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### Series 84

|  |   |                 |
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## General information

The 84 series is a modular system of pushbuttons consisting of lenses, actuator elements, switching units and a variety of means of connection and mounting. The front protection IP 67 ensures that the illuminated pushbuttons are suited for industrial use. The IP 40 version is available for reduced protection.

## Mounting

The actuators of the series 84 are inserted in the mounting hole 22.5 mm dia. and the switching units are clipped on to the rear of the actuators. The torque with which the fixing sleeve is tightened is max. 80 Ncm. The pushbutton system can be mounted as a complete unit (actuator and switching unit). Mounting from the front with the wiring already attached is also possible.

When mounted on printed circuit boards the actuators are inserted in the mounting hole 22.5 mm dia. and the switching elements are fixed on the board. The PCB is connected to the preassembled actuator by means of the mounting flange. There is no need for subsequent adjustment or spacing studs.

## Lenses

The flat lenses are available in various colours and made either from plastic, or anodized aluminium.

## Marking

The actuators of the series 84 can be marked by any of the following methods: engraving, hot pressing, laser, marking plate (see page 181)

Please provide marking details.

## Illumination

To ensure full illumination, the switching elements can be supplied with an integrated Multi-LED in any of the colours red, yellow, orange or green. LED load 20 mA (24 VDC) or 40 mA (12 VDC). Series resistor integrated.

## Switching system

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

## Specimen order

### Indicator

|   |              |
|---|--------------|
| - indicator actuator, IP40  | 84-2101.0    |
| Recommended accessories:  |              |
| - lens plastic, yellow  | 84-7111.400  |
| - indicator element, IP40, Multi-LED, yellow, soldering-/plug-in terminal | 84-8102.4620 |

or

### Indicator with PCB terminal

|                                       |               |
|---------------------------------------|---------------|
| - indicator actuator, IP40            | 84-2101.0     |
| <u>Recommended accessories:</u>       |               |
| - lens plastic yellow                 | 84-7111.400   |
| - indicator element with PCB terminal | 92-800.042    |
| - LED, 1 chip, yellow                 | 10-2602.3174D |
| - mounting flange                     | 92-960.0      |

*We reserve the right to modify technical data*

## indicator, illuminated-/pushbutton 25 mm dia.



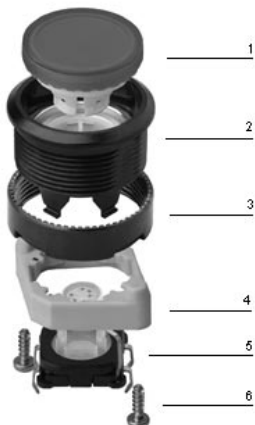
- 1 lens
- 2 actuator case
- 3 fixing nut
- 4 switching element with soldering-/plug-in terminal

