

## Series 51

*Versatile. Attractive and compact.*

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# 51 Information about the Series

## Key advantages

- Compact construction
- Various configuration options
- Reliable and proven
- Timeless and modern design
- Raised or flush mounting
- Low back panel depth (Stop Switch)

## Typical application areas

- Food and beverages
- Special vehicles
- Buildings services and automation
- Public transportation
- Medical engineering

## Functions

- Pushbutton
- Illuminated pushbutton
- Mushroom-head pushbutton
- Selector switch
- Keylock switch
- Indicator
- Stop switch

## Design

- Flush
- Raised

## IP front protection

- IP65

## Rating

- 42 VAC (100 mA)
- ≤250 VAC (5 A)

## Mounting cut-outs

- Ø 16.2 mm
- Ø 22.3 mm
- 21.2 mm x 21.2 mm
- 21.2 mm x 27.2 mm

## Terminal

- Soldering terminal
- Plug-in terminal
- Soldering/plug-in terminal
- PCB (with PCB plug-in base)

## Lens Material

- Aluminium
- Plastic

## Markings

- Engraving
- Laser marking
- Hot stamping
- Film insert/marketing plate
- Pad printing
- Screen print

## Approvals

- CB (IEC 61058)
- CSA
- CQC
- ENEC (EN 61058)
- DNV GL (vormals Germanischer Lloyd)
- UL
- VDE
- EAC

## Conformities

- CE
- UKCA
- 2014/30/EU (EMC)
- 2014/35/EU (LVD)
- 2011/65/EU (RoHS)
- 2006/42/EU (MD)



**Flush design**

|                                        |     |
|----------------------------------------|-----|
| Pushbutton round                       | 574 |
| Illuminated pushbutton square          | 577 |
| Illuminated pushbutton rectangular     | 580 |
| Illuminated pushbutton round           | 583 |
| Selector switch 2 positions square     | 586 |
| Selector switch 2 positions round      | 589 |
| Keylock switch 2 positions square      | 592 |
| Keylock switch 2 positions rectangular | 595 |
| Keylock switch 2 positions round       | 598 |
| Keylock switch 3 positions square      | 601 |
| Keylock switch 3 positions rectangular | 603 |
| Keylock switch 3 positions round       | 605 |
| Indicator square                       | 607 |
| Indicator rectangular                  | 609 |
| Indicator round                        | 611 |

**Raised design**

|                                        |     |
|----------------------------------------|-----|
| Illuminated pushbutton square          | 613 |
| Illuminated pushbutton rectangular     | 616 |
| Illuminated pushbutton round           | 619 |
| Mushroom-head pushbutton               | 622 |
| Selector switch 2 positions, round     | 624 |
| Selector switch 3 positions, round     | 628 |
| Keylock switch 2 positions square      | 630 |
| Keylock switch 2 positions rectangular | 633 |
| Keylock switch 2 positions round       | 636 |
| Keylock switch 3 positions square      | 639 |
| Keylock switch 3 positions rectangular | 641 |
| Keylock switch 3 positions round       | 643 |
| Indicator square                       | 645 |
| Indicator rectangular                  | 647 |
| Indicator round                        | 649 |
| Stop switch                            | 651 |

|                   |            |
|-------------------|------------|
| <b>Components</b> | <b>653</b> |
|-------------------|------------|

|                    |            |
|--------------------|------------|
| <b>Accessories</b> | <b>662</b> |
|--------------------|------------|

|                       |            |
|-----------------------|------------|
| <b>Technical data</b> | <b>669</b> |
|-----------------------|------------|

|                |            |
|----------------|------------|
| <b>Marking</b> | <b>674</b> |
|----------------|------------|

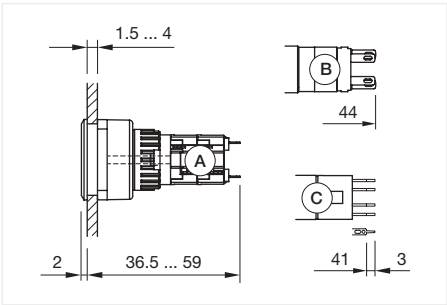
|                               |            |
|-------------------------------|------------|
| <b>Application guidelines</b> | <b>675</b> |
|-------------------------------|------------|

# 51 Flush design

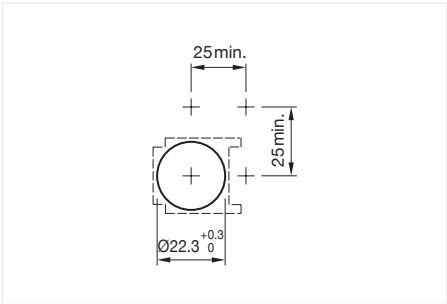
## Pushbutton round, IP65



Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Mounting cut-outs [mm]

### Equipment consisting of (schematic overview)

|  |                 |          |
|--|-----------------|----------|
|  | Lens            | Page 653 |
|  | Actuator        |          |
|  | Front bezel set | Page 658 |
|  | Fixing nut      |          |

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 25 mm

| Switching action | Contacts    | Terminal           | Switching system              | Part No.     | Wiring diagram | Component Layout |
|------------------|-------------|--------------------|-------------------------------|--------------|----------------|------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-151.022F  | 247            | 27               |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-151.0252F | 247            | 27               |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-152.0252F | 251            | 27               |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-153.0252F | 253            | 27               |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-154.0252F | 255            | 27               |
| Maintained       | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-281.022F  | 250            | 27               |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-281.0252F | 250            | 27               |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-282.0252F | 252            | 27               |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-283.0252F | 254            | 27               |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-284.0252F | 256            | 27               |
| Momentary        | 2 NO        | Universal terminal | Low-level element             | 51-451.036F  | 245            | 27               |
|                  | 2 NC        | Universal terminal | Low-level element             | 51-452.036F  | 243            | 27               |
|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-453.036F  | 239            | 27               |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-455.036F  | 241            | 27               |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-456.036F  | 237            | 27               |
| Maintained       | 2 NO        | Universal terminal | Low-level element             | 51-481.036F  | 246            | 27               |
|                  | 2 NC        | Universal terminal | Low-level element             | 51-482.036F  | 244            | 27               |
|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-483.036F  | 240            | 27               |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-485.036F  | 242            | 27               |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-486.036F  | 238            | 27               |

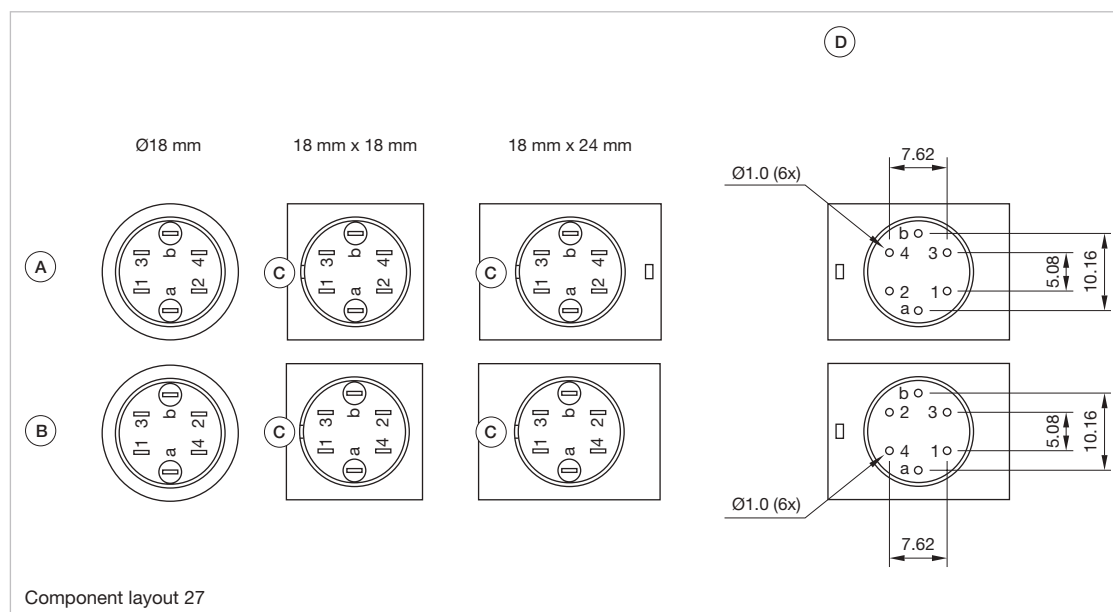
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

|                    |                    |                    |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                    |                    |                    |                    |                    |                    |                    |
| Wiring diagram 237 | Wiring diagram 238 | Wiring diagram 239 | Wiring diagram 240 | Wiring diagram 241 | Wiring diagram 242 | Wiring diagram 243 |
|                    |                    |                    |                    |                    |                    |                    |
| Wiring diagram 244 | Wiring diagram 245 | Wiring diagram 246 | Wiring diagram 247 | Wiring diagram 250 | Wiring diagram 251 |                    |
|                    |                    |                    |                    |                    |                    |                    |
| Wiring diagram 252 | Wiring diagram 253 | Wiring diagram 254 | Wiring diagram 255 | Wiring diagram 256 | Wiring diagram 256 | Wiring diagram 256 |

# 51 Flush design

## Component layouts



Dimensions [mm]  
 A = Universal terminal (rear side)  
 B = Plug-in terminal (rear side)  
 C = Anti twist device  
 D = Drilling plan

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Illuminated pushbutton square, IP65

Equipment consisting of (schematic overview)



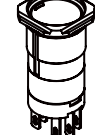
Lens

Page 653



LED

Page 660



Actuator



Front bezel set

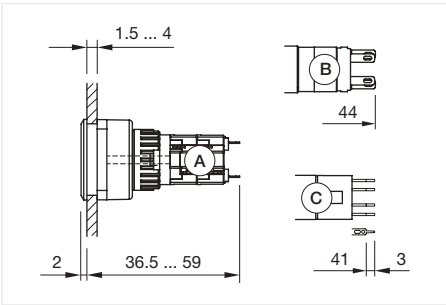
Page 658



Fixing nut

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

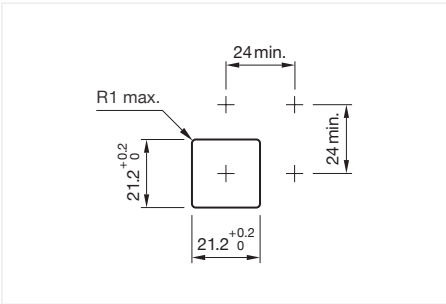
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]



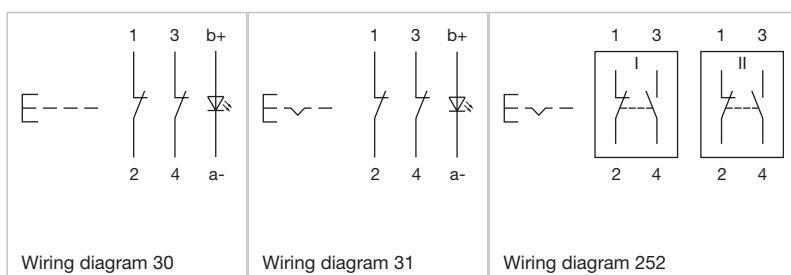
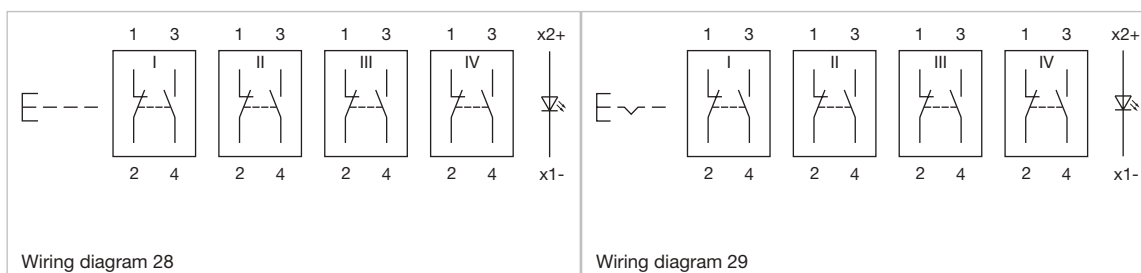
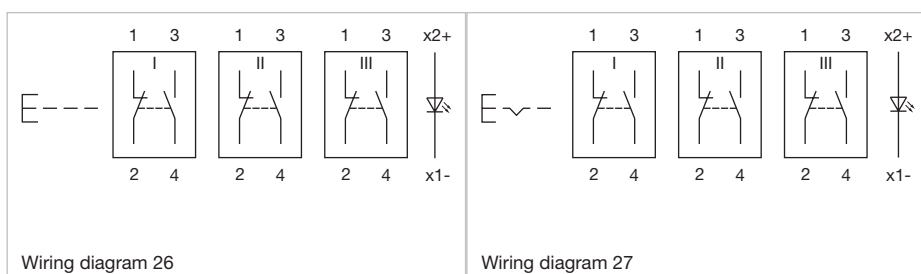
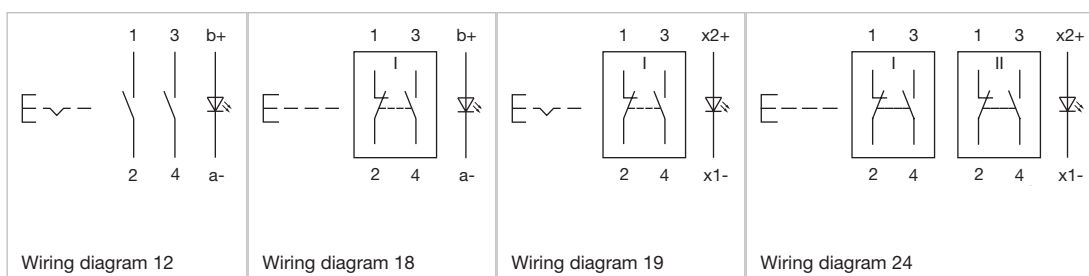
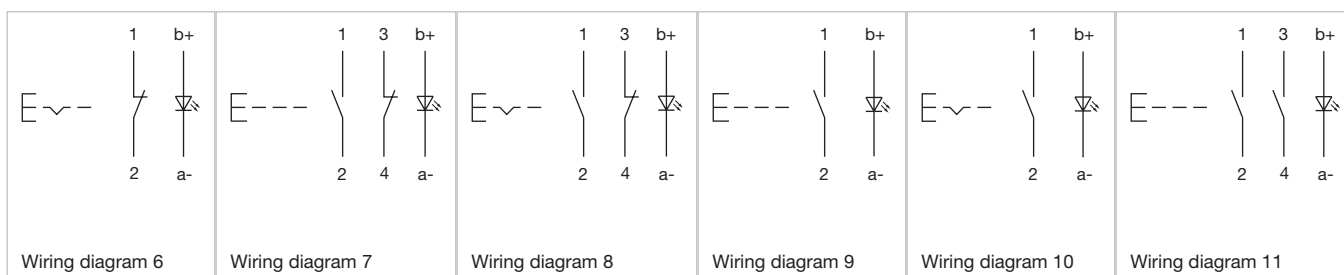
Actuator, Front dimension 24 mm x 24 mm

| Switching action | Contacts    | Terminal           | Switching system              | Part No.     | Wiring diagram | Com-<br>ponent<br>Layout |
|------------------|-------------|--------------------|-------------------------------|--------------|----------------|--------------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-151.022F  | 18             | 27                       |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-151.0252F | 18             | 27                       |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-152.0252F | 24             | 27                       |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-153.0252F | 26             | 27                       |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-154.0252F | 28             | 27                       |
| Maintained       | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-281.022F  | 19             | 27                       |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-281.0252F | 19             | 27                       |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-282.0252F | 25             | 27                       |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-283.0252F | 27             | 27                       |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-284.0252F | 29             | 27                       |
| Momentary        | 2 NO        | Universal terminal | Low-level element             | 51-451.036F  | 11             | 27                       |
|                  | 2 NC        | Universal terminal | Low-level element             | 51-452.036F  | 30             | 27                       |
|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-453.036F  | 7              | 27                       |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-455.036F  | 9              | 27                       |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-456.036F  | 11             | 27                       |
| Maintained       | 2 NO        | Universal terminal | Low-level element             | 51-481.036F  | 12             | 27                       |
|                  | 2 NC        | Universal terminal | Low-level element             | 51-482.036F  | 31             | 27                       |
|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-483.036F  | 8              | 27                       |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-485.036F  | 10             | 27                       |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-486.036F  | 6              | 27                       |

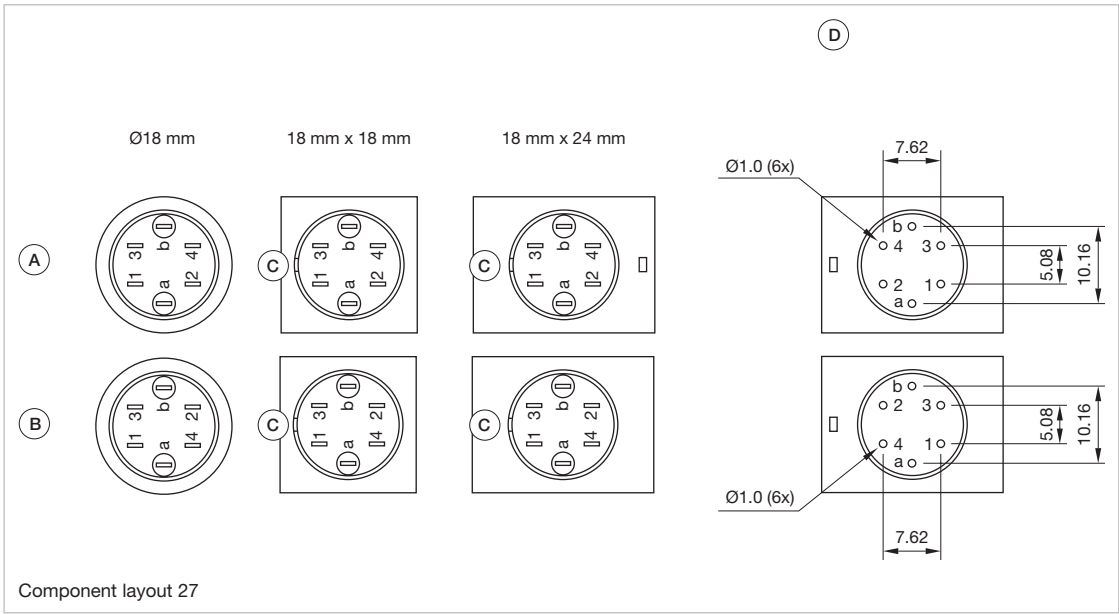
Contacts: NC = Normally closed, NO = Normally open

# 51 Flush design

## Wiring diagrams



Component layouts



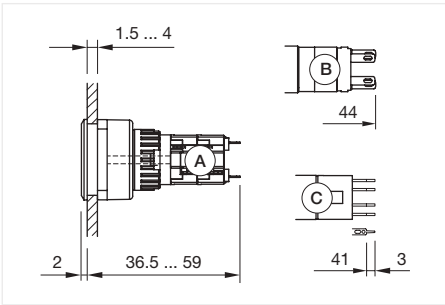
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

51 Flush design

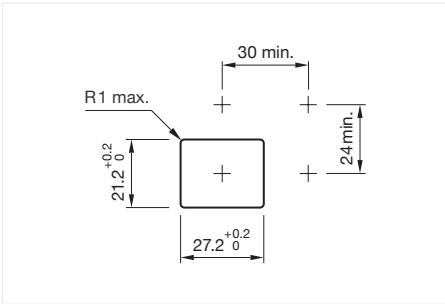
Illuminated pushbutton rectangular, IP65



Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Mounting cut-outs [mm]

Equipment consisting of (schematic overview)



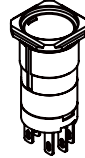
Lens

Page 653



LED

Page 660



Actuator



Front bezel set

Page 658



Fixing nut

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.

