Series 04

Versatile. Robust and reliable.

https://eao.com/04

04 Information about the Series

Key advantages

- Versatile and reliable range of products
- Ideal for driver's cabs
- Modern and robust design
- Safe and ergonomically friendly in use
- Pronounced tactile feedback
- Customised and standardised markings

Typical application areas

- Driver's desks
- Control panels
- Control cabinets
- Special vehicles
- Machinery

Functions

- Pushbutton
- Illuminated pushbutton
- Mushroom-head pushbutton
- Selector switch
- Keylock switch
- Key insert switch
- Lever switch
- Indicator
- Potentiometer
- Stop switch
- Emergency stop switch

Design

- Flush
- Raised

IP front protection

- IP40
- IP54
- IP65
- IP67

Raitings

- 500 VAC (10 A)

Mounting cut-outs

- Ø 22.3 mm
- Ø 30.5 mm
- 30 mm x 30 mm

Terminal

- Plug-in terminal
- Double plug-in terminal
- Screw terminal
- Push-in terminal (PIT)

Lens Material

- Aluminium
- Stainless steel
- Plastic

Markings

- Engraving
- Hot stamping
- Pad printing
- Screen print
- Under eloxal printing

Approvals

- CB (IEC 60947)
- CCC
- CSA
- DNV GL (previously Germanischer Lloyd)
- GOST
- NFF 16-102
- UL

Conformities

- CE
- EN 45545
- ECE R 118
- 2006/42/EU (MD)
- 2011/65/EU (RoHS)
- REACH

Lens plastic raised

Lens material	Lens colour	Lens optics	Lens shape	Lens illumination	Dimensions	Part No.
Plastic	Red	transparent	flush	illuminative	Ø 23,7 mm	704.611.2
	Yellow	transparent	flush	illuminative	Ø 23,7 mm	704.611.4
	Green	transparent	flush	illuminative	Ø 23,7 mm	704.611.5
	Blue	transparent	flush	illuminative	Ø 23,7 mm	704.611.6
	Colourless	transparent	flush	illuminative	Ø 23,7 mm	704.611.7

Additional information

- To obtain IP67, use marking plate Part Nr. 704.610.X

Lens plastic square

Lens material	Lens colour	Lens optics	Lens shape	Lens illumination	Dimensions	Part No.
Plastic	Black	opaque	flush	non illuminative	24,4 mm x 24,4 mm	704.702.0
	White	opaque	flush	non illuminative	24,4 mm x 24,4 mm	704.702.9
	Red	transparent	flush	illuminative	24,4 mm x 24,4 mm	704.702.2
	Yellow	transparent	flush	illuminative	24,4 mm x 24,4 mm	704.702.4
	Green	transparent	flush	illuminative	24,4 mm x 24,4 mm	704.702.5
	Blue	transparent	flush	illuminative	24,4 mm x 24,4 mm	704.702.6
	Colourless	transparent	flush	illuminative	24,4 mm x 24,4 mm	704.702.7

Lens metal round spot round

Lens material	Lens colour	Lens optics	Lens shape	Lens illumination	Dimensions	Part No.
Aluminium	Black	opaque	flush	illuminative	Ø 23,7 mm	704.601.01
	Red	opaque	flush	illuminative	Ø 23,7 mm	704.601.21
	Gold	opaque	flush	illuminative	Ø 23,7 mm	704.601.41
	Olive green	opaque	flush	illuminative	Ø 23,7 mm	704.601.51
	Blue	opaque	flush	illuminative	Ø 23,7 mm	704.601.61
	Nature	opaque	flush	illuminative	Ø 23,7 mm	704.601.81
Stainless steel	Nature	opaque	flush	illuminative	Ø 23,7 mm	704.601.91
	Nature	opaque	flush	illuminative	Ø 23,7 mm	704.601.101

Additional information

- The colour of anodised aluminium parts can vary due to technical production reasons
- To obtain IP65, it is necessary to use marking plate Part No.. 704.609.X

Lens metal round

Lens material	Lens colour	Lens optics	Lens shape	Lens illumination	Dimensions	Part No.
Aluminium	Black	opaque	flush	non illuminative	Ø 23,7 mm	704.601.0
	Red	opaque	flush	non illuminative	Ø 23,7 mm	704.601.2
	Gold	opaque	flush	non illuminative	Ø 23,7 mm	704.601.4
	Olive green	opaque	flush	non illuminative	Ø 23,7 mm	704.601.5
	Blue	opaque	flush	non illuminative	Ø 23,7 mm	704.601.6
	Nature	opaque	flush	non illuminative	Ø 23,7 mm	704.601.8
Stainless steel	Nature	opaque	flush	non illuminative	Ø 23,7 mm	704.601.9
	Nature	opaque	flush	non illuminative	Ø 23,7 mm	704.601.10

Additional information

- The colour of anodised aluminium parts can vary due to technical production reasons
- To obtain IP65, it is necessary to use marking plate Part No.. 704.609.X

Lens plastic round

Lens material	Lens colour	Lens optics	Lens shape	Lens illumination	Symbol	Dimensions	Part No.
Plastic	Black	opaque	flush	non illuminative		Ø 23,7 mm	704.602.0
	Red	transparent	flush	illuminative		Ø 23,7 mm	704.602.2
	Yellow	transparent	flush	illuminative		Ø 23,7 mm	704.602.4
	Green	transparent	flush	illuminative		Ø 23,7 mm	704.602.5
	Blue	transparent	flush	illuminative		Ø 23,7 mm	704.602.6
	Colourless	transparent	flush	illuminative		Ø 23,7 mm	704.602.7
	Silver	transparent	flush	illuminative	Ring	Ø 23,7 mm	704.602.7A01

Additional information

- To obtain IP67, use marking plate Part No. 704.609.9
- To obtain IP67 use marking plate Part No. 704.609.9A01 (ring illumination)

Lens cap round for full face indicator

Lens cap material	Lens cap colour	Lens cap optical effect	Diameter	Part No.
Plastic	Red	transparent	29 mm	704.603.2
	Yellow	transparent	29 mm	704.603.4
	Green	transparent	29 mm	704.603.5
	Blue	transparent	29 mm	704.603.6
	Colourless	transparent	29 mm	704.603.7

Additional information

- To obtain IP67, use marking plate Part Nr. 704.608.X

Lens holder

Marking plate material	Marking plate colour	Marking plate illumination	Part No.
Plastic	Colourless	illuminative	704.709.7
	White	illuminative	704.709.9

Additional information

- For square lens

Marking cap for lens cap round

Marking cap material	Marking cap colour	Marking cap optics	Dimensions	Marking cap surface	Part No.
Plastic	Colourless	transparent	Ø 29 mm	ribbed	704.608.7
	White	translucent	Ø 29 mm		704.608.9

Marking cap round raised profile

Marking cap material	Marking cap colour	Marking cap optics	Dimensions	Marking cap surface	Part No.
Plastic	Colourless	transparent	Ø 29 mm	ribbed	704.610.7
	White	translucent	Ø 29 mm		704.610.9

Marking cap round flat

Marking plate material	Marking plate colour	Marking plate optics	Marking plate illumination	Part No.
Plastic	Black	opaque	non illuminative	704.609.0
	Colourless	transparent	illuminative	704.609.7
	White	translucent	illuminative	704.609.9
	White	translucent	ring illumination	704.609.9A01

Diffusor cap

Product attributes	Diffusor cap colour	Diffusor cap optics	Diffusor cap illumination	Part No.
	Colourless	transparent	illuminative	704.708.7
Can be marked	White	translucent	illuminative	704.708.9

Front bezel round, raised design

Front bezel material	Front bezel colour	Front bezel surface	Dimensions	Part No.
Plastic	Black		Ø 29 mm	704.600.0
	Grey		Ø 29 mm	704.600.6
	Grey		Ø 29 mm x 16 mm	704.600.7
Aluminium	Nature	anodised	Ø 29 mm	704.600.1
	Black	anodised	Ø 29 mm	704.600.1A
Stainless steel	Nature		Ø 29 mm	704.600.9

Additional information

- The colour of anodised aluminium parts can vary due to technical production reasons

Front bezel square, raised design

Front bezel material	Front bezel colour	Front bezel surface	Dimensions	Part No.
Plastic	Black		30 mm x 30 mm	704.701.0
	Chrome coloured	chrome plated	30 mm x 30 mm	704.701.4
	Grey		30 mm x 30 mm	704.701.6

Front bezel set flush design

Front bezel material	Front bezel colour	Front bezel surface	Dimensions	Part No.
Aluminium	Black	anodised	Ø 35 mm	704.955.0
	Nature	anodised	Ø 35 mm	704.955.1
Stainless steel 304	Nature		Ø 35 mm	704.955.9
Stainless steel 316	Nature		Ø 35 mm	704.955.10

Additional information

- The colour of anodised aluminium parts can vary due to technical production reasons

Front bezel set protective membrane

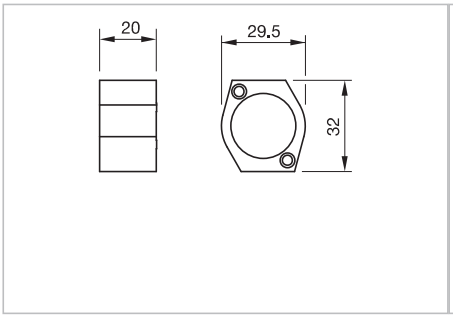
Product attributes	Front bezel material	Front bezel colour	Front bezel surface	Dimensions	Part No.
With transparent silicone membrane	Aluminium	Nature	anodised	Ø 35 mm	704.955.3
	Aluminium	Black	anodised	Ø 35 mm	704.955.4
With transparent silicone membrane, resistant to sea water	Stainless steel	Nature		Ø 35 mm	704.955.9E

Additional information

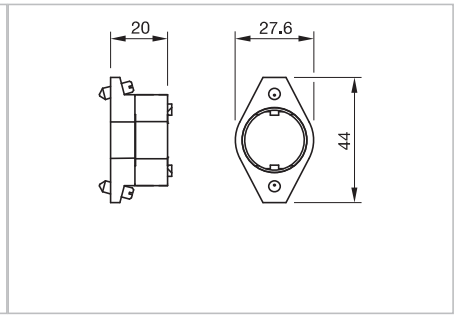
- The colour of anodised aluminium parts can vary due to technical production reasons

Bayonet flange

Material	Part No.
plastic	704.950.5
metal	704.960.5



Dimensions [mm]
for Part No. 704.950.5



Dimensions [mm]
for Part No. 704.960.5

As a successful company with production sites around the world, *EAO is actively committed to the effective implementation of a sustainable environmental policy.*

We act responsibly. In our environmental focus, we set benchmarks for ourselves, our products and our customers. Throughout our entire value chain, we think and work in a way that is resource-efficient and environmentally-friendly. When selecting our components and raw materials, we ensure that we have partnerships in place with certified manufacturers and that we adhere to EC guidelines on hazardous materials (RoHS).

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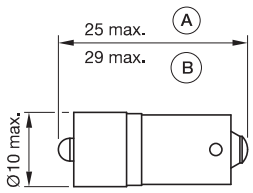
Single-LED, BA9s

Illumination colour	Operating voltage	Operation current	Lumi. Intensity	Dom. Wavelength	Part No.	Wiring diagram
Red	6 V AC/DC +10%	17 mA ±15 %	400 mcd	630 nm	10-2506.1082	70
	12 V AC/DC +10%	16 mA ±15 %	390 mcd	630 nm	10-2509.1142	70
	24 V AC/DC +10%	15 mA ±15 %	350 mcd	630 nm	10-2512.1142	70
	28 V AC/DC +10%	13 mA ±15 %	300 mcd	630 nm	10-2513.1142	70
	48 V AC/DC +10%	8 mA ±15 %	200 mcd	630 nm	10-2519.1052	70
	130 V AC/DC +10%	3 mA ±15 %	120 mcd	630 nm	10-2524.3042	70
	130 V AC/DC +10%	5 mA ±15 %	180 mcd	630 nm	10-2H24.2052	70
	230 V AC/DC +10%	3 mA ±15 %	120 mcd	630 nm	10-2H25.2042	70
Yellow	6 V AC/DC +10%	17 mA ±15 %	340 mcd	587 nm	10-2506.1084	70
	12 V AC/DC +10%	16 mA ±15 %	340 mcd	587 nm	10-2509.1144	70
	24 V AC/DC +10%	15 mA ±15 %	300 mcd	587 nm	10-2512.1144	70
	28 V AC/DC +10%	13 mA ±15 %	270 mcd	587 nm	10-2513.1144	70
	48 V AC/DC +10%	8 mA ±15 %	180 mcd	587 nm	10-2519.1054	70
	130 V AC/DC +10%	3 mA ±15 %	110 mcd	587 nm	10-2524.3044	70
	130 V AC/DC +10%	5 mA ±15 %	160 mcd	587 nm	10-2H24.2054	70
	230 V AC/DC +10%	3 mA ±15 %	110 mcd	587 nm	10-2H25.2044	70
Green	6 V AC/DC +10%	7 mA ±15 %	1050 mcd	525 nm	10-2506.1085	70
	12 V AC/DC +10%	7 mA ±15 %	1050 mcd	525 nm	10-2509.1145	70
	24 V AC/DC +10%	7 mA ±15 %	1050 mcd	525 nm	10-2512.1145	70
	28 V AC/DC +10%	7 mA ±15 %	1050 mcd	525 nm	10-2513.1145	70
	48 V AC/DC +10%	4 mA ±15 %	600 mcd	525 nm	10-2519.1055	70
	130 V AC/DC +10%	2 mA ±15 %	300 mcd	525 nm	10-2524.3045	70
	130 V AC/DC +10%	3 mA ±15 %	450 mcd	525 nm	10-2H24.2055	70
	230 V AC/DC +10%	2 mA ±15 %	300 mcd	525 nm	10-2H25.2045	70
Blue	6 V AC/DC +10%	17 mA ±15 %	780 mcd	470 nm	10-2506.1086	70
	12 V AC/DC +10%	16 mA ±15 %	720 mcd	470 nm	10-2509.1146	70
	24 V AC/DC +10%	15 mA ±15 %	680 mcd	470 nm	10-2512.1146	70
	28 V AC/DC +10%	13 mA ±15 %	590 mcd	470 nm	10-2513.1146	70
	48 V AC/DC +10%	8 mA ±15 %	400 mcd	470 nm	10-2519.1056	70
	130 V AC/DC +10%	3 mA ±15 %	200 mcd	470 nm	10-2524.3046	70
	130 V AC/DC +10%	5 mA ±15 %	230 mcd	470 nm	10-2H24.2056	70
	230 V AC/DC +10%	3 mA ±15 %	200 mcd	470 nm	10-2H25.2046	70
White	6 V AC/DC +10%	5 mA ±15 %	750 mcd	x: 0.31 / y: 0.32 nm	10-2506.1089	70
	12 V AC/DC +10%	8 mA ±15 %	1200 mcd	x: 0.31 / y: 0.32 nm	10-2509.1149	70
	24 V AC/DC +10%	7 mA ±15 %	1050 mcd	x: 0.31 / y: 0.32 nm	10-2512.1149	70
	28 V AC/DC +10%	5 mA ±15 %	750 mcd	x: 0.31 / y: 0.32 nm	10-2513.1149	70
	48 V AC/DC +10%	5 mA ±15 %	750 mcd	x: 0.31 / y: 0.32 nm	10-2519.1059	70
	130 V AC/DC +10%	1,5 mA ±15 %	225 mcd	x: 0.31 / y: 0.32 nm	10-2524.3049	70
	130 V AC/DC +10%	2 mA ±15 %	300 mcd	x: 0.31 / y: 0.32 nm	10-2H24.2059	70
	230 V AC/DC +10%	1,5 mA ±15 %	225 mcd	x: 0.31 / y: 0.32 nm	10-2H25.2049	70