## indicator, illuminated-/pushbutton 40 mm dia.

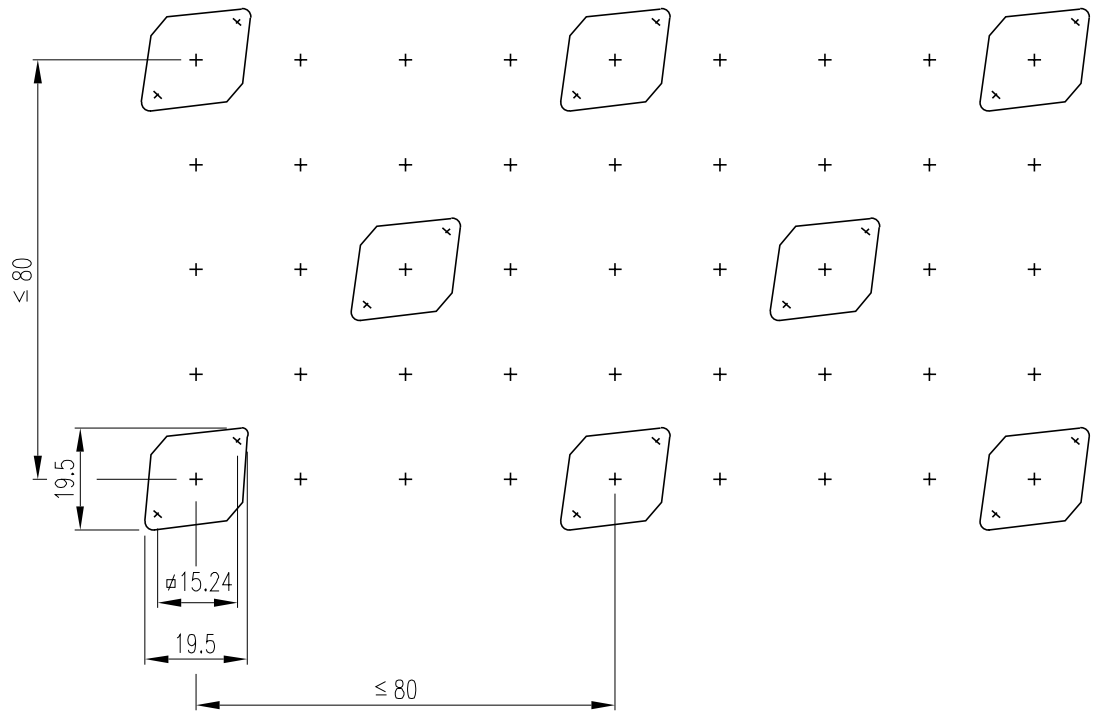


- 1 actuator
- 2 fixing nut
- 3 switching element with flat ribbon cable

## indicator, illuminated-/pushbutton PCB version



- 1 lens
- 2 actuator case
- 3 fixing nut
- 4 mounting flange
- 5 switching element for PCB terminal
- 6 fixing screw



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 mounting flanges as per the adjacent sketch. For large PCBs with several switching elements we recommend the following mounting 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.

## indicator actuator



### recommended accessories:

- lens plastic → 181; lens metal with window → 181
- indicator element → 182
- indicator element with PCB terminal → 183
- LED → 185
- mounting flange → 186

|                    | degree of protection | front ring        | 25 mm dia. part no. | technical drawing | mounting dimension | e     |
|--------------------|----------------------|-------------------|---------------------|-------------------|--------------------|-------|
| indicator actuator | IP 40                | plastic black     | <b>84-3100.0</b>    | 1                 | 1                  | 0,008 |
|                    | IP 67                | aluminium natural | <b>84-0200.7</b>    | 1                 | 1                  | 0,008 |
|                    |                      | plastic black     | <b>84-0100.0</b>    | 1                 | 1                  | 0,008 |

[technical drawing as of page 190.](#) [mounting dimensions as of page 192](#)

## illuminated-/pushbutton actuator



### recommended accessories:

- lens plastic → 181; lens metal with window → 181; lens metal → 181
- switching element → 184
- switching element with PCB terminal → 185
- LED → 185
- mounting flange → 186

|                                  | switching action | degree of protection | front ring        | 40 mm dia. part no. | 25 mm dia. part no. | circuit drawing | technical drawing | mounting dimension | e     |
|----------------------------------|------------------|----------------------|-------------------|---------------------|---------------------|-----------------|-------------------|--------------------|-------|
| illuminated-/pushbutton actuator | mom              | IP 40                | plastic black     |                     | <b>84-2101.0</b>    | 1               | 1                 | 1                  | 0,008 |
|                                  |                  | IP 67                | aluminium natural | <b>84-1221.7</b>    |                     | 1               | 2                 | 2                  | 0,015 |
|                                  |                  |                      |                   |                     | <b>84-1201.7</b>    | 1               | 1                 | 1                  | 0,008 |
|                                  |                  |                      | plastic black     |                     | <b>84-1101.0</b>    | 1               | 1                 | 1                  | 0,008 |

switching action: mom = momentary action


[technical drawing as of page 190.](#) [mounting dimensions as of page 192.](#) [circuit drawing as of page 194](#)

