



INDICATOR



PUSHBUTTON



E-STOP

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.

Product Profile

The Series 84 consists of indicators, pushbuttons and low depth monoblock Emergency-stop switches. The indicators and pushbuttons are a modular system of lens, actuator and switching element with connections using plug-in terminals.

Within the many different colours, the lenses are available either in plastic or anodised aluminium.

Technical data see page 126

Emergency-stop switches

- IP65 Protection (Emergency-stop switches)
- Switch Rating for emergency-stop switch: 3A/120VAC, 1.5A/240VAC
- LED Voltage for Emergency-stop switch: 5-30VDC
- Compact Emergency-stop meets EN 60947-5-1, EN 60947-5-5 and DIN EN ISO 13850
- Mounting into 22.5 mm mounting hole
- Switching elements with solder/plug-in terminal or ribbon cable, 300 mm long

Actuators/Elements

- IP67 Protection (Switches and Indicators)
- Illumination using Single or Multi-LED's in red, orange, yellow, green, blue or white
- Switch Rating for indicator and pushbutton: 10 mA – 100 mA, 50 mVAC/VDC – 42 VAC/VDC
- Flush Mounting into 22.5 mm mounting hole
- Switching elements with solder/plug-in terminal or ribbon cable, 300 mm long

Detailed product selectors pages see 122-125

LED Illuminated Emergency-stop switch



Emergency-stop red LED illuminated, plug-in terminals, twist release, 32 mm diameter for 22.5 mm mounting, foolproof to EN 60947-5-5

Part No.	Contact type
84-5021.2B20	1NC
84-5041.2B20	2NC
84-5031.2B20	1NC/1NO



Emergency-stop red LED illuminated, ribbon cable, twist release, 32 mm diameter for 22.5 mm mounting, foolproof to EN 60947-5-5

Part No.	Contact type
84-5021.2B40	1NC
84-5041.2B40	2NC
84-5031.2B40	1NC/1NO

Emergency-stop switch



Emergency-stop non illuminated, plug-in terminals, twist release, 32 mm diameter for 22.5 mm mounting, foolproof to EN 60947-5-5

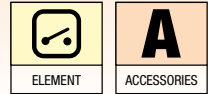
Part No.	Contact type
84-5020.0020	1NC
84-5040.0020	2NC
84-5030.0020	1NC/1NO






Emergency-stop non illuminated, ribbon cable, twist release, 32 mm diameter for 22.5 mm mounting, foolproof to EN 60947-5-5

Part No.	Contact type
84-5020.0040	1NC
84-5040.0040	2NC
84-5030.0040	1NC/1NO

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☀ Indicator actuator	☀ Actuator Halo Illumination	☉ Illum. pushbutton actuator																								
																										
Indicator actuator for flush mount, black plastic, IP67 front protection, 22.5 mm mounting	Halo Indicator actuator for flush mount, plastic translucent, IP67 front protection, 22.5 mm mounting	Pushbutton actuator for flush mount, black plastic, impulse function; IP67 front protection, 22.5 mm mounting																								
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	For complete indicator: order lens 84.7205.X00X or 84-7202.X00A																									

For complete switch also order ☀ **A**

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For complete switch also order ☉ **A**

☉ Actuator Halo Illumination	☀ Indicator element																							
																								
Halo Pushbutton actuator for flush mount, plastic translucent, IP67 front protection, 22.5 mm mounting	Indicator element, 24VDC LED, plug-in terminals	Indicator element, bi-colour, 24VDC, L/S, plug-in terminals																						
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	For complete pushbutton: order lens 84.7205.X00X or 84-7202.X00A																							

For complete switch also order ☉ **A**

Series 84

22.5mm IP67 42V 100mA E-stop: IP65 3A 250VAC



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.

Indicator element



Indicator element, bi-colour, 24VDC, ribbon cable 300 mm, three strands, 1NO

Colour	Part No.
Red/Green	84-8005.8640
Yellow/Green	84-8005.7640

Switching element



Switching element, 24VDC LED, plug-in terminals, 1NO

Colour	Part No.	Comment
Red	84-8511.2620	Single-chip LED
Orange	84-8511.3620	Single-chip LED
Yellow	84-8511.4620	Single-chip LED
Green	84-8511.5620	Single-chip LED
Blue	84-8511.6620	Single-chip LED
White	84-8511.9620	Single-chip LED
	84-8510.0020	No LED - switching element only



Switching element, 24VDC, IP67; ribbon cable 300 mm, four strands, 1NO

Colour	Part No.	Comment
Red	84-8511.2640	Single-chip LED
Orange	84-8511.3640	Single-chip LED
Yellow	84-8511.4640	Single-chip LED
Green	84-8511.5640	Single-chip LED
Blue	84-8511.6640	Single-chip LED
White	84-8511.9640	Single-chip LED
	84-8510.0040	No LED - switching element only

Switching element



Switching element, bi-colour, 24VDC, IP67; ribbon cable, 300 mm, five strands, 1NO

Colour	Part No.
Red/Green	84-8515.8640
Yellow/Green	84-8515.7640

A Accessories



Lens, plastic for flush mount, round indicator and pushbutton actuators

Colour	Part No.	Comment
Red	84-7111.200	
Yellow	84-7111.400	
Green	84-7111.500	
Blue	84-7111.600	
Clear	84-7111.700	
Black	84-7121.000	Not for illumination

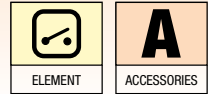


Lens, plastic; transparent; illuminated ring; flat

Colour	Part No.
Red	84-7111.201
Orange	84-7111.301
Yellow	84-7111.401
Green	84-7111.501
Blue	84-7111.601
Clear	84-7111.701

Not recommended for Halo Illumination

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.



