

Series 04

22.5mm 30.5mm IP65 10A 500VAC



Choose one component from each of the coloured sections to assemble a complete switch.

Product Profile

The Series 04 is a high quality switch range that includes pushbuttons, indicators, selectors, mushroom headed switches, key switches, and Emergency-stops.

Options include self cleaning, slow-make and snap-action switching elements.

Technical data see page 25

- IP65 Protection
- Switch Rating:
Maximum Voltage, 500VAC
Maximum Thermal Current, I_{th} = 10A
230VAC/6A, 24VDC/10A
- Raised Mounting into 22.5 mm cut out
- Flush Mounting into 30.5 mm cut out
- Illumination using Ba9s Lamps or LED's
- All standard lenses are transparent with translucent diffuser
- Screw terminal or plug-in connections

Indicator



Indicator, round, full face, 22.5mm mounting

Colour	Part No.
● Red	704.000.2
● Yellow	704.000.4
● Green	704.000.5
● Blue	704.000.6
○ Clear	704.000.7



Indicator, flush mount, aluminium bezel, 30.5mm mounting

Colour	Part No.
● Red	704.006.218
● Yellow	704.006.418
● Green	704.006.518
● Blue	704.006.618
○ Clear	704.006.718

For complete switch also order

For complete switch also order

Indicator



Indicator, flush mount, silver plastic bezel, 30x30mm mounting

Colour	Part No.
● Red	704.202.208
● Yellow	704.202.408
● Green	704.202.508
● Blue	704.202.608
○ Clear	704.202.708

Non-Illuminated pushbutton



Non-Illuminated raised pushbutton, grey plastic bezel, 22.5mm mounting

Colour	Part No., Momentary	Part No., Maintained
● Red	704.010.2	704.040.2
● Yellow	704.010.4	704.040.4
● Green	704.010.5	704.040.5
● Blue	704.010.6	704.040.6
○ Clear	704.010.7	704.040.7
● Black	704.010.0	704.040.0



Non-Illuminated raised pushbutton, aluminium bezel, 22.5mm mounting

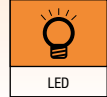
Colour	Part No., Momentary	Part No., Maintained
● Red	704.012.2	704.042.2
● Yellow	704.012.4	704.042.4
● Green	704.012.5	704.042.5
● Blue	704.012.6	704.042.6
○ Clear	704.012.7	704.042.7
● Black	704.012.0	704.042.0

For complete switch also order

For complete switch also order **A**

For complete switch also order **A**

Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.



Non-Illuminated pushbutton **Illuminated pushbutton**



Non-Illuminated flush mount pushbutton, aluminium bezel, 30.5 mm mounting



Non-Illuminated flush mount pushbutton, silver plastic bezel, 30x30 mm mounting



Illuminated raised pushbutton, grey plastic bezel, 22.5 mm mounting

Colour	Part No., Momentary	Part No., Maintained	Colour	Part No., Momentary	Part No., Maintained	Colour	Part No., Momentary	Part No., Maintained
Red	704.012.218	704.042.218	Red	704.210.208	704.240.208	Red	704.030.2	704.060.2
Yellow	704.012.418	704.042.418	Yellow	704.210.408	704.240.408	Yellow	704.030.4	704.060.4
Green	704.012.518	704.042.518	Green	704.210.508	704.240.508	Green	704.030.5	704.060.5
Blue	704.012.618	704.042.618	Blue	704.210.608	704.240.608	Blue	704.030.6	704.060.6
Clear	704.012.718	704.042.718	Clear	704.210.708	704.240.708	Clear	704.030.7	704.060.7
Black	704.012.018	704.042.018	Black	704.210.008	704.240.008			

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Illuminated pushbutton



Illuminated raised pushbutton, aluminium bezel, 22.5 mm mounting



Illuminated flush mount pushbutton, aluminium bezel, 30.5 mm mounting



Illuminated flush mount pushbutton, silver plastic bezel, 30x30 mm mounting

Colour	Part No., Momentary	Part No., Maintained	Colour	Part No., Momentary	Part No., Maintained	Colour	Part No., Momentary	Part No., Maintained
Red	704.032.2	704.062.2	Red	704.032.218	704.062.218	Red	704.230.208	704.260.208
Yellow	704.032.4	704.062.4	Yellow	704.032.418	704.062.418	Yellow	704.230.408	704.260.408
Green	704.032.5	704.062.5	Green	704.032.518	704.062.518	Green	704.230.508	704.260.508
Blue	704.032.6	704.062.6	Blue	704.032.618	704.062.618	Blue	704.230.608	704.260.608
Clear	704.032.7	704.062.7	Clear	704.032.718	704.062.718	Clear	704.230.708	704.260.708

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**



Choose one component from each of the coloured sections to assemble a complete switch.

Emergency-stop switch		Mushroom head pushbutton		
Emergency-stop, twist release, 37 mm diameter, foolproof to EN 60947-5-1 and DIN EN ISO 13850		Mushroom head pushbutton, plastic bezel and aluminium bezel, 22.5 mm mounting, function momentary		
Part No.	Part No.	Colour	Part No., Plastic	Part No., Aluminium
704.064.2	704.066.2	Red	704.070.2	704.071.2
		Yellow	704.070.4	704.071.4
		Green	704.070.5	704.071.5
		Black	704.070.0	704.071.0
Please use slow make switch element only		Please use slow make switch element only		
Part No. 704.91X		Part No. 704.91X		

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

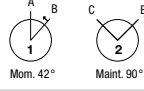
Mushroom head stop switch			Keylock switch			
Stop switch, twist release, mushroom head, 40 mm diameter, 22.5 mm mounting			Keylock switch 2 position, raised, 22.5 mm mounting			
Part.No	Front Ring	Markings	Graphic	Part No.	Function	Key out
704.074.2	Gray plastic	Directional arrows	1	704.123.0	Momentary	A
704.075.2	Anodized aluminium	Directional arrows	2	704.121.0	Maintained	C
			2	704.122.0	Maintained	C + B
Please use slow make switch element only			Please use slow make switch element only			
Part No. 704.91X			Part No. 704.91X			

Mushroom head stop switch

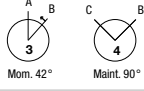
Keylock switch

Stop switch, twist release, mushroom head, 40 mm diameter, 22.5 mm mounting

Keylock switch 2 position, raised, 22.5 mm mounting



Keylock switch 2 position, flush mount, 30.5 mm mounting

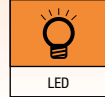


Part.No	Front Ring	Markings	Graphic	Part No.	Function	Key out
704.074.2	Gray plastic	Directional arrows	1	704.123.0	Momentary	A
704.075.2	Anodized aluminium	Directional arrows	2	704.121.0	Maintained	C
			2	704.122.0	Maintained	C + B

For complete switch also order **A**

For complete switch also order **A**

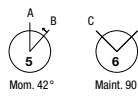
Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.



