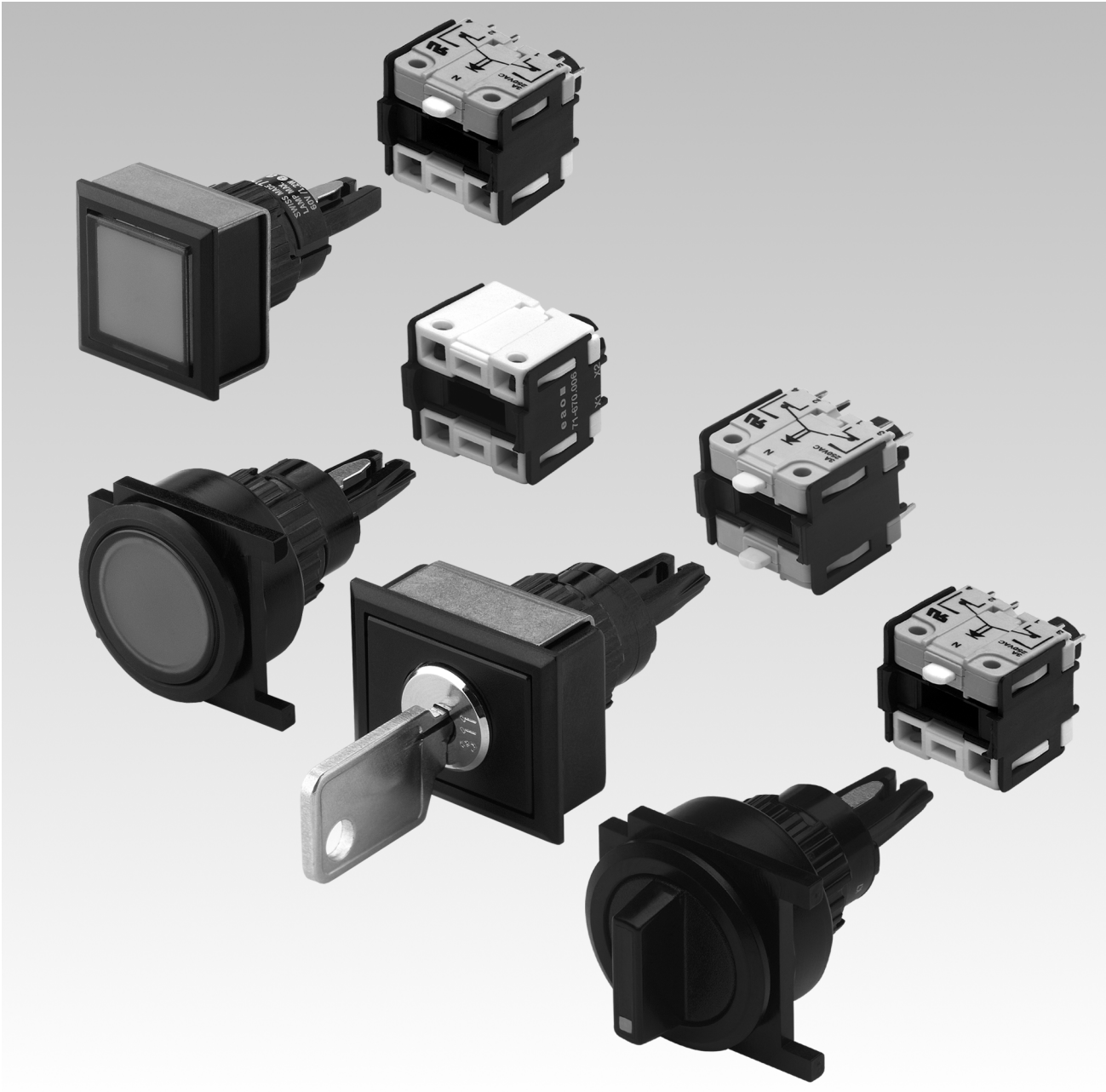


EAO Product Information

Series 71



Index

Series 71

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General Info

The system switch 71 is a pushbutton system of modular design, which is especially suited for the assembly of input units. It consists of a lens, front module, actuator and switching element. It has 5 decisive advantages:

Attractive front design

Various attractively designed low profile actuators guarantee ergonomic and user-friendly operation.