A Accessories

								
<p>Recommended Lens for Halo illumination, aluminium, flat raised</p>			<p>Recommended Lens for Halo illumination, aluminium, convex raised</p>			<p>Lens, aluminium flat – with dot</p>		
Colour	Part No.	Comment	Colour	Part No.	Comment	Colour	Part No.	
● Red	84-7211.200A	for Halo	● Red	84-7202.200A	for Halo	● Red	84-7211.200	
● Yellow	84-7211.400A	for Halo	● Yellow	84-7202.400A	for Halo	● Yellow	84-7211.400	
● Green	84-7211.500B	for Halo	● Green	84-7202.500A	for Halo	● Green	84-7211.500	
● Blue	84-7211.600A	for Halo	● Blue	84-7202.600A	for Halo	● Blue	84-7211.600	
○ Aluminium	84-7211.800A	for Halo	○ Aluminium	84-7202.800A	for Halo	○ Aluminium	84-7211.800	
● Black	84-7211.000A	for Halo	● Black	84-7202.000A	for Halo	● Black	84-7211.000	

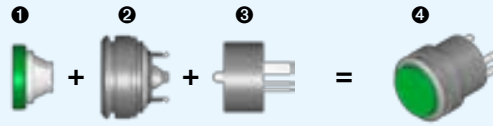
A Accessories

								
<p>Lens, aluminium raised – with dot</p>			<p>Emergency-stop switch enclosure with 22.5 mm Ø mounting hole, 65 mm (w) x 65 mm (h) x 57 mm (d), anti twist hole. Cable gland M16 or M20, IP66</p>			<p>Lens remover for flush mount, mounting tool and switching element remover</p>		
Colour	Part No.		Image	Part No.	Thread	Image	Part No.	Product description
● Red	84-7215.200		1	61-9480.5		1	61-9730.0	Lens remover for flush mount
● Yellow	84-7215.400		2	61-9481.6	M16	2	84-997	Mounting tool
● Green	84-7215.500		3	704-945.6	M20	3	84-998	Switching element remover
● Blue	84-7215.600					4	84-996	Mounting tool, E-stop
○ Aluminium	84-7215.800							
● Black	84-7215.000							

Series 84 Product Selector

Part Number Assistant

Featured here are our product combinations.
Other options available on request.



Illuminated
(Illuminated lens, non-illuminated bezel)

Lens ①

Description	Illuminated ring	Illum. On/Off	Illum. Stand-by	Transparent	Transparent	Spot illumination	Spot illumination
Material	Plastic	Plastic	Plastic	Plastic	Plastic	Aluminium	Aluminium
Shape	Flush	Flush	Flush	Flush	Flush	Flush	Flush
Mounting type	Level with bezel	Level with bezel	Level with bezel	Level with bezel	Raised above bezel	Level with bezel	Raised above bezel
Black						84-7211.000	84-7215.000
Red	84-7111.201	84-7111.202	84-7111.203	84-7111.200	84-7115.200	84-7211.200	84-7215.200
Orange	84-7111.301			84-7111.300	84-7115.300		
Yellow	84-7111.401			84-7111.400	84-7115.400	84-7211.400	84-7215.400
Green	84-7111.501	84-7111.502	84-7111.503	84-7111.500	84-7115.500	84-7211.500	84-7215.500
Blue	84-7111.601	84-7111.602	84-7111.603	84-7111.600	84-7115.600	84-7211.600	84-7215.600
Transparent	84-7111.701	84-7111.702	84-7111.703	84-7111.700	84-7115.700		
Anodised aluminium						84-7211.800	84-7215.800
Grey							
Bi-colour possible	X	X	X	X	X	X	X
Marking of marking plate possible							

Actuator (with bezel) ②

Front dimension	25 mm dia.	25 mm dia.	25 mm dia.	25 mm dia.	40 mm dia.
Mounting hole	22.5 mm dia.	22.5 mm dia.	22.5 mm dia.	22.5 mm dia.	30.5 mm dia.
Front protection	IP40	IP67	IP67	IP67	IP67
Actuator for	Illum. pushbutton	Indicator	Illum. pushbutton	Indicator	Illum. pushbutton
Bezel material	Plastic	Plastic	Plastic	Plastic	Aluminium
Black	84-2101.0	84-3100.0	84-1101.0	84-0100.0	84-1201.0
Red					84-1201.2
Yellow					84-1201.4
Green					84-1201.5
Blue					84-1201.6
Natural					84-1201.7
White translucent					84-0200.7
					84-1221.7

