mm Typ-Nr.	∅ 26 x 26 mm Typ-Nr.	
<b>front bezel</b>	plastic	black	<b>52-950.0</b>	<b>52-952.0</b>	0,001




**front bezel set for indicators and illuminated pushbuttons for flush mounting**

	material	colour	∅ 24 x 30 mm Typ-Nr.	∅ 24 x 24 mm Typ-Nr.	25 mm dia. Typ-Nr.	
<b>front bezel set for indicators and illuminated pushbuttons for flush mounting</b>	aluminium	natural anodized			<b>61-9933.0</b>	0,006
		black anodized			<b>61-9933.1</b>	0,006
	plastic	black	<b>61-9931.0</b>	<b>61-9930.0</b>	<b>61-9933.10</b>	0,008




front bezel set for keylock switch for flush mounting

	material	colour	⌀ 24 x 30 mm Typ-Nr.	⌀ 24 x 24 mm Typ-Nr.	25 mm dia. Typ-Nr.	
front bezel set for keylock switch for flush mounting	aluminium	natural anodized			<b>61-9932.0</b>	0,006
		black anodized			<b>61-9932.1</b>	0,006
	plastic	black	<b>61-9931.0</b>	<b>61-9930.0</b>	<b>61-9932.10</b>	0,008




front bezel set for selector switch for flush mounting

	material	colour	⌀ 24 x 24 mm Typ-Nr.	20 mm dia. Typ-Nr.	
front bezel set for selector switch for flush mounting	aluminium	natural anodized		<b>61-9932.0</b>	0,006
		black anodized		<b>61-9932.1</b>	0,006
	plastic	black	<b>61-9936.0</b>	<b>61-9932.10</b>	0,007



front ring


for actuator 24 mm dia.

	material	colour	part no.	
front ring	aluminium anodized	natural	<b>61-9600.1</b>	0,003
		black	<b>61-9600.0</b>	0,003




protective front membrane cap

for actuator 24 mm dia.

	material	colour	part no.	
protective front membrane cap for front bezel-set	silicone natural	transparent	<b>84-9103.7</b>	0,001
for front bezel set round, for standard fitting	silicone natural	transparent	<b>61-9926.7</b>	0,001



protective cover

	⌀ 18 x 24 mm Typ-Nr.	⌀ 18 x 18 mm Typ-Nr.	⌀ 24 x 24 mm Typ-Nr.	technical drawing	
protective cover hinged, transparent, with means for sealing		<b>51-920</b>		14	0,005
	<b>51-925</b>			15	0,005
			<b>61-9920.0</b>	16	0,006



technical drawings from page 457

**protective cover for flush mounting**

	□ 24 x 30 mm Typ-Nr.	□ 24 x 24 mm Typ-Nr.	25 mm dia. part no. Typ-Nr.	kg
<b>protective cover for flush mounting</b> slide be side, transparent, with means not for sealing			<b>61-9924.0</b>	0,006
hinged, transparent, with means for sealing	<b>61-9922.0</b>	<b>61-9921.0</b>		0,006



**blind plug projecting**

	colour	□ 18 x 24 mm Typ-Nr.	□ 18 x 18 mm Typ-Nr.	18 mm dia. Typ-Nr.	□ 24 x 24 mm Typ-Nr.	mounting dimensions	kg
<b>blind plug projecting</b> for mounting hole 16 mm dia.	black	<b>51-947.0</b>	<b>51-948.0</b>	<b>51-949.0</b>	<b>61-9450.0</b>	1	0,003



mounting dimensions from page 462

**blind plug flat**

	colour	□ 24 x 30 mm Typ-Nr.	□ 24 x 24 mm Typ-Nr.	28 mm dia. Typ-Nr.	mounting dimensions	kg
<b>blind plug flat</b> for mounting hole 21 x 21 mm	black		<b>61-9451.0</b>		3	0,006
for mounting hole 21 x 27 mm	black	<b>61-9452.0</b>			3	0,006
for mounting hole 22.5 mm dia.	black			<b>704.960.7</b>	3	0,006



mounting dimensions from page 462

**master key**

	part no.	kg
<b>master key</b> for lock numbers 311-445	<b>31-989.300</b>	0,006




**spare key**

	part no.	kg
<b>spare key</b> for emergency stop switch with key to release, lock type KABA standard lock 1001, other lock numbers on request	<b>14-987.1001</b>	0,006
for keylock switch, lock type DOM standard lock 311, other lock numbers on request	<b>31-989.311</b>	0,006




## EMC key protection cap

	part no.	
<b>EMC key protection cap</b> plastic black, for lock type DOM	<b>31-985.0</b>	0,005



## at back

## lamp element

	part no.	circuit drawing	
<b>lamp element</b> with soldering terminal	<b>61-8006.02</b>	1	0,005
with screw terminal	<b>61-8006.01</b>	1	0,005



plug-in connection only up to 48 V  
circuit drawings from page 467


## diode element

	number of diodes	part no.	circuit drawing	component layout	
<b>diode element</b> with soldering terminal	1	<b>61-8101.02</b>	20	1	0,007
	2	<b>61-8102.02</b>	21	2	0,008



circuit drawings from page 467, component layouts from page 463

## flasher element

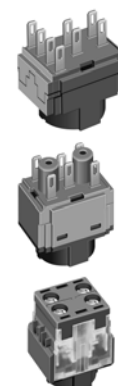
	operation voltage	connection method	part no.	
<b>flasher element</b>	12 VAC/DC - 28 VAC/DC	S	<b>61-8000.05</b>	





switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

	diode (1N 4007)	switching system	contacts	connection method	material of contacts	part no.	circuit drawing	component layout	
switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions with lamp connection, switching capacity min. 50,000 operations at 250 VAC / 5 A cos φ = 0.95	-	SA	1 NO	-	gold/silver	61-8410.22	22	3	0,007
					silver	61-8410.12	22	3	0,007
			1 NC	-	gold/silver	61-8440.22	25	8	0,007
					silver	61-8440.12	25	8	0,007
			1 NC + 1 NO	-	gold/silver	61-8470.22	33	13	0,007
					silver	61-8470.12	33	13	0,007
			1 NC + 2 NO	-	gold/silver	61-8490.22	35	16	0,007
					silver	61-8490.12	35	16	0,007
			2 NO	-	gold/silver	61-8420.22	23	4	0,007
					silver	61-8420.12	23		0,007
			2 NC	-	gold/silver	61-8450.22	27	10	0,007
					silver	61-8450.12	27	10	0,007
			2 NC + 1 NO	-	gold/silver	61-8480.22	34	15	0,007
					silver	61-8480.12	34	15	0,007
			3 NO	-	gold/silver	61-8430.22	24	7	0,007
					silver	61-8430.12	24	7	0,007
			3 NC	-	gold/silver	61-8460.22	32	12	0,007
					silver	61-8460.12	32	12	0,007
T	-	SA	1 NO	-	silver	61-8610.17	22	5	0,008
			1 NC	-	silver	61-8640.17	25	9	0,008
			1 NC + 1 NO	-	silver	61-8670.17	33	14	0,008
			2 NO	-	silver	61-8620.17	23		0,008
			2 NC	-	silver	61-8650.17	27		0,008
2 SA	-	SA	1 NO + 2	-	gold/silver	61-8212.22	36	17	0,007
					silver	61-8212.12	36	17	0,007
with lamp connection, for use for low level switching max. 42 VAC/DC, max. 100 mA	-	T	1 NO	-	gold	61-8610.37	22	5	0,008
			1 NC	-	gold	61-8640.37	25	9	0,008
			1 NC + 1 NO	-	gold	61-8670.37	33	14	0,008
			2 NO	-	gold	61-8620.37	23	6	0,008
			2 NC	-	gold	61-8650.37	27	11	0,008
with lamp terminal, max. 250 VAC/6A	-	T	1 NO	ST	silver	61-8610.11	22	4	0,008
			1 NC	ST	silver	61-8640.11	26		0,008
without lamp connection, switching capacity min. 50,000 alternations at 250 VAC / 6 A cos φ = 0.95	-	T	1 NO	ST	silver	61-8615.11	28		0,008
			1 NC	ST	silver	61-8645.11	26		0,008
			1 NC + 1 NO	ST	silver	61-8675.11	31		0,008
			2 NO	ST	silver	61-8625.11	29		0,008
			2 NC	ST	silver	61-8655.11	30		0,008



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

contacts : 1 normally open = 1 NO, 1 normally closed = 1 NC, normally closed = NC

connection method : soldering-/plug-in terminal = -, screw terminal = ST

We offer a dismantling tool Art. no. 61-9711.0 for the dismantling of the switching element.