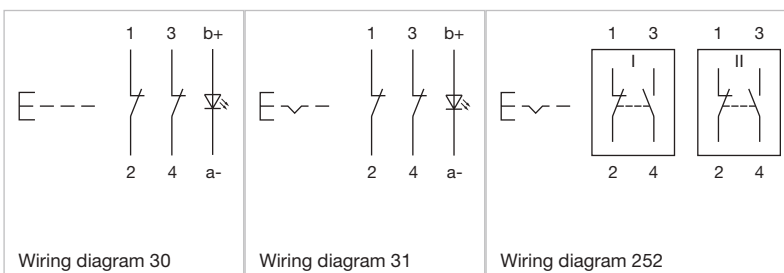
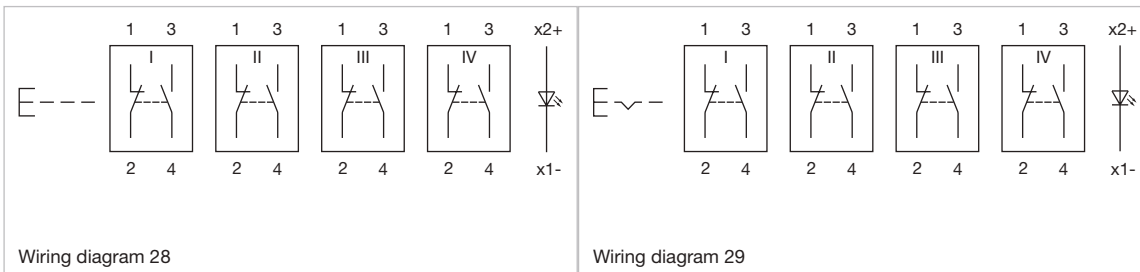
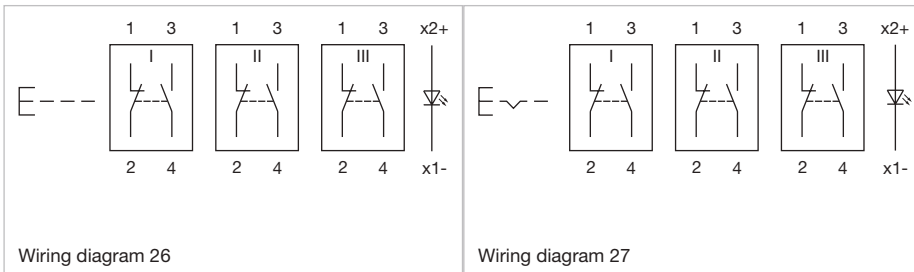
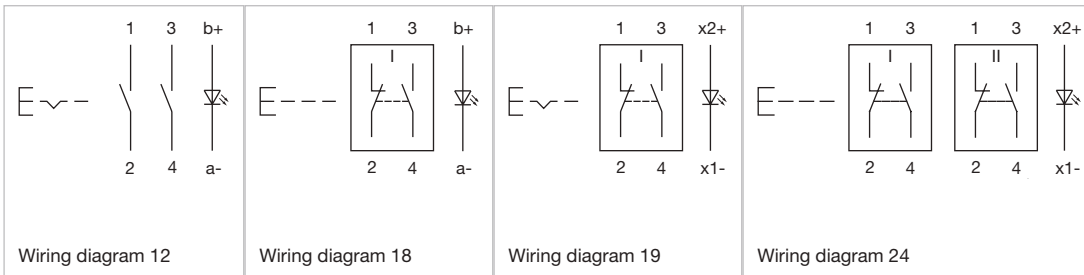
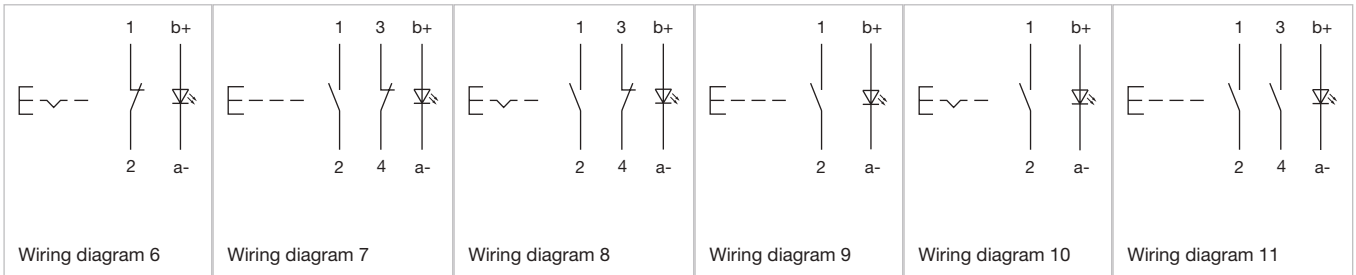


Actuator, Front dimension 30 mm x 24 mm

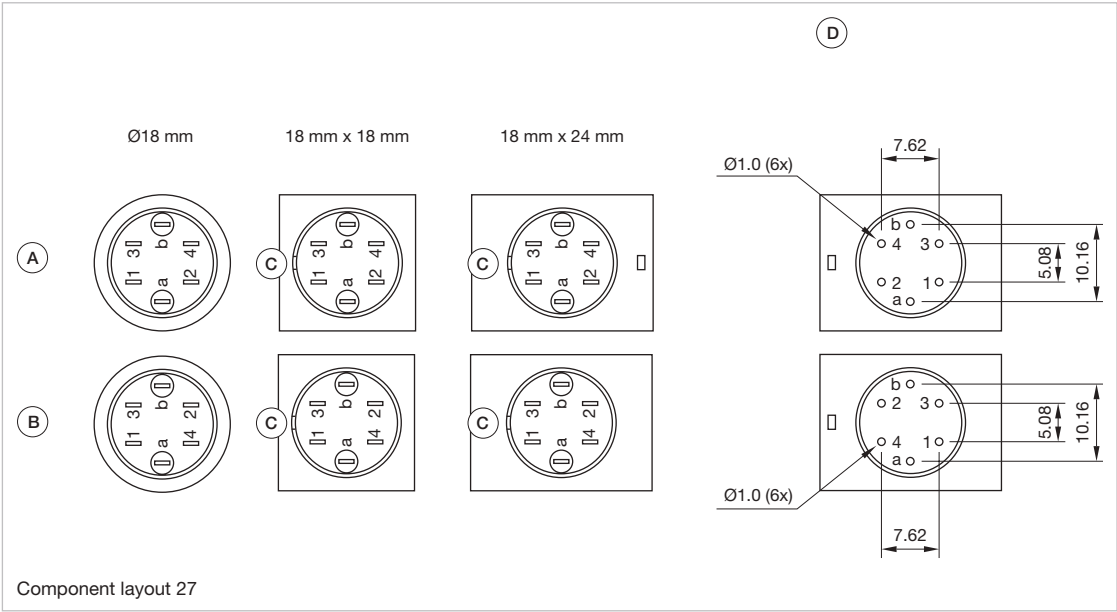
| Switching action | Contacts    | Terminal           | Switching system              | Part No.     | Wiring diagram | Component Layout |
|------------------|-------------|--------------------|-------------------------------|--------------|----------------|------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-151.022F  | 18             | 27               |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-151.0252F | 18             | 27               |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-152.0252F | 24             | 27               |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-153.0252F | 26             | 27               |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-154.0252F | 28             | 27               |
| Maintained       | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-281.022F  | 19             | 27               |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-281.0252F | 19             | 27               |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-282.0252F | 25             | 27               |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-283.0252F | 27             | 27               |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-284.0252F | 29             | 27               |
| Momentary        | 2 NO        | Universal terminal | Low-level element             | 51-451.036F  | 11             | 27               |
|                  | 2 NC        | Universal terminal | Low-level element             | 51-452.036F  | 30             | 27               |
|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-453.036F  | 7              | 27               |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-455.036F  | 9              | 27               |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-456.036F  | 11             | 27               |
| Maintained       | 2 NO        | Universal terminal | Low-level element             | 51-481.036F  | 12             | 27               |
|                  | 2 NC        | Universal terminal | Low-level element             | 51-482.036F  | 31             | 27               |
|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-483.036F  | 8              | 27               |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-485.036F  | 10             | 27               |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-486.036F  | 6              | 27               |

Contacts: NC = Normally closed, NO = Normally open

## Wiring diagrams



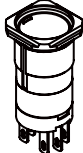
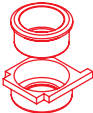
Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

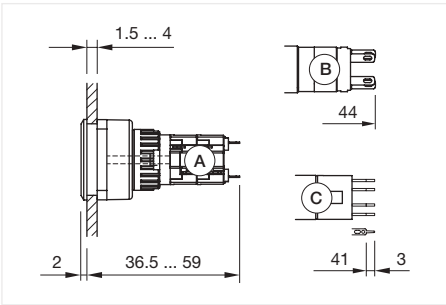
Illuminated pushbutton round, IP65

Equipment consisting of (schematic overview)

-  Lens Page 653
-  LED Page 660
-  Actuator
-  Front bezel set Page 658
-  Anti-twist ring Page 659
-  Fixing nut

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

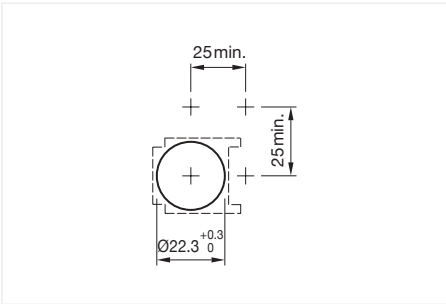
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]



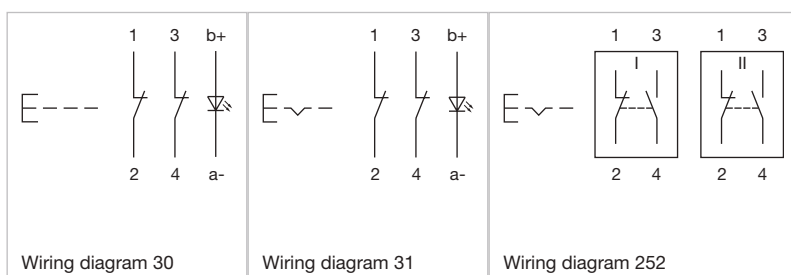
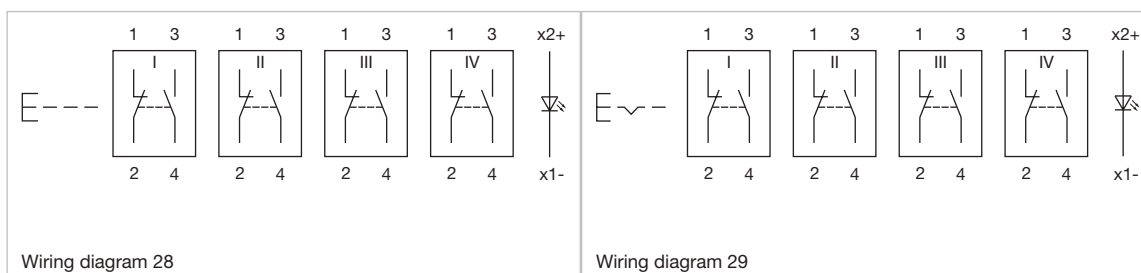
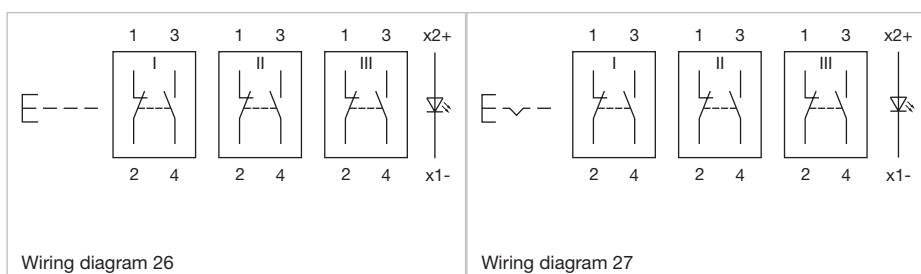
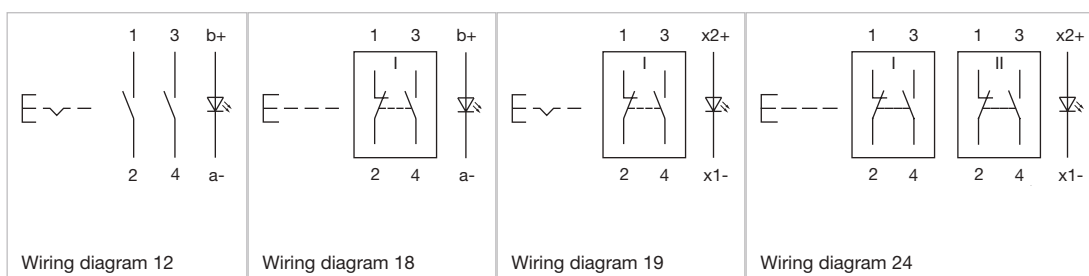
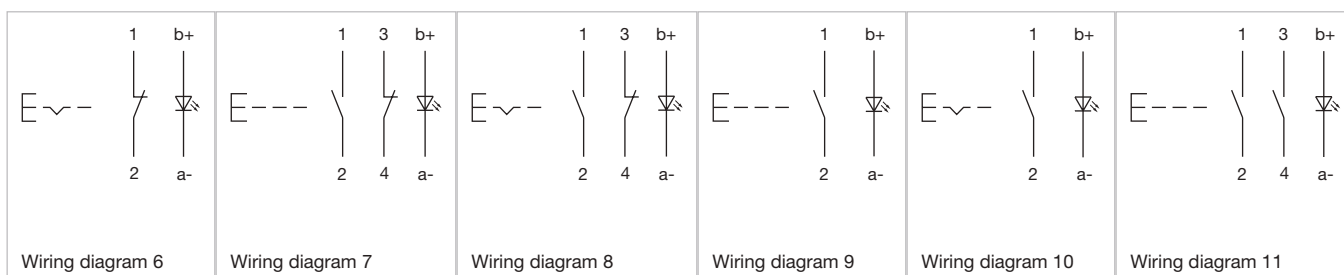
Actuator, Front dimension Ø 25 mm

| Switching action | Contacts    | Terminal           | Switching system              | Part No.     | Wiring diagram | Com-<br>ponent<br>Layout |
|------------------|-------------|--------------------|-------------------------------|--------------|----------------|--------------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-151.022F  | 18             | 27                       |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-151.0252F | 18             | 27                       |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-152.0252F | 24             | 27                       |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-153.0252F | 26             | 27                       |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-154.0252F | 28             | 27                       |
| Maintained       | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 51-281.022F  | 19             | 27                       |
|                  | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 51-281.0252F | 19             | 27                       |
|                  | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 51-282.0252F | 25             | 27                       |
|                  | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 51-283.0252F | 27             | 27                       |
|                  | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 51-284.0252F | 29             | 27                       |
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|                  | 1 NC / 1 NO | Universal terminal | Low-level element             | 51-453.036F  | 7              | 27                       |
|                  | 1 NO        | Universal terminal | Low-level element             | 51-455.036F  | 9              | 27                       |
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|                  | 1 NO        | Universal terminal | Low-level element             | 51-485.036F  | 10             | 27                       |
|                  | 1 NC        | Universal terminal | Low-level element             | 51-486.036F  | 6              | 27                       |

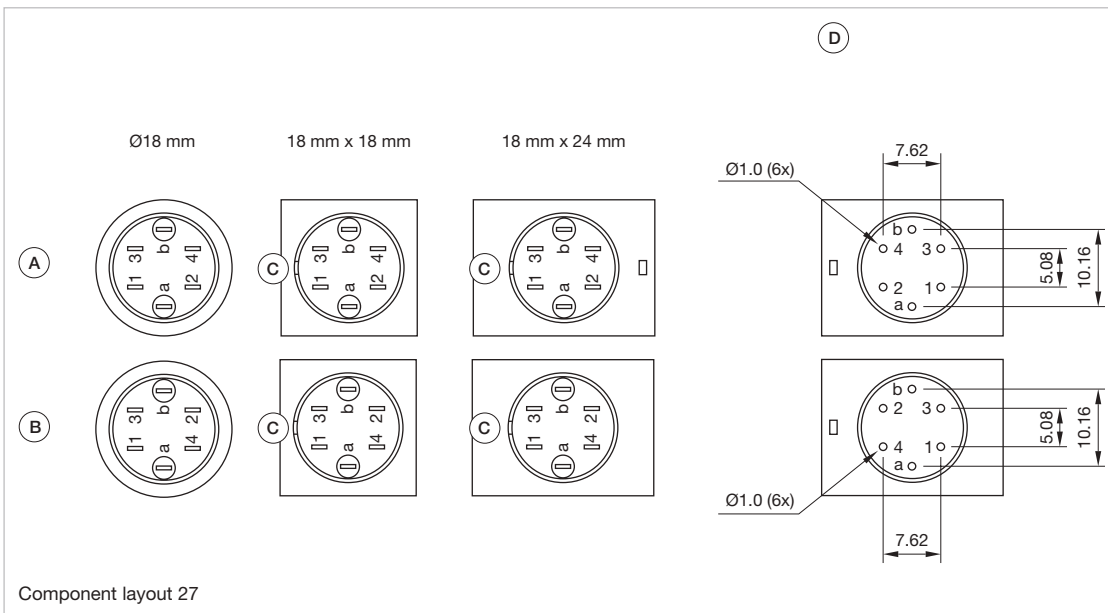
Contacts: NC = Normally closed, NO = Normally open

# 51 Flush design

## Wiring diagrams



## Component layouts



Component layout 27

Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

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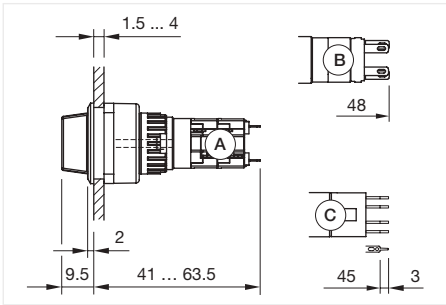
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# 51 Flush design

## Selector switch 2 positions square, IP65



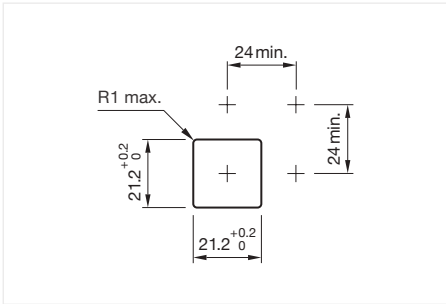
Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Solder terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm

### General information

- Illuminative



Mounting cut-outs [mm]

### Equipment consisting of (schematic overview)



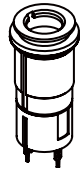
Lever

Page 657



LED

Page 660



Actuator



Front bezel set

Page 658



Fixing nut

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.