## at front

### lens plastic

|              | shape | lens        | colour            | 25 mm dia.<br>part no. | e     |   |
|--------------|-------|-------------|-------------------|------------------------|-------|---|
| lens plastic | flat  | opaque      | black             | <b>84-7121.000</b>     | 0,001 |  |
|              |       |             | grey              | <b>84-7121.800</b>     | 0,001 |   |
|              |       | transparent | blue              | <b>84-7111.600</b>     | 0,001 |   |
|              |       |             | colourless, clear | <b>84-7111.700</b>     | 0,001 |   |
|              |       |             | green             | <b>84-7111.500</b>     | 0,001 |   |
|              |       |             | orange            | <b>84-7111.300</b>     | 0,001 |   |
|              |       |             | red               | <b>84-7111.200</b>     | 0,001 |   |
|              |       |             | yellow            | <b>84-7111.400</b>     | 0,001 |   |

### lens metal with window


|                        | shape | lens               | colour  | 25 mm dia.<br>part no. | e     |   |
|------------------------|-------|--------------------|---------|------------------------|-------|---|
| lens metal with window | flat  | aluminium anodized | natural | <b>84-7211.800</b>     | 0,002 |  |

### lens metal


|            | shape | lens               | colour  | 25 mm dia.<br>part no. | e     |   |
|------------|-------|--------------------|---------|------------------------|-------|---|
| lens metal | flat  | aluminium anodized | black   | <b>84-7201.000</b>     | 0,001 |  |
|            |       |                    | blue    | <b>84-7201.600</b>     | 0,001 |   |
|            |       |                    | green   | <b>84-7201.500</b>     | 0,001 |   |
|            |       |                    | natural | <b>84-7201.800</b>     | 0,001 |   |
|            |       |                    | red     | <b>84-7201.200</b>     | 0,001 |   |
|            |       |                    | yellow  | <b>84-7201.400</b>     | 0,001 |   |

### marking plate

for lens, plastic

|                                     | front shape | marking plate | colour | part no.         | e     |   |
|-------------------------------------|-------------|---------------|--------|------------------|-------|---|
| marking plate<br>can be hot pressed | round       | transparent   | clear  | <b>61-9707.7</b> | 0,001 |  |

### blind plug

|  | colour | 28 mm dia.<br>part no. | e     |   |
|--|--------|------------------------|-------|---|
| blind plug<br>for mounting hole 22 mm dia. | black  | <b>704.960.7</b>       | 0,004 |  |

## at back

### indicator element

incl. illumination

| indicator element | degree of protection | illumination        | operation voltage   | colour of LED       | connection method   | part no.            | circuit drawing     | technical drawing | e     |       |
|-------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------------------|-------|-------|
| indicator element | IP 67                | Multi-LED           | 12 VDC/40 mA        | green               | ST/PT               | <b>84-8002.5320</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8002.5340</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     | orange              | ST/PT               | <b>84-8002.3320</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8002.3340</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     | red                 | ST/PT               | <b>84-8002.2320</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8002.2340</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     | yellow              | ST/PT               | <b>84-8002.4320</b> | 2                   | 1                   | 0,030             |       |       |
|                   |                      |                     |                     | f                   | <b>84-8002.4340</b> | 2                   | 1                   | 0,030             |       |       |
|                   |                      |                     | 24 VDC/20 mA        | green               | ST/PT               | <b>84-8002.5620</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8002.5640</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     | orange              | ST/PT               | <b>84-8002.3620</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8002.3640</b> | 2                   | 1                 | 0,030 |       |
|                   | red                  | ST/PT               |                     | <b>84-8002.2620</b> | 2                   | 1                   | 0,030               |                   |       |       |
|                   |                      | f                   |                     | <b>84-8002.2640</b> | 2                   | 1                   | 0,030               |                   |       |       |
|                   | yellow               | ST/PT               | <b>84-8002.4620</b> | 2                   | 1                   | 0,030               |                     |                   |       |       |
|                   |                      | f                   | <b>84-8002.4640</b> | 2                   | 1                   | 0,030               |                     |                   |       |       |
|                   | IP40                 | Multi-LED           | 24 VDC/20 mA        | green               | ST/PT               | <b>84-8102.5620</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8102.5640</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     | orange              | ST/PT               | <b>84-8102.3620</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8102.3640</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     | red                 | ST/PT               | <b>84-8102.2620</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8102.2640</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     | yellow              | ST/PT               | <b>84-8102.4620</b> | 2                   | 1                 | 0,030 |       |
|                   |                      |                     |                     |                     | f                   | <b>84-8102.4640</b> | 2                   | 1                 | 0,030 |       |
| single-LED        |                      |                     |                     | 24 VDC/20 mA        | green               | ST/PT               | <b>84-8101.5620</b> | 2                 | 1     | 0,030 |
|                   |                      |                     |                     |                     |                     | f                   | <b>84-8101.5640</b> | 2                 | 1     | 0,030 |
|                   |                      |                     |                     |                     | orange              | ST/PT               | <b>84-8101.3620</b> | 2                 | 1     | 0,030 |
|                   |                      |                     |                     |                     |                     | f                   | <b>84-8101.3640</b> | 2                 | 1     | 0,030 |
|                   | red                  | ST/PT               | <b>84-8101.2620</b> |                     | 2                   | 1                   | 0,030               |                   |       |       |
|                   |                      | f                   | <b>84-8101.2640</b> |                     | 2                   | 1                   | 0,030               |                   |       |       |
| yellow            | ST/PT                | <b>84-8101.4620</b> | 2                   | 1                   | 0,030               |                     |                     |                   |       |       |
|                   | f                    | <b>84-8101.4640</b> | 2                   | 1                   | 0,030               |                     |                     |                   |       |       |