circuit drawings from page 467, component layouts from page 463

**switching element for emergency stop switch**

	switching system	contacts	connection method	material of contacts	part no.	circuit drawing	component layout	kg
<b>switching element for emergency stop switch</b> switch rating AC-15 250 VAC / 2 A DC-13 250 VDC / 0.2 A	T	1 NC	ST	silver	<b>61-8745.11</b>	39		0,008
		1 NC + 1 NO	ST	silver	<b>61-8775.11</b>	38		0,008
		2 NC	ST	silver	<b>61-8755.11</b>	37		0,008
switch rating AC-15 250 VAC / 2 A DC-13 250 VDC / 0.15 A	T	1 NC	-	silver	<b>61-8745.17</b>	39	18	0,008
		1 NC + 1 NO	-	silver	<b>61-8775.17</b>	38	20	0,008
		2 NC	-	silver	<b>61-8755.17</b>	37	19	0,008
for use for low level switching max. 42 VAC/DC, max. 100 mA	T	1 NC	-	gold	<b>61-8745.37</b>	39	18	0,008
		1 NC + 1 NO	-	gold	<b>61-8775.37</b>	38	20	0,008
		2 NC	-	gold	<b>61-8755.37</b>	37	19	0,008



switching system : T = slow-make switching element

contacts : NC = normally closed, NO = normally open, 1 NC = 1 normally closed

connection method : ST = screw terminal, - = soldering-/plug-in terminal

General specifications for switching element for emergency button: if not otherwise stated, certified according to EN 60947-5-5

further specifications in the technical data

circuit drawings from page 467, component layouts from page 463

**switching element for keylock-/selector switch 3 positions**

	switching system	contacts	connection method	material of contacts	part no.	circuit drawing	component layout	kg
<b>switching element for keylock-/selector switch 3 positions</b> with lamp connection, switching power min. 50,000 alterna- tions at 250 VAC / 5 A cos $\phi$ = 0.95	SA	1 NC + 1 NO	-	gold/silver	<b>61-8574.22</b>	33	22	0,008
				silver	<b>61-8574.12</b>	33	22	0,008
		2 NO	-	gold/silver	<b>61-8520.22</b>	23	18	0,008
				silver	<b>61-8520.12</b>	23	18	0,008
		2 NC	-	gold/silver	<b>61-8550.22</b>	27	20	0,008
				silver	<b>61-8550.12</b>	27	20	0,008
with lamp connection, for use for low level switching C181max. 42 VAC/DC, max. 100 mA	T	1 NC + 1 NO	-	silver	<b>61-8770.17</b>	33	23	0,008
		2 NO	-	silver	<b>61-8720.17</b>	23	19	0,008
		2 NC	-	silver	<b>61-8750.17</b>	27	21	0,008
without lamp connection, switching power min. 50,000 alterna- tions at 250 VAC / 5 A cos $\phi$ = 0.95	T	1 NC + 1 NO	ST	silver	<b>61-8775.11</b>	33		0,008
		2 NO	ST	silver	<b>61-8725.11</b>	23		0,008
		2 NC	ST	silver	<b>61-8755.11</b>	30		0,008



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

contacts : NC = normally closed, NO = normally open, 1 NC = 1 normally closed

connection method : ST = screw terminal, - = soldering-/plug-in terminal


General specifications for switching element: if not otherwise stated, certified according to EN 61058-1 and EN 60947-5-1

further specifications in the technical data

circuit drawings from page 467, component layouts from page 463

## PCB plug-in base


for plug-in terminal

	for	pin orientation	part no.	component layout	
<b>PCB plug-in base</b> 15 mm x 23 mm x 9.4 mm	slow-make switching element	axial	<b>61-9823</b>	29	0,002
17.7 mm x 23.6 mm x 10.9 mm	snap-action switching element	axial	<b>61-9821.1</b>	28	0,003
13.1 mm dia. x 12.8 mm	indicator complete	axial	<b>61-9820.1</b>	27	0,002




component layouts from page 463

## multi-plug housing

	part no.	
<b>multi-plug housing</b> for snap-action switching element, max. 6 connections possible	<b>61-9830</b>	0,002




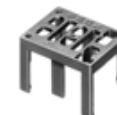
## cable shoe

	connection method	part no.	
<b>cable shoe</b>	plug-in terminal 2.8 x 0.5 mm	<b>31-946</b>	0,001
	plug-in terminal 2.8 x 0.5 mm for multi-plug housing	<b>51-943.1</b>	0,001




## terminal cover

	use	part no.	
<b>terminal cover</b>	for indicator element	<b>61-9831.2</b>	0,001
	for snap-action switching element	<b>61-9830.2</b>	0,002




## for illumination

### Filament lamp

	voltage/current	part no.	
<b>Filament lamp</b> base MG T 1 3/4	6.0 VAC/VDC/125 mA	<b>10-1306.1349</b>	0,001
	6.3 VAC/VDC/200 mA	<b>10-1307.1369</b>	0,001
	12 VAC/VDC/75 mA	<b>10-1309.1309</b>	0,001
	14 VAC/VDC/80 mA	<b>10-1310.1319</b>	0,001
	18 VAC/VDC/40 mA	<b>10-1311.1249</b>	0,001
	24 VAC/VDC/35 mA	<b>10-1312.1229</b>	0,001
	28 VAC/VDC/30 mA	<b>10-1313.1209</b>	0,001
	28 VAC/VDC/40 mA	<b>10-1313.1249</b>	0,001
	36 VAC/VDC/20 mA	<b>10-1316.1179</b>	0,001
	36 VAC/VDC/30 mA	<b>10-1316.1209</b>	0,001
	48 VAC/VDC/20 mA	<b>10-1319.1179</b>	0,001
	48 VAC/VDC/25 mA	<b>10-1319.1199</b>	0,001




**LED**

	number of chips	voltage/current	colour	part no.		
<b>LED</b> base MG T 1 3/4  <b>Note:</b> For optimal illumination we strongly recommend using our new single-chip LEDs.  For new designs, only the new single-chip LEDs should be chosen. They can be found on page 669.	1 chip	24 VDC/14 mA	white	10-2312.3139	0,001	
		28 VDC/14 mA	white	10-2313.3139	0,001	
	6 chips	6 VDC/45 mA	yellow	10-5306.3254	0,001	
			green	10-5306.3255	0,001	
			red	10-5306.3252	0,001	
		12 VDC/30 mA	yellow	10-5309.3204	0,001	
			green	10-5309.3205	0,001	
			red	10-5309.3202	0,001	
		24 VAC/DC/12.5 mA	yellow	10-5312.1114	0,001	
			green	10-5312.1115	0,001	
			red	10-5312.1112	0,001	
		24 VDC/14 mA	yellow	10-5312.3134	0,001	
			green	10-5312.3135	0,001	
			red	10-5312.3132	0,001	
		28 VAC/DC/12.5 mA	yellow	10-5313.1114	0,001	
			green	10-5313.1115	0,001	
			red	10-5313.1112	0,001	
		28 VDC/14 mA	yellow	10-5313.3134	0,001	
			green	10-5313.3135	0,001	
			red	10-5313.3132	0,001	
		48 VDC/12 mA	yellow	10-5319.3104	0,001	
			green	10-5319.3105	0,001	
			red	10-5319.3102	0,001	
		8 chips	6 VDC/48 mA	yellow	10-6306.3264	0,001
				green	10-6306.3265	0,001
				red	10-6306.3262	0,001
	12 VDC/24 mA		yellow	10-6309.3184	0,001	
			green	10-6309.3185	0,001	
			red	10-6309.3182	0,001	
	24 VDC/12 mA		yellow	10-6312.3104	0,001	
green			10-6312.3105	0,001		
red			10-6312.3102	0,001		
28 VDC/12 mA	yellow		10-6313.3104	0,001		
	green		10-6313.3105	0,001		
	red		10-6313.3102	0,001		



**capacitor**


for lamp voltage reduction from 230 VAC (50 Hz) to 48 V

	value	part no.	
<b>capacitor</b> for filament lamp 48 VAC / 20 mA (only usable for this type of lamp!)	0.27 µF	02-917.0	0,004



Please keep to the country specific security rules.

**capacitor**


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



Wire in accordance with local electrical safety regulations.

