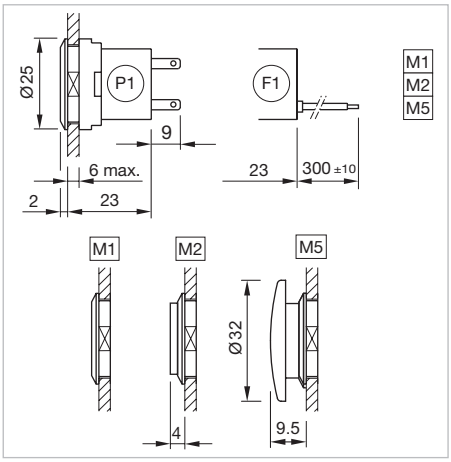
84 Flush design

Indicator standard

Product can differ from the current configuration.



Dimensions [mm]
F1 = Flat ribbon cable,
P1 = Plug-in terminal 2.8 x 0.8 mm,
M1 = Lens level with bezel,
M2 = Lens raised above bezel
M5 = Mushroom-head cap

Equipment consisting of (schematic overview)

Lens *page 24*

Actuator

Fixing nut

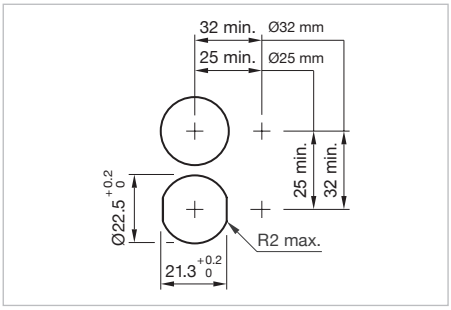
Illumination element *page 31*

Each Part Number listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.

Additional Information

- Illuminated lens, non-illuminated bezel
- The colour of anodized aluminium parts can vary due to technical production reasons



Mounting cut-outs [mm]

Front protection	Front ring	Part No.	Weight
 **Indicator actuator standard, Front dimension Ø 25 mm**			
IP 40	Plastic black	**84-3100.0**	0.004 kg
IP 67	Plastic black	**84-0100.0**	0.003 kg
	Aluminium natural anodized	**84-0200.7**	0.008 kg

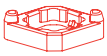
Indicator PCB standard

Equipment consisting of (schematic overview)


Lens *page 24*


Actuator


Fixing nut

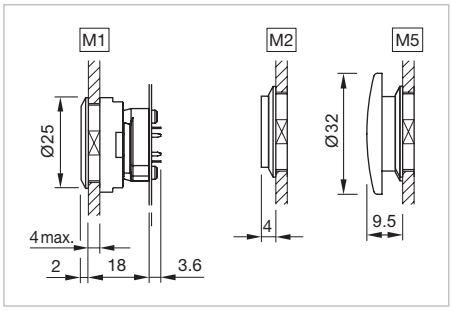

Mounting flange *page 37*


LED *page 39*


Illumination element *page 36*

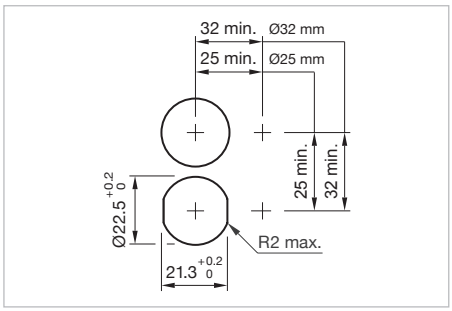
Each Part Number listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]
M1 = Lens level with bezel,
M2 = Lens raised above bezel
M5 = Mushroom-head cap

Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

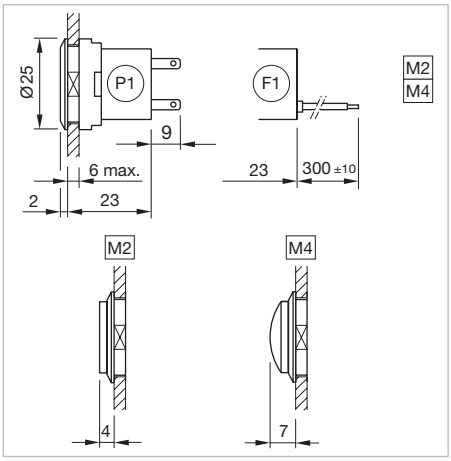
- Illuminated lens, non-illuminated bezel
- The colour of anodized aluminium parts can vary due to technical production reasons

Front protection	Front ring	Part No.	Weight
 **Indicator actuator PCB standard, Front dimension Ø 25 mm**			
IP 40	Plastic black	**84-3100.0**	0.004 kg
IP 67	Plastic black	**84-0100.0**	0.003 kg
	Aluminium natural anodized	**84-0200.7**	0.008 kg

84 Flush design

Indicator with halo illumination standard, IP 67

Product can differ from the current configuration.