connection method: ST/PT = soldering-/plug-in terminal, f = flat ribbon cable 300 mm  
 technical drawing as of page 190, circuit drawing as of page 194



**indicator element with PCB terminal**

illumination and mounting flange to be ordered separately

|  | part no.          | technical drawing | components layout | e     |   |
|--|-------------------|-------------------|-------------------|-------|---|
| <b>indicator element with PCB terminal</b> | <b>92-800.042</b> | 3                 | 1                 | 0,001 |  |

technical drawing as of page 190, components layouts as of page 192

## switching element

incl. illumination


|   | degree of protection | illumination | operation voltage   | colour of LED       | connection method   | part no.            | circuit drawing | technical drawing | e     |
|---|----------------------|--------------|---------------------|---------------------|---------------------|---------------------|-----------------|-------------------|-------|
| <b>switching element</b><br>momentary action 1 NO | IP 40                | Multi-LED    | 24 VDC/20 mA        | green               | ST/PT               | <b>84-8612.5620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8612.5640</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | orange              | ST/PT               | <b>84-8612.3620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8612.3640</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | red                 | ST/PT               | <b>84-8612.2620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8612.2640</b> | 4               | 1                 | 0,090 |
|   |                      | yellow       | ST/PT               | <b>84-8612.4620</b> | 4                   | 1                   | 0,090           |                   |       |
|   |                      |              | f                   | <b>84-8612.4640</b> | 4                   | 1                   | 0,090           |                   |       |
|   |                      | single-LED   | 24 VDC/20 mA        | green               | ST/PT               | <b>84-8611.5620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8611.5640</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | orange              | ST/PT               | <b>84-8611.3620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8611.3640</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | red                 | ST/PT               | <b>84-8611.2620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8611.2640</b> | 4               | 1                 | 0,090 |
|   |                      | yellow       | ST/PT               | <b>84-8611.4620</b> | 4                   | 1                   | 0,090           |                   |       |
|   |                      |              | f                   | <b>84-8611.4640</b> | 4                   | 1                   | 0,090           |                   |       |
|   |                      | without      | -                   | -                   | ST/PT               | <b>84-8610.0020</b> | 3               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8610.0040</b> | 3               | 1                 | 0,090 |
|   | IP 67                | Multi-LED    | 12 VDC/40 mA        | green               | ST/PT               | <b>84-8512.5320</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8512.5340</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | orange              | ST/PT               | <b>84-8512.3320</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8512.3340</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | red                 | ST/PT               | <b>84-8512.2320</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8512.2340</b> | 4               | 1                 | 0,090 |
|   |                      |              | yellow              | ST/PT               | <b>84-8512.4320</b> | 4                   | 1               | 0,090             |       |
|   |                      |              |                     | f                   | <b>84-8512.4340</b> | 4                   | 1               | 0,090             |       |
|   |                      |              | 24 VDC/20 mA        | blue                | ST/PT               | <b>84-8512.6620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8512.6640</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     | green               | ST/PT               | <b>84-8512.5620</b> | 4               | 1                 | 0,090 |
|   |                      |              |                     |                     | f                   | <b>84-8512.5640</b> | 4               | 1                 | 0,090 |
| orange  |                      | ST/PT        |                     | <b>84-8512.3620</b> | 4                   | 1                   | 0,090           |                   |       |
|   |                      | f            |                     | <b>84-8512.3640</b> | 4                   | 1                   | 0,090           |                   |       |
| red   |                      | ST/PT        | <b>84-8512.2620</b> | 4                   | 1                   | 0,090               |                 |                   |       |
|   |                      | f            | <b>84-8512.2640</b> | 4                   | 1                   | 0,090               |                 |                   |       |
| yellow  |                      | ST/PT        | <b>84-8512.4620</b> | 4                   | 1                   | 0,090               |                 |                   |       |
|   |                      | f            | <b>84-8512.4640</b> | 4                   | 1                   | 0,090               |                 |                   |       |
| without   | -                    | -            | ST/PT               | <b>84-8510.0020</b> | 3                   | 1                   | 0,090           |                   |       |
|   |                      |              | f                   | <b>84-8510.0040</b> | 3                   | 1                   | 0,090           |                   |       |