Switching element ③

	Cable 300 mm		Plug-in 2.8 x 0.8 mm		Cable 300 mm		Plug-in
LEDs and LED-series resistors are integrated							
Switch rating:							
Voltage 50 mVAC/DC... 42 VAC/DC							
Current 10µA...100 mA at 240Ω							
Power 2 W							
Terminal							
Switching element for	Illum. pushbutton	Indicator	Illum. pushbutton	Indicator	Illum. pushbutton	Indicator	Illum. pushbutton
Operating voltage/-current of LED	12VDC, 10mA	12VDC, 10mA	12VDC, 10mA	12VDC, 10mA	24VDC, 10mA	24VDC, 10mA	24VDC, 10mA
Red	84-8511.2340	84-8001.2340	84-8511.2320	84-8001.2320	84-8511.2640	84-8001.2640	84-8511.2620
Orange	84-8511.3340	84-8001.3340	84-8511.3320	84-8001.3320	84-8511.3640	84-8001.3640	84-8511.3620
Yellow	84-8511.4340	84-8001.4340	84-8511.4320	84-8001.4320	84-8511.4640	84-8001.4640	84-8511.4620
Green	84-8511.5340	84-8001.5340	84-8511.5320	84-8001.5320	84-8511.5640	84-8001.5640	84-8511.5620
Blue	84-8511.6340	84-8001.6340	84-8511.6320	84-8001.6320	84-8511.6640	84-8001.6640	84-8511.6620
White	84-8511.9340	84-8001.9340	84-8511.9320	84-8001.9320	84-8511.9640	84-8001.9640	84-8511.9620
Bi-colour LED red/green							
Bi-colour LED yellow/green							
Non-illuminated							

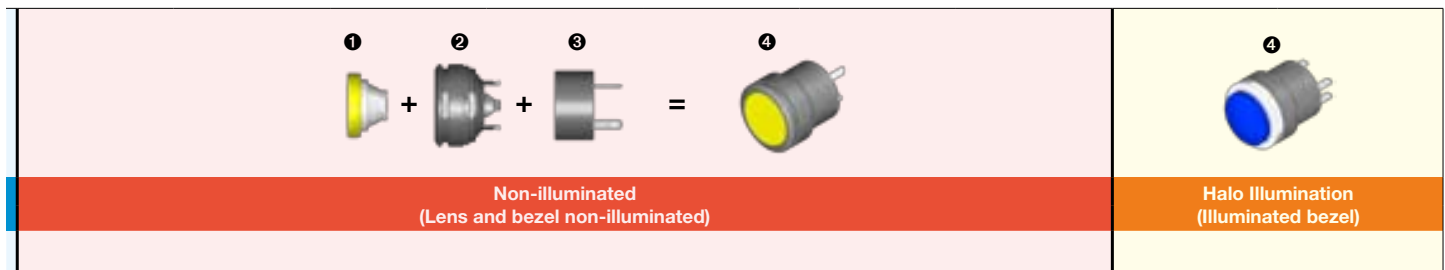
Accessories (optional)

Accessories part	Marking plate	Legend frame	Legend plate insert	Legend plate insert
Description	Marking on plate is possible by engraving or hot stamping. Specific symbols and markings are available on request.	30 x 50 mm alu black adhesive for 25 mm dia. devices	14.5 x 23.5 mm alu natural adhesive	14.5 x 23.5 mm alu black adhesive
Part-No.	61-9707.7	61-9980.0	704.968.0	704.968.1

Example of complete switch ④

Illuminated pushbutton consisting of	Items no.	Part	Part No.
	1	Lens: plastic; green; transparent; raised	84-7115.500
	2	Actuator: aluminium; natural; IP67	84-1201.7
	3	Switching element: LED white; 12VDC; 10mA; plug-in terminal 2.8 x 0.8mm	84-8511.9320
		Marking plate	Engraving on marking plate "START"; 4 mm letters; black filled

Dimensions/Mounting types: Refer to last page



84-7121.000	84-7125.000	84-7201.000 84-7201.200	84-7205.000 84-7205.200	84-7202.000 84-7202.200	84-7202.000A 84-7202.200A	84-7124.000A 84-7124.200A	84-7205.000A 84-7205.200A	84-7202.000A 84-7202.200A
84-7121.800	84-7125.800	84-7201.400 84-7201.500 84-7201.600 84-7201.800	84-7205.400 84-7205.500 84-7205.600 84-7205.800	84-7202.400 84-7202.500 84-7202.600 84-7202.800	84-7202.400A 84-7202.500A 84-7202.600A 84-7202.800A	84-7124.400A 84-7124.500A 84-7124.600A	84-7205.400A 84-7205.500B 84-7205.600A 84-7205.800A	84-7202.400A 84-7202.500A 84-7202.600A 84-7202.800A

84-2101.0	84-1101.0	84-1201.0 84-1201.2 84-1201.4 84-1201.5 84-1201.6 84-1201.7	84-1221.7	84-1091.7 84-0090.7