## terminal plate empty


for fitting with series resistors and capacitors

	no. of spaces	part no.	 kg
terminal plate empty	5 spaces	<b>02-912.1</b>	0,025
	10 spaces	<b>02-912.2</b>	0,045
	15 spaces	<b>02-912.3</b>	0,090
	20 spaces	<b>02-912.4</b>	0,095



## terminal plate with capacitor


for lamp voltage reduction from 230 VAC (50 Hz) to 48 VAC

	value	no. of components	part no.	 kg
terminal plate with capacitor for filament lamp 48 VAC / 20 mA	0.27 $\mu$ F	5 spaces	<b>02-914.10</b>	0,045
		10 spaces	<b>02-914.20</b>	0,090
		15 spaces	<b>02-914.30</b>	0,135
		20 spaces	<b>02-914.40</b>	0,180



## for emergency stop switch

### label for emergency stop switch

	marking	43 mm dia. Typ-Nr.	 kg
label for emergency stop switch 43 mm dia., yellow	ARRET D'URGENCE	<b>61-9970.3</b>	0,002
	Emergency Stop	<b>61-9970.2</b>	0,002
	emergency stop	<b>61-9970.1</b>	0,002
	without marking	<b>61-9970.0</b>	0,002




### protective shroud for emergency stop switch

	part no.	 kg
protective shroud for emergency stop switch Aluminium anodized, yellow varnished	<b>61-9965</b>	



### enclosure for emergency stop switch

	part no.	 kg
enclosure for emergency stop switch with mounting hole size 16 mm dia. colour RAL 1004. dimensions: 65 mm long, 65 mm wide, 57 mm high front protection IP 65	<b>61-9480.4</b>	0,079




### cable gland M16

	part no.	 kg
cable gland M16	<b>61-9481.8</b>	0,005



## assembling


### anti-twisting ring

	part no.	 kg
anti-twisting ring for key- and selector switch	<b>51-910</b>	0,002




## reducing ring

for 16 mm pushbuttons in mounting hole 22.5 mm dia.

	part no.	
<b>reducing ring</b> only for use of front dimension: 24 x 24 mm/24 mm dia.	<b>61-9960</b>	0,003




## tool-set

	part no.	
<b>tool-set</b> consists of lens remover, lamp remover, mounting tool, dismantling tool	<b>K61-999.100</b>	




## lens remover

	use	part no.	
<b>lens remover</b>	for 24 x 24 mm, 25 mm dia. front and overhanging lenses	<b>61-9730.0</b>	0,011
	for standard lenses	<b>02-905</b>	0,011



## lamp/LED remover

	part no.	
<b>lamp/LED remover</b> ATTENTION A switching process might be released when replacing the lamp/LED!	<b>61-9740.0</b>	0,003




## dismantling tool for switching element

	part no.	
<b>dismantling tool for switching element</b>	<b>61-9711.0</b>	0,004



## mounting tool

	part no.	
<b>mounting tool</b> for tightening (or loosening) fixing nuts	<b>01-907</b>	0,020




## cable shoe remover

	part no.	
<b>cable shoe remover</b> for removing the connector from the multi-plug housing	<b>51-943.9</b>	0,001



## dismantling tool

	part no.	
<b>dismantling tool</b> for lens, lens holder and switching element block	<b>51-938</b>	0,027



## actuator with snap-action switching element

### switching system

#### switching system

Self-cleaning, double-break snap-action switching system with contact opening width 2 x 0.5 mm (= switch with small contact opening width as per EN/IEC 61058-1 section 7.1.11!).

The switching elements are optionally equipped with the following switching functions

1 to 3 NO or NC, or any combination of NO and NC, but the number of switching elements cannot exceed 3.

The switching elements provided for the 3-position actuators are equipped with 1 or 2 NC, 1 or 2 NO, or with 1 NO and 1 NC (therefore the number of switching elements cannot exceed 2)

### material

#### lenses

Polymethyl methacrylate (PMMA), polycarbonate (PC) or aluminium (anodized)

#### front bezel

polyetherimide PEI and chromium plated

#### front ring

Aluminium anodized

#### material of contacts

Silver or silver with gold plating

#### switching element

diallyl phthalate (DAP) and polyamide 66 (PA 66)

#### actuator case

Polyether imide (PEI) self-extinguishing

### mechanical characteristics

#### connection method

Solder lugs (cross-section 2.8 x 0.5 mm)  
for connection of wire  $\text{Æ}$  1.5 mm or flex 1.5 mm

These solder lugs may be connected by means of spade terminal sockets 2.8 x 0.5 mm, if switching is operated to a safety low-voltage.

#### actuating torque

with selector or key switches (with snap-action switching elements):  
2.5-10 N cm,  
depending on switching element component

#### actuating force

with pushbuttons (with snap-action switching elements) 2.7-3.6 N,  
depending on switching element component

#### actuating travel

illuminated pushbutton: 3 mm

2-position selector or key switch:  
momentary action design approx. 42°  
maintained action design approx. 90°

3-position selector or key switch:  
momentary action design approx. 2 x 42°  
maintained action design approx. 2 x 90°

switch actuator with 3 positions:

2 x ca. 42° deflection momentary action

2 x ca. 90° deflection maintained action

#### storage temperature

Permitted range of ambient temperature for storage or transport -40°C to +85°C

#### mechanical life

as per IEC 512-5-6

momentary action

2 million cycles of operation

maintained action

1 million cycles of operation

keylock switch

50'000 cycles of operation

selector switch

100'000 cycles of operation

#### rebound time

on closing the contact = 3 ms

on opening the contact = 5 ms

testing based on DIN 41640 Part 85, draft 87 (no valid successor document). The rebound times apply to normal manual activation.

#### resistance to shock

semi-sinusoidal signal impacts with peak acceleration 50 g and surge width 11 ms (tested as per IEC 60068-2-27).

#### degree of protection

(penetration of water or foreign bodies)

actuators front side IP 65

switching elements attached to actuator IP40

(without taking into consideration the contactability of the connections)

#### resistance to vibration

with sinusoidal dynamic load 10 Hz to 58 Hz, amplitude of oscillation 0.75 mm, 58 Hz to 2000 Hz, peak value of the acceleration 10 g (tested as per IEC 60068-2-6).

#### ambient air temperature

-25°C to + 55°C

As "ambient temperature in operation" is firstly the temperature of the air in the interior of the device, secondly the temperature of the air on the front exterior of the device and thirdly the temperature of the operation panel in which the switches are situated

### electrical characteristics

#### rated voltage

250 VAC/VDC

#### rated current

6 A

#### contact resistance

with snap-action switching elements in new state

silver contact: as per IEC 60512-2-4, Test 2b, measured at 10 or 100 mA, 20 V

gold plated contact+C204: as per IEC 60512-2-3, Test 2a, measured at 20 mV, 10 mA = 50 mΩ

#### electrostatic breakdown value

>= 11 KV (keylock switch)

#### continuous thermal current Ith2

5 A

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



## switch rating

of the snap-action switching element with silver contacts or silver contacts with gold plating (as per EN/IEC 60947-5-1)  
service category rated operating voltage (as per EN/IEC 60947-5-1, 4-3.3.1)

rated operating current (as per EN/IEC 60947-5-1, 4.3.2.3)  
AC-15 250 VAC 2 A  
DC-13 125 VDC 0.15 A

Recommended minimum operational data for snap-action switching element with silver contacts  
operating voltage operating current  
20 VAC/VDC 100 mA  
Recommended minimum operational data for snap-action switching element with gold plated silver contacts

switch rating AC, cos.  $\phi$  0.7:  
rated service voltage  
250 VAC 125 VAC 110 VAC  
rated service current  
2 A 3 A 3 A  
switch rating DC, L:R=30 ms:  
rated service voltage:  
220 VDC 110 VDC 60 VDC 24 VDC  
rated service current  
resistive: 0.5 A 0.7 A 2.0 A 6.0 A  
rated service current  
L:R=30ms: 0.15 A 0.3 A 0.7 A 2.0 A

**protection class**  
II

**electric strength**  
as per VDE 0630 (IEC 512-2-11)  
2500 VAC, 50 Hz, 1 min between all terminals and earth

## rules

**rules**  
IEC 1058 EN 61 058

## approvals

**approvals**  
- CE (declaration of conformity)  
- CSA 300 VAC  
- ENEC  
- UL  
- German Lloyd  
- CB  
- VDE

## actuator with slow-make switching element

## switching system

**switching system**  
double-break slow-make system, contact opening width 2 x 1.5 mm, with 2 x 2 contact points per switching element .  
NC - contact elements in the slow-make elements fulfill requirements of switches with forced opening as per EN/IEC 60947-5-1, section  
The slow-make elements are optionally obtainable with the following switching functions:  
1 or 2 NO or NC, or 1 NO and 1 NC.

## material

**lenses**  
polymethyl methacrylate (PMMA), polycarbonate (PC) or aluminium

**front bezel**  
made of polyether imide PEI

**front ring**  
Aluminium anodized

**material of contacts**  
silver, gold (specified for operation for low level switching)

slow-make elements with gold contacts do not have certification documents.

**switching element**  
diallyl phthalate (DAP) and polyamide 66 (PA 66)

**actuator case**  
polyetherimide PEI, self-extinguishing

## mechanical characteristics

**connection method**  
solder lugs (cross-section 2.8 x 0.5 mm)  
for max. 2 individual wires with 1 mm  
These solder lugs may be connected by means of spade terminal sockets 2.8 x 0.5 mm, if switching is operated to a safety low-voltage.

screw terminals  
for flex 1 mm  
or for single wire  $\varnothing$  1.2 mm

**actuating torque**  
with selector or key switches 4-16 N cm depending on the switching element component

**actuating force**  
with pushbuttons (with slow-make elements) 3.5-11 N depending on the switching element component  
with emergency button max. 65 N

**actuating travel**  
illuminated pushbutton: 3 mm

2-position selector or key switch  
momentary design approx. 42°  
maintained design approx. 90°

3-position selector or key switch  
momentary action design approx. 2 x 42°  
maintained action design approx. 2 x 90°

emergency buttons 10 mm  
switch actuator with 3 positions:  
2 x ca. 42° deflection momentary action  
2 x ca. 90° deflection maintained action

**storage temperature**  
-40°C +85°C permitted range of ambient temperature for storage or transport

## ambient air temperature

-25°C to +55°C As "ambient temperature in operation" is firstly the temperature of the air in the interior of the device, secondly the temperature of the air on the front exterior of the device and thirdly (as per DIN IEC 68-)

## mechanical life

as per IEC 512-5-6

momentary action	2 million cycles of operation
maintained action	1 million cycles of operation
keylock switch	50'000 cycles of operation
selector switch	100'000 cycles of operation
emergency stop switch	50'000 cycles of operation

## rebound time

on closing the contact = 2 ms  
on opening the contact = 2 ms  
testing based on DIN 41640 Part 85, draft 87 (no valid successor document) The rebound times apply to normal manual activation.