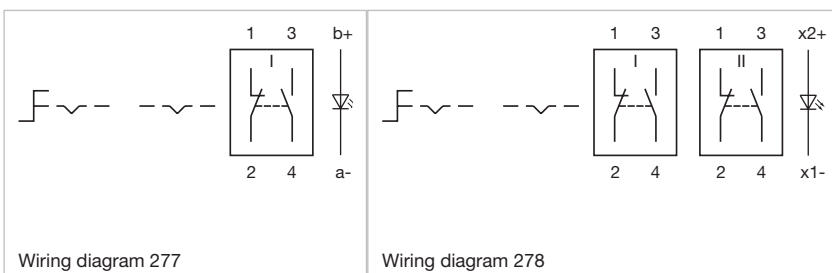
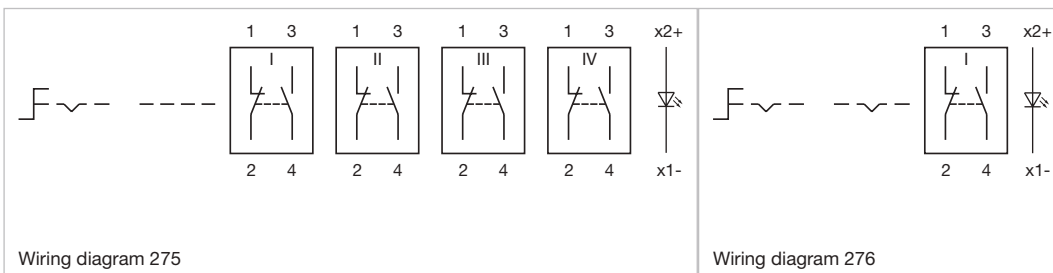
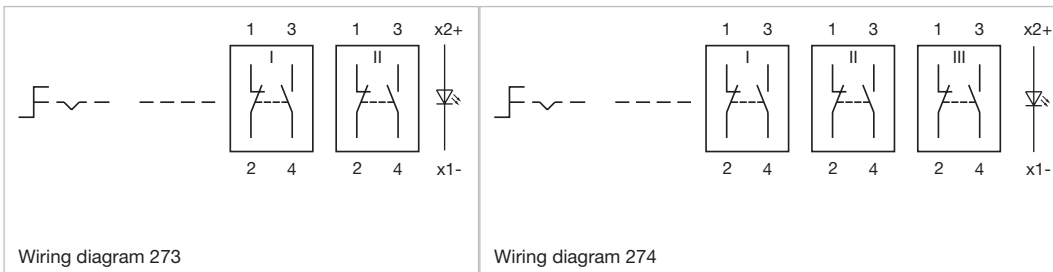
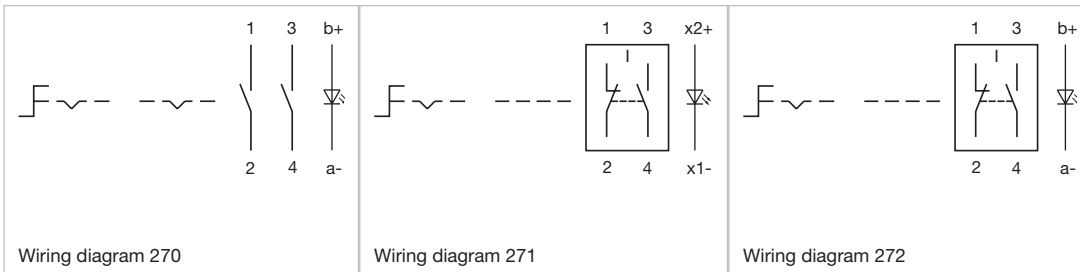
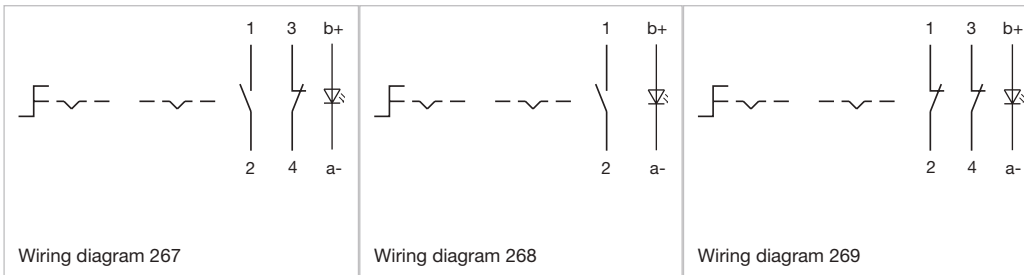
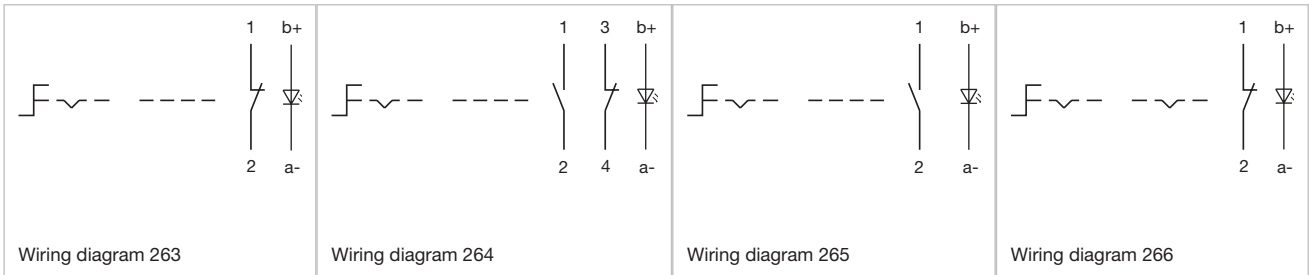


Actuator, Front dimension 24 mm x 24 mm

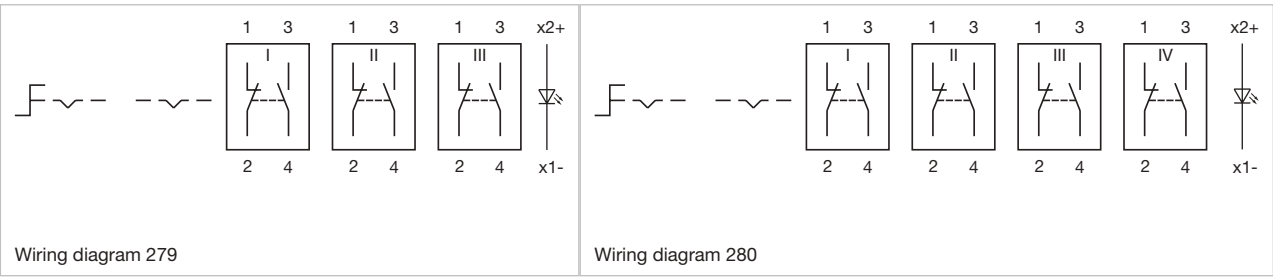
| Switching action  | Terminal           | Switching system              | Contacts    | Switching angle | Part No.    | Wiring diagram | Component Layout |
|-------------------|--------------------|-------------------------------|-------------|-----------------|-------------|----------------|------------------|
| Rest - Momentary  | Plug-in terminal   | Snap-action switching element | 1 NC / 1 NO | 42° right       | 52-131.022  | 272            |                  |
|                   | Soldering terminal | Snap-action switching element | 1 NC / 1 NO | 42° right       | 52-131.0252 | 271            |                  |
|                   | Soldering terminal | Snap-action switching element | 2 NC / 2 NO | 42° right       | 52-132.0252 | 273            |                  |
|                   | Soldering terminal | Snap-action switching element | 3 NC / 3 NO | 42° right       | 52-133.0252 | 274            |                  |
|                   | Soldering terminal | Snap-action switching element | 4 NC / 4 NO | 42° right       | 52-134.0252 | 275            |                  |
| Rest - Maintained | Plug-in terminal   | Snap-action switching element | 1 NC / 1 NO | 90° right       | 52-271.022  | 277            |                  |
|                   | Soldering terminal | Snap-action switching element | 1 NC / 1 NO | 90° right       | 52-271.0252 | 276            |                  |
|                   | Soldering terminal | Snap-action switching element | 2 NC / 2 NO | 90° right       | 52-272.0252 | 278            |                  |
|                   | Soldering terminal | Snap-action switching element | 3 NC / 3 NO | 90° right       | 52-273.0252 | 279            |                  |
|                   | Soldering terminal | Snap-action switching element | 4 NC / 4 NO | 90° right       | 52-274.0252 | 280            |                  |
| Rest - Momentary  | Universal terminal | Low-level element             | 1 NC / 1 NO | 42° right       | 52-433.036  | 264            | 27               |
|                   | Universal terminal | Low-level element             | 1 NO        | 42° right       | 52-435.036  | 265            | 27               |
|                   | Universal terminal | Low-level element             | 1 NC        | 42° right       | 52-436.036  | 263            | 27               |
| Rest - Maintained | Universal terminal | Low-level element             | 2 NO        | 90° right       | 52-471.036  | 270            | 27               |
|                   | Universal terminal | Low-level element             | 2 NC        | 90° right       | 52-472.036  | 269            | 27               |
|                   | Universal terminal | Low-level element             | 1 NC / 1 NO | 90° right       | 52-473.036  | 267            | 27               |
|                   | Universal terminal | Low-level element             | 1 NO        | 90° right       | 52-475.036  | 268            | 27               |
|                   | Universal terminal | Low-level element             | 1 NC        | 90° right       | 52-476.036  | 266            | 27               |

Contacts: NC = Normally closed, NO = Normally open

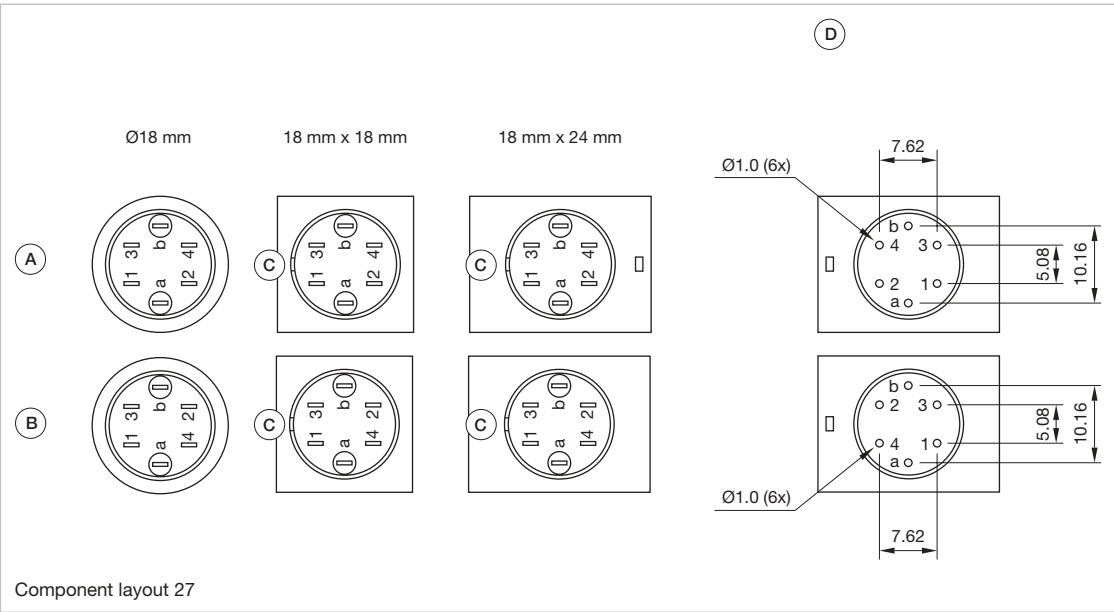
## Wiring diagrams



Wiring diagrams



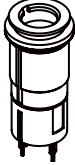
Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

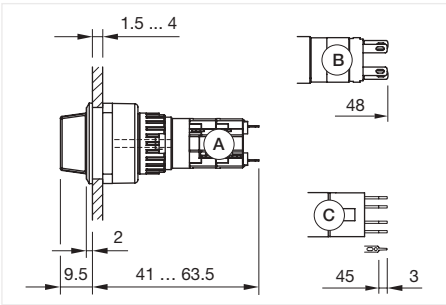
Selector switch 2 positions round, IP65

Equipment consisting of (schematic overview)

-  Lever Page 657
-  LED Page 660
-  Actuator
-  Front bezel set Page 658
-  Anti-twist ring Page 659
-  Fixing nut

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.



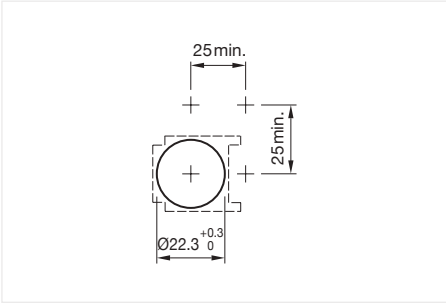
Dimensions [mm]  
A = Solder terminal  
B = Solder terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



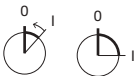
Product can differ from the current configuration.

General information

- Illuminative



Mounting cut-outs [mm]



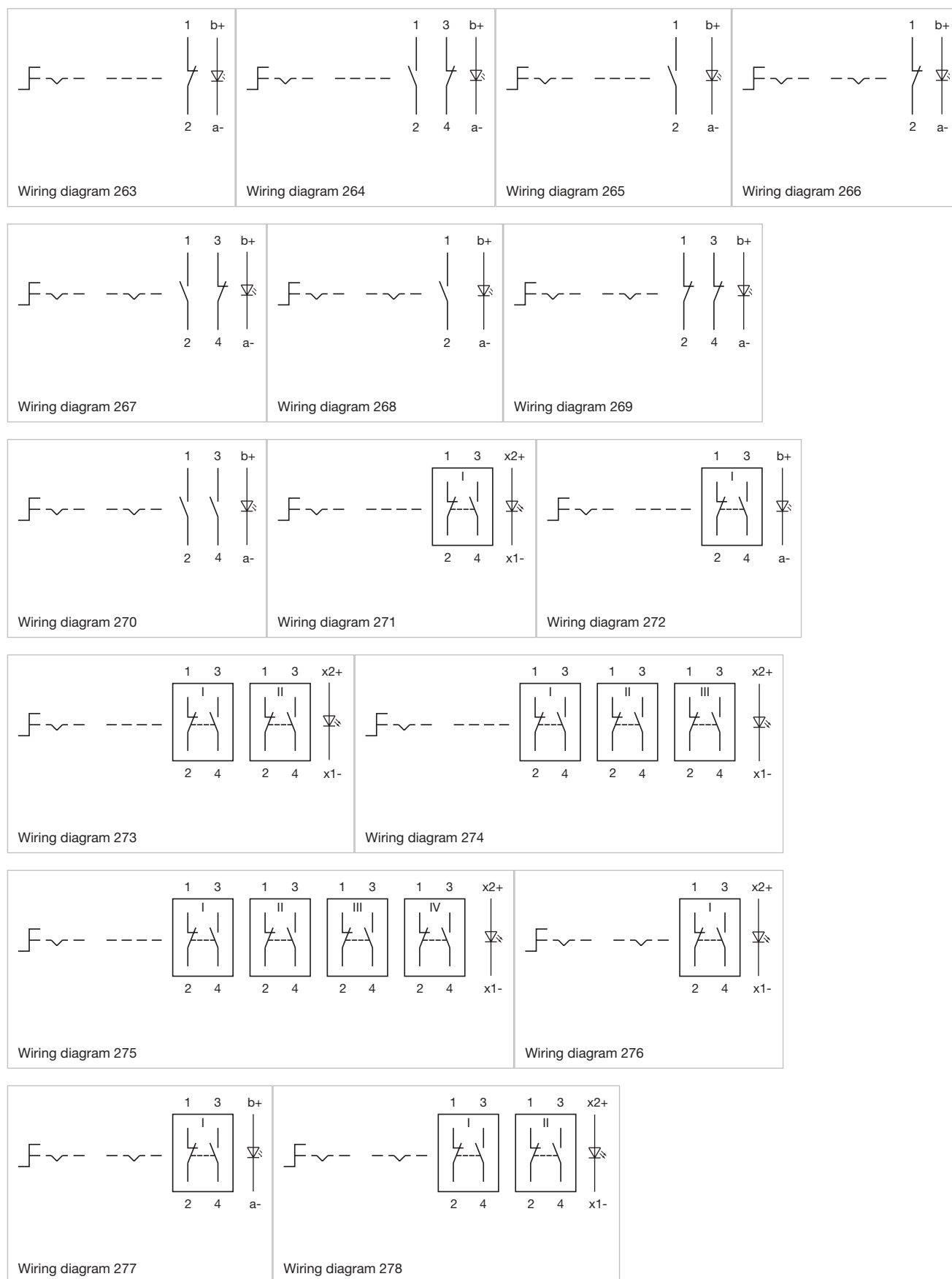
Actuator, Front dimension Ø 25 mm

| Switching action  | Terminal           | Switching system              | Contacts    | Switching angle | Part No.    | Wiring diagram | Component Layout |
|-------------------|--------------------|-------------------------------|-------------|-----------------|-------------|----------------|------------------|
| Rest - Momentary  | Plug-in terminal   | Snap-action switching element | 1 NC / 1 NO | 42° right       | 52-131.022  | 272            |                  |
|                   | Soldering terminal | Snap-action switching element | 1 NC / 1 NO | 42° right       | 52-131.0252 | 271            |                  |
|                   | Soldering terminal | Snap-action switching element | 2 NC / 2 NO | 42° right       | 52-132.0252 | 273            |                  |
|                   | Soldering terminal | Snap-action switching element | 3 NC / 3 NO | 42° right       | 52-133.0252 | 274            |                  |
|                   | Soldering terminal | Snap-action switching element | 4 NC / 4 NO | 42° right       | 52-134.0252 | 275            |                  |
| Rest - Maintained | Plug-in terminal   | Snap-action switching element | 1 NC / 1 NO | 90° right       | 52-271.022  | 277            |                  |
|                   | Soldering terminal | Snap-action switching element | 1 NC / 1 NO | 90° right       | 52-271.0252 | 276            |                  |
|                   | Soldering terminal | Snap-action switching element | 2 NC / 2 NO | 90° right       | 52-272.0252 | 278            |                  |
|                   | Soldering terminal | Snap-action switching element | 3 NC / 3 NO | 90° right       | 52-273.0252 | 279            |                  |
|                   | Soldering terminal | Snap-action switching element | 4 NC / 4 NO | 90° right       | 52-274.0252 | 280            |                  |
| Rest - Momentary  | Universal terminal | Low-level element             | 1 NC / 1 NO | 42° right       | 52-433.036  | 264            | 27               |
|                   | Universal terminal | Low-level element             | 1 NO        | 42° right       | 52-435.036  | 265            | 27               |
|                   | Universal terminal | Low-level element             | 1 NC        | 42° right       | 52-436.036  | 263            | 27               |
| Rest - Maintained | Universal terminal | Low-level element             | 2 NO        | 90° right       | 52-471.036  | 270            | 27               |
|                   | Universal terminal | Low-level element             | 2 NC        | 90° right       | 52-472.036  | 269            | 27               |
|                   | Universal terminal | Low-level element             | 1 NC / 1 NO | 90° right       | 52-473.036  | 267            | 27               |
|                   | Universal terminal | Low-level element             | 1 NO        | 90° right       | 52-475.036  | 268            | 27               |
|                   | Universal terminal | Low-level element             | 1 NC        | 90° right       | 52-476.036  | 266            | 27               |

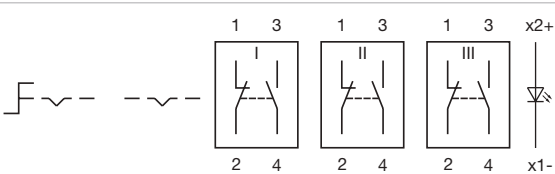
Contacts: NC = Normally closed, NO = Normally open

# 51 Flush design

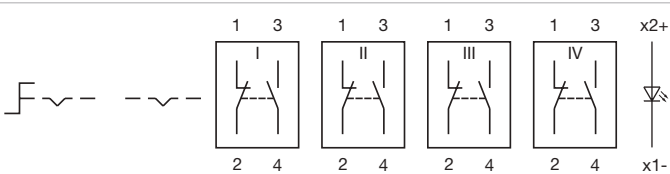
## Wiring diagrams



Wiring diagrams

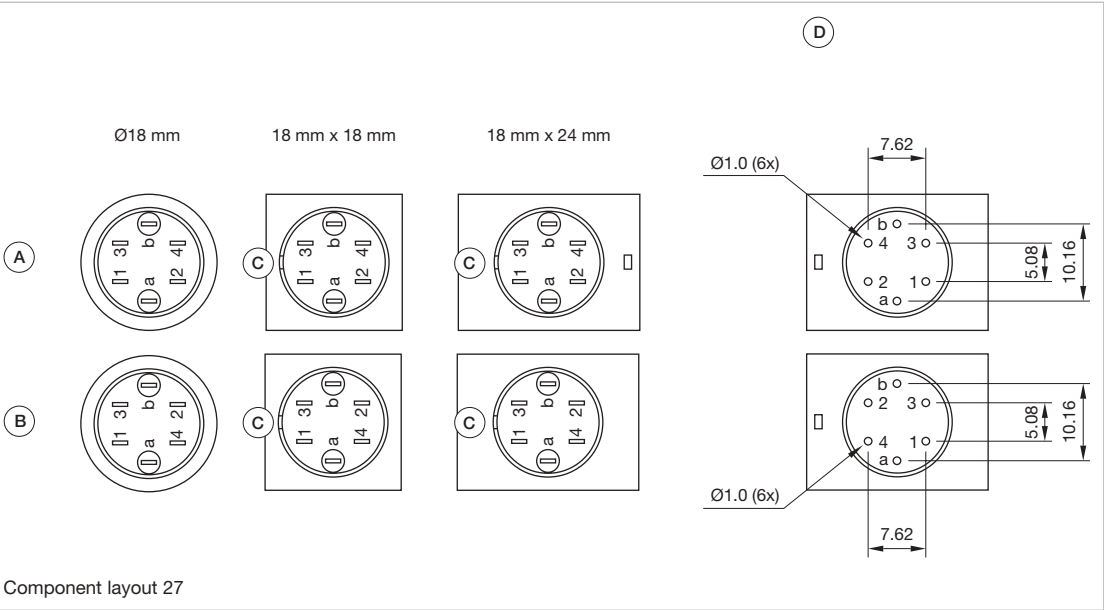


Wiring diagram 279



Wiring diagram 280

Component layouts



Component layout 27

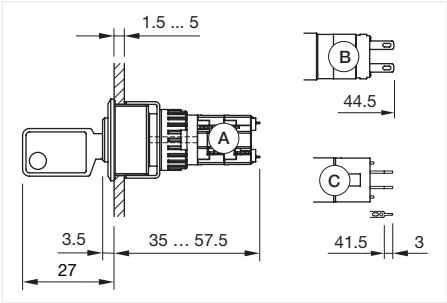
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

51 Flush design

Keylock switch 2 positions square, IP65

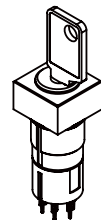


Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Solder terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm

Equipment consisting of (schematic overview)



Actuator



Front bezel set



Fixing nut

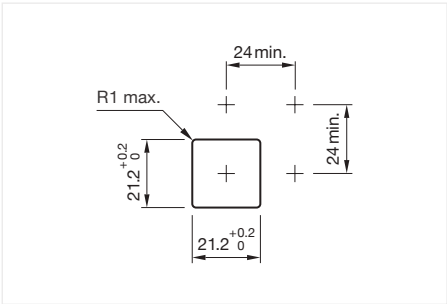
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