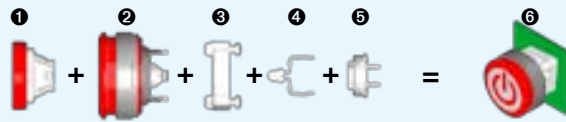
						All switching elements of the "illuminated" range may be used. Bi-colour switching elements are not recommended. Please refer to blue area
84-8001.2620 84-8001.3620 84-8001.4620 84-8001.5620 84-8001.6620 84-8001.9620	84-8515.8640 84-8515.7640	84-8005.8640 84-8005.7640	84-8005.8620 84-8005.7620	84-8510.0040	84-8510.0020	

84-9103.7	61-9453.0	704.964.8	84-9420	31-929	84-900	61-9730.0	84-997	84-998

Colour of metal part Anodised aluminium parts may have visible variations due to technical production reasons. Additional colours are available on request.	For in-depth information, please refer to the EAO catalogue. <div style="text-align: right;"> </div>
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Series 84 PCB Product Selector Part Number Assistant

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Illuminated
(Illuminated lens, non-illuminated bezel)

Lens 1

Description	Illuminated ring	Illum. On/Off	Illum. Stand-by	Transparent	Transparent	Spot illumination	Spot illumination
Material	Plastic	Plastic	Plastic	Plastic	Plastic	Aluminium	Aluminium
Shape	Flush	Flush	Flush	Flush	Flush	Flush	Flush
Mounting type	Level with bezel	Level with bezel	Level with bezel	Level with bezel	Raised above bezel	Level with bezel	Raised above bezel
Black						84-7211.000	84-7215.000
Red	84-7111.201	84-7111.202	84-7111.203	84-7111.200	84-7115.200	84-7211.200	84-7215.200
Orange	84-7111.301			84-7111.300	84-7115.300		
Yellow	84-7111.401			84-7111.400	84-7115.400	84-7211.400	84-7215.400
Green	84-7111.501	84-7111.502	84-7111.503	84-7111.500	84-7115.500	84-7211.500	84-7215.500
Blue	84-7111.601	84-7111.602	84-7111.603	84-7111.600	84-7115.600	84-7211.600	84-7215.600
Transparent	84-7111.701	84-7111.702	84-7111.703	84-7111.700	84-7115.700		
Anodised aluminium						84-7211.800	84-7215.800
Grey							
Bi-colour possible	X	X	X	X	X	X	X
Marking on plate possible							

Actuator (with bezel) 2

Front dimension	25 mm dia.		25 mm dia.	
Mounting hole	22.5 mm dia.		22.5 mm dia.	
Front protection	IP40		IP67	
Actuator for	Illum. pushbutton	Indicator	Illum. pushbutton	Indicator
Bezel material	Plastic	Plastic	Aluminium	Aluminium
Black	84-2101.0	84-3100.0	84-1101.0	84-0100.0
Red				84-1201.0
Yellow				84-1201.2
Green				84-1201.4
Blue				84-1201.5
Natural				84-1201.6
White translucent				84-1201.7
Colourless transparent				84-0200.7
				84-1221.7

Flange 3

Standard version (non-illuminated)	92-960.0
Halo illumination multi-colour bezel	

LED 4

LED series resistor has to be defined by user.		
LED for switching element*		
Red	2.1 VDC, 20 mA	10-2602.3202L
Orange	2.1 VDC, 20 mA	10-2602.3203L
Yellow	2.2 VDC, 20 mA	10-2602.3174D
Green	3.5 VDC, 20 mA	10-2602.3205L
Blue	3.5 VDC, 20 mA	10-2602.3206L
White	3.5 VDC, 20 mA	10-2602.3209L
Bi-colour LED red/green	1.9/3.5 VDC, 20 mA	10-2603.320AL
Bi-colour LED yellow/green	2.0/3.2 VDC, 20 mA	10-2603.320CL
LED for Halo	up to 8 pcs. possible	

Switching element 5

Switch rating: Voltage 50 mVAC/DC ... 42 VAC/DC Current 10 µA ... 100 mA at 240 Ω Power 2 W		
Terminal, PCB mount	X	X
Switching element for without LED	Illum. pushbutton 92-851.342	Indicator 92-800.042

Example of complete switch 6

Illuminated pushbutton consisting of	Item no.	Part	Part No.
	1	Lens: plastic; red; flush; symbol "Stand by"	84-7111.203
	2	Actuator: aluminium; red; IP67	84-1201.2
Dimensions/Mounting types: Refer to last page	3	Flange: standard version	92-960.0
Accessories:	4	LED: red; 2.1 VDC; 20 mA	10-2602.3202L
Refer to Product Selector Series 84	5	PCB mount switching element without LED	92-851.342