Additional information

- The specified 6 V DC, 24 V DC Bi-colour; 130 V AC, 130 V DC and 230 V AC versions are built with a protection diode
- The specified 12, 24, 28, 48 VAC/DC versions are built with a bridge rectifier
- The specified 130 VAC types are developed to run on a supply voltage of 130 VAC only
- An operation at a higher supply voltage using commercial lampholders with integrated resistors, is not approved
- If the 24VDC Bi-colour lamp is driven with normal polarity (plus on middle contact of the lamp) the first mentioned colour will light up, with inverted polarity the second colour will ligth up
- The luminous intensity stated is for when used with DC
- Electrical and optical data are measured at 25 °C
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED



Dimensions [mm]

Wiring diagrams

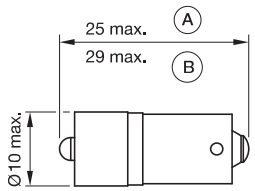
Wiring diagram 70

Single-LED super bright

Illumination colour	Operating voltage	Operation current	Lumi. Intensity	Dom. Wavelength	Part No.	Wiring diagram
Red	28 V AC/DC +10%	14 mA ±15 %	7700 mcd	630 nm	10-2413.1132R	70
Green	28 V AC/DC +10%	13 mA ±15 %	12400 mcd	525 nm	10-2413.1125R	70
Yellow	28 V AC/DC +10%	14 mA ±15 %	4200 mcd	589 nm	10-2413.1134R	70

Additional information

- The specified 12, 24, 28, 48 VAC/DC versions are built with a bridge rectifier
- Electrical and optical data are measured at 25 °C
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED



Dimensions [mm]
A = (standard)
B = (super bright)

Wiring diagrams

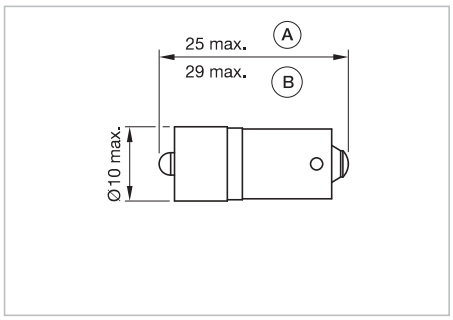
Wiring diagram 70

Single-LED with integrated Zener diode, BA9s

Illumination colour	Operating voltage	Operation current	Lumi. Intensity	Dom. Wavelength	Part No.	Wiring diagram
Red	24 - 30 V AC/DC +10%	13 - 19 mA ±15 %	300 - 440 mcd	630 nm	10-2H13.3162Q	367
Green	24 - 30 V AC/DC +10%	12 - 18 mA ±15 %	1800 - 2700 mcd	525 nm	10-2H13.3165Q	367
Yellow	24 - 30 V AC/DC +10%	13 - 19 mA ±15 %	270 - 380 mcd	589 nm	10-2H13.3164Q	367
Blue	24 - 30 V AC/DC +10%	12 - 18 mA ±15 %	560 - 800 mcd	589 nm	10-2H13.3166Q	367
White	24 - 30 V AC/DC +10%	7 - 11 mA ±15 %	600 - 900 mcd	589 nm	10-2H13.3169Q	367

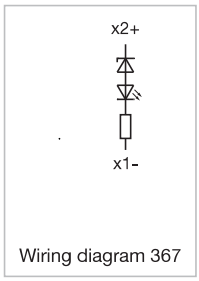
Additional information

- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED
- Electrical and optical data are measured at 25 °C
- The specified 12, 24, 28, 48 VAC/DC versions are built with a bridge rectifier



Dimensions [mm]
A = (standard)
B = (super bright)

Wiring diagrams



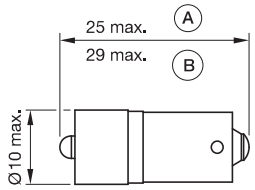
Wiring diagram 367

Bi-colour LED, BA9s

Illumination colour	Operating voltage	Operation current	Lumi. Intensity	Dom. Wavelength	Part No.	Wiring diagram
Red / Green	24 V AC/DC +10%	15 mA ±15 %	1200/900 mcd	625 / 525 nm	10-2H12.314A	171
Red / Yellow	24 V AC/DC +10%	15 mA ±15 %	1200/550 mcd	625 / 589 nm	10-2H12.314B	171
Green / Yellow	24 V AC/DC +10%	15 mA ±15 %	900/550 mcd	525 / 589 nm	10-2H12.314C	171

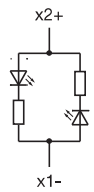
Additional information

- The max. overall length of the lamp may not exeed 25mm
- Electrical and optical data are measured at 25 °C
- The specified 6 V DC, 24 V DC Bi-colour; 130 V AC, 130 V DC and 230 V AC versions are built with a protection diode
- If the 24VDC Bi-colour lamp is driven with normal polarity (plus on middle contact of the lamp) the first mentioned colour will light up, with inverted polarity the second colour will ligth up
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED



Dimensions [mm]
A = (standard)
B = (super bright)

Wiring diagrams



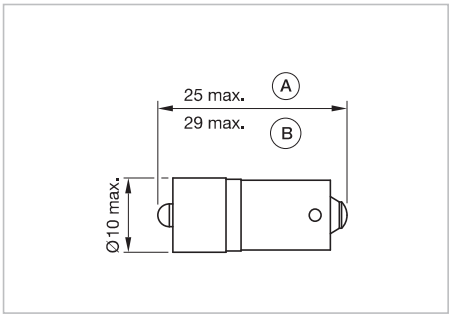
Wiring diagram 171

Single-LED, BA9s, EN 50155, Fail Safe

Illumination colour	Operating voltage	Operation current	Lumi. Intensity	Dom. Wavelength	Part No.	Wiring diagram
Red	72 V AC/DC	2,2 mA -30%/+25%	4 x 128 mcd	625 nm	10-4H21.1032P	368
	110 V AC/DC	2 mA -30%/+25%	4 x 128 mcd	625 nm	10-4H22.1032P	368
Yellow	72 V AC/DC	2,2 mA -30%/+25%	4 x 112 mcd	589 nm	10-4H21.1034P	368
	110 V AC/DC	2 mA -30%/+25%	4 x 128 mcd	589 nm	10-4H22.1034P	368
Green	72 V AC/DC	2,2 mA -30%/+25%	4 x 478 mcd	525 nm	10-4H21.1035P	368
	110 V AC/DC	2 mA -30%/+25%	4 x 510 mcd	525 nm	10-4H22.1035P	368
Blue	72 V AC/DC	2,2 mA -30%/+25%	4 x 90 mcd	465 nm	10-4H21.1036P	368
	110 V AC/DC	2 mA -30%/+25%	4 x 86 mcd	465 nm	10-4H22.1036P	368
White	72 V AC/DC	2,2 mA -30%/+25%	4 x 382 mcd		10-4H21.1039P	368
	110 V AC/DC	2 mA -30%/+25%	4 x 446 mcd		10-4H22.1039P	368

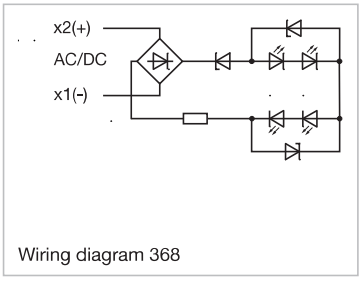
Additional information

- A suitable LED remover Part No. 700.006.0
- The luminous intensity stated is for when used with DC
- Electrical and optical data are measured at 25 °C
- The specified 72 and 110 VAC/VDC versions are built with a bridge rectifier
- The specified 72 and 110 VAC/VDC versions are built with a protection diode
- In case one LED fails, the other pair of still functioning LED›s is working. The light output then is half in order to indicate the malfunction and shows this way the need for replacement
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED



Dimensions [mm]
A = (standard)
B = (super bright)

Wiring diagrams



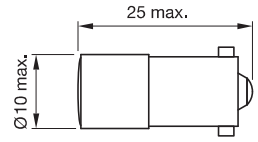
Wiring diagram 368

LED BA9s, EN 50155

Illumination colour	Operating voltage	Operation current	Lumi. Intensity	Part No.	Wiring diagram
White	24 V AC/DC	-30%/+25%	700 mcd	10-2412.1089P	369

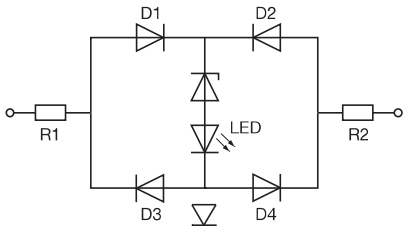
Additional information

- A suitable LED remover Part No. 700.006.0
- The luminous intensity stated is for when used with DC
- Electrical and optical data are measured at 25 °C
- The specified 24 VAC/VDC versions are built with a protection diode
- Specified 24 VAC/VDC versions are built with a bridge rectifier
- The new, white BA9s LED operates within a range of 16VDC to 34VDC. It conforms to the norms EN 50155 and IEEE 1476
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED



Dimensions [mm]

Wiring diagrams



Wiring diagram 369

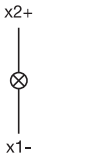
Filament lamp

Operating voltage	Operation current	Part No.	Wiring diagram
24 V AC/DC	50 mA ±10 %	10-1412.1279	432
36 V AC/DC	56 mA ±10 %	10-1416.1289	432
60 V AC/DC	33 mA ±10 %	10-1420.1219	432
110 V AC/DC	22 mA ±10 %	10-1422.1179	432
130 V AC/DC	20 mA ±10 %	10-1424.1179	432

Additional information

- The max. overall length of the lamp may not exeed 28 mm

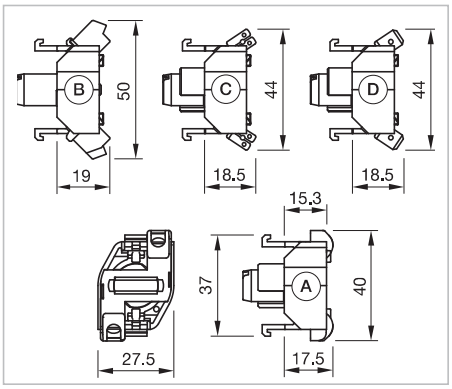
Wiring diagrams



Wiring diagram

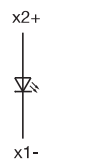
Lamp block for selector switch and illuminated pushbutton, 2 positions

Product attributes	Terminal kind of	Part No.	Wiring diagram
	Screw terminal	704.950.0	4
	Plug-in terminal	704.950.1	4
Terminals nickel plated and blank Cu/Sn	Double plug-in terminal	704.950.1/D	4
	Push-in Terminal	704.950.3	4
Terminals nickel plated Cu/Sn	Double plug-in terminal	704.950.2/D	4
For ring cable shoe	Screw terminal	704.950.0B	4



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

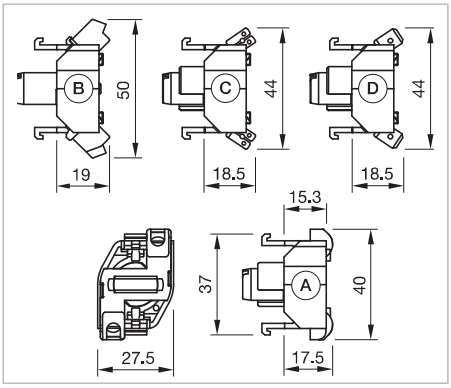
Wiring diagrams



Wiring diagram 4

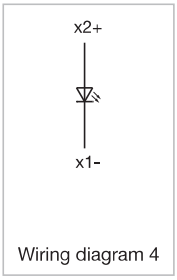
Lamp block for selector switch 3 positions

Product attributes	Terminal kind of	Part No.	Wiring diagram
	Screw terminal	704.951.0	4
	Plug-in terminal	704.951.1	4
Terminals nickel plated and blank Cu/Sn	Double plug-in terminal	704.951.1/D	4
	Push-in Terminal	704.951.3	4



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

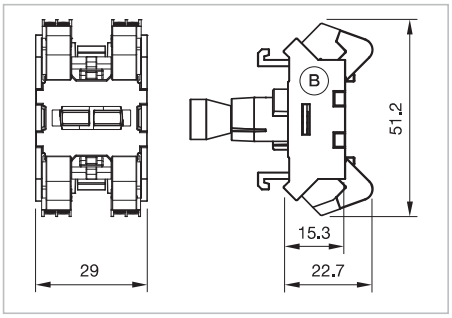
Wiring diagrams



Wiring diagram 4

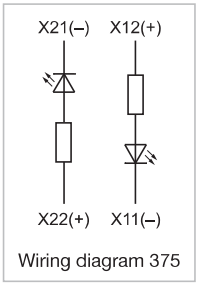
Dual lamp block

Operating voltage	Terminal kind of	Part No.	Wiring diagram	Component Layout
24 V AC/DC	Push-in Terminal	704.952.129.3	375	104
110 V AC/DC	Push-in Terminal	704.952.159.3	375	104



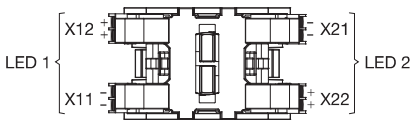
Dimensions [mm]
B = Push-in terminal (PIT)

Wiring diagrams



Wiring diagram 375

Component layouts



Component layout 104

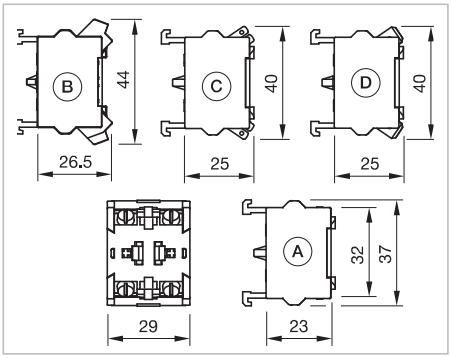
Snap-action switching element with push-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
250 V	6 A	1 NO	Gold-plated silver	704.907.1	376
	6 A	1 NC	Gold-plated silver	704.907.2	377
	6 A	2 NO	Gold-plated silver	704.907.3	378
	6 A	2 NC	Gold-plated silver	704.907.4	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.907.5	380
	6 A	1 NO	Silver	704.908.1	376
	6 A	1 NC	Silver	704.908.2	377
	6 A	2 NO	Silver	704.908.3	378
	6 A	2 NC	Silver	704.908.4	379
	6 A	1 NC / 1 NO	Silver	704.908.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately



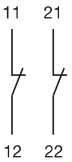
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

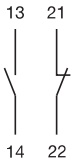
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

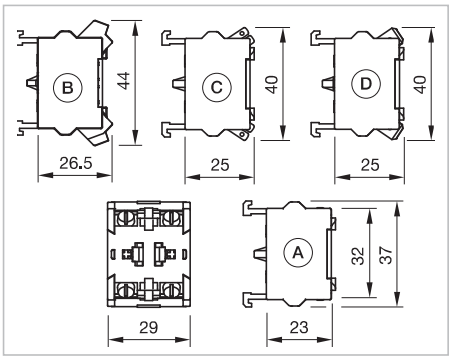
Slow-make switching element with push-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
250 V	6 A	1 NO	Gold-plated silver	704.917.1	376
	6 A	1 NC	Gold-plated silver	704.917.2	377
	6 A	2 NO	Gold-plated silver	704.917.3	378
	6 A	2 NC	Gold-plated silver	704.917.4	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.917.5	380
	6 A	1 NO	Silver	704.918.1	376
	6 A	1 NC	Silver	704.918.2	377
	6 A	2 NO	Silver	704.918.3	378
	6 A	2 NC	Silver	704.918.4	379
	6 A	1 NC / 1 NO	Silver	704.918.5	380

Contacts: NC = Normally closed, NO = Normally open

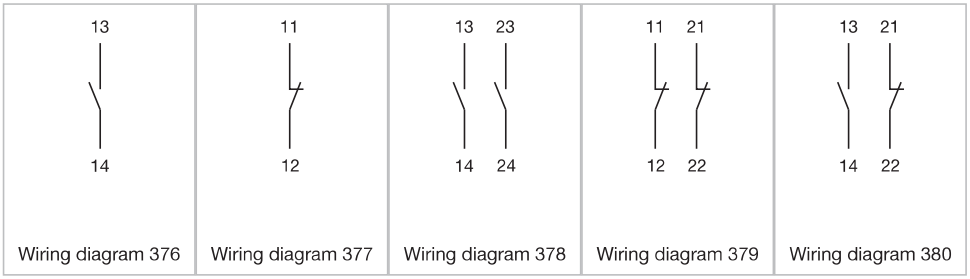
Additional information

- For the third switching element the terminal marking insert is to be ordered separately



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



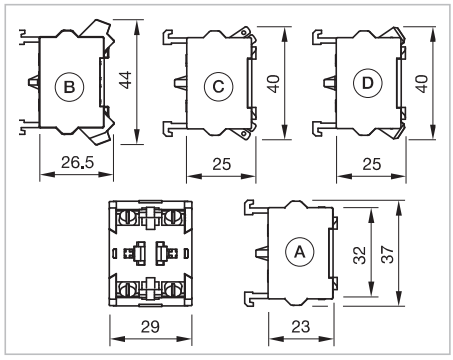
Snap-action switching element with plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.905.1	376
	6 A	1 NC	Silver	704.905.2	377
	6 A	2 NO	Silver	704.905.3	378
	6 A	2 NC	Silver	704.905.4	379
	6 A	1 NC / 1 NO	Silver	704.905.5	380

Contacts: NC = Normally closed, NO = Normally open

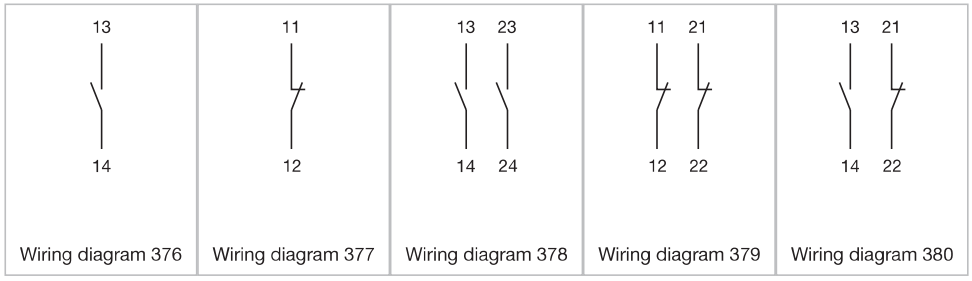
Additional information

- For the third switching element the terminal marking insert is to be ordered separately



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



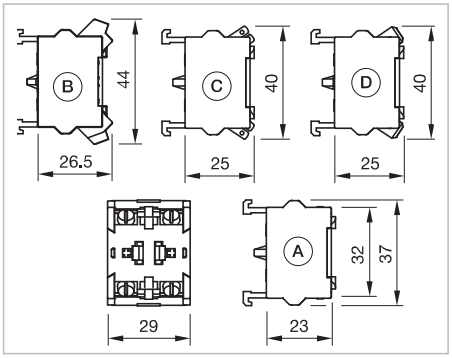
Slow-make switching element with plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.915.1	376
	6 A	1 NC	Silver	704.915.2	377
	6 A	2 NO	Silver	704.915.3	378
	6 A	2 NC	Silver	704.915.4	379
	6 A	1 NC / 1 NO	Silver	704.915.5	380

Contacts: NC = Normally closed, NO = Normally open

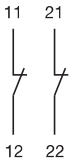
Additional information

- For the third switching element the terminal marking insert is to be ordered separately



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

				
Wiring diagram 376	Wiring diagram 377	Wiring diagram 378	Wiring diagram 379	Wiring diagram 380

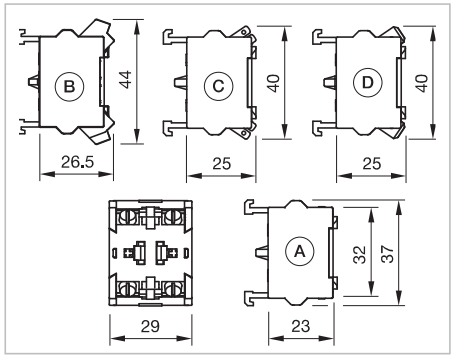
Snap-action switching element with double plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Gold-plated silver	704.901.1/D	376
	6 A	1 NC	Gold-plated silver	704.901.2/D	377
	6 A	2 NO	Gold-plated silver	704.901.3/D	378
	6 A	2 NC	Gold-plated silver	704.901.4/D	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.901.5/D	380
	6 A	1 NO	Silver	704.905.1/D	376
	6 A	1 NC	Silver	704.905.2/D	377
500 V	6 A	2 NC	Silver	704.905.4/D	379
	6 A	1 NC / 1 NO	Silver	704.905.5/D	380

Contacts: NC = Normally closed, NO = Normally open

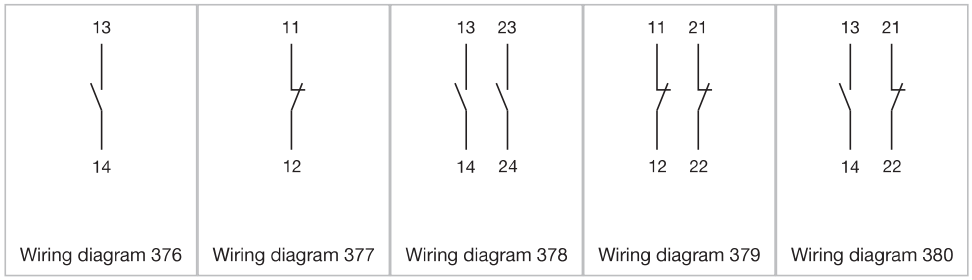
Additional information

- For the third switching element the terminal marking insert is to be ordered separately



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



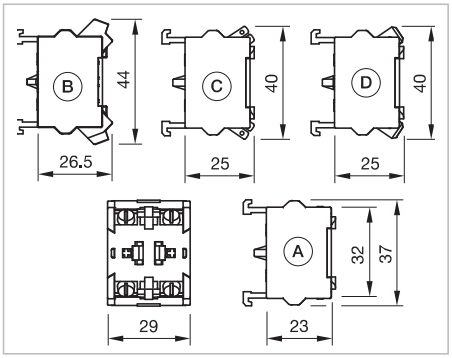
Slow-make switching element with double plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.915.1/D	376
	6 A	1 NC	Silver	704.915.2/D	377
	6 A	2 NO	Silver	704.915.3/D	378
	6 A	2 NC	Silver	704.915.4/D	379
	6 A	1 NC / 1 NO	Silver	704.915.5/D	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately



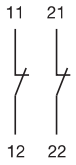
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

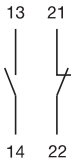
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

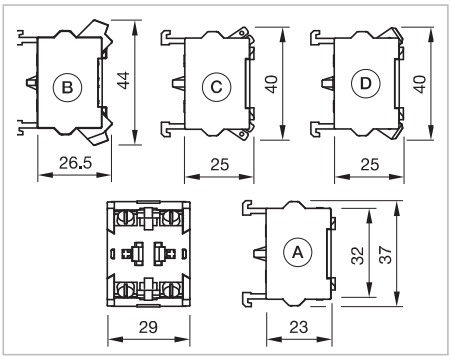
Snap-action switching element with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.900.1	376
	10 A	1 NC	Silver	704.900.2	377
	10 A	2 NO	Silver	704.900.3	378
	10 A	2 NC	Silver	704.900.4	379
	10 A	1 NC / 1 NO	Silver	704.900.5	380
	10 A	1 NO	Gold-plated silver	704.901.1	376
	10 A	1 NC	Gold-plated silver	704.901.2	377
	10 A	2 NO	Gold-plated silver	704.901.3	378
	10 A	2 NC	Gold-plated silver	704.901.4	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.901.5	380
	10 A	1 NO	Palladium	704.902.1	376
	10 A	1 NC	Palladium	704.902.2	377
	10 A	2 NO	Palladium	704.902.3	378
	10 A	2 NC	Palladium	704.902.4	379
	10 A	1 NC / 1 NO	Palladium	704.902.5	380

Contacts: NC = Normally closed, NO = Normally open

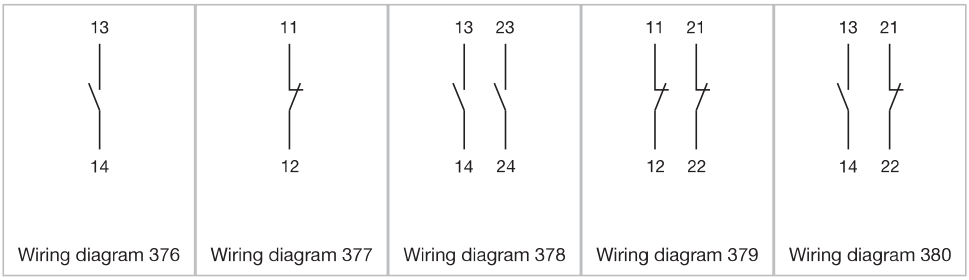
Additional information

- For the third switching element the terminal marking insert is to be ordered separately



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams



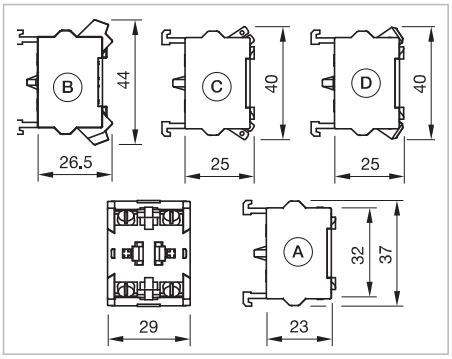
Slow-make switching element with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.910.1	376
	10 A	1 NC	Silver	704.910.2	377
	10 A	2 NO	Silver	704.910.3	378
	10 A	2 NC	Silver	704.910.4	379
	10 A	1 NC / 1 NO	Silver	704.910.5	380
	10 A	1 NO	Gold-plated silver	704.911.1	376
	10 A	1 NC	Gold-plated silver	704.911.2	377
	10 A	2 NO	Gold-plated silver	704.911.3	378
	10 A	2 NC	Gold-plated silver	704.911.4	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.911.5	380
	10 A	1 NO	Palladium	704.912.1	376
	10 A	2 NO	Palladium	704.912.3	378
	10 A	2 NC	Palladium	704.912.4	379
	10 A	1 NC / 1 NO	Palladium	704.912.5	380

Contacts: NC = Normally closed, NO = Normally open

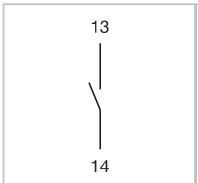
Additional information

- For the third switching element the terminal marking insert is to be ordered separately

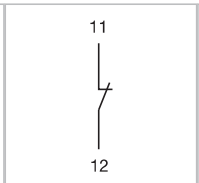


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

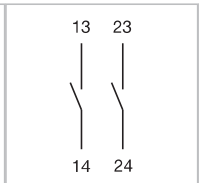
Wiring diagrams



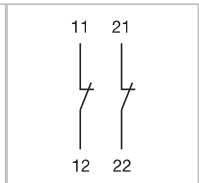
Wiring diagram 376



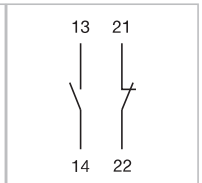
Wiring diagram 377



Wiring diagram 378



Wiring diagram 379

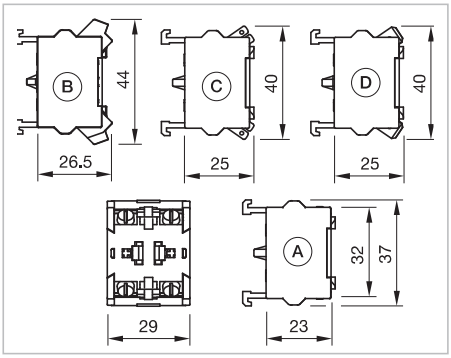


Wiring diagram 380

Snap-action switching element for ring cable shoe with screw terminal

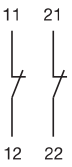
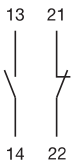
Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.900.1B	376
	10 A	1 NC	Silver	704.900.2B	377
	10 A	2 NO	Silver	704.900.3B	378
	10 A	2 NC	Silver	704.900.4B	379
	10 A	1 NC / 1 NO	Silver	704.900.5B	380