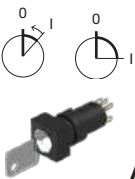
Page 658

General information

- Standard lock: DOM 311



Mounting cut-outs [mm]



Actuator, Front dimension 24 mm x 24 mm

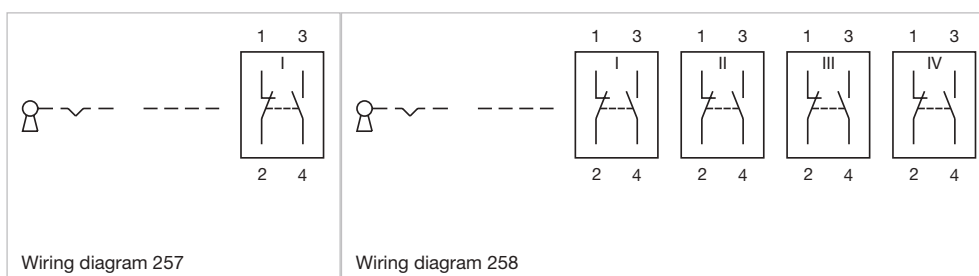
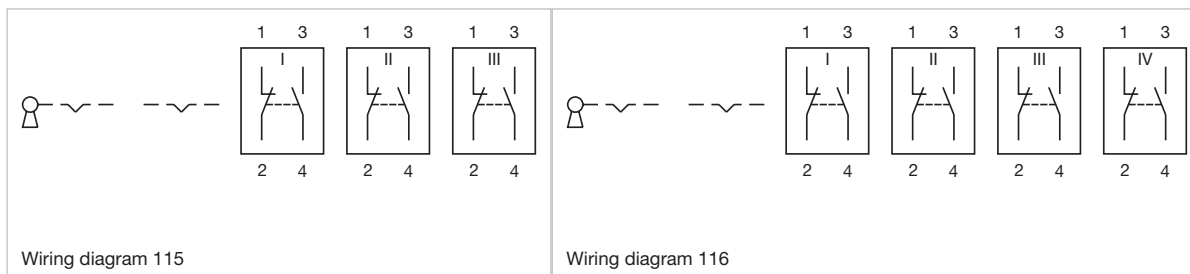
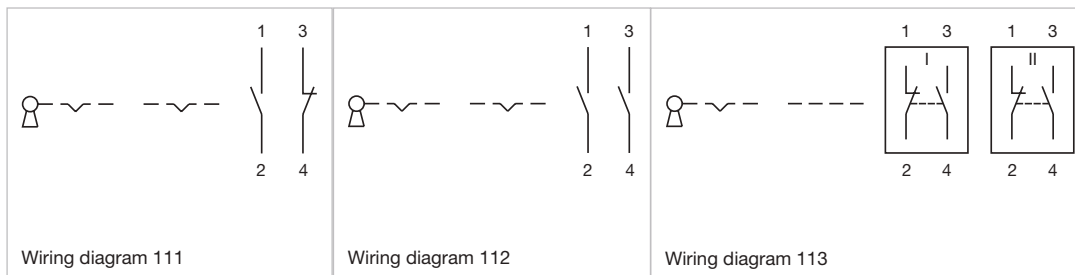
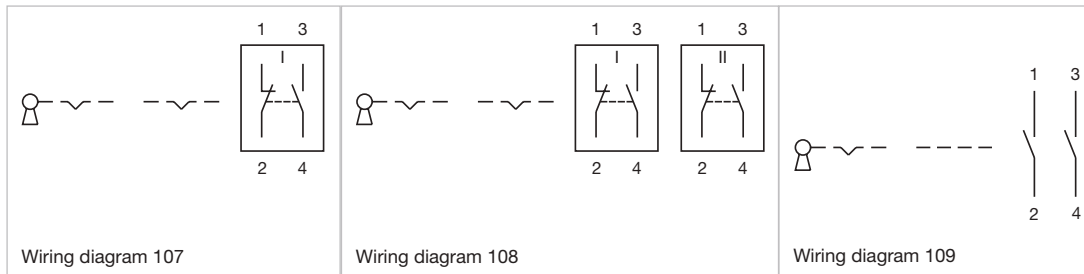
| Switching action          | Contacts    | Terminal           | Switching system              | Switching angle | Part No.      | Wiring diagram | Component Layout |
|---------------------------|-------------|--------------------|-------------------------------|-----------------|---------------|----------------|------------------|
| Rest (a) - Momentary      | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-145.025D2F | 257            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-146.025D2F | 113            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-148.025D2F | 258            |                  |
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-155.022DF  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-155.025D2F | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-156.025D2F | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-157.025D2F | 115            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-158.025D2F | 116            |                  |
| Rest (a) - Maintained     | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-255.022DF  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-255.025D2F | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-256.025D2F | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-257.025D2F | 115            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-258.025D2F | 116            |                  |
| Rest - Maintained (a)     | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-355.025D2F | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-356.025D2F | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-357.025D2F | 115            |                  |
| Rest (a) - Maintained (a) | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-441.036DF  | 112            | 27               |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-442.036DF  | 111            | 27               |

Contacts: NC = Normally closed, NO = Normally open  
a = Key remove

| Switching action      | Contacts    | Terminal           | Switching system  | Switching angle | Part No.     | Wiring diagram | Component Layout |
|-----------------------|-------------|--------------------|-------------------|-----------------|--------------|----------------|------------------|
| Rest (a) - Maintained | 2 NO        | Universal terminal | Low-level element | 90° right       | 51-444.036DF | 112            | 27               |
|                       | 1 NC / 1 NO | Universal terminal | Low-level element | 90° right       | 51-445.036DF | 111            | 27               |
| Rest - Maintained (a) | 1 NC / 1 NO | Universal terminal | Low-level element | 90° right       | 51-448.036DF | 111            | 27               |
| Rest (a) - Momentary  | 2 NO        | Universal terminal | Low-level element | 42° right       | 51-457.036DF | 109            | 27               |

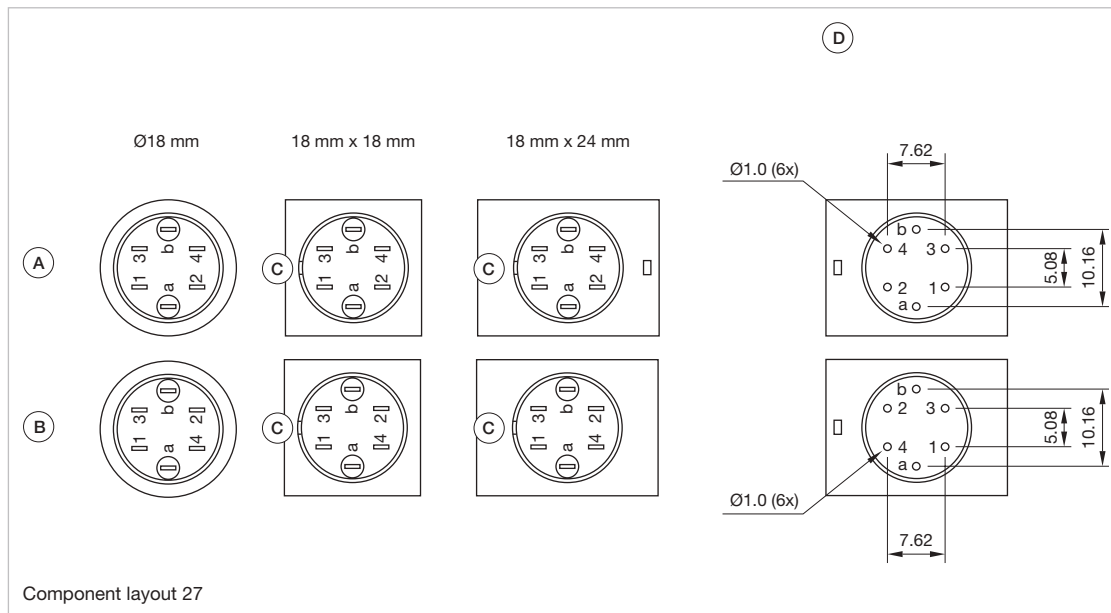
Contacts: NC = Normally closed, NO = Normally open  
a = Key remove

## Wiring diagrams



# 51 Flush design

## Component layouts



Dimensions [mm]  
 A = Universal terminal (rear side)  
 B = Plug-in terminal (rear side)  
 C = Anti twist device  
 D = Drilling plan

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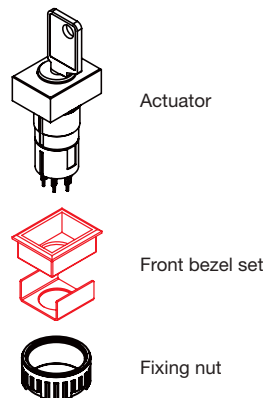
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Keylock switch 2 positions rectangular, IP65

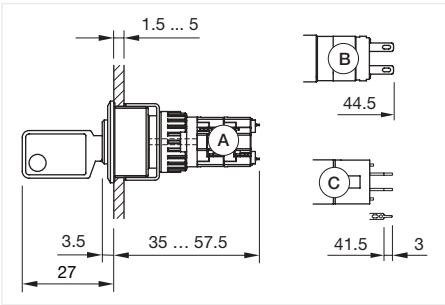
Equipment consisting of (schematic overview)



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.

Page 658



Dimensions [mm]

A = Solder terminal

B = Solder terminal 2.8 mm x 0.5 mm

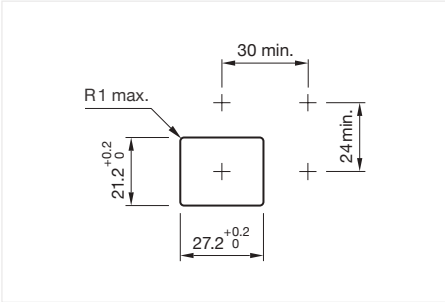
C = Universal terminal 2.0 mm x 0.5 mm



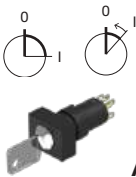
Product can differ from the current configuration.

General information

- Standard lock: DOM 311



Mounting cut-outs [mm]



Actuator, Front dimension 30 mm x 24 mm

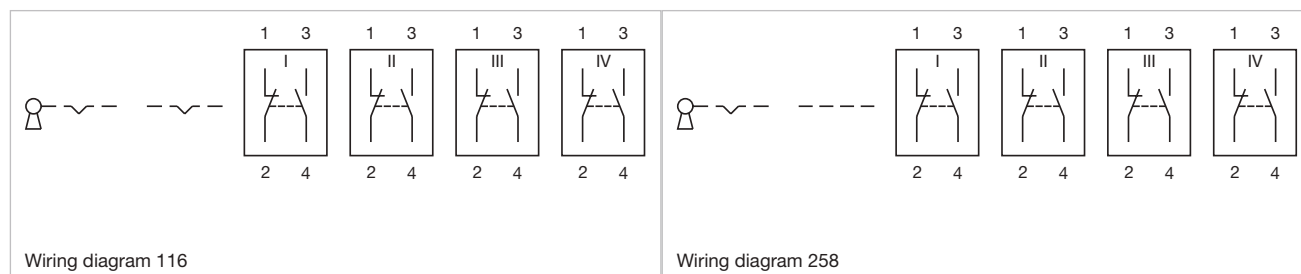
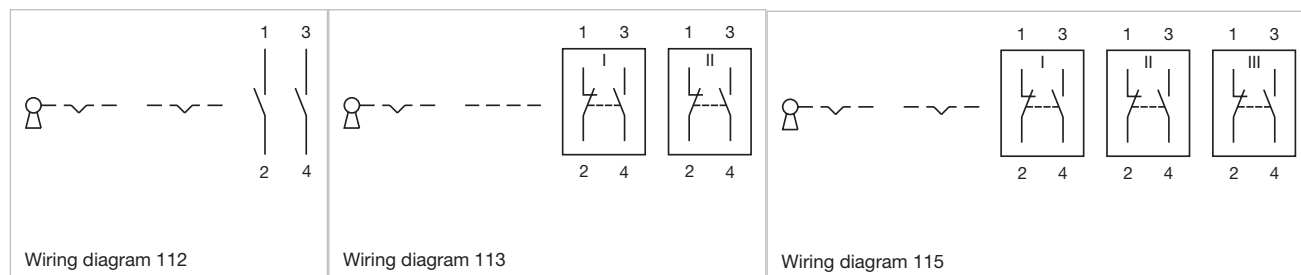
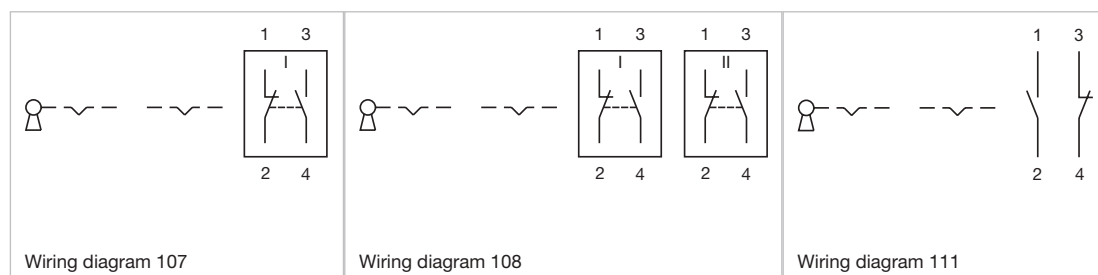
| Switching action          | Contacts    | Terminal           | Switching system              | Switching angle | Part No.      | Wiring diagram | Component Layout |
|---------------------------|-------------|--------------------|-------------------------------|-----------------|---------------|----------------|------------------|
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-195.022DF  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-195.025D2F | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-196.025D2F | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-197.025D2F | 115            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-198.025D2F | 116            |                  |
| Rest (a) - Maintained     | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-295.022DF  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-295.025D2F | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-296.025D2F | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-297.025D2F | 115            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-298.025D2F | 116            |                  |
| Rest - Maintained (a)     | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-396.025D2F | 108            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-398.025D2F | 116            |                  |
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-402.036DF  | 111            | 27               |
| Rest (a) - Maintained     | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-404.036DF  | 112            | 27               |
| Rest (a) - Momentary      | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-496.025D2F | 113            |                  |

Contacts: NC = Normally closed, NO = Normally open

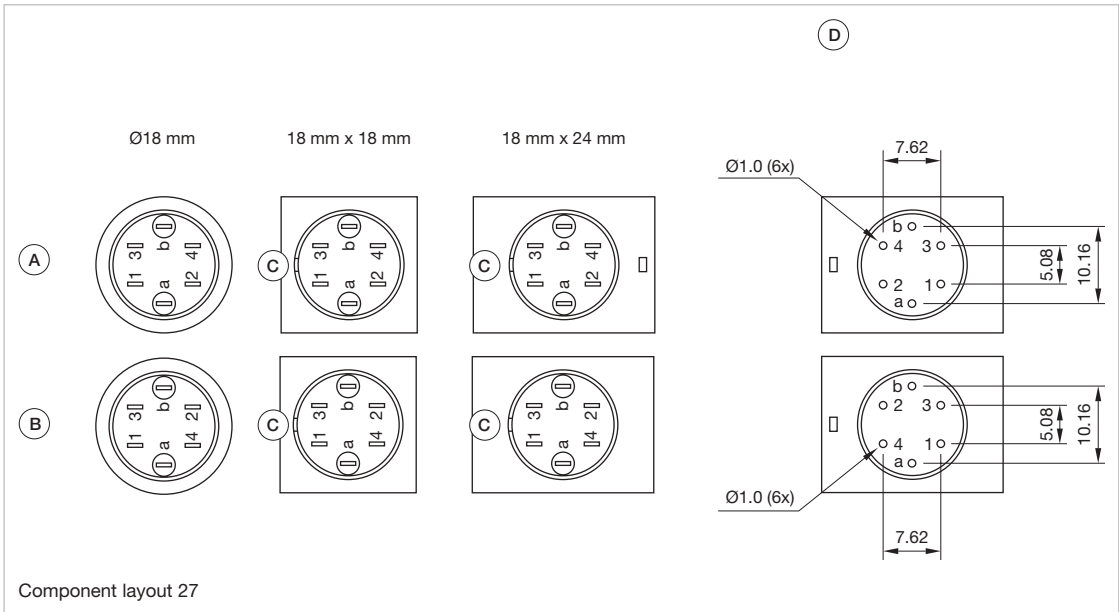
a = Key remove

# 51 Flush design

## Wiring diagrams



Component layouts



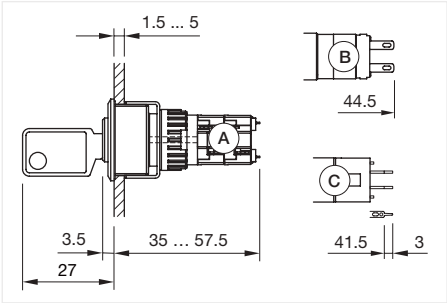
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

51 Flush design

Keylock switch 2 positions round, IP65



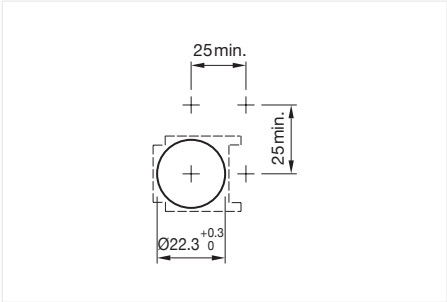
Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Solder terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm

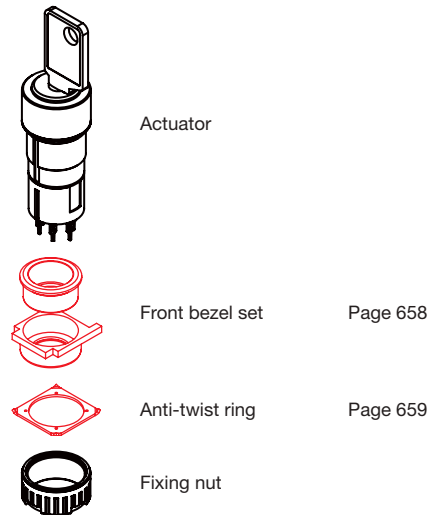
General information

- Standard lock: DOM 311

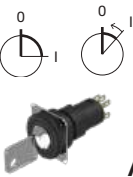


Mounting cut-outs [mm]

Equipment consisting of (schematic overview)



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.