A multitude of combinations

Due to a clever modular assembly system - based on PCB technology - with a standard print layout this new system component tops almost anything in flexibility.

Compact operation unit

The extremely small dimensions of the switching elements and the use of PCB's give you a broad scope of benefits where space is a premium.

Efficient manufacture

The new print adaptable switching unit can be directly soldered to the PCB without the aid of additional mechanical or electrical mounting components. This means reduced production costs, reduction of wiring errors and bad contacts.

A clever way of mounting

Front module and PCB module can be simply assembled and disassembled without tools due to the interlocking pin mechanism.

Mounting procedure

All actuators are plugged into the mounting cut-out from the front via a front module. It is then fixed into place from the back with the mounting clip and the locking nut. The max. torque on the locking nut is limited to 50 Ncm.

The switching element can be pre-mounted on the PCB and later connected to the actuator by insertion of the position legs and securing with the interlocking pin mechanism. Additional adjusting or spacers are not required.

Lenses

The flat, transparent lenses are available in various colours. The round version is also available in alu.

Illumination

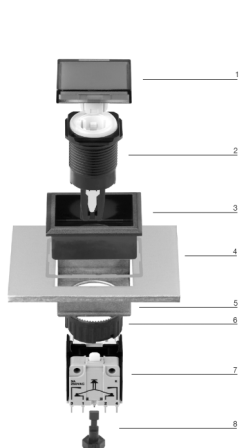
A homogeneous illumination of the various by coloured lenses or rotation knob is achieved by the light source with the Midget grooved T 1 3/4 fixture, in the form of a lamp or multi chip LED available in various colours.

Switching element

The self-cleaning, double-break snap-action system (contact opening 2 x 0,6 mm) is available as changeover (1 NO or 1 NC) contact. The switching elements can be supplied with 1 or 2 contact elements.

*All dimensions in mm.
We reserve the right to modify technical data.*

illuminated-/pushbutton actuator for flush mounting



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

indicator actuator for flush mounting



- 🛒 lens plastic for flush mounting page 501
- 🛒 front bezel set for indicators and illuminated pushbuttons for flush mounting page 502
- 🛒 filament lamp page 505
- 🛒 LED page 505
- 🛒 indicator element page 504

	part no.	circuit drawing	technical drawing	mounting dimensions	component layout	
indicator actuator for flush mounting	71-600.0	1	1	1	1	0,005

circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

pushbutton-/illuminated pushbutton actuator for flush mounting



- 🛒 lens plastic for flush mounting page 501
- 🛒 lens metal page 501
- 🛒 front bezel set for indicators and illuminated pushbuttons for flush mounting page 502
- 🛒 filament lamp page 505
- 🛒 LED page 505
- 🛒 switching element for illuminated-/pushbutton and mushroom-head pushbutton page 504

	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	component layout	
pushbutton-/illuminated pushbutton actuator for flush mounting	M	71-611.0	2	1	1	1	0,005
	MA	71-612.0	3	1	1	1	0,005

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

circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

pushbutton actuator with mushroom-head cap for flush mounting



- mushroom-head cap page 501
- front bezel set for indicators and illuminated pushbuttons for flush mounting page 502
- switching element for illuminated-/pushbutton and mushroom-head pushbutton page 504