Contacts: NC = Normally closed, NO = Normally open



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

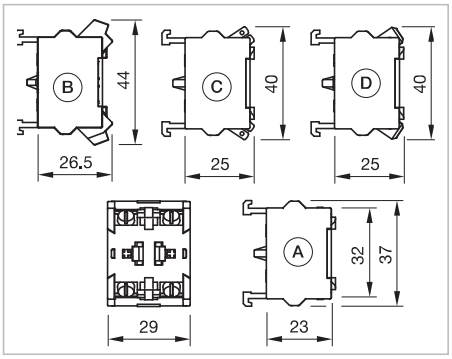
Wiring diagrams

				
Wiring diagram 376	Wiring diagram 377	Wiring diagram 378	Wiring diagram 379	Wiring diagram 380

Slow-make switching element for ring cable shoe with screw terminal

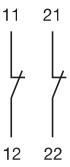
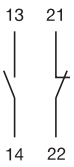
Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.910.1B	376
	10 A	1 NC	Silver	704.910.2B	377
	10 A	2 NO	Silver	704.910.3B	378
	10 A	2 NC	Silver	704.910.4B	379
	10 A	2 NO	Gold-plated silver	704.911.3B	378
	10 A	2 NC	Gold-plated silver	704.911.4B	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.911.5B	380

Contacts: NC = Normally closed, NO = Normally open



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

				
Wiring diagram 376	Wiring diagram 377	Wiring diagram 378	Wiring diagram 379	Wiring diagram 380

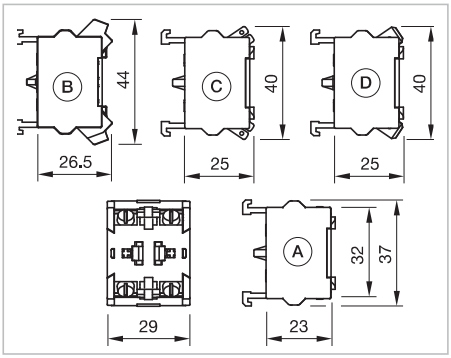
Slow-make switching element for emergency stop switch with push-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
250 V	6 A	1 NO	Gold-plated silver	704.917.1	376
	6 A	1 NC	Gold-plated silver	704.917.2	377
	6 A	2 NO	Gold-plated silver	704.917.3	378
	6 A	2 NC	Gold-plated silver	704.917.4	379
	6 A	1 NC / 1 NO	Gold-plated silver	704.917.5	380
	6 A	1 NO	Silver	704.918.1	376
	6 A	1 NC	Silver	704.918.2	377
	6 A	2 NO	Silver	704.918.3	378
	6 A	2 NC	Silver	704.918.4	379
	6 A	1 NC / 1 NO	Silver	704.918.5	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately



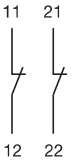
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

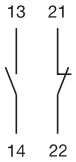
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

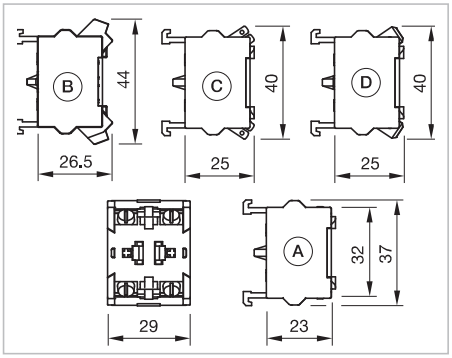
Slow-make switching element for emergency stop switch with plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.915.1	376
	6 A	1 NC	Silver	704.915.2	377
	6 A	2 NO	Silver	704.915.3	378
	6 A	2 NC	Silver	704.915.4	379
	6 A	1 NC / 1 NO	Silver	704.915.5	380

Contacts: NC = Normally closed, NO = Normally open

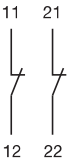
Additional information

- For the third switching element the terminal marking insert is to be ordered separately



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

				
Wiring diagram 376	Wiring diagram 377	Wiring diagram 378	Wiring diagram 379	Wiring diagram 380

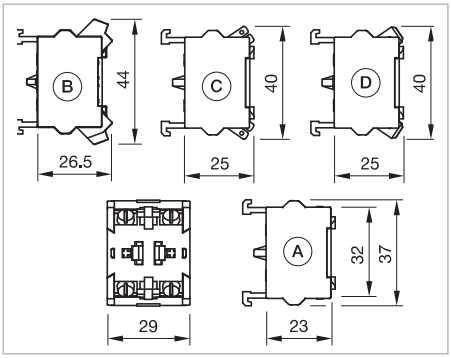
Slow-make switching element for emergency stop switch with double plug-in terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	6 A	1 NO	Silver	704.915.1/D	376
	6 A	1 NC	Silver	704.915.2/D	377
	6 A	2 NO	Silver	704.915.3/D	378
	6 A	2 NC	Silver	704.915.4/D	379
	6 A	1 NC / 1 NO	Silver	704.915.5/D	380

Contacts: NC = Normally closed, NO = Normally open

Additional information

- For the third switching element the terminal marking insert is to be ordered separately



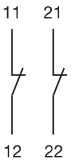
Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

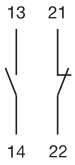
Wiring diagram 376

Wiring diagram 377

Wiring diagram 378



Wiring diagram 379



Wiring diagram 380

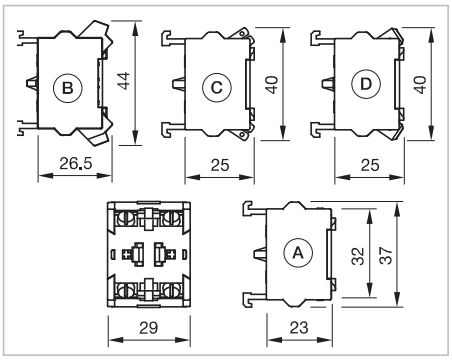
Slow-make switching element for emergency stop switch with screw terminal

Switching voltage	Switching current	Contacts	Contact material	Part No.	Wiring diagram
500 V	10 A	1 NO	Silver	704.910.1	376
	10 A	1 NC	Silver	704.910.2	377
	10 A	2 NO	Silver	704.910.3	378
	10 A	2 NC	Silver	704.910.4	379
	10 A	1 NC / 1 NO	Silver	704.910.5	380
	10 A	1 NO	Gold-plated silver	704.911.1	376
	10 A	1 NC	Gold-plated silver	704.911.2	377
	10 A	2 NO	Gold-plated silver	704.911.3	378
	10 A	2 NC	Gold-plated silver	704.911.4	379
	10 A	1 NC / 1 NO	Gold-plated silver	704.911.5	380
	10 A	1 NO	Palladium	704.912.1	376
	10 A	2 NO	Palladium	704.912.3	378
	10 A	2 NC	Palladium	704.912.4	379
	10 A	1 NC / 1 NO	Palladium	704.912.5	380

Contacts: NC = Normally closed, NO = Normally open

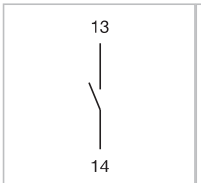
Additional information

- For the third switching element the terminal marking insert is to be ordered separately

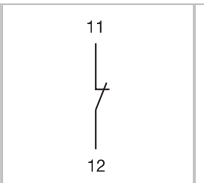


Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

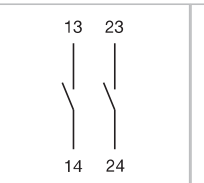
Wiring diagrams



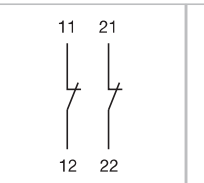
Wiring diagram 376



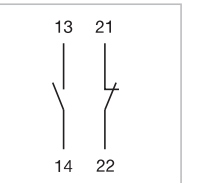
Wiring diagram 377



Wiring diagram 378



Wiring diagram 379

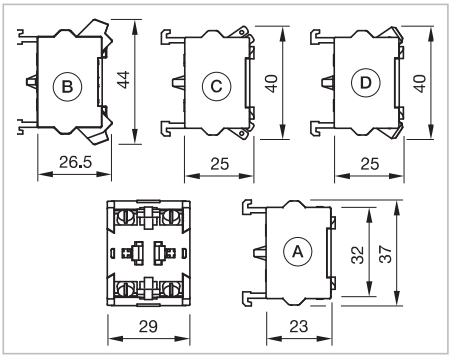


Wiring diagram 380

Slow-make switching element failsafe

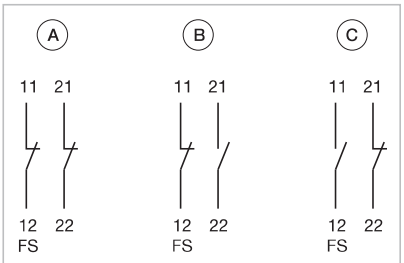
Contacts	Contact material	Terminal	Product attributes	Part No.	Wiring diagram
1 NC / 1 FS	Silver	Screw terminal		704.910.4FS	381
	Gold-plated silver	Screw terminal		704.911.4FS	381
	Silver	Screw terminal	For ring cable shoe	704.910.4BFS	381
	Gold-plated silver	Screw terminal	For ring cable shoe	704.911.4BFS	381
	Silver	Plug-in terminal		704.915.4FS	381
	Gold-plated silver	Double plug-in terminal		704.911.4/DFS	381
	Silver	Double plug-in terminal		704.915.4/DFS	381
	Gold-plated silver	Push-in Terminal		704.917.4FS	381
	Silver	Push-in Terminal		704.918.4FS	381

Contacts: NC = Normally closed, NO = Normally open



Dimensions [mm]
A = Screw terminal
B = Push-in terminal (PIT)
C = Plug-in terminal 6.3 mm x 0.8 mm
D = Double plug-in terminal 6.3 mm x 0.8 mm

Wiring diagrams

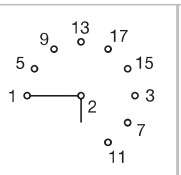


Wiring diagram 381

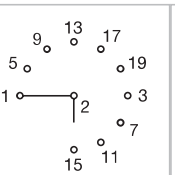
Rotary switching element 30°

Switching positions	Rotary positions	Multi-step switch	Stages	Terminal	Part No.	Wiring diagram
A = Rest, I = End	9	1-pole	5	Screw terminal	704.8A236	382
A = Rest, K = End	10	1-pole	5	Screw terminal	704.8A237	383
A = Rest, L = End	11	1-pole	6	Screw terminal	704.8A238	384
A = Rest, M = End	12	1-pole	6	Screw terminal	704.8A239	385
A = Rest (without stop)	12	1-pole	6	Screw terminal	704.8A639	385

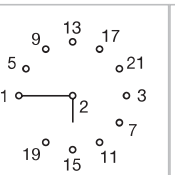
Wiring diagrams



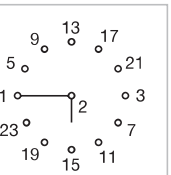
Wiring diagram 382



Wiring diagram 383



Wiring diagram 384



Wiring diagram 385

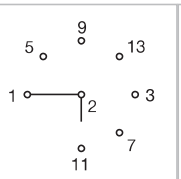
Rotary switching element 45°

Switching positions	Rotary positions	Multi-step switch	Stages	Terminal	Part No.	Wiring diagram
A = Rest, G = End	7	1-pole	4	Screw terminal	704.8A234	386
	7	2-pole	7	Screw terminal	704.8A254	387
A = Rest, H = End	8	1-pole	4	Screw terminal	704.8A235	388
	8	2-pole	8	Screw terminal	704.8A255	389

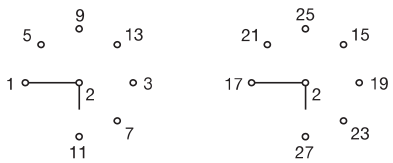
Additional information

- Switching positions and functions of the rotary switching element are being produced according to customer specifications. Please contact your local EAO Sales Office

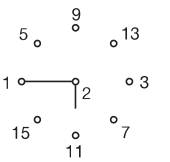
Wiring diagrams



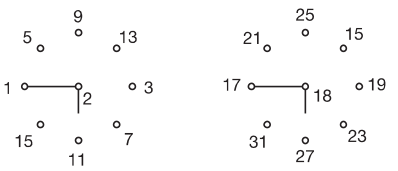
Wiring diagram 386



Wiring diagram 387



Wiring diagram 388



Wiring diagram 389

Rotary switching element 60°

Switching positions	Rotary positions	Multi-step switch	Stages	Terminal	Part No.	Wiring diagram
A = Rest, C = End	3	1-pole	2	Screw terminal	704.8A230	390
	3	1-pole, galvanically isolated	2	Screw terminal	704.8A730	391
	3	2-pole	3	Screw terminal	704.8A250	392
	3	3-pole	5	Screw terminal	704.8A270	393
A = Rest, D = End	4	1-pole	2	Screw terminal	704.8A231	394
	4	1-pole, galvanically isolated	2	Screw terminal	704.8A731	395
	4	2-pole	4	Screw terminal	704.8A251	396
	4	3-pole	6	Screw terminal	704.8A271	397
A = Rest, E = End	5	1-pole	3	Screw terminal	704.8A232	398
	5	2-pole	5	Screw terminal	704.8A252	399
	5	3-pole	8	Screw terminal	704.8A272	400
A = Rest, F = End	6	1-pole	3	Screw terminal	704.8A233	401
	6	2-pole	6	Screw terminal	704.8A253	402

Additional information

- Switching positions and functions of the rotary switching element are being produced according to customer specifications. Please contact your local EAO Sales Office

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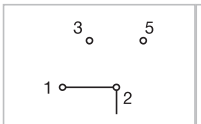
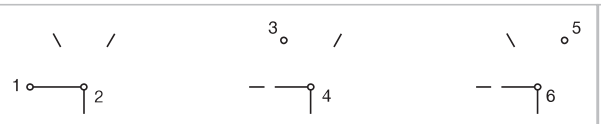
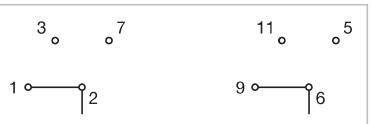
Wiring diagrams