Keylock switch



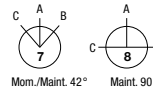
Keylock switch 2 position, flush mount, 30x30 mm mounting



Graphic	Part No.	Function	Key out
5	704.343.008	Momentary	A
6	704.341.008	Maintained	C
6	704.342.008	Maintained	C + B



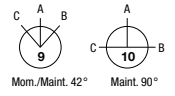
Keylock switch 3 position, raised, 22.5 mm mounting



Graphic	Part No.	Function	Key out
7	704.115.0	Momentary	A
7	704.114.0	Maintained	A
7	704.116.0	Maintained	C + B
8	704.113.0	Maintained	C + A + B



Keylock switch 3 position, flush mount, 30.5 mm mounting



Graphic	Part No.	Function	Key out
10	704.113.018	Maintained	C + A + B
9	704.115.018	Momentary	A
9	704.114.018	Maintained	A
9	704.116.018	Maintained	C + B

For complete switch also order **A**

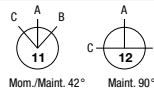
For complete switch also order **A**

For complete switch also order **A**

Keylock switch



Keylock switch 3 position, flush mount, 30x30 mm mounting

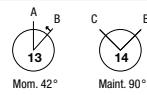


Graphic	Part No.	Function	Key out
11	704.335.008	Momentary	A
11	704.334.008	Maintained	A
11	704.336.008	Maintained	C + B
12	704.333.008	Maintained	C + A + B

Selector switch



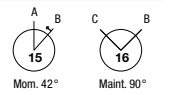
Selector switch short lever 2 position, raised, 22.5 mm mounting



Graphic	Part No.	Function	Bezel
13	704.412.0	Momentary	Grey plastic
13	704.413.0	Momentary	Aluminium
14	704.410.0	Maintained	Grey plastic
14	704.411.0	Maintained	Aluminium



Selector switch short lever 2 position, flush mount, 30.5 mm mounting



Graphic	Part No.	Function	Bezel
15	704.413.018	Momentary	Aluminium
16	704.411.018	Maintained	Aluminium

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**



Choose one component from each of the coloured sections to assemble a complete switch.

Selector switch

<p>Selector switch short lever 2 position, flush mount, 30 x 30 mm mounting</p>				<p>Selector switch short lever 3 position, raised, 22.5 mm mounting</p>				<p>Selector switch short lever 3 position, flush mount, 30.5 mm mounting</p>							
Graphic	Part No.	Function	Bezel	Graphic	Part No.	Function	Bezel	Graphic	Part No.	Function	Bezel	Graphic	Part No.	Function	Bezel
17	704.512.008	Momentary	Silver plastic	19	704.404.0	Momentary	Grey plastic	20	704.405.018	Momentary	Aluminium				
18	704.510.008	Maintained	Silver plastic	19	704.405.0	Momentary	Aluminium	20	704.403.018	Maintained	Aluminium				
				19	704.402.0	Maintained	Grey plastic								
				19	704.403.0	Maintained	Aluminium								

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Selector switch

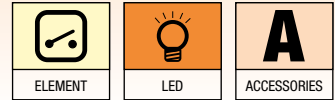
<p>Selector switch short lever 3 position, flush mount, 30 x 30 mm mounting</p>				<p>Selector switch long lever 2 position, raised, 22.5 mm mounting</p>				<p>Selector switch long lever 2 position, flush mount, 30.5 mm mounting</p>									
Graphic	Part No.	Function	Bezel	Graphic	Part No.	Function	Bezel	Graphic	Part No.	Function	Bezel	Graphic	Part No.	Function	Bezel		
21	704.504.008	Momentary	Silver plastic	22	704.102.0	Momentary	Grey plastic	24	704.103.018	Momentary	Aluminium						
21	704.502.008	Maintained	Silver plastic	22	704.103.0	Momentary	Aluminium	25	704.101.018	Maintained	Aluminium						
				23	704.100.0	Maintained	Grey plastic										
				23	704.101.0	Maintained	Aluminium										

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

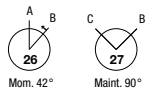
Choose one component from each of the coloured sections to assemble a complete switch.
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Selector switch



Selector switch long lever
2 position, flush mount,
30x30 mm mounting



Graphic	Part No.	Function	Bezel
26	704.302.008	Momentary	Silver plastic
27	704.300.008	Maintained	Silver plastic



Selector switch long lever
3 position, raised,
22.5 mm mounting



Graphic	Part No.	Function	Bezel
28	704.094.0	Momentary	Grey plastic
28	704.095.0	Momentary	Aluminium
28	704.092.0	Maintained	Grey plastic
28	704.093.0	Maintained	Aluminium



Selector switch long lever
3 position, flush mount,
30.5 mm mounting



Graphic	Part No.	Function	Bezel
29	704.095.018	Momentary	Aluminium
29	704.093.018	Maintained	Aluminium

For complete switch also order **A**

For complete switch also order **A**

For complete switch also order **A**

Selector switch **Buzzer**



Selector switch long lever
3 position, flush mount,
30x30 mm mounting



Graphic	Part No.	Function	Bezel
30	704.294.008	Momentary	Black plastic
30	704.292.008	Maintained	Black plastic



Buzzer, raised, 22.5 mm mounting, IP65, 24VDC, 95dB ±8 at a distance of 0.1m

Part No.	Front finish
14-810.002	Black plastic
14-810.902	Nickel-plated brass



Buzzer, flush mount, 30.5 mm mounting, IP40, 24VDC, 95dB ±8 at a distance of 0.1m

Part No.	Front finish
14-810.910	Black aluminium
14-810.918	Natural aluminium

For complete switch also order **A**

Series 04

22.5mm 30.5mm IP65 10A 500VAC



Choose one component from each of the coloured sections to assemble a complete switch.

Switching element



Switching element, screw terminal, snap-action with silver self-cleaning contacts

Part No.	Contact type
704.900.1	1NO
704.900.2	1NC
704.900.3	2NO
704.900.4	2NC
704.900.5	1NO/1NC
Other contact materials and terminals available.	
Please contact us.	



Switching element, plug-in terminal, 6.3 mm, snap-action with self-cleaning silver contacts

Part No.	Contact type
704.905.1	1NO
704.905.2	1NC
704.905.3	2NO
704.905.4	2NC
704.905.5	1NO/1NC
Other contact materials and terminals available.	
Please contact us.	



Switching element, screw terminal, snap-action with silver self-cleaning contacts

Part No.	Contact type
704.910.1	1NO
704.910.2	1NC
704.910.3	2NO
704.910.4	2NC
704.910.5	1NO/1NC
Other contact materials and terminals available.	
Please contact us.	

Switching element



Switching element, plug-in terminal, 6.3 mm, slow-make with forced opening silver contacts

Part No.	Contact type
704.915.1	1NO
704.915.2	1NC
704.915.3	2NO
704.915.4	2NC
704.915.5	1NO/1NC
Other contact materials and terminals available.	
Please contact us.	