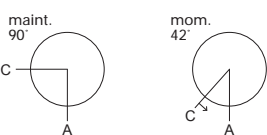
	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	component layout	
pushbutton actuator with mushroom-head cap for flush mounting	M	71-611.0	4	1	1	1	0,006
	MA	71-612.0	5	1	1	1	0,006

switching action : momentary action = M, maintained action = MA
circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

keylock switch actuator 2 positions for flush mounting



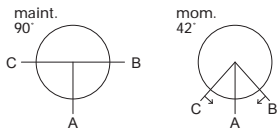
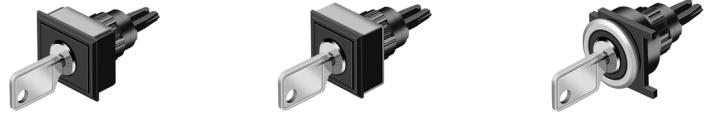
- keylock front bezel page 502
- front bezel set for keylock switch for flush mounting page 502
- switching element for keylock- and selector switch 2 positions page 504



	switching action	key removable in	part no.	circuit drawing	technical drawing	mounting dimensions	component layout	
keylock switch actuator 2 positions for flush mounting position A: basic position	M	A	71-621.0/D	6	2	1	1	0,003
	MA	A	71-622.0/D	7	2	1	1	0,003
		A+C	71-624.0/D	7	2	1	1	0,003
		C	71-623.0/D	7	2	1	1	0,003

switching action : momentary action = M, maintained action = MA
circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

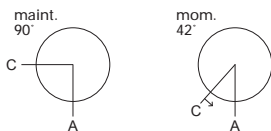
- 🛒 keylock front bezel page 502
- 🛒 front bezel set for keylock switch for flush mounting page 502
- 🛒 switching element for keylock- and selector switch 3 positions page 504



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<div>keylock switch actuator 3 positions for flush mounting</div> <div>position A: basic position</div>	momentary - 0 - momentary	A	71-631.0/D	8	2	1	1	0,003
	momentary - 0 - maintained	A	71-638.0/D	11	2	1	1	0,003
		A+B	71-639.0/D	11	2	1	1	0,003
	maintained - 0 - momentary	A	71-636.0/D	10	2	1	1	0,003
		A/C	71-637.0/D	10	2	1	1	0,003
	maintained - 0 - maintained	A	71-632.0/D	9	2	1	1	0,003
		A+B+C	71-635.0/D	9	2	1	1	0,003
		B+C	71-634.0/D	9	2	1	1	0,003
C		71-633.0/D	9	2	1	1	0,003	

circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

- 🔧 lever for flush mounting page 502
- 🔧 front bezel set for selector switch for flush mounting page 503
- 🔧 incandescent lamp page 505
- 🔧 LED page 505
- 🔧 switching element for keylock- and selector switch 2 positions page 504

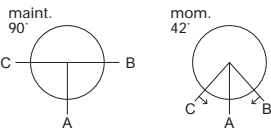
[illegible]

circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

selector switch actuator 3 positions for flush mounting



- 🛒 lever for flush mounting page 502
- 🛒 front bezel set for selector switch for flush mounting page 503
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	switching action	part no.	circuit drawing	technical drawing	mounting dimensions	component layout	
selector switch actuator 3 positions for flush mounting position A: basic position	momentary - 0 - momentary	71-651.0	14	3	1	1	0,003
	momentary - 0 - maintained	71-658.0	17	3	1	1	0,003
	maintained - 0 - momentary	71-656.0	16	3	1	1	0,003
	maintained - 0 - maintained	71-652.0	15	3	1	1	0,003

switching action: momentary action = M, maintained action = MA
circuit drawings from page 510, technical drawings from page 508, mounting dimensions from page 509, component layouts from page 509

at front

lens plastic for flush mounting

	shape	lens/support	colour	for devices 24 x 30 mm Typ-Nr.	for devices 25 mm dia. Typ-Nr.	for devices 24 x 24 mm Typ-Nr.	kg
lens plastic for flush moun- ting matt	flat	transparent/ translucent	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		61-9642.1		0,001
			red	61-9681.2	61-9642.2	61-9671.2	0,001
matt (not for film insert and illumination)	flat	opaque/trans- lucent	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/ translucent	white	61-9781.9		61-9771.9	0,001



marking plate

for lens round, 61-9642...

