TecnelSystem S.p.A.®

equipaggiamenti elettrici industriali

UNI EN ISO9001:2015
Nr. 9101.TNLS



# Series 45

*Innovative and comprehensive. Modular.*

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# 45 Information about the Series

## Key advantages

- Comprehensive and modular series
- Rugged in use (up to IP69K)
- Easy to assemble and use
- Modern design with many options

## Typical application areas

Various operating and control functions in machinery and equipment, such as:
- Start and stop
- Reset
- On and off
- Function control

## Functions

- Pushbutton
- Illuminated pushbutton
- Double pushbutton
- Mushroom-head pushbutton
- Palm Switch
- Selector switch
- Keylock switch
- ID keylock switch
- Toggle stick
- Toggle switch
- Indicator
- Buzzer
- Potentiometer
- Stop switch
- Emergency stop switch

## Design

- Flush
- Raised

## IP front protection

- IP40
- IP65
- IP66
- IP67
- IP69K

## Raitings

- 500 VAC (10 A)

## Mounting cut-outs

- Ø 22.3 mm
- Ø 30.5 mm

## Terminal

- Screw terminal
- PCB
- Spring-loaded terminal

## Lens Material

- Plastic

## Markings

- Laser marking

## Approvals

- CCC
- CSA
- UL

## Conformities

- CE
- 2014/30/EU (EMC)
- 2014/35/EU (LVD)
- 2011/65/EU (RoHS)

| | |
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| Palm switch | 36 |
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| Selector switch 3 positions short lever | 42 |
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# 45 Product overview

**Functions**
Indicator
Buzzer
Pushbutton
Double pushbutton
Illuminated pushbutton
Emergency stop switch
Stop switch
Palm switch
Mushroom-head pushbutton
Keylock switch
ID keylock switch
Selector switch
Potentiometer
Toggle stick
Toggle switch

Holder

**Switching elements**
1 Switching element 1 NC/1 NO
2 Switching elements 2 NC or 2 NO

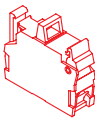
Lamp element

## Pushbutton, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

Actuator

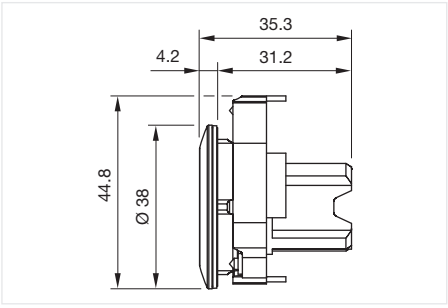
Holder Page 66



Switching element Page 68

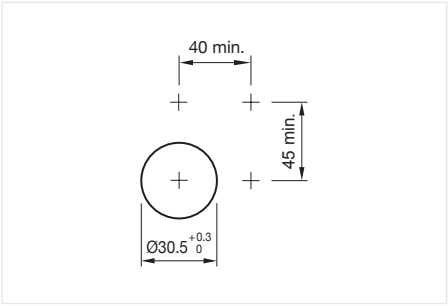
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

- Front panel thickness 1 … 6 mm

## Actuator, Front dimension Ø 38 mm

| Switching action | Lens colour | Lens shape | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|
| Momentary | Black | flush | Sand grey | Metal | Silver | Metal | 45-2131.4F10.000 | 72 |
| | Red | flush | Sand grey | Metal | Silver | Metal | 45-2131.4F20.000 | 72 |
| | Yellow | flush | Sand grey | Metal | Silver | Metal | 45-2131.4F40.000 | 72 |
| | Green | flush | Sand grey | Metal | Silver | Metal | 45-2131.4F50.000 | 72 |
| | Blue | flush | Sand grey | Metal | Silver | Metal | 45-2131.4F60.000 | 72 |
| | White | flush | Sand grey | Metal | Silver | Metal | 45-2131.4F90.000 | 72 |
| Maintained | Black | flush | Sand grey | Metal | Silver | Metal | 45-2134.4F10.000 | 73 |
| | Red | flush | Sand grey | Metal | Silver | Metal | 45-2134.4F20.000 | 73 |
| | Yellow | flush | Sand grey | Metal | Silver | Metal | 45-2134.4F40.000 | 73 |
| | Green | flush | Sand grey | Metal | Silver | Metal | 45-2134.4F50.000 | 73 |
| | Blue | flush | Sand grey | Metal | Silver | Metal | 45-2134.4F60.000 | 73 |
| | White | flush | Sand grey | Metal | Silver | Metal | 45-2134.4F90.000 | 73 |

## Wiring diagrams

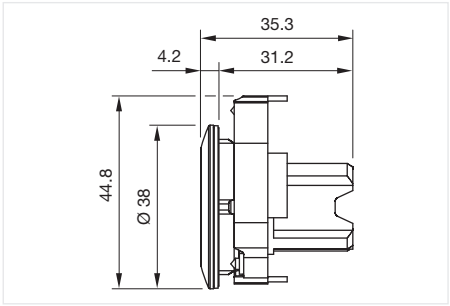
Wiring diagram 72

Wiring diagram 73

# 45 Flush design

## Illuminated pushbutton, IP66, IP67, IP69K

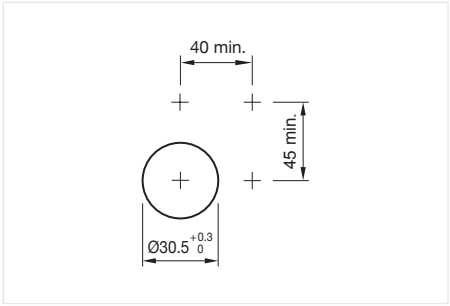
Product can differ from the current configuration.




Dimensions [mm]

**General information**

- Front panel thickness 1 … 6 mm

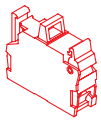



Mounting cut-outs [mm]

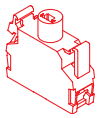
**Equipment consisting of (schematic overview)**

Actuator

Holder Page 66



Switching element Page 68



Illumination element Page 75

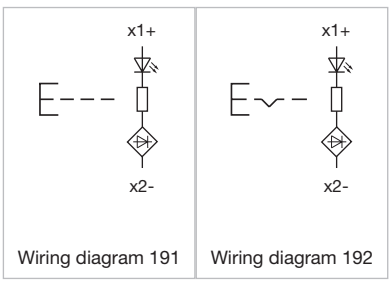
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

## Actuator, Front dimension Ø 38 mm

| Switching action | Lens colour | Lens shape | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|
| Momentary | Red | flush | Sand grey | Metal | Silver | Metal | 45-2231.4FE0.000 | 191 |
| | Yellow | flush | Sand grey | Metal | Silver | Metal | 45-2231.4FG0.000 | 191 |
| | Green | flush | Sand grey | Metal | Silver | Metal | 45-2231.4FH0.000 | 191 |
| | Blue | flush | Sand grey | Metal | Silver | Metal | 45-2231.4FJ0.000 | 191 |
| | Colourless | flush | Sand grey | Metal | Silver | Metal | 45-2231.4FK0.000 | 191 |
| Maintained | Red | flush | Sand grey | Metal | Silver | Metal | 45-2234.4FE0.000 | 192 |
| | Yellow | flush | Sand grey | Metal | Silver | Metal | 45-2234.4FG0.000 | 192 |
| | Green | flush | Sand grey | Metal | Silver | Metal | 45-2234.4FH0.000 | 192 |
| | Blue | flush | Sand grey | Metal | Silver | Metal | 45-2234.4FJ0.000 | 192 |
| | Colourless | flush | Sand grey | Metal | Silver | Metal | 45-2234.4FK0.000 | 192 |

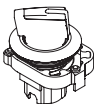
## Wiring diagrams



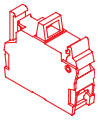

Wiring diagram 191 | Wiring diagram 192

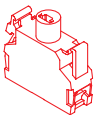
## Selector switch 2 positions short lever, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**


Actuator

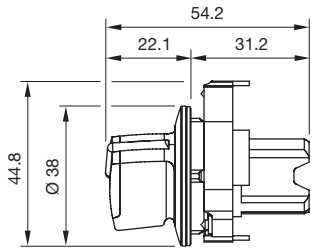
Holder Page 66


Switching element Page 68


Illumination element Page 75

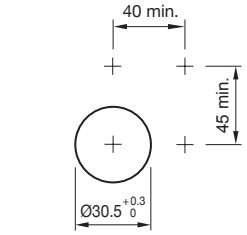
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

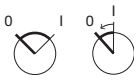
Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

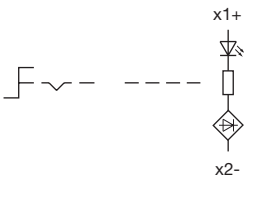
- Front panel thickness 1 … 6 mm
- It is advisable to choose a white illumination



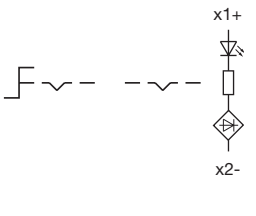
### Actuator, Front dimension Ø 38 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Rest - Maintained | 90° right | Red | Sand grey | Metal | Metal | 45-2828.4C20.001 | 194 |
| | 90° right | Green | Sand grey | Metal | Metal | 45-2828.4C50.001 | 194 |
| | 90° right | White | Sand grey | Metal | Metal | 45-2828.4C90.001 | 194 |
| Rest - Momentary | 45° right | Red | Sand grey | Metal | Metal | 45-2844.4C20.006 | 193 |
| | 45° right | Green | Sand grey | Metal | Metal | 45-2844.4C50.006 | 193 |
| | 45° right | White | Sand grey | Metal | Metal | 45-2844.4C90.006 | 193 |

## Wiring diagrams



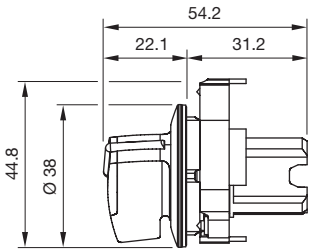

Wiring diagram 193




Wiring diagram 194

## Selector switch 2 positions long lever, IP66, IP67, IP69K

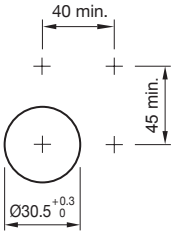
Product can differ from the current configuration.




Dimensions [mm]

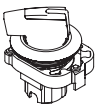
**General information**

- Front panel thickness 1 … 6 mm
- It is advisable to choose a white illumination



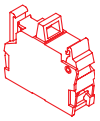

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**

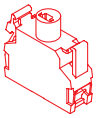


Actuator

Holder Page 66



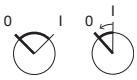
Switching element Page 68



Illumination element Page 75

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

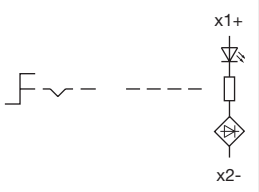
To obtain a complete unit, please select the red components from the pages shown.



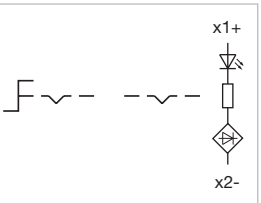
### Actuator, Front dimension Ø 38 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Rest - Maintained | 90° right | Red | Sand grey | Metal | Metal | 45-2828.4D20.001 | 194 |
| | 90° right | Green | Sand grey | Metal | Metal | 45-2828.4D50.001 | 194 |
| | 90° right | White | Sand grey | Metal | Metal | 45-2828.4D90.001 | 194 |
| Rest - Momentary | 45° right | Red | Sand grey | Metal | Metal | 45-2844.4D20.006 | 193 |
| | 45° right | Green | Sand grey | Metal | Metal | 45-2844.4D50.006 | 193 |
| | 45° right | White | Sand grey | Metal | Metal | 45-2844.4D90.006 | 193 |

## Wiring diagrams



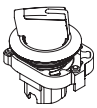

Wiring diagram 193



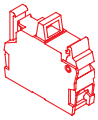

Wiring diagram 194

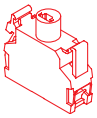
## Selector switch 3 positions short lever, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**


Actuator

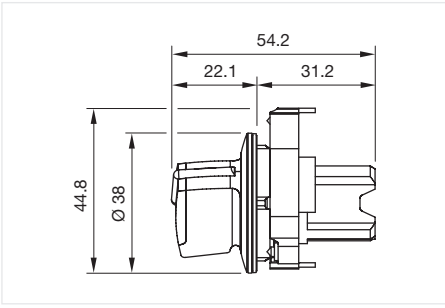
Holder Page 66


Switching element Page 68


Illumination element Page 75

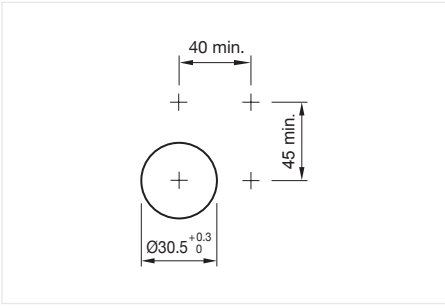
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]

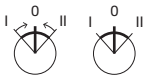
Product can differ from the current configuration.



Mounting cut-outs [mm]

**General information**

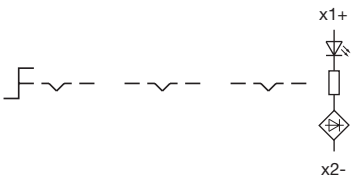
- Front panel thickness 1 … 6 mm
- It is advisable to choose a white illumination



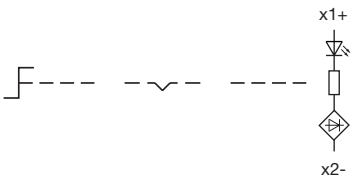
### Actuator, Front dimension Ø 38 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary - Rest - Momentary | 45° left / 45° right | Red | Sand grey | Metal | Metal | 45-280S.4C20.003 | 196 |
| | 45° left / 45° right | Green | Sand grey | Metal | Metal | 45-280S.4C50.003 | 196 |
| | 45° left / 45° right | White | Sand grey | Metal | Metal | 45-280S.4C90.003 | 196 |
| Maintained - Rest - Maintained | 45° left / 45° right | Red | Sand grey | Metal | Metal | 45-2819.4C20.003 | 195 |
| | 45° left / 45° right | Green | Sand grey | Metal | Metal | 45-2819.4C50.003 | 195 |
| | 45° left / 45° right | White | Sand grey | Metal | Metal | 45-2819.4C90.003 | 195 |

## Wiring diagrams



Wiring diagram 195

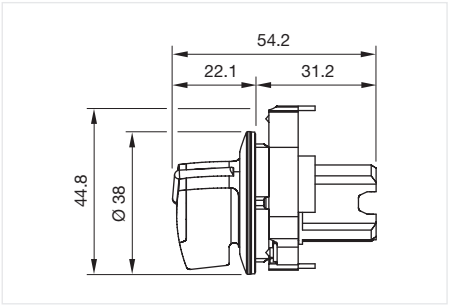


Wiring diagram 196

# 45 Flush design

## Selector switch 3 positions long lever, IP66, IP67, IP69K

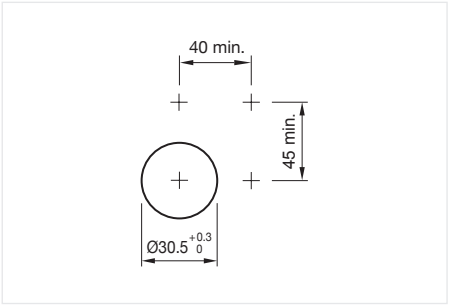
Product can differ from the current configuration.




Dimensions [mm]

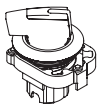
**General information**

- Front panel thickness 1 … 6 mm
- It is advisable to choose a white illumination



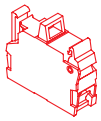

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**

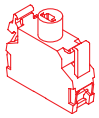


Actuator

Holder Page 66



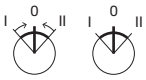
Switching element Page 68



Illumination element Page 75

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

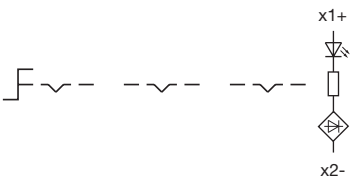
To obtain a complete unit, please select the red components from the pages shown.



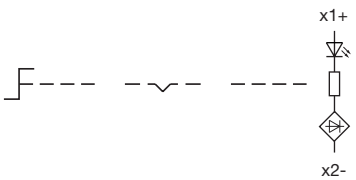
## Actuator, Front dimension Ø 38 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary - Rest - Momentary | 45° left / 45° right | Red | Sand grey | Metal | Metal | 45-280S.4D20.003 | 196 |
| | 45° left / 45° right | Green | Sand grey | Metal | Metal | 45-280S.4D50.003 | 196 |
| | 45° left / 45° right | White | Sand grey | Metal | Metal | 45-280S.4D90.003 | 196 |
| Maintained - Rest - Maintained | 45° left / 45° right | Red | Sand grey | Metal | Metal | 45-2819.4D20.003 | 195 |
| | 45° left / 45° right | Green | Sand grey | Metal | Metal | 45-2819.4D50.003 | 195 |
| | 45° left / 45° right | White | Sand grey | Metal | Metal | 45-2819.4D90.003 | 195 |

## Wiring diagrams



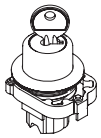

Wiring diagram 195



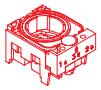

Wiring diagram 196

## Keylock switch 2 and 3 positions, IP66, IP67, IP69K

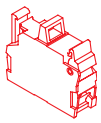
**Equipment consisting of (schematic overview)**



Actuator



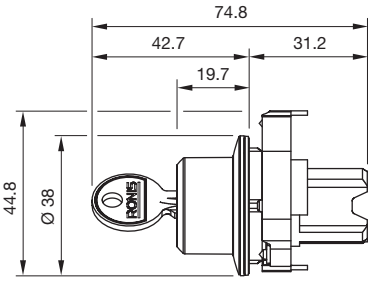
Holder Page 66



Switching element Page 68

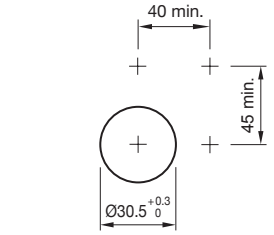
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

- Front panel thickness 1 … 6 mm
- The standard lock: RONIS, T254

### Actuator, Front dimension Ø 38 mm

| Switching action | Switching angle | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Maintained (a) - Rest (a) - Maintained (a) | 45° left / 45° right | Sand grey | Metal | Metal | 45-290F.4F00.113 | 83 |
| Rest (a) - Maintained (a) | 90° right | Sand grey | Metal | Metal | 45-290H.4F00.111 | 79 |
| Rest - Maintained (a) | 90° right | Sand grey | Metal | Metal | 45-290J.4F00.111 | 79 |
| Rest (a) - Momentary | 45° right | Sand grey | Metal | Metal | 45-290J.4F00.116 | 78 |

a = Key remove

## Wiring diagrams

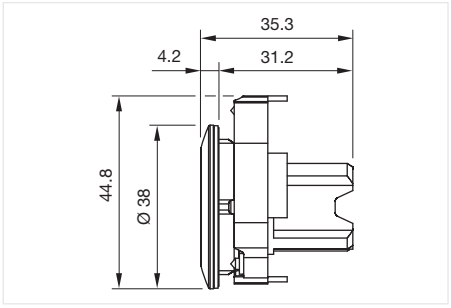
Wiring diagram 78

Wiring diagram 79

Wiring diagram 83

## Indicator, IP66, IP67, IP69K

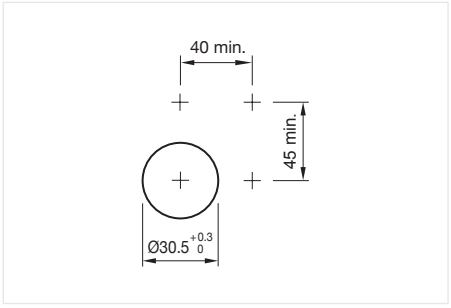
Product can differ from the current configuration.




Dimensions [mm]

**General information**

- Front panel thickness 1 … 6 mm

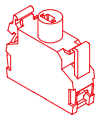



Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**

Actuator

Holder Page 66



Illumination element Page 75

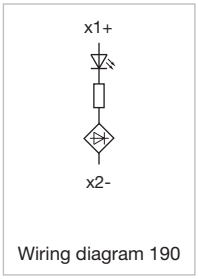
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

### Actuator, Front dimension Ø 38 mm

| Front bezel colour | Front bezel material | Lens cap colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| Sand grey | Metal | Red | Metal | 45-2T07.4FE0.000 | 190 |
| | Metal | Yellow | Metal | 45-2T07.4FG0.000 | 190 |
| | Metal | Green | Metal | 45-2T07.4FH0.000 | 190 |
| | Metal | Blue | Metal | 45-2T07.4FJ0.000 | 190 |
| | Metal | Colourless | Metal | 45-2T07.4FK0.000 | 190 |

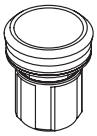
## Wiring diagrams




Wiring diagram 190

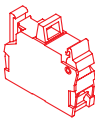
## Pushbutton, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**



Actuator

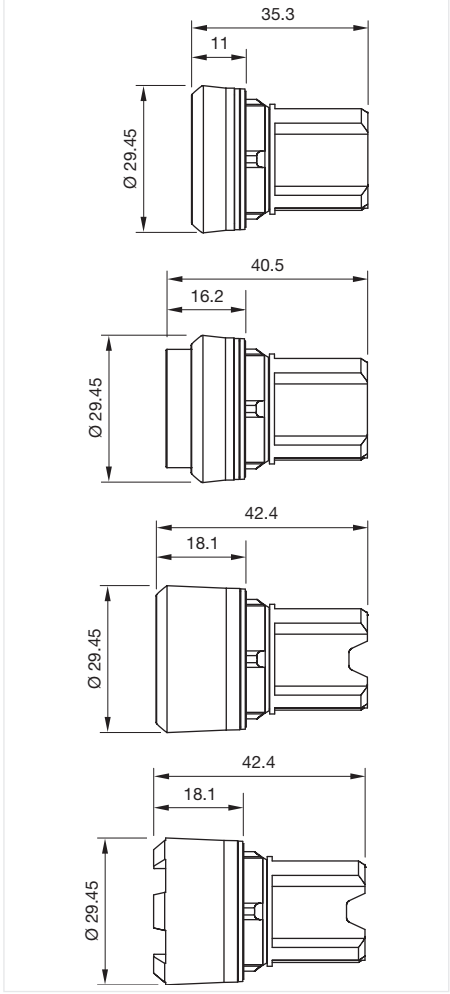
Holder Page 66



Switching element Page 68

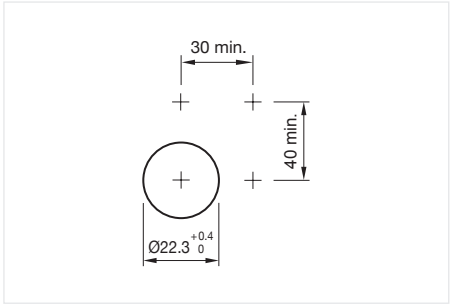
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

- Mounting depth, incl. front plate, see chapter drawings

### Actuator, Front dimension Ø 29,5 mm

| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Black | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1110.000 | 72 |
| | Red | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1120.000 | 72 |
| | Yellow | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1140.000 | 72 |
| | Green | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1150.000 | 72 |

# 45 Raised design



| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Blue | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1160.000 | 72 |
| | Grey | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1180.000 | 72 |
| | White | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.1190.000 | 72 |
| | Colourless | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2131.11K0.000 | 72 |
| | Black | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2131.1210.000 | 72 |
| | Red | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2131.1220.000 | 72 |
| | Yellow | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2131.1240.000 | 72 |
| | Green | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2131.1250.000 | 72 |
| | Blue | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2131.1260.000 | 72 |
| | White | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2131.1290.000 | 72 |
| | Black | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2110.000 | 72 |
| | Red | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2120.000 | 72 |
| | Yellow | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2140.000 | 72 |
| | Green | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2150.000 | 72 |
| | Blue | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2160.000 | 72 |
| | Grey | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2180.000 | 72 |
| | White | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.2190.000 | 72 |
| | Colourless | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2131.21K0.000 | 72 |
| | Black | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2131.2210.000 | 72 |
| | Red | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2131.2220.000 | 72 |
| | Yellow | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2131.2240.000 | 72 |
| | Green | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2131.2250.000 | 72 |
| | Blue | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2131.2260.000 | 72 |
| | White | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2131.2290.000 | 72 |
| | Black | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3110.000 | 72 |
| | Red | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3120.000 | 72 |
| | Yellow | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3140.000 | 72 |
| | Green | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3150.000 | 72 |
| | Blue | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3160.000 | 72 |
| | Grey | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3180.000 | 72 |
| | White | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3190.000 | 72 |
| | Colourless | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2131.31K0.000 | 72 |
| | Black | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3210.000 | 72 |
| | Red | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3220.000 | 72 |
| | Yellow | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3240.000 | 72 |

| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Green | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3250.000 | 72 |
| | Blue | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3260.000 | 72 |
| | White | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3290.000 | 72 |
| Maintained | Black | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2134.1110.000 | 73 |
| | Red | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2134.1120.000 | 73 |
| | Yellow | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2134.1140.000 | 73 |
| | Green | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2134.1150.000 | 73 |
| | Blue | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2134.1160.000 | 73 |
| | White | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2134.1190.000 | 73 |
| | Black | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2134.2110.000 | 73 |
| | Red | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2134.2120.000 | 73 |
| | Yellow | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2134.2140.000 | 73 |
| | Green | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2134.2150.000 | 73 |
| | Blue | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2134.2160.000 | 73 |
| | White | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2134.2190.000 | 73 |
| | Red | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2134.2220.000 | 73 |
| | Black | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2134.3110.000 | 73 |
| | Red | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2134.3120.000 | 73 |
| | Yellow | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2134.3140.000 | 73 |
| | Green | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2134.3150.000 | 73 |
| | Blue | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2134.3160.000 | 73 |
| | White | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2134.3190.000 | 73 |
| Momentary | Black | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1310.000 | 72 |
| | Red | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1320.000 | 72 |
| | Yellow | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1340.000 | 72 |
| | Green | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1350.000 | 72 |
| | Blue | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1360.000 | 72 |
| | White | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1390.000 | 72 |
| | Black | flush | lower than front bezel | Silver | Metal | Silver | Metal | 45-2131.2310.000 | 72 |
| | Red | flush | lower than front bezel | Silver | Metal | Silver | Metal | 45-2131.2320.000 | 72 |
| | Yellow | flush | lower than front bezel | Silver | Metal | Silver | Metal | 45-2131.2340.000 | 72 |
| | Green | flush | lower than front bezel | Silver | Metal | Silver | Metal | 45-2131.2350.000 | 72 |
| | Blue | flush | lower than front bezel | Silver | Metal | Silver | Metal | 45-2131.2360.000 | 72 |
| | White | flush | lower than front bezel | Silver | Metal | Silver | Metal | 45-2131.2390.000 | 72 |
| | Black | flush | lower than front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3310.000 | 72 |
| | Red | flush | lower than front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3320.000 | 72 |
| | Yellow | flush | lower than front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3340.000 | 72 |
| | Green | flush | lower than front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3350.000 | 72 |
| | Blue | flush | lower than front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3360.000 | 72 |
| | White | flush | lower than front bezel | Sand grey | Metal | Black | Plastic | 45-2131.3390.000 | 72 |

# 45 Raised design



| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Black | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1410.000 | 72 |
| | Red | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1420.000 | 72 |
| | Yellow | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1440.000 | 72 |
| | Green | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1450.000 | 72 |
| | Blue | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1460.000 | 72 |
| | White | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2131.1490.000 | 72 |

## Wiring diagrams

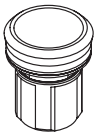
Wiring diagram 72

Wiring diagram 73

Your Expert Partner for **Human Machine Interfaces**

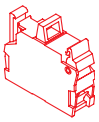
## Illuminated pushbutton, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

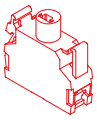


Actuator

Holder Page 66



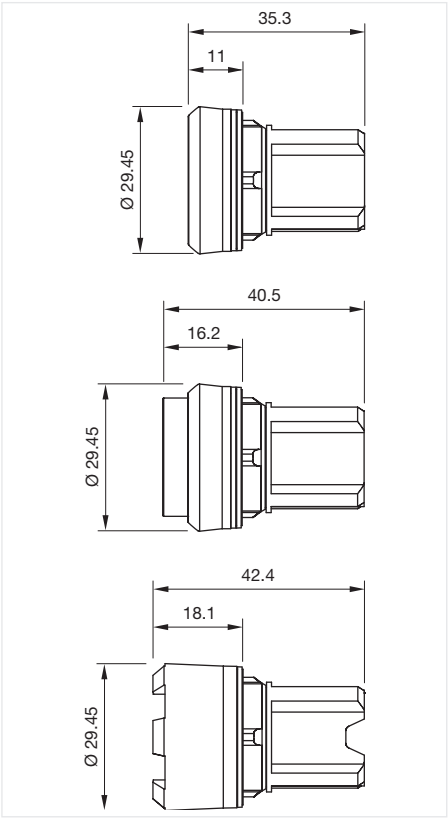
Switching element Page 68



Illumination element Page 75

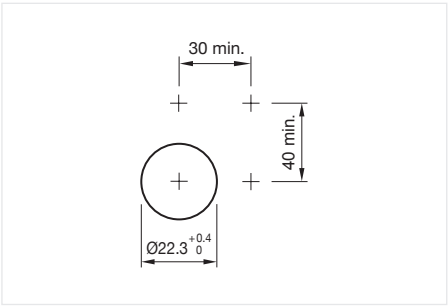
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

- Mounting depth, incl. front plate, see chapter drawings

### Actuator, Front dimension Ø 29,5 mm

| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Red | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11E0.000 | 191 |
| | Amber | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11F0.000 | 191 |
| | Yellow | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11G0.000 | 191 |
| | Green | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11H0.000 | 191 |
| | Blue | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11J0.000 | 191 |
| | Colourless | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11K0.000 | 191 |
| | White | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2231.11N0.000 | 191 |

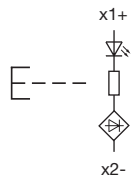
# 45 Raised design



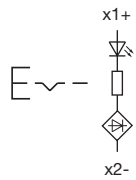
| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Red | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2231.12E0.000 | 191 |
| | Yellow | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2231.12G0.000 | 191 |
| | Green | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2231.12H0.000 | 191 |
| | Blue | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2231.12J0.000 | 191 |
| | Colourless | flush | raised above front bezel | Black | Plastic | Black | Plastic | 45-2231.12K0.000 | 191 |
| | Blue | flush | lower than front bezel | Black | Plastic | Black | Plastic | 45-2231.14J0.000 | 191 |
| | Red | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21E0.000 | 191 |
| | Amber | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21F0.000 | 191 |
| | Yellow | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21G0.000 | 191 |
| | Green | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21H0.000 | 191 |
| | Blue | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21J0.000 | 191 |
| | Colourless | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21K0.000 | 191 |
| | White | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2231.21N0.000 | 191 |
| | Red | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22E0.000 | 191 |
| | Amber | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22F0.000 | 191 |
| | Yellow | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22G0.000 | 191 |
| | Green | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22H0.000 | 191 |
| | Blue | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22J0.000 | 191 |
| | Colourless | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22K0.000 | 191 |
| | White | flush | raised above front bezel | Silver | Metal | Silver | Metal | 45-2231.22N0.000 | 191 |
| | Red | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31E0.000 | 191 |
| | Amber | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31F0.000 | 191 |
| | Yellow | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31G0.000 | 191 |
| | Green | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31H0.000 | 191 |
| | Blue | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31J0.000 | 191 |
| | Colourless | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31K0.000 | 191 |
| | White | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2231.31N0.000 | 191 |
| | Red | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2231.32E0.000 | 191 |
| | Yellow | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2231.32G0.000 | 191 |
| | Green | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2231.32H0.000 | 191 |
| | Blue | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2231.32J0.000 | 191 |
| | Colourless | flush | raised above front bezel | Sand grey | Metal | Black | Plastic | 45-2231.32K0.000 | 191 |
| Maintained | Red | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2234.11E0.000 | 192 |
| | Yellow | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2234.11G0.000 | 192 |
| | Green | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2234.11H0.000 | 192 |

| Switching action | Lens colour | Lens shape | Lens type | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|---|
| Maintained | Blue | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2234.11J0.000 | 192 |
| | Colourless | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2234.11K0.000 | 192 |
| | White | flush | level with front bezel | Black | Plastic | Black | Plastic | 45-2234.11N0.000 | 192 |
| | Red | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2234.21E0.000 | 192 |
| | Yellow | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2234.21G0.000 | 192 |
| | Green | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2234.21H0.000 | 192 |
| | Blue | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2234.21J0.000 | 192 |
| | Colourless | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2234.21K0.000 | 192 |
| | White | flush | level with front bezel | Silver | Metal | Silver | Metal | 45-2234.21N0.000 | 192 |
| | Red | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2234.31E0.000 | 192 |
| | Yellow | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2234.31G0.000 | 192 |
| | Green | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2234.31H0.000 | 192 |
| | Blue | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2234.31J0.000 | 192 |
| | Colourless | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2234.31K0.000 | 192 |
| | White | flush | level with front bezel | Sand grey | Metal | Black | Plastic | 45-2234.31N0.000 | 192 |

## Wiring diagrams



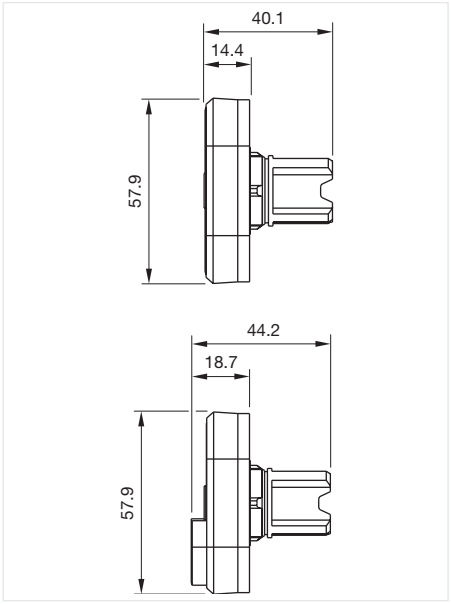
Wiring diagram 191



Wiring diagram 192

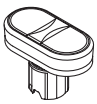
## Double pushbutton, IP66, IP67, IP69K

Product can differ from the current configuration.