## resistance to shock

semi-sinusoidal signal impacts with peak acceleration 50 g and surge width 11 ms (tested as per IEC 60068-2-27)

## degree of protection

(penetration of water or foreign bodies)  
actuators front side IP 65  
switching elements attached to actuator IP40  
(without taking into consideration the contactability of the connections)

## resistance to vibration

with sinusoidal dynamic load 10 Hz to 58 Hz, amplitude of oscillation 0.75 mm, 58 Hz to 2000 Hz, peak value of the acceleration 10 g (tested as per IEC 60068-2-6)

## degree of pollution

3

## electrical characteristics

### rated voltage

rated insulation voltage  $U_i$  (as per EN/IEC 60947-5-1, 4.3.1.2) 320 VAC  
rated operating voltage  $U_e$  (as per EN/IEC 60947-5-1, 4.3.3.1) = 250 VAC/VDC

### rated current

6 A

### contact resistance

starting value (initial) for:  
gold-/silver contact  $\leq 50 \text{ m}\Omega$  as per IEC 512-2-test 4  
silver contact  $\leq 100 \text{ m}\Omega$  as per IEC 512-2-test 5

### electrostatic breakdown value

$\geq 11 \text{ KV}$  (keylock switch)

### electrical life

switching element of emergency stop switch 6050 cycles of operation

### continuous thermal current $I_{th2}$

(as per EN/IEC 60947-5-1, 4.3.2.1)  
slow-make element with soldering terminal and silver contacts 5 A  
slow-make element with screw terminal and silver contacts 6 A

### max. permissible rated current

max. series fuse to be provided 10 A gL

## switch rating

with silver contacts & soldering terminal (as per EN/IEC 60947-5-1)  
service category rated operating voltage rated operating current (as per EN/IEC 60947-5-1, 4.3.3.1) (as per EN/IEC 60947-5-1, 4.3.2.3)

AC-15	250 VAC	2 A
DC-13	250 VDC	0.1

with silver contacts and screw terminal (as per EN/IEC 60947-5-1)  
service category rated operating voltage rated operating current (as per EN/IEC 60947-5-1, 4.3.3.1) (as per EN/IEC 60947-5-1, 4.3.2.3)

AC-15	250 VAC	2 A
DC-13	250 VDC	

## recommended minimum operational data for slow-make elements with silver contacts

operating voltage operating current  
20 VAC/VDC 100 mA

## volume resistivity for slow-make elements with silver contacts (new state)

as per IEC 60512-2-4, Test 2b, at 10 or 100 mA, 20 V = 50 m $\Omega$

## electrical characteristic values of slow-make elements with gold contacts

Slow-make elements with gold contacts do not have certification documents. They are specified for operation for low switching volumes.

**rated insulation voltage**  $U_i$  (as per EN/IEC 60947-5-1, 4.3.1.2) 320VAC

**rated operating voltage**  $U_e$  (as per EN/IEC 60947-5-1, 4.3.3.1) 50 VAC/VDC

## conventional thermal current

$I_{th}$

## recommended operational data in control switching

for slow-make element with gold contacts  
operating voltage operating current  
5 VDC 10-20 mA  
12 VDC 5-10 mA  
24 VDC 3-5 mA

## recommended minimum operational data for slow-make element with gold contacts

operating voltage 10 mVAC/mVDC  
operating current 2 mA

## volume resistivity in new state (slow-make element with gold contacts)

gold contact ("low-level contact") as per EN/IEC 60512-2-3, Test 2a, at 20 mV, 10 mA = 20 m $\Omega$

## protection class

II

0.2 A

## electric strength

as per VDE 0630 (IEC 512-2-11)  
4000 VAC, 50 Hz, 1 between all terminals and earth

## over voltage category

III

## rules

### rules

IEC 947-5-1 EN 60 947

## approvals

### approvals

- CE (declaration of conformity)
- CSA 300 VAC
- ENEC
- UL
- German Lloyd
- CB
- VDE

## actuator with flasher element

## material

### lenses

polymethylmethacrylat PMMA, polycarbonate PC

### actuator case

polyetherimide PEI, self-extinguishing

## mechanical characteristics

### connection method

soldering terminal 2.8 x 0.8 mm

### ambient air temperature

0°C to + 45°C

(as per DIN IEC 68-)

## electrical characteristics

### illumination

incandescent lamp:

14 V, 80 mA or 28 V, 40 mA

Multi-LED:

12 V, 25 mA or 24 V, 12.5 mA

### flashing frequency

1 Hz ± 0.25 Hz

### making cycle

1:1

### operating voltage

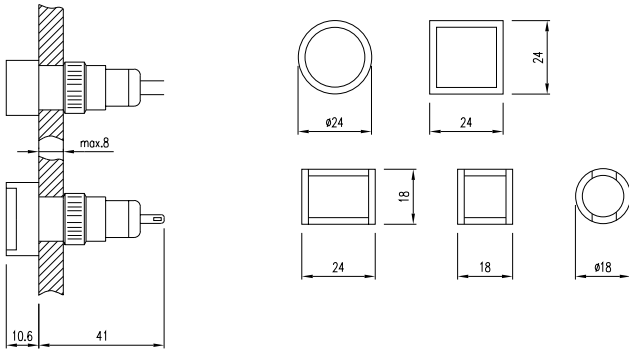
AC or DC

12 - 10% or 28 V + 10%

## technical drawings

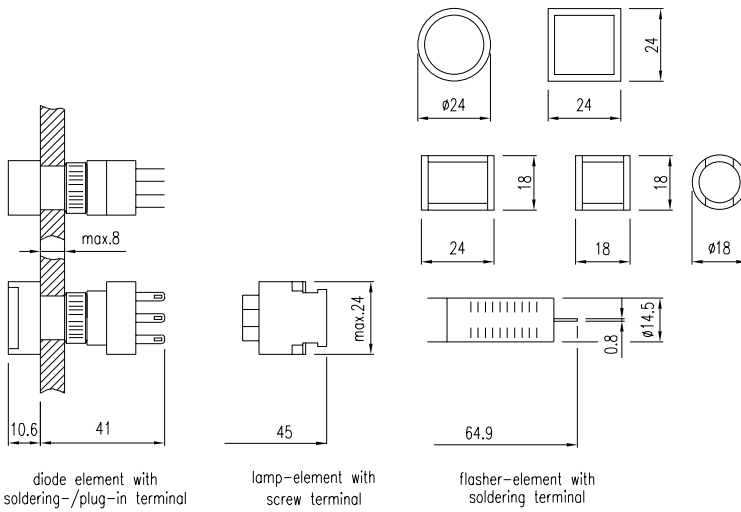
### 1 indicator complete

page 427



### 2 indicator actuator

page 427



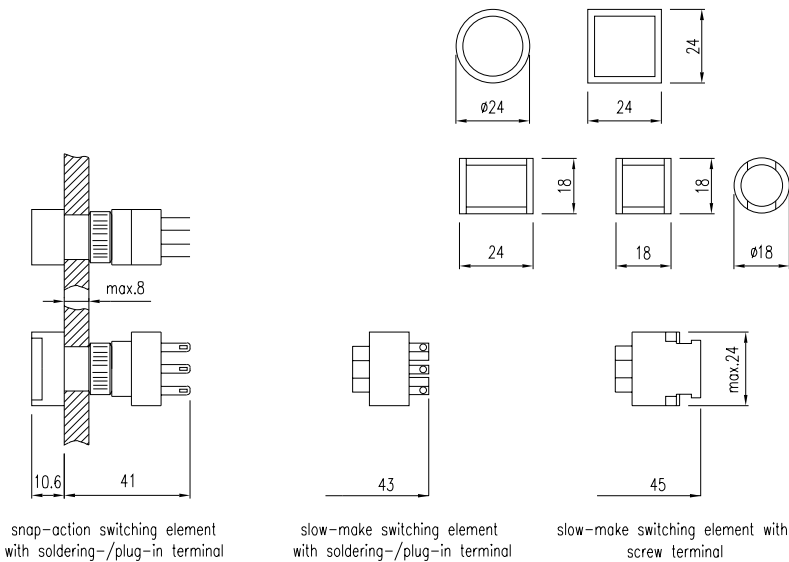
diode element with soldering-/plug-in terminal

