

Series **45**

## Series 45

*Innovative and comprehensive. Modular.*

<https://eao.com/45>



# 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

## Ratings

- 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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# 45 Product overview

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- 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)

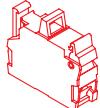


Actuator



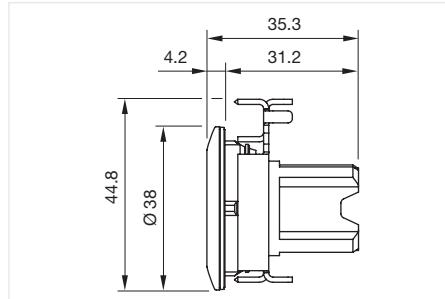
Holder

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Switching element

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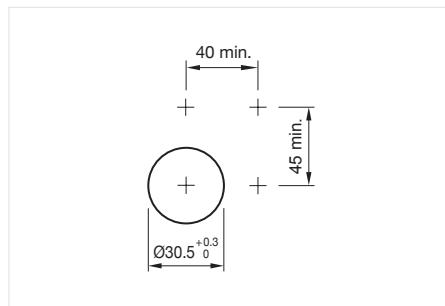
Dimensions [mm]



Product can differ from the current configuration.

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.



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

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Wiring diagram 72	Wiring diagram 73

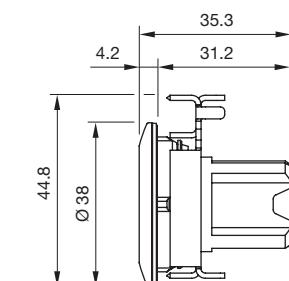
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# 45 Flush design

## Illuminated pushbutton, IP66, IP67, IP69K



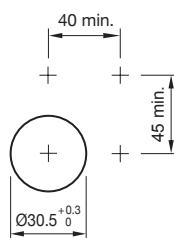
Product can differ from the current configuration.



Dimensions [mm]

### General information

- Front panel thickness 1 ... 6 mm



Mounting cut-outs [mm]

### Equipment consisting of (schematic overview)

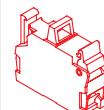


Actuator



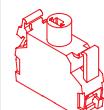
Holder

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Switching element

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Illumination element

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

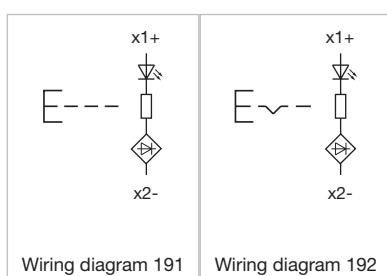
To obtain a complete unit, please select the red components from the pages shown.



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



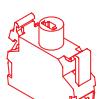
Holder

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Switching element

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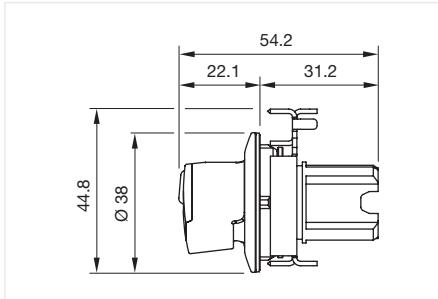


Illumination element

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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.



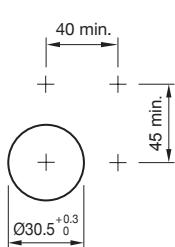
Dimensions [mm]



Product can differ from the current configuration.

## General information

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



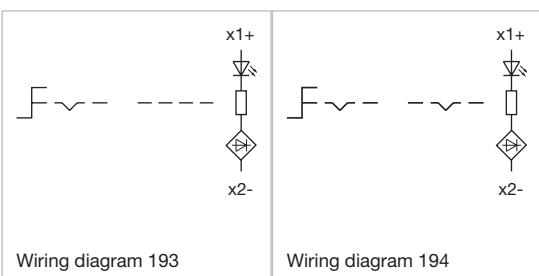
Mounting cut-outs [mm]



Actuator, Front dimension Ø 38 mm

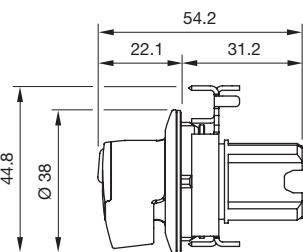
Switching action	Switching angle	Lever colour	Front bezel colour	Front bezel material	Housing material	Part No.	Wiring diagram
Rest - Maintained	90° right	Red	Sand grey	Metal	Metal	45-2828.4C20.001	194
	90° right	Green	Sand grey	Metal	Metal	45-2828.4C50.001	194
	90° right	White	Sand grey	Metal	Metal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



# 45 Flush design

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

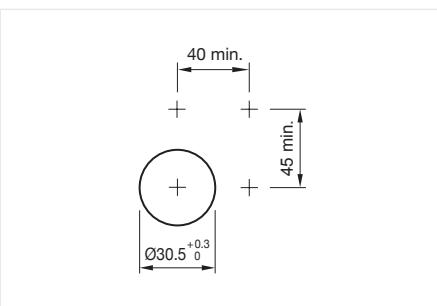


Product can differ from the current configuration.

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)

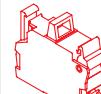


Actuator



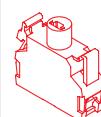
Holder

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Switching element

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Illumination element

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

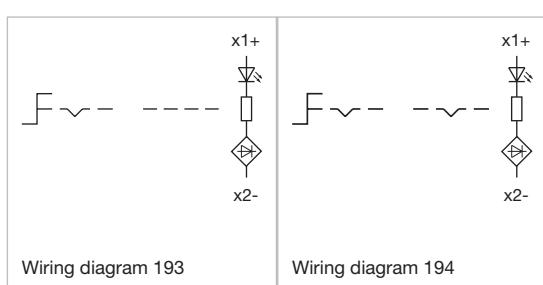
To obtain a complete unit, please select the red components from the pages shown.



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



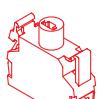
Holder

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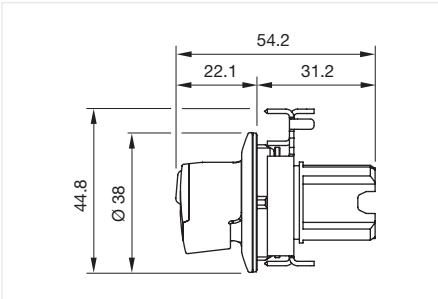
Switching element

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Illumination element

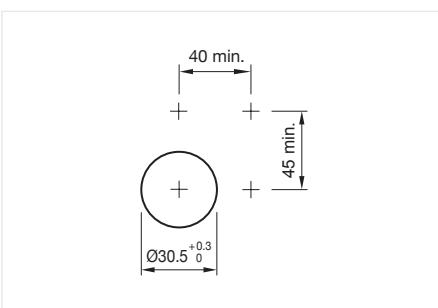
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Product can differ from the current configuration.

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

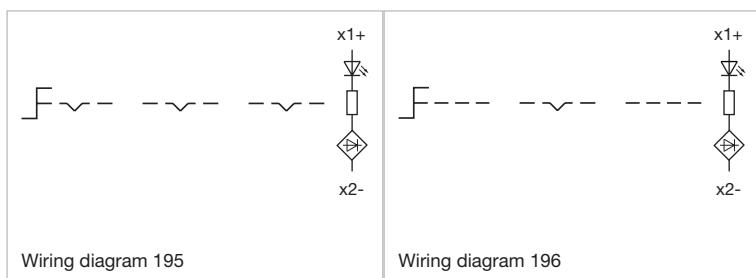
- Front panel thickness 1 ... 6 mm
- It is advisable to choose a white illumination



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

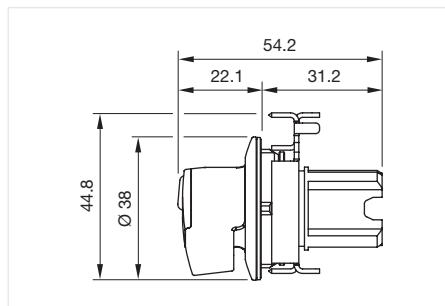


# 45 Flush design

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



Product can differ from the current configuration.

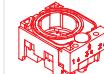


Dimensions [mm]

### Equipment consisting of (schematic overview)

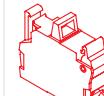


Actuator



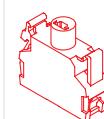
Holder

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Switching element

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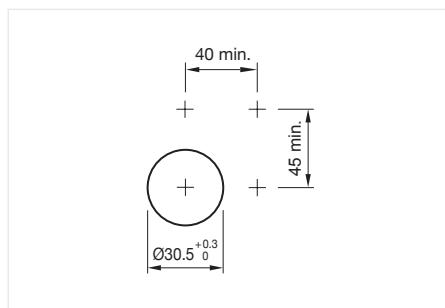


Illumination element

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### General information

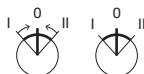
- Front panel thickness 1 ... 6 mm
- It is advisable to choose a white illumination



Mounting cut-outs [mm]

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

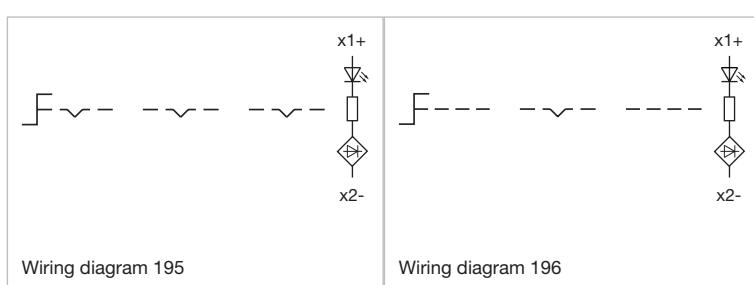
To obtain a complete unit, please select the red components from the pages shown.



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

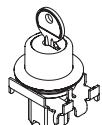


Wiring diagram 195

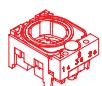
Wiring diagram 196

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

Equipment consisting of (schematic overview)

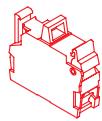


Actuator



Holder

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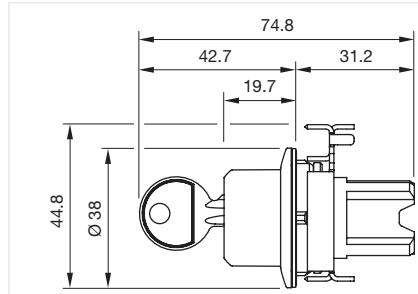


Switching element

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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.



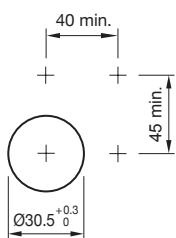
Dimensions [mm]



Product can differ from the current configuration.

## General information

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



Mounting cut-outs [mm]



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

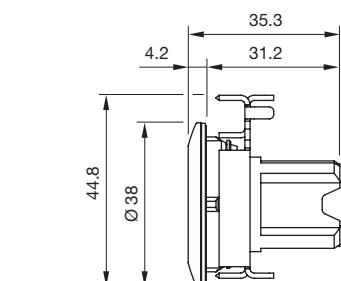
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# 45 Flush design

Indicator, IP66, IP67, IP69K



Product can differ from the current configuration.



Dimensions [mm]

Equipment consisting of (schematic overview)

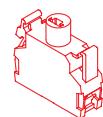


Actuator



Holder

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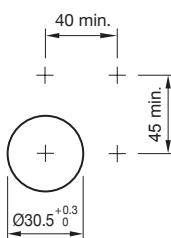


Illumination element

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## General information

- Front panel thickness 1 ... 6 mm



Mounting cut-outs [mm]

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

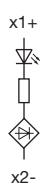
To obtain a complete unit, please select the red components from the pages shown.



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)

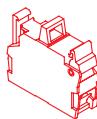


Actuator



Holder

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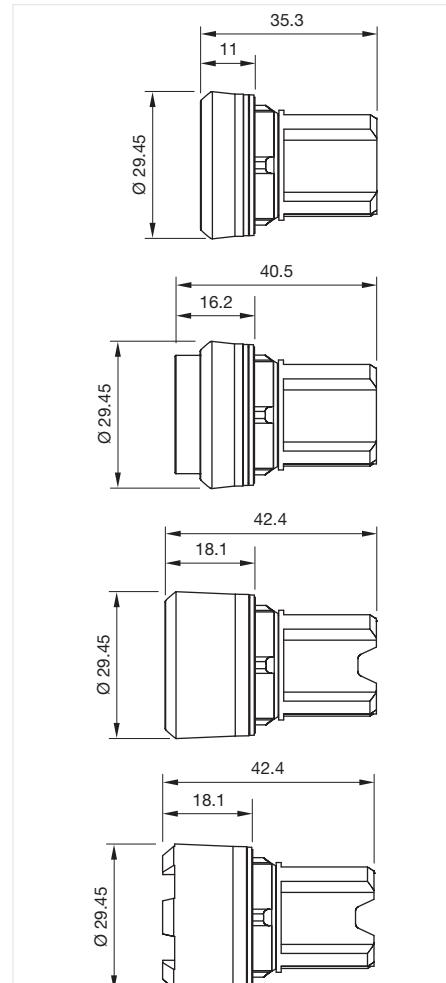


Switching element

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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.

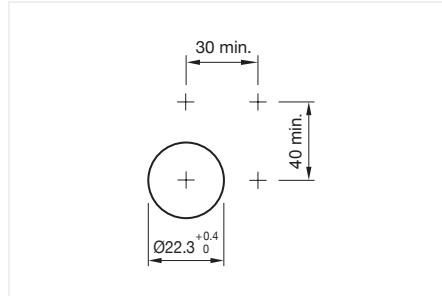


Dimensions [mm]

Product can differ from the current configuration.



Actuator, Front dimension Ø 29,5 mm



Mounting cut-outs [mm]

## General information

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

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

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# 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

# Raised design 45

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
Momentary	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
	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

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# 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

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Wiring diagram 72 Wiring diagram 73



Robust. Ästhetisch und vielseitig.  
EAO Baureihe 45 Leuchtdrucktasten.

Prädestiniert für den rauen Einsatz – dank robuster Ausführung in Schutzart IP69K und dem flachen, ästhetischen Design.

- Robuste Metall- oder Kunststoff-Ausführung (IP69K)
- Einfache und schnelle Montage ohne Spezialwerkzeug
- Ästhetisches Design mit harmonischer LED Ausleuchtung
- Lange mechanische Lebensdauer
- Modulares System mit kundenspezifischen Optionen

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## Illuminated pushbutton, IP66, IP67, IP69K

## Equipment consisting of (schematic overview)

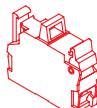


Actuator



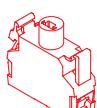
Holder

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Switching element

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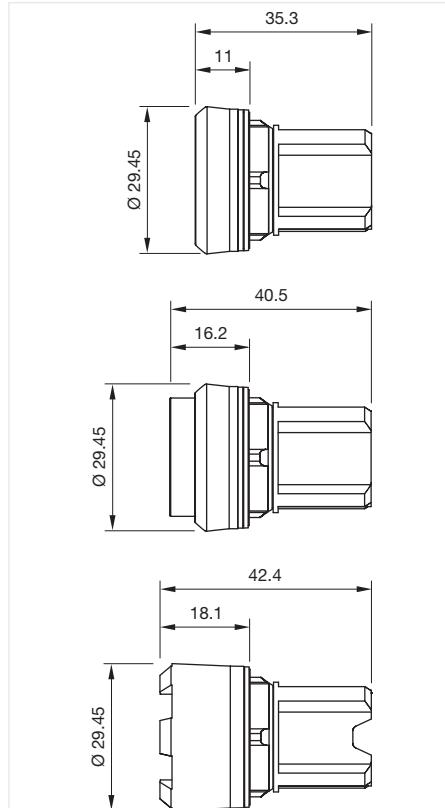


Illumination element

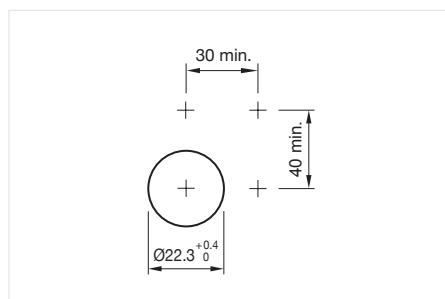
Page 74

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]



Actuator, Front dimension Ø 29,5 mm

Product can differ from the current configuration.

## General information

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

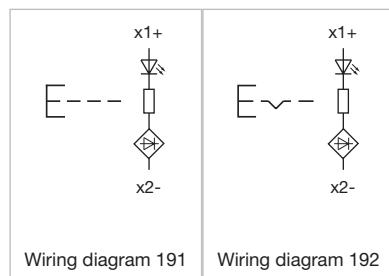
Switching action	Lens colour	Lens shape	Lens type	Front bezel colour	Front bezel material	Housing colour	Housing material	Part No.	Wiring diagram
Momentary	Red	flush	level with front bezel	Black	Plastic	Black	Plastic	45-2231.11E0.000	191
	Amber	flush	level with front bezel	Black	Plastic	Black	Plastic	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



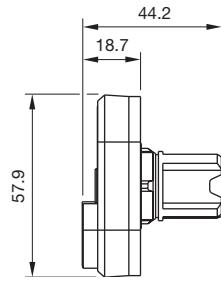
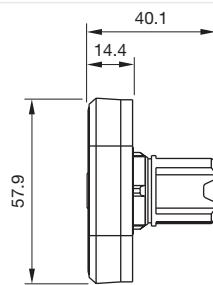
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# 45 Raised design

## Double pushbutton, IP66, IP67, IP69K



Product can differ from the current configuration.



Dimensions [mm]

### Equipment consisting of (schematic overview)

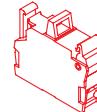


Actuator



Holder

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Switching element

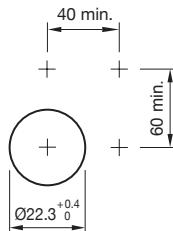
Page 67

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

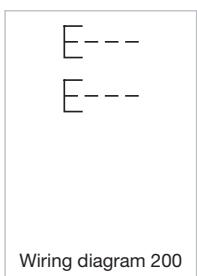
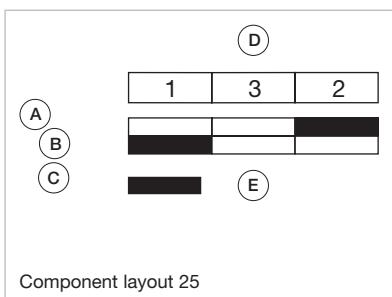


Mounting cut-outs [mm]



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****Component layouts**

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

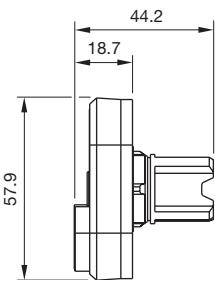
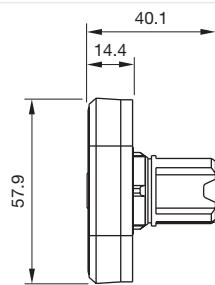
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# 45 Raised design

## Illuminated double pushbutton, IP66, IP67, IP69K

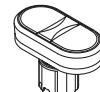


Product can differ from the current configuration.