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



lens metal with window

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



lens metal

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



mushroom-head cap

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



keylock front bezel

	material	colour	18 x 24 mm Typ-Nr.	18 x 18 mm Typ-Nr.	18 mm dia. Typ-Nr.	
keylock front bezel	plastic	black	61-9230.0	61-9220.0	61-9210.0	0,002



lever for flush mounting

	colour	colour of bar	part no.	
lever for flush mounting with marking dot and transparent bar	grey	blue	61-9029.60	0,001
		yellow	61-9029.40	0,001
		grey	61-9029.8	0,001
		green	61-9029.50	0,001
		orange	61-9029.30	0,001
		red	61-9029.20	0,001
		white	61-9029.9	0,001
	black	blue	61-9028.60	0,001
		yellow	61-9028.40	0,001
		green	61-9028.50	0,001
		orange	61-9028.30	0,001
		red	61-9028.20	0,001
		black	61-9028.0	0,001
		white, translucent	61-9028.9	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.	
front bezel set for indicators and illuminated pushbuttons for flush mounting	aluminium	natural anodized			61-9933.0	0,006
		black anodized			61-9933.1	0,006
	plastic	black	61-9931.0	61-9930.0	61-9933.10	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			61-9932.0	0,006
		black anodized			61-9932.1	0,006
	plastic	black	61-9931.0	61-9930.0	61-9932.10	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		61-9932.0	0,006
		black anodized		61-9932.1	0,006
	plastic	black	61-9936.0	61-9932.10	0,007






protective front membrane cap for front bezel-set round for flush mounting

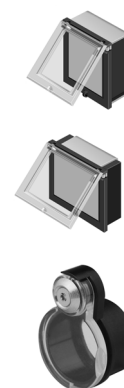
for IP 67, protection for aggravated environmental conditions

	material	colour	Typ-Nr.	
protective front membrane cap for front bezel-set round for flush mounting	silicone natural	transparent	84-9103.7	0,001



protective cover for flush mounting

	 24 x 30 mm Typ-Nr.	 24 x 24 mm Typ-Nr.	25 mm dia. Typ-Nr.	
protective cover for flush mounting			61-9924.0	0,006
hinged, transparent, with means for sealing	61-9922.0	61-9921.0		0,006




blind plug

	colour	 24 x 30 mm Typ-Nr.	 24 x 24 mm Typ-Nr.	28 mm dia. Typ-Nr.	
blind plug	black	61-9452.0	61-9451.0	704-960.7	0,006



EMC key protection cap

	part no.	
EMC key protection cap plastic, black	31-985.0	0,001




spare key

	part no.	
spare key for standard lock 311, other lock numbers on request	31-989.311	0,006



master key

	part no.	
master key for lock numbers 311-445	31-989.300	0,006



at back

indicator element

incl. locking pin


	part no.	circuit drawing	component layout	
indicator element	71-670.006	1	1	0,005

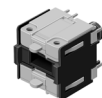


circuit drawings from page 510, component layouts from page 509

switching element for illuminated-/pushbutton and mushroom-head pushbutton

incl. locking pin


	contacts	part no.	circuit drawing	component layout	
switching element for illuminated-/pushbutton and mushroom-head pushbutton	1 NC + 1 NO	71-671.026	18	1	0,005
	2 NC + 2 NO	71-672.026	19	1	0,005

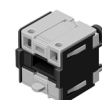


circuit drawings from page 510, component layouts from page 509

switching element for keylock- and selector switch 2 positions

incl. locking pin


	contacts	part no.	circuit drawing	component layout	
switching element for keylock- and selector switch 2 positions	1 NC + 1 NO	71-671.026	18	1	0,005

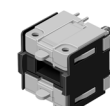


circuit drawings from page 510, component layouts from page 509

switching element for keylock- and selector switch 3 positions


incl. locking pin

	contacts	part no.	circuit drawing	
switching element for keylock- and selector switch 3 positions	2 NC + 2 NO	71-672.026	19	0,005



circuit drawings from page 510


interlocking pin

	part no.	
interlocking pin	71-679.0	0,001




for illumination

Filament lamp

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




LED

	number of chips	voltage/current	colour	part no.	
LED base MG T 1 3/4 Note: For optimal illumination we strongly recommend using our new single-chip LEDs. For new designs, only the new single-chip LEDs should be chosen. They can be found on page 669.	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




assembling

lens remover

	part no.	 kg
lens remover	61-9730.0	0,011



lamp/LED remover


	part no.	 kg
lamp/LED remover	61-9740.0	0,003

CAUTION

A switching process might be released when replacing the lamp/LED!