LED



LED, Ba9s, single chip, 6 Volt and 12 Volt

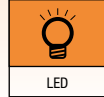
Colour	Part No.	Voltage
Red	10-2506.1082	6VDC, 10/17mA
Yellow	10-2506.1084	6VDC, 10/17mA
Green	10-2506.1085	6VDC, 10/17mA
Blue	10-2506.1086	6VDC, 10/17mA
White	10-2506.1089	6VDC, 10/17mA
Red	10-2509.1142	12VAC/DC, 15mA
Yellow	10-2509.1144	12VAC/DC, 15mA
Green	10-2509.1145	12VAC/DC, 15mA
Blue	10-2509.1146	12VAC/DC, 15mA
White	10-2509.1149	12VAC/DC, 15mA



LED, Ba9s, single chip, 24 Volt and 28 Volt

Colour	Part No.	Voltage
Red	10-2512.1142	24VAC/DC, 15mA
Yellow	10-2512.1144	24VAC/DC, 15mA
Green	10-2512.1145	24VAC/DC, 15mA
Blue	10-2512.1146	24VAC/DC, 15mA
White	10-2512.1149	24VAC/DC, 15mA
Red	10-2513.1142	28VAC/DC, 15mA
Yellow	10-2513.1144	28VAC/DC, 15mA
Green	10-2513.1145	28VAC/DC, 15mA
Blue	10-2513.1146	28VAC/DC, 15mA
White	10-2513.1149	28VAC/DC, 15mA

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LED

A Accessories



LED, Ba9s, single chip, 48 Volt

LED, Ba9s, single chip, 130 Volt and 230 Volt

Lamp/LED block, screw terminal

Colour	Part No.	Voltage	Colour	Part No.	Voltage	Part No.
● Red	10-2519.1052	48VAC/DC, 6mA	● Red	10-2H24.2052	130VAC / 5mA	704.950.0*
● Yellow	10-2519.1054	48VAC/DC, 6mA	● Yellow	10-2H24.2054	130VAC / 5mA	
● Green	10-2519.1055	48VAC/DC, 6mA	● Green	10-2H24.2055	130VAC / 5mA	
● Blue	10-2519.1056	48VAC/DC, 6mA	● Blue	10-2H24.2056	130VAC / 5mA	
○ White	10-2519.1059	48VAC/DC, 6mA	○ White	10-2H24.2059	130VAC / 5mA	
			● Red	10-2H24.2042	230VAC / 3mA	
			● Yellow	10-2H24.2044	230VAC / 3mA	
			● Green	10-2H24.2045	230VAC / 3mA	
			● Blue	10-2H24.2046	230VAC / 3mA	
			○ White	10-2H24.2049	230VAC / 3mA	
						* Other terminals available. Please contact us.

A Accessories



Lamp/LED block, plug-in terminal, 6.3mm

Lens cap, round, transparent, plastic for raised and flush indicators with bezel and pushbutton actuators

Lens cap raised, round, transparent, plastic for raised and flush mount pushbutton actuators

Part No.	Colour	Part No.	Colour	Part No.
704.950.1*	● Red	704.602.2	● Red	704.611.2
	● Yellow	704.602.4	● Yellow	704.611.4
	● Green	704.602.5	● Green	704.611.5
	● Blue	704.602.6	● Blue	704.611.6
	○ Clear	704.602.7	○ Clear	704.611.7
		For complete lens also order diffuser	For complete lens also order diffuser	
* Other terminals available. Please contact us.		704.609.9 (see page 24)	704.610.9 (see page 24)	



Choose one component from each of the coloured sections to assemble a complete switch.

A Accessories



Lens cap, round, aluminium anodised for raised and flush mount pushbutton actuators

Protective cover, raised pushbutton

Protective front ring with silicon membrane for raised or flush mount pushbutton

Colour	Part No.	Comment	Part No.	Part No.	Size
● Red	704.601.2		704.925.0	1	704.600.3 29 mm Ø for raised pushbutton
● Yellow	704.601.4			2	704.955.3 35 mm Ø for flush mount pushbutton
● Blue	704.601.6				
○ Silver	704.601.8				
○ Silver	704.601.81	Illuminated central dot			
● Black	704.601.0				
● Black	704.601.01	Illuminated central dot			
○ Silver	704.601.9	Stainless steel			

A Accessories



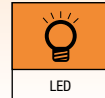
Emergency-stop protective shroud, yellow painted aluminium with 22.5 mm mounting hole

Emergency-stop switch label, 60 mm Ø

Emergency-stop switch enclosure 94 mm (w) x 94 mm (h) x 81 mm (d), anti twist hole. Cable gland M20, IP66

Part No.	Part No.	Markings	Part No.
704.927.4	704.963.5	NOT-AUS	1 704.945.0
	704.963.6	EMERGENCY-STOP	2 704.945.6
	704.963.7	ARRET D'URGENCE	
	704.963.8	NOT-HALT	

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A Accessories



Emergency-stop switch enclosure with 22.5 mm Ø mounting hole, 65 mm (w) x 65 mm (h) x 81 mm (d), anti twist hole. Cable gland M20, IP66

	Part No.
1	704.945.7
2	704.945.6



Emergency-stop switch enclosure, with 22.5 mm Ø mounting hole, 94 mm (w) x 65 mm (h) x 81 mm (d), anti twist hole. Cable gland M20, IP66

	Part No.
1	704.945.8
2	704.945.6



Blanking plate

Part No.	Mounting hole
704.960.7	22.5 mm Ø
704.964.8	30.5 mm Ø
704.964.9	30x30 mm

A Accessories



Flush mount bezel for 30.5 Ø mounting

	Part No.	Product description
1	704.955.0	Aluminium, black anodised
2	704.955.1	Aluminium, natural anodised
3	704.955.9	Stainless steel
4	704.955.3	Alu, natural anodised with seal



Lens remover for round pushbuttons and indicators. LED and lamp remover for round and square pushbuttons and indicators

	Part No.
	700.006.0



Lens remover for square pushbuttons and indicators

	98-968



Choose one component from each of the coloured sections to assemble a complete switch.

A Accessories

																																
<p>Mounting flange</p>	<p>Diffuser for raised indicator, diffuser for flat lens indicator and pushbutton, diffuser for raised pushbutton</p>	<p>Marking plate selfadhesive, aluminium finish or black, for raised and flush mount push buttons</p>																														
<table border="1"> <thead> <tr> <th>Part No.</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>704.960.5</td> <td>Metal</td> </tr> <tr> <td>704.950.5</td> <td>Plastic</td> </tr> </tbody> </table>	Part No.	Material	704.960.5	Metal	704.950.5	Plastic	<table border="1"> <thead> <tr> <th>Image</th> <th>Part No.</th> <th>Product description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>704.608.9</td> <td>Diffuser for raised indicator</td> </tr> <tr> <td>2</td> <td>704.609.9</td> <td>Diffuser for flat lens</td> </tr> <tr> <td>3</td> <td>704.610.9</td> <td>Diffuser for raised illum. pushbutton</td> </tr> </tbody> </table>	Image	Part No.	Product description	1	704.608.9	Diffuser for raised indicator	2	704.609.9	Diffuser for flat lens	3	704.610.9	Diffuser for raised illum. pushbutton	<table border="1"> <thead> <tr> <th>Image</th> <th>Part No.</th> <th>Size</th> <th>Colour</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>704.968.2</td> <td>22.5mm Ø</td> <td>Black</td> </tr> <tr> <td>2</td> <td>704.968.3</td> <td>30.5mm Ø</td> <td>Black</td> </tr> </tbody> </table>	Image	Part No.	Size	Colour	1	704.968.2	22.5mm Ø	Black	2	704.968.3	30.5mm Ø	Black
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A Accessories

																									
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Snap-action switching element

Switching system

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

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

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

Polycarbonate (PC)