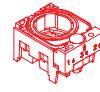


Dimensions [mm]

### Equipment consisting of (schematic overview)



Actuator



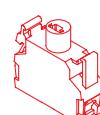
Holder

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Switching element

Page 67



Illumination element

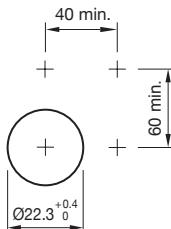
Page 74

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



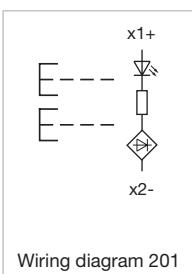
Mounting cut-outs [mm]



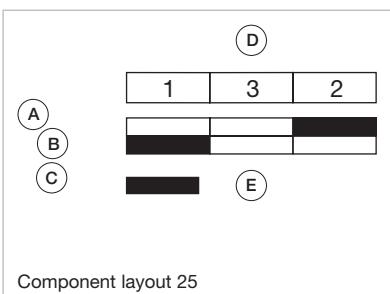
Actuator, Front dimension 58 mm x 30 mm

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



## Component layouts



A = Switching action  
 B = green (white) button pressed  
 C = red (black) button pressed  
 D = Arrangement switching element corresponds 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.

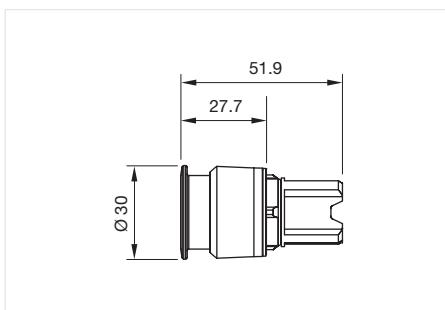
- Compact construction – two switches in one
- Range of colours and marking options
- IP69K sealed and optional silicon covers
- Plastic or metal versions
- Up to three contacts for each pushbutton
- Optional illumination

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# 45 Raised design

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

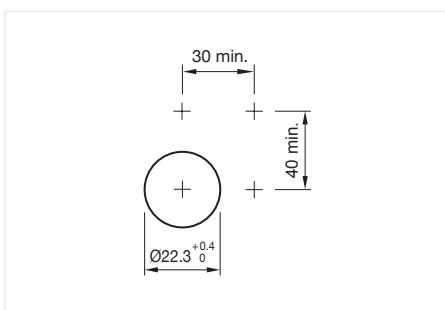


Product can differ from the current configuration.

Dimensions [mm]

### General information

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



Mounting cut-outs [mm]

### Equipment consisting of (schematic overview)

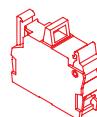


Actuator



Holder

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Switching element

Page 67

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

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Wiring diagram 72

Wiring diagram 73

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Your Expert Partner for Human Machine Interfaces

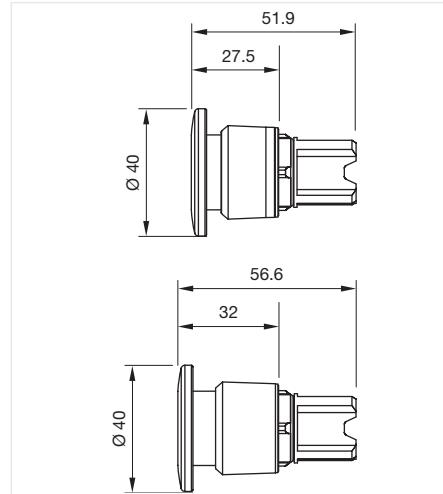
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# 45 Raised design

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

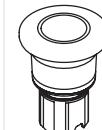


Product can differ from the current configuration.

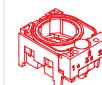


Dimensions [mm]

### Equipment consisting of (schematic overview)

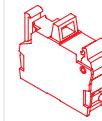


Actuator



Holder

Page 65



Switching element

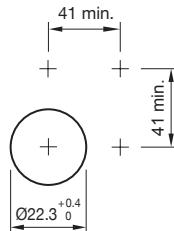
Page 67

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]

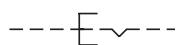


Actuator, Front dimension Ø 40 mm

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
	Black	Black	Plastic	Black	Plastic	45-2531.1910.000	72
Momentary	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
Momentary / maintained	Green	Sand grey	Metal	Black	Plastic	45-2531.3950.000	72
	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

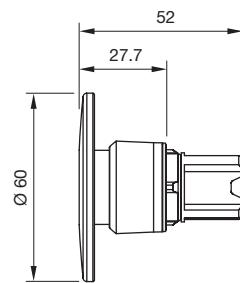
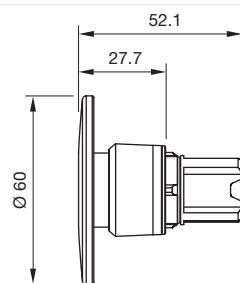
			
Wiring diagram 72	Wiring diagram 73	Wiring diagram 208	Wiring diagram 209

# 45 Raised design

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



Product can differ from the current configuration.



Dimensions [mm]

### Equipment consisting of (schematic overview)

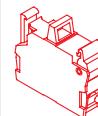


Actuator



Holder

Page 65



Switching element

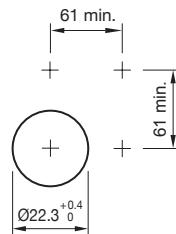
Page 67

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**

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Wiring diagram 72	Wiring diagram 73

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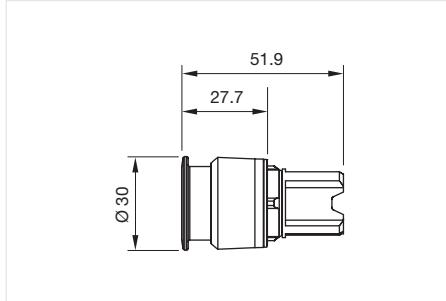
96

# 45 Raised design

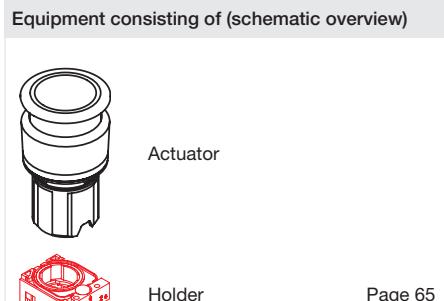
## Mushroom-head pushbutton illuminated Ø 30 mm, IP66, IP67, IP69K



Product can differ from the current configuration.

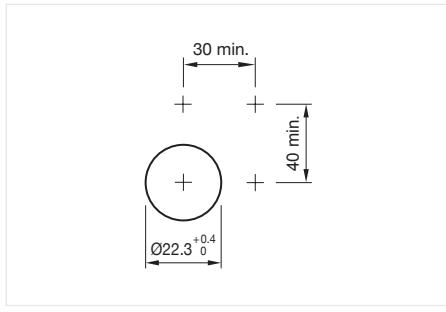


Dimensions [mm]



### General information

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



Mounting cut-outs [mm]

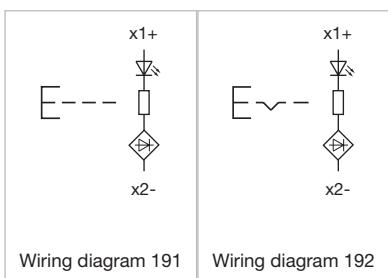
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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
Momentary	Yellow	Sand grey	Metal	Black	Plastic	45-2631.38G0.000	192
	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

**Wiring diagrams**

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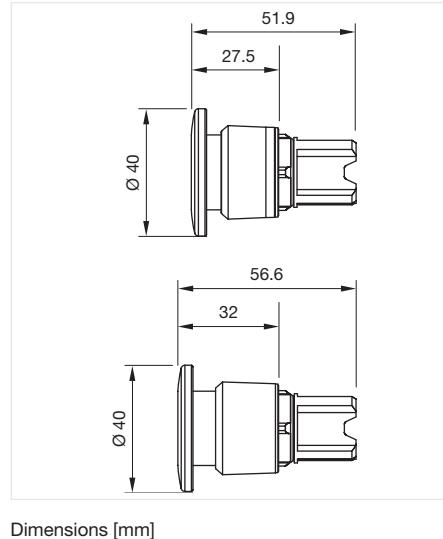
96

# 45 Raised design

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



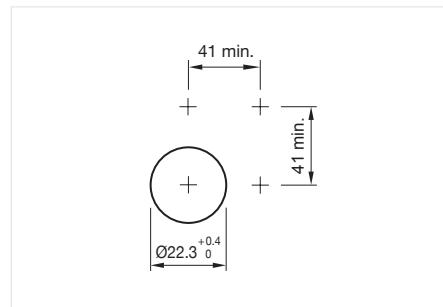
Product can differ from the current configuration.



Dimensions [mm]

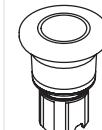
### General information

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

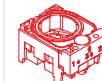


Mounting cut-outs [mm]

### Equipment consisting of (schematic overview)

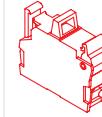


Actuator



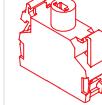
Holder

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Switching element

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Illumination element

Page 74

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.

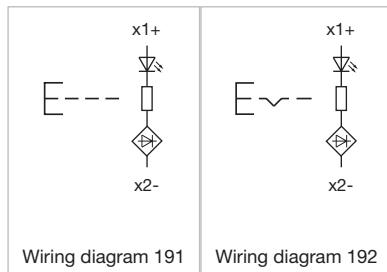


## Actuator, Front dimension Ø 40 mm

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
Momentary	Yellow	Sand grey	Metal	Black	Plastic	45-2630.39G0.000	192
	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

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



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 million switching cycles, depending on function)

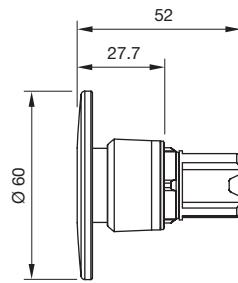
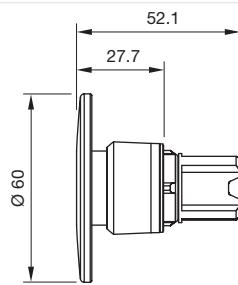
**eao** ■

# 45 Raised design

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



Product can differ from the current configuration.



Dimensions [mm]

Equipment consisting of (schematic overview)

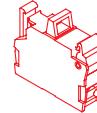


Actuator



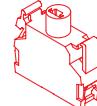
Holder

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Switching element

Page 67



Illumination element

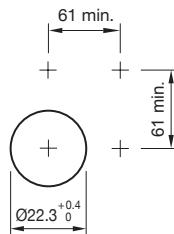
Page 74

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

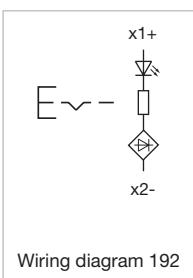


Mounting cut-outs [mm]



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

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**45**

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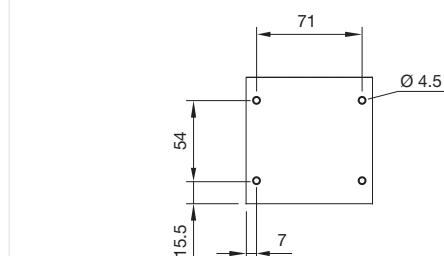
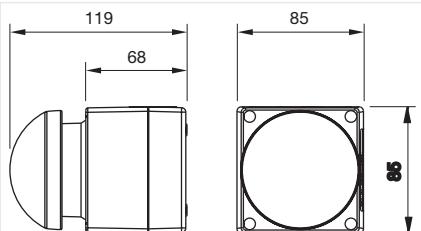
96

# 45 Raised design

## Palm switch, IP66, IP67, IP69K

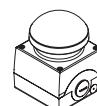


Product can differ from the current configuration.

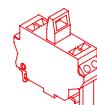


Dimensions [mm]

### 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

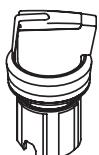


Actuator, Front dimension 85 mm x 85 mm

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)

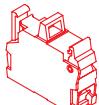


Actuator



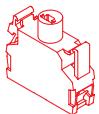
Holder

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Switching element

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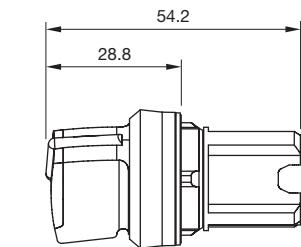


Illumination element

Page 74

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

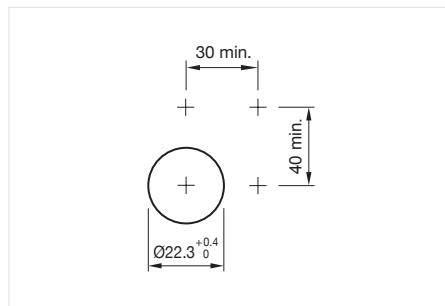
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



Product can differ from the current configuration.



## 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

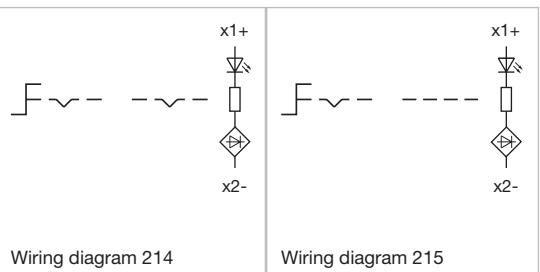
Switching action	Switching angle	Lever colour	Front bezel colour	Front bezel material	Housing material	Part No.	Wiring diagram
Rest - Maintained	90° right	Red	Black	Plastic	Plastic	45-2828.1C20.001	214
	90° right	Yellow	Black	Plastic	Plastic	45-2828.1C40.001	214
	90° right	Green	Black	Plastic	Plastic	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

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# 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

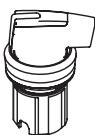


Wiring diagram 214

Wiring diagram 215

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

Equipment consisting of (schematic overview)



Actuator



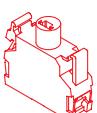
Holder

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Switching element

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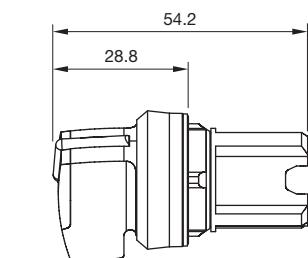


Illumination element

Page 74

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

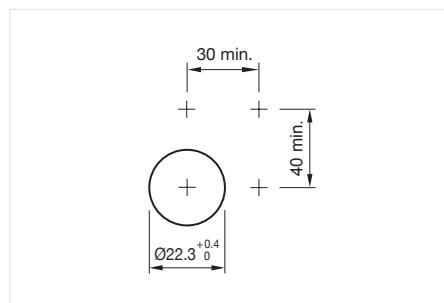
To obtain a complete unit, please select the red components from the pages shown.



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

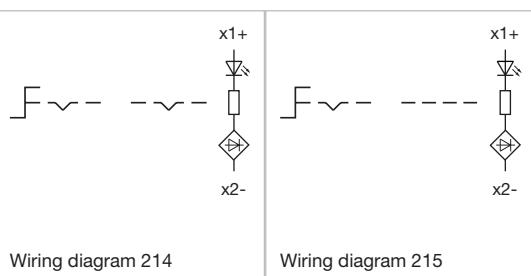


Actuator, Front dimension Ø 29,5 mm

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



Come take a look at our YouTube profile today! Be sure to give us a follow so that you can fully interact with us.

<https://www.youtube.com/user/eaoswitches>

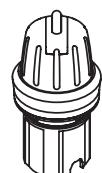
www.eao.com

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

Equipment consisting of (schematic overview)

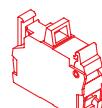


Actuator



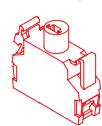
Holder

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Switching element

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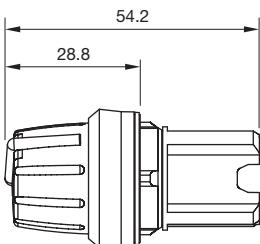


Illumination element

Page 74

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

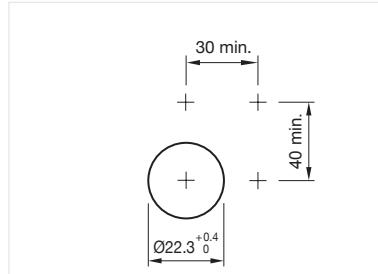
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



Product can differ from the current configuration.



Mounting cut-outs [mm]

## General information

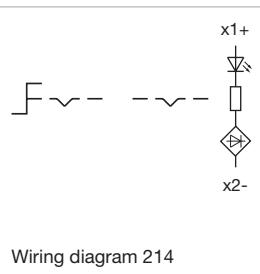
- Mounting depth, incl. front plate, see chapter drawings



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

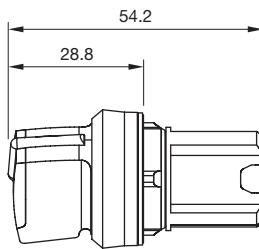


Wiring diagram 214

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# 45 Raised design

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

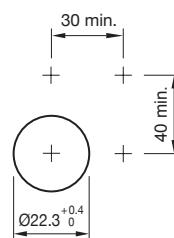


Product can differ from the current configuration.

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)

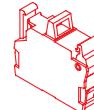


Actuator



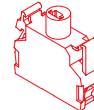
Holder

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Switching element

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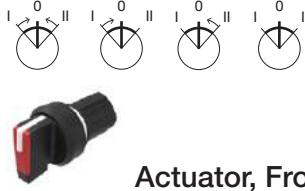


Illumination element

Page 74

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.

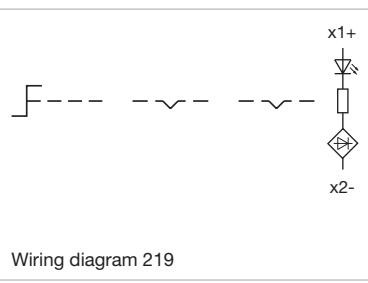
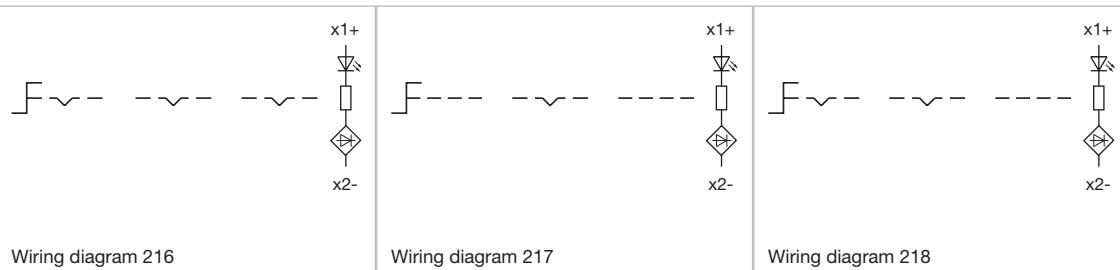


Actuator, Front dimension Ø 29,5 mm

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

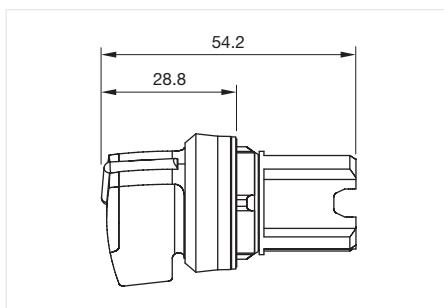


# 45 Raised design

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



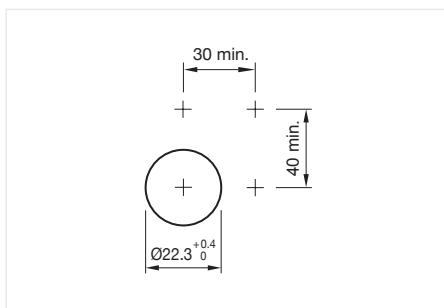
Product can differ from the current configuration.