connection method: ST/PT = soldering-/plug-in terminal, f = flat ribbon cable 300 mm  
 technical drawing as of page 190. circuit drawing as of page 194


## switching element with PCB terminal

illumination and mounting flange to be ordered separately


|  | part no.          | circuit drawing | technical drawing | components layout | e     |   |
|--|-------------------|-----------------|-------------------|-------------------|-------|---|
| <b>switching element with PCB terminal</b><br>momentary action, 1 NO, front protection IP 40 | <b>92-851.342</b> | 5               | 4                 | 2                 | 0,001 |  |

technical drawing as of page 190. components layouts as of page 192. circuit drawing as of page 194

## cable shoe

|                   | connection method             | part no.       | e     |   |
|-------------------|-------------------------------|----------------|-------|---|
| <b>cable shoe</b> | plug-in terminal 2,8 x 0,8 mm | <b>84-9420</b> | 0,001 |  |


## insulation socket

|   | part no.      | e     |   |
|---|---------------|-------|---|
| <b>insulation socket</b><br>for connector 84-9420 | <b>31-929</b> | 0,001 |  |

## for illumination

### LED

for indicator/switching element with PCB terminal

|                               | number of chips | voltage/current | colour | part no.                        | e     |   |
|-------------------------------|-----------------|-----------------|--------|---------------------------------|-------|---|
| <b>LED</b><br>base T 1 Bi-Pin | 1 chip          | 2,2 VDC/20 mA   | green  | <b>10-2602.3175D (92-948.5)</b> | 0,001 |  |
|                               |                 |                 | orange | <b>10-2602.3173D (92-948.3)</b> | 0,001 |   |
|                               |                 |                 | red    | <b>10-2602.3172D (92-948.2)</b> | 0,001 |   |
|                               |                 |                 | yellow | <b>10-2602.3174D (92-948.4)</b> | 0,001 |   |
|                               | 6 chips         | 6.0 VDC/40 mA   | orange | <b>10-5606.3243D (92-944.3)</b> | 0,001 |   |
|                               |                 |                 | red    | <b>10-5606.3242D (92-944.2)</b> | 0,001 |   |
|                               |                 |                 | yellow | <b>10-5606.3244D (92-944.4)</b> | 0,001 |   |
|                               |                 |                 | orange | <b>10-5609.3173D (92-945.3)</b> | 0,001 |   |
|                               |                 |                 | red    | <b>10-5609.3172D (92-945.2)</b> | 0,001 |   |
|                               |                 |                 | yellow | <b>10-5609.3174D (92-945.4)</b> | 0,001 |   |