Mechanical characteristics

Terminals

Screw terminals

Plug-in terminals 6.3x0.8mm

max. wire cross-section 2x2.5mm²

max. wire cross-section of stranded cable 2x1.5mm²

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

Tightening torque

Screws at the mounting flange max. 25Ncm

Screws at switching element max. 50Ncm

Actuating force

1 Normally closed 1.9N

1 Normally open 2N

Actuating travel

5.8mm ±0.2mm

Rebound time

≤3ms

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“ EN IEC 60947-5-1

Rated Insulation Voltage Ui

500 VAC/600VDC, as per EN IEC 60947-5-1

Contact resistance

New state ≤50mΩ as per DIN IEC 60512-2-4

Conventional free air thermal current Ith

10A, as per EN IEC 60947-5-1

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

Isolation resistance

≥10MΩ between open contacts at 500VDC, as per DIN IEC 60512-2-10

Switch rating

At switch rating AC for Gold/Silver, Silver/Palladium and Hard Silver contacts service category AC-15, as per EN IEC 60947-5-1 (cosφ 0.3)

Voltage	230VAC	400VAC	500VAC
Current	6A	4A	2.5A

At switch rating DC for Gold-, Silver- and Hard Silver contacts service category DC-13, as per EN IEC 60947-5-1

Voltage	24VDC	60VDC	110VDC
Current	10A	3A	1A

Recommended minimum operational data

Gold/Silver contacts:

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

Hard Silver contacts:

Voltage	24VDC	110VDC
Current	50mA	10mA

Protection class

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

Environmental conditions

Storage temperature

-40°C ... +85°C

Operating temperature

-25°C ... +55°C

Shock resistance

(single impacts, semi-sinusoidal)

300m/s²puls width 11ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

100m/s² at 10Hz ... 500Hz, amplitude 0.75mm, as per EN IEC 60068-2-6

Approvals

Approbations

CB (IEC 60947)

CCC

CSA

Germanischer Lloyd

GOST

SEV

UL

Declaration of conformity

CE

NF F16-102

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 3 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

Polycarbonate (PC)

Mechanical characteristics

Terminals

Screw terminals

Plug-in terminals 6.3x0.8mm

max. wire cross-section 2x2.5mm²

max. wire cross-section of stranded cable 2x1.5mm²

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

Tightening torque

Screws at the mounting flange max. 25Ncm

Screws at switching element max. 50Ncm

Actuating force

1 Normally closed 2N

1 Normally open 3.1N

Actuating travel

5.8mm ±0.2mm

Rebound time

≤1ms

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“ EN IEC 60947-5-1

Rated Insulation Voltage Ui

500VAC/600VDC, as per EN IEC 60947-5-1

Contact resistance

New state ≤50mΩ as per DIN IEC 60512-2-4

Isolation resistance

≥10MΩ between open contacts at 500VDC, as per DIN IEC 60512-2-10

Conventional free air thermal current Ith

10A, as per EN IEC 60947-5-1

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

Switch rating

At switch rating AC for Gold/Silver, Silver/Palladium and Hard Silver contacts service category AC-15, as per EN IEC 60947-5-1 (cosφ 0.3)

Voltage	230VAC	400VAC	500VAC
Current	7A	5A	4A

At switch rating DC for Gold-, Silver- and Hard Silver contacts service category DC-13, as per EN IEC 60947-5-1

Voltage	24VDC	60VDC	110VDC	250VDC
Current	10A	5A	2.5A	0.6A

Recommended minimum operational data

Gold/Silver contacts:

Voltage	24VDC	110VDC
Current	10mA	2mA

Hard Silver contacts:

Voltage	24VDC	110VDC
Current	50mA	10mA

Protection class

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

Environmental conditions

Storage temperature

-40°C ... +85°C

Operating temperature

-40°C ... +55°C

Shock resistance

(single impacts, semi-sinusoidal)

300m/s² puls width 11ms, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

100m/s² at 10Hz ... 500Hz, amplitude 0.75mm, as per

EN IEC 60068-2-6

Approvals

Approbations

CB (IEC 60947)

CCC

CSA

Germanischer Lloyd

GOST

SEV

UL

Declaration of conformity

CE

NF F16-102

Buzzer

Buzzer system

System

Piezo disc

Material

Alarm buzzer case

Polyamide

Front cap

Plastic Polyamide

Metal Nickel-plated brass (sea-water proof)

Mechanical characteristics

Terminals

Plug-in terminal 2.8x0.5mm

Electrical characteristics

Frequency (tone)

approx. 2.8kHz continuous tone only

Sound pressure

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

Operation Voltage/Current

Operation Voltage 24VDC ±10%

Operation Current ≤25mA

Environmental conditions

Storage temperature

-35 °C ... +85 °C

Operating temperature

-25 °C ... +55 °C

Protection degree

as per EN IEC 60529, frontside

IP40, devices flush mounting

IP65, devices raised mounting

Approvals

Declaration of conformity

CE

NF F16-102

Actuator

Material

Front ring

Polyamide, Aluminium or Stainless steel

Mounting flange

Polyethylene terephthalate

Actuator housing

Polycarbonate, Polyamide

Mechanical characteristics

Actuating force

Mounting style square flush 6.2N

other Mounting styles 8N

Actuating travel

5.8mm ±0.2mm

Mechanical lifetime

Pushbutton	≤3 million	Cycles of operation
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Selector switch	≤2.5 million	Cycles of operation
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Stop pushbutton	≤50 000	Cycles of operation
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Fool proofed E-stop	≥6050	Cycles of operation
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Keylock switch	≤50 000	Cycles of operation
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Electrical characteristics