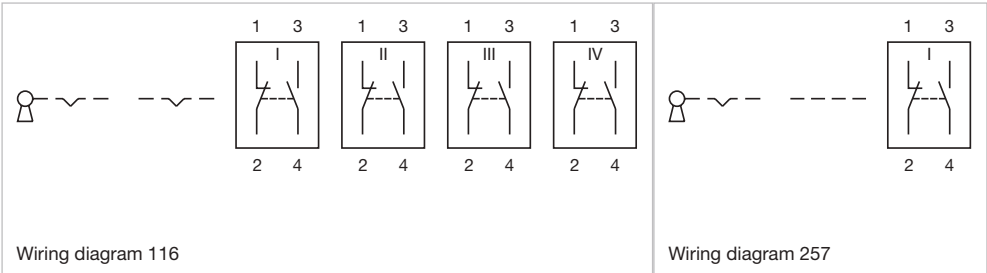
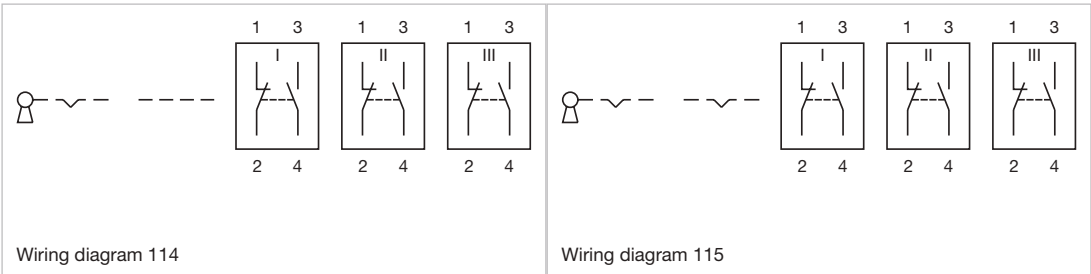
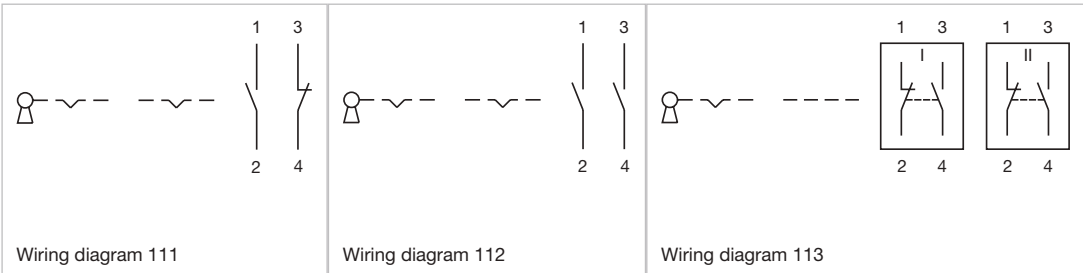
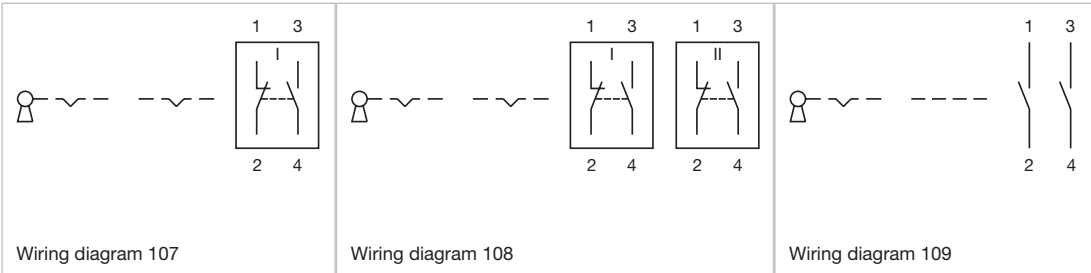
Actuator, Front dimension Ø 25 mm

| Switching action          | Contacts    | Terminal           | Switching system              | Switching angle | Part No.      | Wiring diagram | Com-<br>ponent<br>Layout |
|---------------------------|-------------|--------------------|-------------------------------|-----------------|---------------|----------------|--------------------------|
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-135.022DF  | 107            |                          |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-135.025D2F | 107            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-136.025D2F | 108            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-137.025D2F | 115            |                          |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-138.025D2F | 116            |                          |
| Rest (a) - Momentary      | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 42° right       | 51-141.022DF  | 257            |                          |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-141.025D2F | 257            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-142.025D2F | 113            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-143.025D2F | 114            |                          |
| Rest (a) - Maintained     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-235.022DF  | 107            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-236.025D2F | 108            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-237.025D2F | 115            |                          |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-238.025D2F | 116            |                          |
| Rest - Maintained (a)     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-335.022DF  | 107            |                          |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-335.025D2F | 107            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-336.025D2F | 108            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-337.025D2F | 115            |                          |
| Rest (a) - Maintained (a) | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-338.025D2F | 116            |                          |
|                           | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-411.036DF  | 112            | 27                       |
| Rest (a) - Maintained     | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-412.036DF  | 111            | 27                       |
|                           | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-414.036DF  | 112            | 27                       |

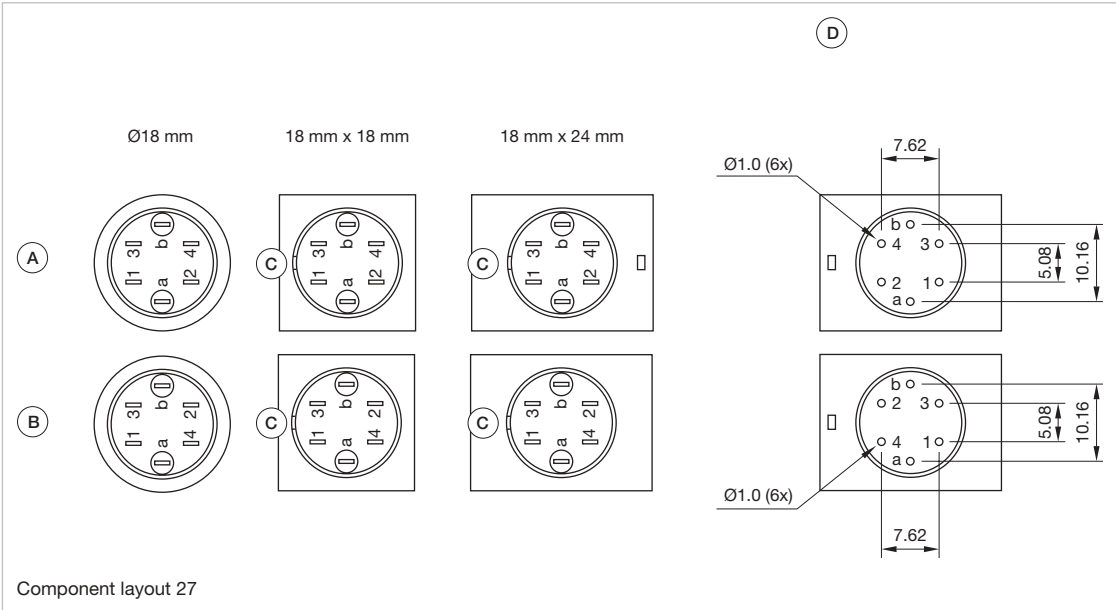
Contacts: NC = Normally closed, NO = Normally open  
a = Key remove

Contacts: NC = Normally closed, NO = Normally open  
a = Key remove

Wiring diagrams



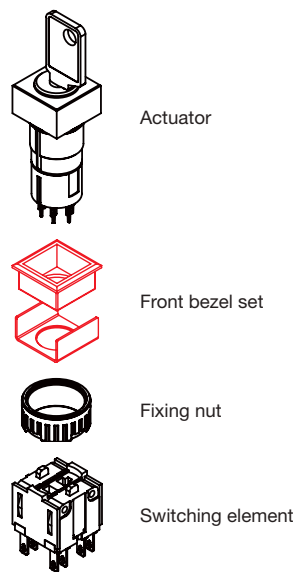
Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

Keylock switch 3 positions square, IP65

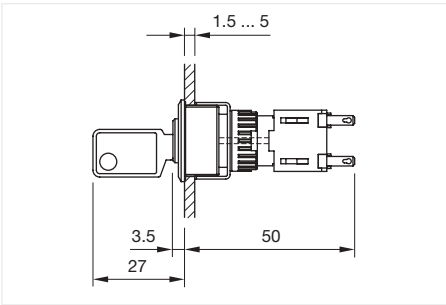
Equipment consisting of (schematic overview)



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.

Page 658



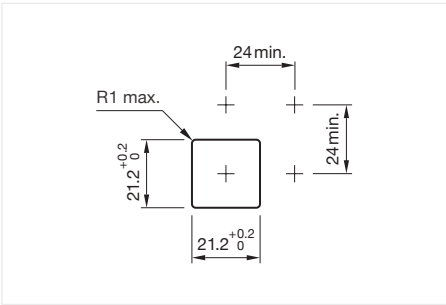
Dimensions [mm]



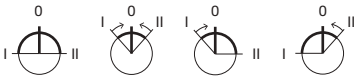
Product can differ from the current configuration.

General information

- Standard lock: DOM 311



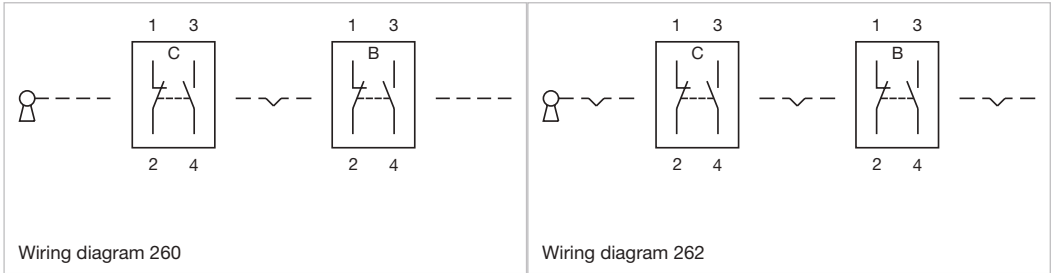
Mounting cut-outs [mm]



Actuator, Front dimension 24 mm x 24 mm

Contacts: NC = Normally closed, NO = Normally open  
a = Key remove

Wiring diagrams



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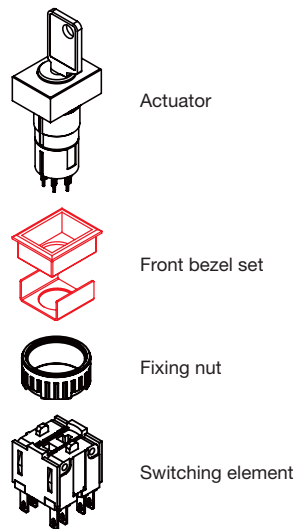
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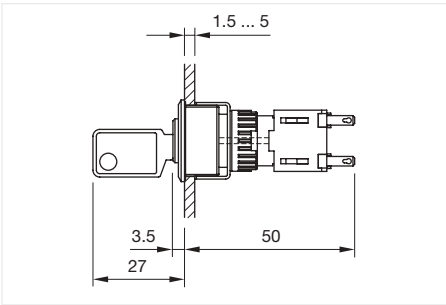
Keylock switch 3 positions rectangular, IP65

Equipment consisting of (schematic overview)

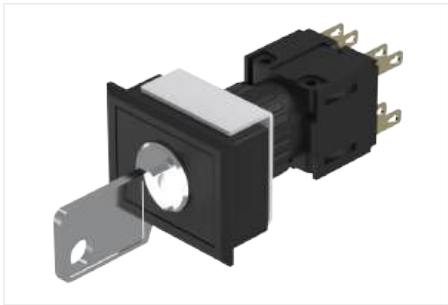


Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



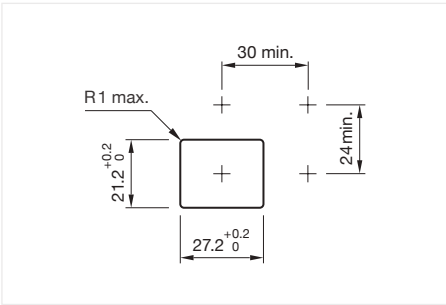
Dimensions [mm]



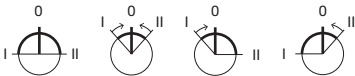
Product can differ from the current configuration.

General information

- Standard lock: DOM 311



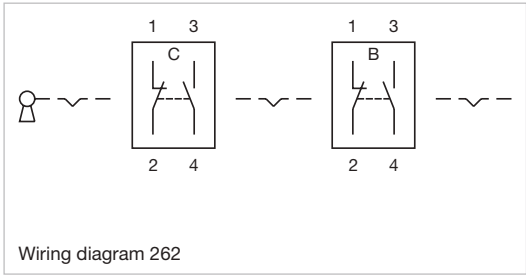
Mounting cut-outs [mm]



Actuator, Front dimension 30 mm x 24 mm

Contacts: NC = Normally closed, NO = Normally open  
a = Key remove

Wiring diagrams





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Keylock switch 3 positions round, IP65

Equipment consisting of (schematic overview)



Actuator



Front bezel set

Page 658

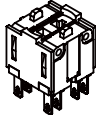


Anti-twist ring

Page 659



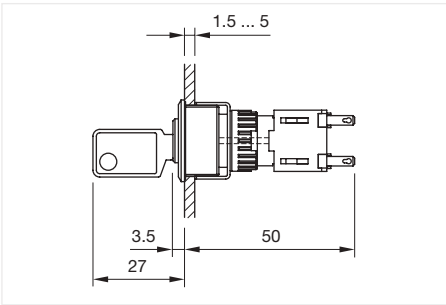
Fixing nut



Switching element

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.



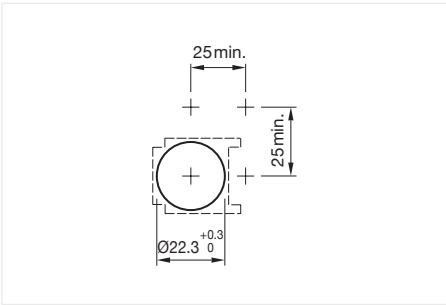
Dimensions [mm]



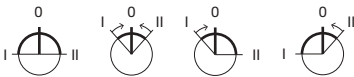
Product can differ from the current configuration.

General information

- Standard lock: DOM 311



Mounting cut-outs [mm]



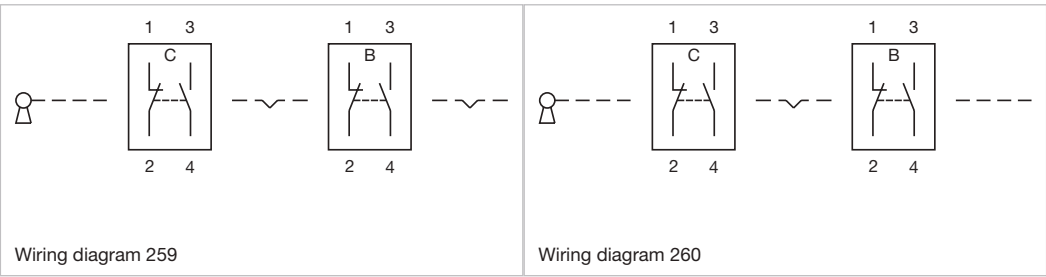
Actuator, Front dimension Ø 25 mm

| Switching action                           | Contacts    | Terminal         | Switching system              | Switching angle      | Part No.     | Wiring diagram |
|--------------------------------------------|-------------|------------------|-------------------------------|----------------------|--------------|----------------|
| Maintained - Rest (a) - Maintained         | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-371.F22DF | 262            |
| Maintained (a) - Rest (a) - Maintained (a) | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-372.F22DF | 262            |
| Momentary - Rest (a) - Momentary           | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 42° right | 51-374.F22DF | 260            |
| Momentary - Rest (a) - Maintained (a)      | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 90° right | 51-376.F22DF | 259            |
| Maintained - Rest (a) - Momentary          | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 42° right | 51-377.F22DF | 261            |
| Maintained (a) - Rest (a) - Momentary      | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 42° right | 51-378.F22DF | 261            |

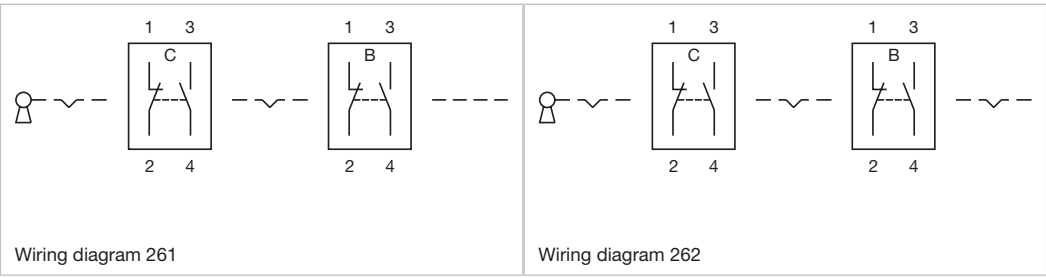
Contacts: NC = Normally closed, NO = Normally open

a = Key remove

Wiring diagrams

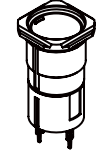


Wiring diagrams



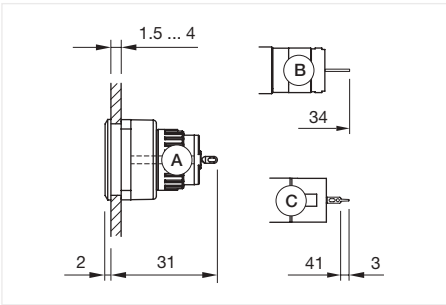
Indicator square, IP65

Equipment consisting of (schematic overview)

-  Lens Page 653
-  LED Page 660
-  Actuator
-  Front bezel set Page 658
-  Fixing nut

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

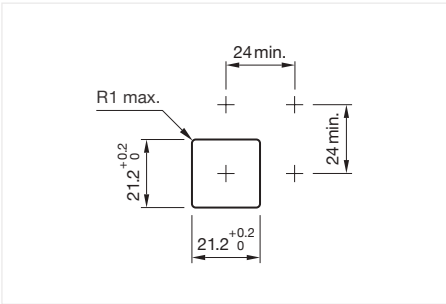
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



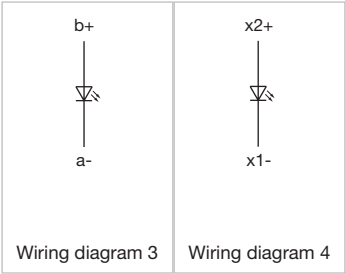
Mounting cut-outs [mm]



Actuator, Front dimension 24 mm x 24 mm

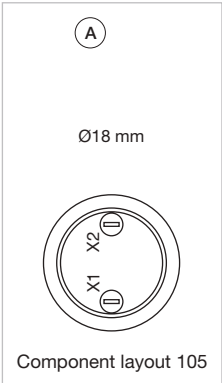
| Terminal           | Part No.    | Wiring diagram | Component Layout |
|--------------------|-------------|----------------|------------------|
| Plug-in terminal   | 51-050.002F | 4              | 105              |
| Soldering terminal | 51-050.005F | 4              | 105              |
| Universal terminal | 51-051.006F | 3              | 105              |

Wiring diagrams



# 51 Flush design

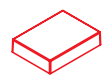
## Component layouts



Dimensions [mm]  
A = Terminals (rear side)

Indicator rectangular, IP65

Equipment consisting of (schematic overview)



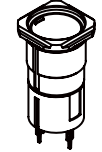
Lens

Page 653



LED

Page 660



Actuator



Front bezel set

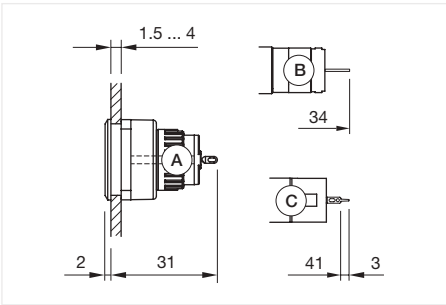
Page 658



Fixing nut

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

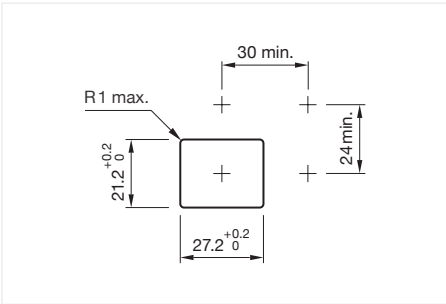
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



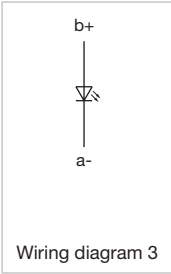
Mounting cut-outs [mm]



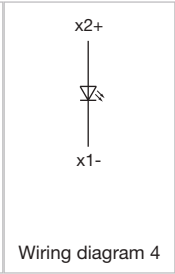
Actuator, Front dimension 30 mm x 24 mm

| Terminal           | Part No.    | Wiring diagram | Component Layout |
|--------------------|-------------|----------------|------------------|
| Plug-in terminal   | 51-050.002F | 4              | 105              |
| Soldering terminal | 51-050.005F | 4              | 105              |
| Universal terminal | 51-051.006F | 3              | 105              |

Wiring diagrams



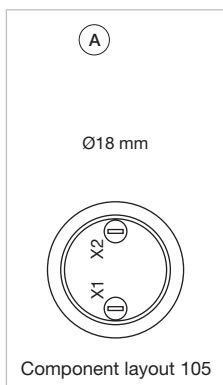
Wiring diagram 3



Wiring diagram 4

# 51 Flush design

## Component layouts



Dimensions [mm]  
A = Terminals (rear side)



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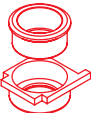
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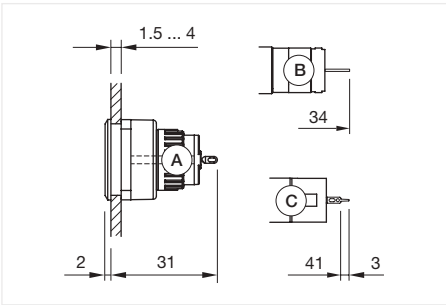
Indicator round, IP65

Equipment consisting of (schematic overview)

-  Lens Page 653
-  LED Page 660
-  Actuator
-  Front bezel set Page 658
-  Anti-twist ring Page 659
-  Fixing nut

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

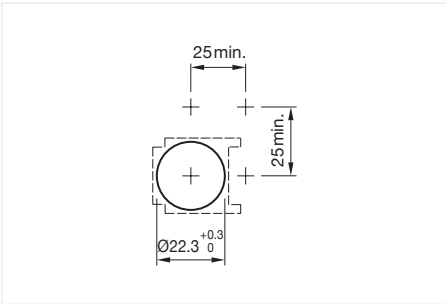
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



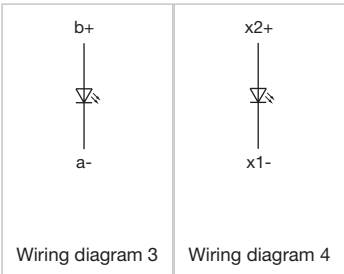
Mounting cut-outs [mm]



Actuator, Front dimension Ø 25 mm

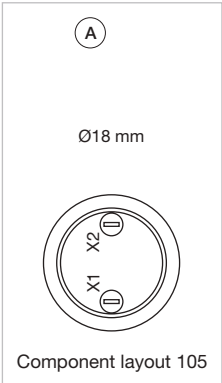
| Terminal           | Part No.    | Wiring diagram | Component Layout |
|--------------------|-------------|----------------|------------------|
| Plug-in terminal   | 51-050.002F | 4              | 105              |
| Soldering terminal | 51-050.005F | 4              | 105              |
| Universal terminal | 51-051.006F | 3              | 105              |

Wiring diagrams



# 51 Flush design

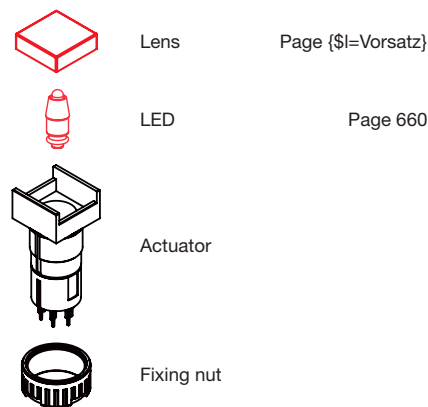
## Component layouts



Dimensions [mm]  
A = Terminals (rear side)

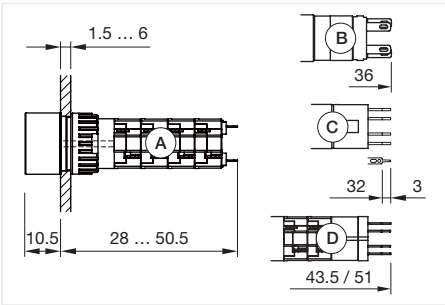
Illuminated pushbutton square, IP65

Equipment consisting of (schematic overview)



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

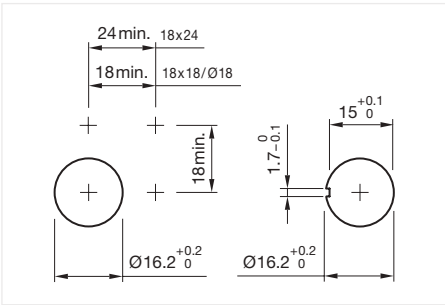
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm  
D = Universal-Solder terminal



Product can differ from the current configuration.