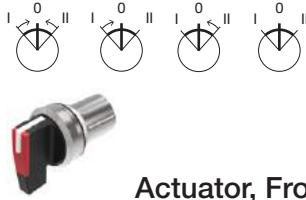
Dimensions [mm]

### General information

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



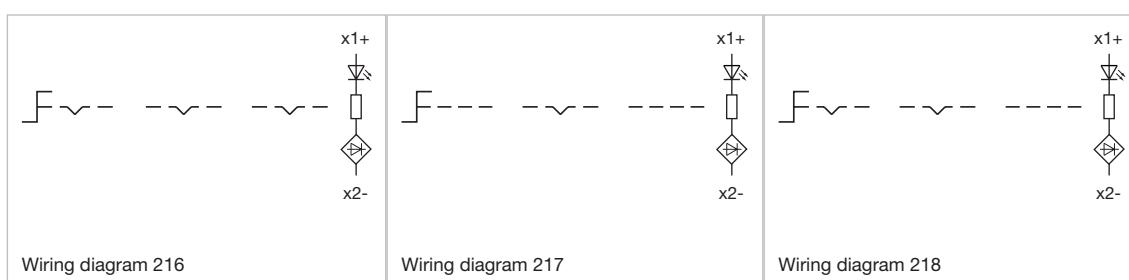
Mounting cut-outs [mm]

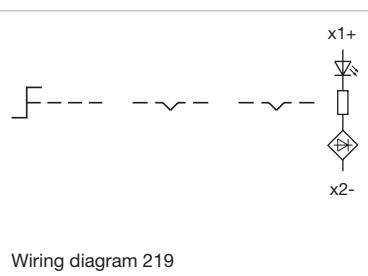


Actuator, Front dimension Ø 29,5 mm

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 diagrams**

01

02

03

04

09

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**45**

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

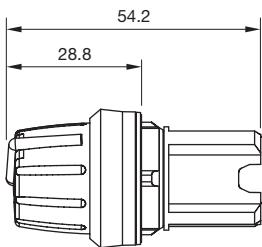
Modular, aesthetic and robust for every conceivable HMI function of machine operating.

- 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 million switching cycles, depending on function)

**e a o**

# 45 Raised design

## Selector switch 4 positions round lever, IP66, IP67, IP69K



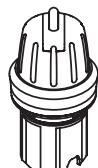
Product can differ from the current configuration.

Dimensions [mm]

### General information

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

### Equipment consisting of (schematic overview)

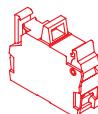


Actuator



Holder

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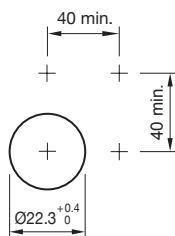


Switching element

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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.



Mounting cut-outs [mm]



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)

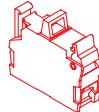


Actuator



Holder

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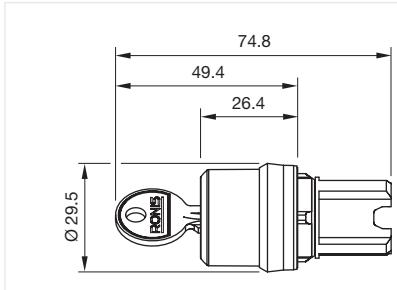


Switching element

Page 67

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.



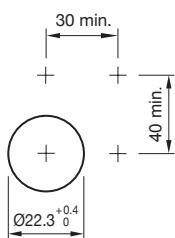
Dimensions [mm]



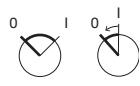
Product can differ from the current configuration.

## General information

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



Mounting cut-outs [mm]



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



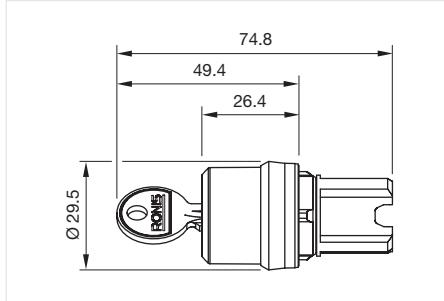
Wiring diagram 79

# 45 Raised design

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



Product can differ from the current configuration.



Dimensions [mm]

### Equipment consisting of (schematic overview)

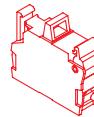


Actuator



Holder

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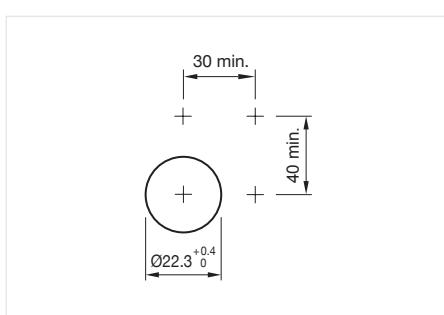


Switching element

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### General information

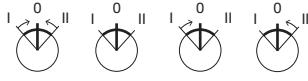
- The standard lock: RONIS, T254
- Mounting depth, incl. front plate, see chapter drawings



Mounting cut-outs [mm]

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

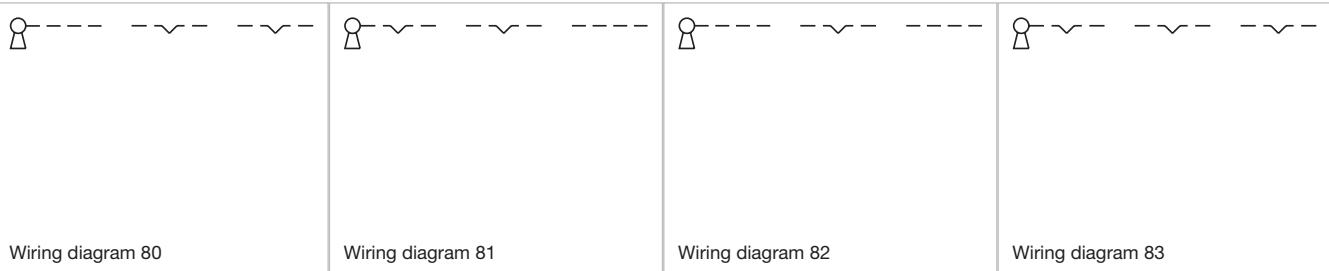
Switching action	Switching angle	Front bezel colour	Front bezel material	Housing material	Part No.	Wiring diagram
Maintained (a) - Rest - Momentary	45° left / 45° right	Black	Plastic	Plastic	45-290A.1000.113	81
	45° left / 45° right	Silver	Metal	Metal	45-290A.2000.113	81
Maintained (a) - Rest - Maintained (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

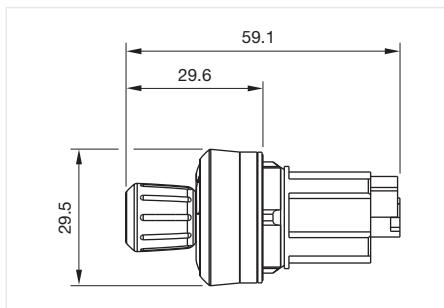


# 45 Raised design

## ID keylock switch, IP65



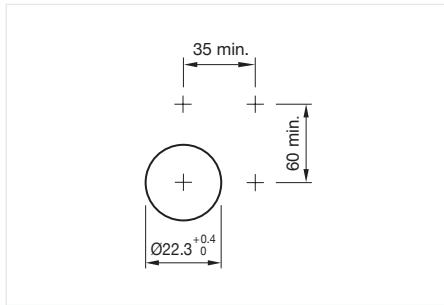
Product can differ from the current configuration.



Dimensions [mm]

### General information

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



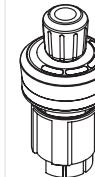
Mounting cut-outs [mm]

### Equipment consisting of (schematic overview)



ID key

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Actuator



Holder

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Electronic module

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

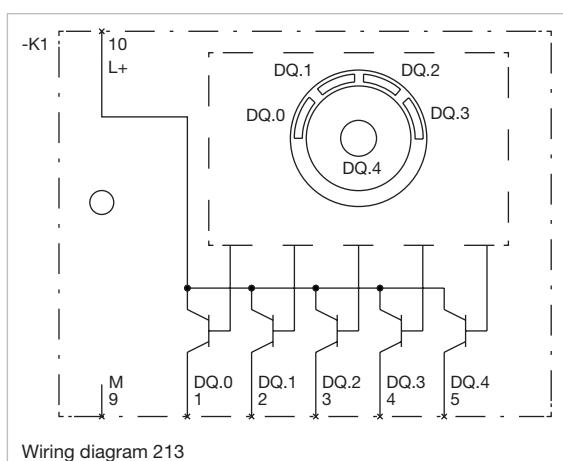
To obtain a complete unit, please select the red components from the pages shown.



Actuator, Front dimension Ø 29,5 mm

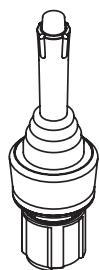
Switching action	Front bezel colour	Front bezel material	Housing material	Part No.	Wiring diagram
Maintained - Maintained - Maintained - Maintained	Black	Plastic	Plastic	45-2S00.1001.404	213
	Sand grey	Metal	Plastic	45-2S00.3001.404	213

## Wiring diagrams



## Toggle stick, IP65, IP67

Equipment consisting of (schematic overview)

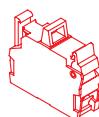


Actuator



Holder

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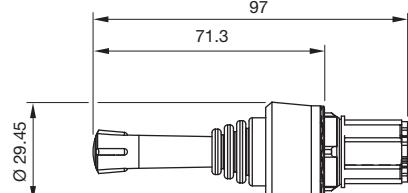
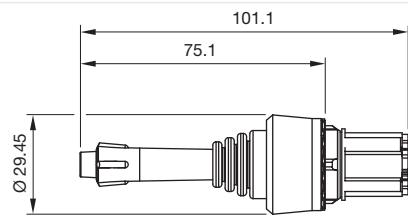


Switching element

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

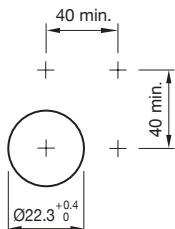
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



Product can differ from the current configuration.



Mounting cut-outs [mm]

## General information

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



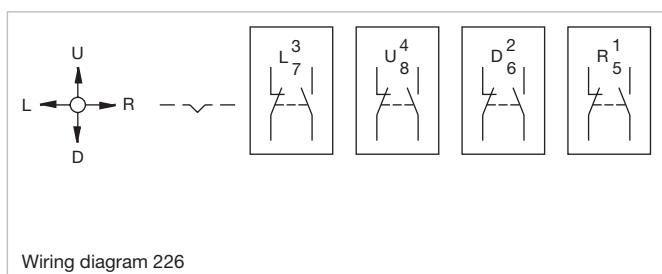
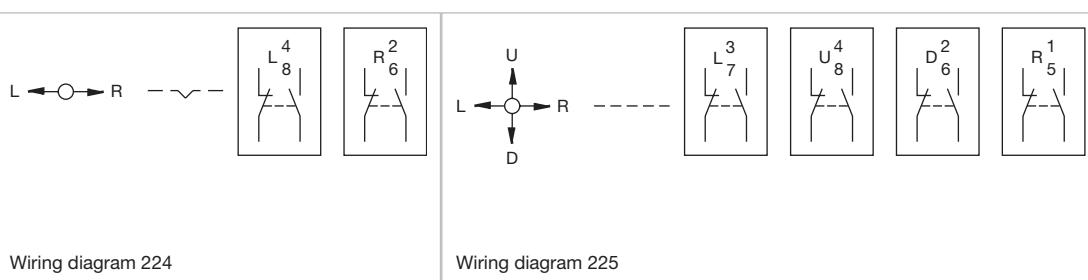
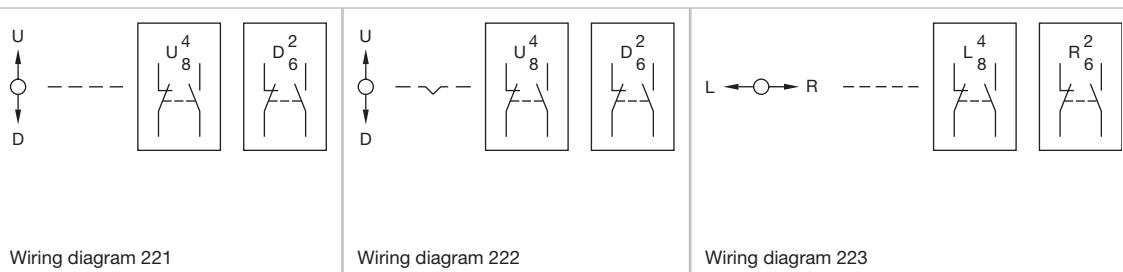
## Actuator, Front dimension Ø 29,5 mm

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



## Toggle switch, IP66, IP67, IP69K

Equipment consisting of (schematic overview)

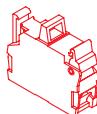


Actuator



Holder

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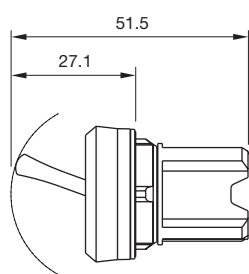


Switching element

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

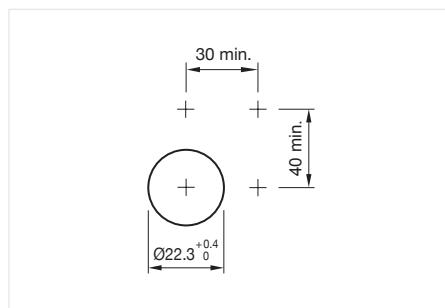
To obtain a complete unit, please select the red components from the pages shown.



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	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

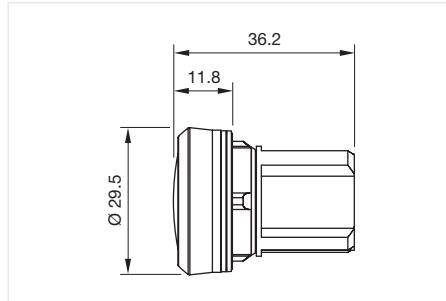
E---	E~ -
Wiring diagram 72	Wiring diagram 73

# 45 Raised design

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



Product can differ from the current configuration.



Dimensions [mm]

### Equipment consisting of (schematic overview)

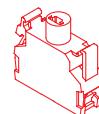


Actuator



Holder

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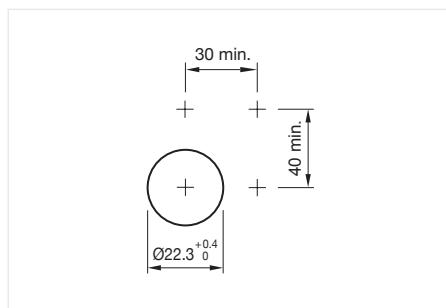


Illumination element

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### General information

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



Mounting cut-outs [mm]

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

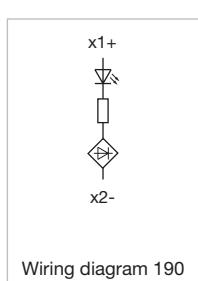
To obtain a complete unit, please select the red components from the pages shown.



Actuator, Front dimension Ø 30 mm

Lens cap colour	Housing material	Part No.	Wiring diagram
Red	Plastic	45-2T00.10E.000	190
Amber	Plastic	45-2T00.10F.000	190
Yellow	Plastic	45-2T00.10G.000	190
Green	Plastic	45-2T00.10H.000	190
Blue	Plastic	45-2T00.10J.000	190
Colourless	Plastic	45-2T00.10K.000	190
White	Plastic	45-2T00.10N.000	190
Red	Metal	45-2T00.20E.000	190
Amber	Metal	45-2T00.20F.000	190
Yellow	Metal	45-2T00.20G.000	190
Green	Metal	45-2T00.20H.000	190
Blue	Metal	45-2T00.20J.000	190
Colourless	Metal	45-2T00.20K.000	190
White	Metal	45-2T00.20N.000	190

### Wiring diagrams



Wiring diagram 190

## Indicator front illumination, IP66, IP67, IP69K

Equipment consisting of (schematic overview)

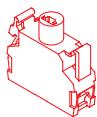


Actuator



Holder

Page 65

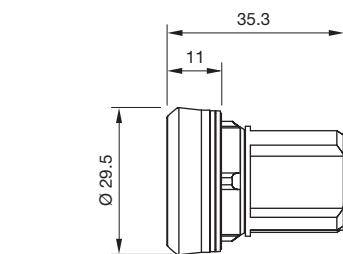


Illumination element

Page 74

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

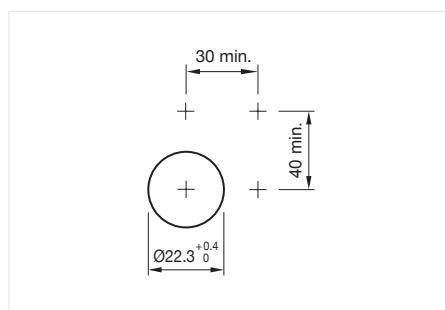
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



Product can differ from the current configuration.



Mounting cut-outs [mm]

## General information

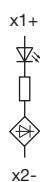
- Mounting depth, incl. front plate, see chapter drawings



## 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	45-2T07.10E.000	190
	Plastic	Yellow	Plastic	45-2T07.10G.000	190
	Plastic	Green	Plastic	45-2T07.10H.000	190
	Plastic	Blue	Plastic	45-2T07.10J.000	190
	Plastic	White	Plastic	45-2T07.10K.000	190
Sand grey	Metal	Red	Plastic	45-2T07.30E.000	190
	Metal	Yellow	Plastic	45-2T07.30G.000	190
	Metal	Green	Plastic	45-2T07.30H.000	190
	Metal	Blue	Plastic	45-2T07.30J.000	190
	Metal	White	Plastic	45-2T07.30K.000	190

## Wiring diagrams



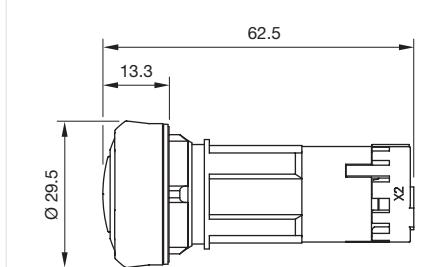
Wiring diagram 190

# 45 Raised design

## 01 Buzzer, IP40



Product can differ from the current configuration.