## assembling


### mounting flange

for indicator/switching element with PCB terminal


|                 | part no. | technical drawing | e     |   |
|-----------------|----------|-------------------|-------|---|
| mounting flange | 92-960.0 | 5                 | 0,001 |  |

[technical drawing as of page 190](#)


### lens remover

|              | part no.  | e     |   |
|--------------|-----------|-------|---|
| lens remover | 61-9730.0 | 0,011 |  |

### dismantling tool


|   | part no. | e     |   |
|---|----------|-------|---|
| dismantling tool<br>for dismantling of actuator/switching element/mounting flange | 84-998   | 0,002 |  |

### mounting tool

|   | part no. | e     |   |
|---|----------|-------|---|
| mounting tool<br>for tightening (or loosening) fixing nut starting torque fixing nut<br>max. 80 Ncm | 84-997   | 0,027 |  |

## for stop request pushbutton


### housing for stop request pushbutton for pole mounting 35 mm dia.

|  | colour          | part no.  | technical drawing |   |
|--|-----------------|-----------|-------------------|---|
| housing for stop request pushbutton for pole mounting 35 mm dia. | grey RAL 7016   | 84-9500.8 | 6                 |  |
|  | yellow RAL 1023 | 84-9500.4 | 6                 |   |

[technical drawing as of page 190](#)


## adaptor round 35 - 25 mm

for housing for stop request pushbutton for poles of 35 - 25 mm dia.

|                                 | colour          | part no.         | technical drawing |   |
|---------------------------------|-----------------|------------------|-------------------|---|
| <b>adaptor round 35 - 25 mm</b> | grey RAL 7016   | <b>84-9300.8</b> | 7                 |  |
|                                 | yellow RAL 1023 | <b>84-9300.4</b> | 7                 |   |

[technical drawing as of page 190](#)


## housing for stop request pushbutton for pole mounting 38 mm dia.

|   | colour          | part no.         | technical drawing |  |
|---|-----------------|------------------|-------------------|--|
| <b>housing for stop request pushbutton for pole mounting 38 mm dia.</b> | grey RAL 7016   | <b>84-9600.8</b> | -                 |  |
|   | yellow RAL 1023 | <b>84-9600.4</b> | -                 |  |

[technical drawing as of page 190](#)


## adaptor round 35 - 30 mm

for housing for stop request pushbutton for poles of 35 - 25 mm dia.

|                                 | colour          | part no.         | technical drawing |   |
|---------------------------------|-----------------|------------------|-------------------|---|
| <b>adaptor round 35 - 30 mm</b> | grey RAL 7016   | <b>84-9700.8</b> | 7                 |  |
|                                 | yellow RAL 1023 | <b>84-9700.4</b> | 7                 |   |

[technical drawing as of page 190](#)

## housing for stop request pushbutton for wall mounting

|  | colour          | part no.         | technical drawing |   |
|--|-----------------|------------------|-------------------|---|
| <b>housing for stop request pushbutton for wall mounting</b> | grey RAL 7016   | <b>84-9800.8</b> | -                 |  |
|  | yellow RAL 1023 | <b>84-9800.4</b> | -                 |   |

[technical drawing as of page 190](#)

## switching element

### 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

#### material of contacts

gold

#### switching element

thermoplastic polyester PET, PBT and polyacetate POM

### mechanical characteristics

#### actuating force

4,0 N  $\pm$  0.,2 (measured at the lens)

#### actuating travel

switching element 0.5 mm

#### ambient air temperature

-25°C to +70°C  
(as per DIN IEC 68-)

#### connection method

plug-in/soldering terminals 2.8 x 0.8 mm  
flat ribbon cable connectors  
PCB terminals

#### mechanical life

$\geq$  1 mio. operations as per IEC 512-5, test 9a

#### rebound time

$\leq$  1 ms

#### resistance to heat of soldering

260°C/5 s as per IEC 68-2-20 (PCB assembly)  
350°C/10 s as per IEC 68-2-20 (when using a soldering iron)