lamp-element with screw terminal

flasher-element with soldering terminal

### 3 illuminated-/pushbutton actuator

page 428



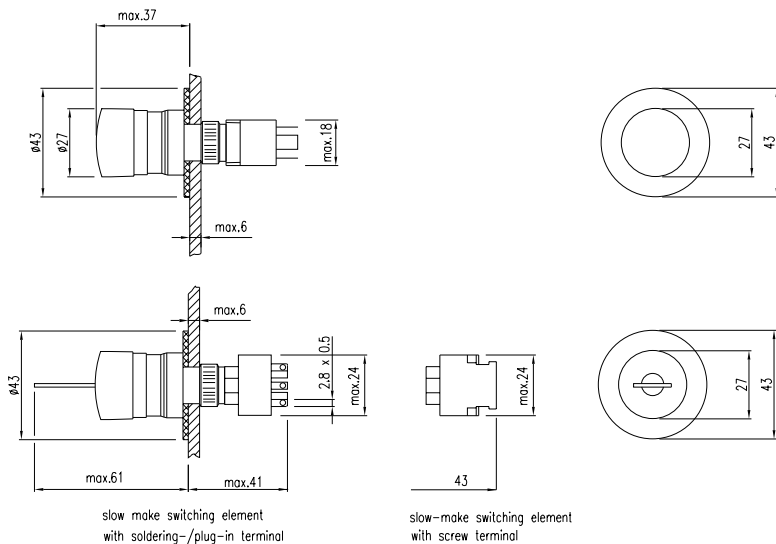
snap-action switching element with soldering-/plug-in terminal

slow-make switching element with soldering-/plug-in terminal

slow-make switching element with screw terminal

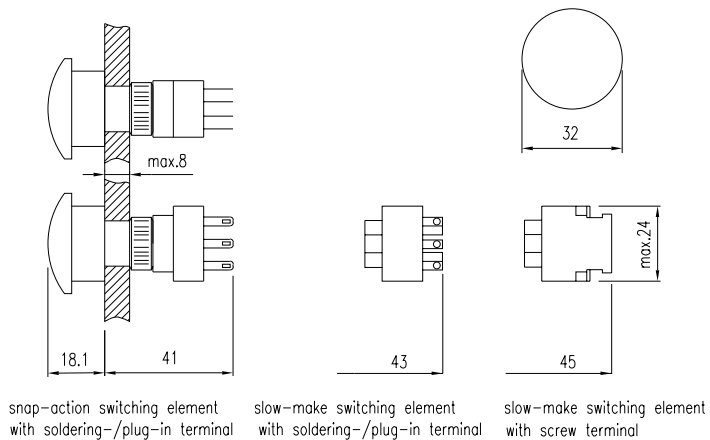
## 4 emergency stop switch actuator foolproof, EN IEC 60947-5-5

page 429



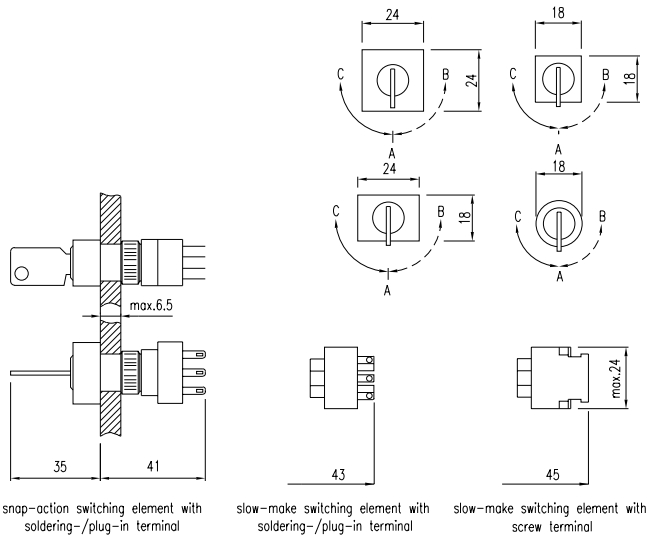
## 5 pushbutton actuator with mushroom-head cap

page 429



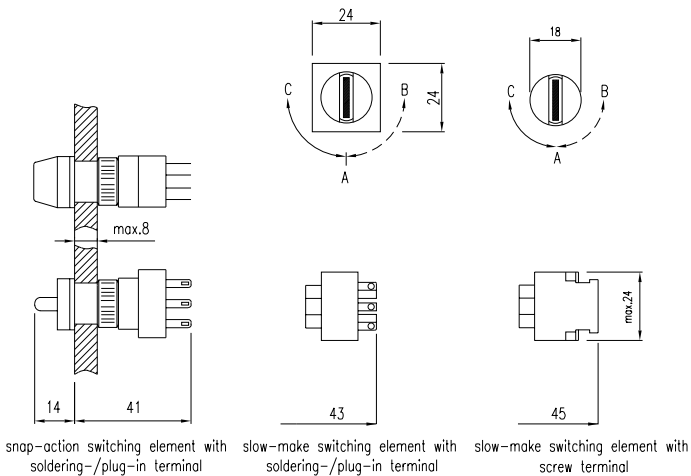
## 6 keylock switch actuator 2 positions, keylock switch actuator 3 positions

page 430, 431



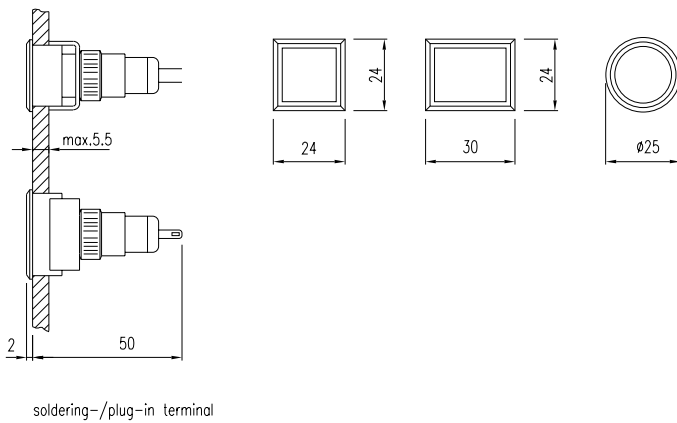
## 7 selector switch actuator 2 positions, selector switch actuator 3 positions

page 432, 433



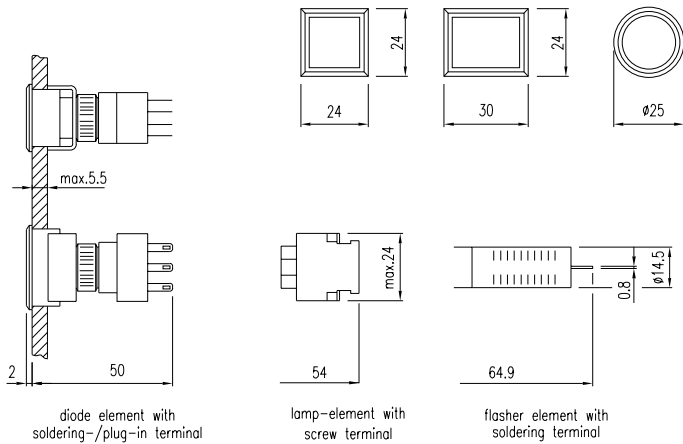
## 8 indicator complete for flush mounting

page 434



## 9 indicator actuator for flush mounting

page 434



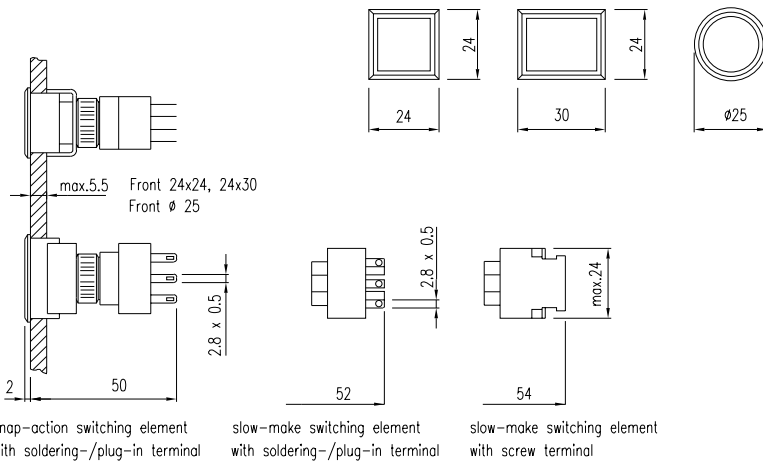
diode element with soldering-/plug-in terminal