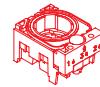


Dimensions [mm]

### Equipment consisting of (schematic overview)



Actuator

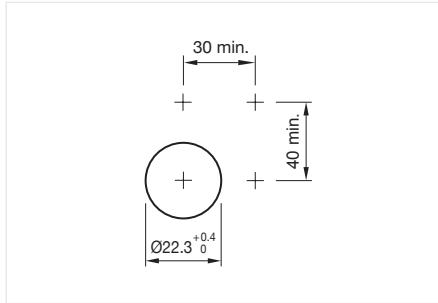


Holder

Page 65

### General information

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



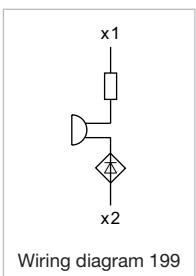
Mounting cut-outs [mm]



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

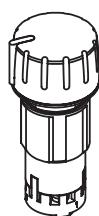
## 56 Wiring diagrams



Wiring diagram 199

## Potentiometer, IP66, IP67, IP69K

Equipment consisting of (schematic overview)

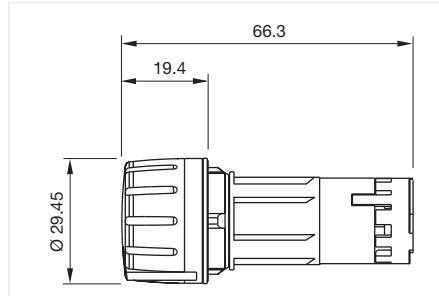


Actuator



Holder

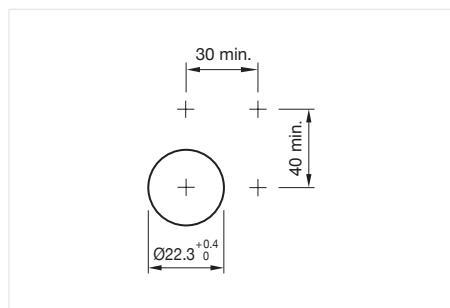
Page 65



Product can differ from the current configuration.

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

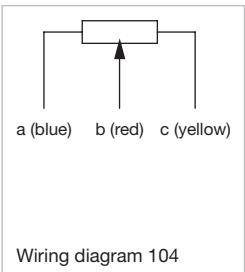
- Power 0.5 W
- Mounting depth, incl. front plate, see chapter drawings



## 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

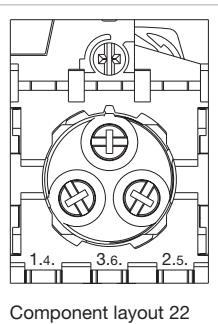
## Wiring diagrams



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# 45 Raised design

## Component layouts



Component layout 22



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

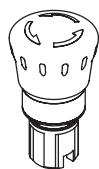
Ideal for harsh industrial environments – thanks to IP69K protection and the long service life.

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

e a o ■

## Stop switch, IP66, IP67, IP69K

Equipment consisting of (schematic overview)

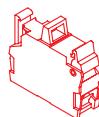


Actuator



Holder

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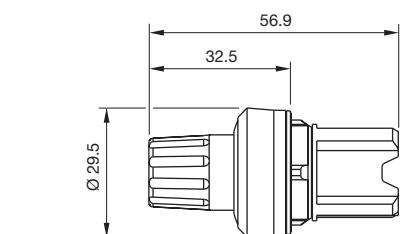
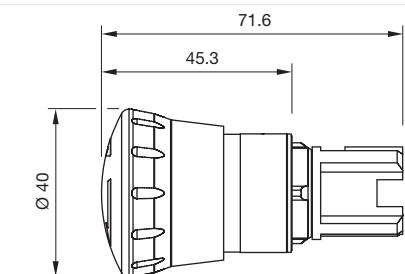


Switching element

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

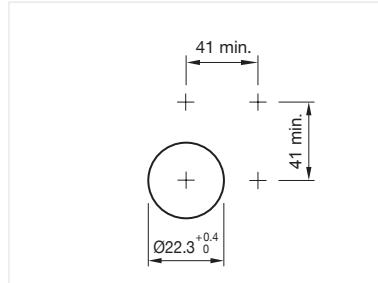
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



Product can differ from the current configuration.



Mounting cut-outs [mm]

## General information

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



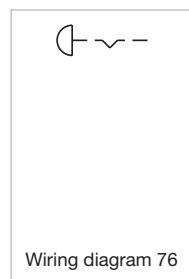
Actuator

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

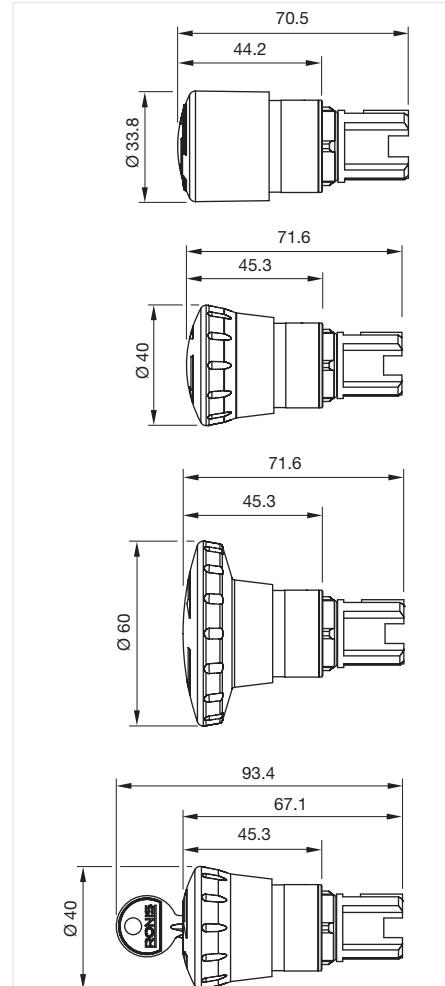
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# 45 Raised design

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

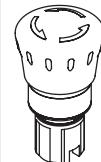


Product can differ from the current configuration.



Dimensions [mm]

Equipment consisting of (schematic overview)

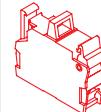


Actuator



Holder

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Switching element

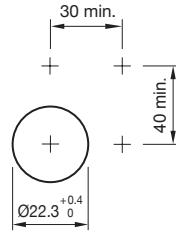
Page 67

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

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



Mounting cut-outs [mm]

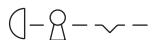


Actuator

Product attributes	Lens colour	Front bezel colour	Front bezel material	Dimensions	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 clockwise	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

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

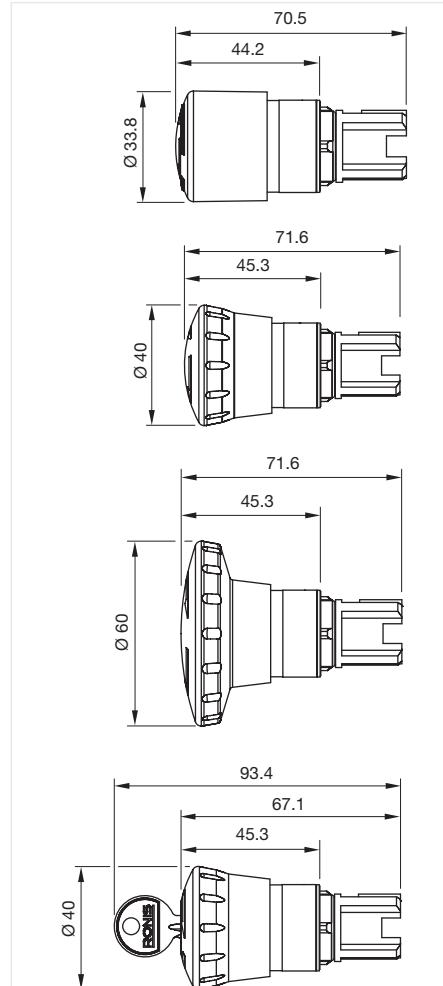
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# 45 Raised design

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

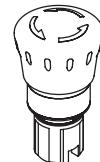


Product can differ from the current configuration.



Dimensions [mm]

Equipment consisting of (schematic overview)

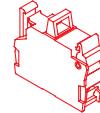


Actuator



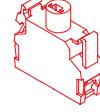
Holder

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Switching element

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Illumination element

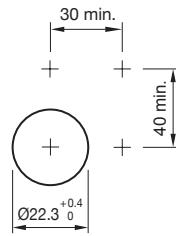
Page 74

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

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



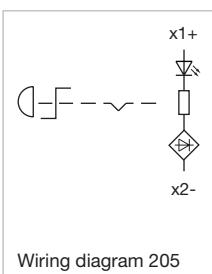
Mounting cut-outs [mm]



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



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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)

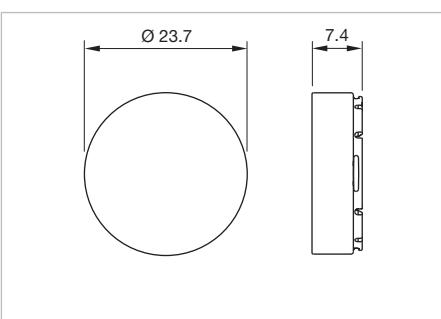
e a o ■

# 45 Raised design



**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

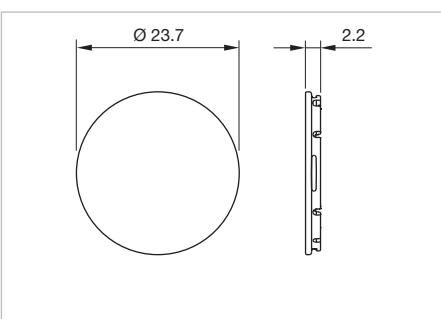


Dimensions [mm]



**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

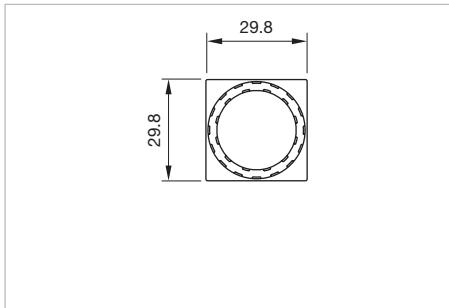


Dimensions [mm]



Single frame

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

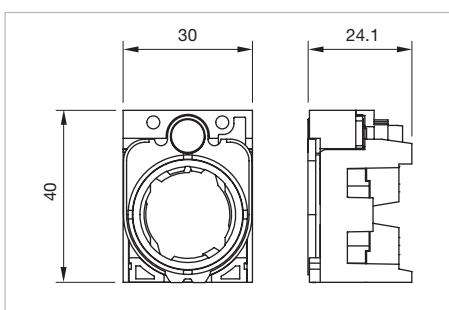


Dimensions [mm]



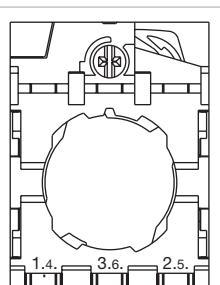
Holder for 3 elements

Material	Part No.	Component Layout
Plastic	45-2300.1000.000	23
Metal	45-2300.2000.000	23
Meatl/plastic	45-2300.2000.000	23



Dimensions [mm]

## Component layouts



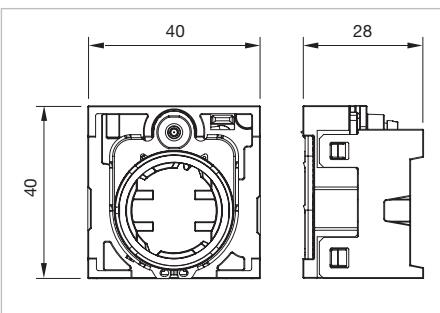
Component layout 23

# 45 Components



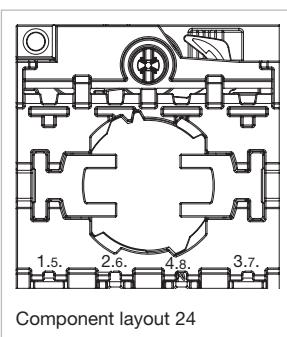
Holder for 4 elements

Product attributes	Material	Part No.	Component 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



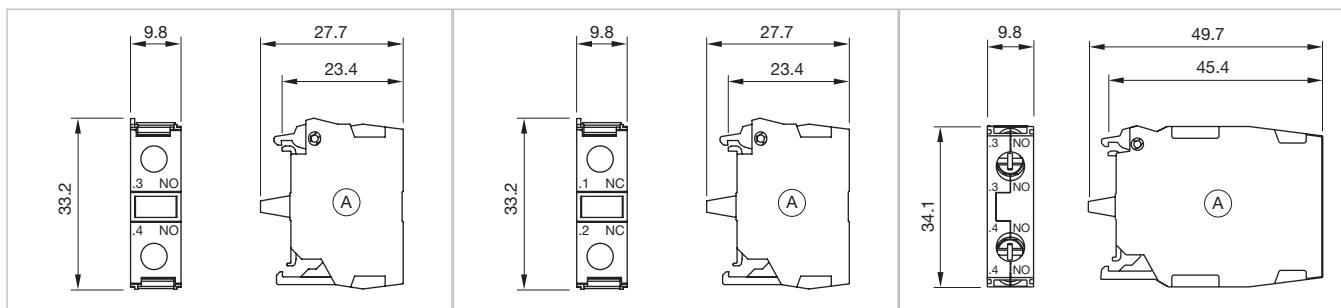
Component layout 24



### 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

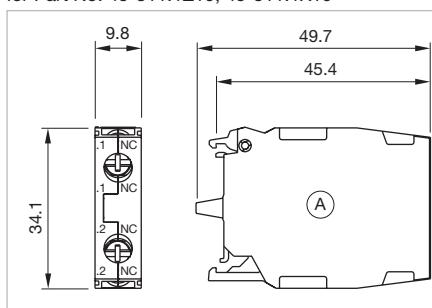
Contacts: NC = Normally closed, NO = Normally open



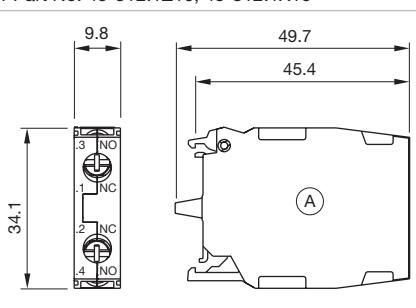
Dimensions [mm]  
A = Screw terminal  
for Part No. 45-311.1Z10, 45-311.1X10

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

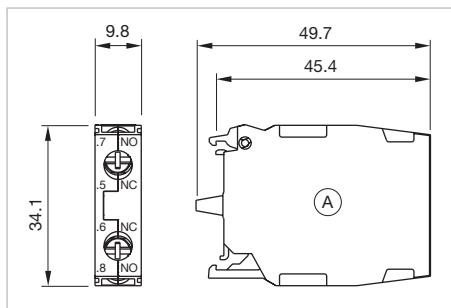
Dimensions [mm]  
A = Screw terminal  
for Part No. 45-313.1Z10



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



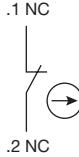
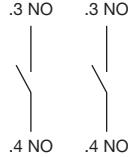
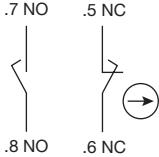
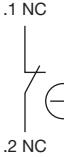
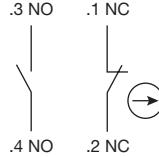
Dimensions [mm]  
A = Screw terminal  
for Part No. 45-315.1Z10



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

# 45 Components

## 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)

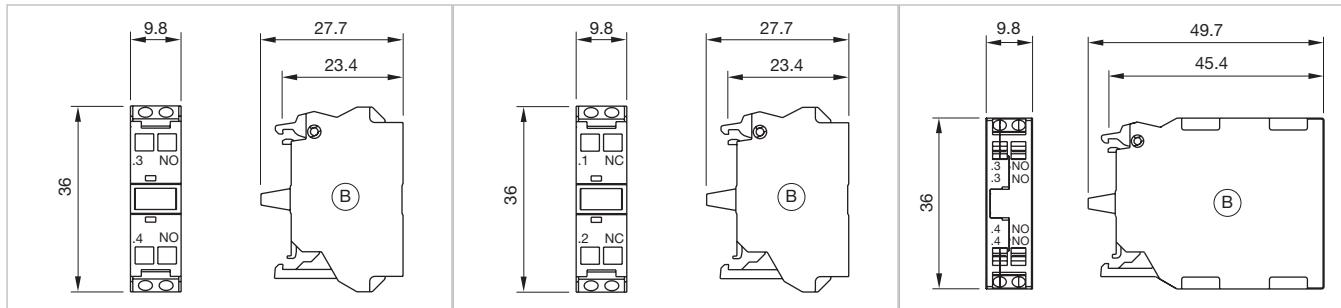
e a o ■



### 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

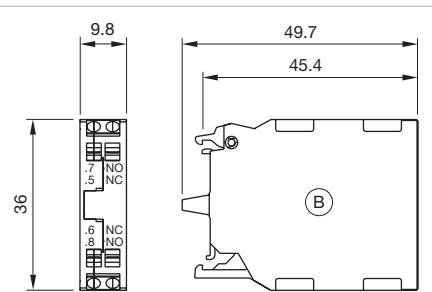
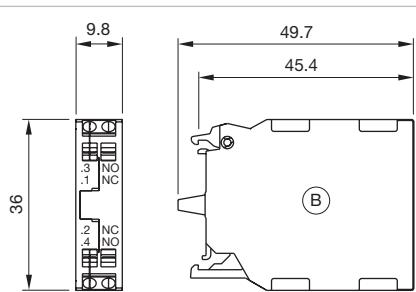
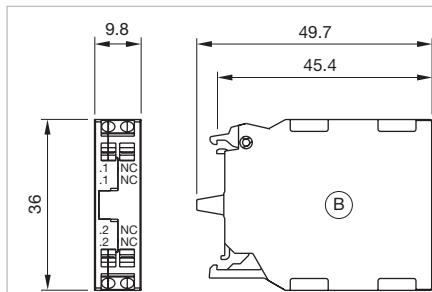
Contacts: NC = Normally closed, NO = Normally open



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

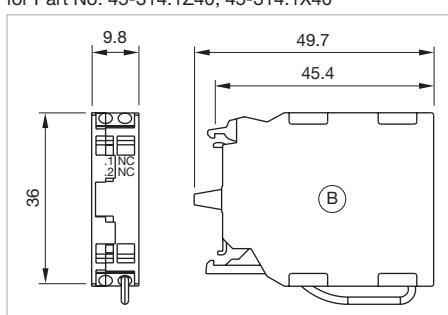
Dimensions [mm]  
B = Spring-type terminal  
for Part No. 45-313.1Z40, 45-313.1X40



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

# 45 Components

## Wiring diagrams

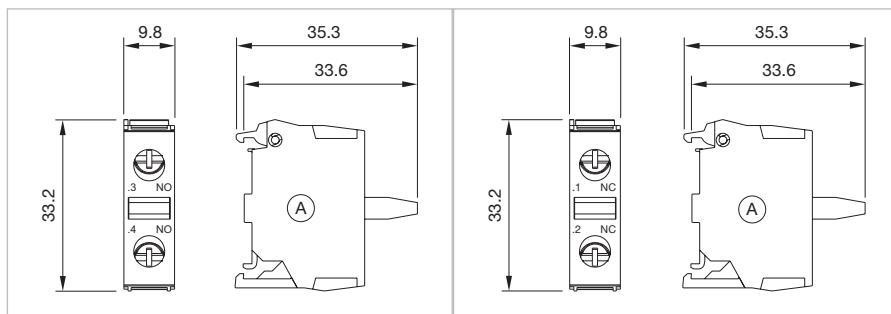
 Wiring diagram 227	 Wiring diagram 228	 Wiring diagram 231	 Wiring diagram 232	 Wiring diagram 233	 Wiring diagram 234	 Wiring diagram 235
------------------------	------------------------	------------------------	------------------------	------------------------	------------------------	------------------------