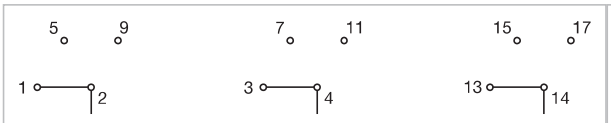
Wiring diagram 390



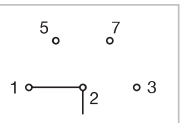
Wiring diagram 391



Wiring diagram 392

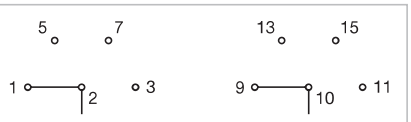


Wiring diagram 393

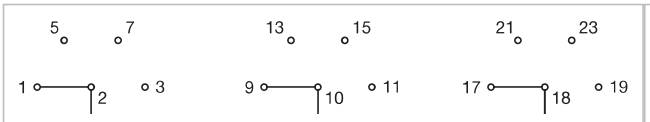


Wiring diagram 394

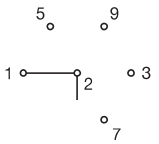
Wiring diagram 395



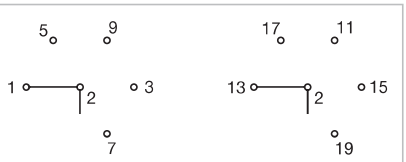
Wiring diagram 396



Wiring diagram 397

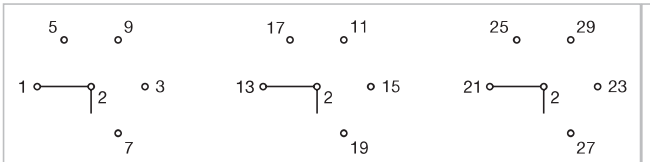


Wiring diagram 398

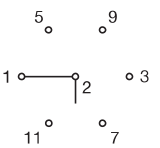


Wiring diagram 399

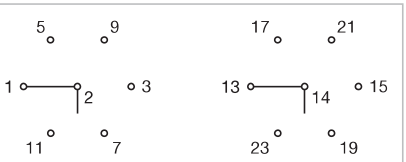
Wiring diagrams



Wiring diagram 400



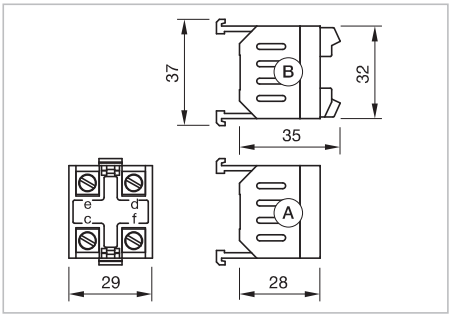
Wiring diagram 401



Wiring diagram 402

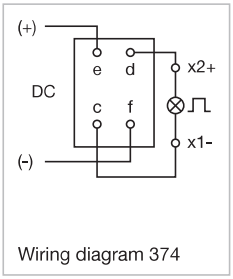
Flasher element

Product attributes	Terminal	Part No.	Wiring diagram
Lamp voltage/-current 130 V, 20 mA	Screw terminal	704.943.0	374
Lamp voltage/- current 60 V, 33 mA	Screw terminal	704.943.1	374
Lamp voltage/-current 130 V, 3 mA	Push-in Terminal	704.943.2P	374
	Screw terminal	704.943.2	374
Lamp voltage/-current 24 V, 10 … 85 mA	Screw terminal	704.943.5	374



Dimensions [mm]
A = Screw terminal
Push-in terminal (PIT)

Wiring diagrams



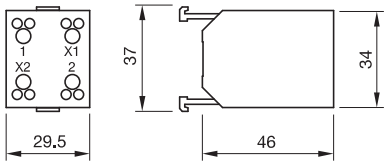
Wiring diagram 374

Lamp transformer

Part No.	Wiring diagram
704.970.3	371
704.970.4	371
704.970.5	371
704.970.6	371

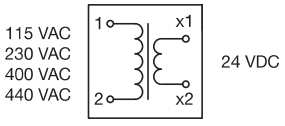
Additional information

- Lamp voltage/-current 24 VDC, 50 mA, 50/60 Hz



Dimensions [mm]

Wiring diagrams



Wiring diagram 371

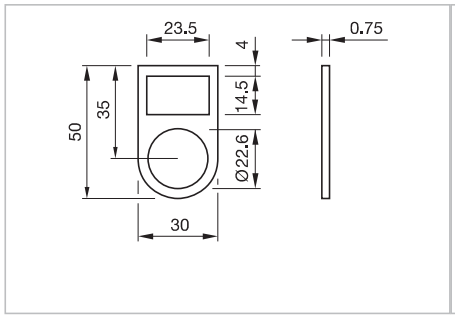
Front side

Legend frame

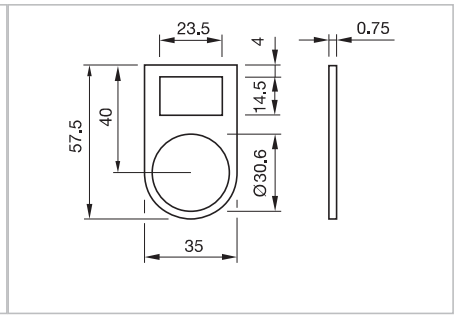
Product attributes	Dimensions	Material	Colour	Surface	Mounting type	Part No.
For raised design	30 mm x 0.75 mm x 50 mm	aluminium	Black	anodised	adhesive	704.968.2
For flush design	35 mm x 0.75 mm x 57.5 mm	aluminium	Black	anodised	adhesive	704.968.3

Additional information

- The colour of anodised aluminium parts can vary due to technical production reasons



Dimensions [mm]
for Part No. 704.968.2



Dimensions [mm]
for Part No. 704.968.3

Legend plate

Dimensions	Material	Colour	Surface	Mounting type	Part No.
14.5 mm x 23.5 mm	aluminium	Nature	anodised	adhesive	704.968.0
	aluminium	Black	anodised	adhesive	704.968.1

Additional information

- For legend frame Part No.704.968.2 and 704.968.3
- The colour of anodised aluminium parts can vary due to technical production reasons

Legend plate flush design

Dimensions	Material	Colour	Surface	Mounting type	Part No.
18 mm x 35 mm	aluminium	Nature	anodised	adhesive	704.968.4
	aluminium	Black	anodised	adhesive	704.968.5

Additional information

- For devices square with flush design
- The colour of anodised aluminium parts can vary due to technical production reasons

Emergency stop legend

Dimensions	Material	Colour	Mounting cut-out	Marking	Part No.
Ø 60 mm	plastic	Yellow	Ø 22.3 mm	NOT AUS	704.963.5
	plastic	Yellow	Ø 22.3 mm	EMERGENCY STOP	704.963.6
	plastic	Yellow	Ø 22.3 mm	ARRET D'URGENCE	704.963.7
	plastic	Yellow	Ø 22.3 mm	NOT HALT	704.963.8
	plastic	Yellow	Ø 22.3 mm	EN ISO 13850 symbol	704.963.9
Ø 90 mm	plastic	Yellow	Ø 22.3 mm	NOT AUS	704.963.0
	plastic	Yellow	Ø 22.3 mm	EMERGENCY STOP	704.963.1
	plastic	Yellow	Ø 22.3 mm	ARRET D'URGENCE	704.963.2
	plastic	Yellow	Ø 22.3 mm	NOT HALT	704.963.3
	plastic	Yellow	Ø 22.3 mm	EN ISO 13850 symbol	704.963.4

Additional information

- Front panel thickness 3 mm max.

Legend plate rotary switch

Product attributes	Dimensions	Material	Colour	Surface	Mounting type	Part No.
For raised design Ø 29 mm	48 mm x 48 mm	aluminium	Black	anodised	adhesive	704.968.10
For flush design Ø 35 mm	48 mm x 48 mm	aluminium	Black	anodised	adhesive	704.968.11
For raised design Ø 29 mm	48 mm x 60 mm	aluminium	Black	anodised	adhesive	704.968.12

Additional information

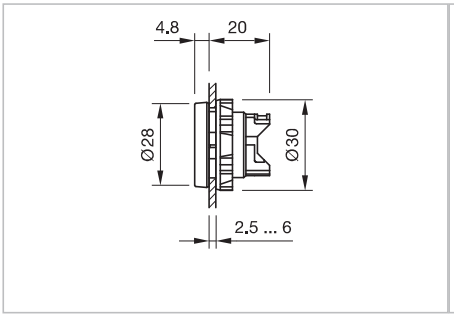
- The colour of anodised aluminium parts can vary due to technical production reasons

Blind plug

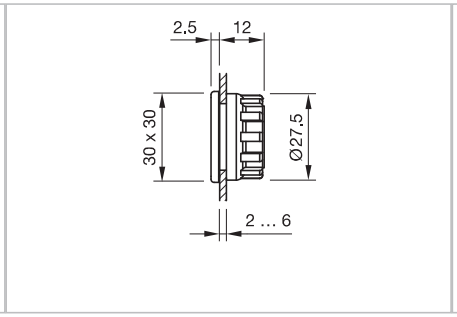
Dimensions	Material	Colour	Mounting cut-out	Part No.
Ø 28 mm	plastic	Black	Ø 22.3 mm	704.960.4
Ø 22.5 mm	plastic	Black	Ø 22.3 mm	704.964.7
Ø 36 mm	plastic	Black	Ø 30.5 mm	704.964.8
35 mm x 35 mm	plastic	Black	30 mm x 30 mm	704.964.9

Additional information

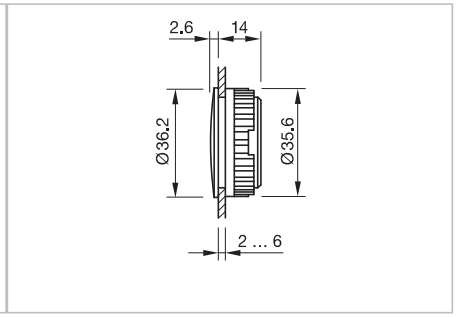
- Please note that bigger minimum distances are necessary



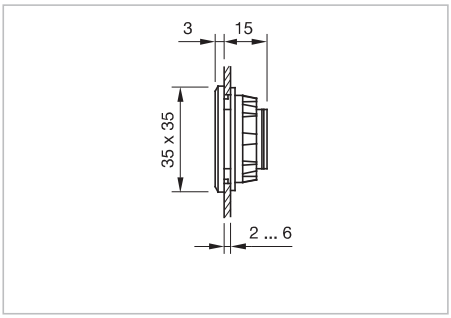
Dimensions [mm]
for Part No. 704.960.4



Dimensions [mm]
for Part No. 704.964.7



Dimensions [mm]
for Part No. 704.964.8



Dimensions [mm]
for Part No. 704.964.9

Spare key

Product attributes	Material	Part No.
The standard lock Ronis 251	metal	704.989.251

Protective cap

Product attributes	Material	Colour	Optics	Part No.
Only together with lenses Part No. 704.602.X, 704.601.X and front rings Part No. 704.600.X	silicone	Colourless	transparent	704.953.0

Additional information

- For Indicator and Illuminated pushbutton for IP68 protection

Protective ring

Product attributes	Material	Colour	Surface	Part No.
With transparent silicone membrane (resistant to sea water), temperature resistance -40 °C ... +85 °C	brass		chrome	704.600.2
	aluminium	Nature	anodised	704.600.3
With transparent Pebax membrane, temperature resistance -40 °C ... +85 °C	aluminium	Nature	anodised	704.600.5/A

Additional information

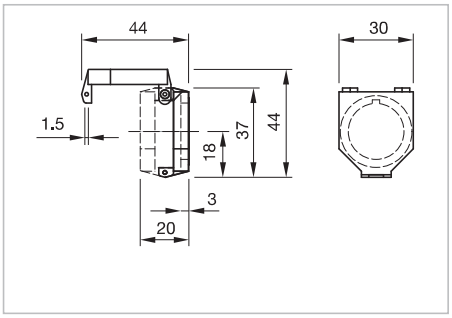
- For Illuminated pushbutton for front protection IP 67
- The colour of anodised aluminium parts can vary due to technical production reasons

Protective cover raised design

Product attributes	Material	Optics	Part No.
For pushbutton	plastic	transparent	704.925.0
With spring fitted, for pushbutton	plastic	transparent	704.925.3
For selector switch	plastic	transparent	704.925.2

Additional information

- Hinged, with means for sealing



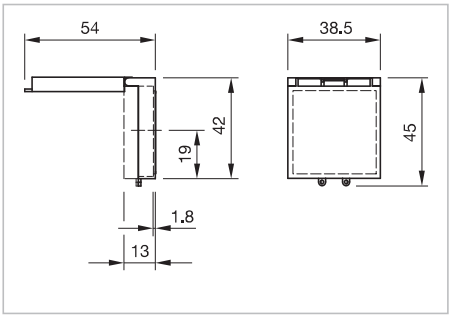
Dimensions [mm]

Protective cover square flush design

Product attributes	Dimensions	Material	Optics	Mounting cut-out	Part No.
For pushbutton	38.5 mm x 45 mm	plastic	transparent	30 mm x 30 mm	704.925.8
For selector switch	38.5 mm x 45 mm	plastic	transparent	30 mm x 30 mm	704.925.9

Additional information

- Hinged, with means for sealing
- Front panel thickness reduces by 2 mm
- Please note that bigger minimum distances are necessary



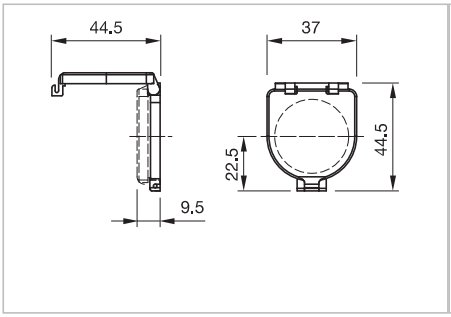
Dimensions [mm]

Protective cover round flush design

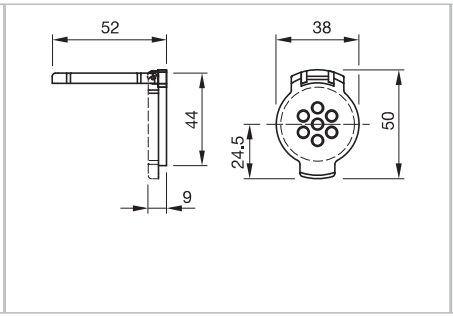
Product attributes	Dimensions	Material	Colour	Surface	Part No.
With means for sealing, for pushbutton with mounting cut-outs Ø 30.5 mm	37 mm x 44.5 mm	plastic	Colourless		704.925.7
Without cover locking hole, with spring fitted, with window, for pushbuttonwith mounting cut-outs Ø 30.5 mm	38 mm x 50 mm	aluminium	Nature	anodised	704.928.18
Without cover locking hole, for pushbutton and selector switch short lever with mounting cut-outs Ø 30.5 mm	38 mm x 50 mm	aluminium	Nature	anodised	704.928.28
With means for sealing, for pushbutton and selector switch short lever with mounting cut-outs Ø 30.5 mm	38 mm x 50 mm	aluminium	Nature	anodised	704.928.38

Additional information

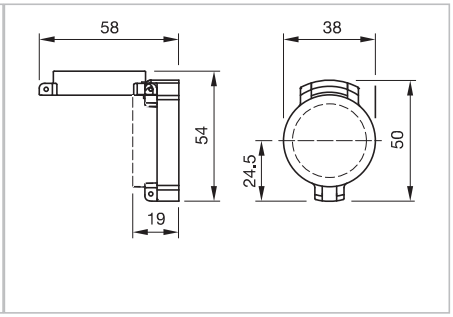
- Hinged
- Front panel thickness reduces by 2 mm
- Please note that bigger minimum distances are necessary
- The colour of anodised aluminium parts can vary due to technical production reasons