mounting tool

	part no.	 kg
mounting tool	01-907	0,020



system switch 71

mechanical characteristics

actuating torque

measured on the rotation knob of the selector / keylock switch 2.5 - 10 Ncm, depending on the number of contact elements

actuating force

measured on the lens of the illuminated pushbutton
2 - 3 N, depending on the number of contact elements

actuating travel

illuminated pushbutton 3 mm

key-/selector switch 2 positions

deflection momentary 1 x approx. 42°

deflection maintained 1 x approx. 90°

key-/selector switch 3 positions

deflection momentary 2 x approx. 42°

deflection maintained 2 x approx. 90°

resistance to climate

according to IEC 68-2-3

storage temperature

-40°C to + 85°C

(as per DIN IEC 68-)

resistance to heat of soldering

manual with soldering iron: 300°C / 10 sec

avoid flux deposits on contacts

by sucking off flux

flow soldering: 260°C / 5 sec

mechanical life

illuminated pushbutton 2 million cycles

keylock switch 50'000 cycles

selector switch 100'000 cycles

rebound time

< 1 ms

resistance to shock

according to IEC 68-2-29 und 27

Eb 6-250-3000/3

Ea 18-300-18/3

degree of protection

indicators, illuminated pushbuttons, keylock switches and selector switches, front IP 65

Switching element IP 40 (flux protection according to DIN 41640 section 84)

resistance to vibration

according IEC 68-2-6

Ec 10/500-0.35/50-30/3

ambient air temperature

-25°C to + 55°C

(as per DIN IEC 68-)

electrical characteristics

contact resistance

value as new < 50 mΩ

insulation resistance

$\geq 10^{12} \Omega$

switch rating

min. 5 VAC / 10 mA

max. 250 VAC / 3 A

AC-Operation $\cos \phi$ 0.7 250 VAC / 3 A

DC-Operation 250 VDC / 0.5 A

24 VDC / 3 A

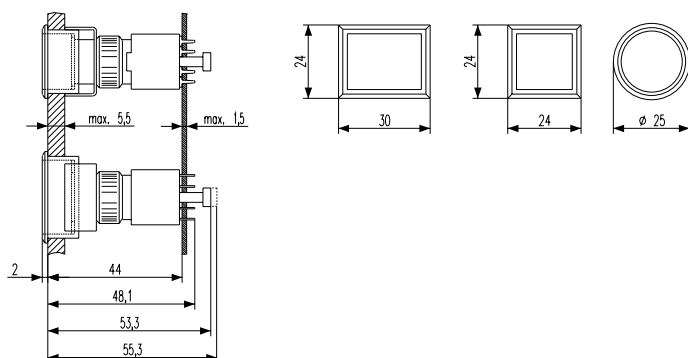
electric strength

2500 VAC, 50 Hz, 1 min. between all terminals and earth

technical drawings

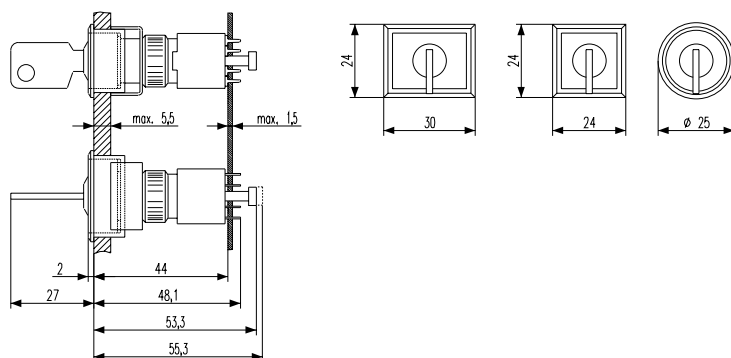
1 indicator actuator for flush mounting, pushbutton-/illuminated pushbutton actuator for flush mounting, pushbutton actuator with mushroom-head cap for flush mounting