Non-illuminated (Non-illuminated lens and bezel)							Halo Illumination (Multi-colour bezel)	Halo Illumination (Illuminated bezel)		
 Opaque Plastic Flush Level with bezel 84-7121.000	 Opaque Plastic Flush Raised above bezel 84-7125.000	 Opaque Aluminium Flush Level with bezel 84-7201.000 84-7201.200 84-7201.400 84-7201.500 84-7201.600 84-7201.800	 Opaque Aluminium Flush Raised above bezel 84-7205.000 84-7205.200 84-7205.400 84-7205.500 84-7205.600 84-7205.800	 Opaque Aluminium Convex Level with bezel 84-7202.000 84-7202.200 84-7202.400 84-7202.500 84-7202.600 84-7202.800	 Opaque Aluminium Convex Raised above bezel 84-7202.000A 84-7202.200A 84-7202.400A 84-7202.500A 84-7202.600A 84-7202.800A	 Opaque Plastic Mushroom Raised above bezel 84-7124.000A 84-7124.200A 84-7124.400A 84-7124.500A 84-7124.600A	<p>All lenses of the "illuminated" and the "non-illuminated" range may be used (with the exception of the mushroom head cap).</p> <p>Please refer to blue and red area</p>	 Opaque Aluminium Flush Raised above bezel 84-7205.000A 84-7205.200A 84-7205.400A 84-7205.500B 84-7205.600A 84-7205.800A	 Opaque Aluminium Convex Raised above bezel 84-7202.000A 84-7202.200A 84-7202.400A 84-7202.500A 84-7202.600A 84-7202.800A	
 25 mm dia. 22.5 mm dia. IP40 Pushbutton Plastic 84-2101.0	 25 mm dia. 22.5 mm dia. IP40 Indicator Plastic 84-3100.0	 25 mm dia. 22.5 mm dia. IP67 Pushbutton Plastic 84-1101.0	 25 mm dia. 22.5 mm dia. IP67 Indicator Plastic 84-0100.0	 25 mm dia. 22.5 mm dia. IP67 Pushbutton Aluminium 84-1201.0 84-1201.2 84-1201.4 84-1201.5 84-1201.6 84-1201.7	 25 mm dia. 22.5 mm dia. IP67 Indicator Aluminium 84-0200.7	 40 mm dia. 30.5 mm dia. IP67 Pushbutton Aluminium 84-1221.7	 25 mm dia. 22.5 mm dia. IP67 Illum. pushbutton Plastic 84-1081.7	 25 mm dia. 22.5 mm dia. IP67 Indicator Plastic 84-0080.7	 25 mm dia. 22.5 mm dia. IP67 Illum. pushbutton Plastic 84-1091.7	 25 mm dia. 22.5 mm dia. IP67 Indicator Plastic 84-0090.7
 92-960.0							 84-960.0	 92-960.0		
<p>* All LEDs of the "illuminated" range may be used for switching elements</p> <p>Please refer to blue area</p>							 10-2602.3202L 10-2602.3203L 10-2602.3174D 10-2602.3205L 10-2602.3206L 10-2602.3209L			
<p>Recommendation: Osram Hyper Mini TOPLED®</p>										
 X Pushbutton 92-851.342							 Illum. pushbutton 92.851.342	 Indicator 92-800.042	 Illum. pushbutton 92.851.342	 Indicator 92-800.042

Colour of metal part
Anodised aluminium parts may have visible variations due to technical production reasons.
Additional colours are available on request.

For in-depth information, please refer to the EAO catalogue.

www.eao.com/84PCB-ps_en



Emergency-stop

Switching system

The double-break switching system can be supplied for the following switching functions: 1 Normally closed, 2 Normally closed, 1 Normally closed + 1 Normally open.

The Normally closed contacts have forced opening according to EN IEC 60947-5-1

Material

Connection cable

Polyvinylchloride (PVC), operating temperature up to +65°C

Mushroom-head cap

Polybutylenterephthalate (PBT), as per UL 94 V0 (red items)

Actuator housing

Polyamide (PA 66), as per UL 94 V0, Flat ribbon cable-cover

Polyamide (PA 6.6), as per UL 94 V0

Material of contact

Silver alloy gold plated

Mechanical characteristics

Front panel thickness

Standard 1 ... 4 mm

With emergency-stop protective shroud Typ-Nr. 84-902, 1-3 mm

Mounting hole

22.5 mm dia. as per EN IEC 60947-5-1 with anti-twist device

Terminals

Soldering terminals 2.8x0.5 mm (solderable), CuSn₆ tin-plated

Flat ribbon cable 2-, 4-, or 6-poles 0.35 mm² (AWG 22)

Tightening torque

Fixing nut 80 Ncm

Actuating force

22 N ±4 N

Actuating travel

approx. 4 mm to release the internal operation part

Mechanical lifetime

≥50 000 cycles of operations

Electrical characteristics

Standards

The devices comply with: EN IEC 60947-5-1, EN IEC 60947-5-5 (Emergency-stop), DIN EN ISO 13850, EN IEC 60204

Illumination

LED red with pole reversal, constant current source

Operation Voltage 5 VDC ... 30 VDC

Current consumption 9.7 mA ... 12.4 mA

Rated Operational Voltage U_e

250 VAC, as per EN IEC 60947-1

Rated Insulation Voltage U_i

250 V, as per EN IEC 60947-1

Rated Impulse Withstand Voltage U_{imp}

2.5 kV, as per EN IEC 60947-1

Contact resistance

New state ≤50 mΩ, as per DIN IEC 60512-2-3

Isolation resistance

>1011 Ω between the open contacts at 500 VDC, as per DIN IEC 60512-2-10

Electrical life

≥50 000 cycles of operations (inductive cosφ 0.4), as per EN IEC 60947-5-1

Voltage	120 VAC	240 VAC	125 VDC	250 VDC
Current	3 A	1.5 A	0.55 A	0.27 A

Reduced load ≥50 000 cycles of operations (resistive)