Dimensions [mm]
F1 = Flat ribbon cable,
P1 = Plug-in terminal 2.8 x 0.8 mm,
M2 = Lens raised above bezel,
M4 = Lens convexe raised above bezel

Equipment consisting of (schematic overview)


Lens *page 26*


Actuator


Fixing nut

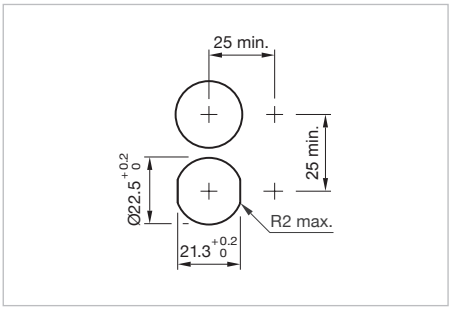

Illumination element *page 31*

Each Part Number listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.

Additional Information

- Front bezel illuminated
- Accessories for halo illumination: Essential lenses Part No. 84-7202.x00A and 84-7205.x00A



Mounting cut-outs [mm]

Front ring	Part No.	Weight
 **Indicator actuator with halo illumination standard, Front dimension Ø 25 mm**		
Plastic colourless translucent	**84-0090.7**	0.006 kg

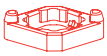
Indicator with halo illumination PCB standard, IP 67

Equipment consisting of (schematic overview)


Lens *page 26*


Actuator


Fixing nut

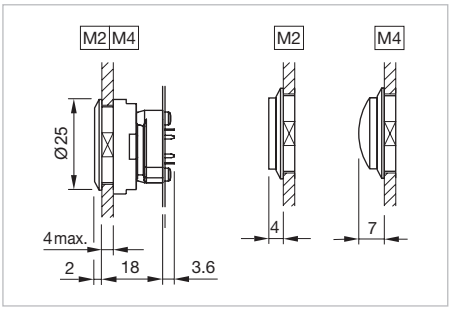

Mounting flange *page 37*


LED *page 39*


Illumination element *page 36*

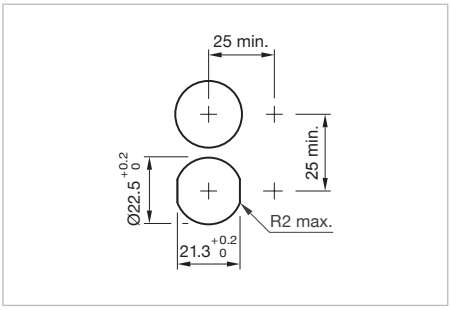
Each Part Number listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]
M2 = Lens raised above bezel,
M4 = Lens convexe raised above bezel

Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

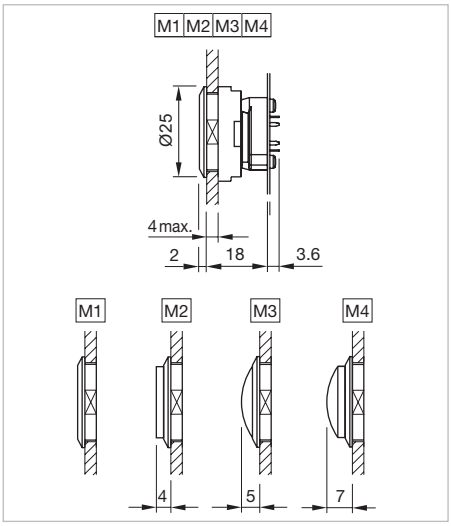
- Front bezel illuminated
- Accessories for halo illumination: Essential lenses Part No. 84-7202.x00A and 84-7205.x00A

Front ring	Part No.	Weight
 **Indicator actuator with halo illumination PCB standard, Front dimension Ø 25 mm**		
Plastic colourless translucent	**84-0090.7**	0.006 kg

84 Flush design

Indicator for ring illumination (multicolor) PCB or Halo Compact, IP 67

Product can differ from the current configuration.