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

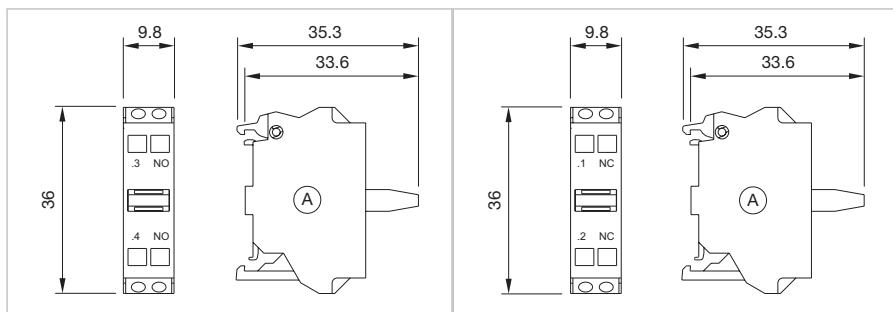
 Wiring diagram 227	 Wiring diagram 228
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### Slow-make switching switching element base mounting with spring-type terminal

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

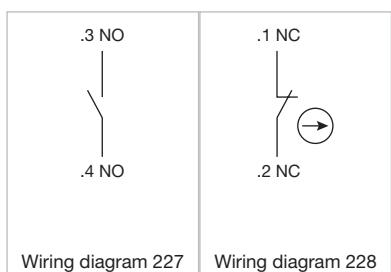
Contacts: NC = Normally closed, NO = Normally open



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



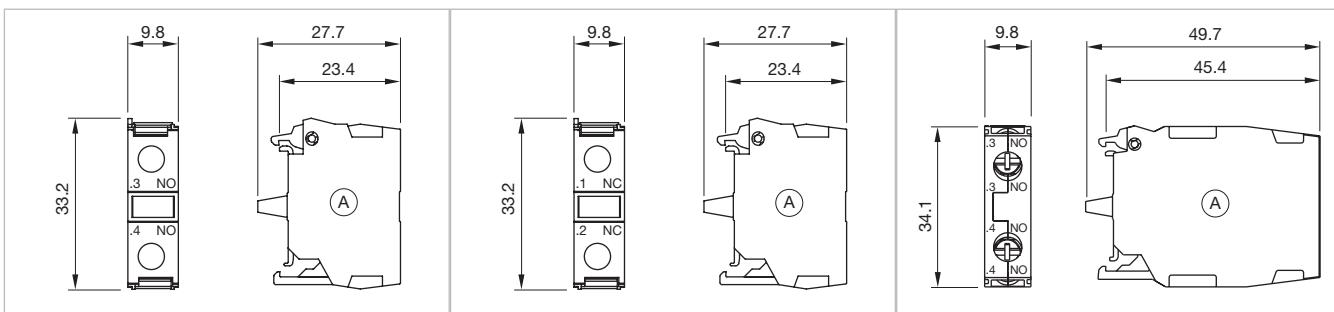
# 45 Components



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

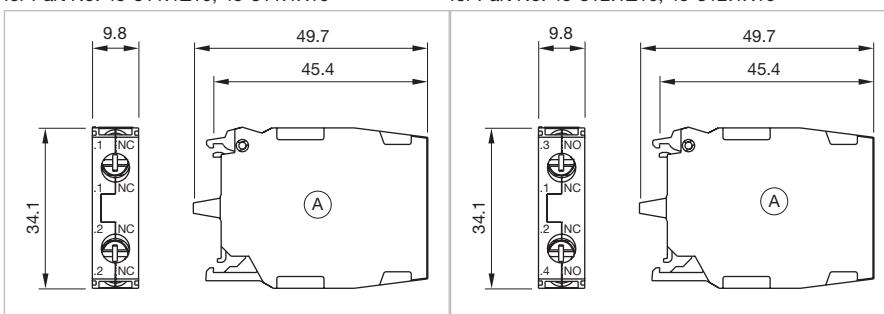
Contacts: NC = Normally closed, NO = Normally open



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

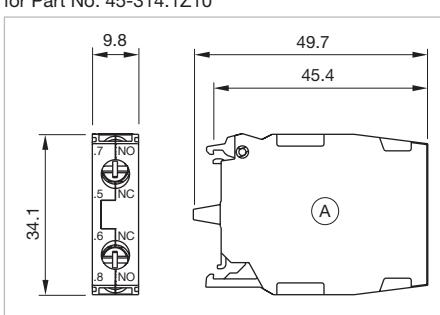
Dimensions [mm]  
A = Screw terminal  
for Part No. 45-312.1Z10, 45-312.1X10

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



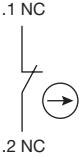
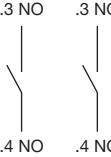
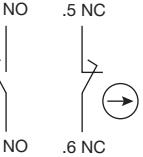
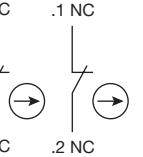
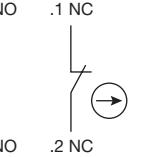
Dimensions [mm]  
A = Screw terminal  
for Part No. 45-314.1Z10

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



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

## Wiring diagrams

					
Wiring diagram 227	Wiring diagram 228	Wiring diagram 231	Wiring diagram 233	Wiring diagram 234	Wiring diagram 235

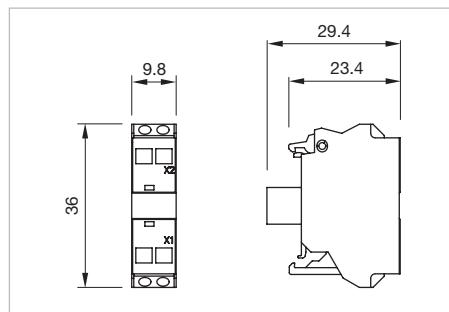
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# 45 Components



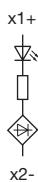
Illumination element front mounting with spring-type terminal

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

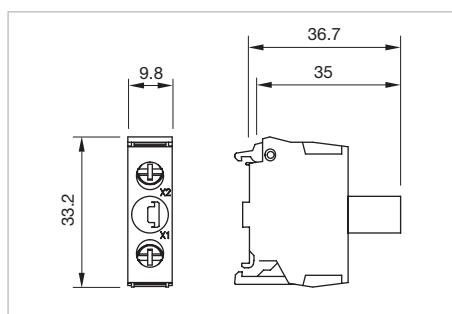


Wiring diagram 229



Illumination element base mounting with screw terminal

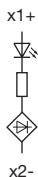
Operating voltage	Illuminative colour	Part No.	Wiring diagram
6 - 24 V AC/DC	Red	45-320.2E11	229
	Amber	45-320.2F11	229
	Yellow	45-320.2G11	229
	Green	45-320.2H11	229
	Blue	45-320.2J11	229
	White	45-320.2N11	229
24 - 240 V AC/DC	Red	45-320.2E12	229
	Amber	45-320.2F12	229
	Yellow	45-320.2G12	229
	Green	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]

# 45 Components

## Wiring diagrams

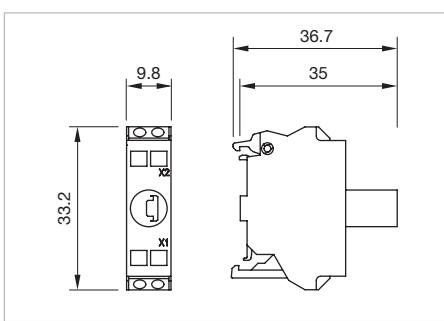


Wiring diagram 229



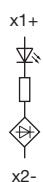
Illumination element base mounting with spring-type terminal

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

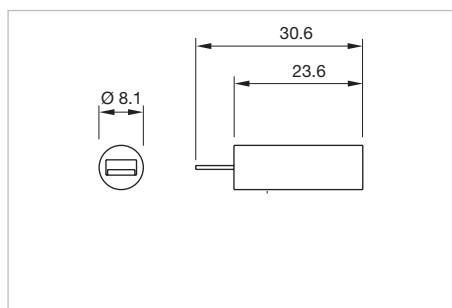


Wiring diagram 229



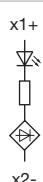
## Illumination element PCB mounting

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



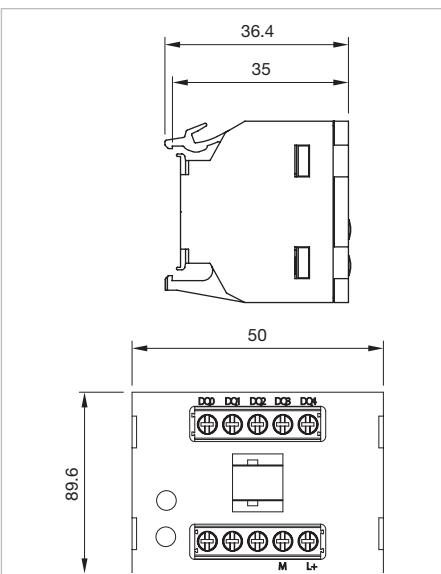
Wiring diagram 229

# 45 Components



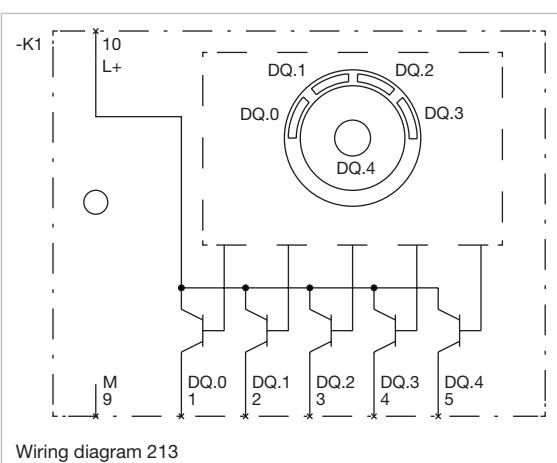
Electronic module

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



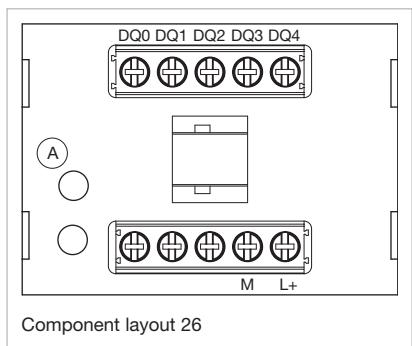
Dimensions [mm]

## Wiring diagrams



Wiring diagram 213

## Component layouts



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

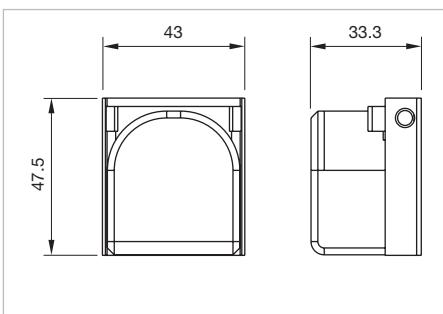
# 45 Components

01 Front side



02 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



03 Dimensions [mm]

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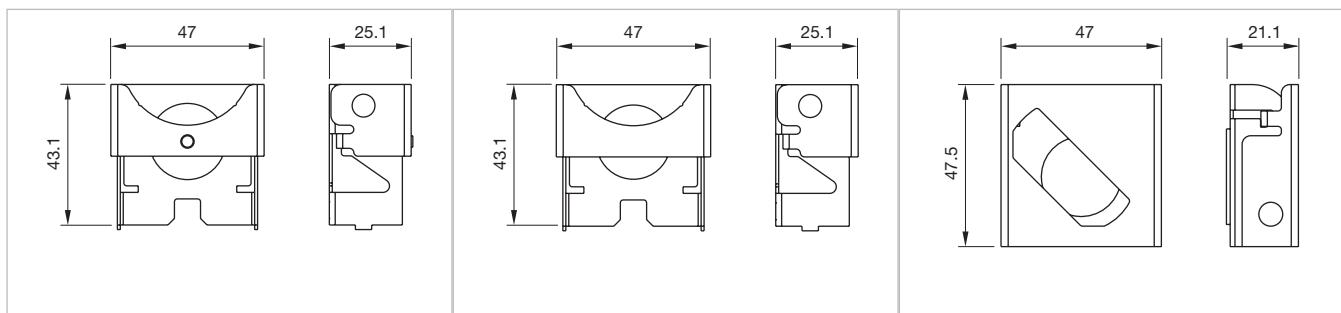
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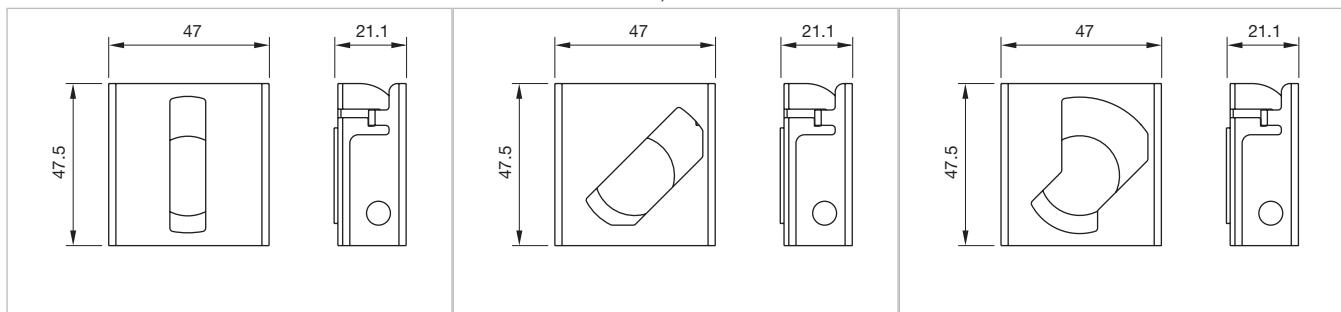


### Locking device

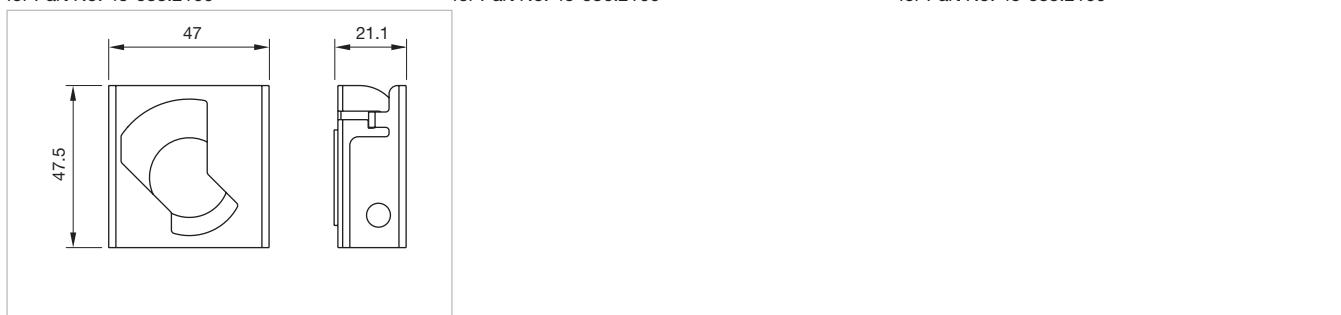
Product attributes	Dimensions	Material	Colour	Part No.
For pushbutton with lens raised	47 mm x 25.1 mm x 43.1 mm	Metal	Silver	45-531.2100
For pushbutton with lens flat	47 mm x 25.1 mm x 43.1 mm	Metal	Silver	45-532.2100
For mushroom-head pushbutton Ø 30 mm or Ø 40 mm	47 mm x 25.1 mm x 43.1 mm	Metal	Silver	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

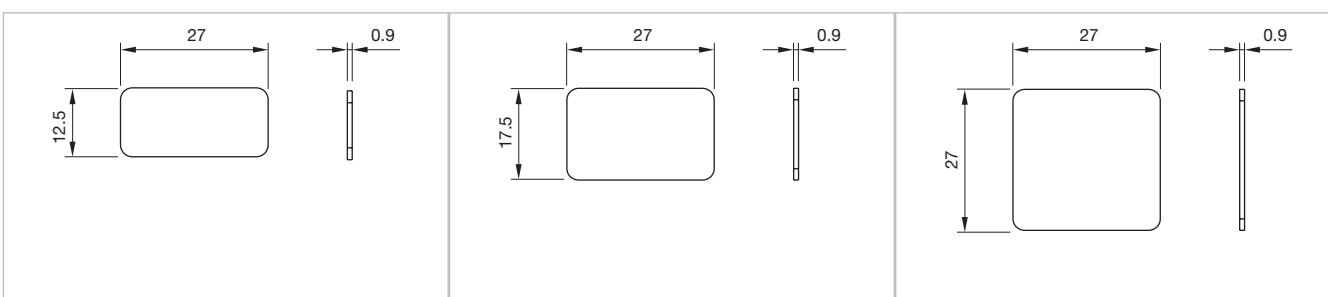


Dimensions [mm]  
for Part No. 45-537.2100

# 45 Accessories

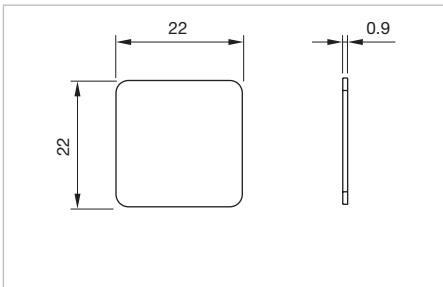
## Legend plate

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 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
150 mm x 38 mm	Plastic	Yellow	adhesive	NOT-HALT EMERGENCY STOP EMERGENZA EMERGENCIA	45-50J.140Z
	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.