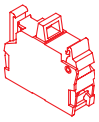

Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator

Holder Page 66



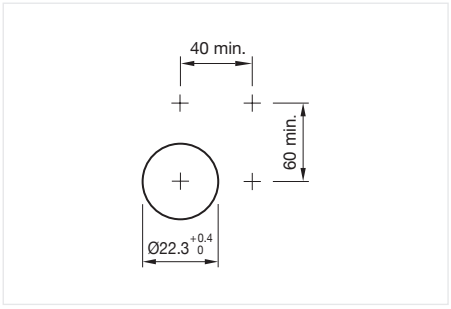
Switching element Page 68

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings




Mounting cut-outs [mm]

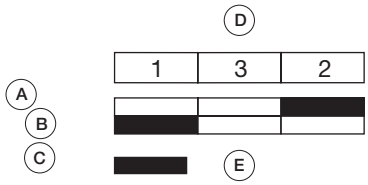
### Actuator, Front dimension 58 mm x 30 mm

| Switching action | Lens colour | Lens shape | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram | Component Layout |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Green/ Red | flush | Black | Plastic | Black | Plastic | 45-2J31.15T0.000 | 200 | 25 |
| | White / Black | flush | Black | Plastic | Black | Plastic | 45-2J31.15V0.000 | 200 | 25 |
| | Green/ Red | flush | Black | Plastic | Black | Plastic | 45-2J31.16T0.000 | 200 | 25 |
| | White / Black | flush | Black | Plastic | Black | Plastic | 45-2J31.16V0.000 | 200 | 25 |
| | Green/ Red | flush | Silver | Metal | Silver | Metal | 45-2J31.25T0.000 | 200 | 25 |
| | White / Black | flush | Silver | Metal | Silver | Metal | 45-2J31.25V0.000 | 200 | 25 |
| | Green/ Red | flush | Silver | Metal | Silver | Metal | 45-2J31.26T0.000 | 200 | 25 |
| | White / Black | flush | Silver | Metal | Silver | Metal | 45-2J31.26V0.000 | 200 | 25 |
| | Green/ Red | flush | Sand grey | Metal | Black | Plastic | 45-2J31.35T0.000 | 200 | 25 |
| | Green/ Red | flush | Sand grey | Metal | Black | Plastic | 45-2J31.36T0.000 | 200 | 25 |
| | White / Black | flush | Sand grey | Metal | Black | Plastic | 45-2J31.36V0.000 | 200 | 25 |

## Wiring diagrams

Wiring diagram 200

## Component layouts

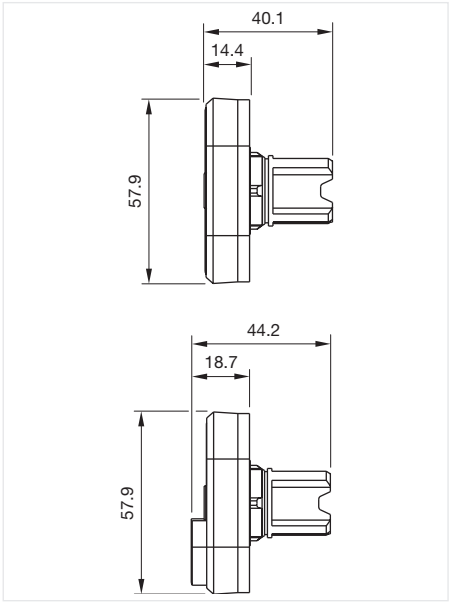



Component layout 25

A = Switching action
B = green (white) button pressed
C = red (black) button pressed
D = Arrangement switching element correspondens to designation of front adaptor
E = Switching element actuated

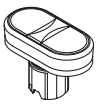
## Illuminated double pushbutton, IP66, IP67, IP69K

Product can differ from the current configuration.



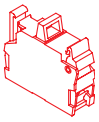

Dimensions [mm]

**Equipment consisting of (schematic overview)**

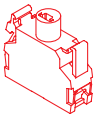


Actuator

Holder Page 66



Switching element Page 68



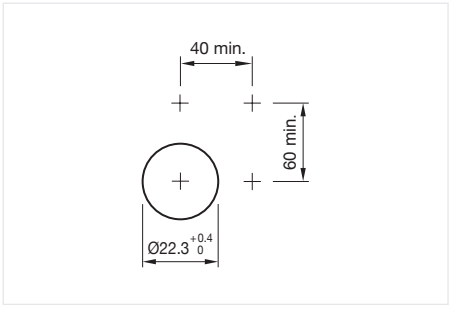
Illumination element Page 75

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.

**General information**

- With illuminative centre window
- Mounting depth, incl. front plate, see chapter drawings

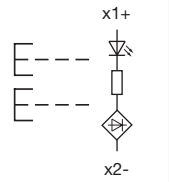



Mounting cut-outs [mm]

## Actuator, Front dimension 58 mm x 30 mm

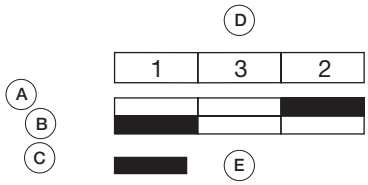
| Switching action | Lens colour | Lens shape | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram | Component Layout |
|---|---|---|---|---|---|---|---|---|---|
| Momentary | Green/ Red | flush | Black | Plastic | Black | Plastic | 45-2K31.15T0.000 | 201 | 25 |
| | White / Black | flush | Black | Plastic | Black | Plastic | 45-2K31.15V0.000 | 201 | 25 |
| | Green/ Red | flush | Black | Plastic | Black | Plastic | 45-2K31.16T0.000 | 201 | 25 |
| | White / Black | flush | Black | Plastic | Black | Plastic | 45-2K31.16V0.000 | 201 | 25 |
| | Green/ Red | flush | Sand grey | Metal | Black | Plastic | 45-2K31.35T0.000 | 201 | 25 |
| | White / Black | flush | Sand grey | Metal | Black | Plastic | 45-2K31.35V0.000 | 201 | 25 |
| | Green/ Red | flush | Sand grey | Metal | Black | Plastic | 45-2K31.36T0.000 | 201 | 25 |
| | White / Black | flush | Sand grey | Metal | Black | Plastic | 45-2K31.36V0.000 | 201 | 25 |

## Wiring diagrams




Wiring diagram 201

## Component layouts




Component layout 25

A = Switching action
B = green (white) button pressed
C = red (black) button pressed
D = Arrangement switching element correspondens to designation of front adaptor
E = Switching element actuated

Versatile. Aesthetic and robust.
*EAO Series 45 double pushbuttons.*

**Double pushbuttons are cost effective, compact pushbuttons, ideal for start/stop, up/down or similar machine functions.**

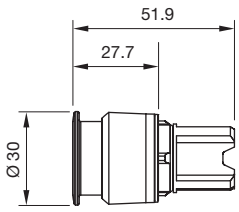
- Compact construction – two switches in one
- Range of colours and marking options
- IP69K sealed and optional silicon covers
- Plastic or metal versions
- Up to three contacts for each pushbutton
- Optional illumination

eao

Your Expert Partner for **Human Machine Interfaces**

## Mushroom-head pushbutton Ø 30 mm, IP66, IP67, IP69K

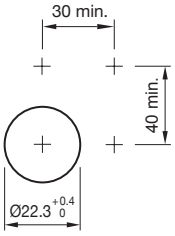
Product can differ from the current configuration.




Dimensions [mm]

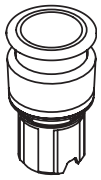
**General information**

- Mounting depth, incl. front plate, see chapter drawings



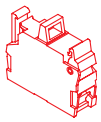

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**



Actuator

Holder Page 66



Switching element Page 68

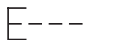
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

### Actuator, Front dimension Ø 30 mm

| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained | Black | Black | Plastic | Black | Plastic | 45-2530.1810.000 | 73 |
| | Red | Black | Plastic | Black | Plastic | 45-2530.1820.000 | 73 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2530.1840.000 | 73 |
| | Black | Silver | Metal | Silver | Metal | 45-2530.2810.000 | 73 |
| | Red | Silver | Metal | Silver | Metal | 45-2530.2820.000 | 73 |
| | Black | Sand grey | Metal | Black | Plastic | 45-2530.3810.000 | 73 |
| | Red | Sand grey | Metal | Black | Plastic | 45-2530.3820.000 | 73 |
| Momentary | Black | Black | Plastic | Black | Plastic | 45-2531.1810.000 | 72 |
| | Red | Black | Plastic | Black | Plastic | 45-2531.1820.000 | 72 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2531.1840.000 | 72 |
| | Green | Black | Plastic | Black | Plastic | 45-2531.1850.000 | 72 |
| | Black | Silver | Metal | Silver | Metal | 45-2531.2810.000 | 72 |
| | Red | Silver | Metal | Silver | Metal | 45-2531.2820.000 | 72 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2531.2840.000 | 72 |
| | Green | Silver | Metal | Silver | Metal | 45-2531.2850.000 | 72 |
| | Black | Sand grey | Metal | Black | Plastic | 45-2531.3810.000 | 72 |
| | Red | Sand grey | Metal | Black | Plastic | 45-2531.3820.000 | 72 |
| | Yellow | Sand grey | Metal | Black | Plastic | 45-2531.3840.000 | 72 |
| | Green | Sand grey | Metal | Black | Plastic | 45-2531.3850.000 | 72 |

## Wiring diagrams

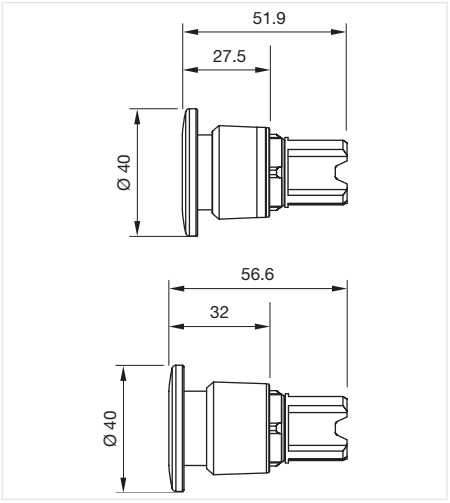


Wiring diagram 72

Wiring diagram 73

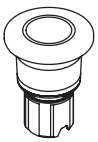
## Mushroom-head pushbutton Ø 40 mm, IP66, IP67, IP69K

Product can differ from the current configuration.



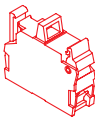

Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator

Holder Page 66



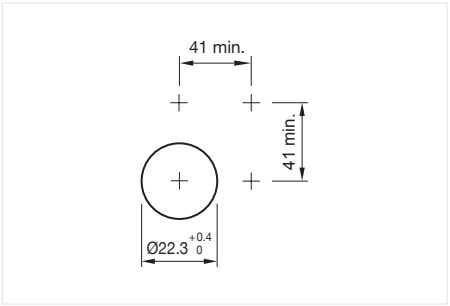
Switching element Page 68

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings




Mounting cut-outs [mm]

## Actuator, Front dimension Ø 40 mm

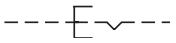
| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained | Black | Black | Plastic | Black | Plastic | 45-2530.1910.000 | 73 |
| | Red | Black | Plastic | Black | Plastic | 45-2530.1920.000 | 73 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2530.1940.000 | 73 |
| | Green | Black | Plastic | Black | Plastic | 45-2530.1950.000 | 73 |
| | Black | Silver | Metal | Silver | Metal | 45-2530.2910.000 | 73 |
| | Red | Silver | Metal | Silver | Metal | 45-2530.2920.000 | 73 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2530.2940.000 | 73 |
| | Black | Sand grey | Metal | Black | Plastic | 45-2530.3910.000 | 73 |
| | Red | Sand grey | Metal | Black | Plastic | 45-2530.3920.000 | 73 |
| Momentary | Black | Black | Plastic | Black | Plastic | 45-2531.1910.000 | 72 |
| | Red | Black | Plastic | Black | Plastic | 45-2531.1920.000 | 72 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2531.1940.000 | 72 |
| | Green | Black | Plastic | Black | Plastic | 45-2531.1950.000 | 72 |
| | Black | Silver | Metal | Silver | Metal | 45-2531.2910.000 | 72 |
| | Red | Silver | Metal | Silver | Metal | 45-2531.2920.000 | 72 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2531.2940.000 | 72 |
| | Green | Silver | Metal | Silver | Metal | 45-2531.2950.000 | 72 |
| | Black | Sand grey | Metal | Black | Plastic | 45-2531.3910.000 | 72 |
| | Red | Sand grey | Metal | Black | Plastic | 45-2531.3920.000 | 72 |
| | Yellow | Sand grey | Metal | Black | Plastic | 45-2531.3940.000 | 72 |
| | Green | Sand grey | Metal | Black | Plastic | 45-2531.3950.000 | 72 |
| Momentary / maintained | Black | Silver | Metal | Silver | Metal | 45-2532.2910.000 | 208 |
| | Red | Silver | Metal | Silver | Metal | 45-2532.2920.000 | 208 |

| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary / maintained | Black | Silver | Metal | Silver | Metal | 45-2533.2910.000 | 209 |
| | Red | Silver | Metal | Silver | Metal | 45-2533.2920.000 | 209 |

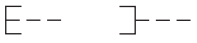
## Wiring diagrams

Wiring diagram 72

Wiring diagram 73



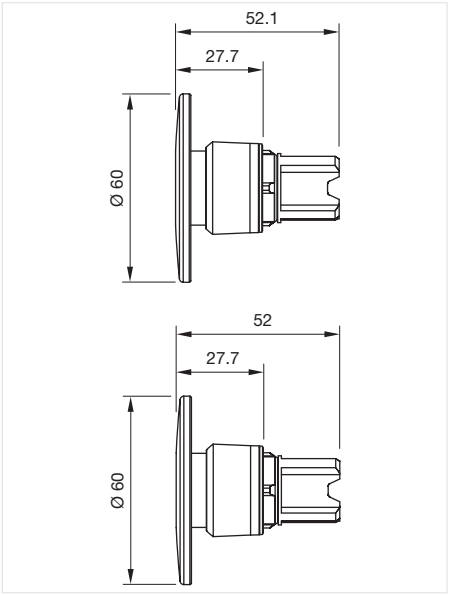
Wiring diagram 208



Wiring diagram 209

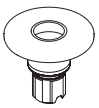
## Mushroom-head pushbutton Ø 60 mm, IP66, IP67, IP69K

Product can differ from the current configuration.



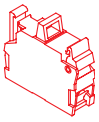

Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator

Holder Page 66



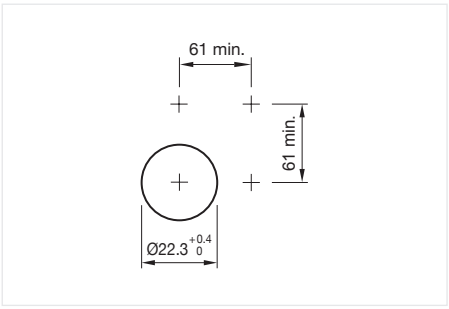
Switching element Page 68

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings

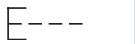



Mounting cut-outs [mm]

### Actuator, Front dimension Ø 60 mm

| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained | Black | Black | Plastic | Black | Plastic | 45-2530.1A10.000 | 73 |
| | Red | Black | Plastic | Black | Plastic | 45-2530.1A20.000 | 73 |
| | Black | Silver | Metal | Silver | Metal | 45-2530.2A10.000 | 73 |
| | Red | Silver | Metal | Silver | Metal | 45-2530.2A20.000 | 73 |
| Momentary | Black | Black | Plastic | Black | Plastic | 45-2531.1A10.000 | 72 |
| | Red | Black | Plastic | Black | Plastic | 45-2531.1A20.000 | 72 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2531.1A40.000 | 72 |
| | Green | Black | Plastic | Black | Plastic | 45-2531.1A50.000 | 72 |
| | Black | Silver | Metal | Silver | Metal | 45-2531.2A10.000 | 72 |
| | Red | Silver | Metal | Silver | Metal | 45-2531.2A20.000 | 72 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2531.2A40.000 | 72 |
| | Green | Silver | Metal | Silver | Metal | 45-2531.2A50.000 | 72 |

## Wiring diagrams

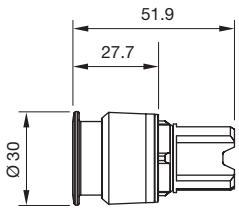


Wiring diagram 72

Wiring diagram 73

## Mushroom-head pushbutton illuminated Ø 30 mm, IP66, IP67, IP69K

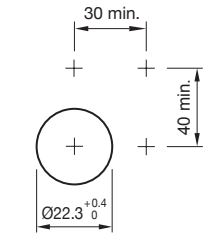
Product can differ from the current configuration.




Dimensions [mm]

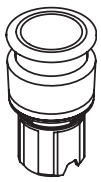
**General information**

- Mounting depth, incl. front plate, see chapter drawings



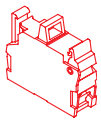

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**

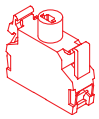


Actuator

Holder Page 66



Switching element Page 68



Illumination element Page 75

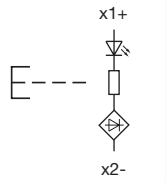
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

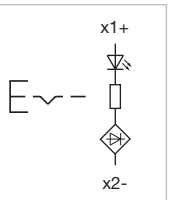
### Actuator, Front dimension Ø 30 mm

| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained | Red | Black | Plastic | Black | Plastic | 45-2630.18E0.000 | 192 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2630.18G0.000 | 192 |
| | Green | Black | Plastic | Black | Plastic | 45-2630.18H0.000 | 192 |
| | Blue | Black | Plastic | Black | Plastic | 45-2630.18J0.000 | 192 |
| | Colourless | Black | Plastic | Black | Plastic | 45-2630.18K0.000 | 192 |
| | Red | Silver | Metal | Silver | Metal | 45-2630.28E0.000 | 192 |
| | Amber | Silver | Metal | Silver | Metal | 45-2630.28F0.000 | 192 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2630.28G0.000 | 192 |
| | Green | Silver | Metal | Silver | Metal | 45-2630.28H0.000 | 192 |
| | Blue | Silver | Metal | Silver | Metal | 45-2630.28J0.000 | 192 |
| | Colourless | Silver | Metal | Silver | Metal | 45-2630.28K0.000 | 192 |
| | Red | Sand grey | Metal | Black | Plastic | 45-2630.38E0.000 | 192 |
| | Yellow | Sand grey | Metal | Black | Plastic | 45-2630.38G0.000 | 192 |
| Momentary | Red | Black | Plastic | Black | Plastic | 45-2631.18E0.000 | 191 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2631.18G0.000 | 191 |
| | Green | Black | Plastic | Black | Plastic | 45-2631.18H0.000 | 191 |
| | Blue | Black | Plastic | Black | Plastic | 45-2631.18J0.000 | 191 |
| | Colourless | Black | Plastic | Black | Plastic | 45-2631.18K0.000 | 191 |
| | White | Black | Plastic | Black | Plastic | 45-2631.18N0.000 | 191 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2631.28G0.000 | 191 |
| | Green | Silver | Metal | Silver | Metal | 45-2631.28H0.000 | 191 |
| | White | Silver | Metal | Silver | Metal | 45-2631.28N0.000 | 191 |
| | Yellow | Sand grey | Metal | Black | Plastic | 45-2631.38G0.000 | 191 |
| | Green | Sand grey | Metal | Black | Plastic | 45-2631.38H0.000 | 191 |
| | Colourless | Sand grey | Metal | Black | Plastic | 45-2631.38K0.000 | 191 |
| | White | Sand grey | Metal | Black | Plastic | 45-2631.38N0.000 | 191 |

## Wiring diagrams



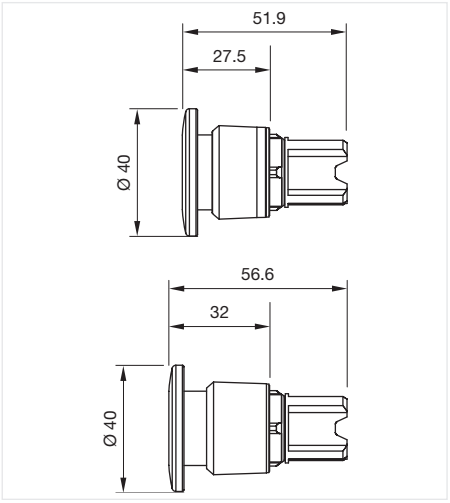

Wiring diagram 191




Wiring diagram 192

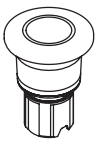
## Mushroom-head pushbutton illuminated Ø 40 mm, IP66, IP67, IP69K

Product can differ from the current configuration.



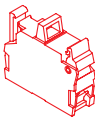

Dimensions [mm]

**Equipment consisting of (schematic overview)**

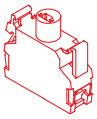


Actuator

Holder Page 66



Switching element Page 68



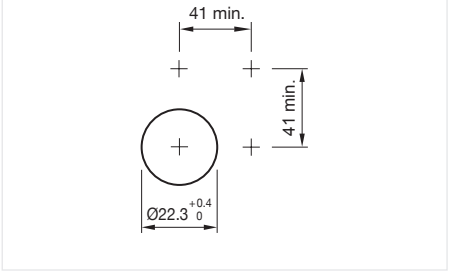
Illumination element Page 75

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings



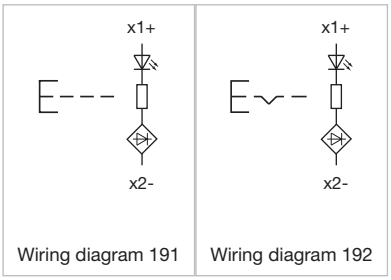

Mounting cut-outs [mm]

## Actuator, Front dimension Ø 40 mm

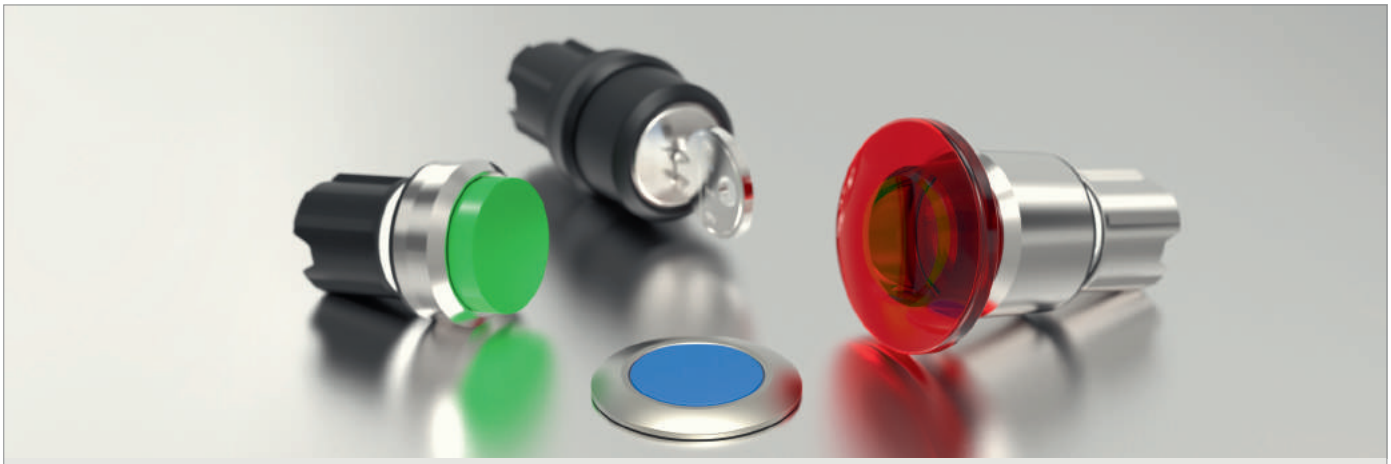
| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained | Red | Black | Plastic | Black | Plastic | 45-2630.19E0.000 | 192 |
| | Yellow | Black | Plastic | Black | Plastic | 45-2630.19G0.000 | 192 |
| | Green | Black | Plastic | Black | Plastic | 45-2630.19H0.000 | 192 |
| | Blue | Black | Plastic | Black | Plastic | 45-2630.19J0.000 | 192 |
| | Colourless | Black | Plastic | Black | Plastic | 45-2630.19K0.000 | 192 |
| | Red | Silver | Metal | Silver | Metal | 45-2630.29E0.000 | 192 |
| | Amber | Silver | Metal | Silver | Metal | 45-2630.29F0.000 | 192 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2630.29G0.000 | 192 |
| | Green | Silver | Metal | Silver | Metal | 45-2630.29H0.000 | 192 |
| | Blue | Silver | Metal | Silver | Metal | 45-2630.29J0.000 | 192 |
| | Colourless | Silver | Metal | Silver | Metal | 45-2630.29K0.000 | 192 |
| | Red | Sand grey | Metal | Black | Plastic | 45-2630.39E0.000 | 192 |
| | Yellow | Sand grey | Metal | Black | Plastic | 45-2630.39G0.000 | 192 |
| Momentary | Yellow | Black | Plastic | Black | Plastic | 45-2631.19G0.000 | 191 |
| | Green | Black | Plastic | Black | Plastic | 45-2631.19H0.000 | 191 |
| | Colourless | Black | Plastic | Black | Plastic | 45-2631.19K0.000 | 191 |
| | White | Black | Plastic | Black | Plastic | 45-2631.19N0.000 | 191 |
| | Amber | Silver | Metal | Silver | Metal | 45-2631.29F0.000 | 191 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2631.29G0.000 | 191 |
| | Green | Silver | Metal | Silver | Metal | 45-2631.29H0.000 | 191 |
| | White | Silver | Metal | Silver | Metal | 45-2631.29N0.000 | 191 |
| | Yellow | Sand grey | Metal | Black | Plastic | 45-2631.39G0.000 | 191 |

| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary | Green | Sand grey | Metal | Black | Plastic | 45-2631.39H0.000 | 191 |
| | Colourless | Sand grey | Metal | Black | Plastic | 45-2631.39K0.000 | 191 |
| | White | Sand grey | Metal | Black | Plastic | 45-2631.39N0.000 | 191 |
| | Red | Silver | Metal | Silver | Metal | 45-2632.29E0.000 | 191 |
| | Green | Silver | Metal | Silver | Metal | 45-2632.29H0.000 | 191 |
| | Red | Silver | Metal | Silver | Metal | 45-2633.29E0.000 | 191 |
| | White | Silver | Metal | Silver | Metal | 45-2633.29N0.000 | 191 |

## Wiring diagrams




Wiring diagram 191 | Wiring diagram 192

Innovative and comprehensive.
*EAO's new Series 45.*

**Modular, aesthetic and robust for every conceivable HMI function of machine operating.**

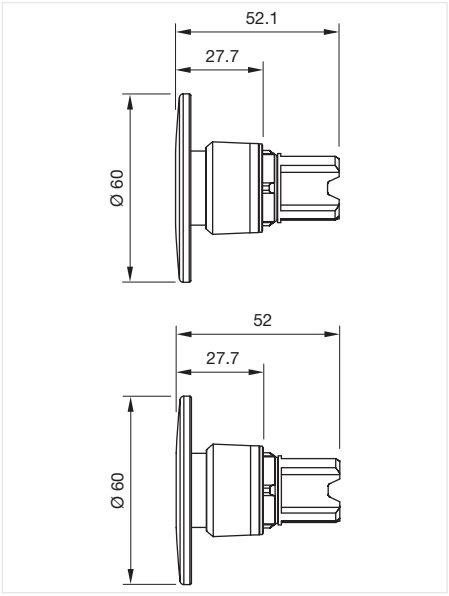
- Comprehensive and modular Series
- Rugged in use (up to IP69K)
- Easy to assemble and use
- Modern design with many options
- Value added services
- Long service life (up to 10 milion switching cycles, depending on function)

eao

Your Expert Partner for **Human Machine Interfaces**

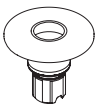
## Mushroom-head pushbutton illuminated Ø 60 mm, IP66, IP67, IP69K

Product can differ from the current configuration.



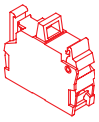

Dimensions [mm]

**Equipment consisting of (schematic overview)**

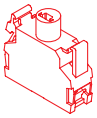


Actuator

Holder Page 66



Switching element Page 68



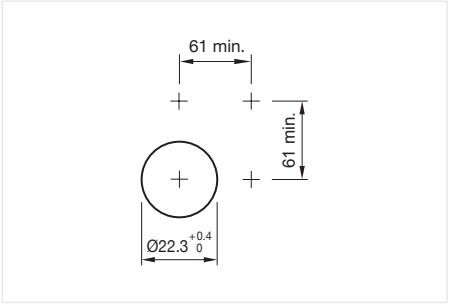
Illumination element Page 75

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings

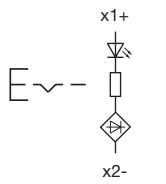



Mounting cut-outs [mm]

## Actuator, Front dimension Ø 60 mm

| Switching action | Lens colour | Front bezel colour | Front bezel material | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained | Red | Silver | Metal | Silver | Metal | 45-2630.2AE0.000 | 192 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2630.2AG0.000 | 192 |
| | Green | Silver | Metal | Silver | Metal | 45-2630.2AH0.000 | 192 |
| | Blue | Silver | Metal | Silver | Metal | 45-2630.2AJ0.000 | 192 |
| | Colourless | Silver | Metal | Silver | Metal | 45-2630.2AK0.000 | 192 |
| Momentary | Amber | Silver | Metal | Silver | Metal | 45-2631.2AF0.000 | 191 |
| | Yellow | Silver | Metal | Silver | Metal | 45-2631.2AG0.000 | 191 |
| | Green | Silver | Metal | Silver | Metal | 45-2631.2AH0.000 | 191 |
| | White | Silver | Metal | Silver | Metal | 45-2631.2AN0.000 | 191 |

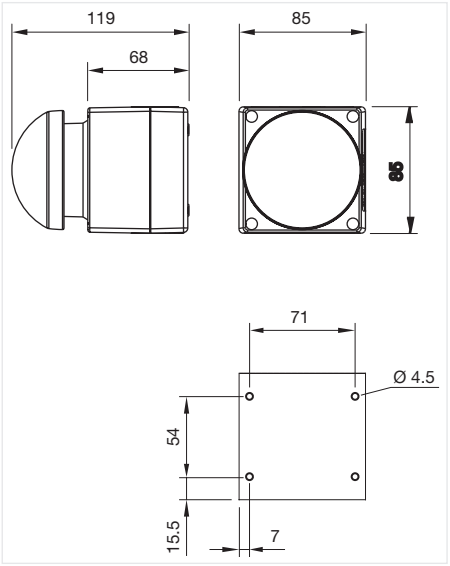
## Wiring diagrams




Wiring diagram 192

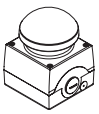
## Palm switch, IP66, IP67, IP69K

Product can differ from the current configuration.

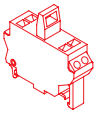



Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator



Switching element Page 71

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.

**General information**

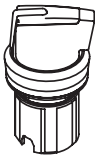
- Mounting depth, incl. front plate, see chapter drawings

### Actuator, Front dimension 85 mm x 85 mm

| Switching action | Lens colour | Housing colour | Housing material | Part No. |
|---|---|---|---|---|
| Momentary | Black | Grey | Plastic | 45-481.1810 |
| | Black | Grey | Metal | 45-481.2810 |
| Maintained | Red | Yellow | Plastic | 45-482.1810 |
| | Red | Yellow | Metal | 45-482.2810 |

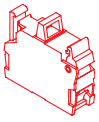
## Selector switch 2 positions short lever, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

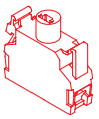


Actuator

Holder Page 66



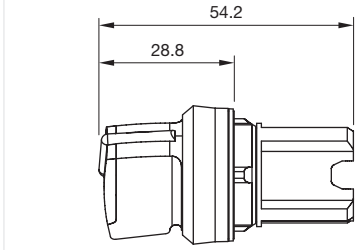
Switching element Page 68



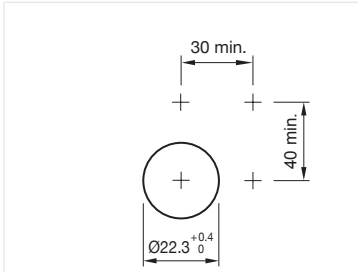
Illumination element Page 75

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]

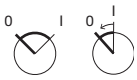



Mounting cut-outs [mm]

Product can differ from the current configuration.