Dimensions [mm]
M1 = Lens level with bezel,
M2 = Lens raised above bezel,
M3 = Lens konvexe level with bezel,
M4 = Lens convexe raised above bezel

Equipment consisting of (schematic overview)


Lens *page 24*


Actuator


Befestigungs-mutter


Mounting flange *page 37*


Single-LED *page 39*

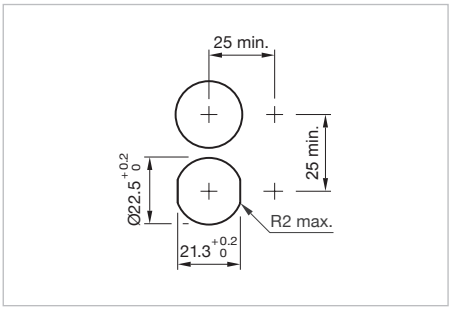

Illumination element *page 36*

Each Part Number listed below includes all the black components shown in the 3D-drawing.

To obtain a complete unit, please select the red components from the pages shown.

Additional Information

- The LEDs are not part of delivery.
  Recommendation: Osram Hyper Mini TOPLED



Mounting cut-outs [mm]

Front ring	Part No.	Weight
 **Indicator actuator for ring illumination (multicolor) PCB or Halo Compact, Front dimension Ø 25 mm**		
Plastic colourless transparent	**84-0080.7**	0.006 kg

84 Accessories

Front

Lens plastic

Additional Information

- Lens profile flat

Product attribute	Dimension	Lens	Mounting type	Part No.	Weight
 **Lens plastic**					
illuminative	Ø 19.7 mm	red transparent	level with bezel	**84-7111.200**	0.001 kg
		orange transparent	level with bezel	**84-7111.300**	0.001 kg
		yellow transparent	level with bezel	**84-7111.400**	0.001 kg
		green transparent	level with bezel	**84-7111.500**	0.001 kg
		blue transparent	level with bezel	**84-7111.600**	0.001 kg
		colourless transparent	level with bezel	**84-7111.700**	0.001 kg
non-illuminative	Ø 19.7 mm	black opaque	level with bezel	**84-7121.000**	0.001 kg
		grey opaque	level with bezel	**84-7121.800**	0.001 kg
illuminative	Ø 19.7 mm	red transparent	raised above bezel	**84-7115.200**	0.001 kg
		orange transparent	raised above bezel	**84-7115.300**	0.001 kg
		yellow transparent	raised above bezel	**84-7115.400**	0.001 kg
		green transparent	raised above bezel	**84-7115.500**	0.001 kg
		blue transparent	raised above bezel	**84-7115.600**	0.001 kg
		colourless transparent	raised above bezel	**84-7115.700**	0.001 kg
non-illuminative	Ø 19.7 mm	black opaque	raised above bezel	**84-7125.000**	0.001 kg
		grey opaque	raised above bezel	**84-7125.800**	0.001 kg

Marking plate

Additional Information

- Can be hot stamped

Marking plate	Part No.	Weight
 **Legend plate for lens plastic**		
Plastic colourless transparent	**61-9707.7**	0.001 kg

Lens plastic with symbol

Additional Information

- Lens profile flat
- Illuminative
- The silvery coat is being applied on the lens (screen print) with an additional protective lacquer. Further information see «Technical data»

Dimension	Lens	Mounting type	Symbol	Part No.	Weight
 **Lens plastic with symbol**					
Ø 19.7 mm	red transparent	level with bezel	Ring	**84-7111.201**	0.002 kg
	orange transparent	level with bezel	Ring	**84-7111.301**	0.002 kg
	yellow transparent	level with bezel	Ring	**84-7111.401**	0.002 kg
	green transparent	level with bezel	Ring	**84-7111.501**	0.002 kg
	blue transparent	level with bezel	Ring	**84-7111.601**	0.002 kg
	colourless transparent	level with bezel	Ring	**84-7111.701**	0.002 kg
 **Lens plastic with symbol**					
Ø 19.7 mm	red transparent	level with bezel	ON/OFF	**84-7111.202**	0.002 kg
	green transparent	level with bezel	ON/OFF	**84-7111.502**	0.002 kg
	blue transparent	level with bezel	ON/OFF	**84-7111.602**	0.002 kg
	colourless transparent	level with bezel	ON/OFF	**84-7111.702**	0.002 kg
 **Lens plastic with symbol**					
Ø 19.7 mm	red transparent	level with bezel	Stand by	**84-7111.203**	0.002 kg
	green transparent	level with bezel	Stand by	**84-7111.503**	0.002 kg
	blue transparent	level with bezel	Stand by	**84-7111.603**	0.002 kg
	colourless transparent	level with bezel	Stand by	**84-7111.703**	0.002 kg

Lens metal

Additional Information

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

Product attribute	Dimension	Lens	Mounting type	Part No.	Weight
 **Lens metal**					
flat	Ø 19.7 mm	Aluminium black anodized	level with bezel	**84-7201.000**	0.003 kg
	Ø 19.7 mm	Aluminium red anodized	level with bezel	**84-7201.200**	0.003 kg