Dimensions [mm]
for Part No. 704.925.7



Dimensions [mm]
for Part No. 704.928.18



Dimensions [mm]
for Part No. 704.928.28, 704.928.38

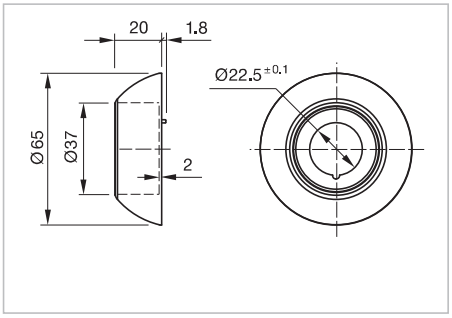
04 Accessories

E stop protective shroud

Dimensions	Material	Colour	Marking	IK Protection	Part No.
Ø 65 mm	plastic	Yellow		IK 07	704.927.6
	plastic	Yellow	NOT-AUS	IK 07	704.927.6A
	plastic	Yellow	EMERGENCY-STOP	IK 07	704.927.6B
	plastic	Yellow	EMERGENCY-STOP / NOT-AUS	IK 07	704.927.6C

Additional information

- Front panel thickness 1 … 2.5 mm other actuators
- Front panel thickness 1 … 2.5 mm with emergency stop switch
- With anti-twist device
- When using a protective shroud the e-stop or stop-switch has to be turned by 180° to be mounted. See dimensional drawing
- Do not use solvents when cleaning



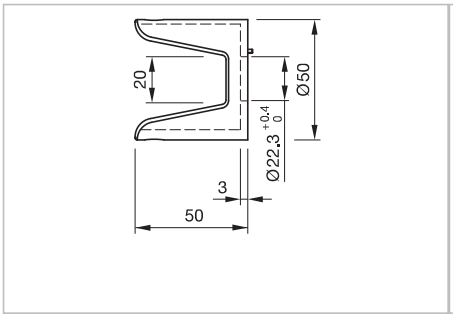
Dimensions [mm]

Protective shroud

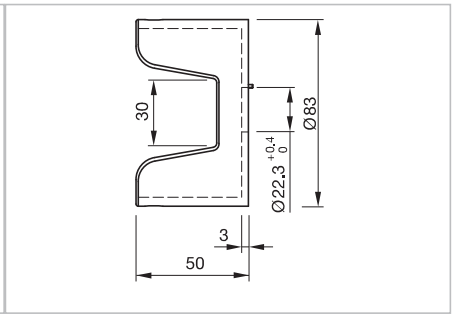
Product attributes	Dimensions	Material	Colour	Part No.
Use only for Part No. 704.064.2 und 704.066.2	Ø 50 mm	plastic	Yellow	704.927.8
	Ø 83 mm	plastic	Yellow	704.927.9

Additional information

- The protection shroud Part is not suitable for a proper use of emergency-stop. It can obstruct a spontaneous operation of the emergency-stop switch
- Use only for Part No. 704.064.2 und 704.066.2



Dimensions [mm]



Dimensions [mm]

Marking foil square

Product attributes	Material	Colour	Optics	Part No.
For lens square, front illumination	plastic	Colourless	transparent	704.707.7
For lens square, full-face illumination	plastic	Colourless	transparent	704.706.7

Additional information

- Can be hot stamped

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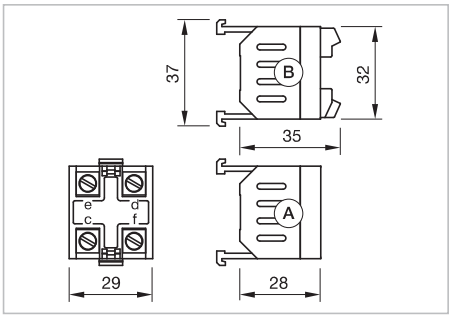
Rear side

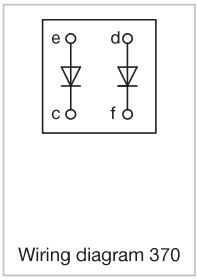
Diode block

Terminal	Part No.	Wiring diagram
Push-in Terminal	704.942.5P	370
Screw terminal	704.942.5	370

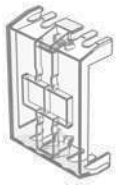


Dimensions [mm]
A = Screw terminal
Push-in terminal (PIT)

Wiring diagrams

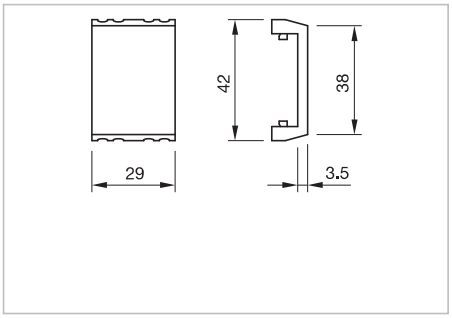


Wiring diagram 370



Terminal cover

Product attributes	Material	Part No.
For covering of screw terminal	plastic	704.964.5



Dimensions [mm]

Terminal marking

Product attributes	Marking	Part No.
2 NO for 1st or 2nd switching element	13/23 33/43	704.965.1
	24/14 44/34	704.965.2
2 NO for 3rd switching element	53/63 73/83	704.965.3
	64/54 84/74	704.965.4
2 NC for 1st or 2nd switching element	11/21 31/41	704.965.5
	22/12 42/32	704.965.6
2 NC for 3rd switching element	51/61 71/81	704.965.7
	62/52 82/72	704.965.8
1 NC + 1 NO for 1st or 2nd switching element	13/21 33/41	704.965.9
	22/14 42/34	704.966.0
1 NC + 1 NO for 3rd switching element	53/61 73/81	704.966.1
	62/54 82/74	704.966.2

Side terminal plate empty

Product attributes	Dimensions	Part No.
5 spaces	62.5 mm x 15 mm x 60 mm	02-912.1
10 spaces	125 mm x 15 mm x 60 mm	02-912.2
15 spaces	187.6 mm x 15 mm x 60 mm	02-912.3
20 spaces	250 mm x 15 mm x 60 mm	02-912.4

Contact bridge

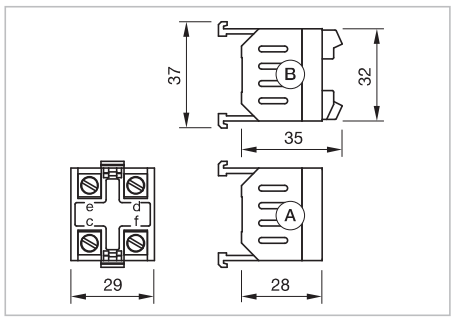
Material	Part No.
metal	704.990.1

Additional information

- For switching element with screw terminals
- Do not insert by Emergency-stopp switches and by stop switches
- Available in unit of 10 pieces

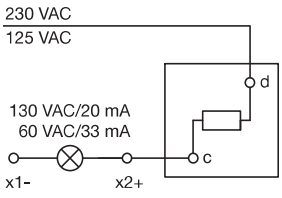
Resistor block

Product attributes	Material	Operating voltage	Terminal	Part No.	Wiring diagram
Lamp voltage/-current 130 V, 20 mA	plastic	130 - 230 V AC	Screw terminal	704.941.0	372
Lamp voltage/- current 60 V, 33 mA	plastic	33 - 60 V AC	Push-in Terminal	704.941.5P	372
	plastic	33 - 60 V AC	Screw terminal	704.941.5	372



Dimensions [mm]
A = Screw terminal
Push-in terminal (PIT)

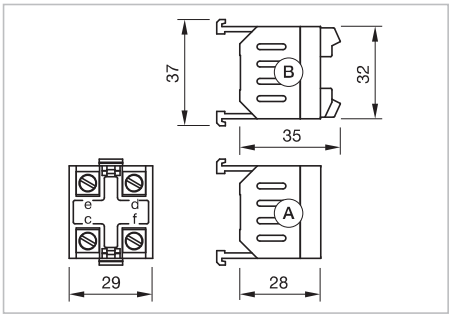
Wiring diagrams



Wiring diagram 372

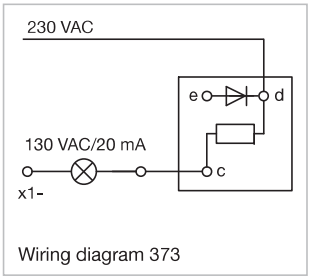
Side resistor diode block

Product attributes	Material	Operating voltage	Terminal	Part No.	Wiring diagram
Lamp voltage/-current 130 V, 20 mA	plastic	130 - 230 V AC	Screw terminal	704.941.9	373



Dimensions [mm]
A = Screw terminal
Push-in terminal (PIT)

Wiring diagrams

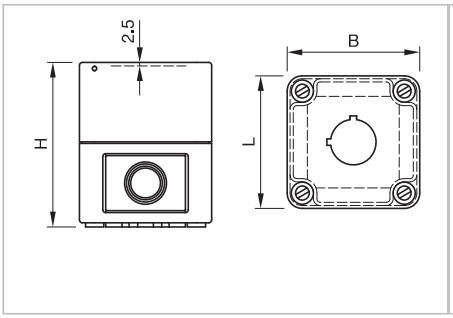


Wiring diagram 373

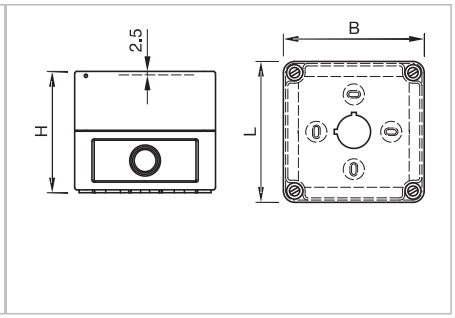
Mounting

Enclosure

Product attributes	Dimensions	Material	Colour	IP Protection	Part No.
Bottom grey similar RAL 7035; cover lead-sealable, yellow similar RAL 1004	94 mm x 81 mm x 94 mm	plastic	Grey	IP66	704.945.0
	65 mm x 81 mm x 65 mm	plastic	Grey	IP66	704.945.7
	94 mm x 81 mm x 65 mm	plastic	Grey	IP66	704.945.8
With mounting cut-out 1 x Ø 22.5 mm, with anti-twist device	94 mm x 81 mm x 94 mm	plastic	Grey	IP66	704.945.1
with mounting cut-out 2 x Ø 22.3 mm, with anti-twist device	130 mm x 81 mm x 94 mm	plastic	Grey	IP66	704.945.2
with mounting cut-out 3 x Ø 22.3 mm, with anti-twist device	180 mm x 81 mm x 94 mm	plastic	Grey	IP66	704.945.3
with mounting cut-out 4 x Ø 22.3 mm, with anti-twist device	180 mm x 110 mm x 182 mm	plastic	Grey	IP66	704.945.4
with mounting cut-out 6 x Ø 22.3 mm, with anti-twist device	180 mm x 110 mm x 182 mm	plastic	Grey	IP66	704.945.5



Dimensions [mm]



Dimensions [mm]

Lens plug

Product attributes	Material	Part No.
For mounting and dismantling of the round lens, flush design	plastic	700.006.0

Lens remover

Product attributes	Material	Part No.
For dismantling of the square lens, flush design	metal	98-968

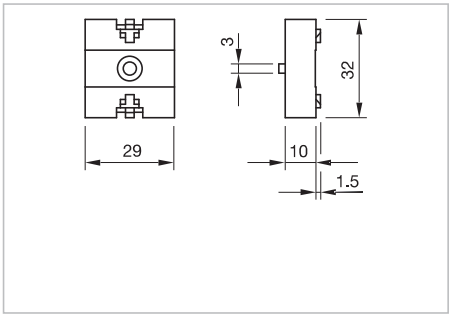
Cable gland

Product attributes	Material	Colour	IP Protection	Thread	Part No.
With traction relief	plastic	Grey	IP68	M16 x 1.5 mm	61-9481.6
	plastic	Grey	IP68	M20 x 1.5 mm	704.945.6

04 Accessories

Mounting plate

Product attributes	Material	Colour	Part No.
For separate mounting of lamp transformer, resistor block or capacitor block	plastic	Grey	704.940.8



Dimensions [mm]

Mounting tool indicator

Product attributes	Material	Part No.
For Indicators full-face illumination, compact	metal	700.005.0

Mounting tool key insert switch and conductor switch

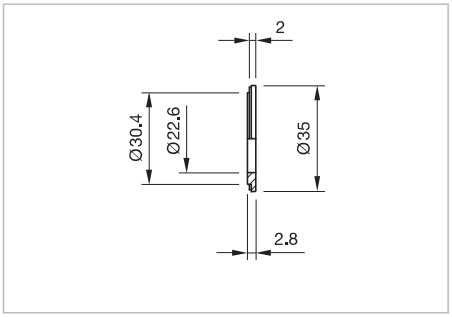
Product attributes	Material	Part No.
For key insert switch	metal	704.990.0

Reducing ring

Product attributes	Material	Colour	Surface	Part No.
	aluminium	Black	anodised	704.960.0
	aluminium	Nature	anodised	704.960.8
With slot for anti-twist device	aluminium	Nature	anodised	704.960.8A

Additional information

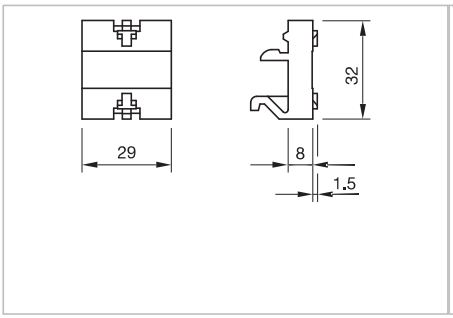
- Devices Ø 22.3 mm in mounting cut-out Ø 30.5 mm
- The colour of anodised aluminium parts can vary due to technical production reasons



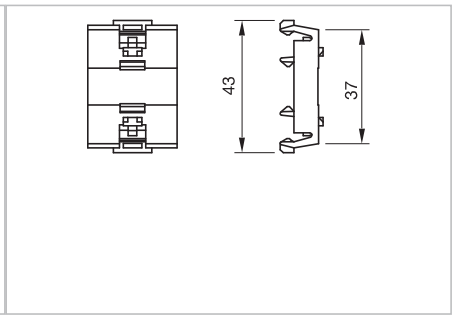
Dimensions [mm]

On base

Product attributes	Material	Colour	Optics	Part No.
To snap-on, for seperate mounting of lamp transformer, resistor block or capacitor block	plastic	Black		704.940.9
	plastic	Colourless	transparent	704.941.1



Dimensions [mm]



Dimensions [mm]

Reinforcement ring

Dimensions	Material	Surface	Part No.
44 mm x 3 mm x 29 mm	steel_plate	galvanized	704.960.9

Additional information

- For thin front panels and plastic case

04 Tecnical data

Slow-make switching element

Switching system

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

Slow-make contacts with forced action are ideal for high switch ratings.