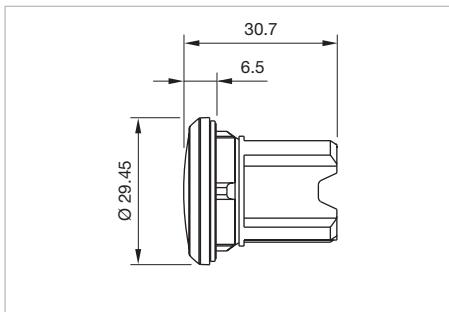
### Legend plate for potentiometer

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



### Blind plug

Material	Colour	Part No.
Plastic	Black	45-506.1100
Plastic	Metal plastic	45-506.3A00
Metal	Silver	45-506.2A00



Dimensions [mm]



### Spare key

Product attributes	Part No.
2 spare keys	45-522.0900

#### Additional information

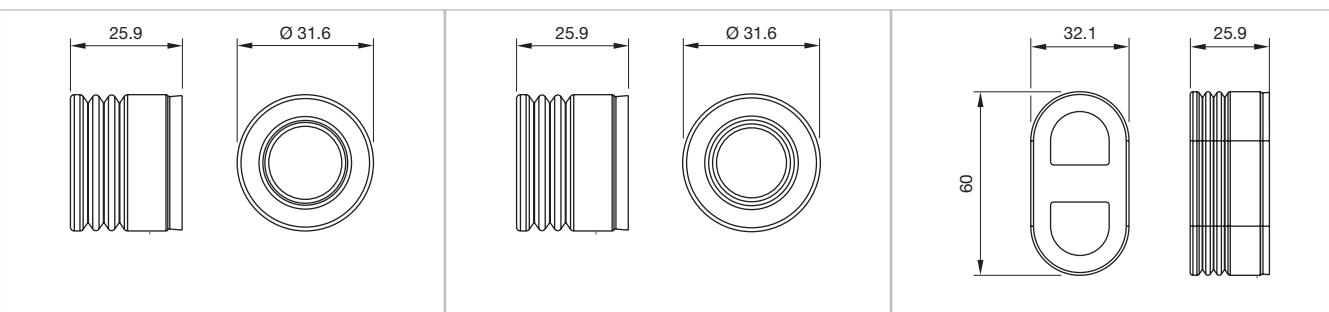
- For standard lock RONIS T254

# 45 Accessories



## Protective cap

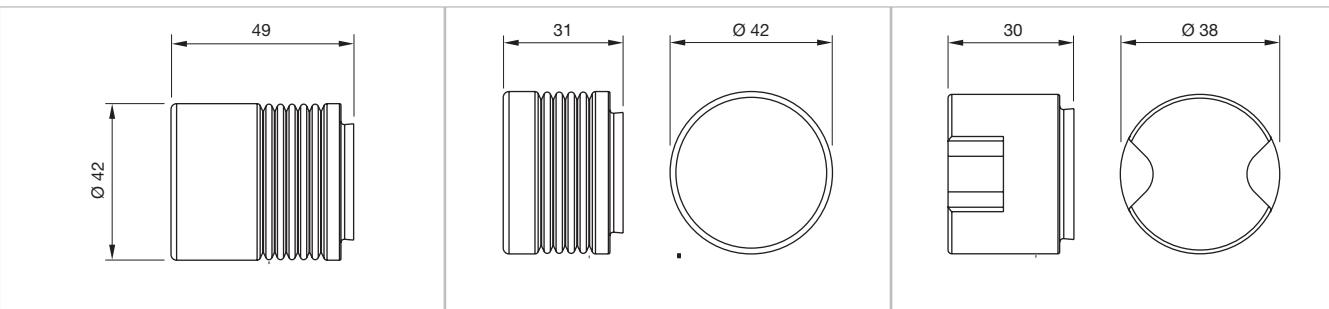
Product attributes	Material	Colour	Optics	Part No.
For lens raised above bezel	Silicone	Colourless	transparent	45-544.1K00
For lens flush	Silicone	Colourless	transparent	45-545.1K00
For lens raised above bezel	Silicone	Colourless	transparent	45-547.1K00
For lens flush	Silicone	Colourless	transparent	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

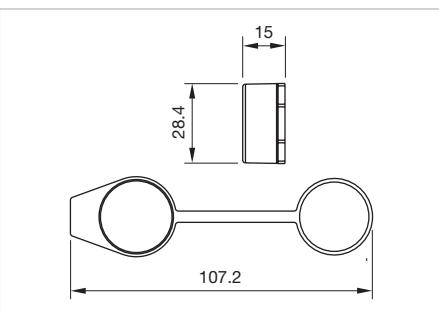
Dimensions [mm]  
for Part No. 45-547.1K00, 45-548.1K00



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

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

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

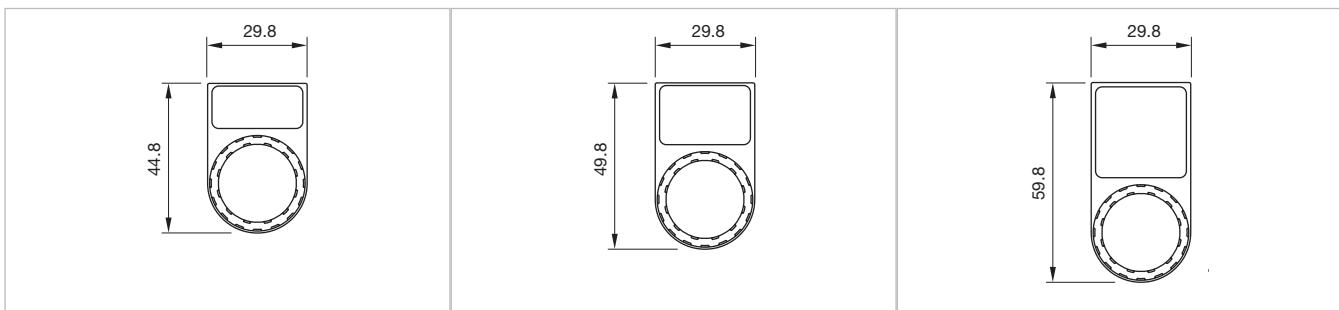


Dimensions [mm]  
for Part No. 45-50F.1100



### Legend support without legend

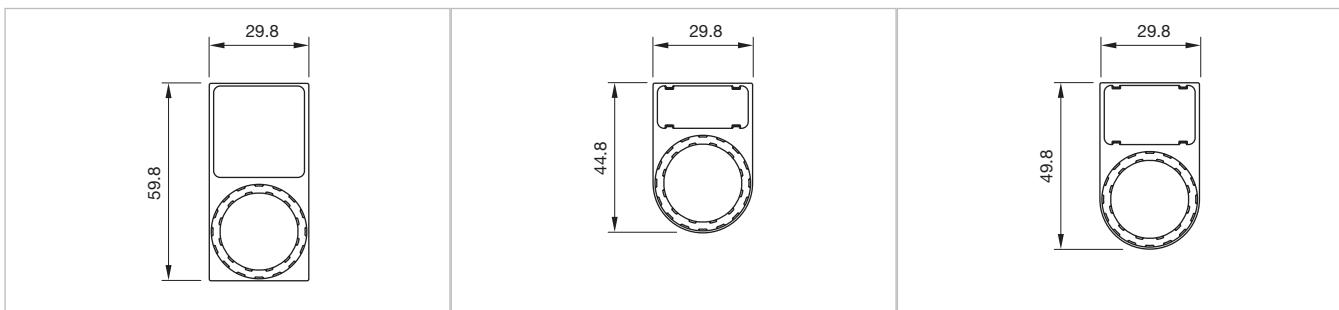
Product attributes	Material	Colour	Mounting type	Part No.
For legend 27 mm x 12.5 mm	Plastic	Black	For sticking or snapping in place	45-564.1102
	Plastic	Black	For sticking or snapping in place	45-567.1103
For legend 27 mm x 27 mm	Plastic	Black	For sticking or snapping in place	45-569.1105
	Plastic	Black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

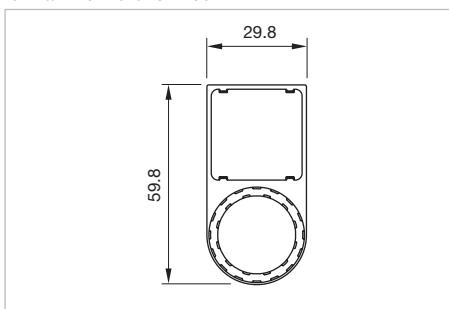
Dimensions [mm]  
for Part No. 45-569.1105



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

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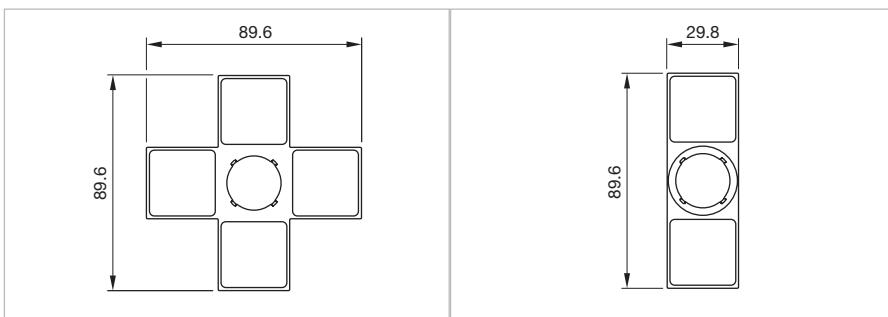
96

# 45 Accessories



## 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



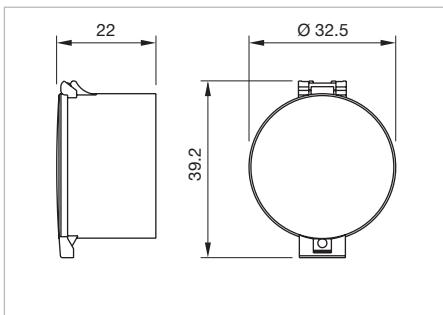
Dimensions [mm]  
for Part No. 45-571.1105

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

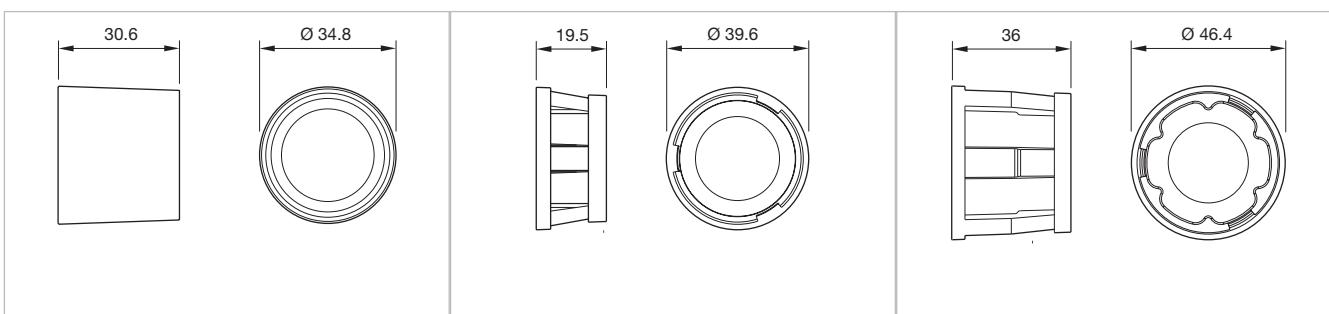


Dimensions [mm]



## 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

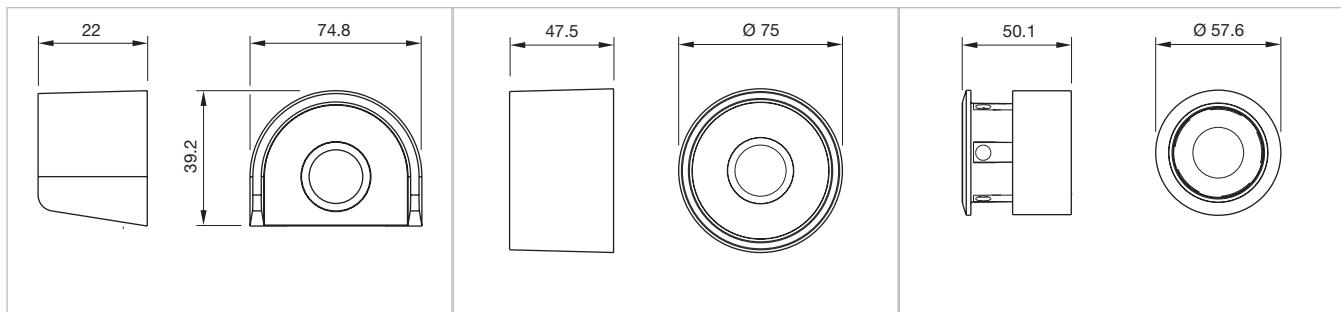


### E stop protective shroud

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 pad-locks	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

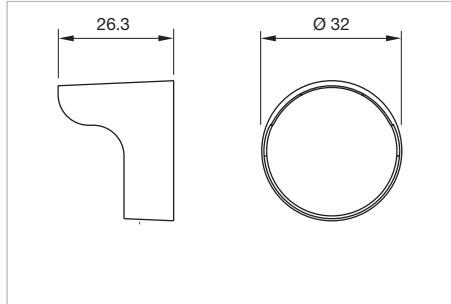
Dimensions [mm]  
for Part No. 45-550.1400

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]

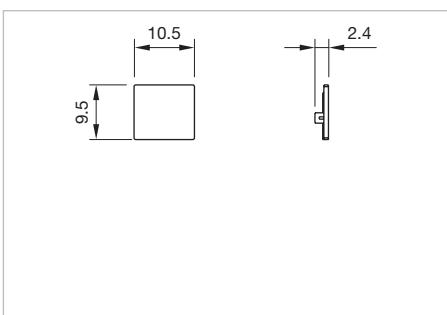
# 45 Accessories

01 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

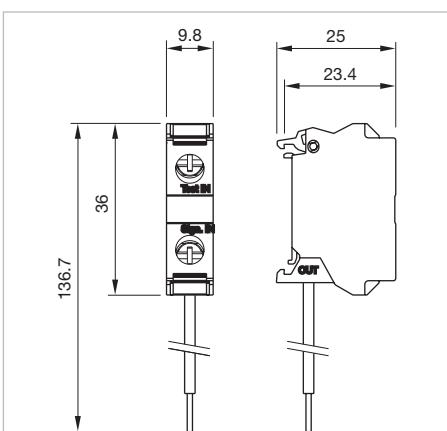


Dimensions [mm]



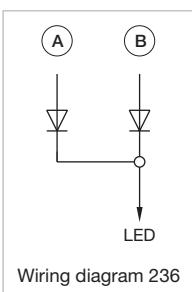
Test module

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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# 45 Accessories

## Mounting



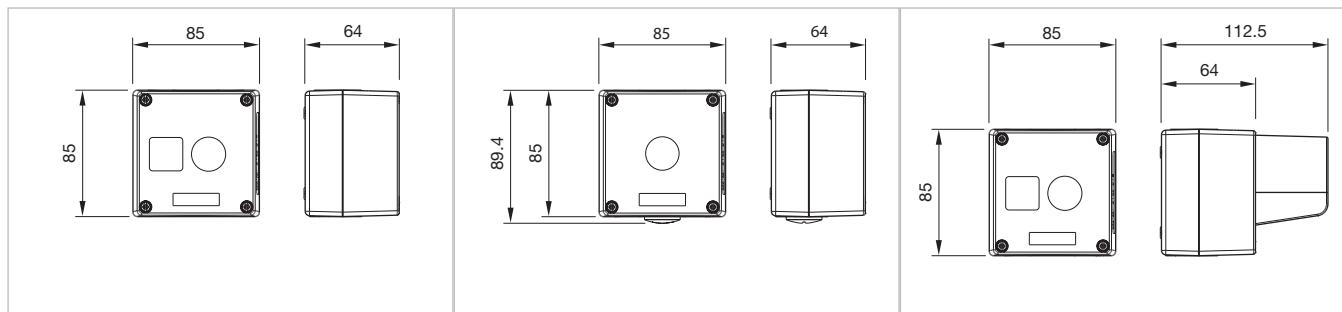
Adapter for reduction of 30.5 mm to 22.3 mm

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



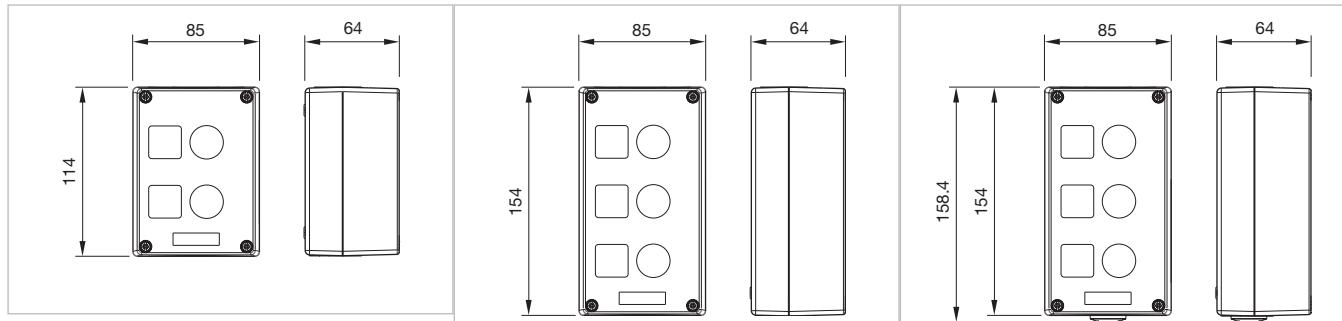
Enclosure

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



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

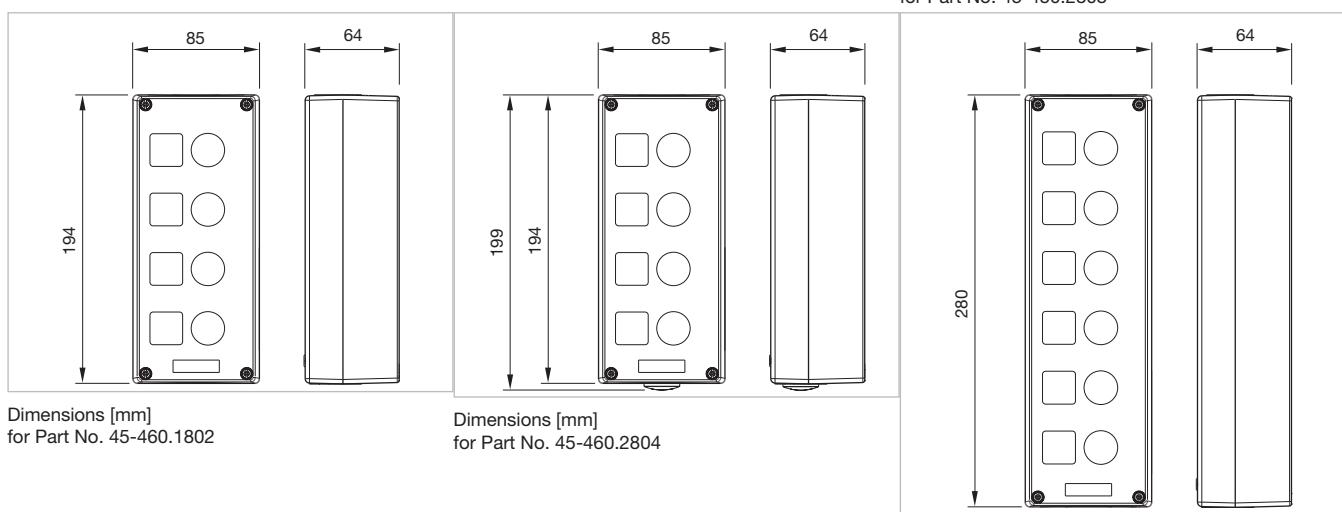
Dimensions [mm]  
for Part No. 45-410.2403, 45-430.2803, 45-420.2803 for Part No. 45-420.1401, 45-420.2403



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

Dimensions [mm]  
for Part No. 45-450.1801

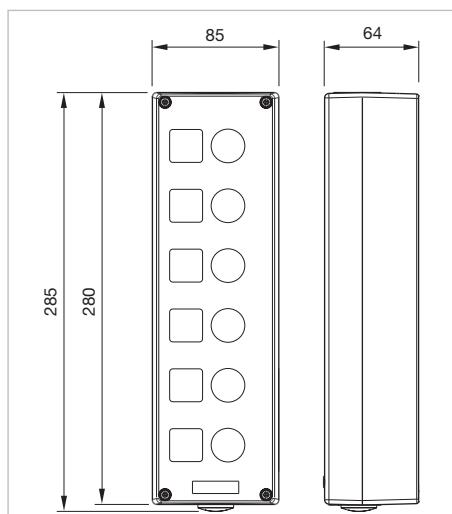
Dimensions [mm]  
for Part No. 45-450.2803



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

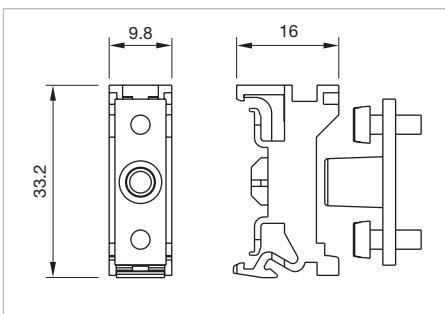
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# 45 Accessories