Voltage	1 VAC/DC	42 VAC/DC
Current	100 mA	200 mA

Conventional free air thermal current I_{th}

5 A, 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

Switch rating AC with silver contact (gold plated), service category AC-15, as per EN IEC 60947-5-1

Voltage	120 VAC	240 VAC
Current	3 A	1.5 A

Switch rating DC for silver contact (gold plated), service category DC-13, as per EN IEC 60947-5-1 (inductive)

Voltage	12 VDC	24 VDC	48 VDC	60 VDC	125 VDC	250 VDC
Current _{plug}	5 A	4 A	2.1 A	1.7 A	0.55 A	0.27 A
Current _{cable}	3 A	3 A	2.1 A	1.7 A	0.55 A	0.27 A

Recommended minimum operational data

Silver contacts (gold plated)

Voltage	1 VAC/DC
Current	1 mA

Electric strength

500 VAC, 50 Hz, 1 min. as per DIN IEC 60512-2

Rated conditional short-circuit current

1000 A, type of short-circuit unit 6 A gG, as per EN IEC 60947-5-1

Protection class

Class II, as per EN IEC 60947-5

Overvoltage category

II, as per EN IEC 60947-1

Degree of pollution

3, as per EN IEC 60947-1

Environmental conditions

Operating temperature

-25°C ... +65°C

Front protection

IP65, as per EN IEC 60529

Shock resistance

(semi-sinusoidal)

max. 150 m/s², pulse width 11 ms, 3-axis, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

max. 50 m/s² at 10 Hz ... 500 Hz, 10 cycles, 3-axis, as per EN IEC 60068-2-6

Climate resistance

Damp heat, cyclic
96 hours, +25 °C / 97%, +55 °C / 93% relative humidity, as per EN IEC 60068-2-30

Damp heat, steady
56 days, +40 °C / 93% relative humidity, as per EN IEC 60068-2-78

Dry heat
96 hours, +70 °C, as per EN IEC 60068-2-2

Low temperature
96 hours, -40 °C, as per EN IEC 60068-2-1

Saline mist
96 Stunden, +35 °C in chemical solution NaCl, as per EN IEC 60068-2-11

Approvals

Approbations

SEV
UL

Declaration of conformity

CE

Switching element illuminated pushbutton

Switching system

Short-travel switching system with 2 independent contact points and tactile operation. Guarantees reliable switching even of very light loads. Fitted with 1 normally open contact.

Material

Connection cable

Polyvinylchloride (PVC), short-time heat-resistant up to 105 °C

Material of contact

Silver alloy gold plated

Switching element

Thermoplastic polyester (PET, PBT), as per UL 94 V0 and Polyacetale (POM), as per UL 94 HB

Mechanical characteristics

Terminals

Plug-in terminals 2.8x0.8mm (solderable)
Flat ribbon cable 0.5mm²
PCB terminal

Actuating force

4.0N ±0.2N (measured at the lens)

Actuating travel

~0.5mm

Rebound time

≤1ms

Resistance to heat of soldering

260 °C, 5 s (PCB assembly)
350 °C, 10 s (when using a soldering iron)
as per EN IEC 60068-2-20

Mechanical lifetime

≥1 million cycles of operations

Electrical characteristics

Illumination

Single-Chip or Multi-Chip LED, green, orange, red, yellow, white and blue

Operation Voltage	12VDC	24VDC
Current consumption	40mA	20mA

Contact resistance

Starting value (initial) ≤100mΩ, as per DIN IEC 60512-2

Isolation resistance

≥1 G Ω between all terminals at 100VDC, as per DIN IEC 60512-2

Electrical life

as per EN IEC 60512-5

5 million	cycles of operation	24 VAC, 50 mA at 480 Ω
5 million	cycles of operation	24 VAC, 100 mA at 240 Ω
2 million	cycles of operation	42 VAC, 50 mA at 840 Ω
2 million	cycles of operation	42 VAC, 100 mA at 420 Ω
300 000	cycles of operation	42 VAC, 100 mA at cosφ 0.4
250 000	cycles of operation	42 VAC, 200 mA at cosφ 0.395

1 million	cycles of operation	12VDC, 250mA at 48 Ω
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1 million	cycles of operation	24 VDC, 50 mA at 480 Ω
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1 million	cycles of operation	24 VDC, 100 mA at 240 Ω
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5 million	cycles of operation	42VDC, 25 mA at 1680 Ω
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1.5 million	cycles of operation	42VDC, 50 mA at 840 Ω
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100 000	cycles of operation	42VDC, 100 mA at 420 Ω
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500 000	cycles of operation	24 VDC, 200 mA at L/R=30ms
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300 000	cycles of operation	42 VDC, 100 mA at L/R=30ms
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100 000	cycles of operation	42 VDC, 200 mA at L/R=30ms
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Switch rating

Voltage	50 mVAC/DC ... 42 VAC/DC
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Current	10 uA ... 100 mA
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Power	max. 2W
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Electric strength