Standards

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

Environmental conditions

Storage temperature

-40 °C ... +85 °C

Operating temperature

-25 °C ... +55 °C

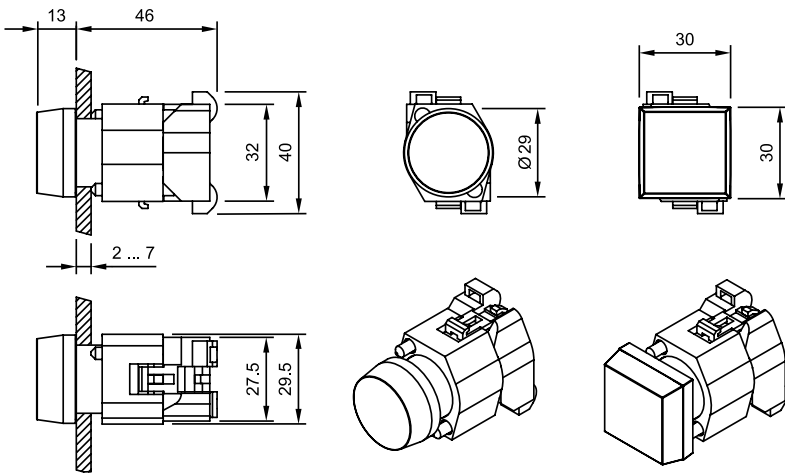
Protection degree

as per EN IEC 60529

Frontside IP65

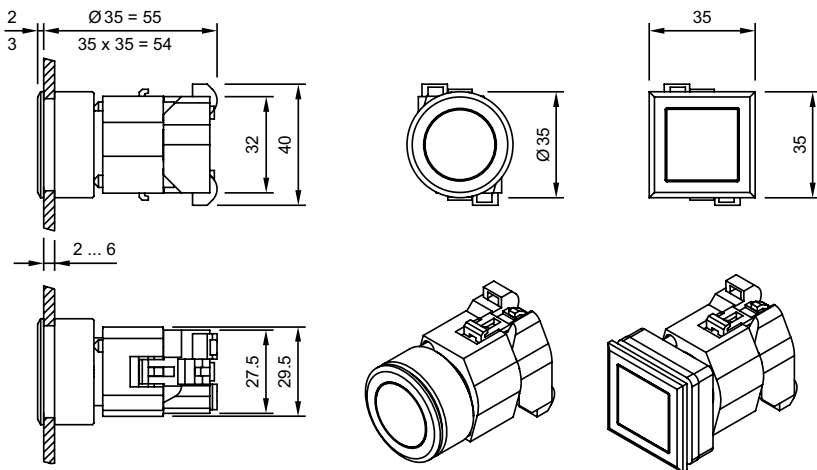
04 Indicator

Raised



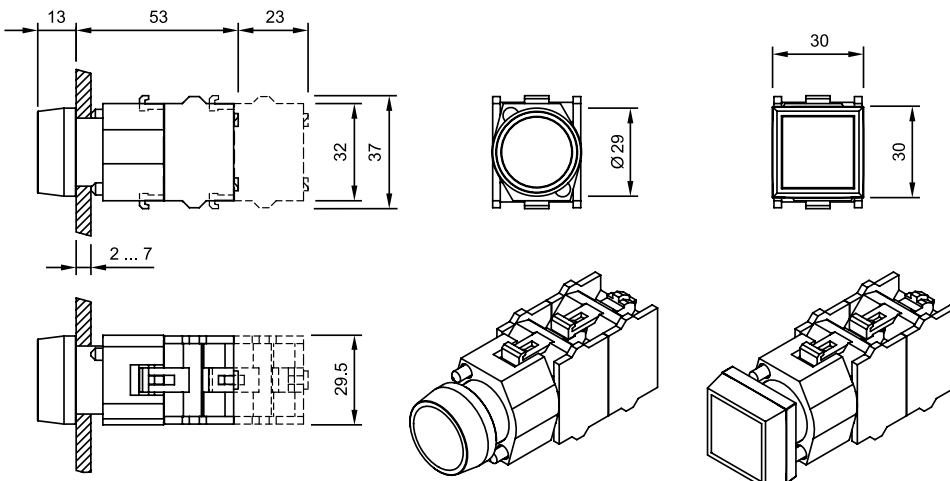
04 Indicator

Flush



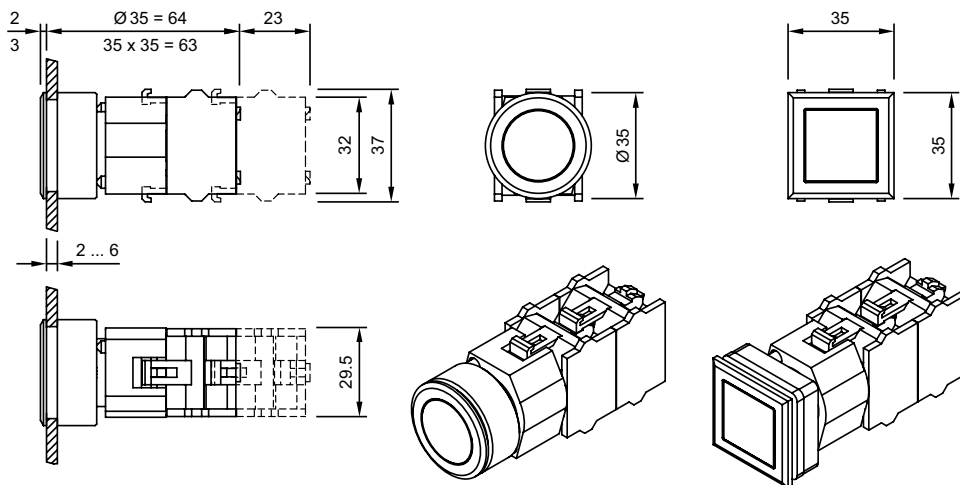
04 Non-Illuminated Pushbutton

Raised



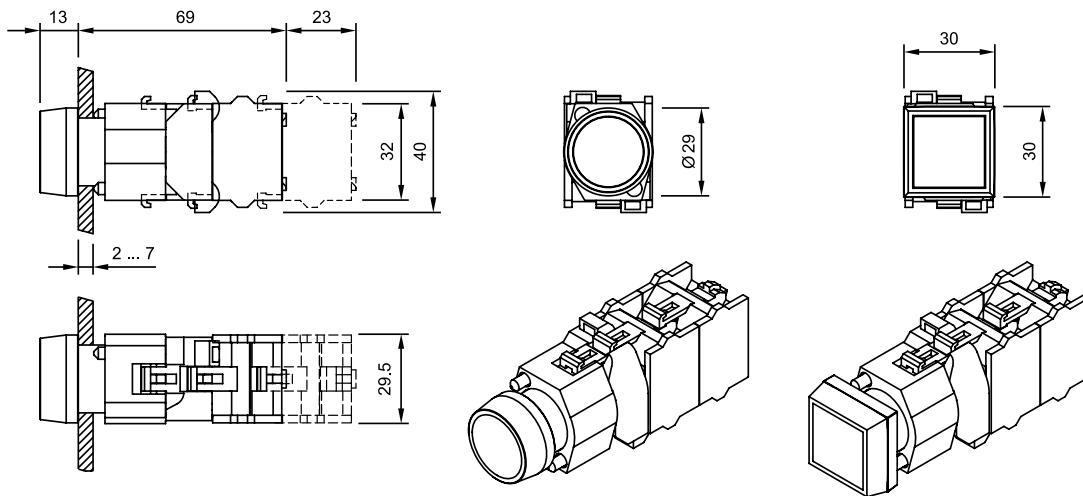
04 Non-Illuminated Pushbutton

Flush



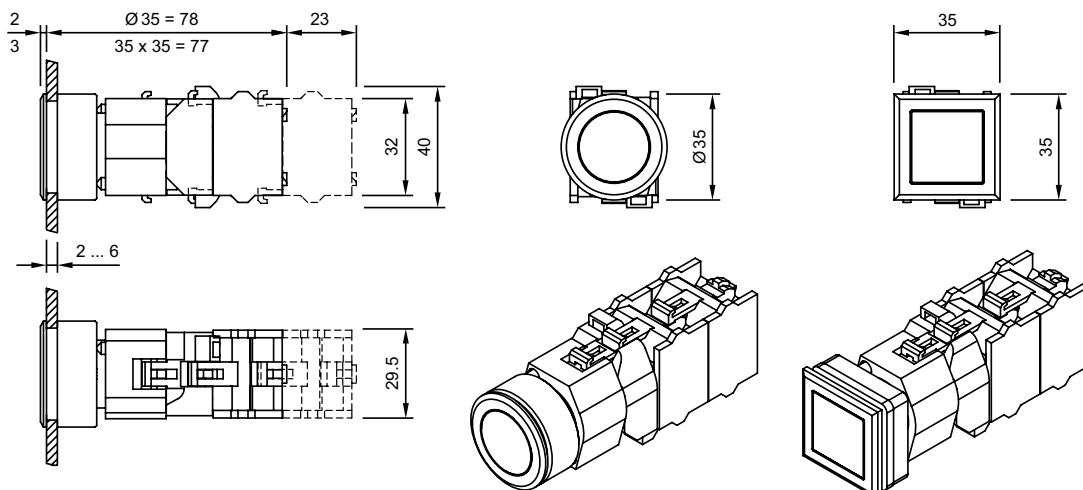
04 Illuminated Pushbutton