Enclosure cover monitoring

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

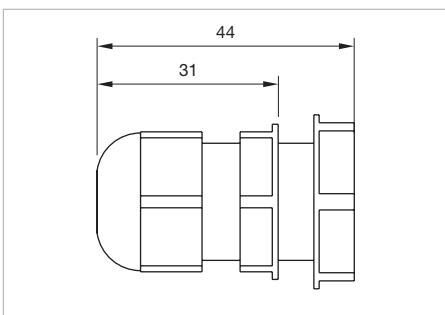


Dimensions [mm]



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

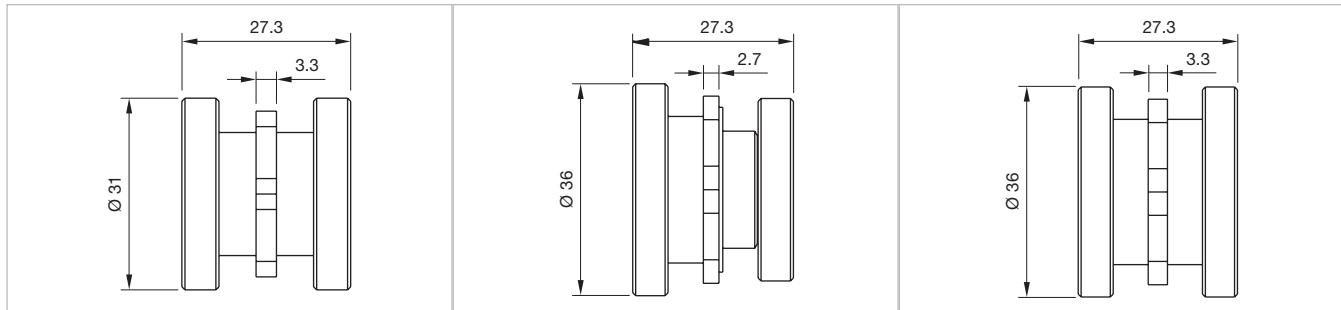


Dimensions [mm]



### Connection piece

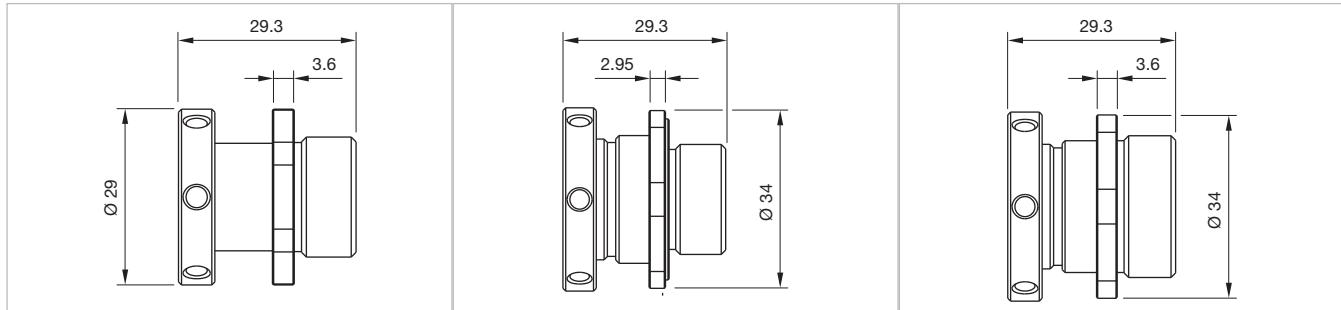
Product attributes	Material	Colour	IP Protection	Thread	Part No.
For connecting 2 enclosures, with hexagonal nut					
Plastic	Black	IP66, IP67, IP69K	M20 / M20	45-50C.1900	
Plastic	Black	IP66, IP67, IP69K	M20 / M25	45-50D.1900	
Plastic	Black	IP66, IP67, IP69K	M25 / M26	45-50E.1900	
Metal	Silver	IP66,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

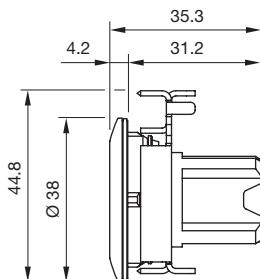
Dimensions [mm]  
for Part No. 45-50D.2900

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

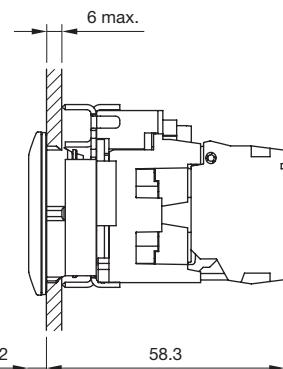
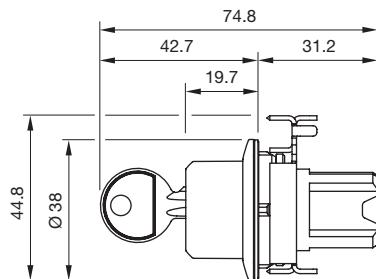
# 45 Accessories

Dimensions incl. mounting depth of 3 or 4 elements

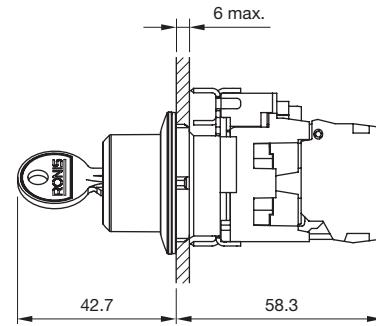
Indicator, Pushbutton, Illuminated pushbutton  
(flush design)



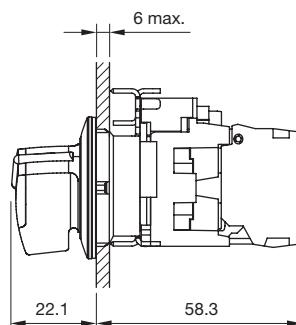
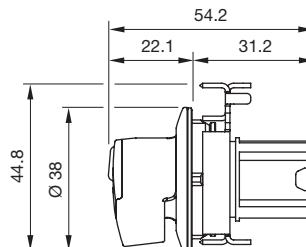
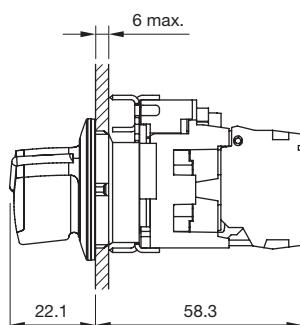
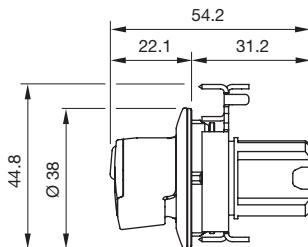
Keylock switch (flush design)



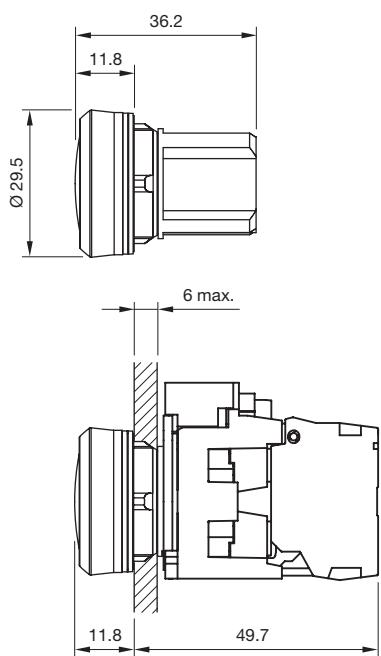
Selector switch short lever (flush design)



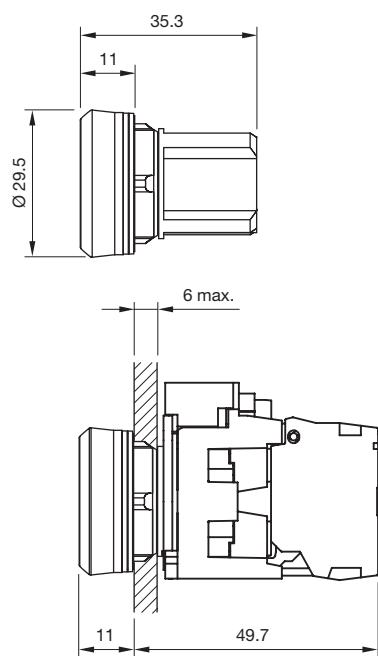
Selector switch long lever (flush design)



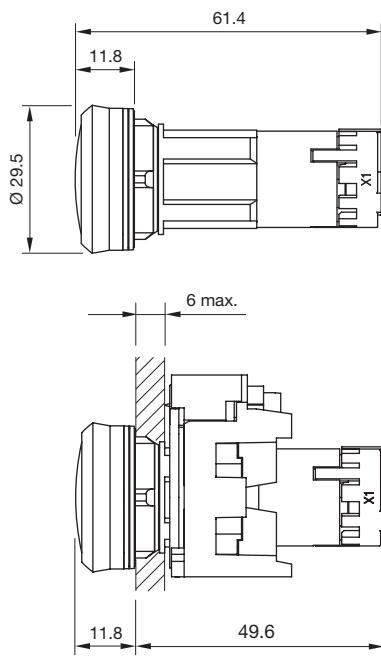
Indicator full face illumination (raised design)



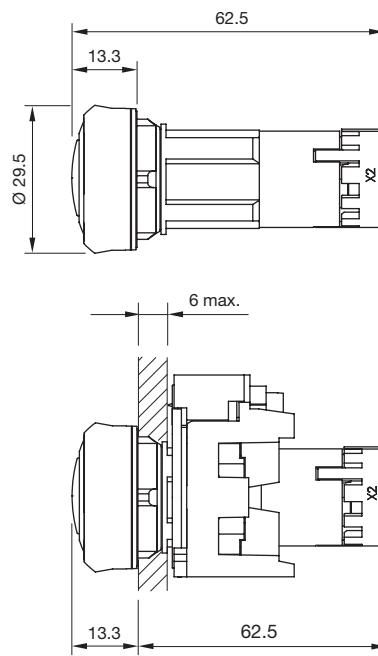
Indicator front illumination,  
Pushbutton, Illuminated pushbutton, Lens level with front  
ring (raised design)



Duo indicator



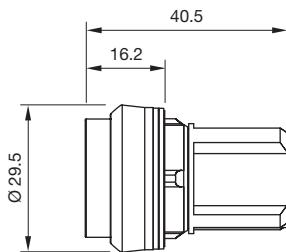
Buzzer



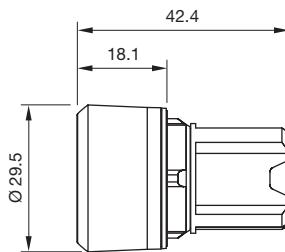
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# 45 Drawings

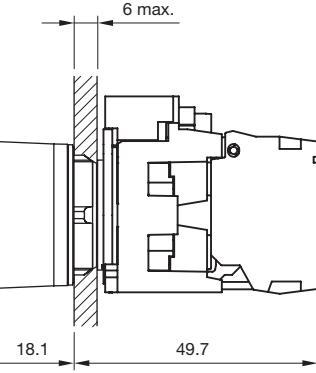
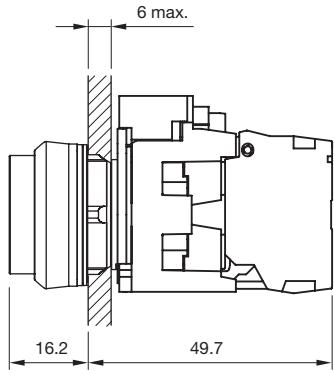
01 Pushbutton, Illuminated pushbutton, lens raised above front ring (raised design)



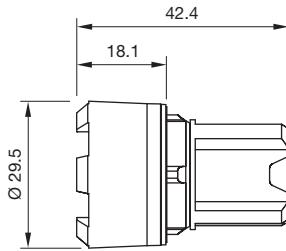
02 Pushbutton, lens lower than front ring (raised design)



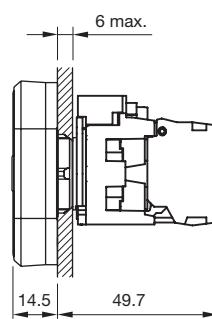
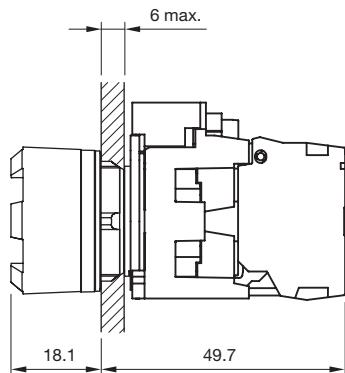
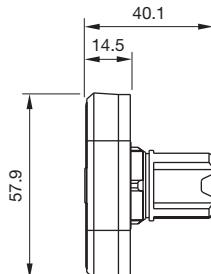
03 04 09 14 17 18 19 22 31 41 45 51 56 57 61 70 71 82 84 92 96



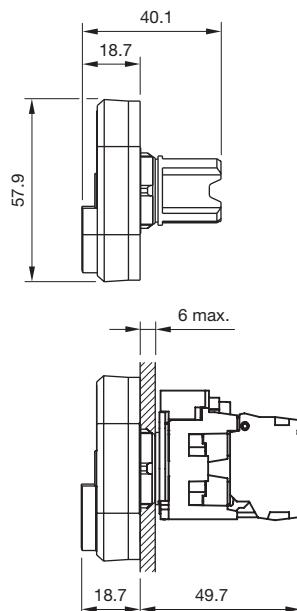
Pushbutton, Illuminated pushbutton, lens lower than front ring, with castellation (raised design)



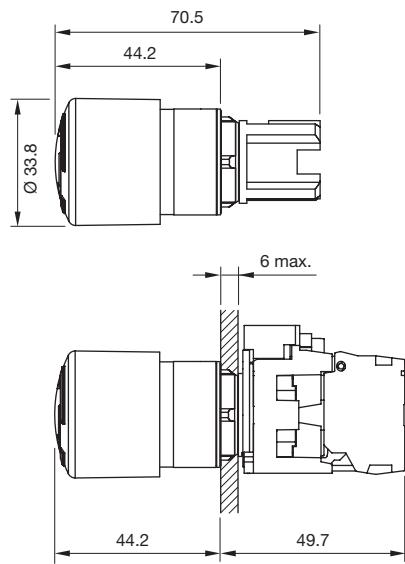
Double pushbutton, Lens level with front ring (raised design)



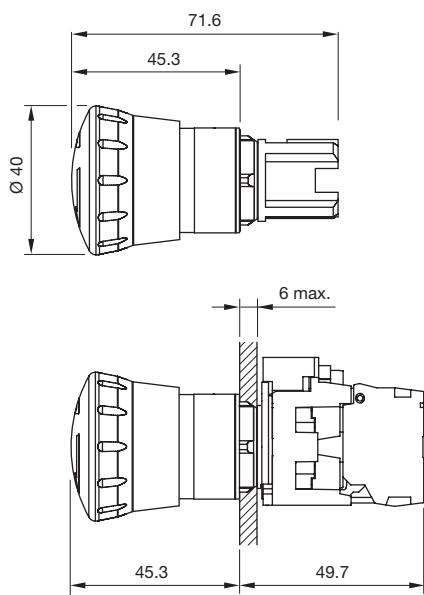
Double pushbutton, level with/raised above front ring  
(raised design)



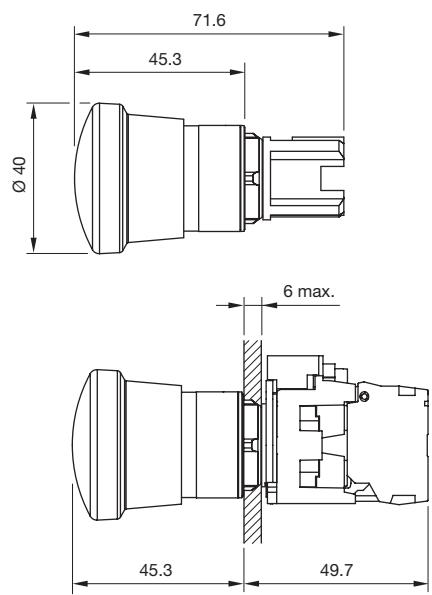
Emergency stop switch Ø 33.8 mm (raised design)



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

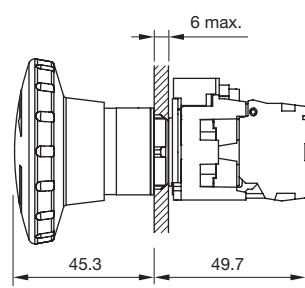
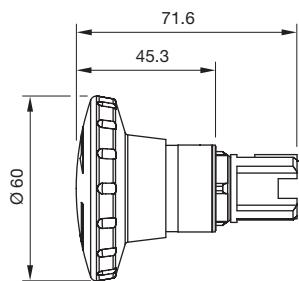


Emergency stop switch, Stop switch Ø 40 mm  
(raised design)

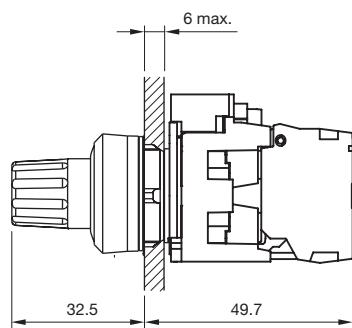
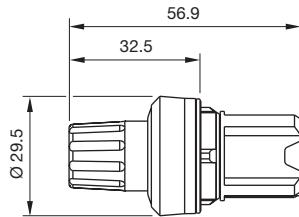


# 45 Drawings

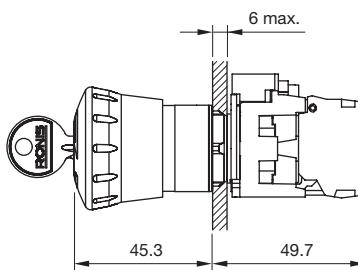
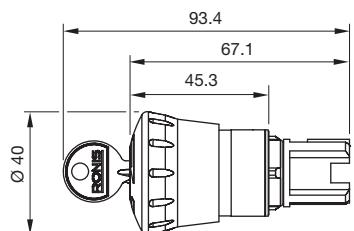
Emergency stop switch Ø 60 mm (raised design)



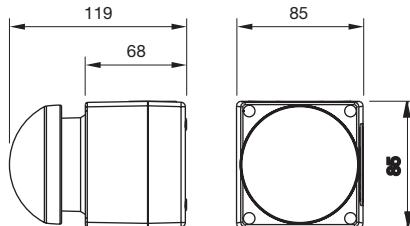
Stop switch Ø 29.5 mm (raised design)



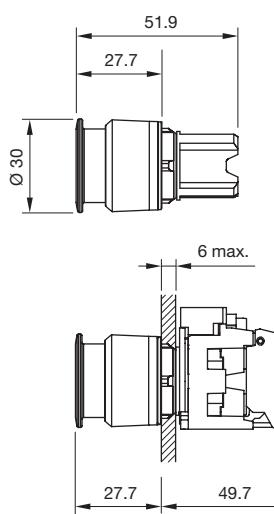
Emergency stop switch with key Ø 40 mm (raised design)