500VAC, 50 Hz, 1 min. as per DIN IEC 60512-2

Environmental conditions

Storage temperature

-40 °C ... +85 °C

Operating temperature

-25 °C ... +70 °C

Protection degree

For IP67 back protection, cable version only, use blind plug Typ-Nr. 84-900

Shock resistance

(semi-sinusoidal)
max. 100m/s², pulse width 11ms, 3-axis, as per EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

max. 50m/s² at 10Hz ... 500Hz, 10 cycles, 3-axis, as per EN IEC 60068-2-6

Actuator

Material

Lens

Polycarbonate (PC), as per UL 94 V2 or Aluminium anodised

Actuator housing

Polyetherimid (PEI), as per UL 94 V0 or Aluminium anodised

Mechanical characteristics

Mounting hole

22.5 mm dia. and 30.5 mm dia.

Tightening torque

Fixing nut max. 80 Ncm

Actuating force

4.0 N \pm 0.2 N (measured at the lens)

Actuating travel

Total switching travel 1.2 mm

Mechanical lifetime

\geq 1 million cycles of operations

Electrical characteristics

Electrostatic breakdown value

Plastic case \leq 15 kV

Aluminium case \leq 5 kV

as per IEC 61000-4-2, mounted in plastic front panel

Environmental conditions

Storage temperature

-40 °C ... +85 °C

Operating temperature

-25 °C ... +70 °C

Front protection

IP67, IP65 and IP40, as per EN IEC 60529

Climate resistance

Damp heat, cyclic

96 hours, +25 °C / 97%, +55 °C / 93% relative humidity, as per

EN IEC 60068-2-30

Damp heat, state

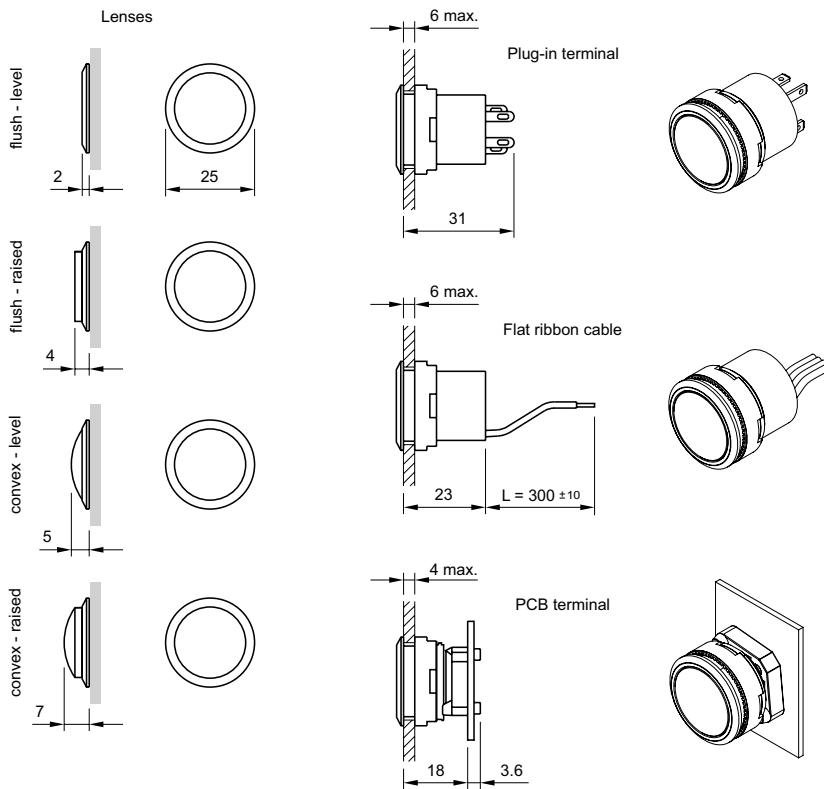
56 days, +40 °C / 93% relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature

100 cycles, -40 °C ... +80 °C, as per EN IEC 60068-2-14

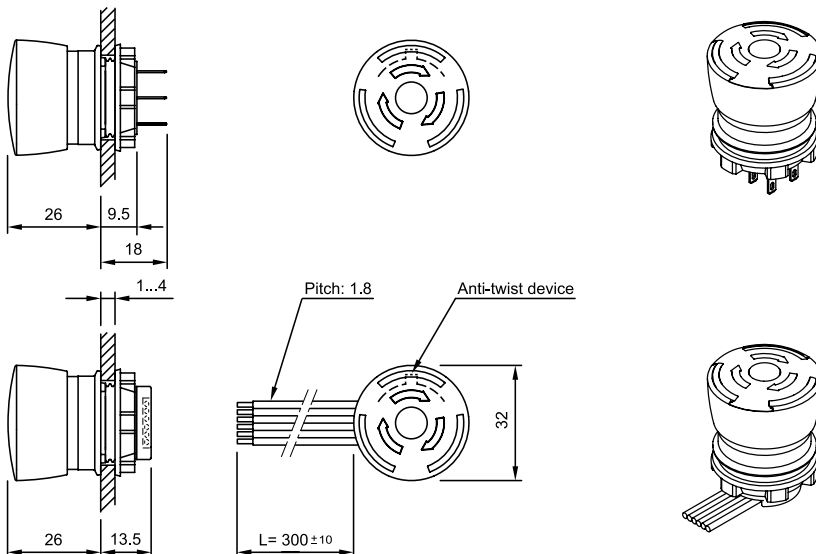
84 Complete Indicator, Complete Pushbutton