**General information**

- External diameter of the short lever 32.3 mm
- Mounting depth, incl. front plate, see chapter drawings



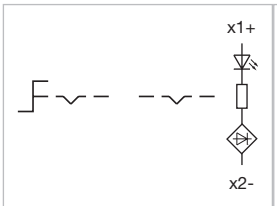
### Actuator, Front dimension Ø 29,5 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Rest - Maintained | 90° right | Red | Black | Plastic | Plastic | 45-2828.1C20.001 | 214 |
| | 90° right | Yellow | Black | Plastic | Plastic | 45-2828.1C40.001 | 214 |
| | 90° right | Green | Black | Plastic | Plastic | 45-2828.1C50.001 | 214 |
| | 90° right | Blue | Black | Plastic | Plastic | 45-2828.1C60.001 | 214 |
| | 90° right | White | Black | Plastic | Plastic | 45-2828.1C90.001 | 214 |
| | 90° right | Red | Silver | Metal | Metal | 45-2828.2C20.001 | 214 |
| | 90° right | Amber | Silver | Metal | Metal | 45-2828.2C30.001 | 214 |
| | 90° right | Green | Silver | Metal | Metal | 45-2828.2C50.001 | 214 |
| | 90° right | White | Silver | Metal | Metal | 45-2828.2C90.001 | 214 |
| | 90° right | Red | Sand grey | Metal | Plastic | 45-2828.3C20.001 | 214 |
| | 90° right | Yellow | Sand grey | Metal | Plastic | 45-2828.3C40.001 | 214 |
| | 90° right | Green | Sand grey | Metal | Plastic | 45-2828.3C50.001 | 214 |
| | 90° right | Blue | Sand grey | Metal | Plastic | 45-2828.3C60.001 | 214 |
| | 90° right | White | Sand grey | Metal | Plastic | 45-2828.3C90.001 | 214 |
| Rest - Momentary | 45° right | Red | Black | Plastic | Plastic | 45-2844.1C20.006 | 215 |
| | 45° right | Yellow | Black | Plastic | Plastic | 45-2844.1C40.006 | 215 |
| | 45° right | Green | Black | Plastic | Plastic | 45-2844.1C50.006 | 215 |
| | 45° right | Blue | Black | Plastic | Plastic | 45-2844.1C60.006 | 215 |
| | 45° right | White | Black | Plastic | Plastic | 45-2844.1C90.006 | 215 |
| | 45° right | Red | Silver | Metal | Metal | 45-2844.2C20.006 | 215 |
| | 45° right | Yellow | Silver | Metal | Metal | 45-2844.2C40.006 | 215 |
| | 45° right | Green | Silver | Metal | Metal | 45-2844.2C50.006 | 215 |
| | 45° right | Blue | Silver | Metal | Metal | 45-2844.2C60.006 | 215 |
| | 45° right | White | Silver | Metal | Metal | 45-2844.2C90.006 | 215 |
| | 45° right | Red | Sand grey | Metal | Plastic | 45-2844.3C20.006 | 215 |
| | 45° right | Yellow | Sand grey | Metal | Plastic | 45-2844.3C40.006 | 215 |

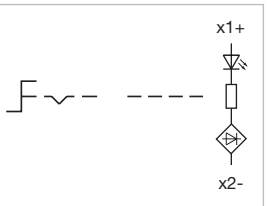
# 45 Raised design

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Rest - Momentary | 45° right | Green | Sand grey | Metal | Plastic | 45-2844.3C50.006 | 215 |
| | 45° right | Blue | Sand grey | Metal | Plastic | 45-2844.3C60.006 | 215 |
| | 45° right | White | Sand grey | Metal | Plastic | 45-2844.3C90.006 | 215 |

## Wiring diagrams



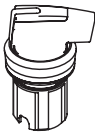

Wiring diagram 214




Wiring diagram 215

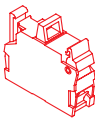
## Selector switch 2 positions long lever, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

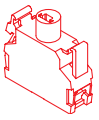


Actuator

Holder Page 66



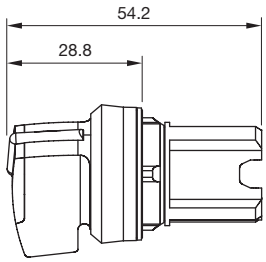
Switching element Page 68



Illumination element Page 75

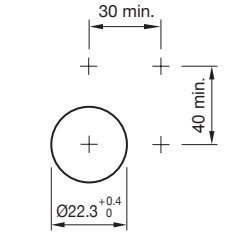
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

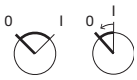
Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

- External diameter of the long lever 44.8 mm
- Mounting depth, incl. front plate, see chapter drawings



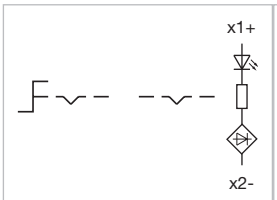
### Actuator, Front dimension Ø 29,5 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Rest - Maintained | 90° right | Red | Black | Plastic | Plastic | 45-2828.1D20.001 | 214 |
| | 90° right | White | Black | Plastic | Plastic | 45-2828.1D90.001 | 214 |
| | 90° right | Red | Silver | Metal | Metal | 45-2828.2D20.001 | 214 |
| | 90° right | Yellow | Silver | Metal | Metal | 45-2828.2D40.001 | 214 |
| | 90° right | Green | Silver | Metal | Metal | 45-2828.2D50.001 | 214 |
| | 90° right | Blue | Silver | Metal | Metal | 45-2828.2D60.001 | 214 |
| | 90° right | White | Silver | Metal | Metal | 45-2828.2D90.001 | 214 |
| | 90° right | Red | Sand grey | Metal | Plastic | 45-2828.3D20.001 | 214 |
| | 90° right | White | Sand grey | Metal | Plastic | 45-2828.3D90.001 | 214 |
| Rest - Momentary | 45° right | Yellow | Silver | Metal | Metal | 45-2844.2D40.006 | 215 |
| | 45° right | Green | Silver | Metal | Metal | 45-2844.2D50.006 | 215 |
| | 45° right | Blue | Silver | Metal | Metal | 45-2844.2D60.006 | 215 |
| | 45° right | White | Silver | Metal | Metal | 45-2844.2D90.006 | 215 |

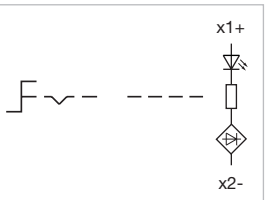
# 45 Raised design



## Wiring diagrams




Wiring diagram 214



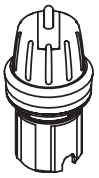

Wiring diagram 215

eao

Your Expert Partner for **Human Machine Interfaces**

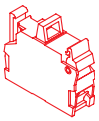
## Selector switch 2 positions round lever, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

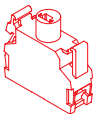


Actuator

Holder Page 66



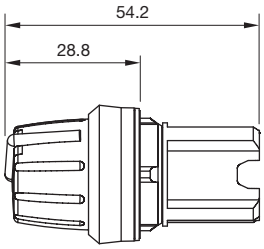
Switching element Page 68



Illumination element Page 75

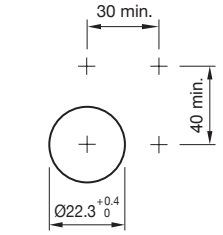
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

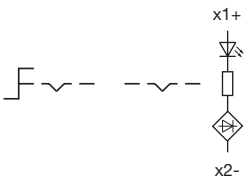
**General information**

- Mounting depth, incl. front plate, see chapter drawings

### Actuator, Front dimension Ø 29,5 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Rest - Maintained | 90° right | Red | Black | Plastic | Plastic | 45-2828.1E20.001 | 214 |
| | 90° right | White | Black | Plastic | Plastic | 45-2828.1E90.001 | 214 |
| | 90° right | Red | Sand grey | Metal | Plastic | 45-2828.3E20.001 | 214 |
| | 90° right | White | Sand grey | Metal | Plastic | 45-2828.3E90.001 | 214 |

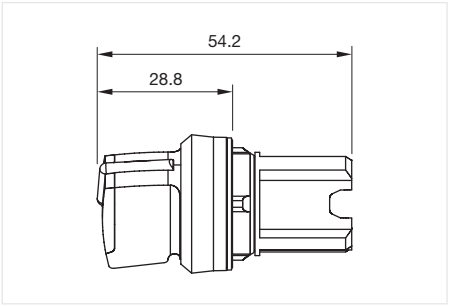
## Wiring diagrams




Wiring diagram 214

## Selector switch 3 positions short lever, IP66, IP67, IP69K

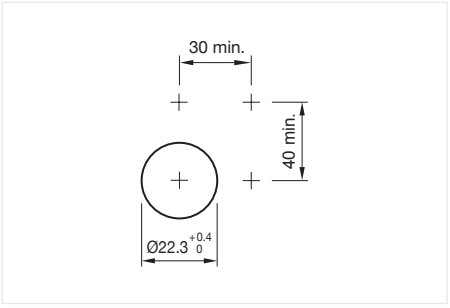
Product can differ from the current configuration.




Dimensions [mm]

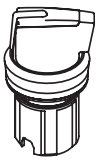
**General information**

- External diameter of the short lever 32.3 mm
- Mounting depth, incl. front plate, see chapter drawings



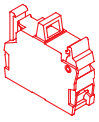

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**

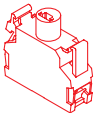


Actuator

Holder Page 66



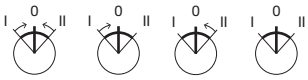
Switching element Page 68



Illumination element Page 75

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.

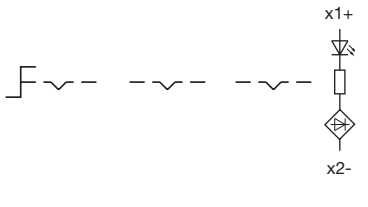


### Actuator, Front dimension Ø 29,5 mm

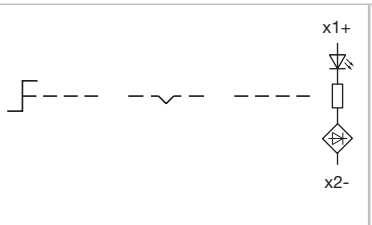
| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary - Rest - Momentary | 45° left / 45° right | Red | Black | Plastic | Plastic | 45-280S.1C20.003 | 217 |
| | 45° left / 45° right | Yellow | Black | Plastic | Plastic | 45-280S.1C40.003 | 217 |
| | 45° left / 45° right | Green | Black | Plastic | Plastic | 45-280S.1C50.003 | 217 |
| | 45° left / 45° right | Blue | Black | Plastic | Plastic | 45-280S.1C60.003 | 217 |
| | 45° left / 45° right | White | Black | Plastic | Plastic | 45-280S.1C90.003 | 217 |
| | 45° left / 45° right | Red | Silver | Metal | Metal | 45-280S.2C20.003 | 217 |
| | 45° left / 45° right | Amber | Silver | Metal | Metal | 45-280S.2C30.003 | 217 |
| | 45° left / 45° right | Yellow | Silver | Metal | Metal | 45-280S.2C40.003 | 217 |
| | 45° left / 45° right | Green | Silver | Metal | Metal | 45-280S.2C50.003 | 217 |
| | 45° left / 45° right | Blue | Silver | Metal | Metal | 45-280S.2C60.003 | 217 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-280S.2C90.003 | 217 |
| | 45° left / 45° right | Red | Sand grey | Metal | Plastic | 45-280S.3C20.003 | 217 |
| | 45° left / 45° right | Yellow | Sand grey | Metal | Plastic | 45-280S.3C40.003 | 217 |
| | 45° left / 45° right | Green | Sand grey | Metal | Plastic | 45-280S.3C50.003 | 217 |
| | 45° left / 45° right | Blue | Sand grey | Metal | Plastic | 45-280S.3C60.003 | 217 |
| | 45° left / 45° right | White | Sand grey | Metal | Plastic | 45-280S.3C90.003 | 217 |
| Momentary - Rest - Maintained | 45° left / 45° right | Red | Black | Plastic | Plastic | 45-280X.1C20.003 | 219 |
| | 45° left / 45° right | Yellow | Black | Plastic | Plastic | 45-280X.1C40.003 | 219 |
| | 45° left / 45° right | Green | Black | Plastic | Plastic | 45-280X.1C50.003 | 219 |
| | 45° left / 45° right | Blue | Black | Plastic | Plastic | 45-280X.1C60.003 | 219 |
| | 45° left / 45° right | White | Black | Plastic | Plastic | 45-280X.1C90.003 | 219 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-280X.2C90.003 | 219 |
| | 45° left / 45° right | Red | Sand grey | Metal | Plastic | 45-280X.3C20.003 | 219 |
| | 45° left / 45° right | Yellow | Sand grey | Metal | Plastic | 45-280X.3C40.003 | 219 |
| | 45° left / 45° right | Green | Sand grey | Metal | Plastic | 45-280X.3C50.003 | 219 |
| | 45° left / 45° right | Blue | Sand grey | Metal | Plastic | 45-280X.3C60.003 | 219 |

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary - Rest - Maintained | 45° left / 45° right | White | Sand grey | Metal | Plastic | 45-280X.3C90.003 | 219 |
| Maintained - Rest - Momentary | 45° left / 45° right | Red | Black | Plastic | Plastic | 45-2816.1C20.003 | 218 |
| | 45° left / 45° right | Yellow | Black | Plastic | Plastic | 45-2816.1C40.003 | 218 |
| | 45° left / 45° right | Green | Black | Plastic | Plastic | 45-2816.1C50.003 | 218 |
| | 45° left / 45° right | Blue | Black | Plastic | Plastic | 45-2816.1C60.003 | 218 |
| | 45° left / 45° right | White | Black | Plastic | Plastic | 45-2816.1C90.003 | 218 |
| | 45° left / 45° right | Red | Silver | Metal | Metal | 45-2816.2C20.003 | 218 |
| | 45° left / 45° right | Green | Silver | Metal | Metal | 45-2816.2C50.003 | 218 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-2816.2C90.003 | 218 |
| | 45° left / 45° right | Red | Sand grey | Metal | Plastic | 45-2816.3C20.003 | 218 |
| | 45° left / 45° right | Yellow | Sand grey | Metal | Plastic | 45-2816.3C40.003 | 218 |
| | 45° left / 45° right | Green | Sand grey | Metal | Plastic | 45-2816.3C50.003 | 218 |
| | 45° left / 45° right | Blue | Sand grey | Metal | Plastic | 45-2816.3C60.003 | 218 |
| | 45° left / 45° right | White | Sand grey | Metal | Plastic | 45-2816.3C90.003 | 218 |
| Maintained - Rest - Maintained | 45° left / 45° right | Red | Black | Plastic | Plastic | 45-2819.1C20.003 | 216 |
| | 45° left / 45° right | Yellow | Black | Plastic | Plastic | 45-2819.1C40.003 | 216 |
| | 45° left / 45° right | Green | Black | Plastic | Plastic | 45-2819.1C50.003 | 216 |
| | 45° left / 45° right | Blue | Black | Plastic | Plastic | 45-2819.1C60.003 | 216 |
| | 45° left / 45° right | White | Black | Plastic | Plastic | 45-2819.1C90.003 | 216 |
| | 45° left / 45° right | Red | Silver | Metal | Metal | 45-2819.2C20.003 | 216 |
| | 45° left / 45° right | Yellow | Silver | Metal | Metal | 45-2819.2C40.003 | 216 |
| | 45° left / 45° right | Green | Silver | Metal | Metal | 45-2819.2C50.003 | 216 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-2819.2C90.003 | 216 |
| | 45° left / 45° right | Red | Sand grey | Metal | Plastic | 45-2819.3C20.003 | 216 |
| | 45° left / 45° right | Yellow | Sand grey | Metal | Plastic | 45-2819.3C40.003 | 216 |
| | 45° left / 45° right | Green | Sand grey | Metal | Plastic | 45-2819.3C50.003 | 216 |
| | 45° left / 45° right | Blue | Sand grey | Metal | Plastic | 45-2819.3C60.003 | 216 |
| | 45° left / 45° right | White | Sand grey | Metal | Plastic | 45-2819.3C90.003 | 216 |

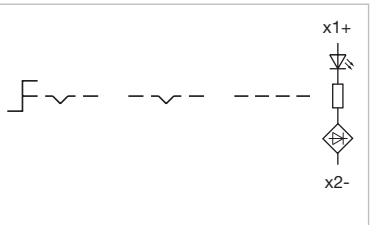
## Wiring diagrams




Wiring diagram 216




Wiring diagram 217

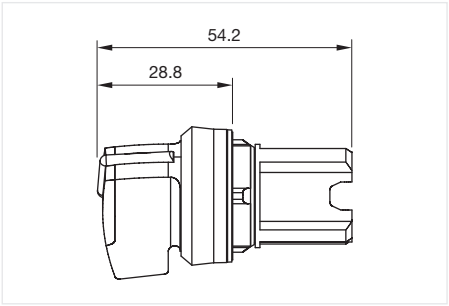



Wiring diagram 218

Wiring diagram 219

## Selector switch 3 positions long lever, IP66, IP67, IP69K

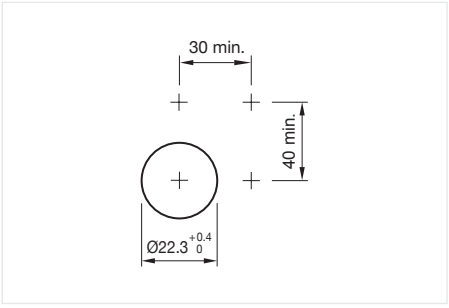
Product can differ from the current configuration.




Dimensions [mm]

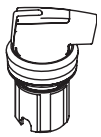
**General information**

- External diameter of the long lever 44.8 mm
- Mounting depth, incl. front plate, see chapter drawings

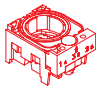



Mounting cut-outs [mm]

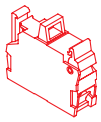
**Equipment consisting of (schematic overview)**



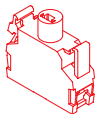
Actuator



Holder Page 66



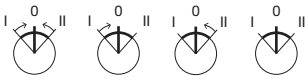
Switching element Page 68



Illumination element Page 75

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

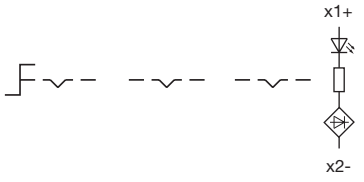
To obtain a complete unit, please select the red components from the pages shown.



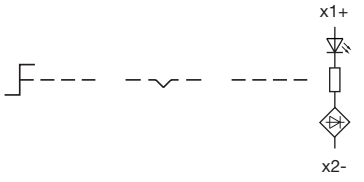
### Actuator, Front dimension Ø 29,5 mm

| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Momentary - Rest - Momentary | 45° left / 45° right | Red | Silver | Metal | Metal | 45-280S.2D20.003 | 217 |
| | 45° left / 45° right | Green | Silver | Metal | Metal | 45-280S.2D50.003 | 217 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-280S.2D90.003 | 217 |
| Momentary - Rest - Maintained | 45° left / 45° right | Red | Silver | Metal | Metal | 45-280X.2D20.003 | 219 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-280X.2D90.003 | 219 |
| Maintained - Rest - Momentary | 45° left / 45° right | Red | Silver | Metal | Metal | 45-2816.2D20.003 | 218 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-2816.2D90.003 | 218 |
| Maintained - Rest - Maintained | 45° left / 45° right | Red | Silver | Metal | Metal | 45-2819.2D20.003 | 216 |
| | 45° left / 45° right | Green | Silver | Metal | Metal | 45-2819.2D50.003 | 216 |
| | 45° left / 45° right | White | Silver | Metal | Metal | 45-2819.2D90.003 | 216 |

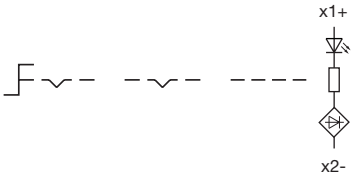
## Wiring diagrams




Wiring diagram 216

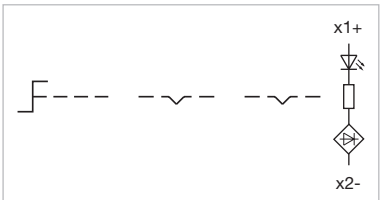



Wiring diagram 217




Wiring diagram 218

## Wiring diagrams




Wiring diagram 219

01
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Innovative and comprehensive.
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**Modular, aesthetic and robust for every conceivable HMI function of machine operating.**

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- Easy to assemble and use
- Modern design with many options
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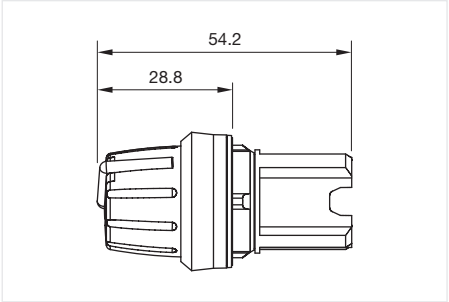
## Selector switch 4 positions round lever, IP66, IP67, IP69K

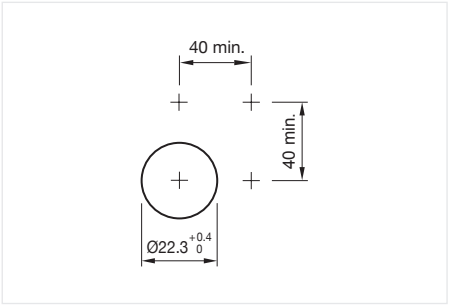
Product can differ from the current configuration.




Dimensions [mm]

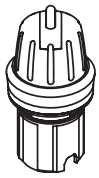
**General information**

- Use only with holder for 4 elements
- Mounting depth, incl. front plate, see chapter drawings



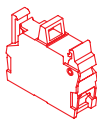

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**



Actuator

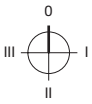
Holder Page 67



Switching element Page 68

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.



### Actuator, Front dimension Ø 29,5 mm

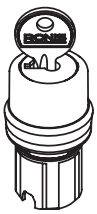
| Switching action | Switching angle | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Maintained - Maintained - Maintained - Maintained | 4 x 90° | White | Black | Plastic | Plastic | 45-2845.1E90.002 | 220 |
| | 4 x 90° | White | Silver | Metal | Metal | 45-2845.2E90.002 | 220 |
| | 4 x 90° | White | Sand grey | Metal | Plastic | 45-2845.3E90.002 | 220 |

## Wiring diagrams

Wiring diagram 220

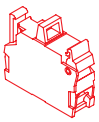
## Keylock switch 2 positions, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**



Actuator

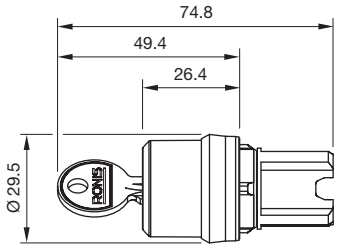
Holder Page 66



Switching element Page 68

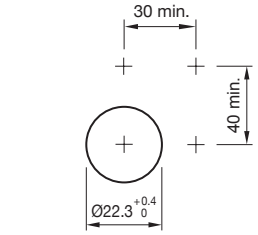
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

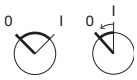
Product can differ from the current configuration.




Mounting cut-outs [mm]

**General information**

- The standard lock: RONIS, T254
- Mounting depth, incl. front plate, see chapter drawings

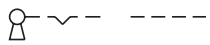


### Actuator, Front dimension Ø 29,5 mm

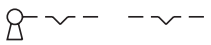
| Switching action | Switching angle | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Rest (a) - Maintained (a) | 90° right | Black | Plastic | Plastic | 45-290H.1000.111 | 79 |
| | 90° right | Silver | Metal | Metal | 45-290H.2000.111 | 79 |
| | 90° right | Sand grey | Metal | Plastic | 45-290H.3000.111 | 79 |
| Rest (a) - Maintained | 90° right | Black | Plastic | Plastic | 45-290J.1000.111 | 79 |
| | 90° right | Silver | Metal | Metal | 45-290J.2000.111 | 79 |
| | 90° right | Sand grey | Metal | Plastic | 45-290J.3000.111 | 79 |
| Rest (a) - Momentary | 45° right | Black | Plastic | Plastic | 45-290K.1000.116 | 78 |
| | 45° right | Silver | Metal | Metal | 45-290K.2000.116 | 78 |
| | 45° right | Sand grey | Metal | Plastic | 45-290K.3000.116 | 78 |
| Rest - Maintained (a) | 90° right | Black | Plastic | Plastic | 45-2925.1000.111 | 79 |
| | 90° right | Silver | Metal | Metal | 45-2925.2000.111 | 79 |
| | 90° right | Sand grey | Metal | Plastic | 45-2925.3000.111 | 79 |

a = Key remove

## Wiring diagrams



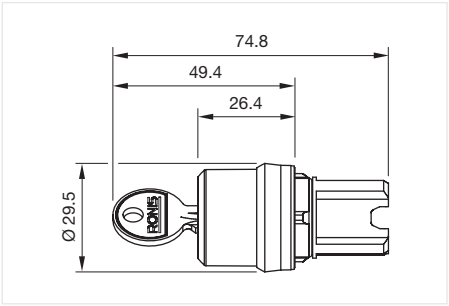
Wiring diagram 78



Wiring diagram 79

## Keylock switch 3 positions, IP66, IP67, IP69K

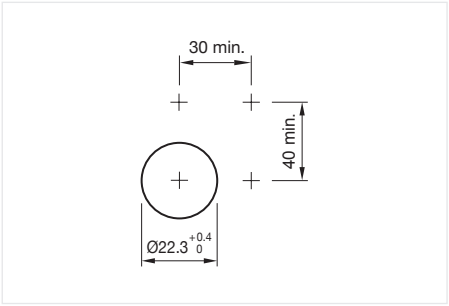
Product can differ from the current configuration.




Dimensions [mm]

**General information**

- The standard lock: RONIS, T254
- Mounting depth, incl. front plate, see chapter drawings

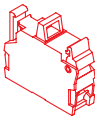



Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**

Actuator

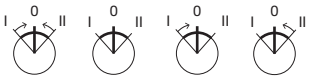
Holder Page 66



Switching element Page 68

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.



### Actuator, Front dimension Ø 29,5 mm

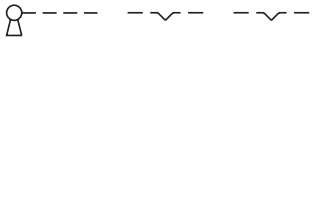
| Switching action | Switching angle | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Maintained (a) - Rest - Momentary | 45° left / 45° right | Black | Plastic | Plastic | 45-290A.1000.113 | 81 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290A.2000.113 | 81 |
| Maintained (a) - Rest - Maintained (a) | 45° left / 45° right | Black | Plastic | Plastic | 45-290C.1000.113 | 83 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290C.2000.113 | 83 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-290C.3000.113 | 83 |
| Maintained (a) - Rest - Maintained | 45° left / 45° right | Black | Plastic | Plastic | 45-290D.1000.113 | 83 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290D.2000.113 | 83 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-290D.3000.113 | 83 |
| Maintained (a) - Rest (a) - Momentary | 45° left / 45° right | Black | Plastic | Plastic | 45-290E.1000.113 | 81 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290E.2000.113 | 81 |
| Maintained (a) - Rest (a) - Maintained (a) | 45° left / 45° right | Black | Plastic | Plastic | 45-290F.1000.113 | 83 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290F.2000.113 | 83 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-290F.3000.113 | 83 |
| Maintained (a) - Rest (a) - Maintained | 45° left / 45° right | Black | Plastic | Plastic | 45-290G.1000.113 | 83 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290G.2000.113 | 83 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-290G.3000.113 | 83 |
| Momentary - Rest - Maintained (a) | 45° left / 45° right | Black | Plastic | Plastic | 45-290W.1000.113 | 80 |
| Momentary - Rest (a) - Momentary | 45° left / 45° right | Black | Plastic | Plastic | 45-290Z.1000.113 | 82 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-290Z.2000.113 | 82 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-290Z.3000.113 | 82 |
| Momentary - Rest (a) - Maintained (a) | 45° left / 45° right | Black | Plastic | Plastic | 45-2910.1000.113 | 80 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-2910.2000.113 | 80 |
| Momentary - Rest (a) - Maintained | 45° left / 45° right | Black | Plastic | Plastic | 45-2911.1000.113 | 80 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-2911.2000.113 | 80 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-2911.3000.113 | 80 |

a = Key remove

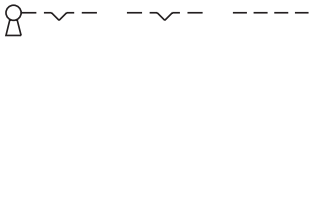
| Switching action | Switching angle | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Maintained - Rest - Maintained (a) | 45° left / 45° right | Black | Plastic | Plastic | 45-2917.1000.113 | 83 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-2917.2000.113 | 83 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-2917.3000.113 | 83 |
| Maintained - Rest (a) - Momentary | 45° left / 45° right | Black | Plastic | Plastic | 45-2922.1000.113 | 81 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-2922.2000.113 | 81 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-2922.3000.113 | 81 |
| Maintained - Rest (a) - Maintained | 45° left / 45° right | Black | Plastic | Plastic | 45-2924.1000.113 | 83 |
| | 45° left / 45° right | Silver | Metal | Metal | 45-2924.2000.113 | 83 |
| | 45° left / 45° right | Sand grey | Metal | Plastic | 45-2924.3000.113 | 83 |

a = Key remove

## Wiring diagrams

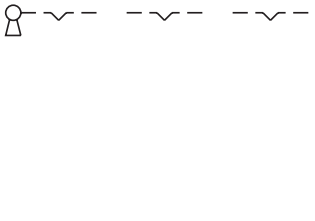


Wiring diagram 80



Wiring diagram 81

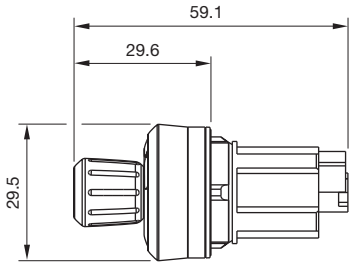
Wiring diagram 82



Wiring diagram 83

## ID keylock switch, IP65

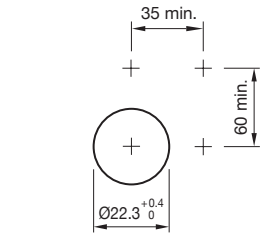
Product can differ from the current configuration.




Dimensions [mm]

**General information**

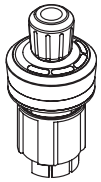
- Mounting depth, incl. front plate, see chapter drawings




Mounting cut-outs [mm]

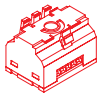
**Equipment consisting of (schematic overview)**

ID key — Page 80



Actuator

Holder — Page 66



Electronic module — Page 79

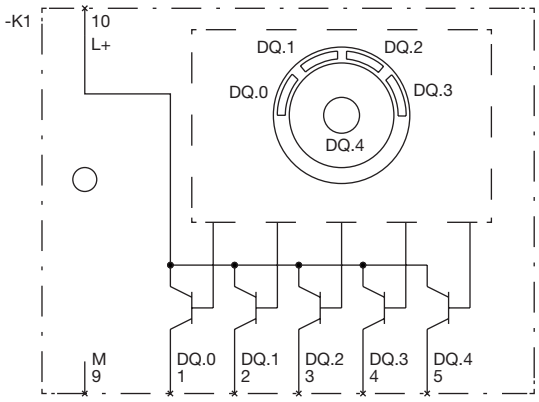
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

## Actuator, Front dimension Ø 29,5 mm

| Switching action | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| Maintained - Maintained - Maintained - Maintained | Black | Plastic | Plastic | 45-2S00.1001.404 | 213 |
| | Sand grey | Metal | Plastic | 45-2S00.3001.404 | 213 |

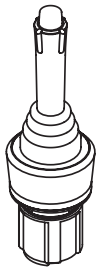
## Wiring diagrams




Wiring diagram 213

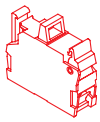
## Toggle stick, IP65, IP67

**Equipment consisting of (schematic overview)**



Actuator

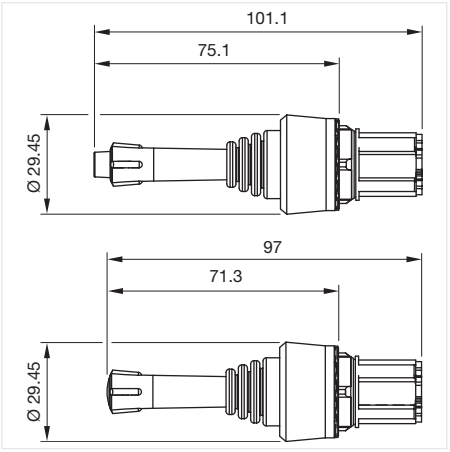
Holder Page 67



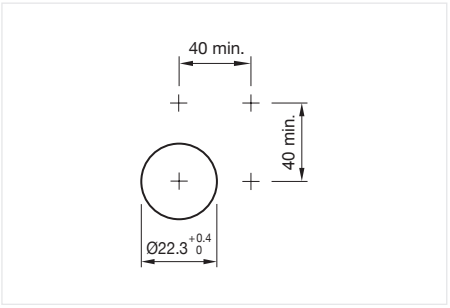
Switching element Page 68

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]




Mounting cut-outs [mm]

Product can differ from the current configuration.