Mounting cut-outs [mm]



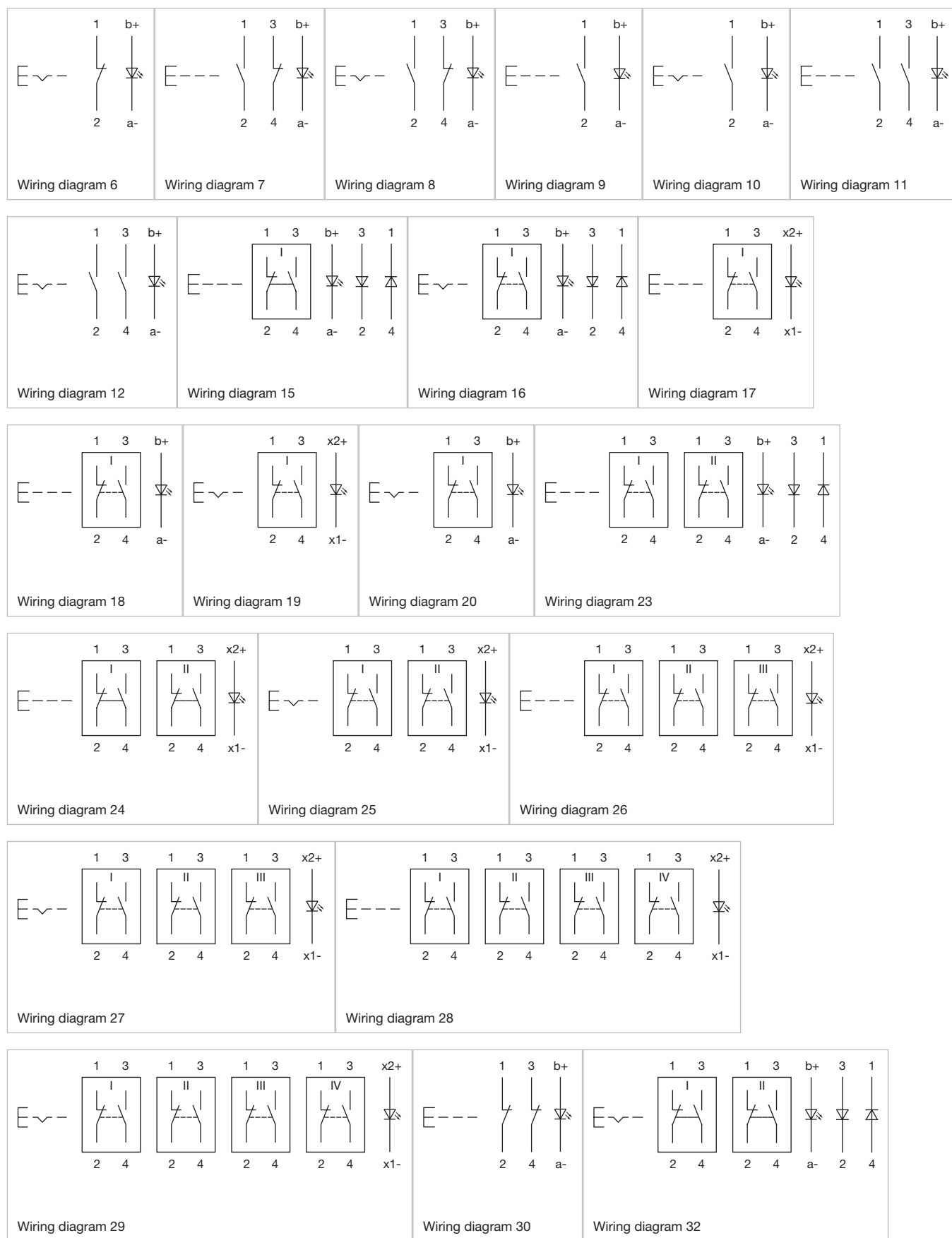
Actuator, Front dimension 18 mm x 18 mm

| Switching action | Contacts    | Terminal                     | Switching system              | Diode 1N4007 | Part No.    | Wiring diagram | Com-<br>ponent<br>Layout |
|------------------|-------------|------------------------------|-------------------------------|--------------|-------------|----------------|--------------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal             | Snap-action switching element |              | 51-151.022  | 20             | 27                       |
|                  | 1 NC / 1 NO | Soldering terminal           | Snap-action switching element |              | 51-151.0252 | 17             |                          |
|                  | 2 NC / 2 NO | Soldering terminal           | Snap-action switching element |              | 51-152.0252 | 24             |                          |
|                  | 3 NC / 3 NO | Soldering terminal           | Snap-action switching element |              | 51-153.0252 | 26             |                          |
|                  | 4 NC / 4 NO | Soldering terminal           | Snap-action switching element |              | 51-154.0252 | 28             |                          |
| Maintained       | 1 NC / 1 NO | Plug-in terminal             | Snap-action switching element |              | 51-281.022  | 18             | 27                       |
|                  | 1 NC / 1 NO | Soldering terminal           | Snap-action switching element |              | 51-281.0252 | 19             |                          |
|                  | 2 NC / 2 NO | Soldering terminal           | Snap-action switching element |              | 51-282.0252 | 25             |                          |
|                  | 3 NC / 3 NO | Soldering terminal           | Snap-action switching element |              | 51-283.0252 | 27             |                          |
|                  | 4 NC / 4 NO | Soldering terminal           | Snap-action switching element |              | 51-284.0252 | 29             |                          |
| Momentary        | 2 NO        | Universal terminal           | Low-level element             |              | 51-451.036  | 11             | 27                       |
|                  | 2 NC        | Universal terminal           | Low-level element             |              | 51-452.036  | 30             | 27                       |
|                  | 1 NC / 1 NO | Universal terminal           | Low-level element             |              | 51-453.036  | 7              | 27                       |
|                  | 1 NO        | Universal terminal           | Low-level element             |              | 51-455.036  | 9              | 27                       |
| Maintained       | 2 NO        | Universal terminal           | Low-level element             |              | 51-481.036  | 12             | 27                       |
|                  | 1 NC / 1 NO | Universal terminal           | Low-level element             |              | 51-483.036  | 8              | 27                       |
|                  | 1 NO        | Universal terminal           | Low-level element             |              | 51-485.036  | 10             | 27                       |
|                  | 1 NC        | Universal terminal           | Low-level element             |              | 51-486.036  | 6              | 27                       |
| Momentary        | 1 NC / 1 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-710.0292 | 15             |                          |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-712.0292 | 23             |                          |
| Maintained       | 1 NC / 1 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-718.0292 | 16             |                          |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-720.0292 | 32             |                          |

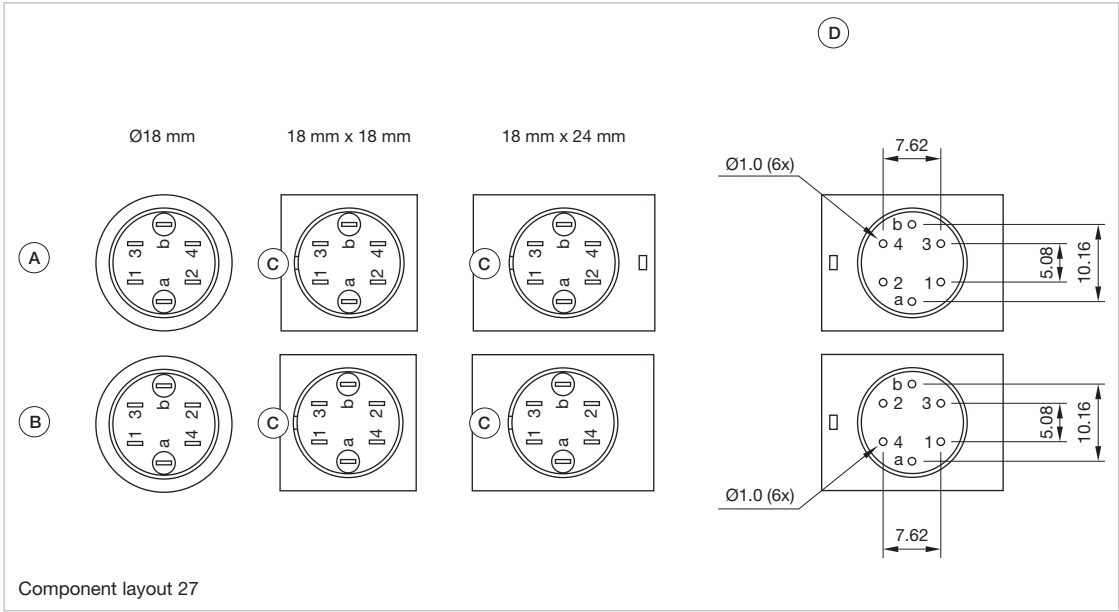
Contacts: NC = Normally closed, NO = Normally open

# 51 Raised design

## Wiring diagrams



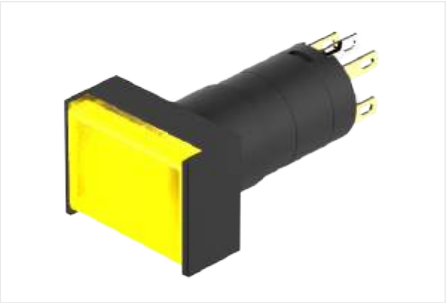
Component layouts



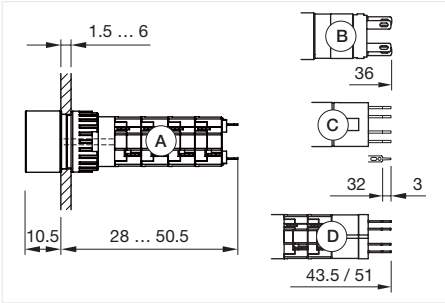
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

51 Raised design

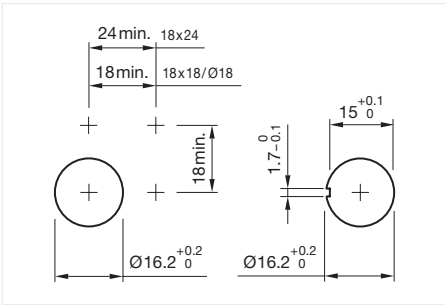
Illuminated pushbutton rectangular, IP65



Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm  
D = Universal-Solder terminal

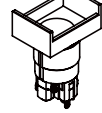


Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

 Lens Page 653

 LED Page 660

 Actuator

 Fixing nut

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.

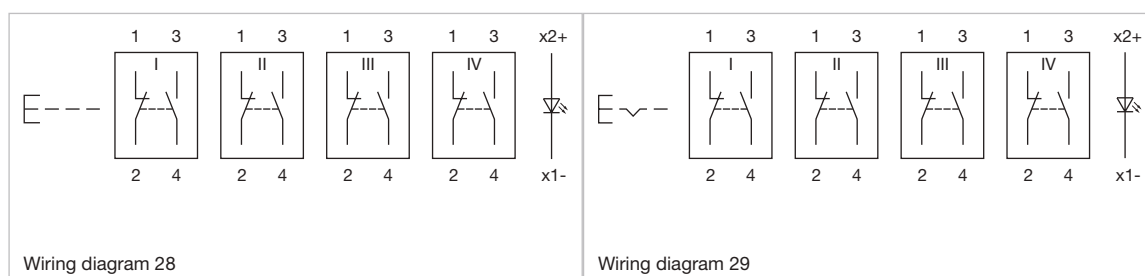
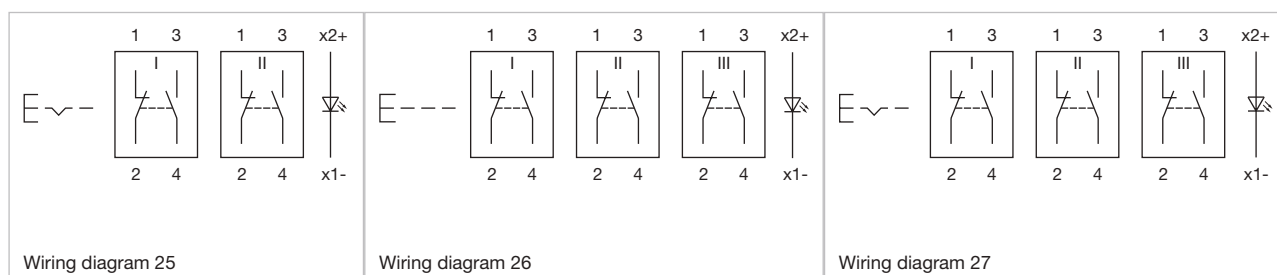
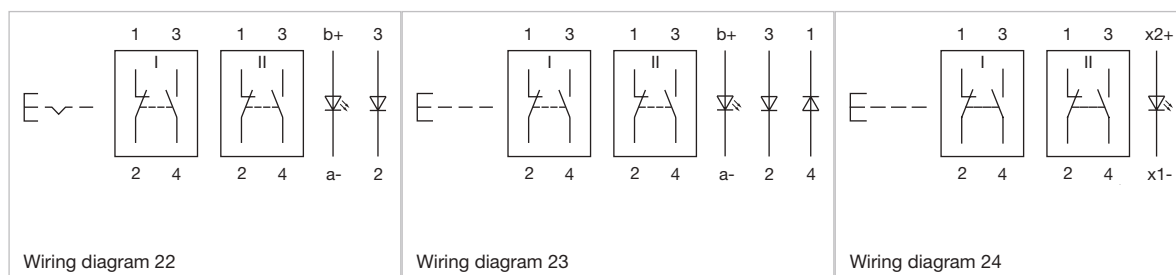
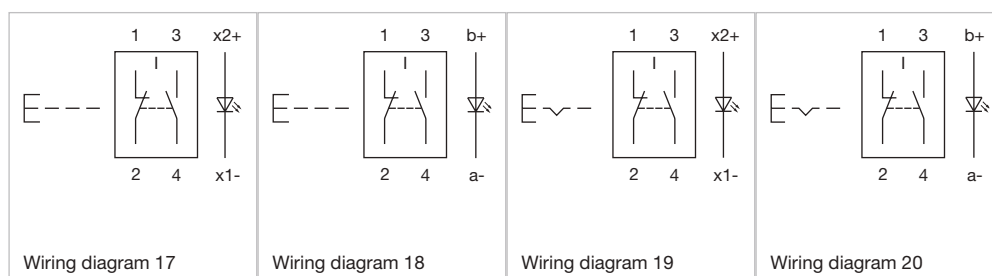
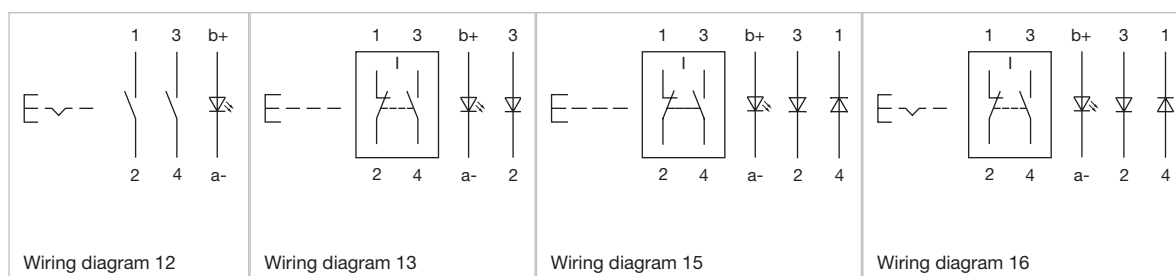
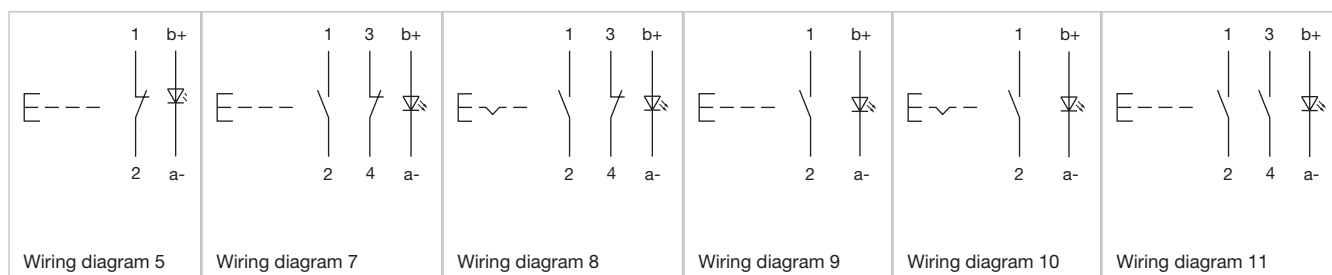


Actuator, Front dimension 24 mm x 18 mm

| Switching action | Contacts    | Terminal                     | Switching system              | Diode 1N4007 | Part No.    | Wiring diagram | Component Layout |
|------------------|-------------|------------------------------|-------------------------------|--------------|-------------|----------------|------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal             | Snap-action switching element |              | 51-121.022  | 20             | 27               |
|                  | 1 NC / 1 NO | Soldering terminal           | Snap-action switching element |              | 51-121.0252 | 17             |                  |
|                  | 2 NC / 2 NO | Soldering terminal           | Snap-action switching element |              | 51-122.0252 | 24             |                  |
|                  | 3 NC / 3 NO | Soldering terminal           | Snap-action switching element |              | 51-123.0252 | 26             |                  |
|                  | 4 NC / 4 NO | Soldering terminal           | Snap-action switching element |              | 51-124.0252 | 28             |                  |
| Maintained       | 1 NC / 1 NO | Plug-in terminal             | Snap-action switching element |              | 51-261.022  | 18             | 27               |
|                  | 1 NC / 1 NO | Soldering terminal           | Snap-action switching element |              | 51-261.0252 | 19             |                  |
|                  | 2 NC / 2 NO | Soldering terminal           | Snap-action switching element |              | 51-262.0252 | 25             |                  |
|                  | 3 NC / 3 NO | Soldering terminal           | Snap-action switching element |              | 51-263.0252 | 27             |                  |
|                  | 4 NC / 4 NO | Soldering terminal           | Snap-action switching element |              | 51-264.0252 | 29             |                  |
| Momentary        | 2 NO        | Universal terminal           | Low-level element             |              | 51-421.036  | 11             | 27               |
|                  | 2 NC        | Universal terminal           | Low-level element             |              | 51-422.036  | 30             | 27               |
|                  | 1 NC / 1 NO | Universal terminal           | Low-level element             |              | 51-423.036  | 7              | 27               |
|                  | 1 NO        | Universal terminal           | Low-level element             |              | 51-425.036  | 9              | 27               |
|                  | 1 NC        | Universal terminal           | Low-level element             |              | 51-426.036  | 5              | 27               |
| Maintained       | 2 NO        | Universal terminal           | Low-level element             |              | 51-461.036  | 12             | 27               |
|                  | 1 NC / 1 NO | Universal terminal           | Low-level element             |              | 51-463.036  | 8              | 27               |
|                  | 1 NO        | Universal terminal           | Low-level element             |              | 51-465.036  | 10             | 27               |
| Momentary        | 1 NC / 1 NO | Universal soldering terminal | Snap-action switching element | 1            | 51-705.0292 | 13             |                  |
|                  | 1 NC / 1 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-706.0292 | 15             |                  |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 1            | 51-707.0292 | 32             |                  |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-708.0292 | 23             |                  |
| Maintained       | 1 NC / 1 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-714.0292 | 16             |                  |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 1            | 51-715.0292 | 22             |                  |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-716.0292 | 32             |                  |