Flush, plug-in terminals, Flat ribbon, PCB



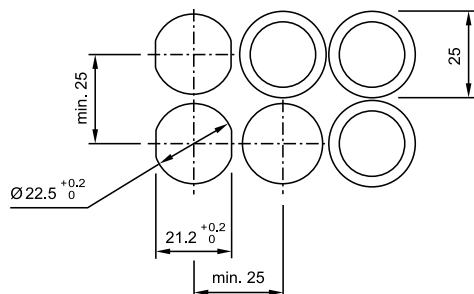
84 Emergency-stop switch

ISO 13850, Illuminated, Non-illuminated, Plug-in, Flat ribbon



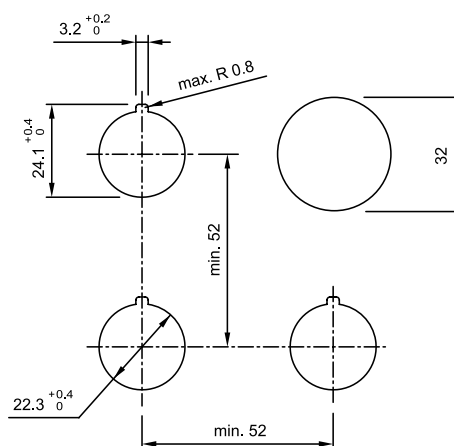
84 Cut-outs

Indicator, Pushbutton



84 Cut-outs, E-Stop

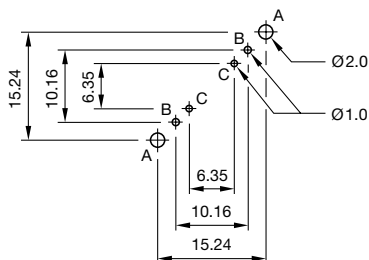
ISO 13850, illuminated, Non-Illuminated, Plug-in, Ribbon Cable



84 PCB-Layout, Indicator

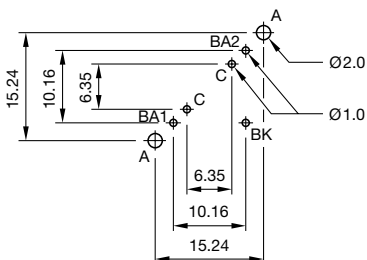
Single-LED

Drilling plan (Elementside)
 A Fixing holes for mounting flange (92-960.0)
 B Holes for LED
 C Holes for centering pins



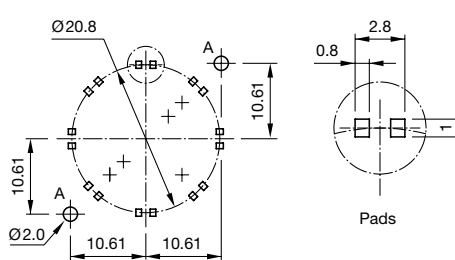
Bi-colour-LED

Drilling plan (Elementside)
 A Fixing holes for mounting flange (92-960.0)
 B Holes for Bi-colour LED: BA1 (green) + BA2 (yellow or red) = Anodes, BC = Cathode
 C Holes for centering pins



Hyper mini SMD-LED

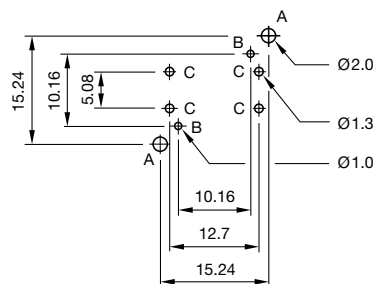
Drilling plan (Elementside)
 A Fixing holes for mounting flange (84-960.0)



84 PCB-Layout, Pushbutton actuators

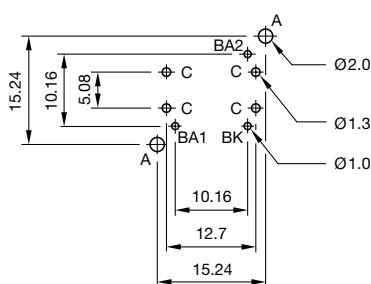
Single-LED

Drilling plan (Elementside)
 A Fixing holes for mounting flange (92-960.0)
 B Holes for LED
 C Holes for contact pins
 Pad max. $\varnothing 2.5$ mm
 Through-connection recommended



Bi-colour-LED

Drilling plan (Elementside)
 A Fixing holes for mounting flange (92-960.0)
 B Holes for Bi-colour LED: BA1 (green) + BA2 (yellow or red) = Anodes, BK = Cathode
 C Holes for contact pins
 Pad max. $\varnothing 2.5$ mm
 Through-connection recommended



Hyper mini SMD-LED

Drilling plan (Elementside)
 A Fixing holes for mounting flange (84-960.0)