**General information**

- Use only with holder for 4 elements
- Mounting depth, incl. front plate, see chapter drawings
- Lockable only in center position

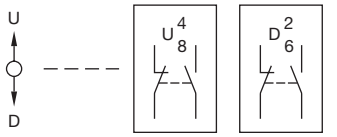
## Actuator, Front dimension Ø 29,5 mm

| Switching action | Product attributes | Housing material | Front bezel colour | Front bezel material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Momentary | 2 positions (L-R) | Plastic | Black | Plastic | 45-2F0T.1010.000 | 223 |
| | 2 positions (L-R) | Metal | Silver | Metal | 45-2F0T.2010.000 | 223 |
| | 2 positions (L-R) | Plastic | Sand grey | Metal | 45-2F0T.3010.000 | 223 |
| | 4 positions | Plastic | Black | Plastic | 45-2F0V.1010.000 | 225 |
| | 4 positions | Metal | Silver | Metal | 45-2F0V.2010.000 | 225 |
| | 4 positions | Plastic | Sand grey | Metal | 45-2F0V.3010.000 | 225 |
| | 2 positions (L-R), lockable | Plastic | Black | Plastic | 45-2F13.1010.000 | 223 |
| | 2 positions (L-R), lockable | Metal | Silver | Metal | 45-2F13.2010.000 | 223 |
| | 2 positions (L-R), lockable | Plastic | Sand grey | Metal | 45-2F13.3010.000 | 223 |
| | 4 positions, lockable | Plastic | Black | Plastic | 45-2F14.1010.000 | 225 |
| | 4 positions, lockable | Metal | Silver | Metal | 45-2F14.2010.000 | 225 |
| | 4 positions, lockable | Plastic | Sand grey | Metal | 45-2F14.3010.000 | 225 |
| Maintained | 2 positions (LR) | Plastic | Black | Plastic | 45-2F20.1010.000 | 224 |
| | 2 positions (LR) | Metal | Silver | Metal | 45-2F20.2010.000 | 224 |
| | 2 positions (LR) | Plastic | Sand grey | Metal | 45-2F20.3010.000 | 224 |
| | 4 positions | Plastic | Black | Plastic | 45-2F21.1010.000 | 226 |
| | 4 positions | Metal | Silver | Metal | 45-2F21.2010.000 | 226 |
| | 4 positions | Plastic | Sand grey | Metal | 45-2F21.3010.000 | 226 |
| | 2 positions (LR), lockable | Plastic | Black | Plastic | 45-2F26.1010.000 | 224 |
| | 2 positions (LR), lockable | Metal | Silver | Metal | 45-2F26.2010.000 | 224 |
| | 2 positions (LR), lockable | Plastic | Sand grey | Metal | 45-2F26.3010.000 | 224 |
| | 4 positions, lockable | Plastic | Black | Plastic | 45-2F27.1010.000 | 226 |
| | 4 positions, lockable | Metal | Silver | Metal | 45-2F27.2010.000 | 226 |
| | 4 positions, lockable | Plastic | Sand grey | Metal | 45-2F27.3010.000 | 226 |
| Momentary | 2 positions (U-D) | Plastic | Black | Plastic | 45-2F38.1010.000 | 221 |

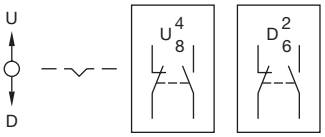
# 45 Raised design

| Switching action | Product attributes | Housing material | Front bezel colour | Front bezel material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Momentary | 2 positions (U-D) | Metal | Silver | Metal | 45-2F38.2010.000 | 221 |
| | 2 positions (U-D) | Plastic | Sand grey | Metal | 45-2F38.3010.000 | 221 |
| | 2 positions (U-D), lockable | Plastic | Black | Plastic | 45-2F40.1010.000 | 221 |
| | 2 positions (U-D), lockable | Metal | Silver | Metal | 45-2F40.2010.000 | 221 |
| | 2 positions (U-D), lockable | Plastic | Sand grey | Metal | 45-2F40.3010.000 | 221 |
| Maintained | 2 positions (UD) | Plastic | Black | Plastic | 45-2F41.1010.000 | 222 |
| | 2 positions (UD) | Metal | Silver | Metal | 45-2F41.2010.000 | 222 |
| | 2 positions (UD) | Plastic | Sand grey | Metal | 45-2F41.3010.000 | 222 |
| | 2 positions (UD), lockable | Plastic | Black | Plastic | 45-2F43.1010.000 | 222 |
| | 2 positions (UD), lockable | Metal | Silver | Metal | 45-2F43.2010.000 | 222 |
| | 2 positions (UD), lockable | Plastic | Sand grey | Metal | 45-2F43.3010.000 | 222 |

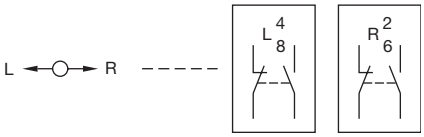
## Wiring diagrams



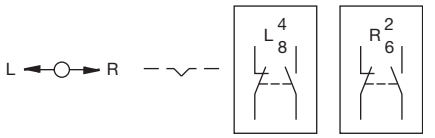

Wiring diagram 221



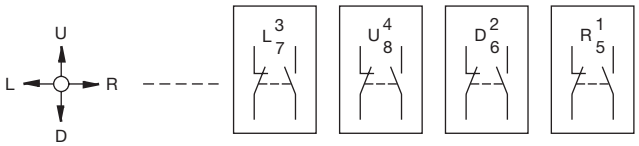

Wiring diagram 222



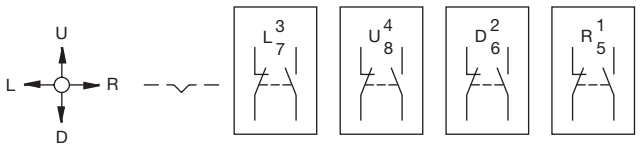

Wiring diagram 223




Wiring diagram 224




Wiring diagram 225



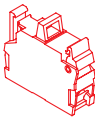

Wiring diagram 226

## Toggle switch, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

Actuator

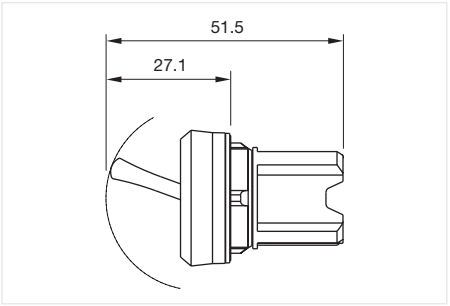
Holder Page 66



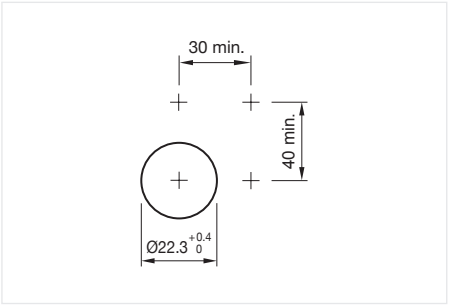
Switching element Page 68

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]




Mounting cut-outs [mm]

Product can differ from the current configuration.

**General information**

- Mounting depth, incl. front plate, see chapter drawings

## Actuator, Front dimension Ø 29,5 mm

| Switching action | Lever colour | Front bezel colour | Front bezel material | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|
| Momentary | Black | Black | Plastic | Plastic | 45-2N39.1010.000 | 72 |
| | Black | Silver | Metal | Metal | 45-2N39.2010.000 | 72 |
| | Black | Sand grey | Metal | Plastic | 45-2N39.3010.000 | 72 |
| Maintained | Black | Black | Plastic | Plastic | 45-2N42.1010.000 | 73 |
| | Black | Silver | Metal | Metal | 45-2N42.2010.000 | 73 |
| | Black | Sand grey | Metal | Plastic | 45-2N42.3010.000 | 73 |

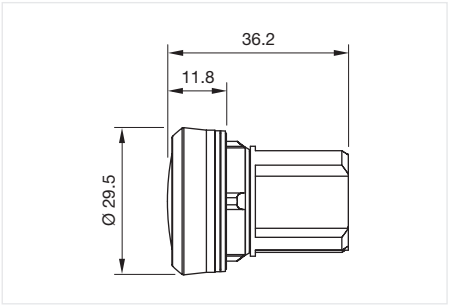
## Wiring diagrams

Wiring diagram 72

Wiring diagram 73

## Indicator full-face illumination, IP66, IP67, IP69K

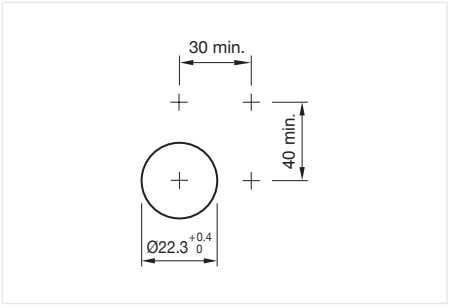
Product can differ from the current configuration.




Dimensions [mm]

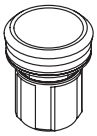
**General information**

- Mounting depth, incl. front plate, see chapter drawings



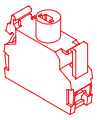

Mounting cut-outs [mm]

**Equipment consisting of (schematic overview)**



Actuator

Holder Page 66



Illumination element Page 75

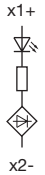
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

## Actuator, Front dimension Ø 30 mm

| Lens cap colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|
| Red | Plastic | 45-2T00.10E0.000 | 190 |
| Amber | Plastic | 45-2T00.10F0.000 | 190 |
| Yellow | Plastic | 45-2T00.10G0.000 | 190 |
| Green | Plastic | 45-2T00.10H0.000 | 190 |
| Blue | Plastic | 45-2T00.10J0.000 | 190 |
| Colourless | Plastic | 45-2T00.10K0.000 | 190 |
| White | Plastic | 45-2T00.10N0.000 | 190 |
| Red | Metal | 45-2T00.20E0.000 | 190 |
| Amber | Metal | 45-2T00.20F0.000 | 190 |
| Yellow | Metal | 45-2T00.20G0.000 | 190 |
| Green | Metal | 45-2T00.20H0.000 | 190 |
| Blue | Metal | 45-2T00.20J0.000 | 190 |
| Colourless | Metal | 45-2T00.20K0.000 | 190 |
| White | Metal | 45-2T00.20N0.000 | 190 |

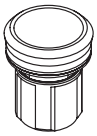
## Wiring diagrams




Wiring diagram 190

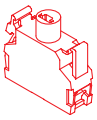
## Indicator front illumination, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**



Actuator

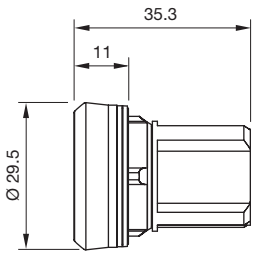
Holder Page 66



Illumination element Page 75

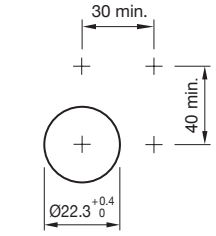
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

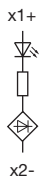
**General information**

- Mounting depth, incl. front plate, see chapter drawings

## Actuator, Front dimension Ø 29,5 mm

| Front bezel colour | Front bezel material | Lens cap colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| Black | Plastic | Red | Plastic | 45-2T07.10E0.000 | 190 |
| | Plastic | Yellow | Plastic | 45-2T07.10G0.000 | 190 |
| | Plastic | Green | Plastic | 45-2T07.10H0.000 | 190 |
| | Plastic | Blue | Plastic | 45-2T07.10J0.000 | 190 |
| | Plastic | White | Plastic | 45-2T07.10K0.000 | 190 |
| Sand grey | Metal | Red | Plastic | 45-2T07.30E0.000 | 190 |
| | Metal | Yellow | Plastic | 45-2T07.30G0.000 | 190 |
| | Metal | Green | Plastic | 45-2T07.30H0.000 | 190 |
| | Metal | Blue | Plastic | 45-2T07.30J0.000 | 190 |
| | Metal | White | Plastic | 45-2T07.30K0.000 | 190 |

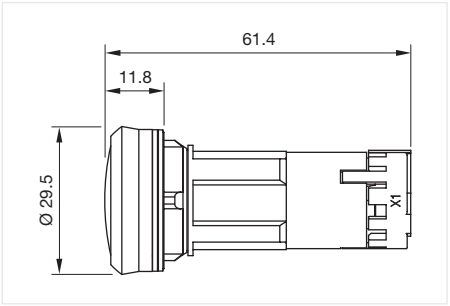
## Wiring diagrams




Wiring diagram 190

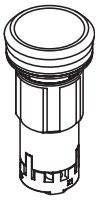
## Indicator Bi-colour, IP66, IP67, IP69K

Product can differ from the current configuration.




Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator

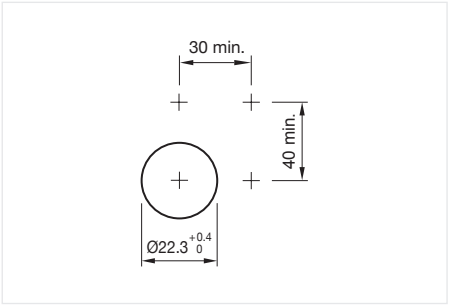
Holder Page 66

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings

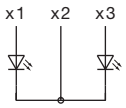



Mounting cut-outs [mm]

## Actuator, Front dimension Ø 29,5 mm

| Operating voltage | Illumination colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|
| 6 - 24 V AC/DC | Red / Green | Plastic | 45-2G08.10K1.000 | 203 |
| 110 V AC | Red / Green | Plastic | 45-2G08.10K7.000 | 203 |
| 230 V AC | Red / Green | Plastic | 45-2G08.10K8.000 | 203 |
| 6 - 24 V AC/DC | Red / Green | Metal | 45-2G08.20K2.000 | 203 |
| 110 V AC | Red / Green | Metal | 45-2G08.20K7.000 | 203 |
| 230 V AC | Red / Green | Metal | 45-2G08.20K8.000 | 203 |

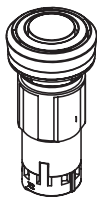
## Wiring diagrams



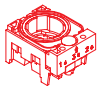

Wiring diagram 203

## Buzzer, IP40

**Equipment consisting of (schematic overview)**



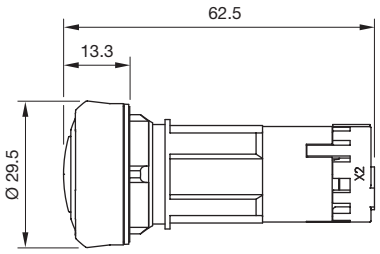
Actuator



Holder Page 66

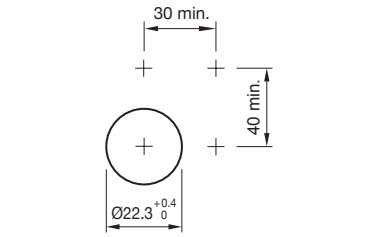
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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




Dimensions [mm]

Product can differ from the current configuration.




Mounting cut-outs [mm]

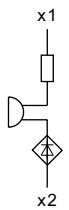
**General information**

- Mounting depth, incl. front plate, see chapter drawings

## Actuator, Front dimension Ø 29,5 mm

| Operating voltage | Housing material | Part No. | Wiring diagram |
|---|---|---|---|
| 24 V AC/DC | Plastic | 45-2H00.1016.000 | 199 |
| 110 V AC | Plastic | 45-2H00.1017.000 | 199 |
| 230 V AC | Plastic | 45-2H00.1018.000 | 199 |
| 24 V AC/DC | Metal | 45-2H00.2016.000 | 199 |
| 110 V AC | Metal | 45-2H00.2017.000 | 199 |
| 230 V AC | Metal | 45-2H00.2018.000 | 199 |

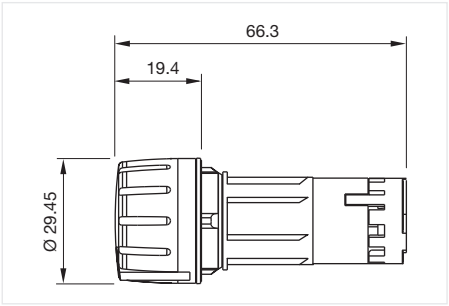
## Wiring diagrams




Wiring diagram 199

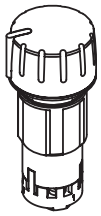
## Potentiometer, IP66, IP67, IP69K

Product can differ from the current configuration.




Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator

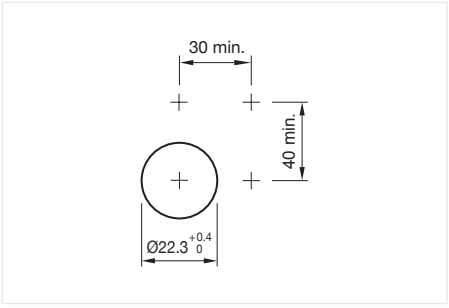
Holder Page 66

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.

**General information**

- Power 0.5 W
- Mounting depth, incl. front plate, see chapter drawings

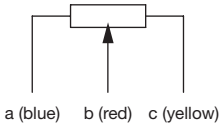



Mounting cut-outs [mm]

## Actuator, Front dimension Ø 30 mm

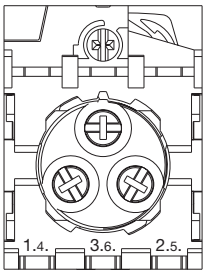
| Front bezel colour | Front bezel material | Housing material | Resistance | Resistance kind of | Part No. | Wiring diagram | Component Layout |
|---|---|---|---|---|---|---|---|
| Black | Plastic | Plastic | 100 kΩ | linear, row_E3 | 45-2P01.1E10.000 | 104 | 22 |
| | Plastic | Plastic | 10 kΩ | linear, row_E3 | 45-2P02.1E10.000 | 104 | 22 |
| | Plastic | Plastic | 1 kΩ | linear, row_E3 | 45-2P03.1E10.000 | 104 | 22 |
| | Plastic | Plastic | 4.7 kΩ | linear, row_E3 | 45-2P04.1E10.000 | 104 | 22 |
| | Plastic | Plastic | 470 kΩ | linear, row_E3 | 45-2P05.1E10.000 | 104 | 22 |
| | Plastic | Plastic | 47 kΩ | linear, row_E3 | 45-2P06.1E10.000 | 104 | 22 |
| Silver | Metal | Metal | 100 kΩ | linear, row_E3 | 45-2P01.2E10.000 | 104 | 22 |
| | Metal | Metal | 10 kΩ | linear, row_E3 | 45-2P02.2E10.000 | 104 | 22 |
| | Metal | Metal | 1 kΩ | linear, row_E3 | 45-2P03.2E10.000 | 104 | 22 |
| | Metal | Metal | 4.7 kΩ | linear, row_E3 | 45-2P04.2E10.000 | 104 | 22 |
| | Metal | Metal | 470 kΩ | linear, row_E3 | 45-2P05.2E10.000 | 104 | 22 |
| | Metal | Metal | 47 kΩ | linear, row_E3 | 45-2P06.2E10.000 | 104 | 22 |

## Wiring diagrams




Wiring diagram 104

## Component layouts




Component layout 22

# User-friendly and robust.
*EAO Series 45 Potentiometers.*

**Ideal for harsh industrial environments – thanks to IP69K protection and the long service life.**

- IP69K protection
- Long service life
- Easy mounting
- Rotational range of 280°
- Resistance from 1 k to 470 kΩ

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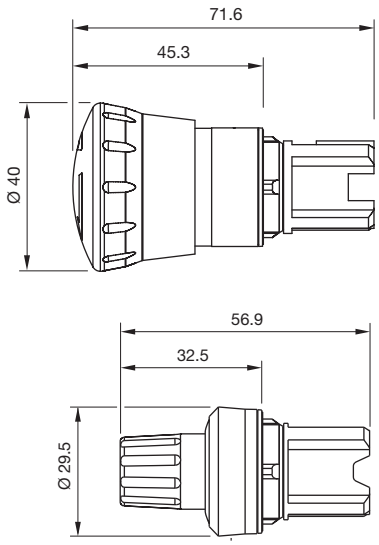
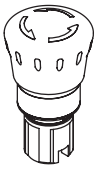
## Stop switch, IP66, IP67, IP69K

Product can differ from the current configuration.



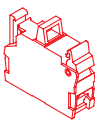

Dimensions [mm]

**Equipment consisting of (schematic overview)**



Actuator

Holder Page 66



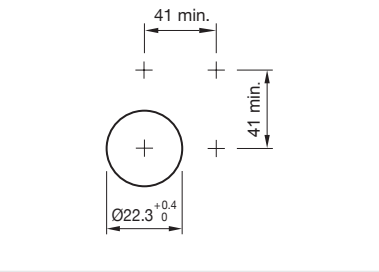
Switching element Page 68

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.

**General information**

- Mounting depth, incl. front plate, see chapter drawings




Mounting cut-outs [mm]

### Actuator

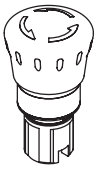
| Product attributes | Lens colour | Front bezel colour | Front bezel material | Dimensions | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|
| Twist to unlock clockwise | Black | Black | Plastic | Ø 40 mm | Plastic | 45-2736.1910.000 | 76 |
| | Blue | Black | Plastic | Ø 40 mm | Plastic | 45-2736.1960.000 | 76 |
| | Black | Silver | Metal | Ø 40 mm | Metal | 45-2C36.2910.000 | 76 |
| Twist to release, can be latched after pressing by rotating to the right | Black | Black | Plastic | Ø 29 mm | Plastic | 45-2729.1010.000 | 76 |
| | Red | Black | Plastic | Ø 29 mm | Plastic | 45-2729.1020.000 | 76 |

## Wiring diagrams

Wiring diagram 76

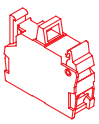
## Emergency stop switch foolproof, EN IEC 60947-5-5, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**



Actuator

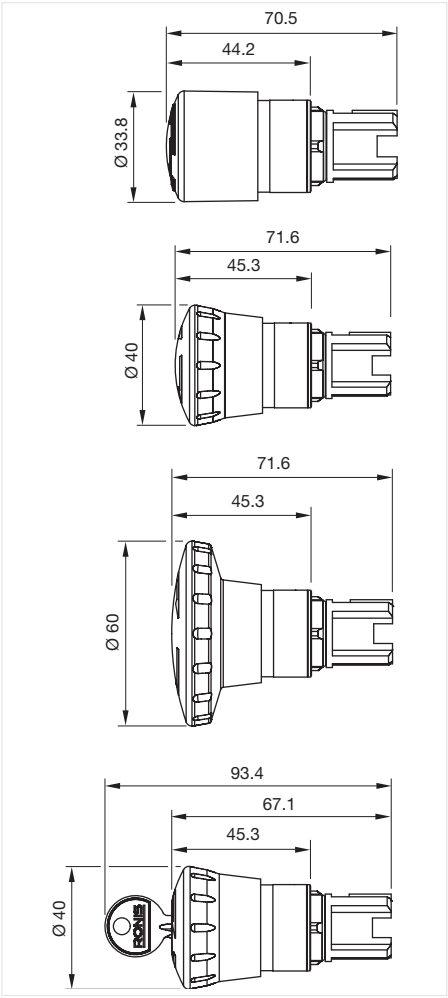
Holder Page 66



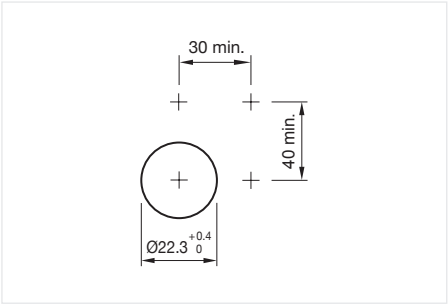
Switching element Page 68

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]




Mounting cut-outs [mm]

Product can differ from the current configuration.

**General information**

- The standard lock: RONIS, T254
- Mounting depth, incl. front plate, see chapter drawings
- Application as per DIN EN ISO 13850

## Actuator

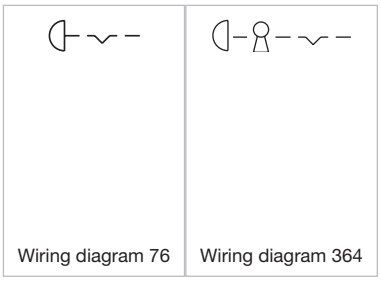
| Product attributes | Lens colour | Front bezel colour | Front bezel material | Dimensi-ons | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|
| Key to releas | Red | Black | Plastic | Ø 40 mm | Yellow | Plastic | 45-2C35.1920.110 | 364 |
| | Red | Silver | Metal | Ø 40 mm | Yellow | Metal | 45-2C35.2920.110 | 364 |
| Pull release | Red | Black | Plastic | Ø 40 mm | Yellow | Plastic | 45-2C37.1920.000 | 76 |
| Twist to unlock clockwi-se | Red | Black | Plastic | Ø 34 mm | Yellow | Plastic | 45-2C36.1820.000 | 76 |
| | Red | Black | Plastic | Ø 40 mm | Yellow | Plastic | 45-2C36.1920.000 | 76 |
| | Red | Black | Plastic | Ø 60 mm | Yellow | Plastic | 45-2C36.1A20.000 | 76 |
| | Red | Silver | Metal | Ø 34 mm | Silver | Metal | 45-2C36.2820.000 | 76 |

# 45 Raised design



| Product attributes | Lens colour | Front bezel colour | Front bezel material | Dimensions | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|
| Twist to unlock clockwise | Red | Silver | Metal | Ø 40 mm | Silver | Metal | 45-2C36.2920.000 | 76 |

## Wiring diagrams



Wiring diagram 76 | Wiring diagram 364

Innovative, intuitive and aesthetic.
*EAO Series 45 ID keylock switches.*

**Ideal for implementing electronic access control systems in industrial environments.**

- Intuitive and ease of use
- Authentication of up to 4 users or groups
- Robust in use
- Modular construction and quick mounting
- Aesthetic design, matching Series 45
- Innovative RFID technology

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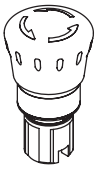
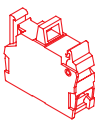
## Illuminated emergency stop switch, foolprof, EN IEC 60947-5-5, IP66, IP67, IP69K

**Equipment consisting of (schematic overview)**

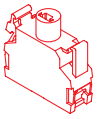


Actuator

Holder Page 66



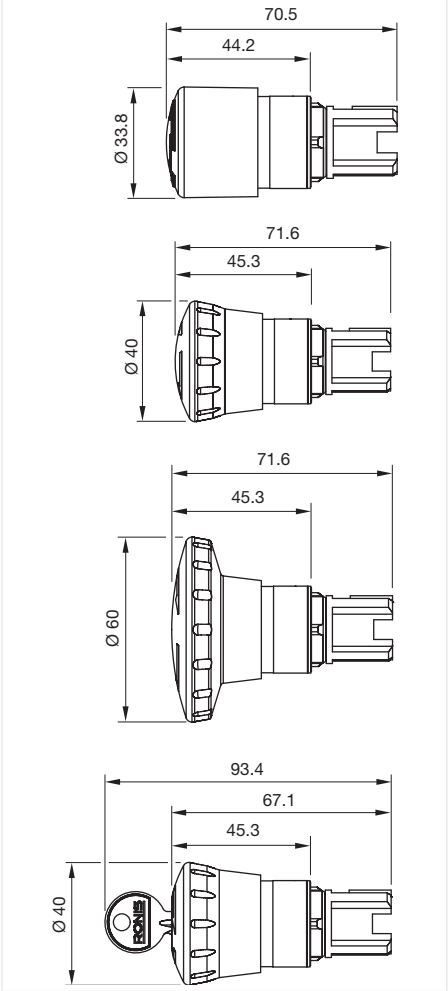
Switching element Page 68



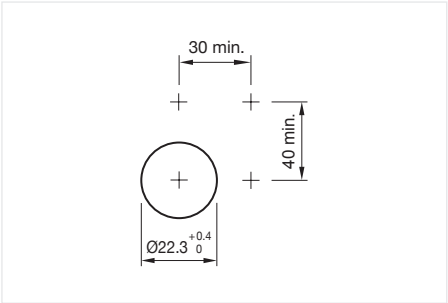
Illumination element Page 75

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]




Mounting cut-outs [mm]

Product can differ from the current configuration.

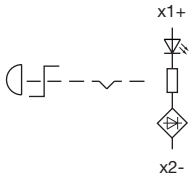
**General information**

- The standard lock: RONIS, T254
- Mounting depth, incl. front plate, see chapter drawings
- Application as per DIN EN ISO 13850

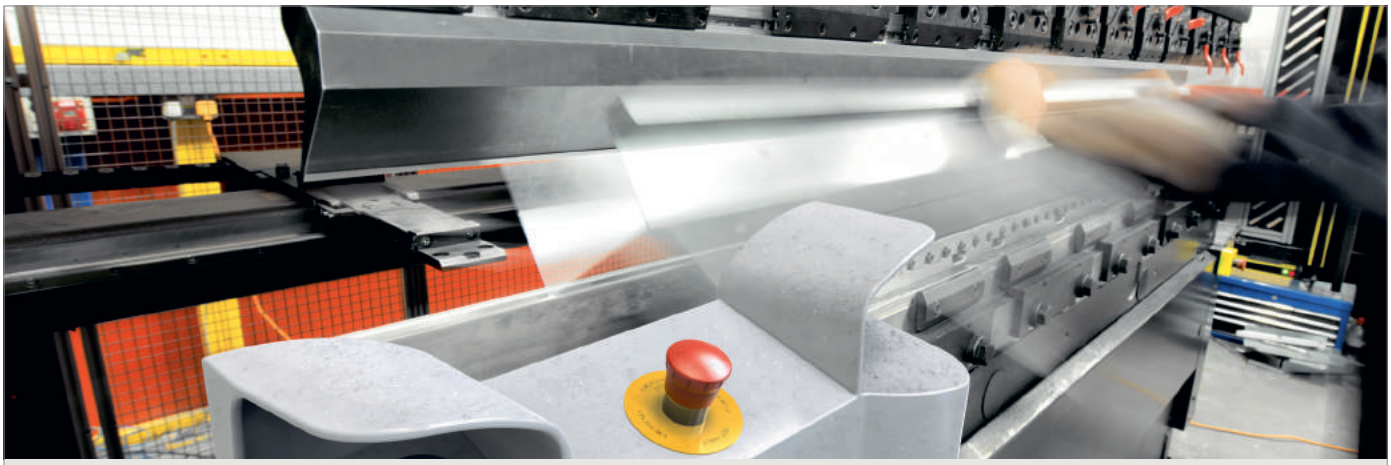
### Actuator

| Product attributes | Lens colour | Front bezel colour | Front bezel material | Dimensions | Housing colour | Housing material | Part No. | Wiring diagram |
|---|---|---|---|---|---|---|---|---|
| Twist to unlock clockwise | Red | Black | Plastic | Ø 34 mm | Yellow | Plastic | 45-2D36.1820.000 | 205 |
| | Red | Black | Plastic | Ø 40 mm | Yellow | Plastic | 45-2D36.1920.000 | 205 |
| | Red | Black | Plastic | Ø 60 mm | Yellow | Plastic | 45-2D36.1A20.000 | 205 |
| | Red | Silver | Metal | Ø 34 mm | Silver | Metal | 45-2D36.2820.000 | 205 |
| | Red | Silver | Metal | Ø 40 mm | Silver | Metal | 45-2D36.2920.000 | 205 |
| | Red | Silver | Metal | Ø 60 mm | Silver | Metal | 45-2D36.2A20.000 | 205 |

## Wiring diagrams




Wiring diagram 205



Rugged and reliable.
*EAO Series 45 mushroom-head pushbuttons.*

**Reliable switching for harsh industrial environments – thanks to a large operating area and IP69K.**

- Large, distinctive operating area
- Easy operation – even with gloves
- Many configuration options
- Optional illumination
- Long service life (up to 10 million switching cycles)
- Rugged in use (IP69K)

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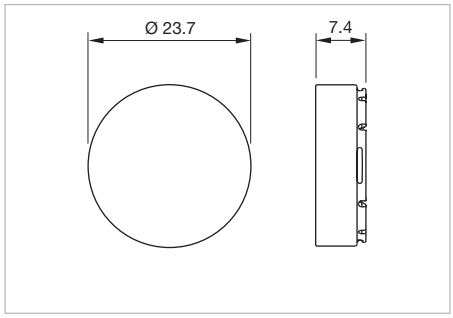
## Lens plastic round encreased

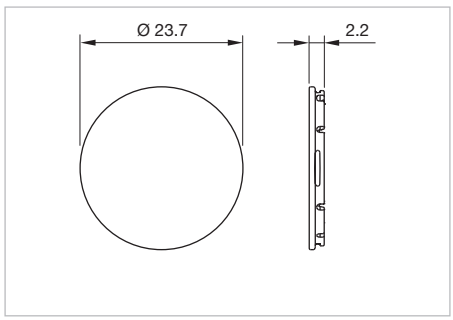
| Lens material | Lens colour | Lens optics | Lens shape | Lens illumination | Dimensions | Part No. |
|---|---|---|---|---|---|---|
| Plastic | Black | opaque | flush | non illuminative | Ø 23.7 mm | 45-552.0100 |
| | Red | opaque | flush | non illuminative | Ø 23.7 mm | 45-552.0200 |
| | Yellow | opaque | flush | non illuminative | Ø 23.7 mm | 45-552.0400 |
| | Green | opaque | flush | non illuminative | Ø 23.7 mm | 45-552.0500 |
| | Red | transparent | flush | illuminative | Ø 23.7 mm | 45-552.0E00 |
| | Yellow | transparent | flush | illuminative | Ø 23.7 mm | 45-552.0G00 |
| | Green | transparent | flush | illuminative | Ø 23.7 mm | 45-552.0H00 |
| | Blue | transparent | flush | illuminative | Ø 23.7 mm | 45-552.0J00 |
| | Colourless | transparent | flush | illuminative | Ø 23.7 mm | 45-552.0K00 |




Dimensions [mm]

## Lens plastic round flat

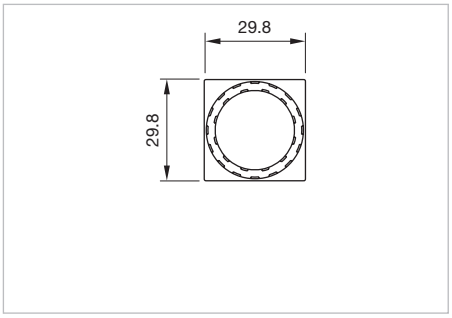
| Lens material | Lens colour | Lens optics | Lens shape | Lens illumination | Dimensions | Part No. |
|---|---|---|---|---|---|---|
| Plastic | Black | opaque | flush | non illuminative | Ø 23.7 mm | 45-553.0100 |
| | Red | opaque | flush | non illuminative | Ø 23.7 mm | 45-553.0200 |
| | Yellow | opaque | flush | non illuminative | Ø 23.7 mm | 45-553.0400 |
| | Green | opaque | flush | non illuminative | Ø 23.7 mm | 45-553.0500 |
| | Blue | opaque | flush | non illuminative | Ø 23.7 mm | 45-553.0600 |
| | White | opaque | flush | non illuminative | Ø 23.7 mm | 45-553.0900 |
| | Red | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0E00 |
| | Amber | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0F00 |
| | Yellow | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0G00 |
| | Green | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0H00 |
| | Blue | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0J00 |
| | White | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0K00 |
| | Colourless | transparent | flush | illuminative | Ø 23.7 mm | 45-553.0N00 |




Dimensions [mm]

## Single frame

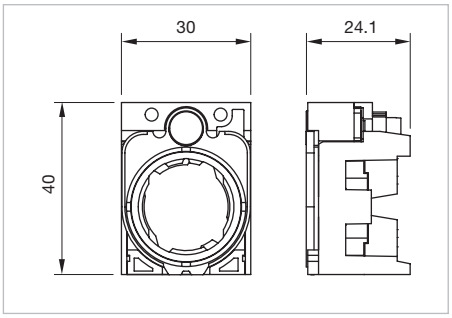
| Product attributes | Material | Colour | Dimensions | Part No. |
|---|---|---|---|---|
| For design square | Plastic | Black | 29,8 mm x 29,8 mm | 45-558.0000 |