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

For the emergency-stop pushbutton use the slow-make switching element (max. 2).

Material

Material of contact
Hard silver, gold-silver, silver-palladium (for aggressive atmospheres)

Switch housing
Plastic

Mechanical characteristics

Terminals
Screw terminals
Plug-in terminals 6.3 mm x 0.8 mm
Max. wire cross-section 2 x 2.5 mm²
Max. wire cross-section of stranded cable 2 x 1.5 mm²
For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting cut-outs)

Tightening torque
Screws at the plastic mounting flange max. 0.4–0.5 Nm
Screws at the metal mounting flange max. 0.25–0.3 Nm
Screws at switching element max. 0.50 Nm

Actuating force
1 Normally closed 2 N
1 Normally open 3.1 N

Actuating travel
Approx. 5.8 mm ±0.2 mm

Mechanical lifetime
(with 1 switching element)

Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Emergency-stop switch	50 000 cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards
The switches comply with the “Standards for low-voltage switching devices” DIN EN 60947-5-1

Rated Insulation Voltage U_i
500 VAC/600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
10 A

Switching voltage and switching current
as per EN IEC 60947-5-1

AC-15: 230 V, 7 A	AC-15: 400 V, 5 A
AC-15: 500 V, 4 A	DC-13: 24 V, 10 A
DC-13: 60 V, 5 A	DC-13: 110 V, 2.5 A

Recommended minimum operational data
Gold-silver contacts:

Voltage	24 VDC	110 VDC
Current	5 mA	2 mA

Hard silver contacts:

Voltage	24 VDC	110 VDC
Current	50 mA	10 mA

Protection class
Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP00

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² pulse width 11 ms, as per EN IEC 60068-2-27

Vibration resistance
(sinusoidal)
100 m/s² at 10 Hz … 500 Hz, amplitude 0.75 mm, as per EN IEC 60068-2-6

Approvals

Approbations
CB (IEC 60947-5-1 ,IEC60947-5-5))
CCC
CSA
DNV GL (previously Germanischer Lloyd)
EAC
NFF 16-102
UL
SEV (EN/IEC 60947-5-1, EN/IEC 60947-5-5)

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

Snap-action switching element

Switching system

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

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

Snap-action switching elements are not permissible for emergency-stop pushbuttons!

Material

Material of contact
Hard silver, gold-silver, silver-palladium (for aggressive atmospheres)

Switch housing
Plastic

Mechanical characteristics

Terminals
Screw terminals
Plug-in terminals 6.3 x 0.8 mm
Max. wire cross-section 2 x 2.5 mm²
Max. wire cross-section of stranded cable 2 x 1.5 mm²
For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting cut-outs)

Tightening torque
Screws at the plastic mounting flange max. 0.4–0.5 Nm
Screws at the metal mounting flange max. 0.25–0.3 Nm
Screws at switching element max. 0.50 Nm

Actuating force
1 Normally closed 1.9 N
1 Normally open 2 N

Actuating travel
Approx. 5.8 mm ±0.2 mm

Mechanical lifetime
(with 1 switching element)

Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards
The switches comply with the “Standards for low-voltage switching devices” DIN EN 60947-5-1

Rated Insulation Voltage U_i
500 VAC/600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
10 A

04 Tecnical data

Switching voltage and switching current
as per EN IEC 60947-5-1 (cosφ 0.3)
AC-15: 230 V, 6 A AC-15: 400 V, 4 A
AC-15: 500 V, 2,5 A DC-13: 24 V, 10 A
DC-13: 60 V, 3 A DC-13: 110 V, 1 A

Recommended minimum operational data
Gold-silver contacts:

Voltage	5 VDC	24 VDC	110 VDC
Current	15 mA	5 mA	2 mA

Hard silver contacts:

Voltage	24 VDC	110 VDC
Current	50 mA	10 mA

Protection class
Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP00

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Vibration resistance
(sinusoidal)
100 m3/s² at 10 Hz … 500 Hz, amplitude 0.75 mm, as per DIN EN 60068-2-6

Approvals

Approbations
CB (IEC 60947-5-1)
CCC
CSA
DNV GL (previously Germanischer Lloyd)
EAC
NFF 16-102
UL
SEV (EN/IEC 60947-5-1

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

Slow-make switching element PIT

Switching system

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

Slow-make contacts with forced action are ideal for high switch ratings.

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

For the emergency-stop pushbutton use the slow-make switching element (max. 2).

Material

Material of contact
Hard silver and gold-silver

Switch housing
Plastic

Mechanical characteristics

Terminals
PIT push-in terminal
Skinning 8 mm
Wire cross-section:
Wire 0.2 to 1.0 mm²
Stranded wire 0.2 to 1.0 mm² without core and sleeve
Stranded wire 0.2 to 0.75 mm² with core and sleeve

Tightening torque
Screws at the mounting flange max. 0.4–0.5 Nm

Actuating force
1 Normally closed 2 N
1 Normally open 3.1 N

Actuating travel
approx. 5.8 mm ±0.2 mm

Mechanical lifetime
(with 1 switching element)

Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Emergency-stop switch	50 000 cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards
The switches comply with DIN EN 60947-1/EN IEC 60947-5-1

Rated Insulation Voltage U_i
500 VAC/600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
6 A

Switching voltage and switching current
as per DIN EN 60947-5-1
AC-15: 230 V, 6 A
DC-13: 24 V, 10 A
DC-13: 60 V, 3 A
DC-13: 110 V, 1 A

Recommended minimum operational data
Gold-silver contacts:
Voltage 24 VDC
Current 5 mA

Hard silver contacts:
Voltage 24 VDC
Current 50 mA

Protection class
Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP20

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Approvals

Approbations
CB (IEC 60947-5-1, IEC 60947-5-5)
CCC
CSA
DNV GL (previously Germanischer Lloyd)
EAC
NFF 16-102
UL
SEV (EN 60947-5-1, EN 60947-5-5)

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

Snap-action switching element PIT

Switching system

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

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

Snap-action switching elements are not permissible for emergency stop pushbuttons!

Material

Material of contact
Hard silver and gold-silver

Switch housing
Plastic

Mechanical characteristics

Terminals
PIT push-in terminal
Skinning 8 mm
Wire cross-section:
Wire 0.2 to 1.0 mm²
Stranded wire 0.2 to 1.0 mm² without core and sleeve
Stranded wire 0.2 to 0.75 mm² with core and sleeve

Tightening torque
Screws at the mounting flange max. 0.4–0.5 Nm

Actuating force
1 Normally closed 1.9 N
1 Normally open 2 N

Actuating travel
Approx. 5.8 mm ±0.2 mm

Mechanical lifetime
(with 1 switching element)

Pushbutton maintained action	1.5 million cycles of operation
Pushbutton momentary action	3 million cycles of operation
Selector switch maintained action	1.25 million cycles of operation
Selector switch momentary action	2.5 million cycles of operation
Keylock switch maintained action	25 000 cycles of operation
Keylock switch momentary action	50 000 cycles of operation

Electrical characteristics

Standards
The switches comply with DIN EN 60947-1/DIN EN 60947-5-1

Rated Insulation Voltage U_i
500 VAC / 600 VDC, as per DIN EN 60947-5-1

Electrical life
50 000 cycles of operations

Thermal current I_{th}
6 A

Switching voltage and switching current
as per DIN EN 60947-5-1
AC-15: 230 V, 6 A
DC-13: 24 V, 6 A
DC-13: 60 V, 3 A
DC-13: 110 V, 1 A

Recommended minimum operational data
Gold-silver contacts:
Voltage 24 VDC
Current 5 mA

Hard silver contacts:
Voltage 24 VDC
Current 50 mA

Protection class
Indicators and switches, fit for mounting into devices with protection class II

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP20

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Vibration resistance
(sinusoidal)
100 m/s² at 10 Hz … 500 Hz, as per DIN EN 60068-2-6 and EN 61373 Increased broad band noise, class 1B

Approvals

Approbations
CB (IEC 60947-5-1)
CSA
DNV GL (previously Germanischer Lloyd)
EAC
NFF 16-102
UL
SEV (EN/IEC 60947-5-1)

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

Lamp block

Material

Housing
Plastic

Mechanical characteristics

Terminals
Screw terminals
Plug-in terminals 6.3 x 0.8 mm
Max. wire cross-section 2 x 2.5 mm²
Max. wire cross-section of stranded cable 2 x 1.5 mm²
For switches with plug-in terminals it is necessary to provide insulation sleeves and to maintain a spacing of 65 mm between rows (mounting cut-outs)

Tightening torque
Screws at lamp block max. 0.5 Nm

Electrical characteristics

Standards
The switches comply with DIN EN 60947-1/DIN EN 60947-5-1

Illumination
Voltage 250 V max.
Power 2.6 W max.
BA9s standard adaptable.

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP00

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Vibration resistance
(sinusoidal)
100 m/s² at 10 Hz … 500 Hz, as per DIN EN 60068-2-6 and EN 61373 Increased broad band noise, class 1B

04 Tecnical data

Lamp block PIT

Material

Housing
Plastic

Mechanical characteristics

Terminals
PIT push-in terminal
Skinning 8 mm
Wire cross-section:
Wire 0.2 to 1.0 mm²
Stranded wire 0.2 to 1.0 mm² without core and sleeve
Stranded wire 0.2 to 0.75 mm² with core and sleeve

Electrical characteristics

Standards
The switches comply with EN IEC 60947-1/EN IEC 60947-5-1

Illumination
Voltage 250 V max.
Power 2.6 W max.
BA9s standard adaptable.

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
IP20

Shock resistance
(single impacts, semi-sinusoidal)
300 m/s² pulse width 11 ms, as per DIN EN 60068-2-27

Vibration resistance
(sinusoidal)
100 m/s² at 10 Hz … 500 Hz, as per DIN EN 60068-2-6 and EN 61373 Increased broad band noise, class 1B

Dual lamp block

Material

Housing
Plastic

Mechanical characteristics

Terminals
PIT push-in-terminal
Strip length L = 8 mm

Wire cross section
Max. wire cross section 0.2 to 1.0 mm²
Max. wire cross section of stranded cable 0.2 bto 0.75 mm² with bootlace ferrules

Electrical characteristics

Lighting
Illuminant = 2 SMD-LEDs white

Operating voltages
24 VDC (–30 % / +25 %)
110 VDC (–30 % / +25 %)

Operating current
Typ. 8 mA

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–40 °C … +60 °C
(other temperatures on request)

Degree of protection
IP20

Resistance to shock
500 m/s², pulse duration 11 ms, according to EN IEC 60068-2-27 (semi-sinusoidal)

Broadband noise
5.72 m/s² per axis, 5 h (duration), class 1B according to DIN EN 61373

Approvals

Approbations
UL-94 V0
EN 45545

Buzzer

Buzzer

System
Piezo disc

Material

Buzzer case
Plastic

Front cap
Flush design
Aluminium black anodised
Aluminium natural anodised

Raised design
Plastic
Metal = nickel-plated brass (sea-water proof)

Mechanical characteristics

Terminals
Plug-in terminal 2.8 x 0.5 mm

Tightening torque
For fixing nut max. 0.25 Nm

Acoustic characteristics

Frequency (tone)
Approx. 2.8 kHz continuous tone only

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

Electrical characteristics

Operation Voltage/Current
Operation Voltage 24 VDC ±10 %
Operation Current ≤ 25 mA

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
As per DIN EN 60529, frontside
IP40, devices flush design
IP65, devices raised design

Approvals

Conformities
CE
2014/35/EU (LVD)
2011/65/EC (RoHS)

04 Tecnical data

Actuator

Material

Front ring
Polyamide, Aluminium or Stainless steel

Mounting flange
Plastic, metal

Actuator housing
Plastic

Mechanical characteristics

Actuating force
Mounting style square flush 6.2 N
Other mounting styles 8 N

Actuating travel
Approx. 5.8 mm ± 0.2 mm

Mechanical lifetime
(with 1 switching element)

Pushbutton	≤ 3 million cycles of operation
Selector switch	≤ 2.5 million cycles of operation
Stop switch	≤ 50 000 cycles of operation
Fool proofed E-stop	≥ 50 000 cycles of operation
Keylock switch	≤ 50 000 cycles of operation
Key insert switches	≤ 250 000 cycles of operation

Keylock switch
The standard lock number is 251, the last digit of the device Part No. = 0 (example: 704.335.0).
Additional lock numbers are available:
252 last digit = 1; 253 last digit = 2; 254 last digit = 3
255 last digit = 4, 256 last digit = 5; 257 last digit = 6
258 last digit = 7; 259 last digit = 8; 260 last digit = 9

Electrical characteristics

Standards
The switches comply with the “Rules for low-voltage switching devices” EN IEC 60947-5-1

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C
(other temperatures on request)

Protection degree
As per EN IEC 60529
IP65 front side (IP65 and IP67 Key insert switch)

Rotary selector switching element

Mechanical characteristics

Terminals
Screw terminals
Terminal lead material copper wires only
Max. permissible wire gage:
Single-core or stranded wire 2 x 1.5 mm² (2 x AWG 14)
Flexible wire 2 x 1.5 mm² (2 x AWG 16)

Tightening torque
For fixing nut max. 0.25 Nm

Number of stages
1 to 8 positions max.

Number of contacts
1 to 16 max. normally open contacts
(contact positioning according circuit drawing)

Switching angle
Basic position of switching position “A” is 9 o’clock

Maintained action	Switching angle
12 max.	30°
8 max.	45°
6 max.	60°
4 max.	90°

Momentary action with release 24°
(provide at the beginning or at the end)

Standard type of Kraus & Naimer
CG4 Hard Silver contacts with 1 µm Gold layer
CG4-1 Hard Silver contacts with 35 µm Gold layer

Electrical characteristics

Minimum Voltage
20 V

Rated Impulse Withstand Voltage U_{imp}
4 kV

Short Circuit Protection
Max. fuse size (gL-characteristic) 10 A
Rated short-time withstand current (1s-current) 90 A

Electrical characteristics for AC

Standards
The devices comply with: DIN EN 60947-3, VDE 0660 part 107

Rated Operational Voltage U_e
440 V

Rated Insulation Voltage U_i
440 V

Rated Thermal Current I_u / I_{th}
10 A

Rated Operational Current I_e
AC-15 Switching of control devices, contactors, valves etc.