Raised



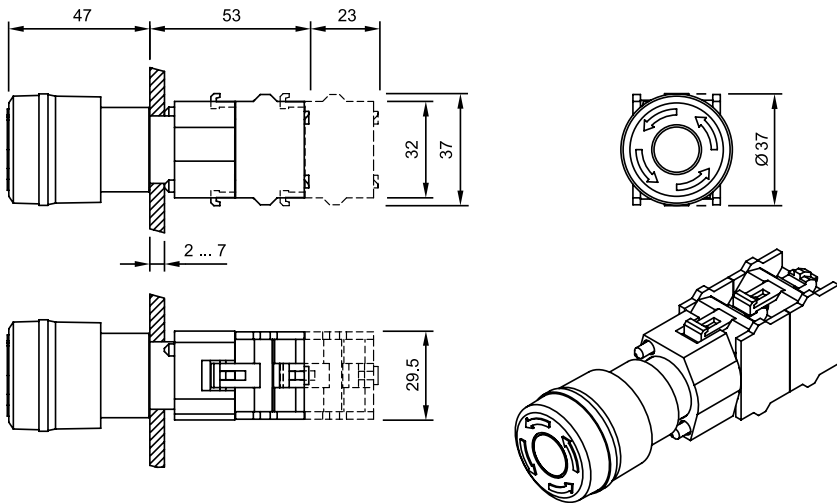
04 Illuminated Pushbutton

Flush



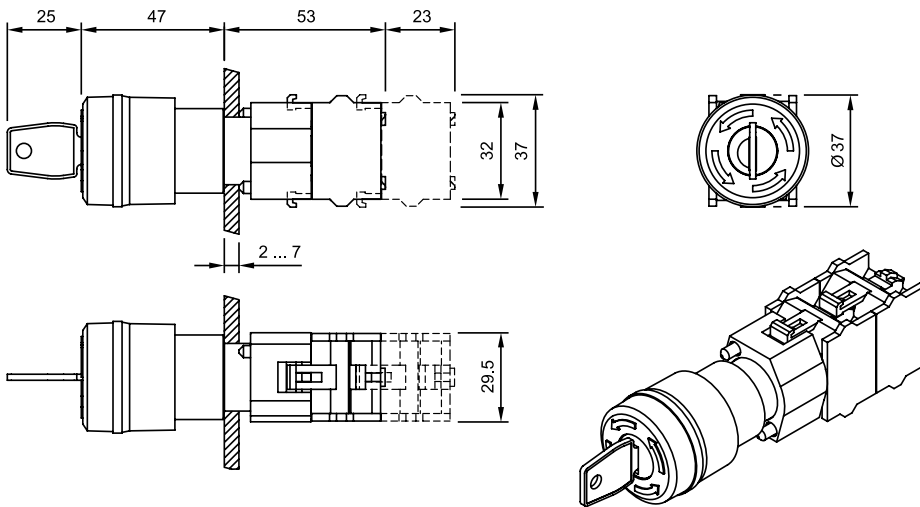
04 Emergency-stop switch

ISO 13850, Twist to release

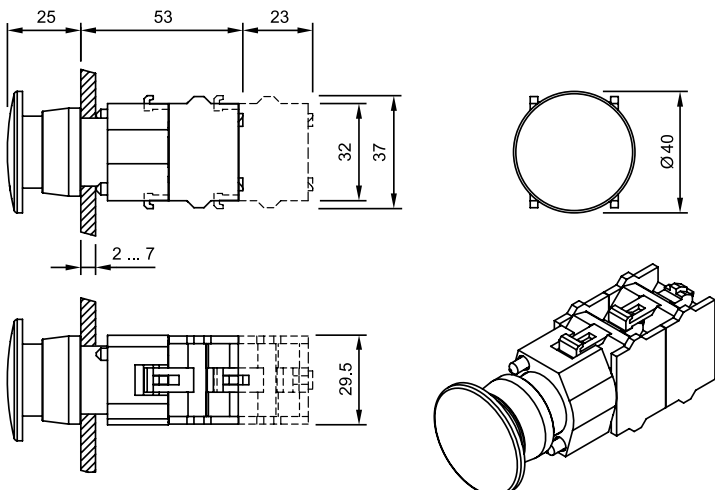


04 Emergency-stop switch

ISO 13850, Key to release

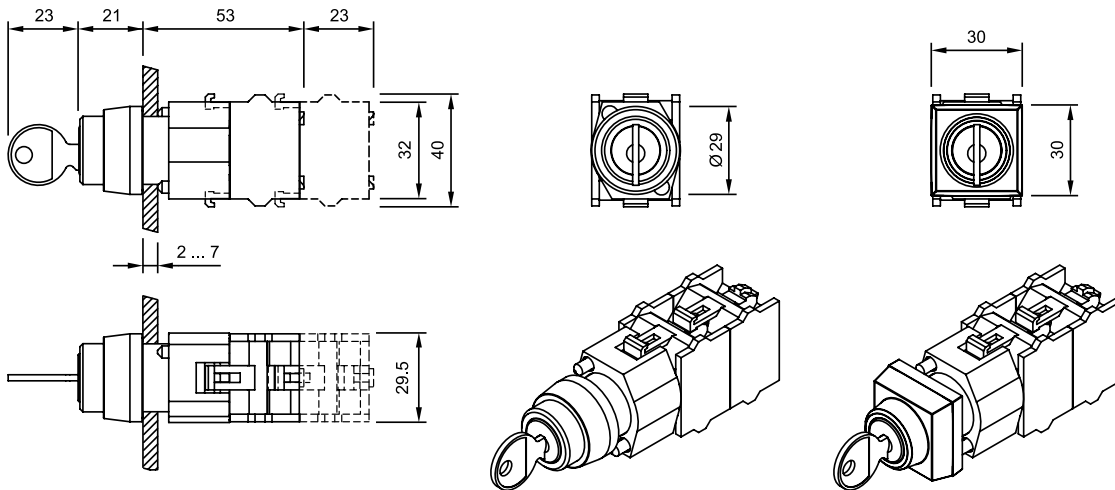


04 Head Pushbutton Mushroom



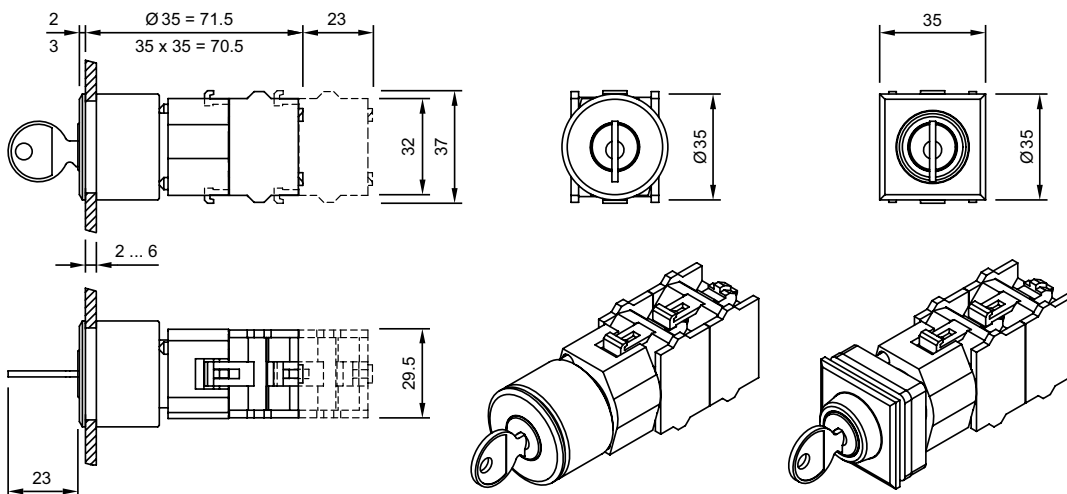
04 Keylock switch

2-Position, 3-Position, Raised



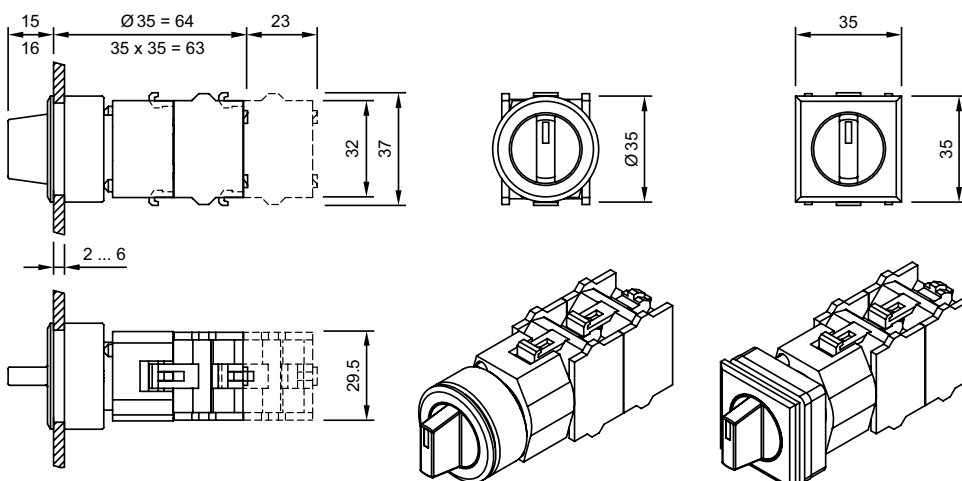
04 Keylock switch

2-Position, 3-Position, Flush



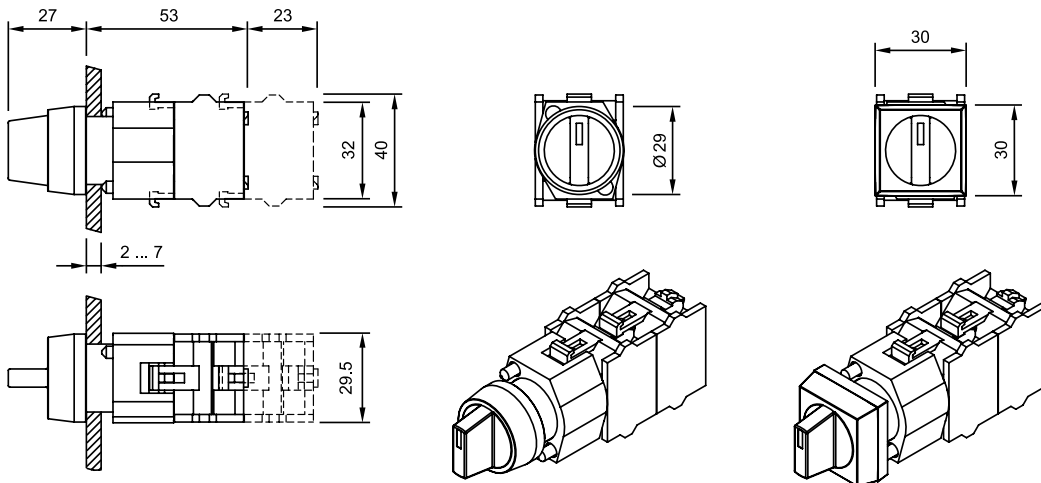
04 Selector switch