Dimensions [mm]

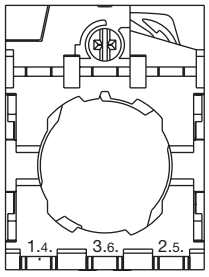
## Holder for 3 elements

| Material | Part No. | Compo-nent Layout |
|---|---|---|
| Plastic | 45-2300.1000.000 | 23 |
| Metal | 45-2300.2000.000 | 23 |




Dimensions [mm]

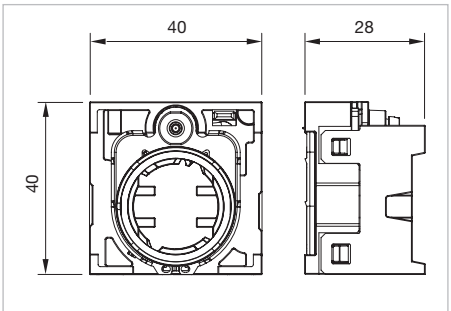
## Component layouts




Component layout 23

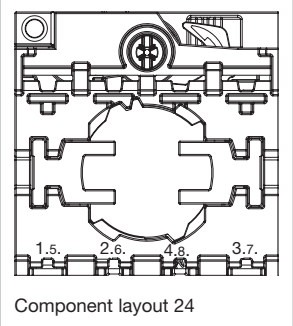
## Holder for 4 elements

| Product attributes | Material | Part No. | Compo-nent Layout |
|---|---|---|---|
| for selector switch 4 positions and toggle stick | Plastic | 45-2400.1000.000 | 24 |
| | Metal | 45-2400.2000.000 | 24 |




Dimensions [mm]

## Component layouts

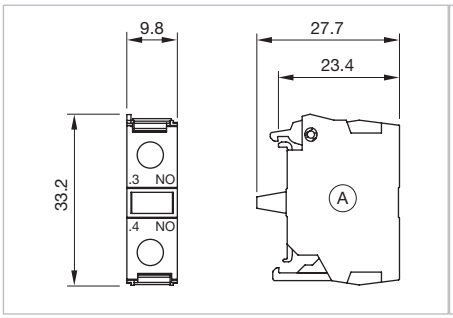



Component layout 24

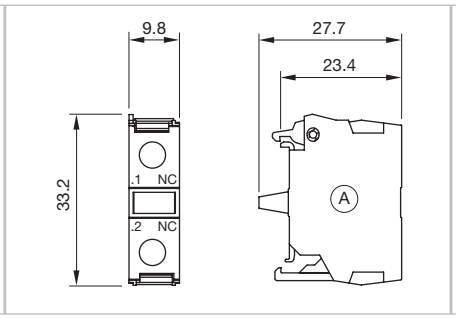
## Slow-make switching switching element front mounting with screw terminal

| Switching current | Contacts | Contact material | Terminal | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| 10 A | 1 NO | Silver | Screw terminal | 45-311.1Z10 | 227 |
| | 1 NC | Silver | Screw terminal | 45-312.1Z10 | 228 |
| | 2 NO | Silver | Screw terminal | 45-313.1Z10 | 231 |
| | 2 NC | Silver | Screw terminal | 45-314.1Z10 | 234 |
| | 1 NC / 1 NO | Silver | Screw terminal | 45-315.1Z10 | 235 |
| | 1 NO | Gold | Screw terminal | 45-311.1X10 | 227 |
| | 1 NC | Gold | Screw terminal | 45-312.1X10 | 228 |
| | 1 NC / 1 FS | Gold | Screw terminal | 45-316.1X10 | 233 |

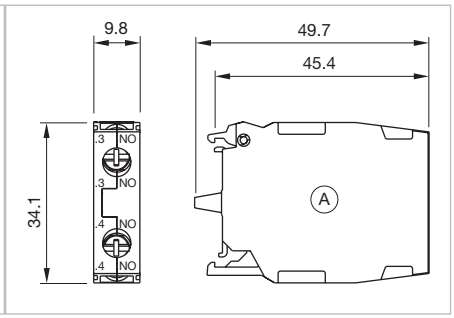
Contacts: NC = Normally closed, NO = Normally open



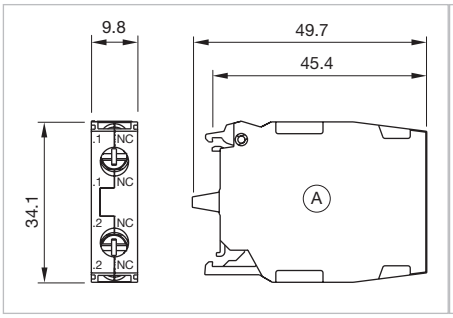

Dimensions [mm]
A = Screw terminal
for Part No. 45-311.1Z10, 45-311.1X10



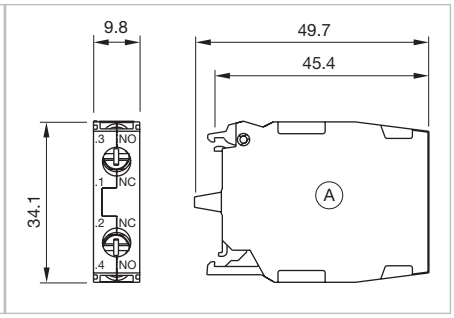

Dimensions [mm]
A = Screw terminal
for Part No. 45-312.1Z10, 45-312.1X10



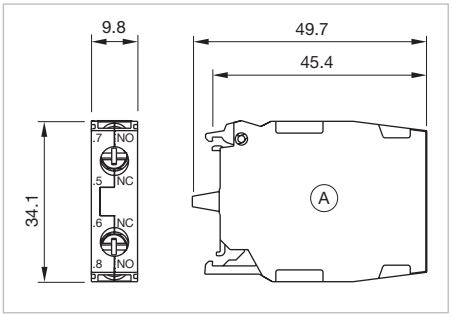

Dimensions [mm]
A = Screw terminal
for Part No. 45-313.1Z10




Dimensions [mm]
A = Screw terminal
for Part No. 45-314.1Z10



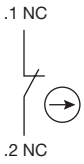

Dimensions [mm]
A = Screw terminal
for Part No. 45-315.1Z10



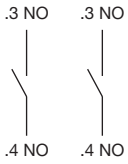

Dimensions [mm]
<TEXT><P>A = Screw terminal><P>for Part No. 45-316.1X10</P></TEXT>

## Wiring diagrams

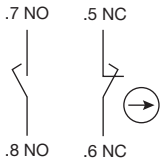
Wiring diagram 227



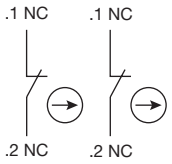
Wiring diagram 228



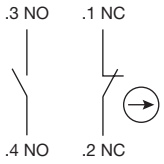
Wiring diagram 231



Wiring diagram 233



Wiring diagram 234



Wiring diagram 235

Innovative and comprehensive.
*EAO's new Series 45.*

**Modular, aesthetic and robust for every conceivable HMI function of machine operating.**

- Comprehensive and modular Series
- Rugged in use (up to IP69K)
- Easy to assemble and use
- Modern design with many options
- Value added services
- Long service life (up to 10 milion switching cycles, depending on function)

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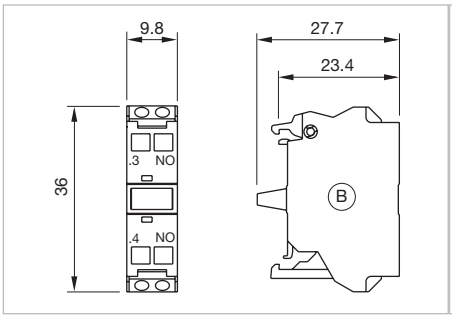
Your Expert Partner for **Human Machine Interfaces**

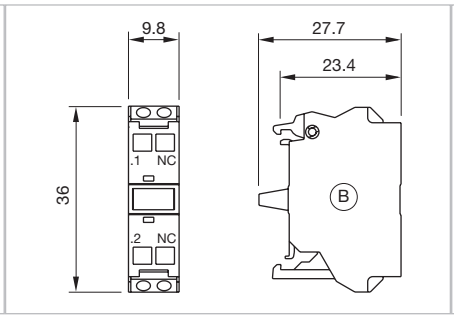
## Slow-make switching switching element front mounting with spring-type terminal

| Switching current | Contacts | Contact material | Terminal | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| 10 A | 1 NO | Silver | Spring-type terminal | 45-311.1Z40 | 227 |
| | 1 NC | Silver | Spring-type terminal | 45-312.1Z40 | 228 |
| | 2 NO | Silver | Spring-type terminal | 45-313.1Z40 | 231 |
| | 2 NC | Silver | Spring-type terminal | 45-314.1Z40 | 234 |
| | 1 NC / 1 NO | Silver | Spring-type terminal | 45-315.1Z40 | 235 |
| | 1 NC / 1 FS | Silver | Spring-type terminal | 45-316.1Z40 | 233 |
| | 1 NC | Silver | Spring-type terminal | 45-317.1Z40 | 232 |
| | 1 NO | Gold | Spring-type terminal | 45-311.1X40 | 227 |
| | 1 NC | Gold | Spring-type terminal | 45-312.1X40 | 228 |
| | 2 NO | Gold | Spring-type terminal | 45-313.1X40 | 231 |
| | 2 NC | Gold | Spring-type terminal | 45-314.1X40 | 234 |
| | 1 NC / 1 NO | Gold | Spring-type terminal | 45-315.1X40 | 235 |
| | 1 NC / 1 FS | Gold | Spring-type terminal | 45-316.1X40 | 233 |

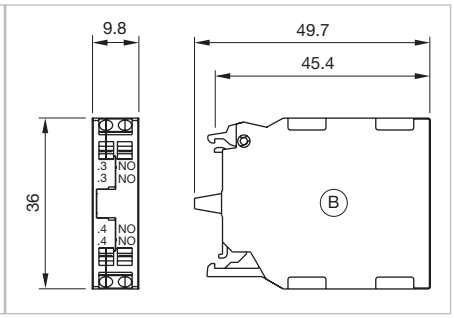
Contacts: NC = Normally closed, NO = Normally open



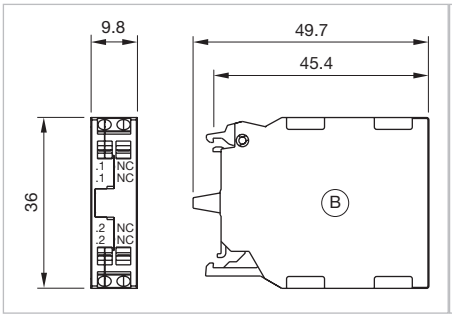

Dimensions [mm]
B = Spring-type terminal
for Part No. 45-311.1Z40, 45-311.1X40



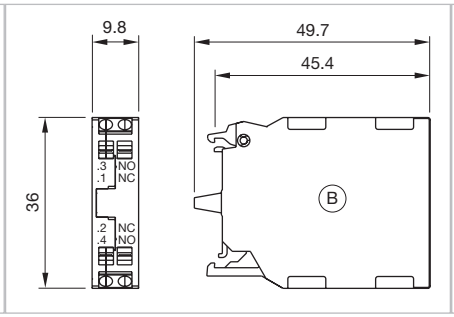

Dimensions [mm]
B = Spring-type terminal
for Part No. 45-312.1Z40, 45-312.1X40



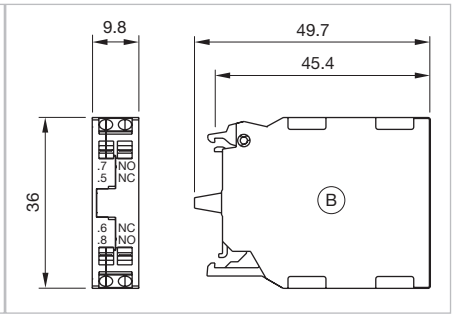

Dimensions [mm]
B = Spring-type terminal
for Part No. 45-313.1Z40, 45-313.1X40



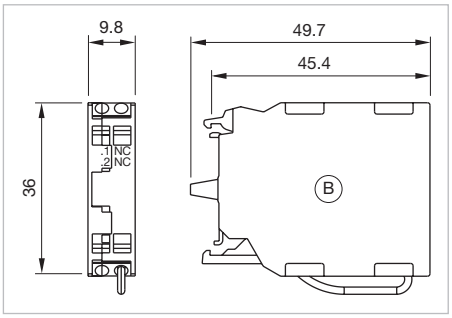

Dimensions [mm]
B = Spring-type terminal
for Part No. 45-314.1Z40, 45-314.1X40




Dimensions [mm]
B = Spring-type terminal
for Part No. 45-315.1Z40, 45-315.1X40

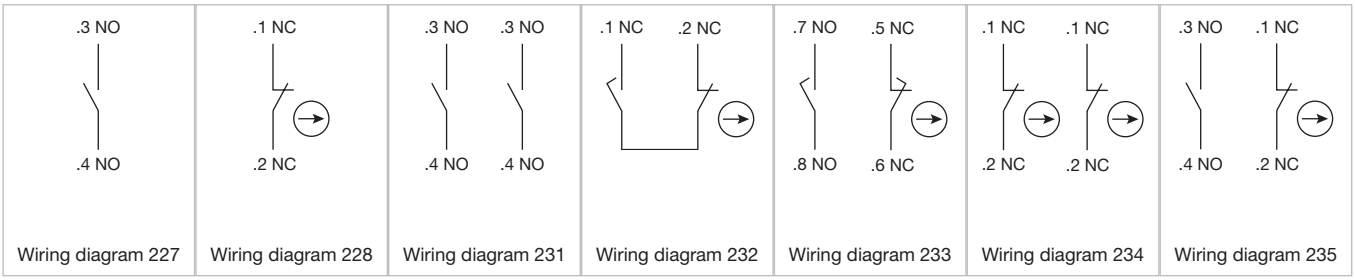



Dimensions [mm]
B = Spring-type terminal
for Part No. 45-316.1Z40, 45-316.1X40




Dimensions [mm]
B = Spring-type terminal
for Part No. 45-317.1Z40

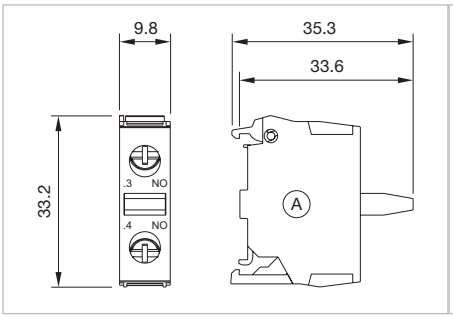
## Wiring diagrams



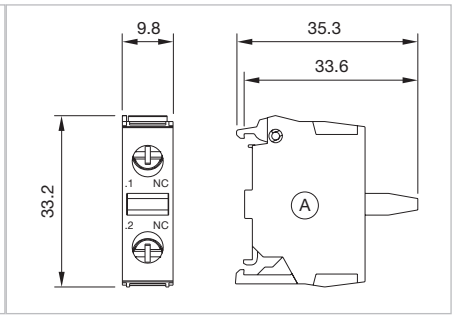
### Slow-make switching switching element base mounting with screw terminal

| Switching current | Contacts | Contact material | Terminal | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| 10 A | 1 NO | Silver | Screw terminal | 45-311.2Z10 | 227 |
| | 1 NC | Silver | Screw terminal | 45-312.2Z10 | 228 |

Contacts: NC = Normally closed, NO = Normally open

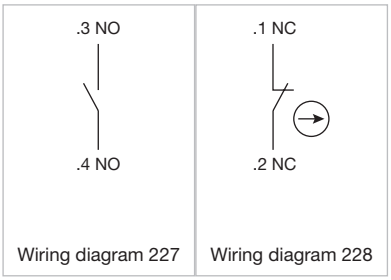



Dimensions [mm]
A = Screw terminal
for Part No. 45-311.2Z10




Dimensions [mm]
A = Screw terminal
for Part No. 45-312.2Z10

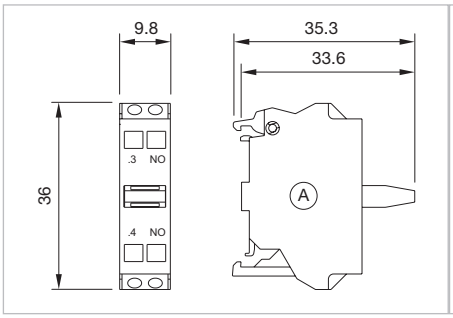
## Wiring diagrams



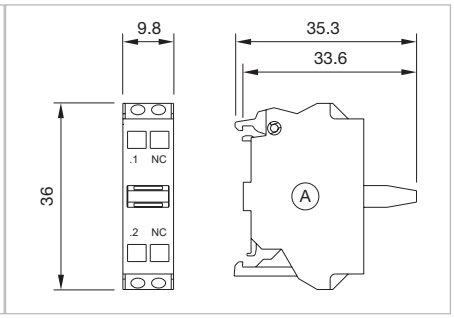
## Slow-make switching switching element base mounting with spring-type terminal

| Switching current | Contacts | Contact material | Terminal | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| 10 A | 1 NO | Silver | Spring-type terminal | 45-311.2Z40 | 227 |
| | 1 NC | Silver | Spring-type terminal | 45-312.2Z40 | 228 |

Contacts: NC = Normally closed, NO = Normally open

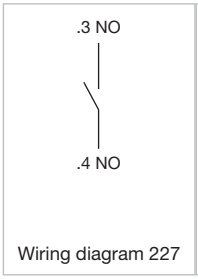



Dimensions [mm]
B = Spring-type terminal
for Part No. 45-311.2Z40

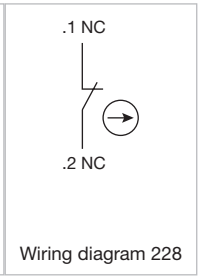



Dimensions [mm]
B = Spring-type terminal
for Part No. 45-312.2Z40

## Wiring diagrams




Wiring diagram 227

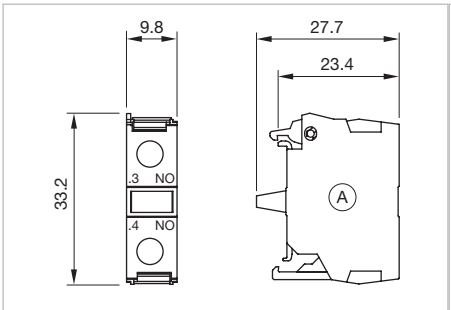



Wiring diagram 228

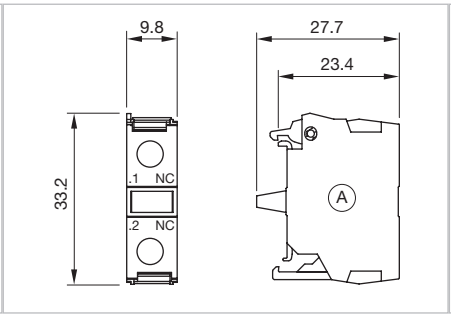
## Slow-make switching switching element front mounting with screw terminal

| Switching current | Contacts | Contact material | Terminal | Part No. | Wiring diagram |
|---|---|---|---|---|---|
| 10 A | 1 NO | Silver | Screw terminal | 45-311.1Z10 | 227 |
| | 1 NC | Silver | Screw terminal | 45-312.1Z10 | 228 |
| | 2 NO | Silver | Screw terminal | 45-313.1Z10 | 231 |
| | 2 NC | Silver | Screw terminal | 45-314.1Z10 | 234 |
| | 1 NC / 1 NO | Silver | Screw terminal | 45-315.1Z10 | 235 |
| | 1 NO | Gold | Screw terminal | 45-311.1X10 | 227 |
| | 1 NC | Gold | Screw terminal | 45-312.1X10 | 228 |
| | 1 NC / 1 FS | Gold | Screw terminal | 45-316.1X10 | 233 |

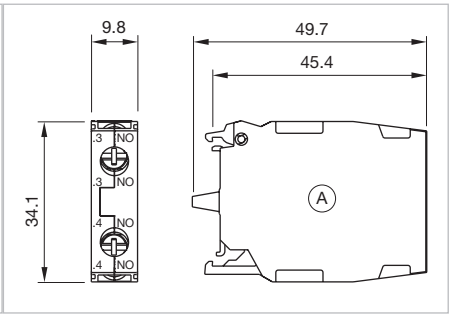
Contacts: NC = Normally closed, NO = Normally open



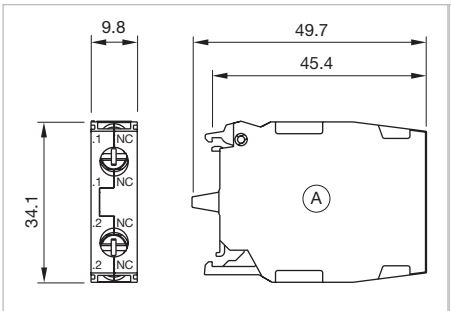

Dimensions [mm]
A = Screw terminal
for Part No. 45-311.1Z10, 45-311.1X10



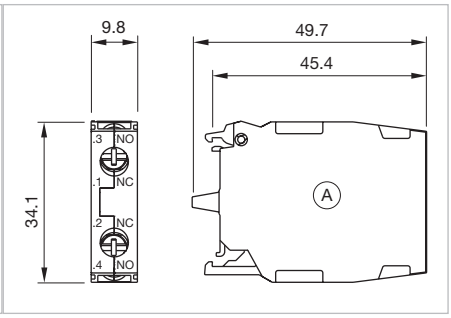

Dimensions [mm]
A = Screw terminal
for Part No. 45-312.1Z10, 45-312.1X10



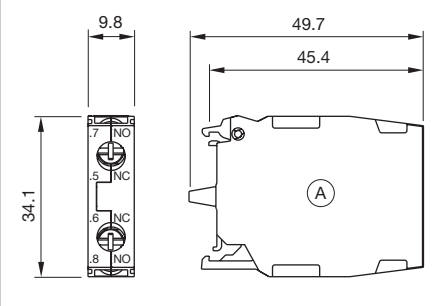

Dimensions [mm]
A = Screw terminal
for Part No. 45-313.1Z10




Dimensions [mm]
A = Screw terminal
for Part No. 45-314.1Z10

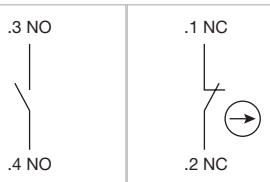



Dimensions [mm]
A = Screw terminal
for Part No. 45-315.1Z10




Dimensions [mm]
<TEXT><P>A = Screw terminal><P>for Part No. 45-316.1X10</P></TEXT>

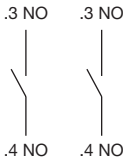
## Wiring diagrams



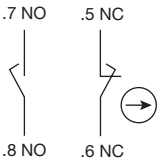

Wiring diagram 227



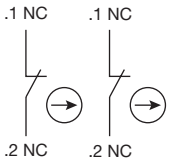

Wiring diagram 228



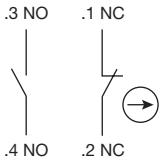

Wiring diagram 231




Wiring diagram 233



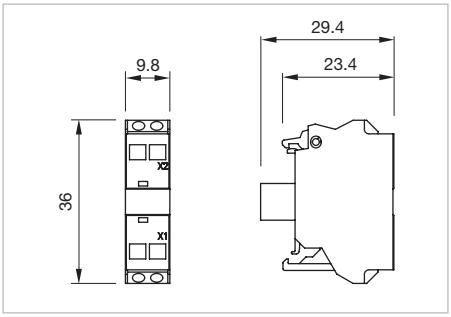

Wiring diagram 234




Wiring diagram 235

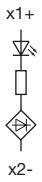
## Illumination element front mounting with spring-type terminal

| Operating voltage | Illuminative colour | Part No. | Wiring diagram |
|---|---|---|---|
| 6 - 24 V AC/DC | Red | 45-320.1E41 | 229 |
| | Amber | 45-320.1F41 | 229 |
| | Yellow | 45-320.1G41 | 229 |
| | Green | 45-320.1H41 | 229 |
| | Blue | 45-320.1J41 | 229 |
| | White | 45-320.1N41 | 229 |
| 24 - 240 V AC/DC | Red | 45-320.1E42 | 229 |
| | Amber | 45-320.1F42 | 229 |
| | Yellow | 45-320.1G42 | 229 |
| | Green | 45-320.1H42 | 229 |
| | Blue | 45-320.1J42 | 229 |
| | White | 45-320.1N42 | 229 |
| 24 V AC/DC | Red | 45-320.1E46 | 229 |
| | Amber | 45-320.1F46 | 229 |
| | Yellow | 45-320.1G46 | 229 |
| | Green | 45-320.1H46 | 229 |
| | Blue | 45-320.1J46 | 229 |
| | White | 45-320.1N46 | 229 |
| 110 V AC/DC | Red | 45-320.1E47 | 229 |
| | Amber | 45-320.1F47 | 229 |
| | Yellow | 45-320.1G47 | 229 |
| | Green | 45-320.1H47 | 229 |
| | Blue | 45-320.1J47 | 229 |
| | White | 45-320.1N47 | 229 |
| 230 V AC/DC | Red | 45-320.1E48 | 229 |
| | Amber | 45-320.1F48 | 229 |
| | Yellow | 45-320.1G48 | 229 |
| | Green | 45-320.1H48 | 229 |
| | Blue | 45-320.1J48 | 229 |
| | White | 45-320.1N48 | 229 |




Dimensions [mm]

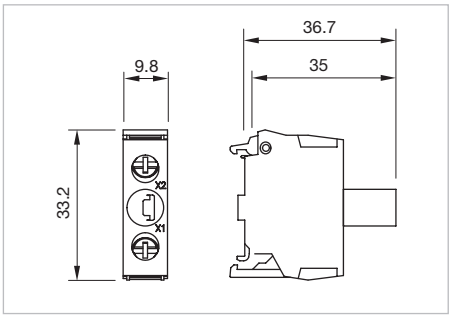
## Wiring diagrams




Wiring diagram 229

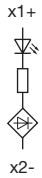
## Illumination element base mounting with screw terminal

| Operating voltage | Illuminative colour | Part No. | Wiring diagram |
|---|---|---|---|
| 6 - 24 V AC/DC | Red | 45-320.2E11 | 229 |
| | Amber | 45-320.2F11 | 229 |
| | Yellow | 45-320.2G11 | 229 |
| | Green | 45-320.2H11 | 229 |
| | Blue | 45-320.2J11 | 229 |
| | White | 45-320.2N11 | 229 |
| 24 - 240 V AC/DC | Red | 45-320.2E12 | 229 |
| | Amber | 45-320.2F12 | 229 |
| | Yellow | 45-320.2G12 | 229 |
| | Green | 45-320.2H12 | 229 |
| | Blue | 45-320.2J12 | 229 |
| | White | 45-320.2N12 | 229 |
| 24 V AC/DC | Red | 45-320.2E16 | 229 |
| | Amber | 45-320.2F16 | 229 |
| | Yellow | 45-320.2G16 | 229 |
| | Green | 45-320.2H16 | 229 |
| | Blue | 45-320.2J16 | 229 |
| | White | 45-320.2N16 | 229 |
| 110 V AC/DC | Red | 45-320.2E17 | 229 |
| | Amber | 45-320.2F17 | 229 |
| | Yellow | 45-320.2G17 | 229 |
| | Green | 45-320.2H17 | 229 |
| | Blue | 45-320.2J17 | 229 |
| | White | 45-320.2N17 | 229 |
| 230 V AC/DC | Red | 45-320.2E18 | 229 |
| | Amber | 45-320.2F18 | 229 |
| | Yellow | 45-320.2G18 | 229 |
| | Green | 45-320.2H18 | 229 |
| | Blue | 45-320.2J18 | 229 |
| | White | 45-320.2N18 | 229 |




Dimensions [mm]

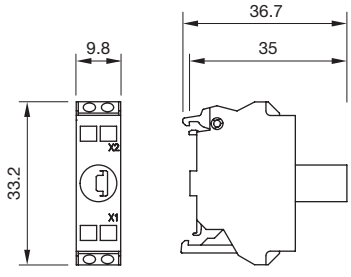
## Wiring diagrams




Wiring diagram 229

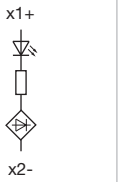
## Illumination element base mounting with spring-type terminal

| Operating voltage | Illuminative colour | Part No. | Wiring diagram |
|---|---|---|---|
| 6 - 24 V AC/DC | Red | 45-320.2E41 | 229 |
| | Amber | 45-320.2F41 | 229 |
| | Yellow | 45-320.2G41 | 229 |
| | Green | 45-320.2H41 | 229 |
| | Blue | 45-320.2J41 | 229 |
| | White | 45-320.2N41 | 229 |
| 24 - 240 V AC/DC | Red | 45-320.2E42 | 229 |
| | Amber | 45-320.2F42 | 229 |
| | Yellow | 45-320.2G42 | 229 |
| | Green | 45-320.2H42 | 229 |
| | Blue | 45-320.2J42 | 229 |
| | White | 45-320.2N42 | 229 |
| 24 V AC/DC | Red | 45-320.2E46 | 229 |
| | Amber | 45-320.2F46 | 229 |
| | Yellow | 45-320.2G46 | 229 |
| | Green | 45-320.2H46 | 229 |
| | Blue | 45-320.2J46 | 229 |
| | White | 45-320.2N46 | 229 |
| 110 V AC/DC | Red | 45-320.2E47 | 229 |
| | Amber | 45-320.2F47 | 229 |
| | Yellow | 45-320.2G47 | 229 |
| | Green | 45-320.2H47 | 229 |
| | Blue | 45-320.2J47 | 229 |
| | White | 45-320.2N47 | 229 |
| 230 V AC/DC | Red | 45-320.2E48 | 229 |
| | Amber | 45-320.2F48 | 229 |
| | Yellow | 45-320.2G48 | 229 |
| | Green | 45-320.2H48 | 229 |
| | Blue | 45-320.2J48 | 229 |
| | White | 45-320.2N48 | 229 |




Dimensions [mm]

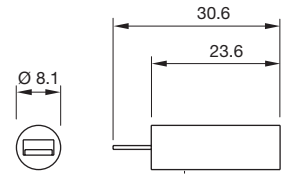
## Wiring diagrams




Wiring diagram 229

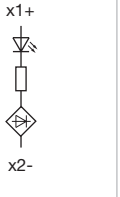
## Illumination element PCB mounting

| Operating voltage | Illuminative colour | Part No. | Wiring diagram |
|---|---|---|---|
| 5 V AC/DC | Red | 45-320.3E60 | 229 |
| | Amber | 45-320.3F60 | 229 |
| | Yellow | 45-320.3G60 | 229 |
| | Green | 45-320.3H60 | 229 |
| | Blue | 45-320.3J60 | 229 |
| | White | 45-320.3N60 | 229 |




Dimensions [mm]

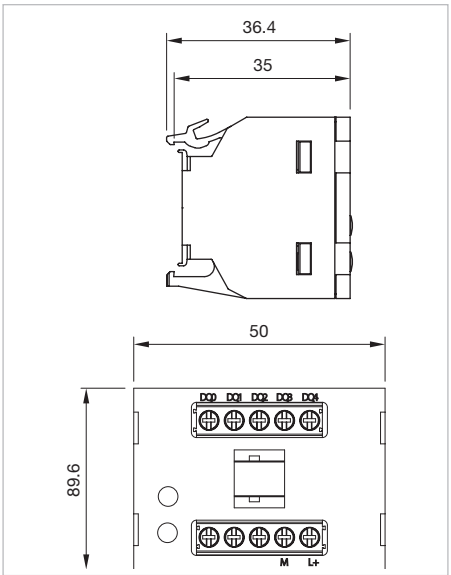
## Wiring diagrams




Wiring diagram 229

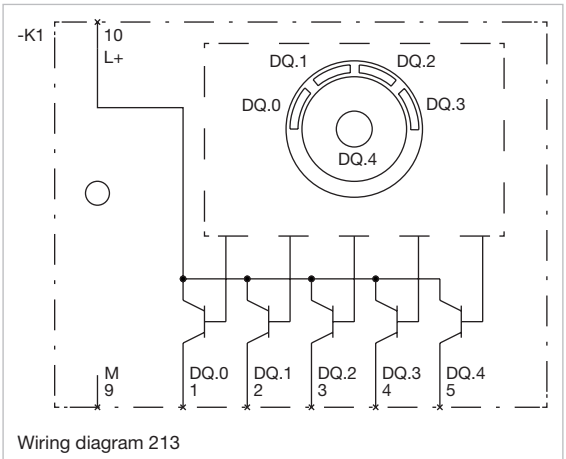
## Electronic module

| Product attributes | Operating voltage | Terminal | Part No. | Wiring diagram | Component Layout |
|---|---|---|---|---|---|
| Front mounting | 24 V DC | Screw terminal | 45-36F.1114 | 213 | 26 |



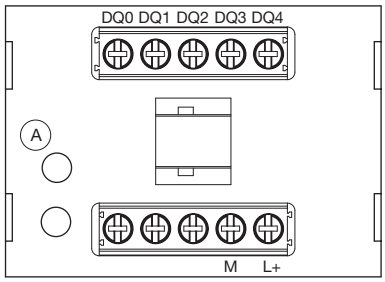

Dimensions [mm]

## Wiring diagrams




Wiring diagram 213

## Component layouts




Component layout 26

A = Device

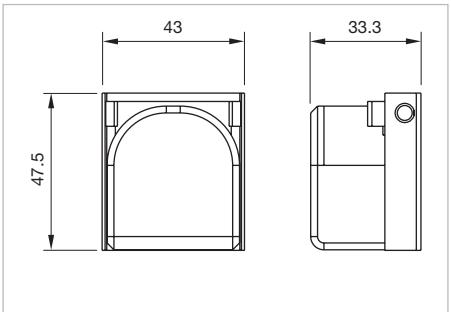
## ID-Key

| Product attributes | Colour | Part No. |
|---|---|---|
| Design of the RFID coding: Step 1 | Green | 45-50T.0500 |
| Design of the RFID coding: Step 1+2 | Yellow | 45-50V.0400 |
| Design of the RFID coding: Step 1+2+3 | Red | 45-50W.0200 |
| Design of the RFID coding: Step 1+2+3+4 | Blue | 45-574.0600 |