lamp-element with screw terminal

flasher element with soldering terminal

## 10 illuminated-/pushbutton actuator for flush mounting

page 435



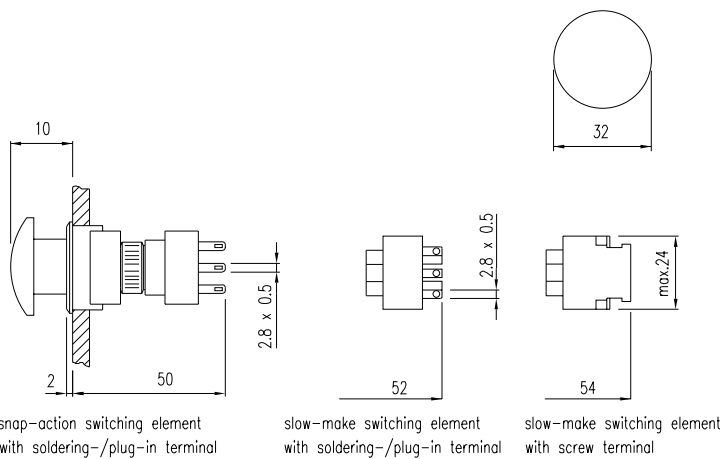
snap-action switching element with soldering-/plug-in terminal

slow-make switching element with soldering-/plug-in terminal

slow-make switching element with screw terminal

## 11 pushbutton actuator with mushroom-head cap

page 435

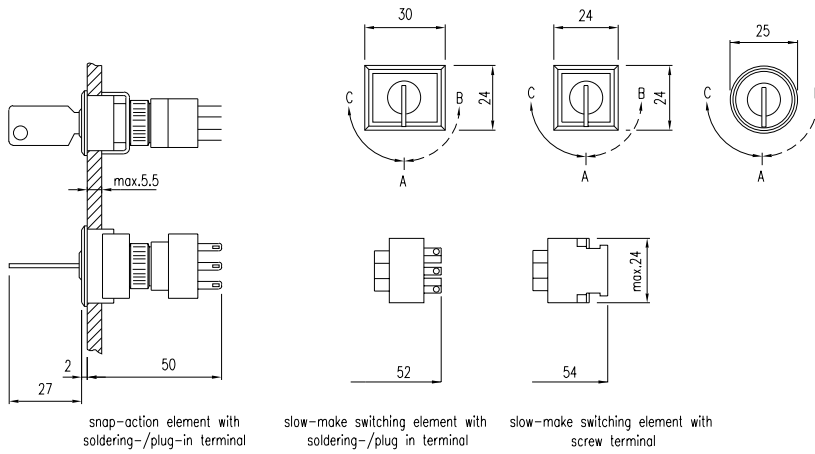


snap-action switching element with soldering-/plug-in terminal

slow-make switching element with soldering-/plug-in terminal

slow-make switching element with screw terminal

**12 keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting**  
page 436, 437

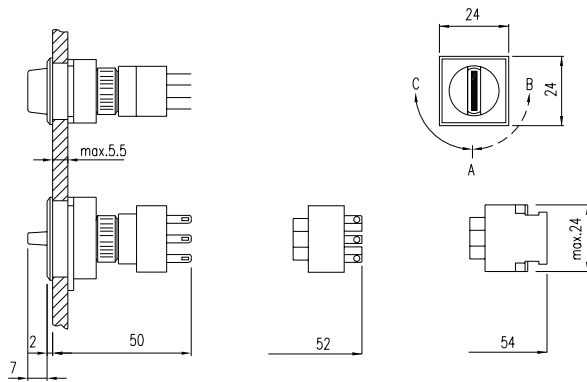


snap-action element with soldering-/plug-in terminal

slow-make switching element with soldering-/plug in terminal

slow-make switching element with screw terminal

**13 selector switch actuator 2 positions for flush mounting, selector switch actuator 3 positions for flush mounting**  
page 438, 438

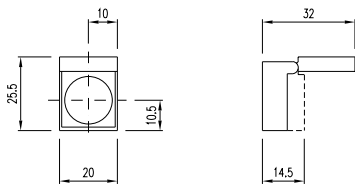


snap-action switching element with soldering-/plug-in element

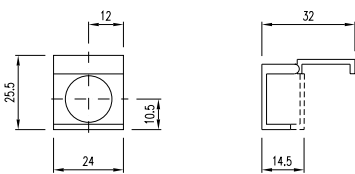
slow-make switching element with soldering-/plug-in terminal

slow-make switching element with screw terminal

**14 protective cover**  
page 443

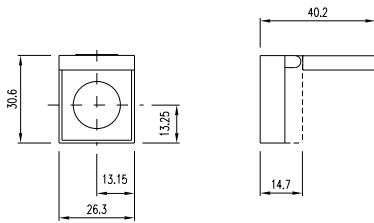


**15 protective cover**  
page 443



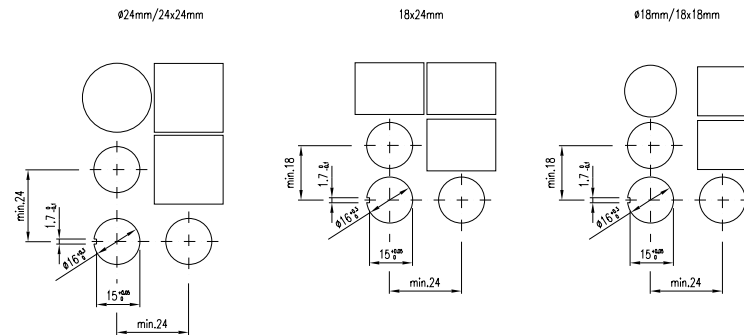


## 16 protective cover page 443

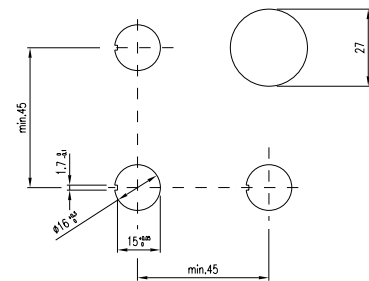


### mounting dimensions

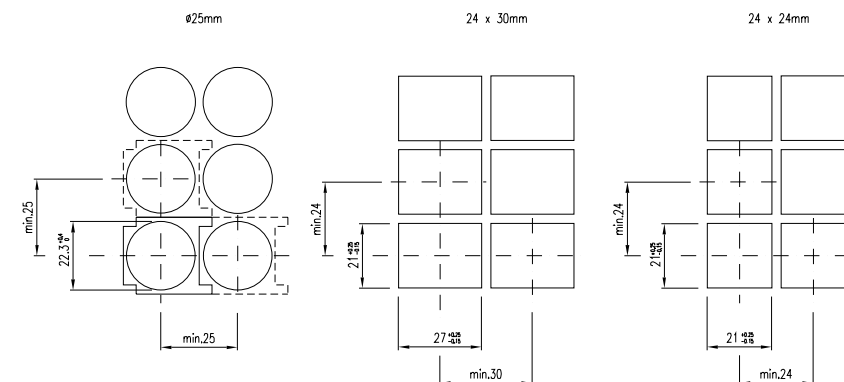
1 indicator complete, indicator actuator, illuminated-/pushbutton actuator, keylock switch actuator 2 positions, keylock switch actuator 3 positions, selector switch actuator 2 positions, selector switch actuator 3 positions, blind plug projecting  
page 427, 427, 428, 430, 431, 432, 433, 444



2 emergency stop switch actuator foolproof, EN IEC 60947-5-5, pushbutton actuator with mushroom-head cap  
page 429, 429

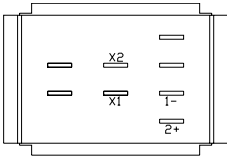


3 indicator complete for flush mounting, indicator actuator for flush mounting, illuminated-/pushbutton actuator for flush mounting, keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting, selector switch actuator 2 positions for flush mounting, selector switch actuator 3 positions for flush mounting, blind plug flat  
page 434, 434, 435, 436, 437, 438, 438, 444

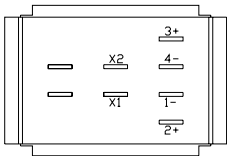


## component layouts

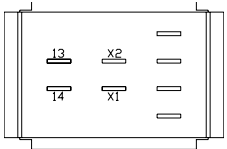
**1 diode element**  
page 445



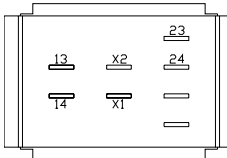
**2 diode element**  
page 445



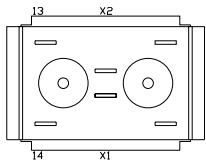
**3 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



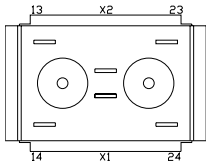
**4 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



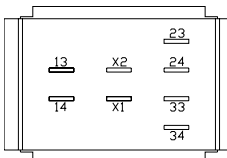
**5 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



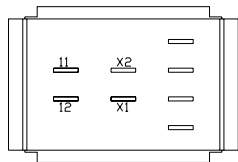
**6 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



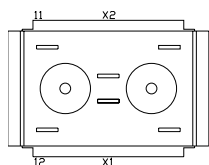
**7 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



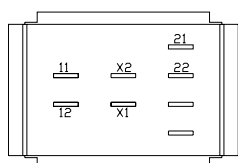
**8 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



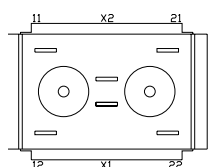
**9 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