2-Position, 3-Position, Short lever, Flush



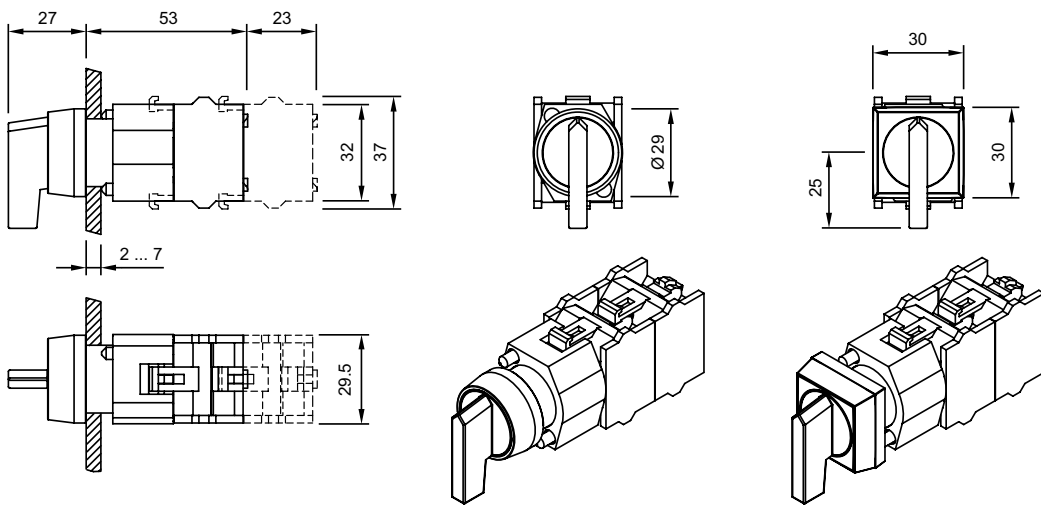
04 Selector switch

2-Position, 3-Position, Short lever, Raised



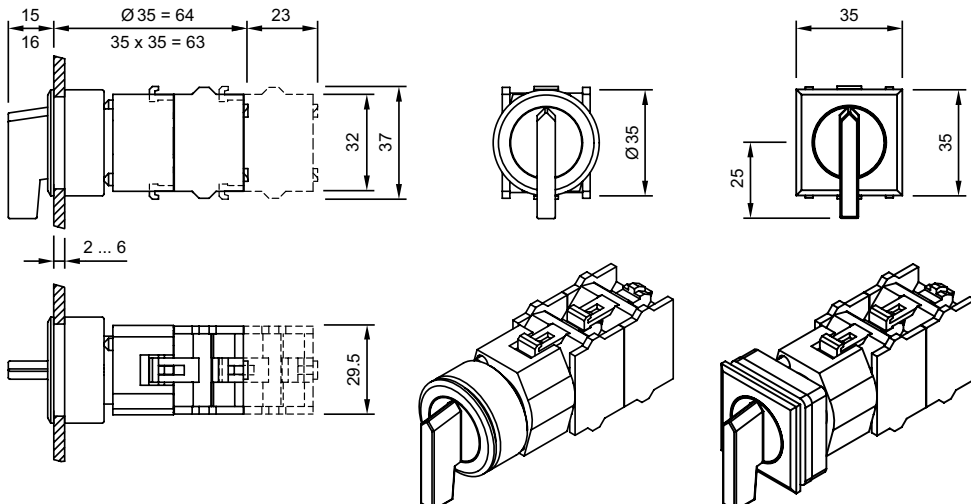
04 Selector switch

2-Position, 3-Position, Long lever, Raised



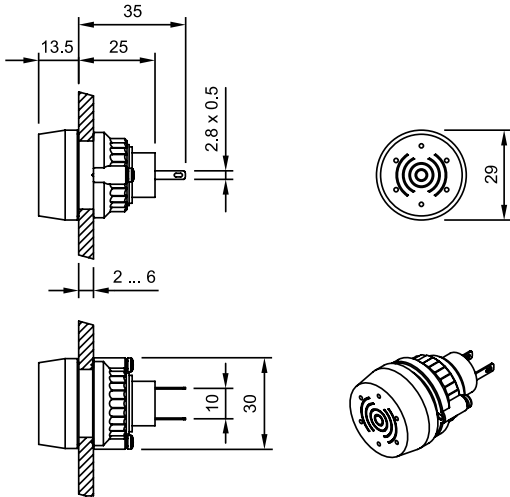
04 Selector switch

2-Position, 3-Position, Long lever, Flush



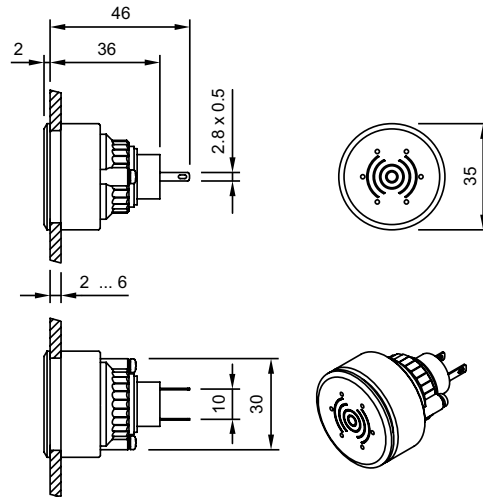
04 Buzzer

Raised



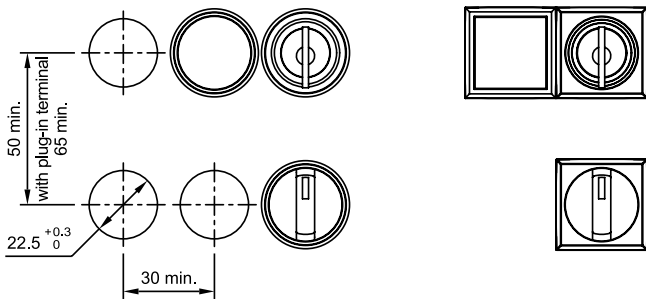
04 Buzzer

Flush



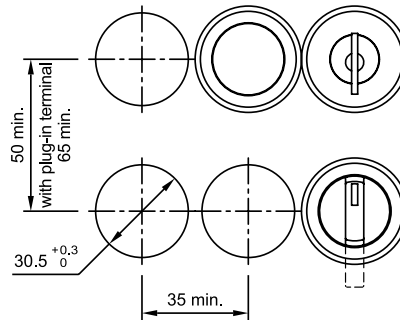
04 Cut-outs, Raised Mounting

(All but long lever)



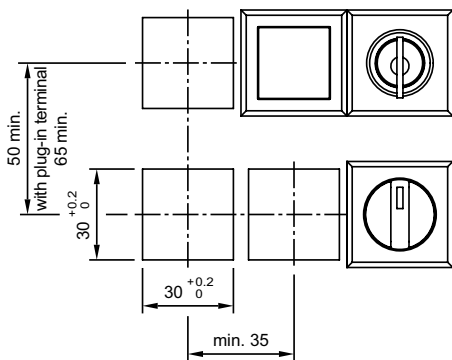
04 Cut-outs, Flush Mounting