page 497, 497, 498



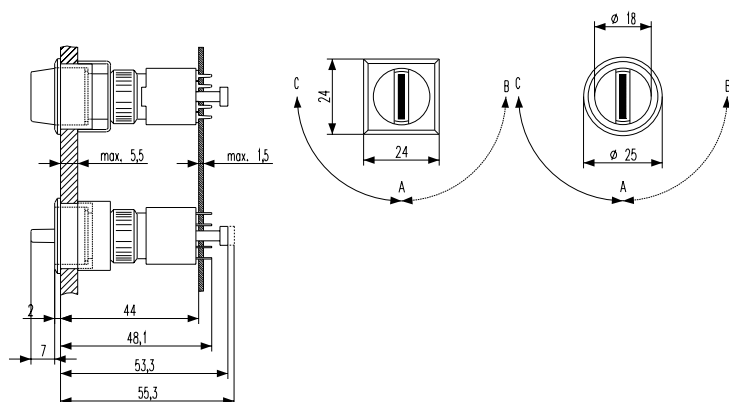
2 keylock switch actuator 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting

page 498, 499



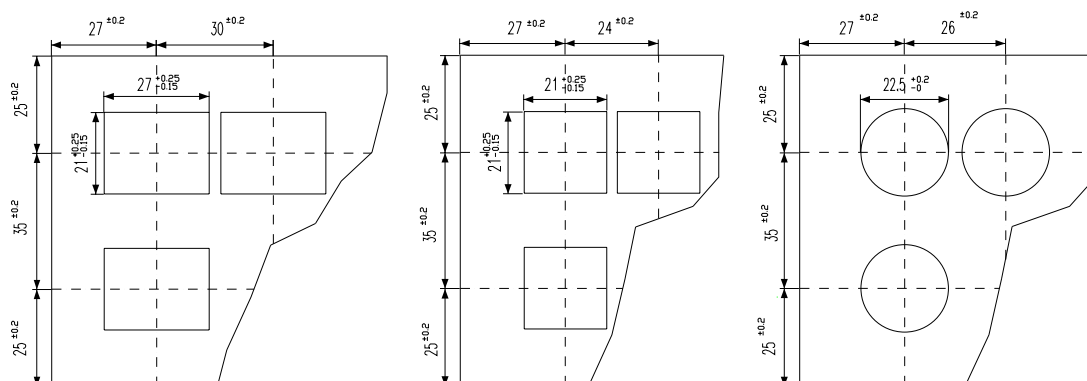
3 selector switch actuator 2 positions for flush mounting, selector switch actuator 3 positions for flush mounting

page 499, 500



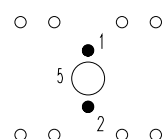
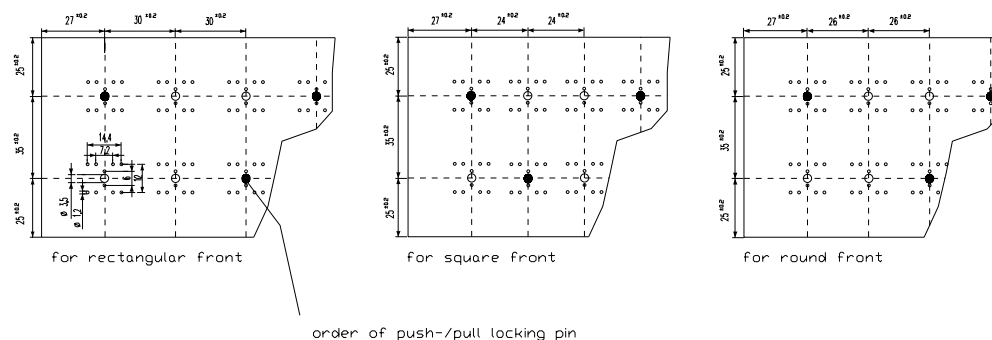
mounting dimensions