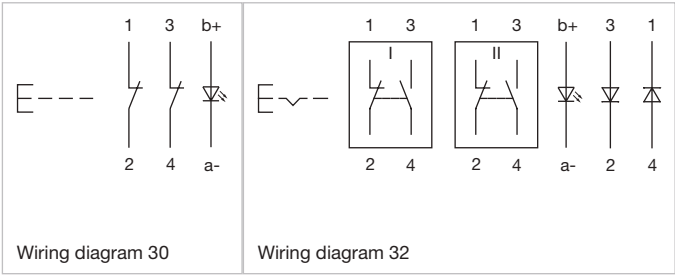
Contacts: NC = Normally closed, NO = Normally open

## Wiring diagrams

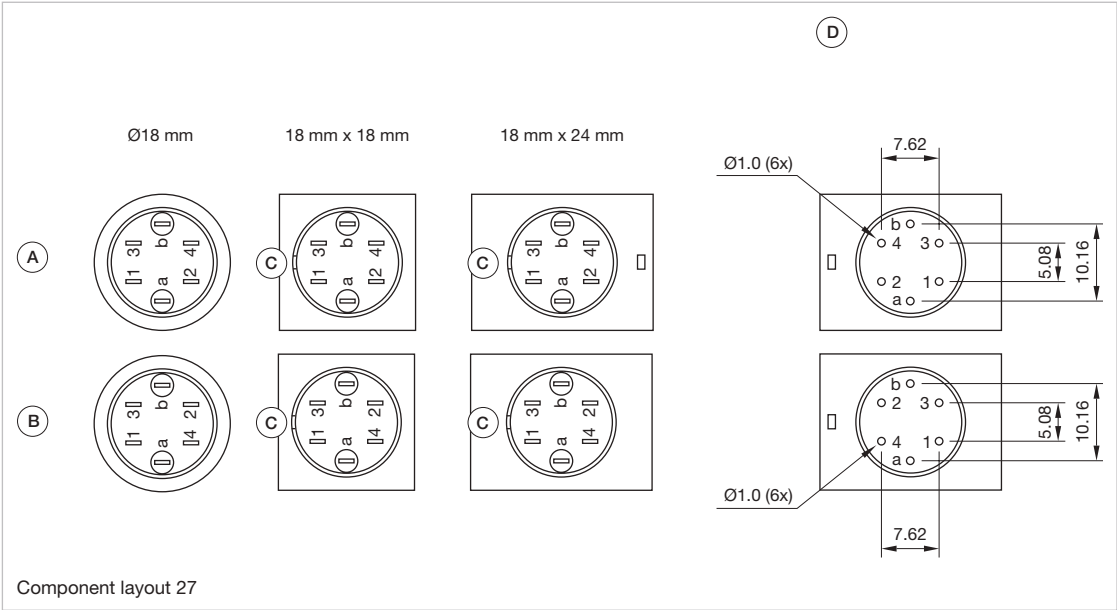


# 51 Raised design

## Wiring diagrams



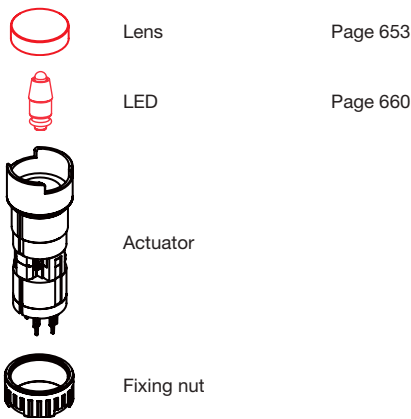
## Component layouts



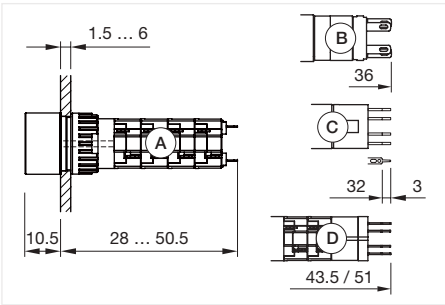
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

Illuminated pushbutton round, IP65

Equipment consisting of (schematic overview)



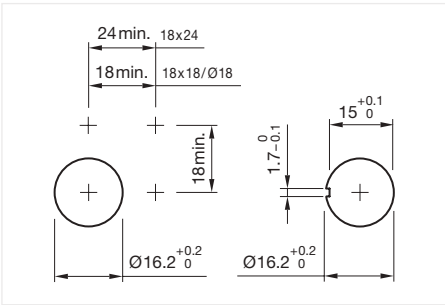
Each Part Number listed below includes all the black components shown in the 3D-drawing.  
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm  
D = Universal-Solder terminal



Product can differ from the current configuration.



Mounting cut-outs [mm]



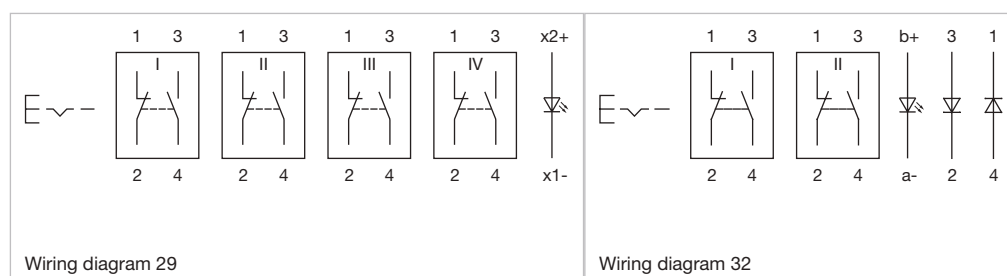
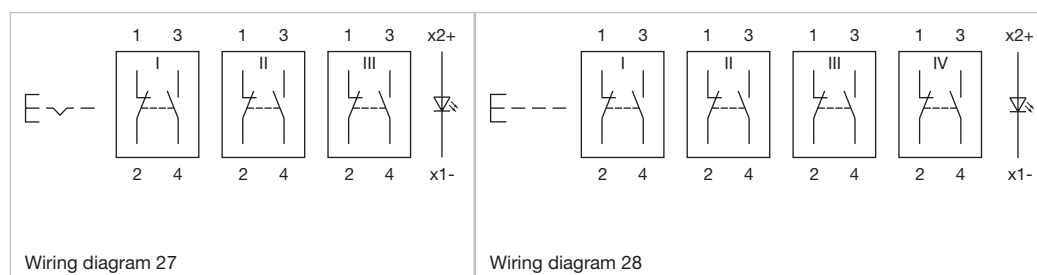
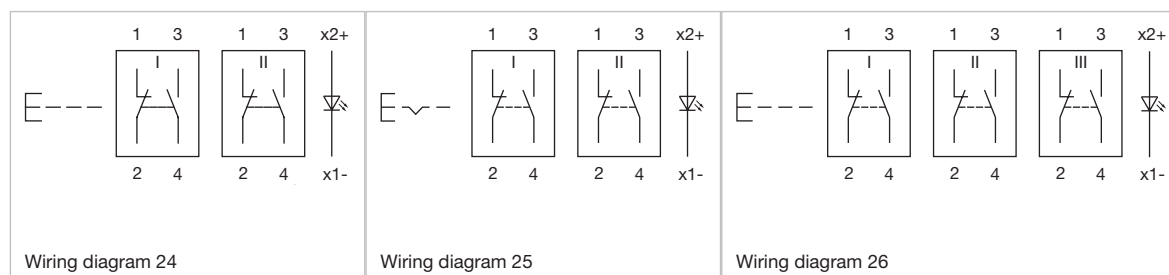
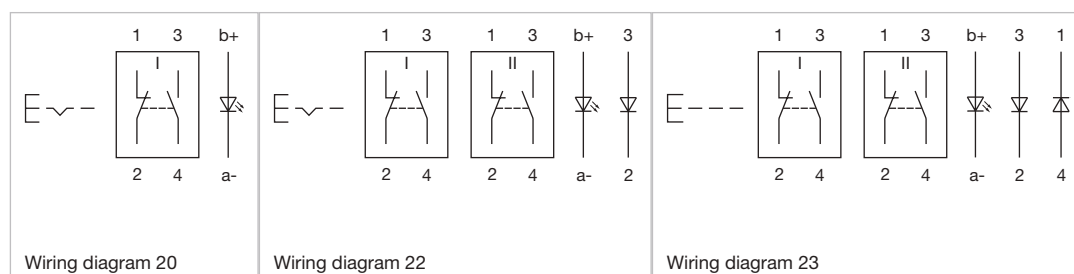
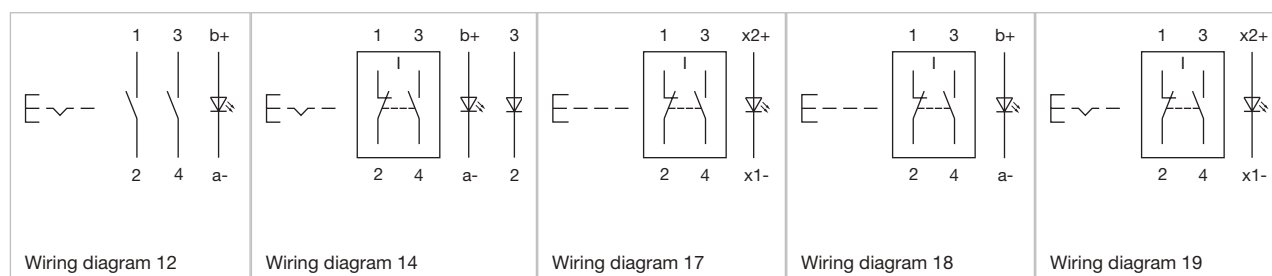
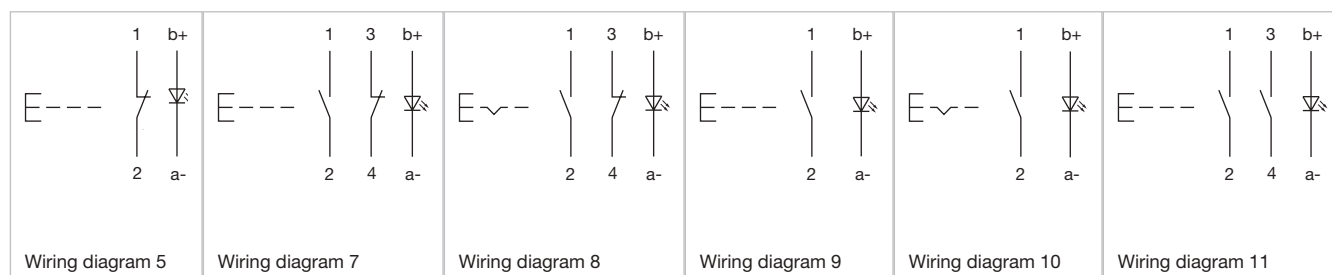
Actuator, Front dimension Ø 18 mm

| Switching action | Contacts    | Terminal                     | Switching system              | Diode 1N4007 | Part No.    | Wiring diagram | Component Layout |
|------------------|-------------|------------------------------|-------------------------------|--------------|-------------|----------------|------------------|
| Momentary        | 1 NC / 1 NO | Plug-in terminal             | Snap-action switching element |              | 51-131.022  | 20             | 27               |
|                  | 1 NC / 1 NO | Soldering terminal           | Snap-action switching element |              | 51-131.0252 | 17             |                  |
|                  | 2 NC / 2 NO | Soldering terminal           | Snap-action switching element |              | 51-132.0252 | 24             |                  |
|                  | 3 NC / 3 NO | Soldering terminal           | Snap-action switching element |              | 51-133.0252 | 26             |                  |
|                  | 4 NC / 4 NO | Soldering terminal           | Snap-action switching element |              | 51-134.0252 | 28             |                  |
| Maintained       | 1 NC / 1 NO | Plug-in terminal             | Snap-action switching element |              | 51-271.022  | 18             | 27               |
|                  | 1 NC / 1 NO | Soldering terminal           | Snap-action switching element |              | 51-271.0252 | 19             |                  |
|                  | 2 NC / 2 NO | Soldering terminal           | Snap-action switching element |              | 51-272.0252 | 25             |                  |
|                  | 3 NC / 3 NO | Soldering terminal           | Snap-action switching element |              | 51-273.0252 | 27             |                  |
|                  | 4 NC / 4 NO | Soldering terminal           | Snap-action switching element |              | 51-274.0252 | 29             |                  |
| Momentary        | 2 NO        | Universal terminal           | Low-level element             |              | 51-431.036  | 11             | 27               |
|                  | 1 NC / 1 NO | Universal terminal           | Low-level element             |              | 51-433.036  | 7              | 27               |
|                  | 1 NO        | Universal terminal           | Low-level element             |              | 51-435.036  | 9              | 27               |
|                  | 1 NC        | Universal terminal           | Low-level element             |              | 51-436.036  | 5              | 27               |
| Maintained       | 2 NO        | Universal terminal           | Low-level element             |              | 51-471.036  | 12             | 27               |
|                  | 1 NC / 1 NO | Universal terminal           | Low-level element             |              | 51-473.036  | 8              | 27               |
|                  | 1 NO        | Universal terminal           | Low-level element             |              | 51-475.036  | 10             | 27               |
| Momentary        | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-746.0292 | 23             |                  |
| Maintained       | 1 NC / 1 NO | Universal soldering terminal | Snap-action switching element | 1            | 51-747.0292 | 14             |                  |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 1            | 51-749.0292 | 22             |                  |
|                  | 2 NC / 2 NO | Universal soldering terminal | Snap-action switching element | 2            | 51-750.0292 | 32             |                  |

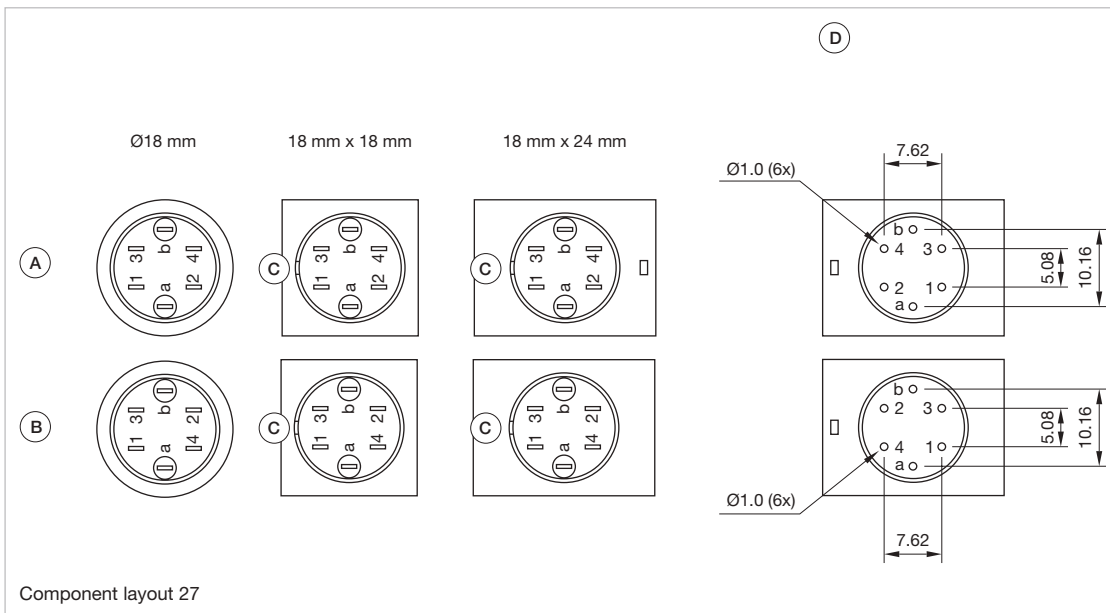
Contacts: NC = Normally closed, NO = Normally open

# 51 Raised design

## Wiring diagrams



## Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

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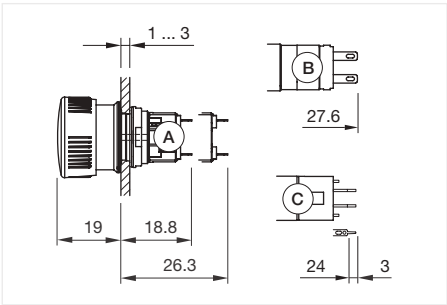
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51 Raised design

Mushroom-head pushbutton, IP65

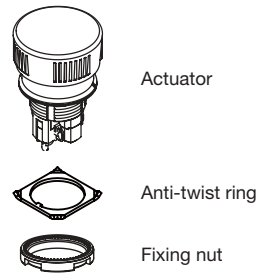


Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm

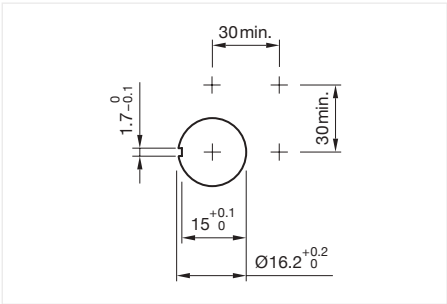
Equipment consisting of (schematic overview)



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

General information

- If the anti-twist ring is not used the panel thickness increases to 4 mm



Mounting cut-outs [mm]

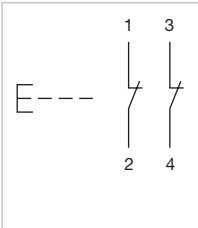
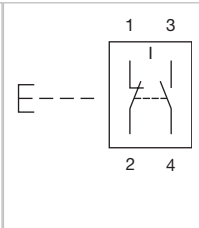
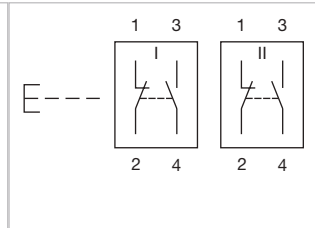
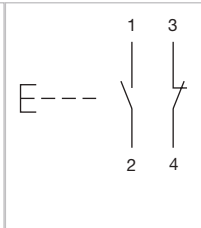


Actuator, Front dimension Ø 24,5 mm

| Contacts    | Terminal           | Lens colour | Switching system              | Part No.    | Wiring diagram |
|-------------|--------------------|-------------|-------------------------------|-------------|----------------|
| 2 NC        | Universal terminal | Red         | Low-level element             | 51-152.0262 | 243            |
|             | Universal terminal | Yellow      | Low-level element             | 51-152.0264 | 243            |
| 1 NC / 1 NO | Plug-in terminal   | Red         | Snap-action switching element | 51-153.0222 | 247            |
|             | Plug-in terminal   | Yellow      | Snap-action switching element | 51-153.0224 | 247            |
|             | Universal terminal | Blue        | Low-level element             | 51-153.0266 | 406            |
|             | Soldering terminal | Red         | Snap-action switching element | 51-156.0252 | 247            |
|             | Soldering terminal | Yellow      | Snap-action switching element | 51-156.0254 | 247            |
|             | Soldering terminal | Blue        | Snap-action switching element | 51-156.0256 | 247            |
| 1 NC        | Universal terminal | Red         | Low-level element             | 51-156.0262 | 247            |
| 2 NC / 2 NO | Soldering terminal | Red         | Snap-action switching element | 51-159.0252 | 251            |
|             | Soldering terminal | Yellow      | Snap-action switching element | 51-159.0254 | 251            |

Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

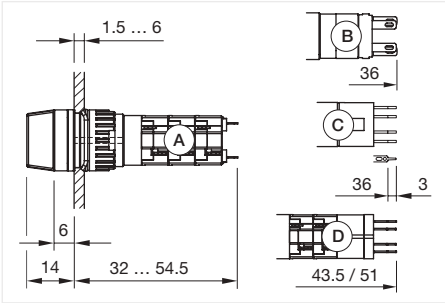
|                                                                                                             |                                                                                                             |                                                                                                             |                                                                                                              |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|  <p>Wiring diagram 243</p> |  <p>Wiring diagram 247</p> |  <p>Wiring diagram 251</p> |  <p>Wiring diagram 406</p> |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|