#### resistance to shock

50 g for 11 ms as per IEC 68-2-29 and 27

#### resistance to vibration

10 g at 10-2000 Hz, amplitude 0.75 mm as per IEC 68-2-6

#### storage temperature

-40°C to +85°C  
(as per DIN IEC 68-)

### electrical characteristics

#### electric strength

500 VAC, 50 Hz, 1 min, as per IEC 512-2, test 3a

#### electrical life

$\geq$  500,000 operations at 42 VDC/50 mA as per IEC 512-5, test 9c

#### insulation resistance

$\geq$  1,000,000,000  $\Omega$  between all terminals at 100 VDC, as per IEC 512-2, test 3a

#### switch rating

switching voltage VDC/VAC min. 50 mV, max. 42 V  
switching current VDC/VAC min. 10 mA, max. 100 mA  
power rating max. 2 W

#### volume resistance

starting value (initial)  $\leq$  100 m $\Omega$  as per IEC 512-2, test 2b

## actuator

### material

#### actuator case

polyetherimide PEI or aluminium

#### lenses

polycarbonate PC or aluminium

### mechanical characteristics

#### actuating force

4,0 N  $\pm$  0.,2 (measured at the lens)

#### actuating travel

total switching travel 1.2 mm

#### ambient air temperature

-25°C to +70°C  
(as per DIN IEC 68-)

#### degree of protection

front as per IEC 529  
IP 67, IP 65 and IP40

#### mechanical life

$\geq$  1 mio. operations as per IEC 512-5, test 9a

#### storage temperature

-40°C to +85°C  
(as per DIN IEC 68-)

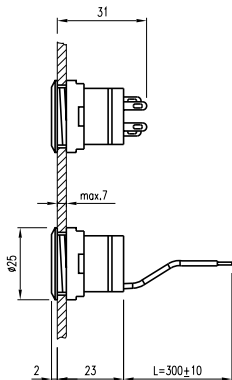
### electrical characteristics

#### electrostatic breakdown value

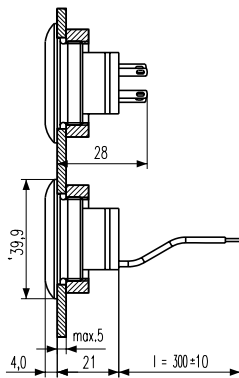
plastic case  $\geq$  15 kV as per IEC 801-2  
aluminium case  $\geq$  5 kV as per IEC 801-2  
(mounted in plastic front panel)

## technical drawing

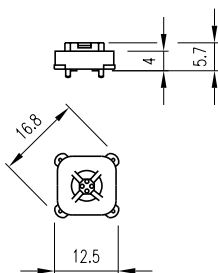
**1 indicator actuator, illuminated-/pushbutton actuator, indicator element, switching element**  
 page 180, 182, 184



**2 indicator actuator, illuminated-/pushbutton actuator**  
 page 180



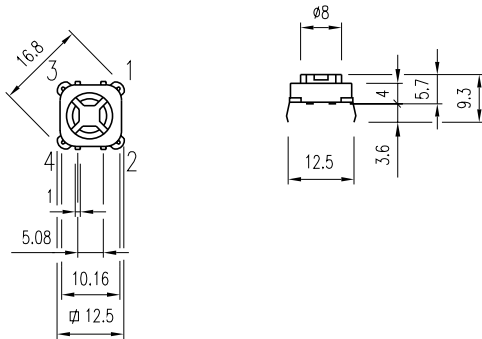
**3 indicator element with PCB terminal**  
 page 183