## Front side

### Cover for locking device

| Product attributes | Material | Colour | Optics | IP Protection | Part No. |
|---|---|---|---|---|---|
| For pushbuttons, selector switches with round or short lever | Metal / plastic | Colourless | transparent | IP66, IP67, IP69K | 45-529.2100 |




Dimensions [mm]

eao

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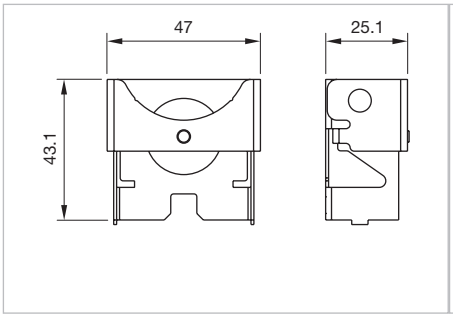
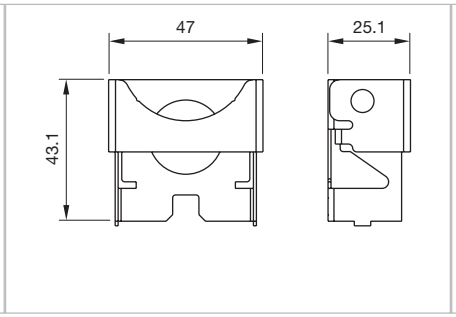
## Locking device

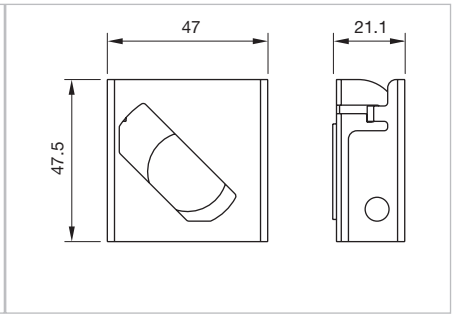
| Product attributes | Dimensions | Material | Colour | Part No. |
|---|---|---|---|---|
| For pushbutton with lens raised | 47 mm x 25.1 mm x 43.1 mm | Metal | Silver | 45-531.2100 |
| For pushbutton with lens flat | 47 mm x 25.1 mm x 43.1 mm | Metal | Silver | 45-532.2100 |
| For mushroom-head pushbutton Ø 30 mm or Ø 40 mm | 47 mm x 25.1 mm x 43.1 mm | Metal | Silver | 45-530.2100 |
| For selector switch in position left | 47 mm x 21.1 mm x 47.1 mm | Metal | Silver | 45-534.2100 |
| For selector switch in position center | 47 mm x 21.1 mm x 47.1 mm | Metal | Silver | 45-533.2100 |
| For selector switch in position right | 47 mm x 21.1 mm x 47.1 mm | Metal | Silver | 45-536.2100 |
| For selector switch in position center and right | 47 mm x 21.1 mm x 47.1 mm | Metal | Silver | 45-535.2100 |
| For selector switch in position center and left | 47 mm x 21.1 mm x 47.1 mm | Metal | Silver | 45-537.2100 |



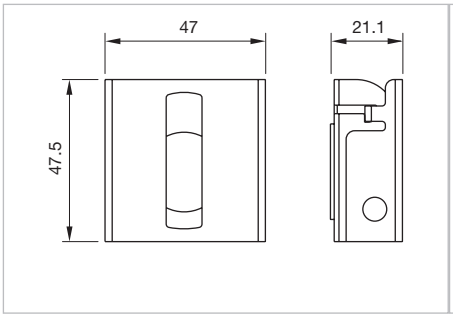

Dimensions [mm]
for Part No. 45-531.2100



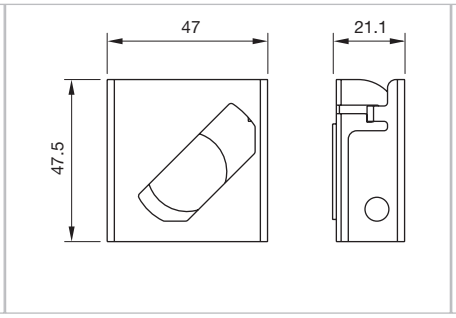

Dimensions [mm]
for Part No. 45-532.2100, 45-530.2100



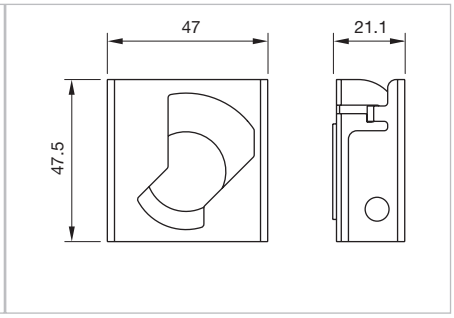

Dimensions [mm]
for Part No. 45-534.2100



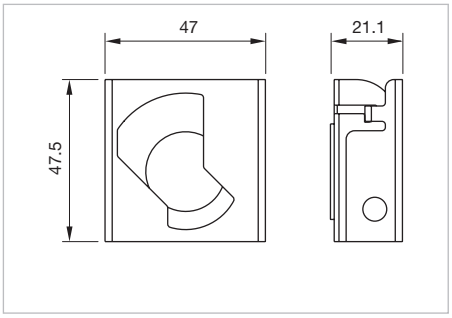

Dimensions [mm]
for Part No. 45-533.2100




Dimensions [mm]
for Part No. 45-536.2100



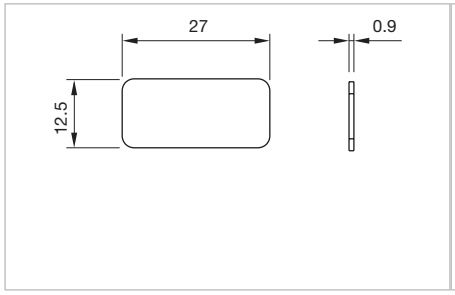

Dimensions [mm]
for Part No. 45-535.2100



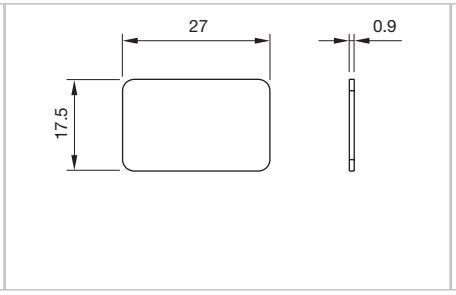

Dimensions [mm]
for Part No. 45-537.2100

## Legend plate

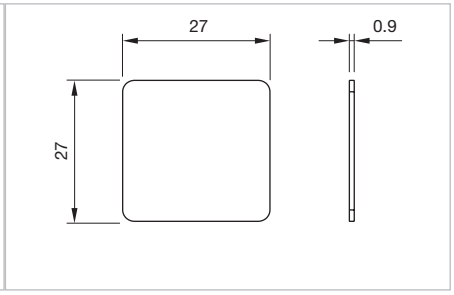
| Product attributes | Dimensions | Material | Colour | Mounting type | Part No. |
|---|---|---|---|---|---|
| Not to use with emergency stop switch | 27 mm x 12.5 mm | Plastic | Black | adhesive | 45-573.1102 |
| | 27 mm x 12.5 mm | Plastic | Red | adhesive | 45-573.1202 |
| | 27 mm x 12.5 mm | Plastic | Silver | adhesive | 45-573.1A02 |
| | 27 mm x 17.5 mm | Plastic | Black | adhesive | 45-573.1103 |
| | 27 mm x 17.5 mm | Plastic | Silver | adhesive | 45-573.1A03 |
| | 27 mm x 27 mm | Plastic | Black | adhesive | 45-573.1105 |
| | 27 mm x 27 mm | Plastic | Silver | adhesive | 45-573.1A05 |
| | 22 mm x 22 mm | Plastic | Silver | adhesive | 45-573.1A04 |
| | 22 mm x 22 mm | Plastic | Black | adhesive | 45-573.1104 |



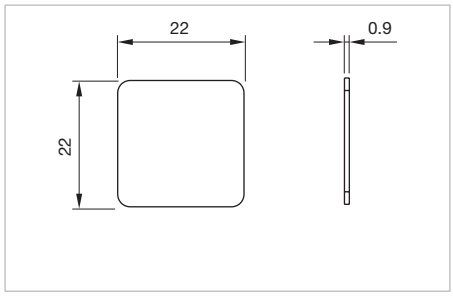

Dimensions [mm]
for Part No. 45-573.1102, 45-573.1202, 45-573.1A02




Dimensions [mm]
for Part No. 45-573.1103, 45-573.1A03




Dimensions [mm]
for Part No. 45-573.1105, 45-573.1A05




Dimensions [mm]
for Part No. 45-573.1A04, 45-573.1104

## Emergency stop legend

| Dimensions | Material | Colour | Mounting type | Marking | Part No. |
|---|---|---|---|---|---|
| Ø 45 mm | Plastic | Yellow | | without marking | 45-50K.1407 |
| Ø 75 mm | Plastic | Yellow | | without marking | 45-50K.1408 |
| | Plastic | Yellow | adhesive | without marking | 45-50J.1400 |
| | Plastic | Yellow | adhesive | NOT - HALT | 45-50J.140Q |
| | Plastic | Yellow | adhesive | EMERGENCY STOP | 45-50J.140S |
| | Plastic | Yellow | adhesive | NOT - AUS | 45-50J.140P |
| | Plastic | Yellow | adhesive | ARRET D'URGENCE | 45-50J.140T |
| | Plastic | Yellow | adhesive | EMERGENZA | 45-50J.140V |
| | Plastic | Yellow | adhesive | NODSTOP | 45-50J.140W |
| | Plastic | Yellow | adhesive | 紧急停止 | 45-50J.140X |
| | Plastic | Yellow | adhesive | NOT-HALT EMERGENCY STOP EMERGENZA EMERGENCIA | 45-50J.140Z |
| 150 mm x 38 mm | Plastic | Yellow | adhesive | without marking | 45-561.1400 |
| | Plastic | Yellow | adhesive | NOT - AUS | 45-561.140P |
| | Plastic | Yellow | adhesive | without marking, with recess | 45-562.1400 |

**Additional information**

- Front panel thickness 3 mm max.

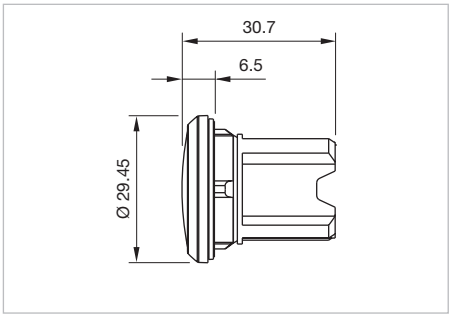
# 45 Accessories

## Legend plate for potentiometer

| Dimensions | Material | Colour | Part No. |
|---|---|---|---|
| Ø 40 mm | Plastic | Black | 45-538.1100 |

## Blind plug

| Material | Colour | Part No. |
|---|---|---|
| Plastic | Black | 45-506.1100 |
| Metal | Sand grey | 45-506.3A00 |
| | Silver | 45-506.2A00 |




Dimensions [mm]

## Spare key

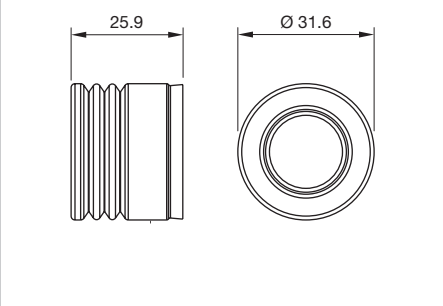
| Product attributes | Part No. |
|---|---|
| 2 spare keys | 45-522.0900 |

**Additional information**

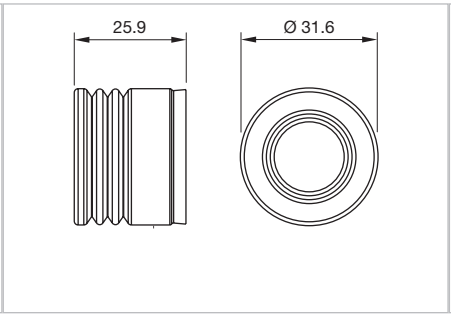
- For standard lock RONIS T254

## Protective cap

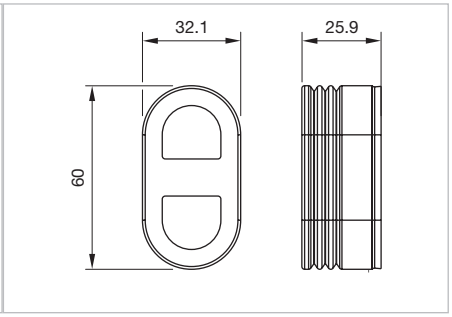
| Product attributes | Material | Colour | Optics | Part No. |
|---|---|---|---|---|
| For lens raised above bezel | Silicone | Colourless | transparent | 45-544.1K00 |
| For lens flush | Silicone | Colourless | transparent | 45-545.1K00 |
| For lens raised above bezel | Silicone | Colourless | transparent | 45-547.1K00 |
| For lens flush | Silicone | Colourless | transparent | 45-548.1K00 |
| For lens raised above bezel | Silicone | Colourless | transparent | 45-542.1K00 |
| For Mushroom-head pushbutton Ø 40 mm | Silicone | Colourless | transparent | 45-543.1K00 |
| For lever switch, short lever | Silicone | Colourless | transparent | 45-546.1K00 |
| For keylock switch | Silicone | Colourless | transparent | 45-50F.1100 |



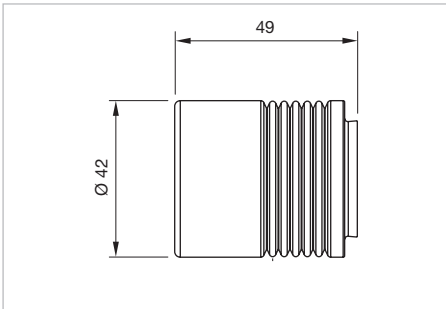

Dimensions [mm]
for Part No. 45-544.1K00



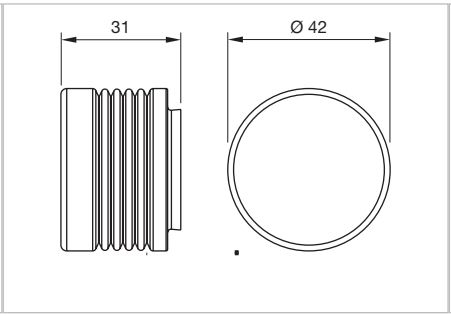

Dimensions [mm]
for Part No. 45-545.1K00



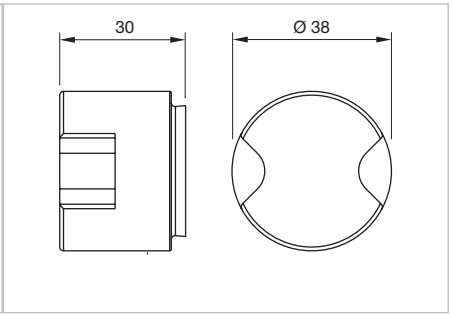

Dimensions [mm]
for Part No. 45-547.1K00, 45-548.1K00



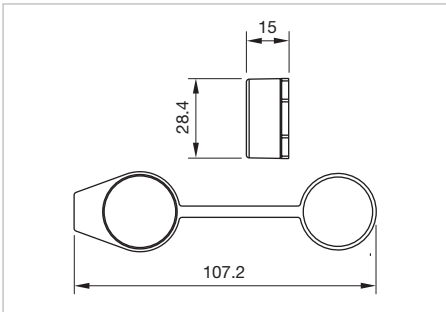

Dimensions [mm]
for Part No. 45-542.1K00




Dimensions [mm]
for Part No. 45-543.1K00



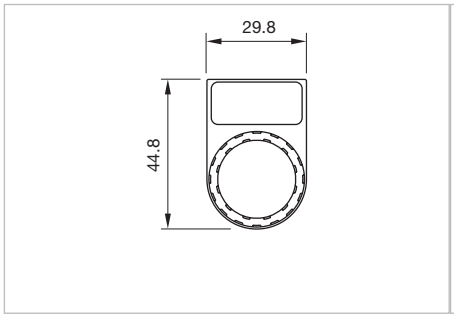

Dimensions [mm]
for Part No. 45-546.1K00



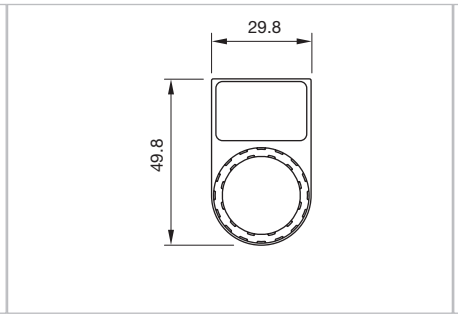

Dimensions [mm]
for Part No. 45-50F.1100

## Legend support without legend

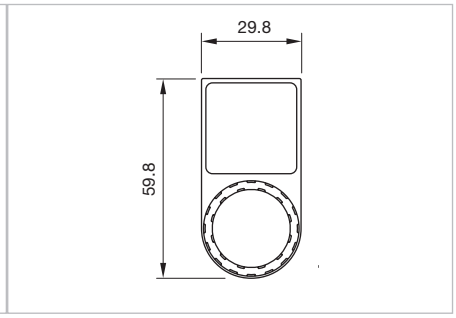
| Product attributes | Material | Colour | Mounting type | Part No. |
|---|---|---|---|---|
| For legend 27 mm x 12.5 mm | Plastic | Black | For sticking or snapping in place | 45-564.1102 |
| | Plastic | Black | For sticking or snapping in place | 45-567.1103 |
| For legend 27 mm x 27 mm | Plastic | Black | For sticking or snapping in place | 45-569.1105 |
| | Plastic | Black | For sticking or snapping in place | 45-570.1105 |
| For legend 27 mm x 12.5 mm | Plastic | Black | For sticking or snapping in place | 45-564.1110 |
| For legend 27 mm x 17.5 mm | Plastic | Black | For sticking or snapping in place | 45-567.1111 |
| For legend 27 mm x 27 mm | Plastic | Black | For sticking or snapping in place | 45-569.1112 |



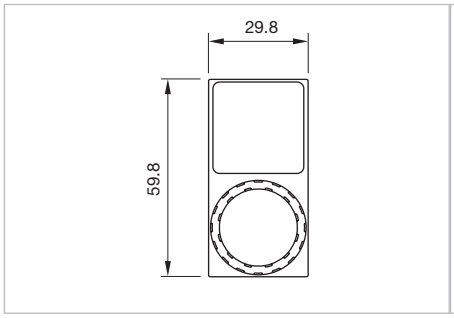

Dimensions [mm]
for Part No. 45-564.1102



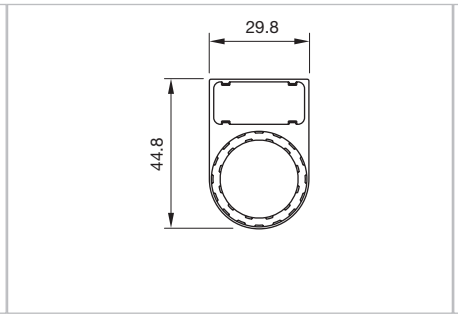

Dimensions [mm]
for Part No. 45-567.1103



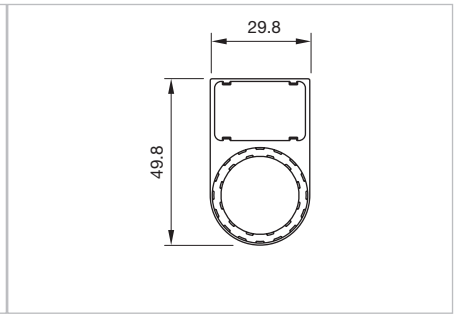

Dimensions [mm]
for Part No. 45-569.1105



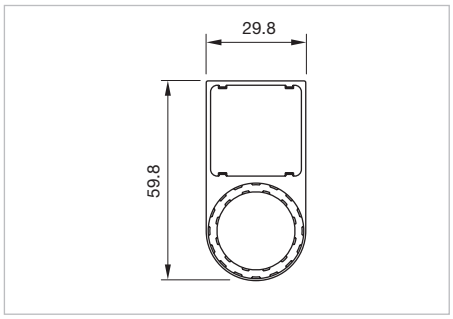

Dimensions [mm]
for Part No. 45-570.1105




Dimensions [mm]
for Part No. 45-564.1110



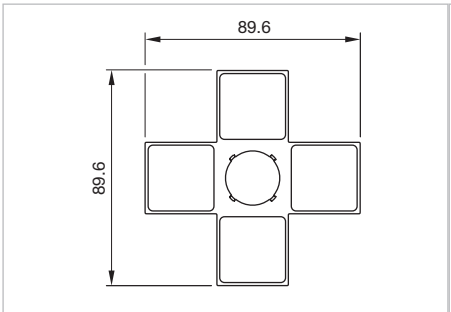

Dimensions [mm]
for Part No. 45-567.1111



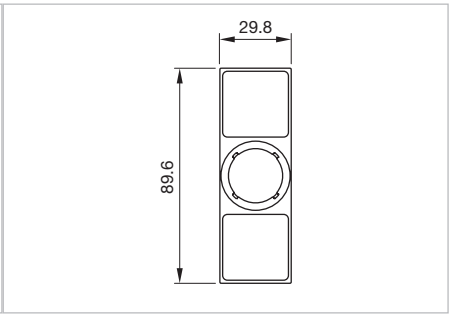

Dimensions [mm]
for Part No. 45-569.1112

## Legend support without legend for toggle stick

| Product attributes | Material | Colour | Mounting type | Part No. |
|---|---|---|---|---|
| For legend 27 mm x 27 mm (2x) | Plastic | Black | For sticking or snapping in place | 45-571.1105 |
| For legend 27 mm x 27 mm (4x) | Plastic | Black | For sticking or snapping in place | 45-572.1105 |



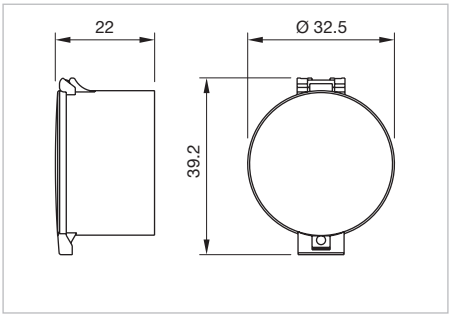

Dimensions [mm]
for Part No. 45-571.1105




Dimensions [mm]
for Part No. 45-572.1105

## Protective cover

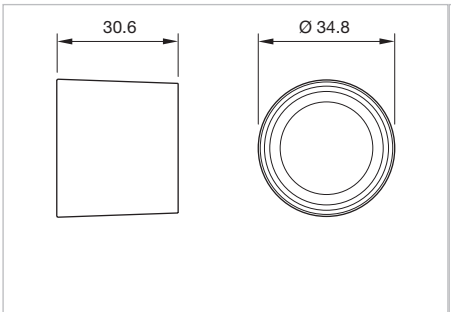
| Product attributes | Material | Colour | Optics | Part No. |
|---|---|---|---|---|
| Hinged, with means for sealing | Plastic | Black | opaque | 45-555.1100 |
| | Plastic | Colourless | transparent | 45-555.1K00 |



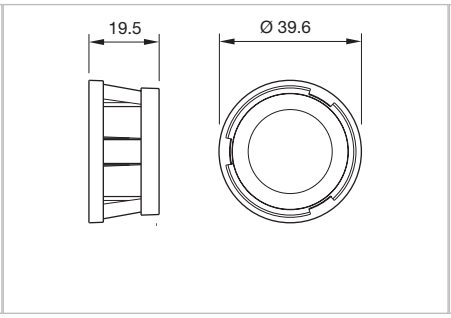

Dimensions [mm]

## Protective shroud

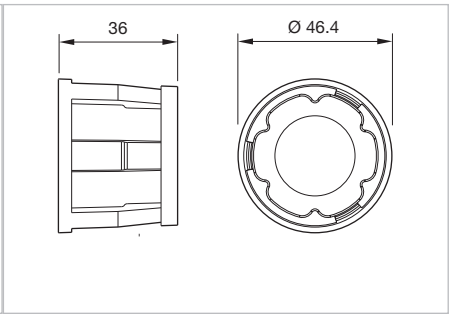
| Dimensions | Material | Colour | Part No. |
|---|---|---|---|
| Ø 34.8 mm | Plastic | Black | 45-50N.1100 |
| Ø 46.4 mm | Metal | Silver | 45-50Q.2100 |
| Ø 39.6 mm | Metal | Silver | 45-50P.0100 |




Dimensions [mm]
for Part No. 45-50N.1100




Dimensions [mm]
for Part No. 45-50Q.2100



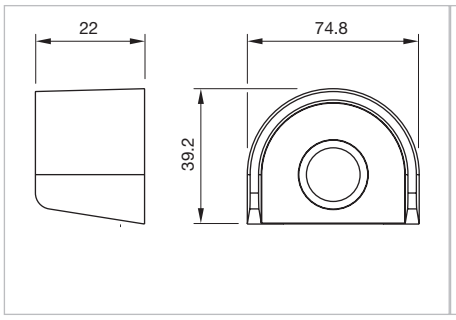

Dimensions [mm]
for Part No. 45-50P.0100

## E stop protective shroud

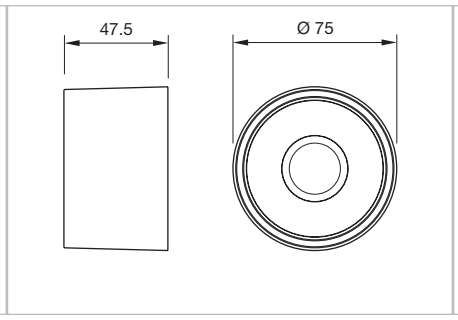
| Product attributes | Material | Colour | Part No. |
|---|---|---|---|
| | Plastic | Yellow | 45-549.1400 |
| | Plastic | Grey | 45-549.1800 |
| | Plastic | Yellow | 45-550.1400 |
| For Emergency stop switch Ø 40 mm, for 5 padlocks | Metal | Yellow | 45-539.2400 |
| | Metal | Grey | 45-539.2800 |

**Additional information**

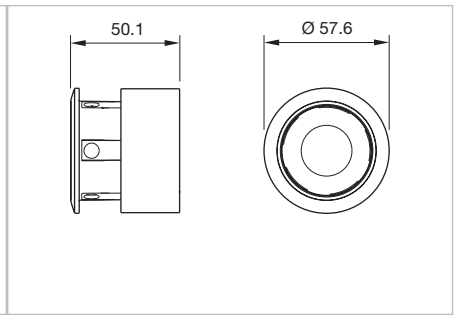
- The protection shroud is not suitable for a proper use of emergency stop. It can obstruct a spontaneous operation of the emergency stop




Dimensions [mm]
for Part No. 45-549.1400, 45-549.1800



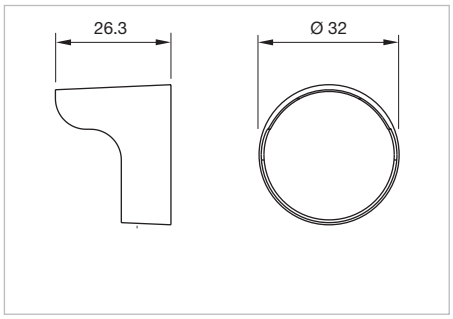

Dimensions [mm]
for Part No. 45-550.1400




Dimensions [mm]
for Part No. 45-539.2400, 45-539.2800

## Sun collar

| Product attributes | Material | Colour | Part No. |
|---|---|---|---|
| For pushbutton illuminated | Plastic | Black | 45-560.1100 |



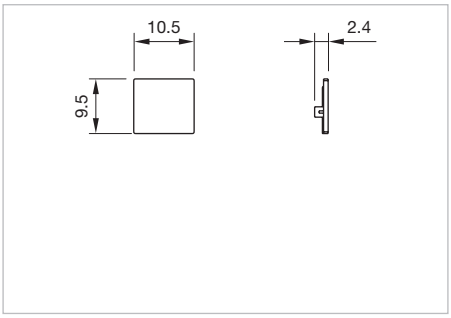

Dimensions [mm]

## Rear side



### Legend plate for switching elements

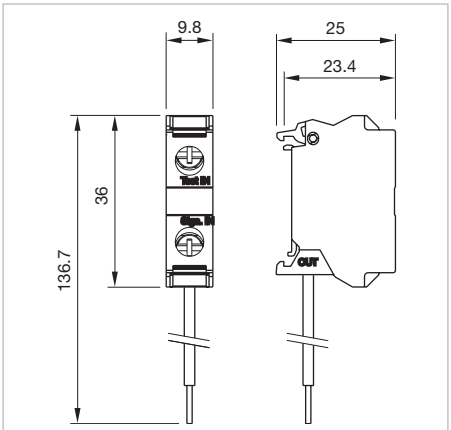
| Dimensions | Material | Colour | Mounting type | Part No. |
|---|---|---|---|---|
| 10.5 mm x 9.5 mm | Plastic | White | for snapping in place | 45-523.1900 |




Dimensions [mm]

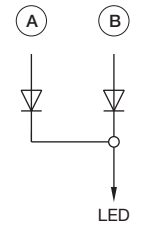
### Test module

| Product attributes | Operating voltage | Terminal | Part No. | Wiring diagram |
|---|---|---|---|---|
| Front mounting | 12 - 240 V AC/DC | Screw terminal | 45-330.1115 | 236 |
| Base mounting | 12 - 240 V AC/DC | Screw terminal | 45-330.2115 | 236 |




Dimensions [mm]

## Wiring diagrams




Wiring diagram 236

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## Mounting

### Adapter for reduction of 30.5 mm to 22.3 mm

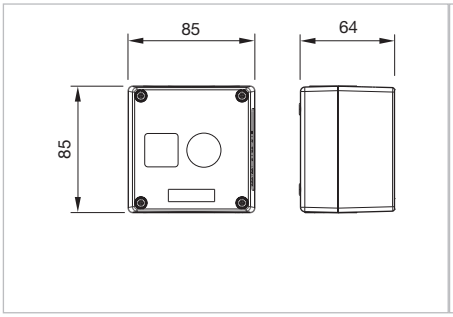
| Product attributes | Material | IP front protection | Part No. |
|---|---|---|---|
| With seal | Metal | IP66, IP67, IP69K | 45-501.2000 |

### Enclosure

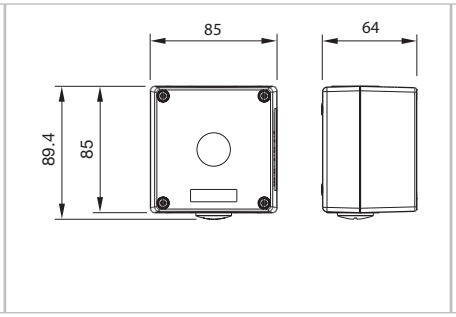
| Product attributes | Dimensions | Material | Colour | IP Protection | Part No. |
|---|---|---|---|---|---|
| 1 mounting hole Ø 22.3 mm 1 x M20 | 85 mm x 64 mm x 85 mm | Plastic | Grey | IP66, IP67, IP69K | 45-430.1801 |
| | 85 mm x 64 mm x 85 mm | Plastic | Yellow | IP66, IP67, IP69K | 45-410.1401 |
| 1 mounting hole Ø 22.3 mm, top and bottom each 1 x M20 | 89.4 mm x 64 mm x 85 mm | Metal | Yellow | IP66, IP67, IP69K | 45-410.2403 |
| | 89.4 mm x 64 mm x 85 mm | Metal | Grey | IP66, IP67, IP69K | 45-430.2803 |
| 1 mounting hole Ø 22.3 mm 1 x M20, with protective shroud | 85 mm x 64 mm x 85 mm | Plastic | Yellow | IP66, IP67, IP69K | 45-420.1401 |
| | 85 mm x 64 mm x 85 mm | Metal | Yellow | IP66, IP67, IP69K | 45-420.2403 |
| 1 mounting hole Ø 22.3 mm, with protective shroud, top and bottom 1 x M20 | 89.4 mm x 64 mm x 85 mm | Metal | Grey | IP66, IP67, IP69K | 45-420.2803 |
| 2 mounting holes Ø 22.3 mm, top and bottom 1 x M20 | 114 mm x 64 mm x 85 mm | Plastic | Grey | IP66, IP67, IP69K | 45-440.1801 |
| | 118 mm x 64 mm x 85 mm | Metal | Grey | IP66, IP67, IP69K | 45-440.2803 |
| 3 mounting holes Ø 22.3 mm, top and bottom 1 x M20 | 154 mm x 64 mm x 85 mm | Plastic | Grey | IP66, IP67, IP69K | 45-450.1801 |
| | 158 mm x 64 mm x 85 mm | Metal | Grey | IP66, IP67, IP69K | 45-450.2803 |
| 4 mounting holes Ø 22.3 mm, top and bottom 1 x M25 | 194 mm x 64 mm x 85 mm | Plastic | Grey | IP66, IP67, IP69K | 45-460.1802 |
| | 199 mm x 64 mm x 85 mm | Metal | Grey | IP66, IP67, IP69K | 45-460.2804 |
| 6 mounting holes Ø 22.3 mm, top and bottom 1 x M25 | 280 mm x 64 mm x 85 mm | Plastic | Grey | IP66, IP67, IP69K | 45-470.1802 |
| | 285 mm x 64 mm x 85 mm | Metal | Grey | IP66, IP67, IP69K | 45-470.2804 |