Lens metal with dot

Additional Information

- Lens profile flat
- The colour of anodized aluminium parts can vary due to technical production reasons

Product attribute	Dimension	Lens	Mounting type	Part No.	Weight
 **Lens metal with dot**					
illuminative	Ø 19.7 mm	Aluminium black anodized	level with bezel	**84-7211.000**	0.002 kg
		Aluminium red anodized	level with bezel	**84-7211.200**	0.002 kg
		Aluminium gold anodized	level with bezel	**84-7211.400**	0.002 kg
		Aluminium olive-green anodized	level with bezel	**84-7211.500**	0.002 kg
		Aluminium blue anodized	level with bezel	**84-7211.600**	0.002 kg
		Aluminium natural anodized	level with bezel	**84-7211.800**	0.002 kg
		Aluminium black anodized	raised above bezel	**84-7215.000**	0.002 kg
		Aluminium red anodized	raised above bezel	**84-7215.200**	0.002 kg
		Aluminium gold anodized	raised above bezel	**84-7215.400**	0.002 kg
		Aluminium olive-green anodized	raised above bezel	**84-7215.500**	0.002 kg
		Aluminium blue anodized	raised above bezel	**84-7215.600**	0.002 kg
		Aluminium natural anodized	raised above bezel	**84-7215.800**	0.002 kg

Mushroom-head cap

Product attribute	Mushroom-head cap	Part No.	Weight
 **Mushroom-head cap, Front dimension Ø 32 mm**			
illuminative	Plastic blue	**84-7114.600A**	0.004 kg
non-illuminative	Plastic black	**84-7124.000A**	0.004 kg
	Plastic red	**84-7124.200A**	0.004 kg
	Plastic yellow	**84-7124.400A**	0.004 kg
	Plastic green	**84-7124.500A**	0.004 kg

Front protective cap, IP 68

Additional Information

- For flat lense profil only
- When using the front protection cover the external sealing in the actuator has to be removed

Material	Colour	Optics	Part No.	Weight
Front protective cap				
Silicone	colourless	transparent	**84-9103.7**	0.001 kg

Legend frame

Additional Information

- For devices with front dimension Ø 25 mm, flush design
- The colour of anodized aluminium parts can vary due to technical production reasons

Dimension	Material	Colour	Mounting type	Part No.	Weight
 **Legend frame**					
30 x 50 x 0.75 mm	Aluminium	black anodized	adhesive	**61-9980.0**	0.001 kg

Legend plate

Additional Information

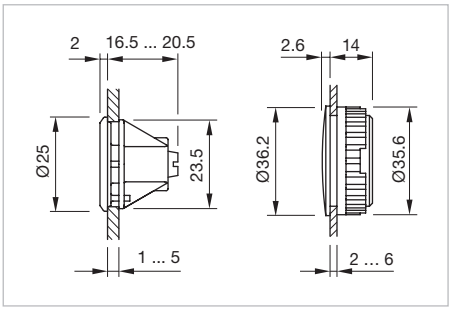
- For legend frame Part No. 61-9980.0
- The colour of anodized aluminium parts can vary due to technical production reasons

Dimension	Material	Colour	Mounting type	Part No.	Weight
 **Legend plate for legend frame**					
14.5 x 23.5 mm	Aluminium	natural anodized	adhesive	**704.968.0**	0.001 kg
		black anodized	adhesive	**704.968.1**	0.001 kg

Blind plug, IP 65

Additional Information

- The dimensions of the mounting cut-outs are shown in the product details
- Please note that bigger minimum distances are necessary



Dimensions [mm]

Product attribute	Dimension	Mounting cut-out	Material	Colour	Part No.	Weight
 **Blind plug**						
with this print version of the panel thickness is reduced to 2.5 mm max.	Ø 25 mm	Ø 22.5 mm	Plastic	black	**61-9453.0**	0.006 kg
 **Blind plug**						
	Ø 36 mm	Ø 30.5 mm	Plastic	black	**704.964.8**	0.007 kg

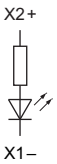
Rear side

Illumination element, IP 40

Additional Information

- LED and built-in resistor included
- Standard version: Cable length 300 mm with insulated ferrule, plug-in terminal 2.8 x 0.8 mm
- Other options on request: Customisation of cable and connectors, rear side fully sealed (IP 67)
- Protection degree (rear side): IP 40, upgrade to IP 67 with plug Part No. 84-900 possible. With applications where strong vibrations occure, the plugs may become loose
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination

Protection degree	LED colour	Operating voltage	Operation current	Terminal	Part No.	Wiring diagram	Weight
 **Illumination element**							
IP 40	Single-LED red	12 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.2320**	1	0.005 kg
	Single-LED orange	12 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.3320**	1	0.005 kg
	Single-LED yellow	12 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.4320**	1	0.005 kg
	Single-LED green	12 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.5320**	1	0.005 kg
	Single-LED blue	12 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.6320**	1	0.005 kg
	Single-LED white	12 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.9320**	1	0.005 kg
	Single-LED red	24 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.2620**	1	0.005 kg
	Single-LED orange	24 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.3620**	1	0.005 kg
	Single-LED yellow	24 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.4620**	1	0.005 kg
	Single-LED green	24 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.5620**	1	0.005 kg
	Single-LED blue	24 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.6620**	1	0.005 kg
	Single-LED white	24 VDC ±10 %	10 mA	Plug 2.8 x 0.8 mm	**84-8001.9620**	1	0.005 kg
 **Illumination element**							
IP 40	Single-LED red	12 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.2340**	1	0.010 kg
	Single-LED orange	12 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.3340**	1	0.010 kg
	Single-LED yellow	12 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.4340**	1	0.010 kg
	Single-LED green	12 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.5340**	1	0.010 kg
	Single-LED blue	12 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.6340**	1	0.010 kg
	Single-LED white	12 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.9340**	1	0.010 kg
	Single-LED red	24 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.2640**	1	0.010 kg
	Single-LED orange	24 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.3640**	1	0.010 kg
	Single-LED yellow	24 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.4640**	1	0.010 kg
	Single-LED green	24 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.5640**	1	0.010 kg
	Single-LED blue	24 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.6640**	1	0.010 kg
	Single-LED white	24 VDC ±10 %	10 mA	Flat ribbon cable	**84-8001.9640**	1	0.010 kg



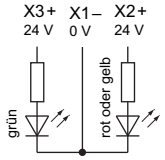
Wiring diagram 1

Illumination element bi-colour

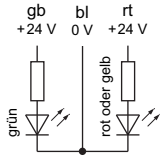
Additional Information

- LED and built-in resistor included
- Standard version: Cable length 300 mm with insulated ferrule, plug-in terminal 2.8 x 0.8 mm
- Other options on request: Customisation of cable and connectors, rear side fully sealed (IP 67).
- Best illumination level will be reached with aluminium lens with spot, Part No. 84-7215.x00 and 84-7211.x00
- Protection degree (rear side): IP 40, upgrade to IP 67 with plug Part No. 84-900 possible. With applications where strong vibrations occure, the plugs may become loose
- Cabel connection IP 67, rear side fully sealed. The illumination element of the cable version cannot be disconnected from the actuator any longer
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination

Protection degree	LED colour	Operating voltage	Operation current	Terminal	Part No.	Wiring diagram	Weight
 **Illumination element with bi-colour illumination**							
IP 40	Bi-colour LED red/green	24 VDC ±10 %	20 mA	Plug 2.8 x 0.8 mm	**84-8005.8620**	1	0.005 kg
	Bi-colour LED yellow/green	24 VDC ±10 %	20 mA	Plug 2.8 x 0.8 mm	**84-8005.7620**	1	0.005 kg
 **Illumination element with bi-colour illumination**							
IP 67	Bi-colour LED yellow/green	24 VDC ±10 %	20 mA	Flat ribbon cable	**84-8005.7640**	2	0.011 kg
	Bi-colour LED red/green	24 VDC ±10 %	20 mA	Flat ribbon cable	**84-8005.8640**	2	0.011 kg



Wiring diagram 1



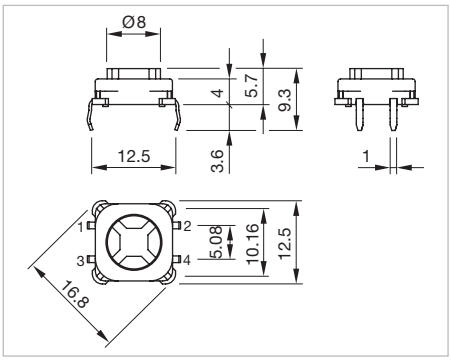
Wiring diagram 2

Wiring diagram 1

Switching element PCB illuminative

Additional Information

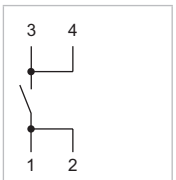
- The customer has to decide what series resistor shall be used to the LED
- LED and mounting flange to be ordered separately