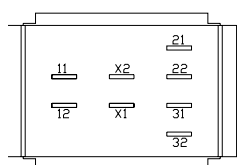
**10 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



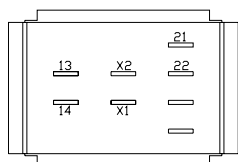
**11 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



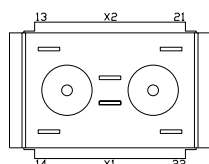
**12 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



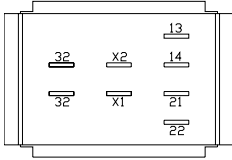
**13 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



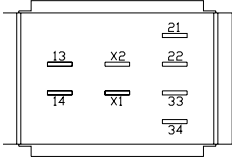
**14 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



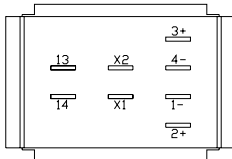
**15 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



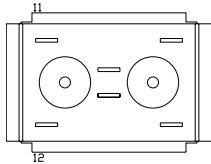
**16 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



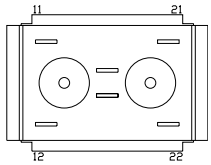
**17 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**  
page 446



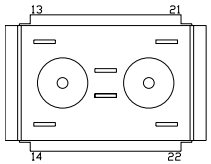
**18 switching element for emergency stop switch**  
page 447



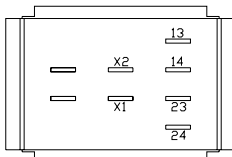
**19 switching element for emergency stop switch**  
page 447



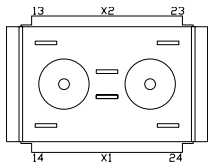
**20 switching element for emergency stop switch**  
page 447



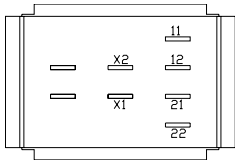
**21 switching element for keylock-/selector switch 3 positions**  
page 447



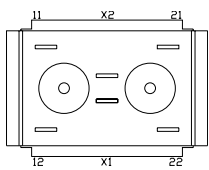
**22 switching element for keylock-/selector switch 3 positions**  
page 447



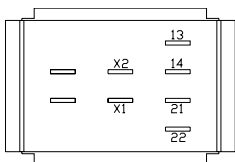
**23 switching element for keylock-/selector switch 3 positions**  
page 447



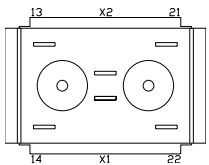
**24 switching element for keylock-/selector switch 3 positions**  
page 447



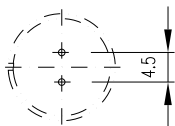
**25 switching element for keylock-/selector switch 3 positions**  
page 447



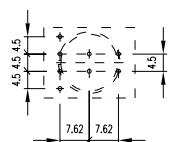
**26 switching element for keylock-/selector switch 3 positions**  
page 447



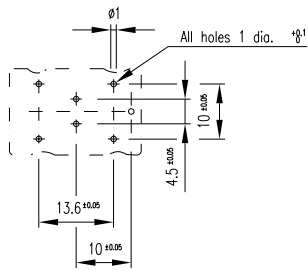
**27 PCB plug-in base**  
page 448



**28 PCB plug-in base**  
page 448



## 29 PCB plug-in base page 448



### Note:

More information about the PCB-Software can be found at [www.pcad.com/en/library](http://www.pcad.com/en/library).

## circuit drawings

**1 indicator complete, indicator actuator, indicator complete for flush mounting, indicator actuator for flush mounting, lamp element**  
427, 427, 434, 434, 445

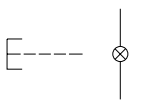
x1-



x2+

**2 illuminated-/pushbutton actuator, pushbutton actuator with mushroom-head cap**  
page 428, 429

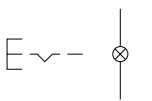
x1-



x2+

**3 illuminated-/pushbutton actuator, pushbutton actuator with mushroom-head cap**  
page 428, 429

x1-



x2+

**4 emergency stop switch actuator foolproof, EN IEC 60947-5-5**  
page 429



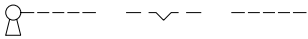
**5 keylock switch actuator 2 positions, keylock switch actuator with 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting**  
page 430, 436, 437



**6 keylock switch actuator 2 positions, keylock switch actuator with 2 positions for flush mounting**  
page 430, 436



**7 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting**  
page 431, 437



**8 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting**  
page 431, 437



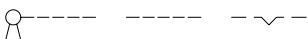
**9 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting**  
page 431, 437



**10 keylock switch actuator 3 positions, keylock switch actuator 3 positions for flush mounting**  
page 431, 437



**11 keylock switch actuator 3 positions**  
431



**12 selector switch actuator 2 positions, selector switch actuator 2 positions for flush mounting**  
page 432, 438



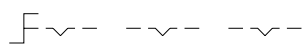
**13 selector switch actuator 2 positions, selector switch actuator 2 positions for flush mounting**  
page 432, 438



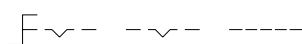
**14 selector switch actuator 3 positions, selector switch actuator 3 positions for flush mounting**  
page 433, 438



**15 selector switch actuator 3 positions, selector switch actuator 3 positions for flush mounting**  
page 433, 438,



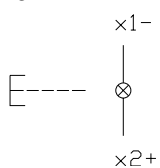
**16 selector switch actuator 3 positions, selector switch actuator 3 positions for flush mounting**  
page 433, 438



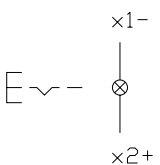
**17 selector switch actuator 3 positions, selector switch actuator 3 positions for flush mounting**  
page 433, 438



**18 illuminated-/pushbutton actuator for flush mounting**  
page 435



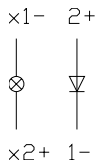
**19 illuminated-/pushbutton actuator for flush mounting**  
page 435





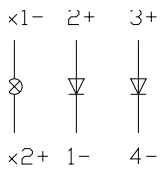
## 20 diode element

page 445



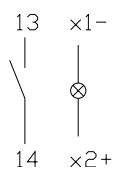
## 21 diode element

page 445



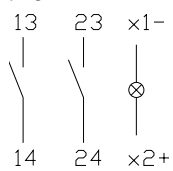
## 22 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



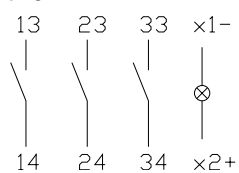
## 23 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions, switching element for keylock-/selector switch 3 positions

page 446, 447



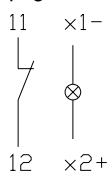
## 24 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



## 25 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



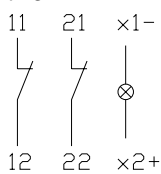
## 26 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



**27 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions, switching element for keylock-/selector switch 3 positions**

page 446, 447



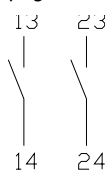
**28 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**

page 446



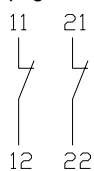
**29 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**

page 446



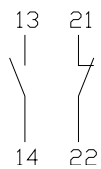
**30 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions, switching element for keylock-/selector switch 3 positions**

page 446, 447



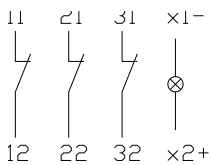
**31 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**

page 446



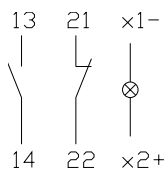
**32 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions**

page 446



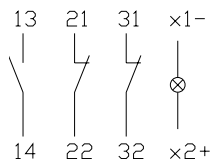
**33 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions, switching element for keylock-/selector switch 3 positions**

page 446, 447,



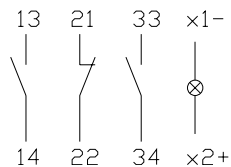
### 34 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



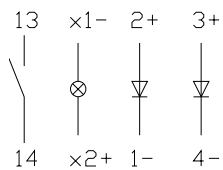
### 35 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



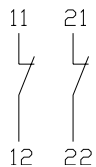
### 36 switching element for illuminated-/pushbutton, keylock-/selector switch 2 positions

page 446



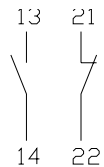
### 37 switching element for emergency stop switch

page 447



### 38 switching element for emergency stop switch

page 447



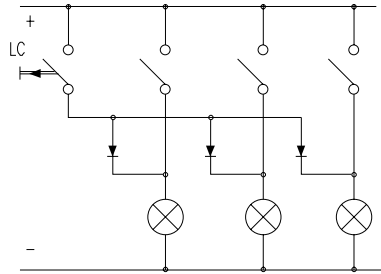
### 39 switching element for emergency stop switch

page 447

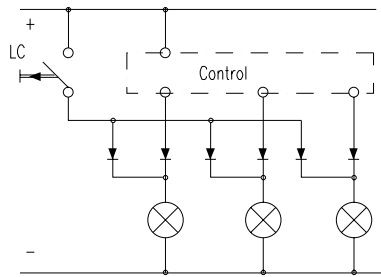


With indicators and illuminated pushbuttons equipped with diodes, the user is able to perform a lamp check or wire an alarm circuit simply with a considerable saving of space.