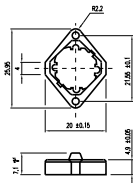
## 4 switching element with PCB terminal

page 185



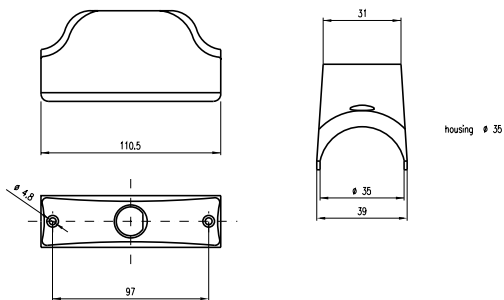
## 5 mounting flange

page 186



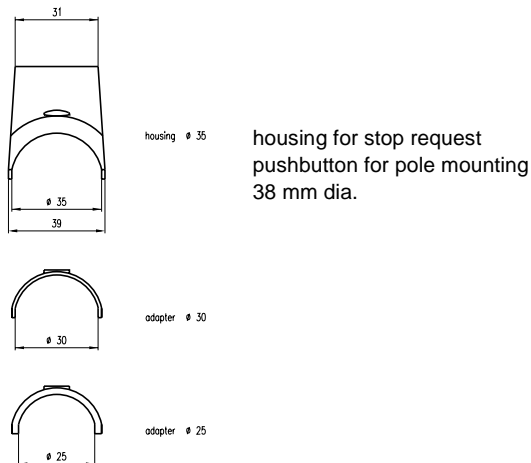
## 6 housing for stop request pushbutton for pole mounting 35 mm dia.

page 186



## 7 adaptor round 35 - 25 mm, adaptor round 35 - 30 mm

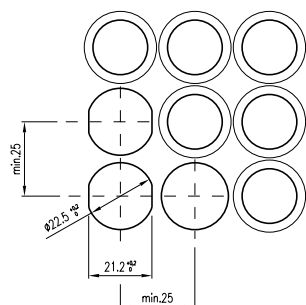
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## mounting dimension

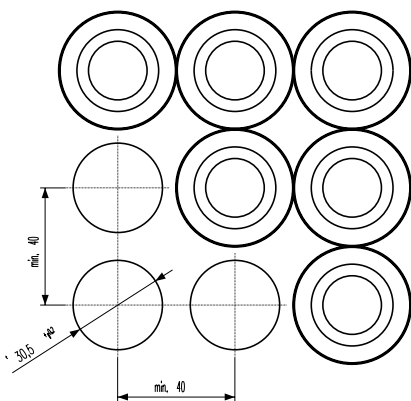
### 1 indicator actuator, illuminated-/pushbutton actuator

page 180



### 2 indicator actuator, illuminated-/pushbutton actuator

page 180

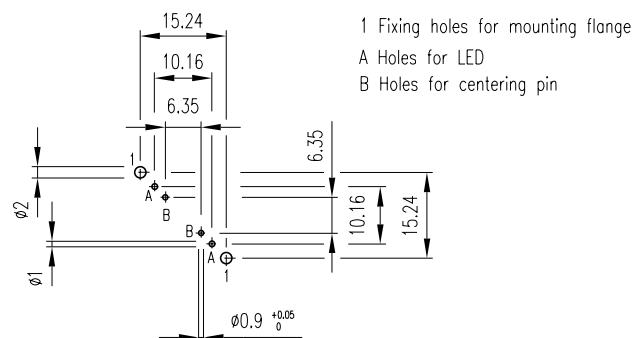


## components layouts

### 1 indicator element with PCB terminal

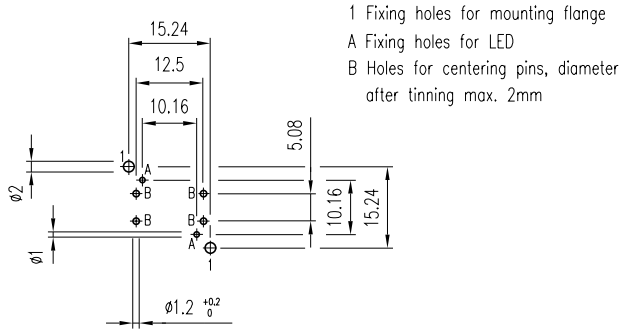
page 183

Drilling plan (conductor side of board)



## 2 switching element with PCB terminal page 185

Drilling plan(conductor side of board)



\* Final diameter after tinning

|   | circuit drawing |
|---|-----------------|
| 1 |                 |
| 2 |                 |
| 3 |                 |
| 4 |                 |
| 5 |                 |

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