Dimensions [mm]

Contacts	Terminal	Switching action	Part No.	Component layout	Wiring diagram	Weight
 **Switching element PCB mounting illuminative**						
1 NO	PCB	B	**92-851.342**	3	1	0.001 kg

Contacts: NO = Normally open
Switching action: B = Momentary
The component layouts you will find from page 49

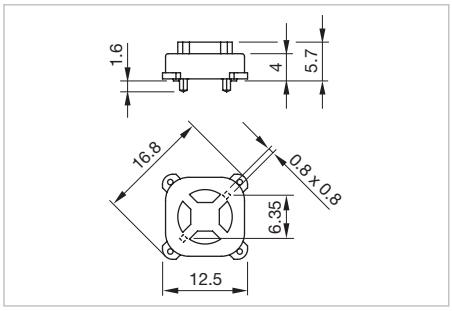


Wiring diagram 1

Illumination element PCB

Additional Information

- The customer has to decide what series resistor shall be used to the LED
- LED and mounting flange to be ordered separately

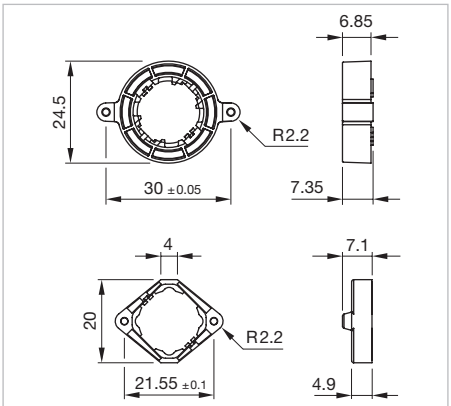


Dimensions [mm]

Terminal	Part No.	Component layout	Weight
 **Illumination element PCB mounting**			
PCB	**92-800.042**	4	0.001 kg

The component layouts you will find from page 49

Mounting flange



Dimensions [mm]

Product attribute	Part No.	Weight
 **Mounting flange**		
Halo illumination (illuminated multi-color bezel)	**84-960.0**	0.001 kg
 **Mounting flange**		
Standard version	**92-960.0**	0.001 kg

Illumination

Single-LED, T1 Bi-Pin

Additional Information

- The customer has to decide what series resistor shall be used to the LED
- Luminosity and wave length scattering caused by LED manufacturing processes may cause slight variations in the illumination

LED colour	Forward voltage typ.	Lumi. intensity	Dom. wavelength	Part No.	Weight
 **Single-LED**					
Single-LED red	2.1 VDC @ 20 mA	200 mcd	625 nm	**10-2602.3202L**	0.001 kg
Single-LED orange	2.1 VDC @ 20 mA	220 mcd	590 nm	**10-2602.3203L**	0.001 kg
Single-LED yellow	3.3 VDC @ 20 mA	500 mcd	570 nm	**10-2602.3204L**	0.001 kg
Single-LED green	3.5 VDC @ 20 mA	250 mcd	525 nm	**10-2602.3205L**	0.001 kg
Single-LED blue	3.5 VDC @ 20 mA	450 mcd	470 nm	**10-2602.3206L**	0.001 kg
Single-LED white	3.3 VDC @ 20 mA	600 mcd	x=0.29/y=0.31 nm	**10-2602.3209L**	0.001 kg

Bi-colour-LED, T1 Bi-Pin

Additional Information

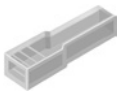
- The customer has to decide what series resistor shall be used to the LED
- Luminosity and wave length scattering caused by LED manufacturing processes may cause slight variations in the illumination

LED colour	Forward voltage typ.	Lumi. intensity	Dom. wavelength	Part No.	Weight
 **Bi-colour-LED**					
Bi-colour LED red/green	2.0/3.2 VDC @ 20 mA	380/650 mcd	628/525 nm	**10-2603.320AL**	0.001 kg
Bi-colour LED yellow/green	2.0/3.2 VDC @ 20 mA	480/380 mcd	588/525 nm	**10-2603.320CL**	0.001 kg

Flat receptacle

Product attribute	Part No.	Weight
 **Flat receptacle**		
2.8 x 0.5 mm plug-in terminal	**31-946**	0.001 kg

Insulation sleeve

Product attribute	Part No.	Weight
 **Insulation sleeve**		
for flat receptacle 2.8 mm	**31-929**	0.001 kg

Mounting

Mounting tool

Product attribute	Part No.	Weight
 **Mounting tool**		
for tightening or loosening the fixing nut, for emergency-stop and stop-switch	**84-996**	0.014 kg
 **Mounting tool**		
for tightening or loosening of fixing nut, for Indicator and Pushbutton	**84-997**	0.027 kg