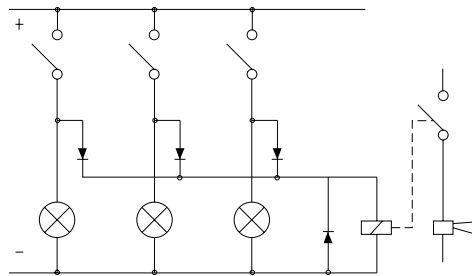
lamp check



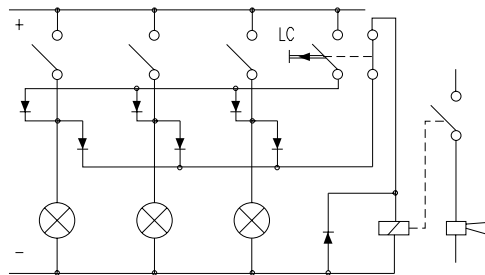
lamp check with blocking diodes



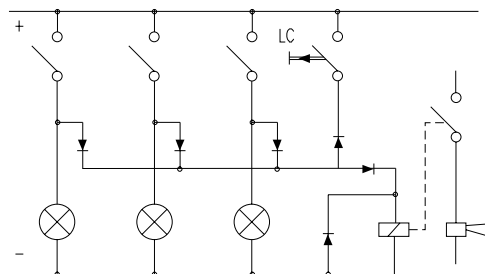
alarm circuit from fault  
annunciating system



lamp check and alarm circuit

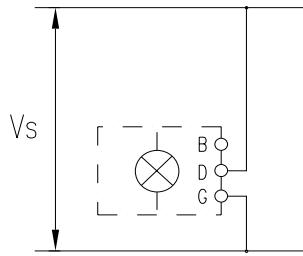


lamp check and alarm circuit with  
only one diode and AC voltage



LC = lamp check

## Flasher element



1. Continuous light

## 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

Specify whether engraving should be on the diffuser, or on the lens.  
Specify the infill colour, character height and the text or symbol orientation.

### Symbols

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

## 2. Hot stamping

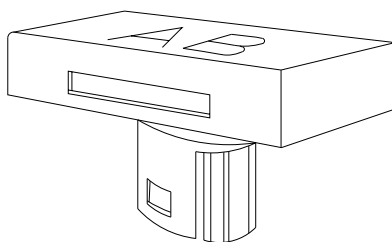
For large batches it is worth while to have the lettering produced by hot stamping.

### Typefaces

For letters and figures, typefaces with 2,5 mm, 3 mm and 4 mm are available.

### Symbols

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



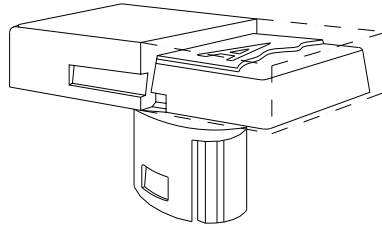
### Important!

Before engraving, check the position of the illuminated pushbutton or indicator

Height of letters mm	(switch) lens Thickness of letters mm	(18 x 24) 15,3 x 21,5 mm						(Ø 18) Ø 15,8 mm			(18 x 18) 15,3 x 15,3 mm		
		Horizontal mounting			Vertical mounting			Number of lines	Number of letters per line	Number of letters per line	Number of lines	Number of letters per line	Number of letters per line
h	s	Number of lines	Number of letters per line	Number of letters per line	Number of lines	Number of letters per line	Number of letters per line						
2,5	0,4	4	11	12	5	7-8	8	3	6	6	4	7-8	8
3	0,4	3	9-10	10-11	4	6-7	7	2	5	6	3	6-7	7
4	0,5	2	7	7-8	3	4-5	5	2	3	4	2	4-5	5
5	0,5	2	5-6	6	2	3-4	4	1	2	3	2	3-4	4
6	0,6	1	4-5	5	2	3	3-4	1	2	2	1	3	3-4
8	0,6	1	3-4	3-4	1	2-3	2-3	1	2	2	1	2-3	2-3
<b>Film dimension</b>		□ max. 12,7 x 18,7 mm						Ø 12,8 mm			□ 12,7 x 12,7 mm		

### 3. Film inserts

Instead of using engraving, the lenses can be fitted with transparent film inserts. For this purpose, though, it is advisable to use transparent lenses. When a smoked lens is used, the lettering does not become visible until the lamp lights.



#### Film dimensions

16,9x16,9 mm  
11,9x11,9 mm  
max 11,9x18,0 mm

#### Film thickness

0.2 mm

#### Important!

Before engraving, check the position of the illuminated pushbutton or indicator.

		(switch) Ø 25 Marking plate for lens 19,7 mm dia.			(24 x 24 mm) 20 x 20 mm			(24 x 30 mm) 18 x 24 mm					(24 x 24) 18 x 18 mm			
Height of letters	Thickness of letters	Number of lines	Number of letters per line		Number of lines	Number of letters per line		Number of lines	Number of letters per line		Number of lines	Number of letters per line		Number of lines	Number of letters per line	
			(caps)	(small)		(caps)	(small)		(caps)	(small)		(caps)	(small)		(caps)	(small)
h	s															
2,5	0,4	3	6	6	4	9	10	4	12	13	5	8-9	9	4	8-9	9
3	0,4	2	5	6	3	7-8	9	3	10-11	11-12	4	7-8	8	3	7-8	8
4	0,5	2	3	4	2	4-5	5	2	7	8	3	4-5	5	2	4-5	5
5	0,5	1	2	3	2	4	4-5	2	5-6	6	2	4	4-5	2	4	4-5
6	0,6	1	2	3	1	4	4	1	4-5	5	2	3	3-4	1	4	4
8	0,6	1	2	2	1	2	2	1	3-4	3-4	1	2-3	2-3	1	2-3	2-3
<b>Film dimension</b>					□ 16,9 x 16,9 mm			□ 15,1 x 21 mm					□ 15,1 x 15,1 mm			

	<b>EAO AG</b> Tannwaldstrasse 88 4601 Olten, Switzerland
<b>E-mail</b>	info@eao.com
<b>Website</b>	www.eao.com
	<b>Belgium</b>
Phone	+32/2 456 00 10
E-mail	sales.ebl@eao.com
	<b>China</b>
Phone	+852/27 86 91 41
E-mail	sales.ehk@eao.com.hk
	<b>France</b>
Phone	+33/1 64 43 37 37
E-mail	sales.es@eao.com
	<b>Germany</b>
Phone	+49/201 85 87 0
E-mail	sales.ede@eao.com
	<b>Japan</b>
Phone	+81/3 5401 0953
E-mail	sales.esj@eao.com
	<b>Netherlands</b>
Phone	+31/78 653 17 00
E-mail	sales.enl@eao.com
	<b>Sweden</b>
Phone	+46/8 683 86 60
E-mail	sales.esw@eao.com
	<b>Switzerland</b>
Phone	+41/62 388 95 00
E-mail	sales.ech@eao.com
	<b>United Kingdom</b>
Phone	+44/1444 236000
E-mail	sales.euk@eao.com
	<b>USA</b>
Phone	+1/203 877 4577
E-mail	sales.eus@eao.com
	<b>Other Countries</b>
Fax	+41/62 296 21 62
E-mail	info@eao.com
Website	www.eao.com



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Industrial Panel Mount Indicators / Switch Indicators](#) category:*

*Click to view products by [EAO](#) manufacturer:*

Other Similar products are found below :

[LW1A-P1-GD](#) [LW1A-P1-W](#) [01-931.3](#) [01-152.025](#) [73.362.4028.0](#) [750-1520](#) [9001OA120](#) [A0142N5](#) [A3DT-500Y](#) [AL6M-LK3-R](#) [AL6M-P7P-A](#) [AOLQW-2B0600](#) [AP1M255-A](#) [APD106LN-G](#) [APD106LN-S](#) [APN1126-G](#) [APS122DN-W](#) [ASLWLD-G](#) [ASLWLD-R](#) [ATN2100](#) [AYLW4L-A](#) [18-237.035](#) [18-945](#) [HW1A-L1-GD](#) [HW1A-P2-GL](#) [HW1X-BM411-R](#) [HW2A-L1-GL](#) [HWAZ1N-OB](#) [PA2100/2](#) [PA2200/1](#) [PA2SHIELD](#) [PAMR25](#) [LA3P-1C03V-Y](#) [96-923.5](#) [A0244J2](#) [LSPD-120A](#) [LSPD-1Y](#) [LSPD-6A](#) [LSPD-6DA](#) [LSPD-6DW](#) [LSPD-6DY](#) [LSPD-6R](#) [LSPD-6W](#) [18-946](#) [AL6H-LK3-A](#) [AL6H-P4-JW](#) [AL6M-LK1-MG](#) [AP8M155-G](#) [APD106LN-W](#) [APN106L-O](#)