110 V – 120 V	2.5 A	
220 V – 240 V	2.5 A	
380 V – 440 V	1.5 A	

No load operation
10 A

AC-21A Switching of resistive loads, including moderate overloads
For switching of power > 1 kW
10 A

AC-22A Switching of combined resistive or low inductive loads including moderate overloads
220 V – 240 V 10 A

Rated Utilization Category
AC-2 Slip ring motor starting, reversing and plugging, star-delta starting 3 phase, 3 pole

220 V – 240 V	2.5 kW	
380 V – 440 V	4.5 kW	

AC-3 Direct-on-line starting, star-delta starting

3 phase, 3 pole	220 V – 240 V	2.50 kW
	380 V – 440 V	2.20 kW
1 phase, 2 pole	110 V – 120 V	0.30 kW
	220 V – 240 V	0.55 kW
	380 V – 440 V	0.75 kW

AC-Direct-on-line starting, reversing, plugging and inching

3 phase, 3 pole	220 V – 240 V	0.37 kW
	380 V – 440 V	0.55 kW
1 phase, 2 pole	110 V – 120 V	0.15 kW
	220 V – 240 V	0.25 kW
	380 V – 440 V	0.50 kW

AC-23A Frequent switching of motors or other high inductive loads

3 phase, 3 pole	220 V – 240 V	1.80 kW
	380 V – 440 V	3.00 kW
1 phase, 2 pole	110 V – 120 V	0.37 kW
	220 V – 240 V	0.75 kW
	380 V – 440 V	1.10 kW

Overvoltage category
III, valid for lines with grounded common neutral termination

Degree of pollution
3, valid for lines with grounded common neutral termination

Electrical characteristics for AC (UL/Canada)

Rated operational voltage
300 V

Rated Insulation Voltage U_i
300 V

Rated Thermal Current
10 A

Ampere Rating
Resisitve or low inductive loads, for switching of power > 1 kW, 10 A

Ratings
Standard motor load, DOL Rating (similar AC-3)

3 phase, 3 pole	110 V – 120 V	0.75 HP
	220 V – 240 V	1.00 HP
1 phase, 2 pole	110 V – 120 V	0.33 HP
	220 V – 240 V	0.75 HP
	277 V – 277 V	0.75 HP

Pilot Duty, Heavy
300 VAC

04 Tecnical data

Electrical characteristics for DC

Switching voltage and switching current DC

Resistive loads T ≤ 1 ms

Number of series contact(s)							Switch
1	2	3	4	5	6	8	capacity
24 V	48 V	70 V	95 V	120 V	145 V	190 V	10.0 A
48 V	95 V	140 V	190 V	240 V	290 V	350 V	6.0 A
60 V	120 V	180 V	240 V	300 V	360 V	450 V	2.5 A
110 V	220 V	330 V	440 V	550 V	660 V		0.7 A
220 V	440 V	660 V					0.3 A
440 V	660 V						0.2 A

Inductive loads T = 50 ms

Number of series contact(s)							Switch
1	2	3	4	5	6	8	capacity
24 V	48 V	70 V	95 V	120 V	145 V	190 V	6.0 A
30 V	60 V	90 V	120 V	150 V	180 V	240 V	3.0 A
48 V	95 V	140 V	190 V	240 V	290 V	350 V	1.0 A
60 V	120 V	180 V	240 V	300 V	360 V	450 V	0.7 A
110 V	220 V	330 V	440 V	550 V	660 V		0.3 A

Ambient conditions

Operating temperature

Ambient Temperatures of Stages

open at 100 % I_u / I_{th}	55 °C during 24 h with peaks up to 60 °C
enclosed at 100 % I_{the}	35 °C during 24 h with peaks up to 40 °C

Flasher

Material

Housing

Plastic, in accordance with UL 94 V0

Mechanical characteristics

Terminals

Screw terminal

Electrical characteristics

Flasher frequency

1.5 Hz

Relative duty factor

Approx. 50 %

Ambient conditions

Operating temperature

0° … +50 °C

Protection degree

Rear side IP30

Emergency call switch

Material

Lens
Aluminium red

Front bezel
Aluminium natural

Mechanical characteristics

Terminals
Screw terminal
Max. wire cross-section 2 x 2.5 mm²
Max. wire cross-section of stranded cable 2 x 1.5 mm²

Mechanical lifetime
As per IEC 337-1/2
50 000 cycles of operation with 1 switching element

Switching element
Sap-action switching element

Ambient conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C

Protection degree
IP65 front side

Approvals

Approbations
SEV
CSA
UL
ENEC
DNV GL (previously Germanischer Lloyd)
CB

Conformities
CE

EAO reserves the right to alter specifications without further notice.

04 Marking

General notes

1. Engraving
In addition to the most commonly used world languages, in DIN1451-3 close spacing, other typefaces are available as Scandinavian, Slavic, Greek, Russian and Polish. Red, blue and black lenses are filled with white colour. Other colour lenses are filled in black. Standard height of letters is 3 mm. If the height is not specified, we will supply 3 mm engraved letters.

2. Hot stamping
For larger series it is worth considering markings by means of hot stamping. We will pleased to advise you. For letters and figures, typefaces with 2.5 mm, 3 mm and 4 mm are available.

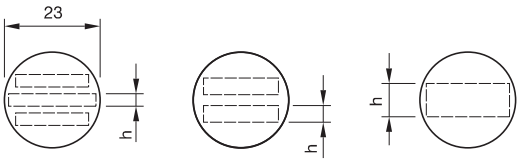
3. Film inserts
Instead of using engraving the square lenses can be fitted with film inserts, as an alternative. Film thickness is 0.25 mm. Max. film size: for Indicator 24.5 x 24.5 mm, for illuminated pushbutton 21.5 x 21.5 mm.

Engraving marking cap for Indicator round, full face illumination

All dimensions in mm

Height of text cap	Height of letters h	Number of lines	Number of capital letters per line (guide value)	Number of lowercase letters per line (guide value)	Picture
Text cap (Ø 23)	3	3	8-9	9-10	B1
	4	3	5-7	6-8	B1
	8	3	–	–	B1
	3	2	8	9	B2
	4	2	5	6	B2
	8	2	2	2	B2
	3	1	9	10	B3
	4	1	7	8	B3
	8	1	3	3-4	B3

B1 B2 B3



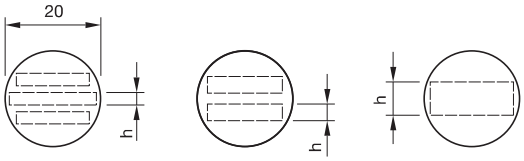
The gap between two words results in each case a letter less.

Engraving marking plate for Indicator and illuminated Pushbutton round, front illumination

All dimensions in mm

Height of marking plate	Height of letters h	Number of lines	Number of capital letters per line (guide value)	Number of lowercase letters per line (guide value)	Picture
Marking plate (Ø 20)	3	3	6-8	7+9	B1
	4	3	5-6	6-7	B1
	8	3	–	–	B1
	3	2	6	7	B2
	4	2	5	6	B2
	8	2	1	2	B2
	3	1	8	9	B3
	4	1	6	7	B3
	8	1	3	3	B3

B1 B2 B3

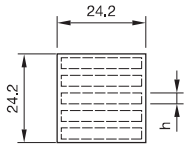


The gap between two words results in each case a letter less.

Engraving diffusor cap for Indicator square, full face illumination

All dimensions in mm

Height of letters h	Number of lines	Number of capital letters per line (guide value)	Number of lowercase letters per line (guide value)
2.5	6	12	13
3.0	5	10	11
4.0	4	7	8
5.0	3	6	7
6.0	3	5	5-6
8.0	2	4	4–5



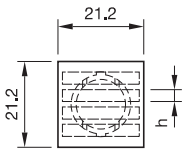
The gap between two words results in each case a letter less.

04 Marking

Engraving lens holder for Indicator and Illuminate Pushbutton square, front illumination

All dimensions in mm

Height of letters h	Number of lines	Number of capital letters per line (guide value)	Number of lowercase letters per line (guide value)
2.5	5	10	11
3.0	5	9	9-10
4.0	4	6	7
5.0	3	5	6
6.0	1	4	4-5
8.0	2	2-3	3



The gap between two words results in each case a letter less.

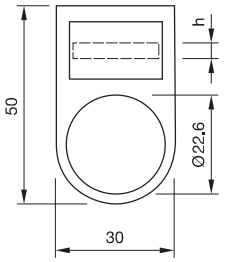
Important: Consider lens holder mounting orientation before specifying engraving charachters!

Engraving legend plates

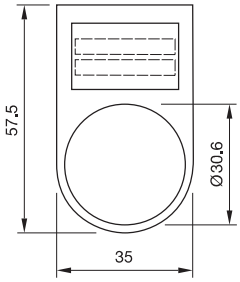
All dimensions in mm

Dimension	Devices mounting style	Height of letters h	Number of lines	Number of capital letters per line (guide value)	Number of lowercase letters per line (guide value)	Picture
30 x 50	round, raised	3	2	10	11	B1
		4	1	7	8	B1
		8	1	3	4	B1
35 x 57.5	round, flush	3	2	10	11	B2
		4	1	7	8	B2
		8	1	3	4	B2
18 x 35	square, flush	3	3	15	16	B3
		4	2	10	12	B3

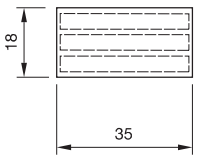
B1



B2



B3



The gap between two words results in each case a letter less.

Standard texts for marking plates and marking caps for Indicator and Illuminated Pushbutton

Height of letters 6 mm

 Part No. 704.609.912001	 Part No. 704.609.912002	 Part No. 704.609.912003	 Part No. 704.609.912004
 Part No. 704.609.912005	 Part No. 704.609.912006	 Part No. 704.609.912007	 Part No. 704.609.912008
 Part No. 704.609.912009	 Part No. 704.609.912010	 Part No. 704.609.912011	 Part No. 704.609.912012
 Part No. 704.609.912013	 Part No. 704.609.912014	 Part No. 704.609.912015	 Part No. 704.609.912016
 Part No. 704.609.912017	 Part No. 704.609.912018		

04 Marking

Symbols for marking plates and marking caps for Indicator and Illuminated Pushbutton

All marking plates with the printed article-numbers are available for flat lenses, marking cap only on request.

 Part No. 704.609.910001 Direction of linear rectilinear motion (also for ⟶ ⇅)	 Part No. 704.609.910002 Linear motion in 2 directions (also for ⇕)	 Part No. 704.609.910004 Limited linear motion (also for ⟷ ⇅)	 Part No. 704.609.910007 Direction of continuous rotation (right)
 Part No. 704.609.9100071 Direction of continuous rotation (left)	 Part No. 704.609.910008 Rotation in 2 directions	 Part No. 704.609.910009 Direction of interrupted rotation (right)	 Part No. 704.609.910010 Limited rotation (right)
 Part No. 704.609.9100101 Limited rotation (left)	 Part No. 704.609.910013 Direction of spindle rotation	 Part No. 704.609.910026 Rapid traverse	 Part No. 704.609.910028 Increase of value (speed, for instance)
 Part No. 704.609.910029 Decrease of value (speed, for instance)	 Part No. 704.609.910041 Electric motor	 Part No. 704.609.910048 Pump (general symbol)	 Part No. 704.609.9100631 Lock or tighten
 Part No. 704.609.9100632 Lock or tighten	 Part No. 704.609.9100641 Unlock, unclamp	 Part No. 704.609.9100642 Unlock, unclamp	 Part No. 704.609.910065 Brake on
 Part No. 704.609.910066 Brake off	 Part No. 704.609.910067 Automatic (or semi-automatic) cycle	 Part No. 704.609.910068 Hand control	 Part No. 704.609.910069 Start, on
 Part No. 704.609.910070 Stop, off	 Part No. 704.609.910071 Start and stop with same button	 Part No. 704.609.910072 In action as long as button is operated	 Part No. 704.609.910074 Engaging (mechanical start)
 Part No. 704.609.910075 Disengaging (mechanical stop)	 Part No. 704.609.910092 Danger (high voltage)!	 Part No. 704.609.910093 Caution!	 Part No. 704.609.910101 Coolant fluid
 Part No. 704.609.910102 Machine lighting	 Part No. 704.609.910108 Blast		

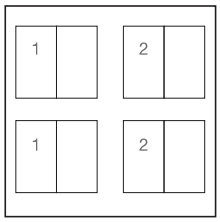
Terminal Markings

We supply the switch elements with terminal marking labels inserted, the figures always being visible for the first element (immediately following the actuator). Therefore, when two switch elements are used, these inserts have to be turned for the second element. Then the numbers appear as described under III.

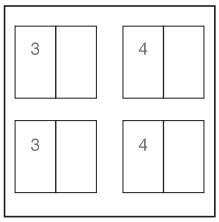
If more than two switch elements are used, this should be noted on your order, in order that we may insert and deliver the marking labels accordingly.

I. Consecutive numbering of switch systems
(2 per switch element)

First switch element



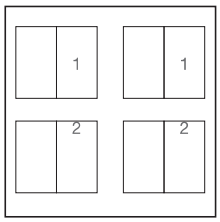
Second switch element



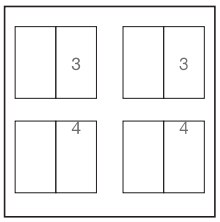
When more than 2 switch elements are used, the numbering is sequenced accordingly (5, 6 etc.).

II. Marking of normally closed contact, normally open contact and their combinations

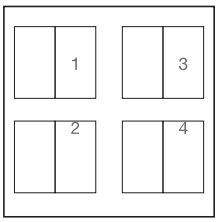
Normally closed (1–2)



Normally open (3–4)

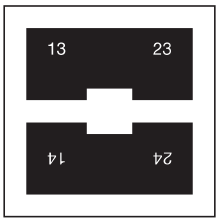


Normally closed/open

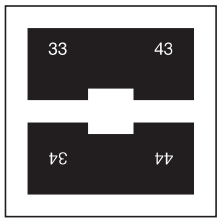


III. Example of the correct insertion of the labels for 2 switch elements with normally open contacts

First switch element



Second switch element



Labels for normally closed and normally closed/normally open contacts should be inserted accordingly.

04 Application guidelines

Suppressor circuits

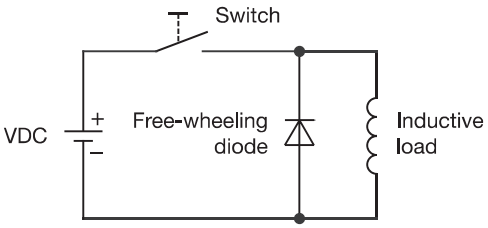
When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e. g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

Fig. 1 shows an inductive load with a free-wheeling diode connected in parallel. This free-wheeling diode provides a path for the inductor current to flow when the current is interrupted by the switch. Without this free-wheeling diode, the voltage across the coil will be limited only by dielectric breakdown voltages of the circuit or parasitic elements of the coil. This voltage can be kilovolts in amplitude even when nominal circuit voltages are low (e. g. 12 VDC) see Fig. 2.

The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (VR) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current flowing through the load.

To get an efficient protection, the free-wheeling diode must be connected as close as possible to the inductive load!

Switching with inductive load
Fig. 1



Counter EMF
over load without free-wheeling diode
Fig. 2