Dismantling tool

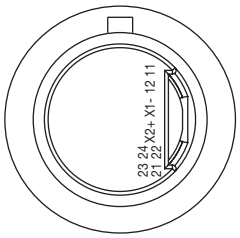
Additional Information

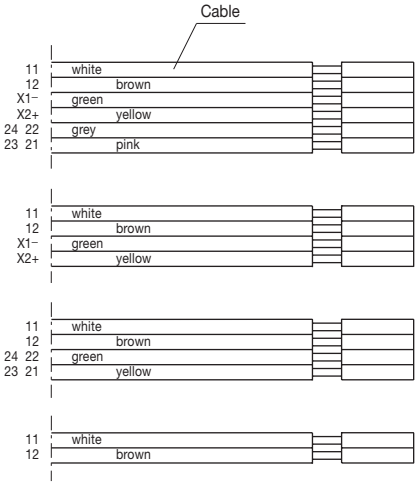
- For actuator dismantling of switching element, illumination element and mounting flange

Part No.	Weight
 **Combined dismantling tool**	
84-918	0.008 kg

84 Drawings

Drawings





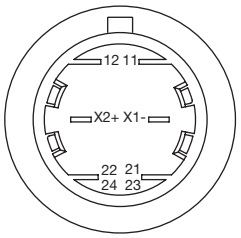
	Terminals
1 NC + 1 NO	11 / 12 + 23 / 24
2 NC	11 / 12 + 21 / 22
Illumination	X1– / X2+

	Terminals
1 NC	11 / 12
Illumination	X1– / X2+

	Terminals
1 NC + 1 NO	11 / 12 + 23 / 24
2 NC	11 / 12 + 21 / 22

	Terminals
1 NC	11 / 12

Component layout 1

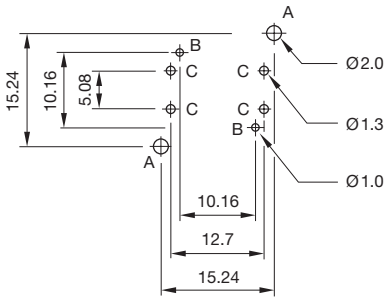


Component layout 2

Single-LED

Drilling plan (element side)

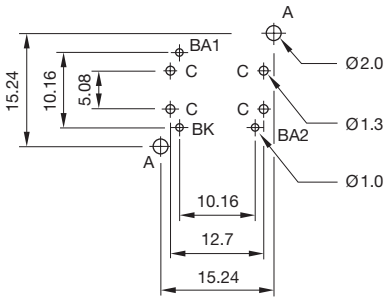
A Fixing holes for mounting flange (92-960.0)
B Holes for LED
C Holes for contact pins
Pad max. Ø 2.5 mm
Through-connection recommended



Bi-colour-LED

Drilling plan (element side)

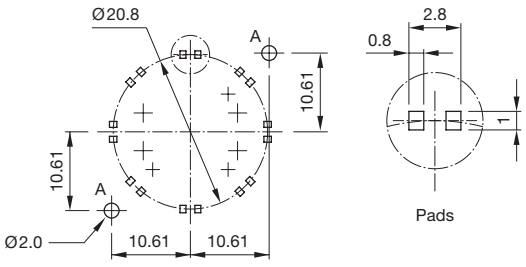
A Fixing holes for mounting flange (92-960.0)
B Holes for Bi-colour LED:
BA1 (green) + BA2 (yellow or red) = Anodes, BK = Cathode
C Holes for contact pins
Pad max. Ø 2.5 mm
Through-connection recommended



Hyper mini Top-LED

Drilling plan (element side)

A Fixing holes for mounting flange (84-960.0)



Component layout 3

Suppressor circuits

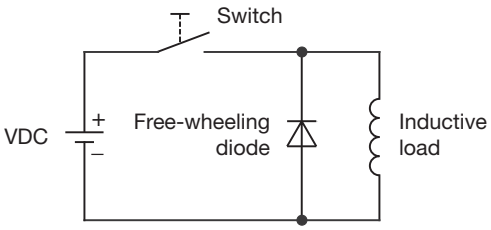
When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e. g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

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.