(All but long lever)



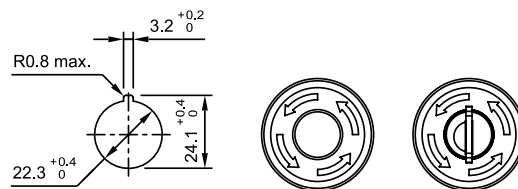
04 Cut-outs, Flush Mounting

(All but long lever)

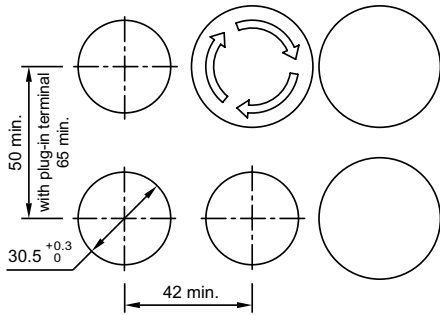


04 Cut-outs, Emergency-Stop

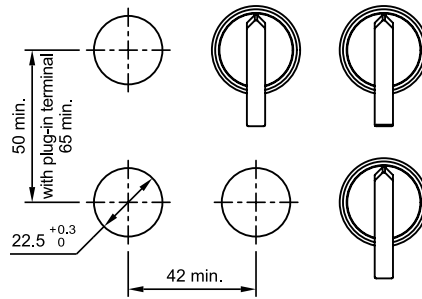
ISO 13850, Twist release, Key release



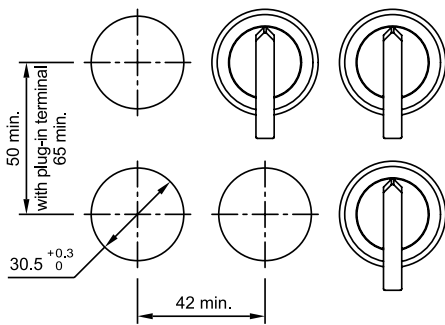
04 Cut-outs, Mushroom head



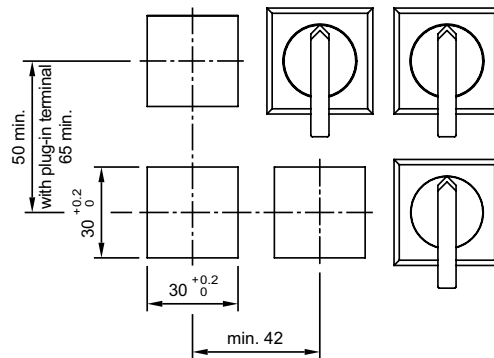
04 Cut-outs, Long Lever, Raised Mounting



04 Cut-outs, Long Lever, Flush Mounting



04 Cut-outs, Long Lever, Flush Mounting



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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