# 45 Accessories

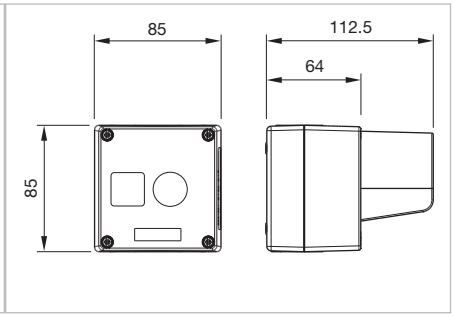




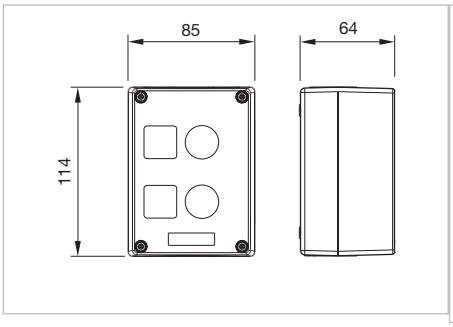

Dimensions [mm]
for Part No. 45-430.1801, 45-410.1401



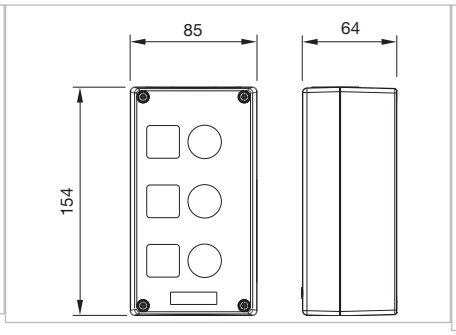

Dimensions [mm]
for Part No. 45-410.2403, 45-430.2803, 45-420.2803



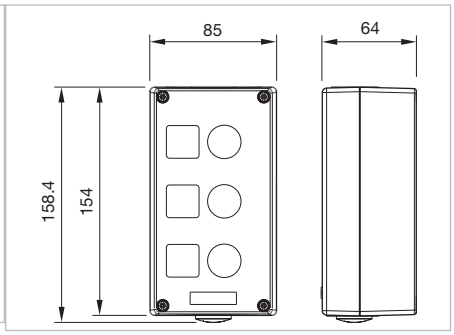

Dimensions [mm]
for Part No. 45-420.1401, 45-420.2403



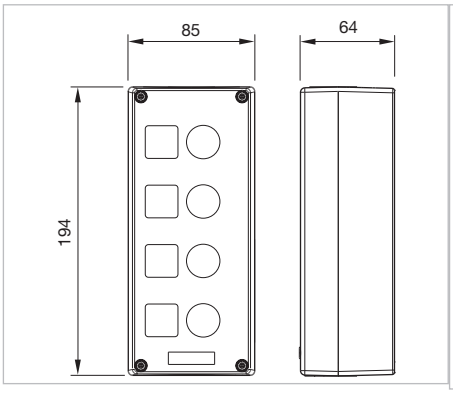

Dimensions [mm]
for Part No. 45-440.1801, 45-440.2803



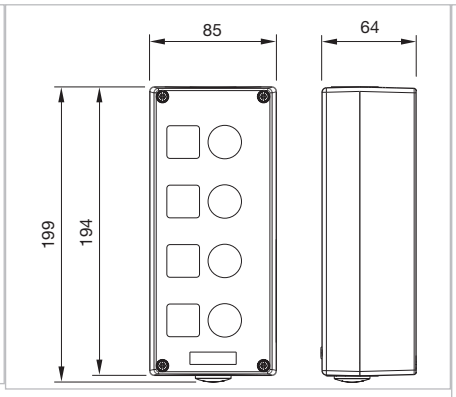

Dimensions [mm]
for Part No. 45-450.1801



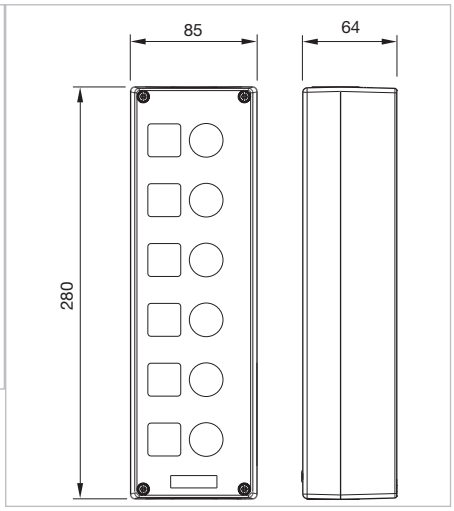

Dimensions [mm]
for Part No. 45-450.2803



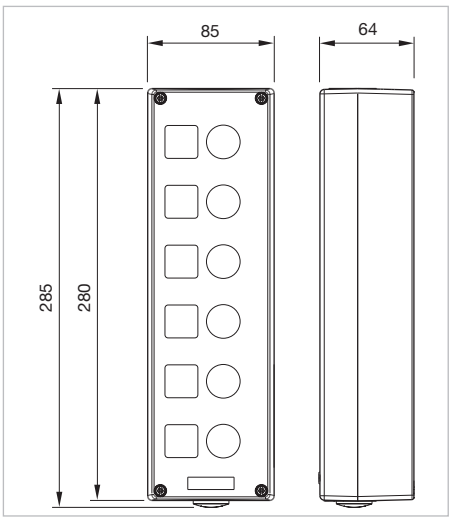

Dimensions [mm]
for Part No. 45-460.1802




Dimensions [mm]
for Part No. 45-460.2804



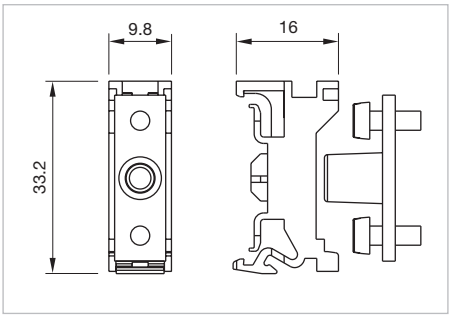

Dimensions [mm]
for Part No. 45-470.1802




Dimensions [mm]
for Part No. 45-470.2804

## Enclosure cover monitoring

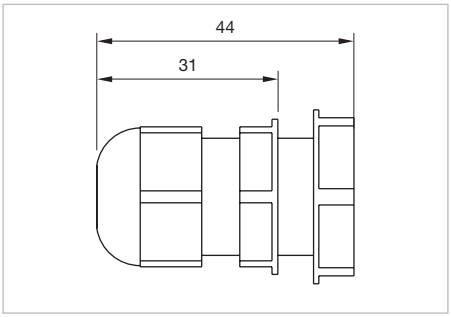
| Product attributes | Material | Colour | Part No. |
|---|---|---|---|
| With extension plungers | Plastic | Black | 45-50G.0900 |




Dimensions [mm]

## Cable gland

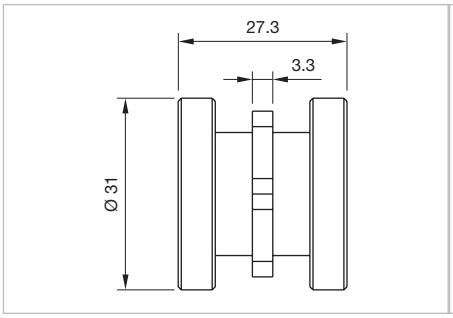
| Material | Colour | IP Protection | Thread | Part No. |
|---|---|---|---|---|
| Plastic | Black | IP66, IP67, IP69K | M20 | 45-507.1100 |
| | Black | IP66, IP67, IP69K | M25 | 45-509.1100 |



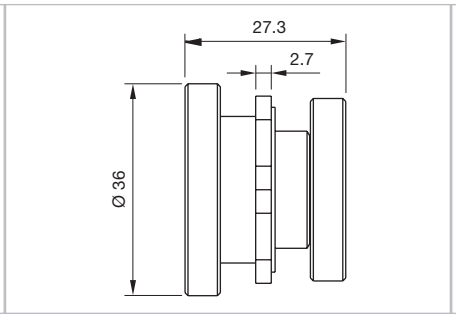

Dimensions [mm]

## Connection piece

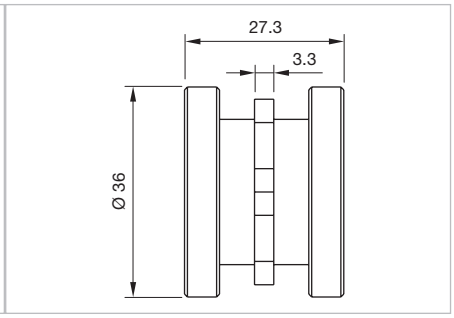
| Product attributes | Material | Colour | IP Protection | Thread | Part No. |
|---|---|---|---|---|---|
| For connecting 2 enclosures, with hexagonal nut | Plastic | Black | IP66, IP67, IP69K | M20 / M20 | 45-50C.1900 |
| | Plastic | Black | IP66, IP67, IP69K | M20 / M25 | 45-50D.1900 |
| | Plastic | Black | IP66, IP67, IP69K | M25 / M26 | 45-50E.1900 |
| | Metal | Silver | IP66, IP67, IP69K | M20 / M20 | 45-50C.2900 |
| | Metal | Silver | IP66, IP67, IP69K | M20 / M25 | 45-50D.2900 |
| | Metal | Silver | IP66, IP67, IP69K | M25 / M26 | 45-50E.2900 |



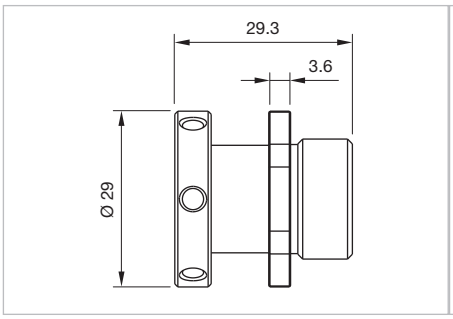

Dimensions [mm]
for Part No. 45-50C.1900



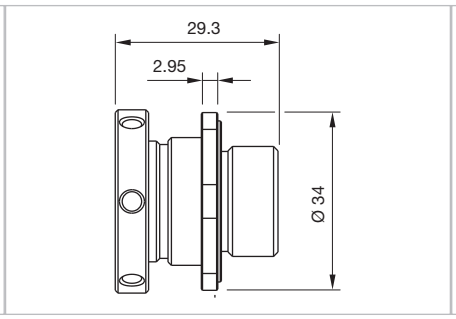

Dimensions [mm]
for Part No. 45-50D.1900



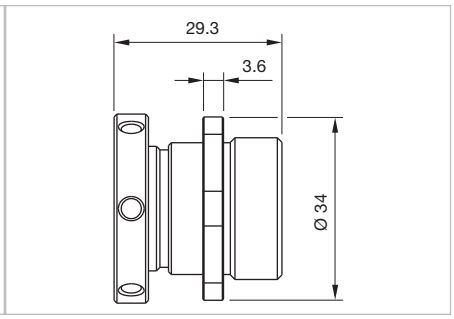

Dimensions [mm]
for Part No. 45-50E.1900




Dimensions [mm]
for Part No. 45-50C.2900



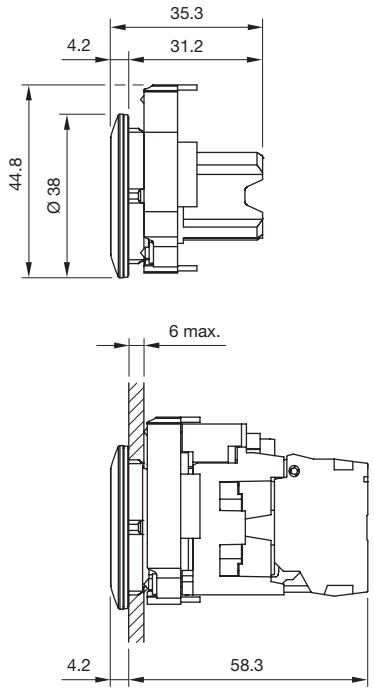

Dimensions [mm]
for Part No. 45-50D.2900



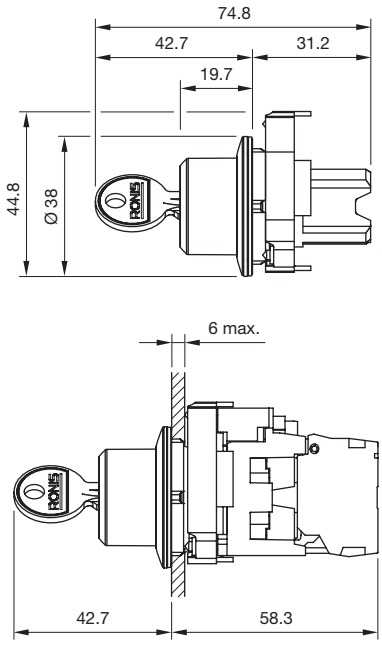

Dimensions [mm]
for Part No. 45-50E.2900

**Dimensions incl. mounting depth of 3 or 4 elements**

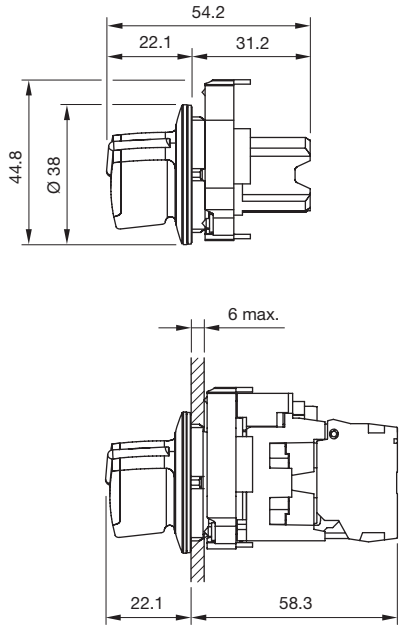
Indicator, Pushbutton, Illuminated pushbutton (flush design)



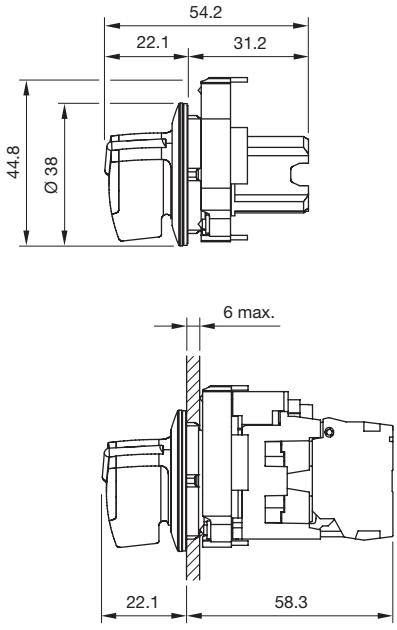

Keylock switch (flush design)




Selector switch short lever (flush design)



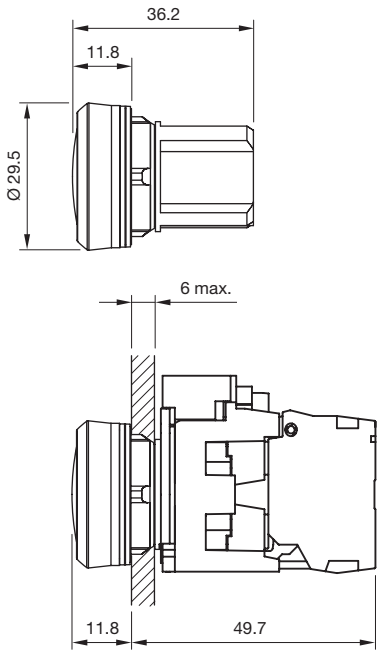

Selector switch long lever (flush design)



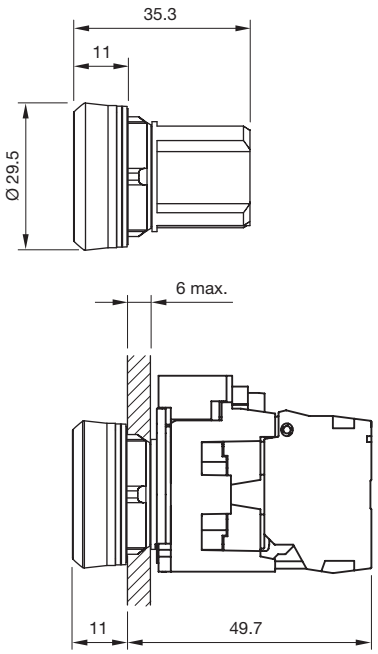
# 45 Drawings



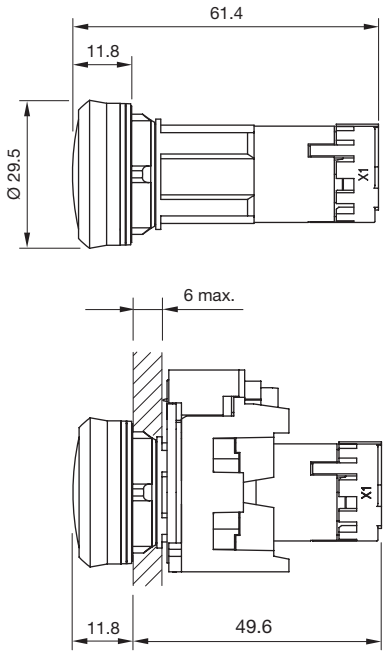
Indicator full face illumination (raised design)



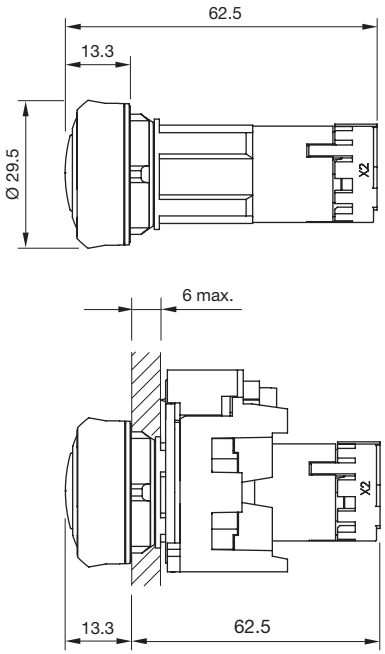

Indicator front illumination,
Pushbutton, Illuminated pushbutton, Lens level with front ring (raised design)



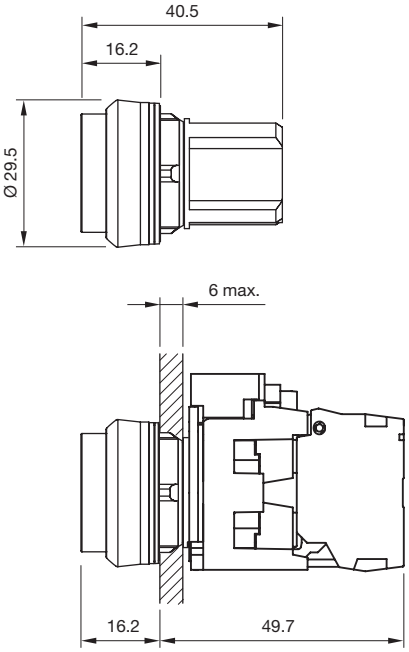

Duo indicator



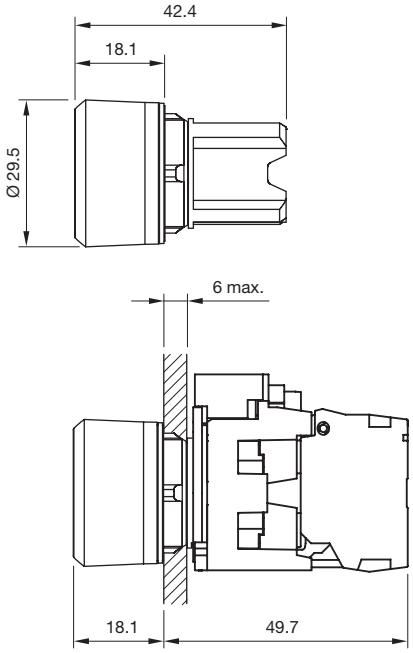

Buzzer



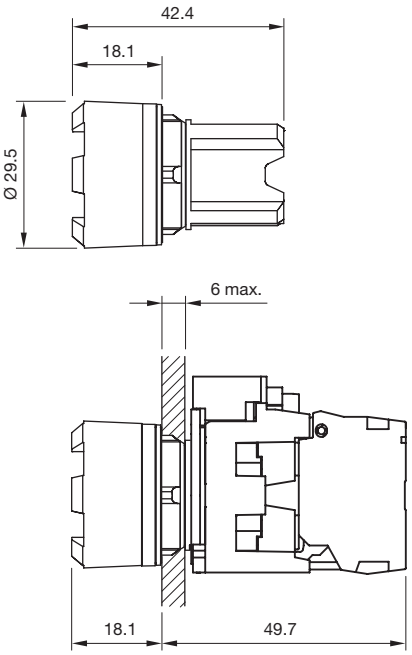
Pushbutton, Illuminated pushbutton, lens raised above front ring (raised design)



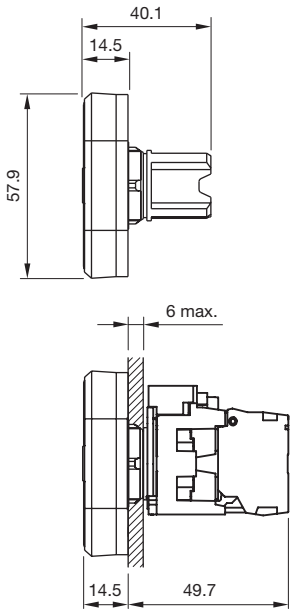

Pushbutton, lens lower than front ring (raised design)




Pushbutton, Illuminated pushbutton, lens lower than front ring, with castellation (raised design)



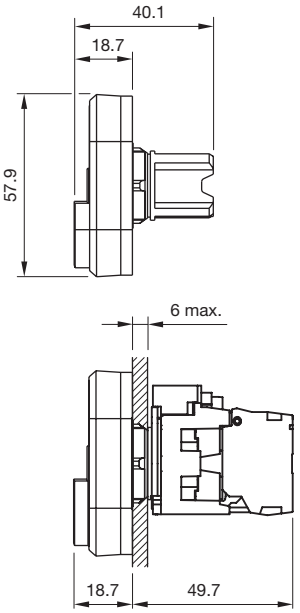

Double pushbutton, Lens level with front ring (raised design)



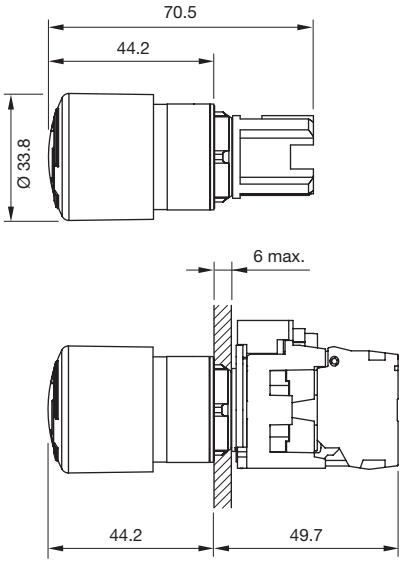
# 45 Drawings



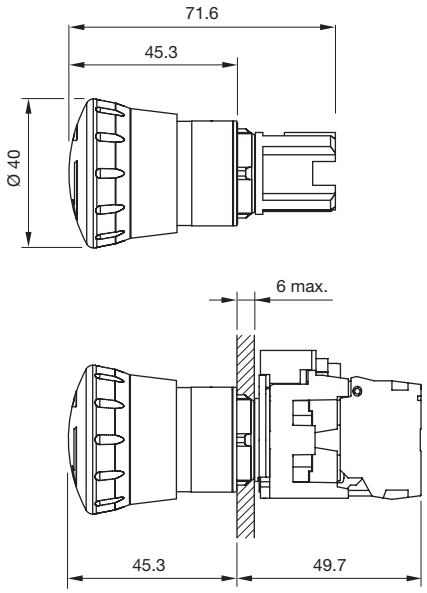
Double pushbutton, level with/raised above front ring (raised design)



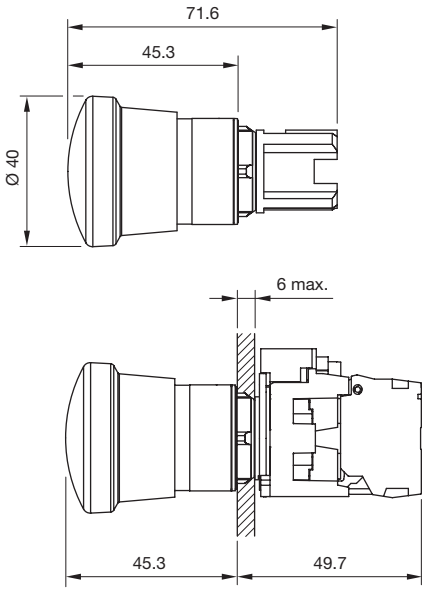

Emergency stop switch Ø 33.8 mm (raised design)



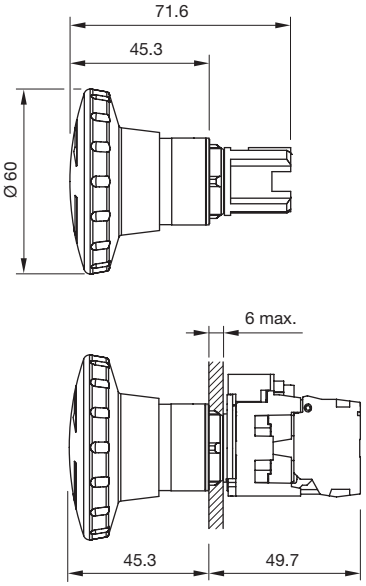

Emergency stop switch, Stop switch Ø 40 mm (raised design)



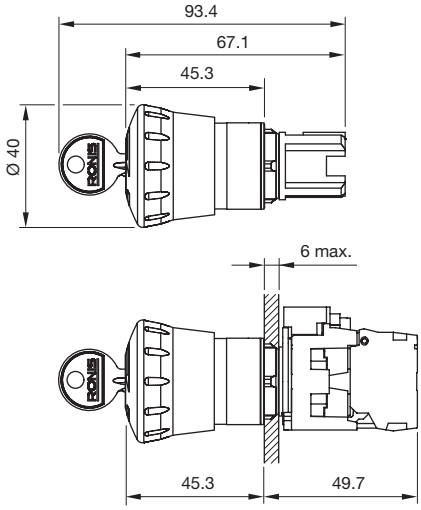

Emergency stop switch, Stop switch Ø 40 mm (raised design)



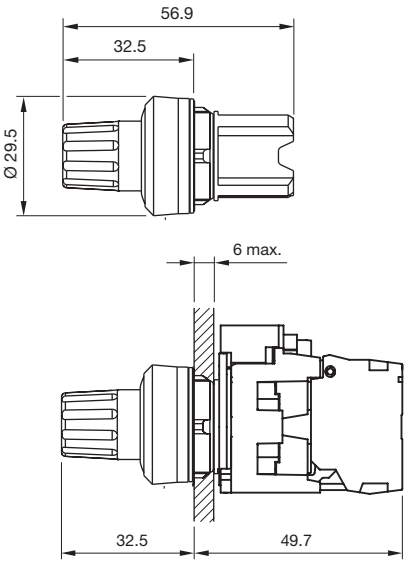
Emergency stop switch Ø 60 mm (raised design)



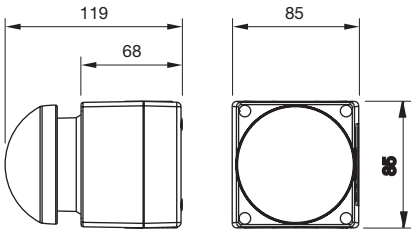

Emergency stop switch with key Ø 40 mm (raised design)




Stop switch Ø 29.5 mm (raised design)



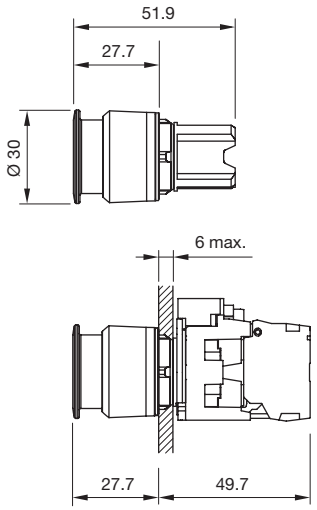

Palm switch



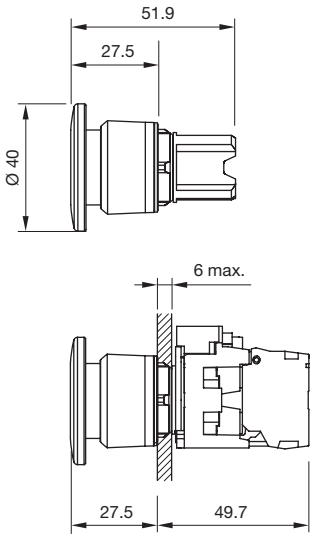
# 45 Drawings



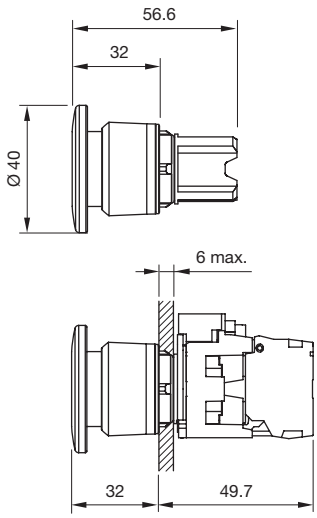
## Mushroom-head pushbutton Ø 30 mm (raised design)



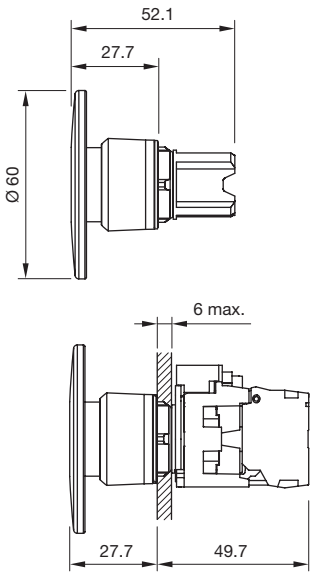

## Mushroom-head pushbutton Momentary, Maintain, Ø 40 mm (raised design)



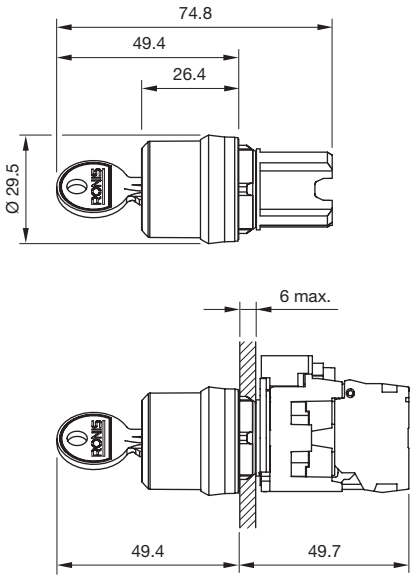

## Mushroom-head pushbutton Momentary/Maintain, Momentary/Momentary, Ø 40 mm (raised design)



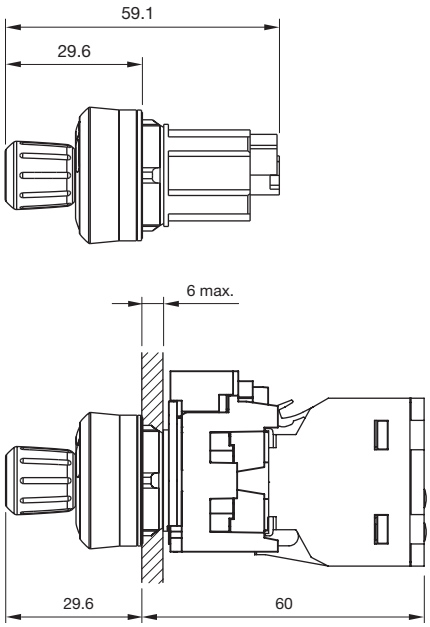

## Mushroom-head pushbutton Ø 60 mm (raised design)



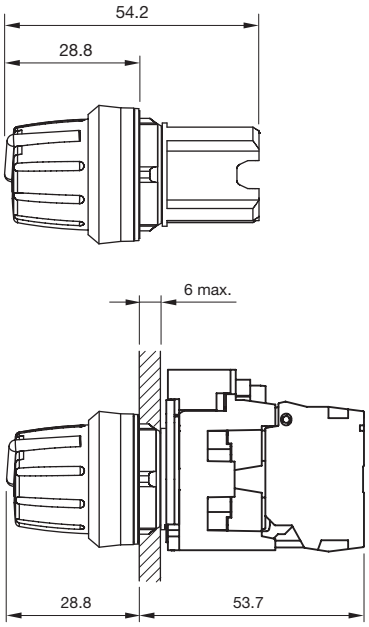
## Keylock switch (raised design)