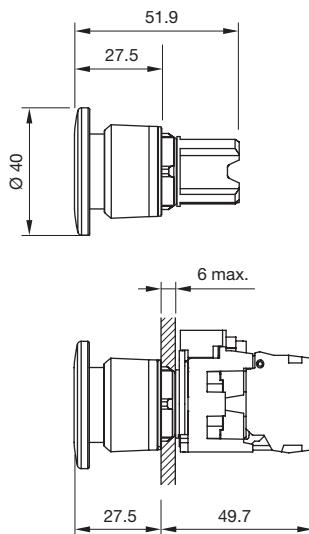
Palm switch



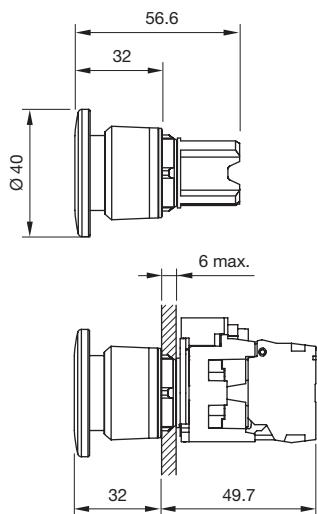
Mushroom-head pushbutton Ø 30 mm (raised design)



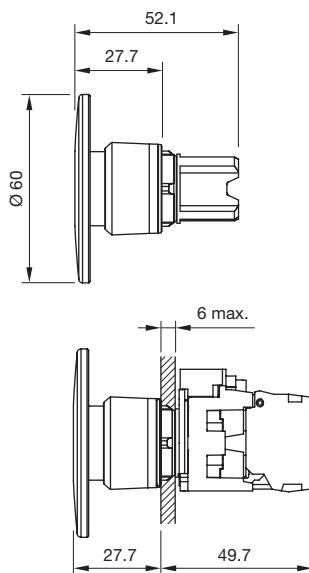
Mushroom-head pushbutton Momentary, Maintain, Ø 40 mm (raised design)



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

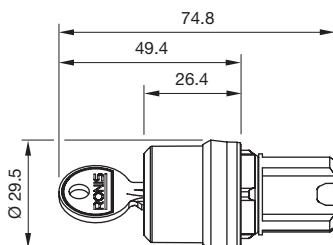


Mushroom-head pushbutton Ø 60 mm (raised design)

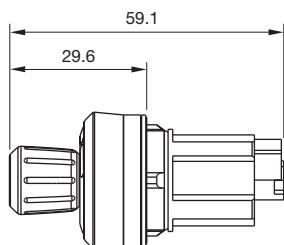


# 45 Drawings

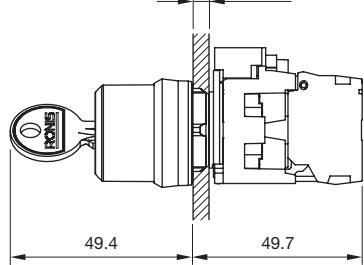
Keylock switch (raised design)



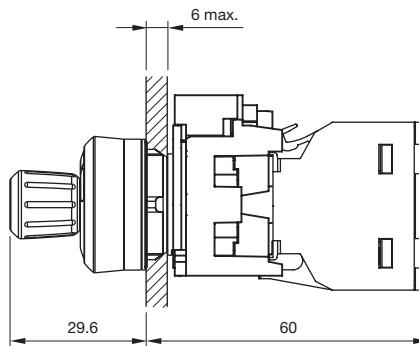
ID keylock switch (raised design)



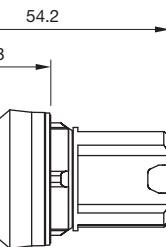
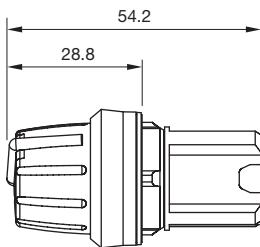
6 max.



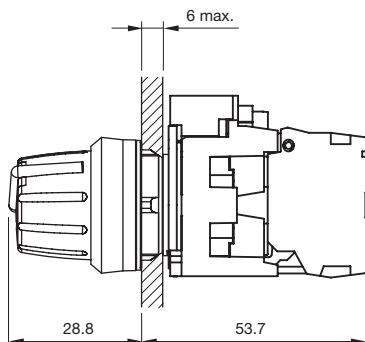
6 max.



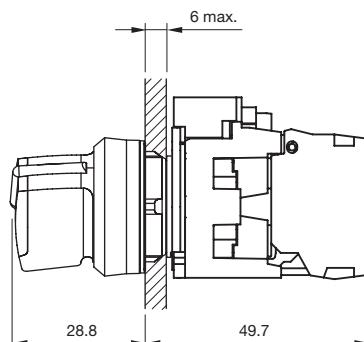
Selector switch, round lever (raised design)



6 max.



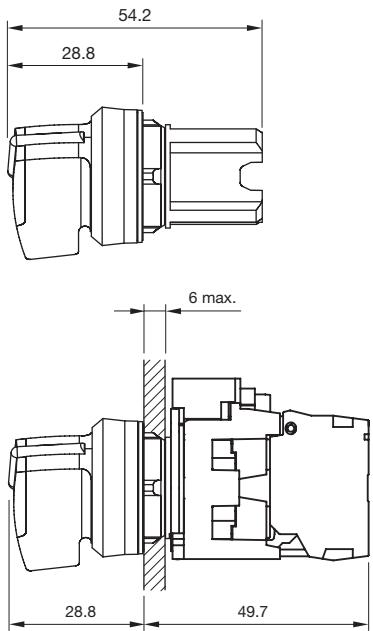
6 max.



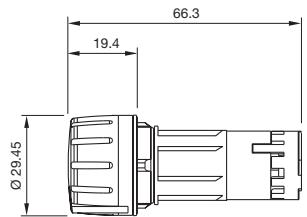
28.8

53.7

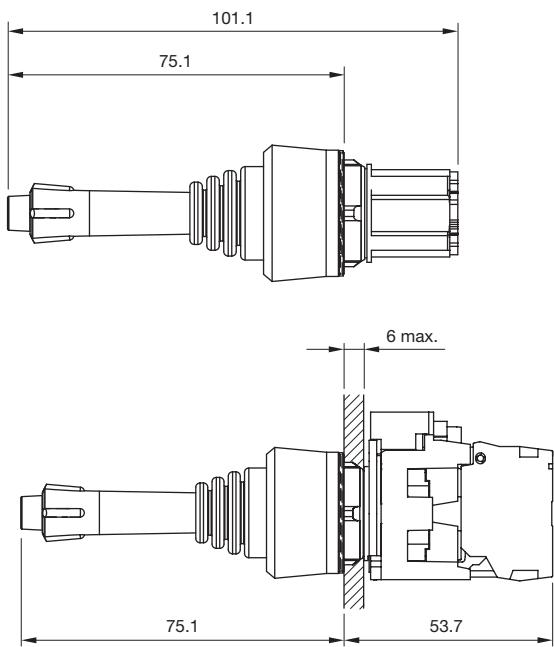
Selector switch, long lever (raised design)



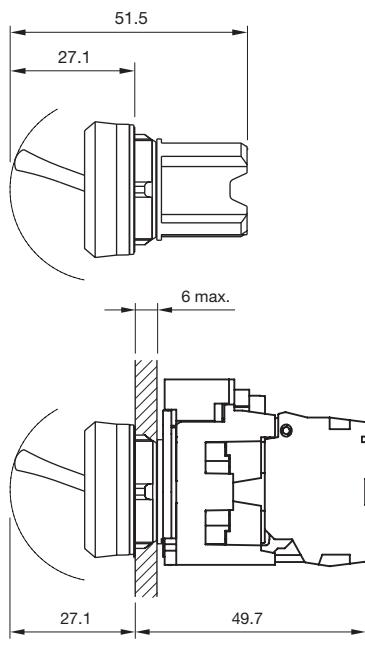
Potentiometer (raised design)



Toggle stick (raised design)



Toggle switch (raised design)



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# 45 Technical data

## Indicator actuator

01	<b>Material</b>	<b>Protection degree</b>
02	Actuator element Plastic	IP66, IP67, IP69K
03	<b>Vibration resistance</b>	
04	Front ring Plastic or metal	According to IEC 60068-2-6 2 ... 500 Hz: 5g
09	<b>Shock resistance</b>	
14	Actuator housing Plastic or metal	According to IEC 60068-2-27 Sinusoidal half-wave 50g/11 ms
17	<b>Ambient conditions</b>	<b>Climatic ambient conditions</b>
18	Operating temperature -25 °C ... +70 °C	During operation according to IEC 60721: 3K6, 3C3, 3S2, 3M6
19	Storage temperature -40 °C ... +80 °C	
22	<b>Duo Indicator</b>	

31	<b>Material</b>	<b>Surge voltage resistance</b>
41	Actuator element Plastic	Rated value 4 kV
45	<b>Front ring</b>	<b>Operating voltage</b>
51	Plastic or metal	at AC/DC - Rated value 6 ... 24 V
56	<b>Actuator housing</b>	at AC - Rated value 110 or 230 V
57	<b>Mechanical characteristics</b>	<b>Ambient conditions</b>
61	<b>Terminal</b>	<b>Operating temperature</b>
70	Screw terminal	-25 °C ... +70 °C
71	- Solid without end sleeves 2 x (1.0 ... 1.5 mm <sup>2</sup> )	<b>Storage temperature</b>
82	- Solid with end sleeves 2 x (0.5 ... 0.75 mm <sup>2</sup> )	-40 °C ... +80 °C
84	- Finely stranded without end sleeves 2 x (0.5 ... 0.75 mm <sup>2</sup> )	<b>Protection degree</b>
92	- Finely stranded with end sleeves 2 x (0.5 ... 1.5 mm <sup>2</sup> )	IP66, IP67, IP69K
96	- For AWG cables for auxiliary contacts 2 x (18 ... 14)	<b>Vibration resistance</b>

82	<b>Tightening torque</b>	According to IEC 60068-2-6
84	Screw terminal 0.8 ... 1 Nm	10 ... 500 Hz: 5g

84	<b>Electrical characteristics</b>	<b>Shock resistance</b>
92	<b>Insulation voltage</b>	According to IEC 60068-2-27
96	Rated value 320V	Sinusoidal half-wave 50g/11 ms
3	<b>Pollution degree</b>	<b>Climatic ambient conditions</b>

**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 mm<sup>2</sup>)  
 - Solid with end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)  
 - Finely stranded without end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)  
 - Finely stranded with end sleeves 2 x (0.5 ... 1.5 mm<sup>2</sup>)  
 - 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

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# 45 Technical data

## 01 Pushbutton actuator

### 02 Material

03 Actuator element

04 Plastic

### 05 Front ring

06 Plastic or metal

### 07 Actuator housing

08 Plastic or metal

## 14 Mechanical characteristics

### 17 Operating frequency

- Momentary max. 3 600/h
- Maintain max. 1 800/h

### 18 Mechanical lifetime

- Momentary 500 000 cycles of operation
- Maintain 10 000 000 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

20 ... 500 Hz: 5 g

#### Shock resistance

According to IEC 60068-2-27

Sinusoidal half-wave 50g /11 ms

#### Climatic ambient conditions

During operation according to IEC 60721:

3K6, 3C3, 3S2, 3M6

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## 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: 5g

### Shock resistance

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

### Climatic ambient conditions

During operation according to IEC 60721:  
3K6, 3C3, 3S2, 3M6, 3B2

## Illuminated pushbutton 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: 5g

### Shock resistance

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

### Climatic ambient conditions

During operation according to IEC 60721:  
3K6, 3C3, 3S2, 3M6

# 45 Technical data

## 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: 5g

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

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: 5g

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

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

## 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 ... 500V  
  
at DC  
- Rated value 5 ... 500V

### 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: 5g

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

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

## Mushroom-head pushbutton 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

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

**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

### 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

# 45 Technical data

## 01 Keylock switch actuator

### 02 Material

03 Actuator element  
Metal

04 Front ring  
Plastic or metal

09 Actuator housing  
Plastic or metal

### 14 Mechanical characteristics

17 Operating frequency  
Max. 1800/h

18 Mechanical lifetime  
1 000 000 cycles of operation

## 31 ID keylock switch

### 41 Material

45 Actuator element  
Plastic

51 Front ring  
Plastic or metal

56 Actuator housing  
Plastic

### 61 Mechanical characteristics

66 Terminals  
Screw terminal front mounting

- Solid with end sleeves  
1 x (0.2 ... 2.5 mm<sup>2</sup>), 2 x (0.2 ... 0.75 mm<sup>2</sup>)
- Solid without end sleeves  
1 x (0.2 ... 2.5 mm<sup>2</sup>), 2 x (0.2 ... 0.75 mm<sup>2</sup>)
- Finely stranded with end sleeves  
1 x (0.2 ... 2.5 mm<sup>2</sup>), 2 x (0.25 ... 0.75 mm<sup>2</sup>)
- Finely stranded with end sleeves  
1 x (0.2 ... 2.5 mm<sup>2</sup>), 2 x (0.2 ... 0.75 mm<sup>2</sup>)
- For AWG cables  
1 x (24 ... 14), (24 ... 19)

### 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: 5g

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

### 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

**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

**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 50g/11 ms

**Mechanical characteristics**

**Operating frequency**  
Max. 1800/h

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

**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<sup>2</sup>)
- With end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
- Finely stranded
- Without end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
- With end sleeves 2 x (0.5 ... 1.5 mm<sup>2</sup>)
- For AWG cables for auxiliary contacts 2 x (18 ... 14)

**Tightening torque**  
0.8 ... 1 Nm

**Turning frequency**  
Max. 1800/h

# 45 Technical data

01 Mechanical lifetime  
25 000 turning cycles

02 Vibration resistance  
according to IEC 60068-2-6  
10 ... 500 Hz: 5g

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

09 Slewing range  
275° ±2°

## 14 Electrical characteristics

17 Active power consumption  
0.5W

18 Insulation voltage  
Rated value 500V

## 22 Toggle stick actuator

### 31 Material

41 Actuator element  
Plastic

45 Front ring  
Plastic or metal

51 Actuator housing  
Plastic or metal

### 57 Mechanical characteristics

61 Operating frequency  
3600/h

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

71 Deflection angle  
Max. 30°

82

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### 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

### 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: 5g

### Shock resistance

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

### Climatic ambient conditions

During operation according to IEC 60721:  
3K6, 3C3, 3S2, 3M6

## Toggle switch actuator

### Material

**Actuator element**  
Plastic

**Front ring**  
Plastic or metal

**Actuator housing**  
Plastic or metal

### Mechanical characteristics

**Operating frequency**  
Max. 1800/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: 5g

**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 mm<sup>2</sup>)
  - With end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
  - Finely stranded
    - Without end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
    - With end sleeves 2 x (0.5 ... 1.5 mm<sup>2</sup>)
    - For AWG cables for auxiliary contacts 2 x (18 ... 14)

#### Spring-type terminal (SP)

- Solid 2 x (0.25 ... 1.5 mm<sup>2</sup>)
- Finely stranded
  - Without end sleeves 2 x (0.5 ... 1.5 mm<sup>2</sup>)
  - With end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
  - 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

# 45 Technical data

## Electrical characteristics

### Standards

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

### Thermal current $I_{th}$

10A

### Insulation voltage

Rated value 500V

### Pollution degree

3

### Surge voltage resistance

Rated value 6kV

### 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 ... 500V

at DC

- Rated value 5 ... 500V

### Switching voltage and switching current

at AC-12

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

at AC-15

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

at DC-12

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

at DC-13

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

## Illumination element

### Material

Housing  
Plastic

### Ambient conditions

Operating temperature  
−25 °C ... +70 °C

### Mechanical characteristics

#### Terminals

- Screw terminal
  - Solid 2 x (1.0 ... 1.5 mm<sup>2</sup>)
  - With end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
  - Finely stranded
    - Without end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
    - With end sleeves 2 x (0.5 ... 1.5 mm<sup>2</sup>)
    - For AWG cables for auxiliary contacts 2 x (18 ... 14)

#### Spring-type terminal (SP)

- Solid 2 x (0.25 ... 1.5 mm<sup>2</sup>)
- Finely stranded
  - Without end sleeves 2 x (0.5 ... 1.5 mm<sup>2</sup>)
  - With end sleeves 2 x (0.5 ... 0.75 mm<sup>2</sup>)
  - 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

### 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.

# 45 Marking

## Inscription marking plates and legend plates

Labels can be inserted for identification purposes 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	 Start	Part No. 45-563.0K00.T00029
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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

## Symbols for marking plates

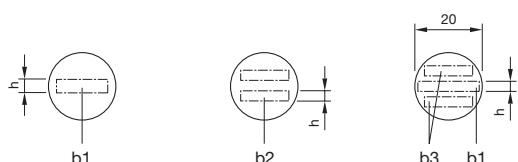
Graphic symbols are according to ISO 7000 or IEC 60417.

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

## Customised inscription for marking plates

All dimensions in mm

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



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

# 45 Marking

Standard texts for legend plates black, 27 x 12.5 mm

Example	<b>Reset</b>	Part No. 45-573.1102.T00030
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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 Arrow/Direction up
	Part No. 45-573.1102.S00005		

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

<b>Example</b>	<b>Reset</b>	Part No. 45-573.1A02.T00030
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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 Arrow/Direction right
	Part No. 45-573.1A02.S00004		Part No. 45-573.1A02.S00009 Arrow/Direction up
	Part No. 45-573.1A02.S00005		

# 45 Marking

Standard texts for legend plates black, 27 x 17.5 mm

Example	<b>Stop</b>	Part No. 45-573.1103.T00028
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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 Arrow/Direction right
	Part No. 45-573.1103.S00002		Part No. 45-573.1103.S00009 Arrow/Direction up
	Part No. 45-573.1103.S00005		

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

<b>Example</b>	<b>Stop</b>	Part No. 45-573.1A03.T00028
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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		

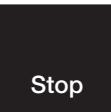
## Symbols for legend plates silver, 27 x 17.5 mm

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 Arrow/Direction right
	Part No. 45-573.1A02.S00005		Part No. 45-573.1A02.S00009 Arrow/Direction up

# 45 Marking

Standard texts for legend plates black, 27 x 27 mm

Example		Part No. 45-573.1103.T00028
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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
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## 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 kilo-

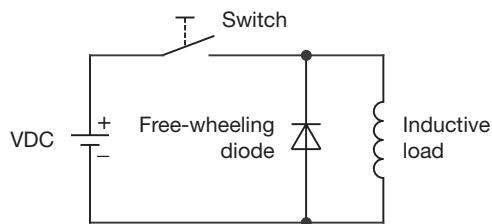
volts in amplitude even when nominal circuit voltages are low (e.g. 12VDC) see Fig. 2.

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!

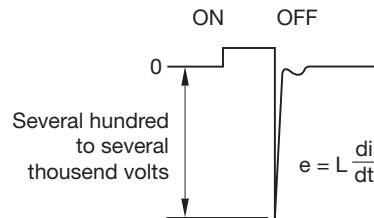
Switching with inductive load

Fig. 1



Counter EMF  
over load without free-wheeling diode

Fig. 2



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# Index 45

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45-2922.1000.113.....49	49	45-2J31.25V0.000.....20	20	45-312.2Z10.....71	71	45-320.2G47.....77	77	45-50J.140S.....83	83	45-573.1103.....83	83
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45-2924.1000.113.....49	49	45-2J31.35T0.000.....20	20	45-313.1Z10.....68	68	45-320.2H12.....76	76	45-50J.140W.....83	83	45-573.1202.....83	83
45-2924.2000.113.....49	49	45-2J31.36T0.000.....20	20	45-313.1Z10.....73	73	45-320.2H16.....76	76	45-50J.140X.....83	83	45-573.1A02.....83	83
45-2924.3000.113.....49	49	45-2J31.36V0.000.....20	20	45-313.1Z40.....70	70	45-320.2H17.....76	76	45-50J.140Z.....83	83	45-573.1A03.....83	83
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