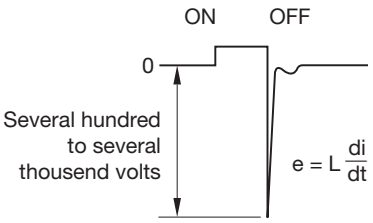
The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (VR) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current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

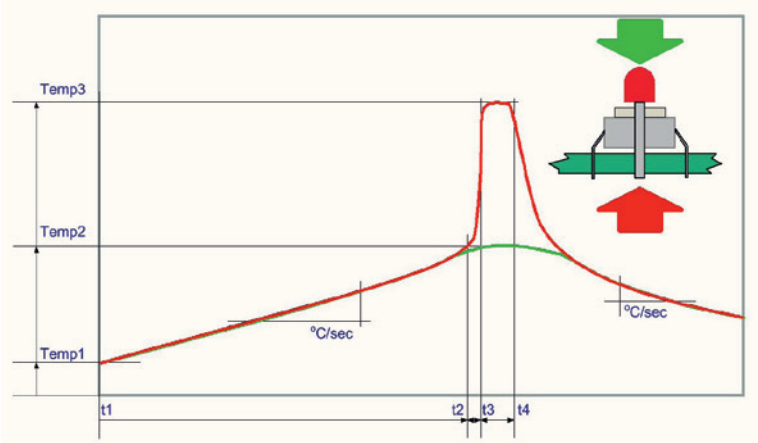


Note for soldering

Process parameter for wave soldering
Basic specification for wave soldering J-STD 75 W4C

Maximum temperature on the component side of the pcb (Temperature must not exceed during the entire processing)	120 °C
Preheating phase (t1 … t2)	70 … 120 sec
Ramp up	typ. + 1°C/sec
Ramp up to maximum temperature (t2 … t3)	not defined
Maximum temperature on the soldering side (Temp 3)	250 °C
Maximum time of soldering process (t3 … t4)	3 sec
Ramp down at 170 °C:	typ. –2 °C/sec

Temperature curve wave soldering



Green curve:	Temperature on the component side of the pcb
Red curve:	Temperature on the soldering side of the pcb
Room temperature:	Temp 1
Preheating:	Temperature process = Temp 1 … Temp 2 Process time = t1 … t2
Ramp up to soldering temperature:	Process time = t2 … t3
Soldering phase:	Temperature process = Temp 3 Process time = t3 … t4

Iron soldering

Basic specification for iron soldering IEC 60068-2-20

Maximum temperature at tip of iron:	320 °C
Maximum soldering time:	3 sec

Cleaning/Lacquering

The switching elements are not sealed. Cleaning up the PCB may damage the contacts in the switching elements. For this reason, the following points should be noted:

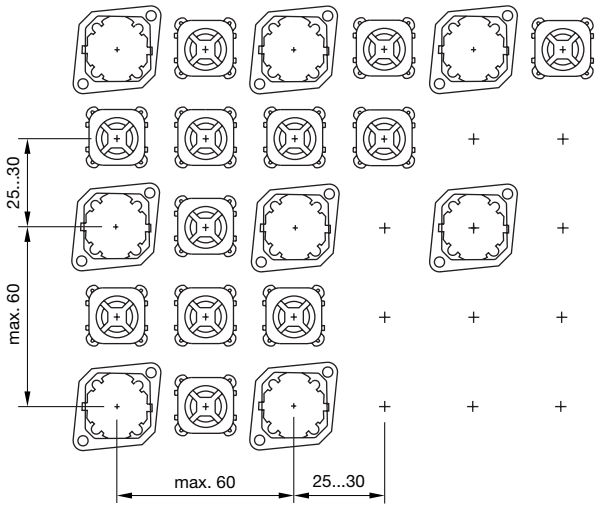
- When soldering make sure that the flux does not pass on the upper side of the PCB.
- When cleaning the PCB with detergents ensure that no dust or other debris may get inside of the switching elements.
- Ensure that no lacquer penetrates into the interior of the switching element when lacquering the PCB.

Storage of components

To obtain the optimum solderability of the components, the following points should be noted during storage:

- Do not store components in locations with high temperature or humidity.
- Do not expose components to corrosive gases.
- Avoid direct sunlight for a long period.

Arrangement mounting flange for switching- and illumination element, PCB mounting



The arrangement of the mounting flanges and their number is determined by the size of the front panel or PCB. To ensure uniform, tactile switching, we recommend a layout of the flanges as per adjacent sketch.

For large PCBs with several switching elements we recommend the following procedure:

1. Fit the actuator to the front panel.
2. Clip the mounting flange to the rear of the intended actuator.
3. Screw the PCB with the components soldered to it to the assembled mounting flange.

This arrangement applies to PCBs 1.6 mm thick.

Dismantling mounting flange

The tool Part No. 84-998 must be used for removing the mounting flange from the actuator.
Before removing the flange, the PCB fixing srews must be loosened.