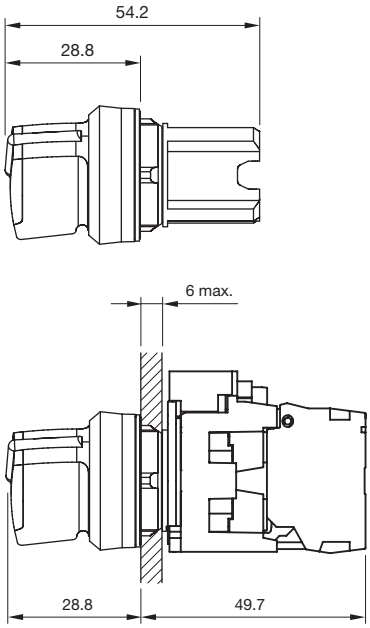

## ID keylock switch (raised design)




## Selector switch, round lever (raised design)



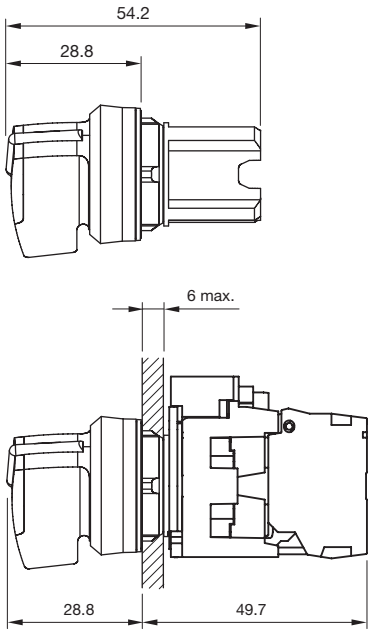

## Selector switch, short lever (raised design)



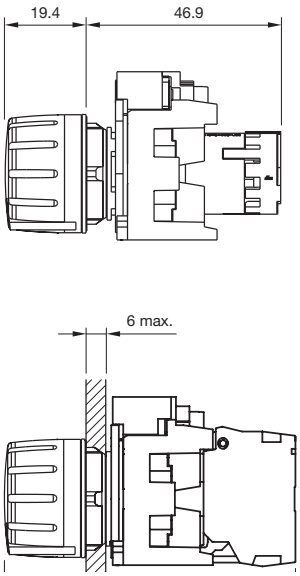
# 45 Drawings



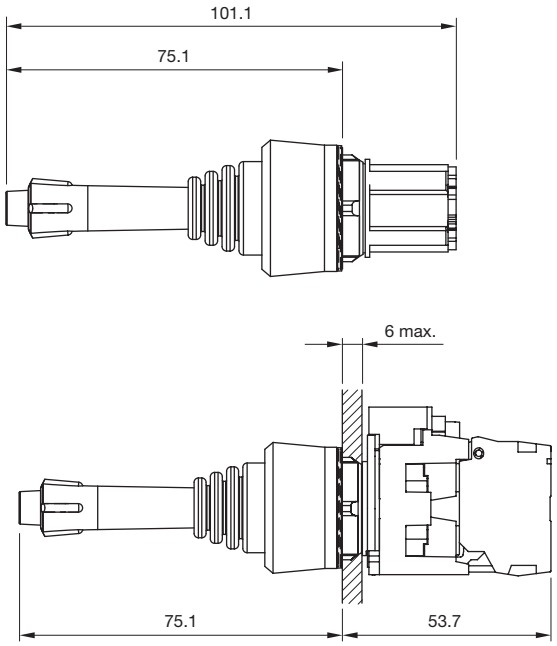
## Selector switch, long lever (raised design)



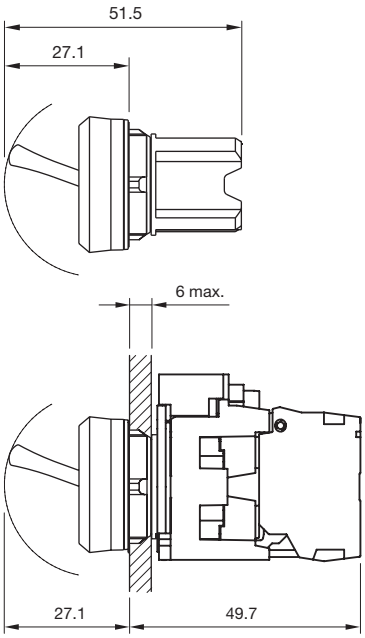

## Potentiometer (raised design)




## Toggle stick (raised design)




## Toggle switch (raised design)



## Indicator actuator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
2 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Duo Indicator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Terminal**
Screw terminal
- Solid without end sleeves 2 x (1.0 … 1.5 $mm^2$)
- Solid with end sleeves 2 x (0.5 … 0.75 $mm^2$)
- Finely stranded without end sleeves 2 x (0.5 … 0.75 $mm^2$)
- Finely stranded with end sleeves 2 x (0.5 … 1.5 $mm^2$)
- For AWG cables for auxiliary contacts 2 x (18 … 14)

**Tightening torque**
Screw terminal 0.8 … 1 Nm

### Electrical characteristics

**Insulation voltage**
Rated value 320 V

**Pollution degree**
3

**Surge voltage resistance**
Rated value 4 kV

**Operating voltage**
at AC/DC
- Rated value 6 … 24 V

at AC
- Rated value 110 or 230 V

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3B2, 3K6, 3S2, 3M6

## Buzzer

### Material

**Actuator element**
Plastic

**Front bezel**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Terminal**
Screw terminal
- Solid without end sleeves 2 x (1.0 … 1.5 mm²)
- Solid with end sleeves 2 x (0.5 … 0.75 mm²)
- Finely stranded without end sleeves 2 x (0.5 … 0.75 mm²)
- Finely stranded with end sleeves 2 x (0.5 … 1.5 mm²)
- For AWG cables for auxiliary contacts 2 x (18 … 14)

**Tightening torque**
Screw terminal 0.8 … 1 Nm

### Electrical characteristics

**Frequency (tone)**
Approx. 2.4 kHz continuous tone only

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

**Insulation voltage**
Rated value 320 V

**Pollution degree**
3

**Surge voltage resistance**
Rated value 4 kV

**Operating voltage**
at AC
- Rated value 24 … 24 V

at DC
- Rated value 24 … 24 V

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP40

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g/11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3B2, 3K6, 3S2, 3M6

## Pushbutton actuator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
- Momentary max. 3600/h
- Maintain max. 1800/h

**Mechanical lifetime**
- Momentary 500000 cycles of operation
- Maintain 10000000 cycles of operation

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
20 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

# 45 Technical data

## Double pushbutton actuator, Double pushbutton actuator illuminated

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
max. 3 600 / h

**Mechanical lifetime**
2 000 000 cycles of operation

### Ambient conditions

**Operating temperature**
– 25 °C … + 70 °C

**Storage temperature**
– 40 °C … + 80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6, 3B2

## Illuminated pushbuton actuator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
- Momentary max. 3 600 / h
- Maintain max. 1 800 / h

**Mechanical lifetime**
- Momentary 3 000 000 cycles of operation
- Maintain 500 000 cycles of operation

### Ambient conditions

**Operating temperature**
– 25 °C … + 70 °C

**Storage temperature**
– 40 °C … + 80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
20 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Emergency stop switch actuator

### Material

**Actuator element**
Plastic red

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Type of unlocking device**
Twist to release, pull release or key to release

**Operating frequency**
Max. 600 / h

**Mechanical lifetime**
300 000 cycles of operation

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
2 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Stop switch actuator

### Material

**Actuator element**
Plastic red

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Type of unlocking device**
Twist to release

**Operating frequency**
Max. 600 / h

**Mechanical lifetime**
300 000 cycles of operation

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
2 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

# 45 Technical data



## Palm switch

### Material

**Actuator element**
Plastic or metal, red or black

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Type of unlocking device**
Pull to release

### Electrical characteristics

**Operating voltage**
at AC
- Rated value 5 … 500 V

at DC
- Rated value 5 … 500 V

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6, 3B2

## Mushroom-head pushbuton actuator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Type of unlocking device**
Pull release

**Operating frequency**
- Momentary max. 3 600 / h
- Maintain max. 1 800 / h

**Mechanical lifetime**
- Momentary 10 000 000 cycles of operation
- Maintain 500 000 cycles of operation

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Vibration resistance**
According to IEC 60068-2-6
20 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Protection degree**
IP66, IP67, IP69K

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Keylock switch actuator

### Material

**Actuator element**
Metal

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
Max. 1 800 / h

**Mechanical lifetime**
1 000 000 cycles of operation

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## ID keylock switch

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic

### Mechanical characteristics

**Terminals**
Screw terminal front mounting
- Solid with end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.2 … 0.75 mm²)
- Solid without end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.2 … 0.75 mm²)
- Finely stranded with end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.25 … 0.75 mm²)
- Finely stranded with end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.2 … 0.75 mm²)
- For AWG cables
  1 x (24 … 14), (24 … 19)

**Tightening torque**
Screw terminal
0.35 … 0.4 Nm

**Mechanical lifetime**
100 000 cycles of operation

**Number of NO contacts**
5

**ID-Key**

| Authorization level | Key colour |
|---|---|
| 1 | green |
| 1+2 | yellow |
| 1+2+3 | red |
| 1+2+3+4 | blue |

### Electrical characteristics

**Operating voltage**
24 VDC

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## Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP65

**Climatic ambient conditions**
During operation according to IEC 60721:
3M6, 3S2, 3B2, 3C3, 3K6 (with relative air humidity of 10 … 95 %)

## Selector switch actuator

### Material

**Actuator element**
Round lever, plastic, illuminable
Short lever, plastic, illuminable
Long lever, plastic, illuminable

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
Max. 1 800 / h

**Mechanical lifetime**
1 000 000 cycles of operation

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Potentiometer

### Material

**Actuator element**
Round lever, plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Terminals**
Screw terminal
- Solid 2 x (1.0 … 1.5 $mm^2$)
  - With end sleeves 2 x (0.5 … 0.75 $mm^2$)
- Finely stranded
  - Without end sleeves 2 x (0.5 … 0.75 $mm^2$)
  - With end sleeves 2 x (0.5 … 1.5 $mm^2$)
  - For AWG cables for auxiliary contacts 2 x (18 … 14)

**Tightening torque**
0.8 … 1 Nm

**Turning frequency**
Max. 1 800 / h

**Mechanical lifetime**
25 000 turning cycles

**Vibration resistance**
according to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
according to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Slewing range**
275° ±2°

### Electrical characteristics

**Active power consumption**
0.5 W

**Insulation voltage**
Rated value 500 V

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP66, IP67, IP69K

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Toggle stick actuator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
3 600 / h

**Mechanical lifetime**
Momentary: 250 000 cycles of operation per direction of actuation
Maintain: 100 000 cycles of operation per direction of actuation

**Deflection angle**
Max. 30 °

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP65, IP67

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

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## Toggle switch actuator

### Material

**Actuator element**
Plastic

**Front ring**
Plastic or metal

**Actuator housing**
Plastic or metal

### Mechanical characteristics

**Operating frequency**
Max. 1 800 / h

**Mechanical lifetime**
1 000 000 cycles of operation

### Ambient conditions

**Operating temperature**
– 25 °C … + 70 °C

**Storage temperature**
– 40 °C … + 80 °C

**Protection degree**
IP66, IP67, IP69K

**Vibration resistance**
According to IEC 60068-2-6
10 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Slow-make switching element

### Switching system

The double-break, slow-make switching element is equipped with normally open or normally closed contact. The normally closed contact has forced opening. Slow-make contacts with forced action are ideal for high switch ratings. Up to six switching elements can be snapped to each holder.

The NC contact opens automatically upon disconnection of the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated commanding device are closed) takes place upon first-time actuation after the contact block is snapped onto the actuator.

### Material

**Material of contact**
Silver alloy

**Housing**
Plastic

### Mechanical characteristics

**Terminals**
Screw terminal
- Solid 2 x (1.0 … 1.5 mm²)
  - With end sleeves 2 x (0.5 … 0.75 mm²)
- Finely stranded
  - Without end sleeves 2 x (0.5 … 0.75 mm²)
  - With end sleeves 2 x (0.5 … 1.5 mm²)
  - For AWG cables for auxiliary contacts 2 x (18 … 14)

Spring-type terminal (SP)
- Solid 2 x (0.25 … 1.5 mm²)
- Finely stranded
  - Without end sleeves 2 x (0.5 … 1.5 mm²)
  - With end sleeves 2 x (0.5 … 0.75 mm²)
  - For AWG cables for auxiliary contacts 2 x (24 … 16)

**Tightening torque**
Screw terminal, spring-type terminal 0.8 … 0.9 Nm

**Operating frequency**
Max. 3 600 / h

**Mechanical lifetime**
10 000 000 cycles of operation

## Electrical characteristics

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

**Thermal current $I_{th}$**
10 A

**Insulation voltage**
Rated value 500 V

**Pollution degree**
3

**Surge voltage resistance**
Rated value 6 kV

**Contact reliability**
One contact failure per 100 million switching operations (17 V, 5 mA)
One contact failure per 10 million switching operations (5 V, 1 mA)

**Operating voltage**
at AC
- Rated value 5 … 500 V

at DC
- Rated value 5 … 500 V

**Switching voltage and switching current**

at AC-12

| | | | |
|---|---|---|---|
| Voltage | 24 V | 230 V | 500 V |
| Current | 10 A | 10 A | 10 A |

at AC-15

| | | | | |
|---|---|---|---|---|
| Voltage | 24 V | 230 V | 400 V | 500 V |
| Current | 6 A | 6 A | 3 A | 1.4 A |

at DC-12

| | | | | | | |
|---|---|---|---|---|---|---|
| Voltage | 24 V | 48 V | 110 V | 230 V | 400 V | 500 V |
| Current | 10 A | 5 A | 2.5 A | 1 A | 0.3 A | 0.2 A |

at DC-13

| | | | | | | |
|---|---|---|---|---|---|---|
| Voltage | 24 V | 48 V | 110 V | 230 V | 400 V | 500 V |
| Current | 3 A | 1.5 A | 0.7 A | 0.3 A | 0.1 A | 0.07 A |

## Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP40 housing
IP20 terminal

**Vibration resistance**
According to IEC 60068-2-6
2 … 500 Hz: 5 g

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

## Approvals

**Approbations**
CCC
CSA
UL

**Declaration of conformity**
CE

# 45 Technical data

## Illumination element

### Material

**Housing**
Plastic

### Mechanical characteristics

**Terminals**
Screw terminal
- Solid 2 x (1.0 … 1.5 mm²)
  - With end sleeves 2 x (0.5 … 0.75 mm²)
- Finely stranded
  - Without end sleeves 2 x (0.5 … 0.75 mm²)
  - With end sleeves 2 x (0.5 … 1.5 mm²)
  - For AWG cables for auxiliary contacts 2 x (18 … 14)

Spring-type terminal (SP)
- Solid 2 x (0.25 … 1.5 mm²)
- Finely stranded
  - Without end sleeves 2 x (0.5 … 1.5 mm²)
  - With end sleeves 2 x (0.5 … 0.75 mm²)
  - For AWG cables for auxiliary contacts 2 x (24 … 16)

**Tightening torque**
Screw terminal, spring-type terminal 0.8 … 0.9 Nm

### Electrical characteristics

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

**Electrical life**
100 000 h

**Insulation voltage**
Rated value 320 V

**Surge voltage resistance**
Rated value 4 kV

### Ambient conditions

**Operating temperature**
–25 °C … +70 °C

**Storage temperature**
–40 °C … +80 °C

**Protection degree**
IP20 terminal

**Shock resistance**
According to IEC 60068-2-27
Sinusoidal half-wave 50 g / 11 ms

**Vibration resistance**
According to IEC 60068-2-6
2 … 500 Hz: 5 g

**Climatic ambient conditions**
During operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

### Optical characteristics

**Luminous intensity**

| | |
|---|---|
| Red | 450 … 1120 mcd |
| Amber | 450 … 1120 mcd |
| Yellow | 900 … 1400 mcd |
| Green | 900 … 1400 mcd |
| Blue | 280 … 710 mcd |
| White | 900 … 1400 mcd |

### Approvals

**Approbations**
CCC
CSA
UL

**Declaration of conformity**
CE

EAO reserves the right to alter specifications without further notice.

## Inscription marking plates and legend plates

Labels can be inserted for identification pusposes in illuminated pushbuttons and pushbuttons with a flat lens. This marking plates are made of translucent plastic with a black inscription, which can be fitted in any 90° angle.

## Standard texts for marking plates

| | | |
|---|---|---|
| **Example** | | Part No. 45-563.0K00.T00029 |

| Standard texts German | | Standard texts English | |
|---|---|---|---|
| Ein | Part No. 45-563.0K00.T00001 | On | Part No. 45-563.0K00.T00020 |
| Aus | Part No. 45-563.0K00.T00002 | Off | Part No. 45-563.0K00.T00021 |
| Auf | Part No. 45-563.0K00.T00003 | Up | Part No. 45-563.0K00.T00022 |
| Ab | Part No. 45-563.0K00.T00004 | Down | Part No. 45-563.0K00.T00023 |
| Vor | Part No. 45-563.0K00.T00005 | Forward | Part No. 45-563.0K00.T00024 |
| Zurück | Part No. 45-563.0K00.T00006 | Right | Part No. 45-563.0K00.T00026 |
| Rechts | Part No. 45-563.0K00.T00007 | Left | Part No. 45-563.0K00.T00027 |
| Links | Part No. 45-563.0K00.T00008 | Stop | Part No. 45-563.0K00.T00028 |
| Halt | Part No. 45-563.0K00.T00009 | Start | Part No. 45-563.0K00.T00029 |
| Zu | Part No. 45-563.0K00.T00010 | Reset | Part No. 45-563.0K00.T00030 |
| Schnell | Part No. 45-563.0K00.T00011 | Test | Part No. 45-563.0K00.T00031 |
| Langsam | Part No. 45-563.0K00.T00012 | Open | Part No. 45-563.0K00.T00032 |
| Betrieb | Part No. 45-563.0K00.T00013 | Close | Part No. 45-563.0K00.T00033 |
| Störung | Part No. 45-563.0K00.T00014 | Running | Part No. 45-563.0K00.T00035 |
| Einrichten | Part No. 45-563.0K00.T00018 | Fast | Part No. 45-563.0K00.T00044 |
| | | Slow | Part No. 45-563.0K00.T00045 |

# 45 Marking



## Symbols for marking plates

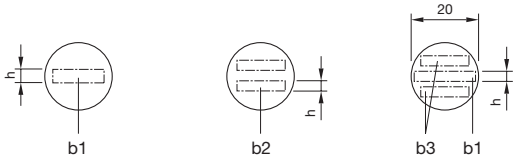
Graphic symbols are according to ISO 7000 or IEC 60417.

| | | |
|---|---|---|
| O Part No. 45-563.0K00.S00001 | Part No. 45-563.0K00.S00012<br>Decrease, Minus | Part No. 45-563.0K00.S00023<br>Unlock |
| I Part No. 45-563.0K00.S00002 | Part No. 45-563.0K00.S00013<br>Electric motor | Part No. 45-563.0K00.S00024<br>Setting |
| II Part No. 45-563.0K00.S00003 | Part No. 45-563.0K00.S00014<br>Horn | Part No. 45-563.0K00.S00025<br>On-Off momentary contact type |
| III Part No. 45-563.0K00.S00004 | Part No. 45-563.0K00.S00015<br>Water tap | Part No. 45-563.0K00.S00026<br>Manual operating |
| Part No. 45-563.0K00.S00005<br>Arrow direction to right | Part No. 45-563.0K00.S00016<br>Pump | Part No. 45-563.0K00.S00027<br>Automatic cycle |
| Part No. 45-563.0K00.S00006<br>Arrow direction up | Part No. 45-563.0K00.S00017<br>Coolant pump | Part No. 45-563.0K00.S00028<br>Suction |
| Part No. 45-563.0K00.S00007<br>Clockwise rotation | Part No. 45-563.0K00.S00018<br>Lock, tighten | Part No. 45-563.0K00.S00029<br>Blowing |
| Part No. 45-563.0K00.S00008<br>Counterclockwise rotation | Part No. 45-563.0K00.S00019<br>Unlock, unclamp | |
| Part No. 45-563.0K00.S00009<br>Rapid traverse | Part No. 45-563.0K00.S00020<br>Brake | |
| Part No. 45-563.0K00.S00010<br>Feed | Part No. 45-563.0K00.S00021<br>Release brake | |
| Part No. 45-563.0K00.S00011<br>Increase, Plus | Part No. 45-563.0K00.S00022<br>Interlock | |

## Customised inscription for marking plates

All dimensions in mm

| Height of letters | Number of lines | Number of letters per line (target value) | | |
|---|---|---|---|---|
| h | | b1 | b2 | b3 |
| 4 | 1 | 10 | – | – |
| 3 | 2 | – | 8 | – |
| | 3 | 10 | – | 6 |




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

## Standard texts for legend plates black, 27 x 12.5 mm

| Example | Reset | Part No. 45-573.1102.T00030 |
|---|---|---|

| Standard texts German | | Standard texts English | | Standard texts French | |
|---|---|---|---|---|---|
| Ein | Part No. 45-573.1102.T00001 | On | Part No. 45-573.1102.T00020 | Marche | Part No. 45-573.1102.T00048 |
| Aus | Part No. 45-573.1102.T00002 | Off | Part No. 45-573.1102.T00021 | Arrêt | Part No. 45-573.1102.T00049 |
| Auf | Part No. 45-573.1102.T00003 | Up | Part No. 45-573.1102.T00022 | Montée | Part No. 45-573.1102.T00050 |
| Ab | Part No. 45-573.1102.T00004 | Down | Part No. 45-573.1102.T00023 | Descente | Part No. 45-573.1102.T00051 |
| Vor | Part No. 45-573.1102.T00005 | Forward | Part No. 45-573.1102.T00024 | Avant | Part No. 45-573.1102.T00052 |
| Zurück | Part No. 45-573.1102.T00006 | Reverse | Part No. 45-573.1102.T00025 | Retour | Part No. 45-573.1102.T00053 |
| Rechts | Part No. 45-573.1102.T00007 | Right | Part No. 45-573.1102.T00026 | Droite | Part No. 45-573.1102.T00054 |
| Links | Part No. 45-573.1102.T00008 | Left | Part No. 45-573.1102.T00027 | Gauche | Part No. 45-573.1102.T00055 |
| Halt | Part No. 45-573.1102.T00009 | Stop | Part No. 45-573.1102.T00028 | Ouvert | Part No. 45-573.1102.T00056 |
| Zu | Part No. 45-573.1102.T00010 | Start | Part No. 45-573.1102.T00029 | Fermé | Part No. 45-573.1102.T00057 |
| Betrieb | Part No. 45-573.1102.T00013 | Reset | Part No. 45-573.1102.T00030 | Rapide | Part No. 45-573.1102.T00058 |
| Störung | Part No. 45-573.1102.T00014 | Test | Part No. 45-573.1102.T00031 | En Service | Part No. 45-573.1102.T00059 |
| Hand Auto | Part No. 45-573.1102.T00015 | Open | Part No. 45-573.1102.T00032 | Defaut | Part No. 45-573.1102.T00060 |
| Hand O Auto | Part No. 45-573.1102.T00017 | Close | Part No. 45-573.1102.T00033 | Reglage | Part No. 45-573.1102.T00061 |
| | | Jog | Part No. 45-573.1102.T00034 | Arrêt d'urgence | Part No. 45-573.1102.T00062 |
| | | Running | Part No. 45-573.1102.T00035 | Hors service | Part No. 45-573.1102.T00063 |
| | | Fault | Part No. 45-573.1102.T00036 | Sous tension | Part No. 45-573.1102.T00064 |
| | | Run | Part No. 45-573.1102.T00037 | Manu Auto | Part No. 45-573.1102.T00065 |
| | | Stop Start | Part No. 45-573.1102.T00038 | Marche Arrêt | Part No. 45-573.1102.T00066 |
| | | Off On | Part No. 45-573.1102.T00039 | Rearmement | Part No. 45-573.1102.T00067 |
| | | Power off | Part No. 45-573.1102.T00040 | | |
| | | Power on | Part No. 45-573.1102.T00041 | | |
| | | Man O Auto | Part No. 45-573.1102.T00042 | | |
| | | Man Auto | Part No. 45-573.1102.T00043 | | |

## Symbols for legend plates black, 27 x 12.5 mm

Graphic symbols are according to ISO 7000 or IEC 60417.

| | | | |
|---|---|---|---|
| | Part No. 45-573.1102.S00001 | | Part No. 45-573.1102.S00007 |
| | Part No. 45-573.1102.S00002 | | Part No. 45-573.1102.S00009<br>Arrow/Direction up |
| | Part No. 45-573.1102.S00005 | | |

## Standard texts for legend plates silver, 27 x 12.5 mm

| Example | Reset | Part No. 45-573.1A02.T00030 |
|---|---|---|

| Standard texts German | | Standard texts English | |
|---|---|---|---|
| Ein | Part No. 45-573.1A02.T00001 | On | Part No. 45-573.1A02.T00020 |
| Aus | Part No. 45-573.1A02.T00002 | Off | Part No. 45-573.1A02.T00021 |
| Auf | Part No. 45-573.1A02.T00003 | Up | Part No. 45-573.1A02.T00022 |
| Ab | Part No. 45-573.1A02.T00004 | Down | Part No. 45-573.1A02.T00023 |
| Vor | Part No. 45-573.1A02.T00005 | Stop | Part No. 45-573.1A02.T00028 |
| Zurück | Part No. 45-573.1A02.T00006 | Start | Part No. 45-573.1A02.T00029 |
| Rechts | Part No. 45-573.1A02.T00007 | Reset | Part No. 45-573.1A02.T00030 |
| Links | Part No. 45-573.1A02.T00008 | Test | Part No. 45-573.1A02.T00031 |
| Halt | Part No. 45-573.1A02.T00009 | Open | Part No. 45-573.1A02.T00032 |
| Zu | Part No. 45-573.1A02.T00010 | Close | Part No. 45-573.1A02.T00033 |
| Schnell | Part No. 45-573.1A02.T00011 | Man O Auto | Part No. 45-573.1A02.T00042 |
| Langsam | Part No. 45-573.1A02.T00012 | Man Auto | Part No. 45-573.1A02.T00043 |
| Betrieb | Part No. 45-573.1A02.T00013 | Running | Part No. 45-573.1A02.T00035 |
| Störung | Part No. 45-573.1A02.T00014 | Fault | Part No. 45-573.1A02.T00036 |
| Hand Auto | Part No. 45-573.1A02.T00015 | Fast | Part No. 45-573.1A02.T00044 |
| Stop Start | Part No. 45-573.1A02.T00016 | Slow | Part No. 45-573.1A02.T00045 |
| Hand O Auto | Part No. 45-573.1A02.T00017 | | |

## Symbols for legend plates silver, 27 x 12.5 mm

Graphic symbols are according to ISO 7000 or IEC 60417.

| | | | |
|---|---|---|---|
| | Part No. 45-573.1A02.S00001 | | Part No. 45-573.1A02.S00006 |
| | Part No. 45-573.1A02.S00002 | | Part No. 45-573.1A02.S00007 |
| | Part No. 45-573.1A02.S00003 | | Part No. 45-573.1A02.S00008<br>Arrow/Direction right |
| | Part No. 45-573.1A02.S00004 | | Part No. 45-573.1A02.S00009<br>Arrow/Direction up |
| | Part No. 45-573.1A02.S00005 | | |

## Standard texts for legend plates black, 27 x 17.5 mm

| Example | Stop | Part No. 45-573.1103.T00028 |
|---|---|---|

| Standard texts German | | Standard texts English | | Standard texts French | |
|---|---|---|---|---|---|
| Ein | Part No. 45-573.1103.T00001 | On | Part No. 45-573.1103.T00020 | Marche | Part No. 45-573.1103.T00048 |
| Aus | Part No. 45-573.1103.T00002 | Off | Part No. 45-573.1103.T00021 | Arrêt | Part No. 45-573.1103.T00049 |
| Auf | Part No. 45-573.1103.T00003 | Up | Part No. 45-573.1103.T00022 | Droite | Part No. 45-573.1103.T00054 |
| Ab | Part No. 45-573.1103.T00004 | Down | Part No. 45-573.1103.T00023 | Gauche | Part No. 45-573.1103.T00055 |
| Vor | Part No. 45-573.1103.T00005 | Forward | Part No. 45-573.1103.T00024 | En Service | Part No. 45-573.1103.T00059 |
| Zurück | Part No. 45-573.1103.T00006 | Reverse | Part No. 45-573.1103.T00025 | Defaut | Part No. 45-573.1103.T00060 |
| Halt | Part No. 45-573.1103.T00009 | Right | Part No. 45-573.1103.T00026 | Sous tension | Part No. 45-573.1103.T00064 |
| Zu | Part No. 45-573.1103.T00010 | Stop | Part No. 45-573.1103.T00028 | Manu Auto | Part No. 45-573.1103.T00065 |
| Betrieb | Part No. 45-573.1103.T00011 | Start | Part No. 45-573.1103.T00029 | Marche Arrêt | Part No. 45-573.1103.T00066 |
| Störung | Part No. 45-573.1103.T00014 | Open | Part No. 45-573.1103.T00032 | Rearmement | Part No. 45-573.0K00.T00067 |
| Hand Auto | Part No. 45-573.1103.T00015 | Close | Part No. 45-573.1103.T00033 | | |
| | | Running | Part No. 45-573.1103.T00035 | | |
| | | Fault | Part No. 45-573.1103.T00036 | | |
| | | Stop Start | Part No. 45-573.1103.T00038 | | |
| | | Man Auto | Part No. 45-573.1103.T00043 | | |

## Symbols for legend plates black, 27 x 12.5 mm

Graphic symbols are according to ISO 7000 or IEC 60417.

| | | | |
|---|---|---|---|
| | Part No. 45-573.1103.S00001 | | Part No. 45-573.1103.S00008<br>Arrow/Direction right |
| | Part No. 45-573.1103.S00002 | | Part No. 45-573.1103.S00009<br>Arrow/Direction up |
| | Part No. 45-573.1103.S00005 | | |

# 45 Marking



## Standard texts for legend plates silver, 27 x 17.5 mm

| Example | Stop | Part No. 45-573.1A03.T00028 |
|---|---|---|

| Standard texts German | | Standard texts English | |
|---|---|---|---|
| Ein | Part No. 45-573.1A03.T00001 | On | Part No. 45-573.1A03.T00020 |
| Aus | Part No. 45-573.1A03.T00002 | Off | Part No. 45-573.1A03.T00021 |
| Auf | Part No. 45-573.1A03.T00003 | Stop | Part No. 45-573.1A03.T00028 |
| Ab | Part No. 45-573.1A03.T00004 | Start | Part No. 45-573.1A03.T00029 |
| Vor | Part No. 45-573.1A03.T00005 | Reset | Part No. 45-573.1A03.T00030 |
| Zurück | Part No. 45-573.1A03.T00006 | Fault | Part No. 45-573.1A03.T00036 |
| Rechts | Part No. 45-573.1A03.T00007 | Man O Auto | Part No. 45-573.1A03.T00043 |
| Halt | Part No. 45-573.1A03.T00009 | | |
| Zu | Part No. 45-573.1A03.T00010 | | |
| Betrieb | Part No. 45-573.1A03.T00013 | | |
| Störung | Part No. 45-573.1A03.T00014 | | |
| Hand Auto | Part No. 45-573.1A03.T00015 | | |
| Hand O Auto | Part No. 45-573.1A03.T00017 | | |

## Symbols for legend plates silver, 27 x 17.5 mm

Graphic symbols are according to ISO 7000 or IEC 60417.

| | | | |
|---|---|---|---|
| | Part No. 45-573.1A02.S00001 | | Part No. 45-573.1A02.S00007 |
| | Part No. 45-573.1A02.S00002 | | Part No. 45-573.1A02.S00008<br>Arrow/Direction right |
| | Part No. 45-573.1A02.S00005 | | Part No. 45-573.1A02.S00009<br>Arrow/Direction up |

## Standard texts for legend plates black, 27 x 27 mm

| Example | Stop | Part No. 45-573.1103.T00028 |
|---|---|---|

| Standard texts German | | Standard texts English | | Standard texts French | |
|---|---|---|---|---|---|
| Ein | Part No. 45-573.1105.T00001 | On | Part No. 45-573.1105.T00020 | Marche | Part No. 45-573.1105.T00048 |
| Aus | Part No. 45-573.1105.T00002 | Off | Part No. 45-573.1105.T00021 | Arrêt | Part No. 45-573.1105.T00049 |
| Auf | Part No. 45-573.1105.T00003 | Up | Part No. 45-573.1105.T00022 | Montée | Part No. 45-573.1105.T00050 |
| Ab | Part No. 45-573.1105.T00004 | Down | Part No. 45-573.1105.T00023 | Descente | Part No. 45-573.1105.T00051 |
| Vor | Part No. 45-573.1105.T00005 | Forward | Part No. 45-573.1105.T00024 | En Service | Part No. 45-573.1105.T00059 |
| Zurück | Part No. 45-573.1105.T00006 | Reverse | Part No. 45-573.1105.T00025 | Defaut | Part No. 45-573.1105.T00060 |
| Rechts | Part No. 45-573.1105.T00007 | Stop | Part No. 45-573.1105.T00028 | Sous tension | Part No. 45-573.1105.T00064 |
| Links | Part No. 45-573.1105.T00008 | Start | Part No. 45-573.1105.T00029 | Manu Auto | Part No. 45-573.1105.T00065 |
| Halt | Part No. 45-573.1105.T00009 | Stop Start | Part No. 45-573.1105.T00038 | Marche Arrêt | Part No. 45-573.1105.T00066 |
| Zu | Part No. 45-573.1105.T00010 | EMERGENCY STOP | Part No. 45-573.1105.T00046 | | |
| Betrieb | Part No. 45-573.1105.T00013 | | | | |
| Störung | Part No. 45-573.1105.T00014 | | | | |
| Hand Auto | Part No. 45-573.1105.T00015 | | | | |

## Symbols for legend plates black, 27 x 27 mm

Graphic symbols are according to ISO 7000 or IEC 60417.

Part No. 45-573.1105.S00003

Part No. 45-573.1105.S00008
Arrow/Direction right

## Customized inscription for legend plates

All dimensionen in mm

| Size of legend plates | Height of letters | Number of lines |
|---|---|---|
| 27 x 12.5 | 4 | 1 |
| | 3.5 | 2 |
| | 2.5 | 3 |
| 27 x 17.5 | 4 | 1 – 2 |
| | 3 | 3 |
| 27 x 27 | 4 | 1 – 5 |

Up to 11 characters per line are possible.

## Suppressor circuits

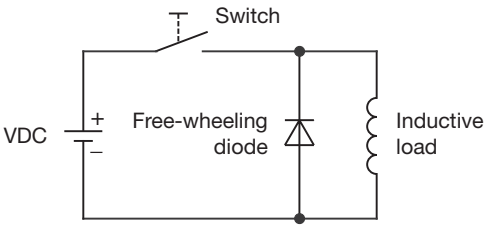
When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e. g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

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.

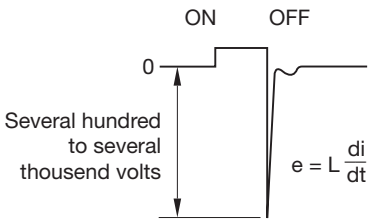
The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (VR) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current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



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