1 indicator actuator for flush mounting, pushbutton-/illuminated pushbutton actuator for flush mounting, pushbutton actuator with mushroom-head cap for flush mounting, keylock switch actuator 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
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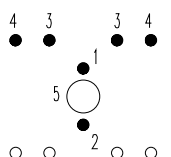


component layouts

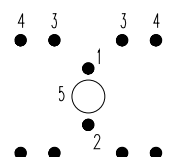
1 indicator actuator for flush mounting, pushbutton-/illuminated pushbutton actuator for flush mounting, pushbutton actuator with mushroom-head cap for flush mounting, keylock switch actuator 2 positions for flush mounting, keylock switch actuator 3 positions for flush mounting, selector switch actuator 2 positions for flush mounting, selector switch actuator 3 positions for flush mounting, indicator element, switching element for illuminated-/pushbutton and mushroom-head pushbutton, switching element for keylock- and selector switch 2 positions
page 497, 497, 498, 498, 499, 499, 504, 504, 504



indicator element
part no. 71-680.006



switching element
part no. 71-681.026



switching element
part no. 71-682.026

1. lamp cathod (-)
2. lamp anode (+)
3. contact (normally opened)
4. contact (normally closed)
5. push-/pull-locking pin

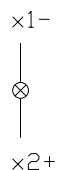
Note:

More information about the PCB-Software can be found at www.pcad.com/en/library.

circuit drawings

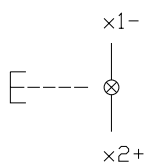
1 indicator actuator for flush mounting, indicator element

page 497, 504



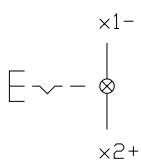
2 pushbutton-/illuminated pushbutton actuator for flush mounting

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3 pushbutton-/illuminated pushbutton actuator for flush mounting

page 497



4 pushbutton actuator with mushroom-head cap for flush mounting

page 498



5 pushbutton actuator with mushroom-head cap for flush mounting

page 498



6 keylock switch actuator 2 positions for flush mounting

page 498

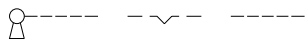


7 keylock switch actuator 2 positions for flush mounting

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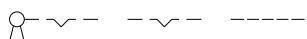
8 keylock switch actuator 3 positions for flush mounting
page 499



9 keylock switch actuator 3 positions for flush mounting
page 499



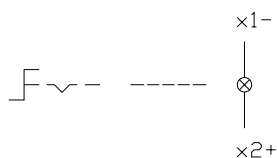
10 keylock switch actuator 3 positions for flush mounting
page 499



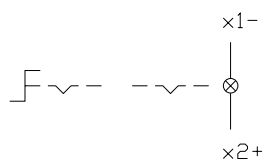
11 keylock switch actuator 3 positions for flush mounting
page 499



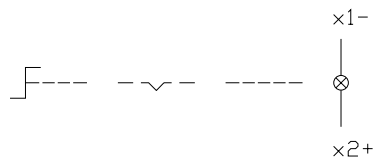
12 selector switch actuator 2 positions for flush mounting
page 499



13 selector switch actuator 2 positions for flush mounting
page 499

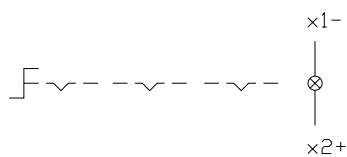


14 selector switch actuator 3 positions for flush mounting
page 500



15 selector switch actuator 3 positions for flush mounting

page 500



16 selector switch actuator 3 positions for flush mounting

page 500



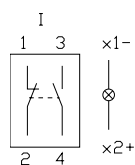
17 selector switch actuator 3 positions for flush mounting

page 500



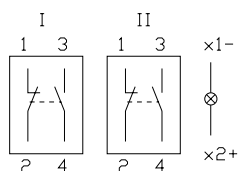
18 switching element for illuminated-/pushbutton and mushroom-head pushbutton, switching element for keylock- and selector switch 2 positions

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19 switching element for illuminated-/pushbutton and mushroom-head pushbutton, switching element for keylock- and selector switch 3 positions

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