51 Raised design

Selector switch 2 positions, round, IP65

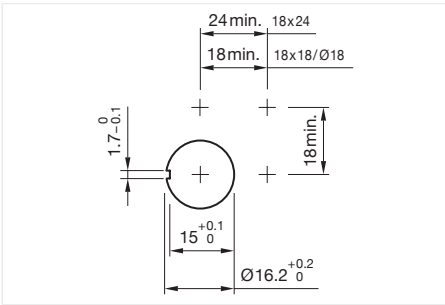


Product can differ from the current configuration.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm  
D = Universal-Solder terminal

- General information
- Illuminative



Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

|  |                 |          |
|--|-----------------|----------|
|  | Lever           | Page 657 |
|  | LED             | Page 660 |
|  | Actuator        |          |
|  | Anti-twist ring | Page 659 |
|  | Fixing nut      |          |

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 18 mm

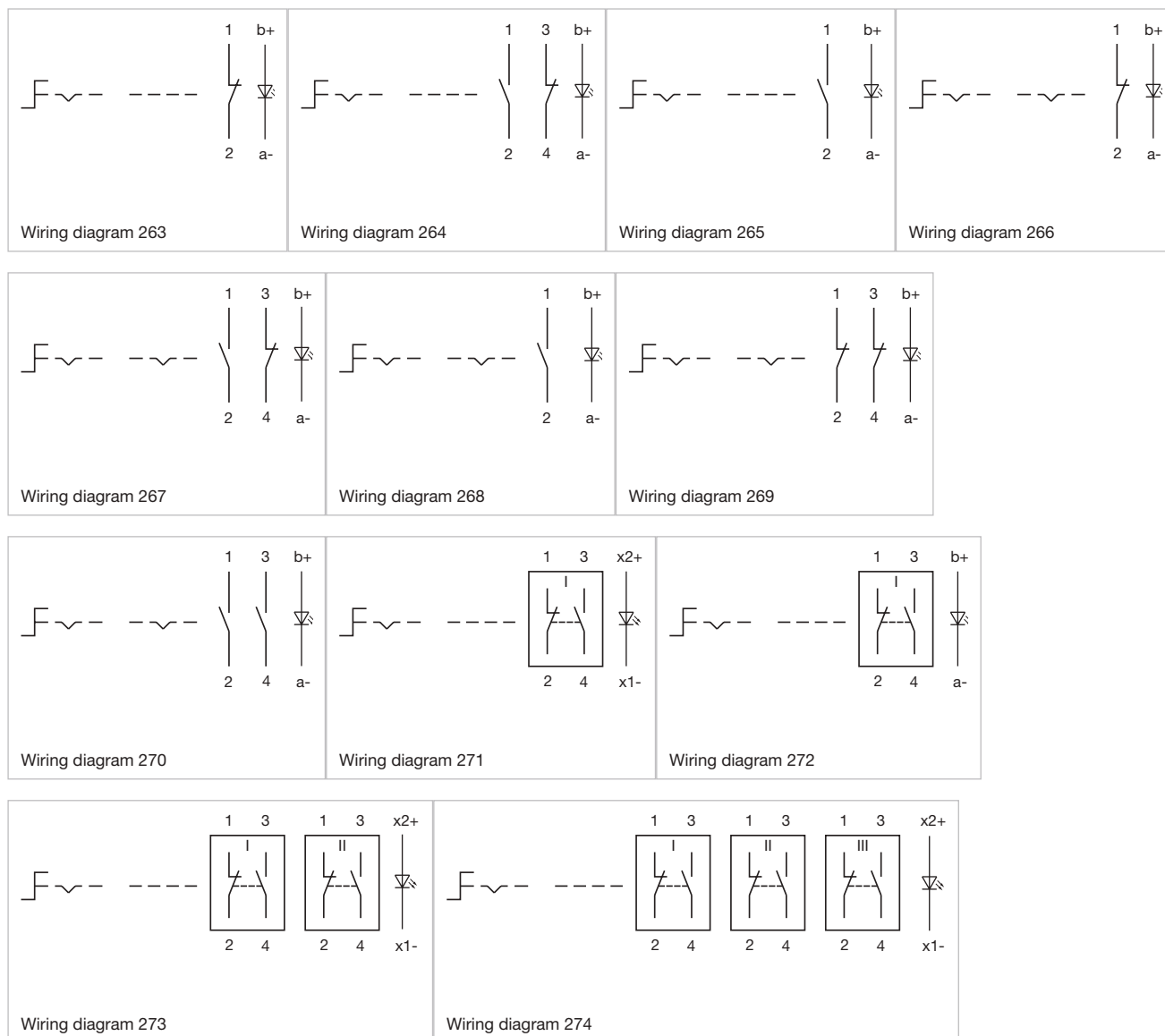
| Switching action  | Terminal           | Switching system              | Contacts    | Switching angle | Diode 1N4007 | Part No.    | Wiring diagram | Component Layout |
|-------------------|--------------------|-------------------------------|-------------|-----------------|--------------|-------------|----------------|------------------|
| Rest - Momentary  | Plug-in terminal   | Snap-action switching element | 1 NC / 1 NO | 42° right       |              | 52-131.022  | 272            |                  |
|                   | Soldering terminal | Snap-action switching element | 1 NC / 1 NO | 42° right       |              | 52-131.0252 | 271            |                  |
|                   | Soldering terminal | Snap-action switching element | 2 NC / 2 NO | 42° right       |              | 52-132.0252 | 273            |                  |
|                   | Soldering terminal | Snap-action switching element | 3 NC / 3 NO | 42° right       |              | 52-133.0252 | 274            |                  |
|                   | Soldering terminal | Snap-action switching element | 4 NC / 4 NO | 42° right       |              | 52-134.0252 | 275            |                  |
| Rest - Maintained | Plug-in terminal   | Snap-action switching element | 1 NC / 1 NO | 90° right       |              | 52-271.022  | 277            |                  |
|                   | Soldering terminal | Snap-action switching element | 1 NC / 1 NO | 90° right       |              | 52-271.0252 | 276            |                  |
|                   | Soldering terminal | Snap-action switching element | 2 NC / 2 NO | 90° right       |              | 52-272.0252 | 278            |                  |
|                   | Soldering terminal | Snap-action switching element | 3 NC / 3 NO | 90° right       |              | 52-273.0252 | 279            |                  |
|                   | Soldering terminal | Snap-action switching element | 4 NC / 4 NO | 90° right       |              | 52-274.0252 | 280            |                  |
| Rest - Momentary  | Universal terminal | Low-level element             | 1 NC / 1 NO | 42° right       |              | 52-433.036  | 264            | 27               |

Contacts: NC = Normally closed, NO = Normally open

| Switching action  | Terminal                     | Switching system              | Contacts    | Switching angle | Diode 1N4007 | Part No.    | Wiring diagram | Component Layout |
|-------------------|------------------------------|-------------------------------|-------------|-----------------|--------------|-------------|----------------|------------------|
| Rest - Momentary  | Universal terminal           | Low-level element             | 1 NO        | 42° right       |              | 52-435.036  | 265            | 27               |
|                   | Universal terminal           | Low-level element             | 1 NC        | 42° right       |              | 52-436.036  | 263            | 27               |
| Rest - Maintained | Universal terminal           | Low-level element             | 2 NO        | 90° right       |              | 52-471.036  | 270            | 27               |
|                   | Universal terminal           | Low-level element             | 2 NC        | 90° right       |              | 52-472.036  | 269            | 27               |
|                   | Universal terminal           | Low-level element             | 1 NC / 1 NO | 90° right       |              | 52-473.036  | 267            | 27               |
|                   | Universal terminal           | Low-level element             | 1 NO        | 90° right       |              | 52-475.036  | 268            | 27               |
|                   | Universal terminal           | Low-level element             | 1 NC        | 90° right       |              | 52-476.036  | 266            | 27               |
| Rest - Momentary  | Universal soldering terminal | Snap-action switching element | 2 NC / 2 NO | 42° right       | 1            | 52-745.0292 | 281            |                  |
| Rest - Maintained | Universal soldering terminal | Snap-action switching element | 1 NC / 1 NO | 90° right       | 1            | 52-747.0292 | 282            |                  |
|                   | Universal soldering terminal | Snap-action switching element | 2 NC / 2 NO | 90° right       | 1            | 52-749.0292 | 283            |                  |
|                   | Universal soldering terminal | Snap-action switching element | 2 NC / 2 NO | 90° right       | 2            | 52-750.0292 | 284            |                  |

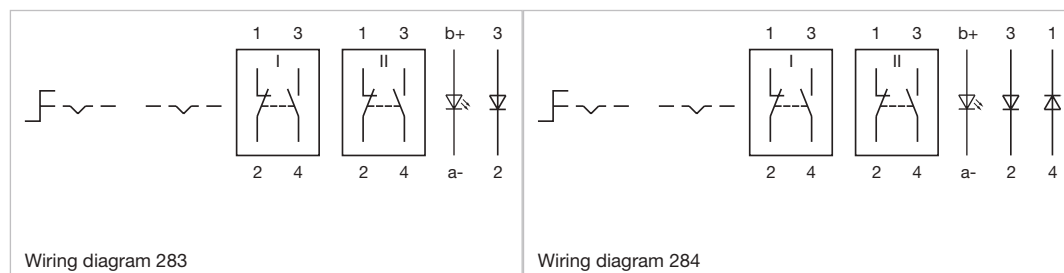
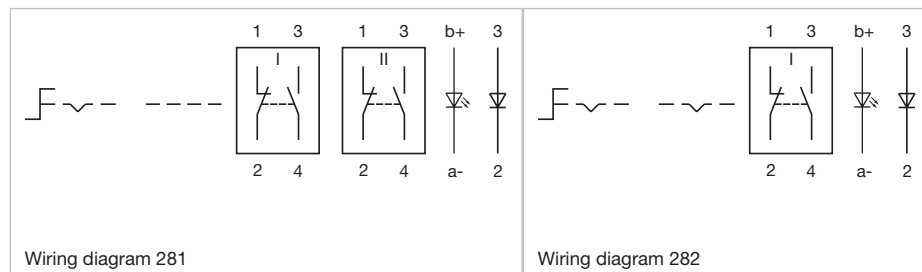
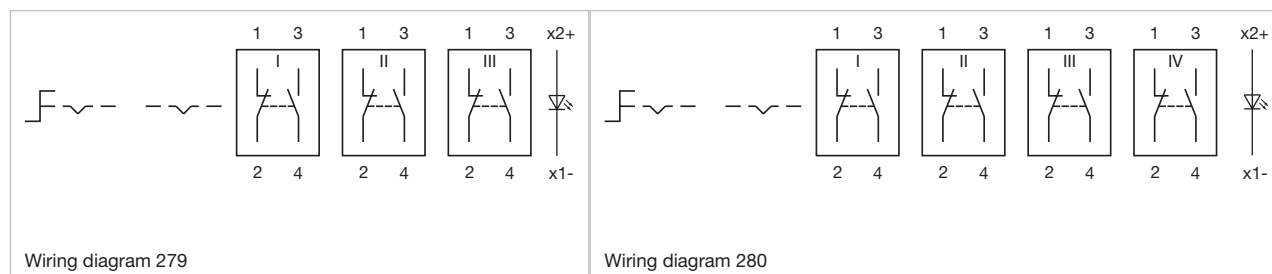
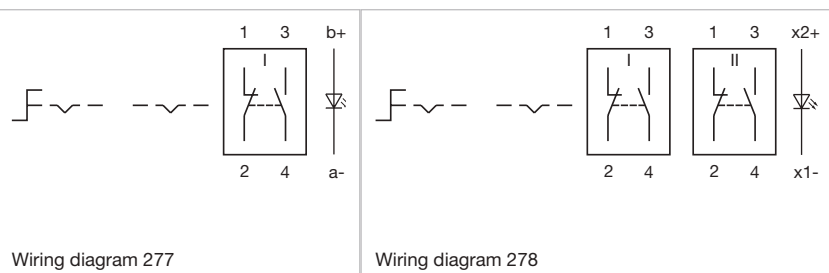
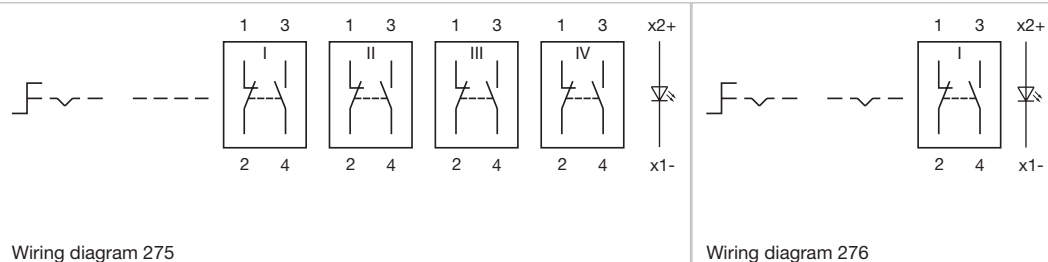
Contacts: NC = Normally closed, NO = Normally open

## Wiring diagrams

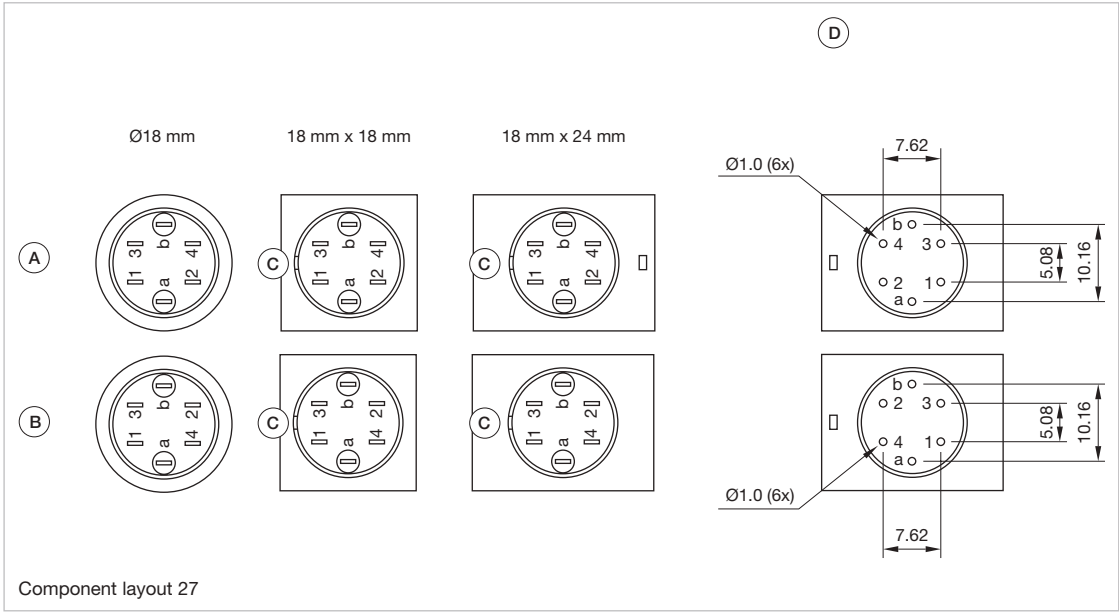


# 51 Raised design

## Wiring diagrams



Component layouts



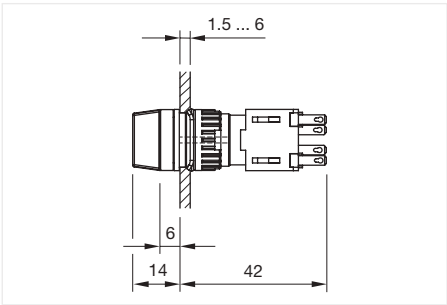
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

# 51 Raised design

## Selector switch 3 positions, round, IP65



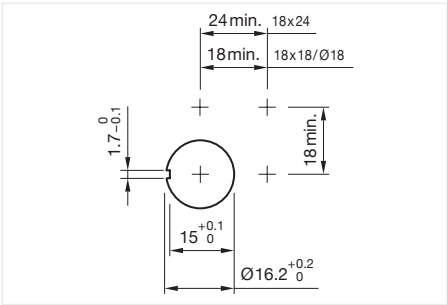
Product can differ from the current configuration.



Dimensions [mm]

### General information

- Illuminative



Mounting cut-outs [mm]

Equipment consisting of (schematic overview)



Lever

Page 657



LED

Page 660

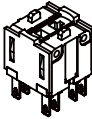


Actuator



Anti-twist ring

Page 659



Switching element

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.

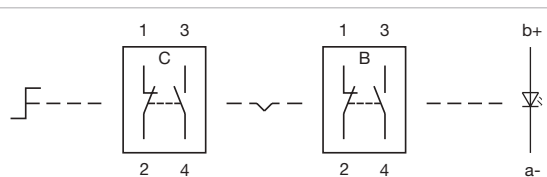


Actuator, Front dimension Ø 18 mm

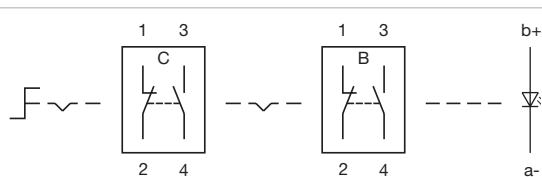
| Switching action               | Terminal         | Switching system              | Contacts    | Switching angle      | Part No.    | Wiring diagram |
|--------------------------------|------------------|-------------------------------|-------------|----------------------|-------------|----------------|
| Maintained - Rest - Maintained | Plug-in terminal | Snap-action switching element | 2 NC / 2 NO | 90° left / 90° right | 52-571.F22A | 288            |
| Momentary - Rest - Momentary   | Plug-in terminal | Snap-action switching element | 2 NC / 2 NO | 42° left / 42° right | 52-572.F22A | 285            |
| Momentary - Rest - Maintained  | Plug-in terminal | Snap-action switching element | 2 NC / 2 NO | 42° left / 90° right | 52-573.F22A | 287            |
| Maintained - Rest - Momentary  | Plug-in terminal | Snap-action switching element | 2 NC / 2 NO | 90° left / 42° right | 52-574.F22A | 286            |

Contacts: NC = Normally closed, NO = Normally open

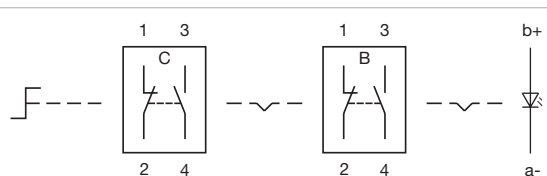
## Wiring diagrams



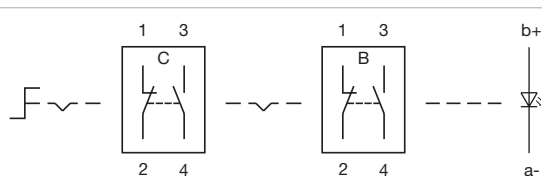
Wiring diagram 285



Wiring diagram 286



Wiring diagram 287



Wiring diagram 288

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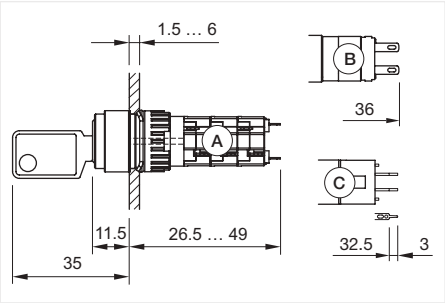
On our website you can download technical data, assembly instructions, catalogs, brochures and much more.

# 51 Raised design

## Keylock switch 2 positions square, IP65

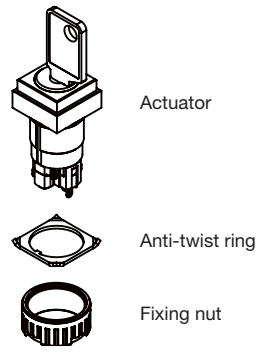


Product can differ from the current configuration.



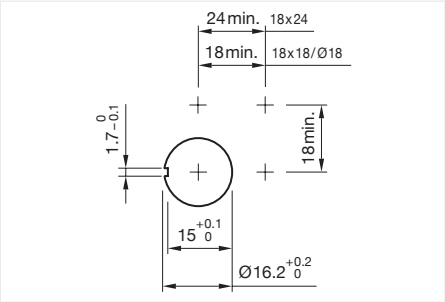
Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm

### Equipment consisting of (schematic overview)

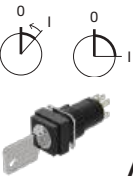


Each Part Number listed below includes all the black components shown in the 3D-drawing.

- General information**
- Standard lock: DOM 311
  - Front plastic black



Mounting cut-outs [mm]



Actuator, Front dimension 18 mm x 18 mm

| Switching action          | Contacts    | Terminal           | Switching system              | Switching angle | Part No.     | Wiring diagram | Component Layout |
|---------------------------|-------------|--------------------|-------------------------------|-----------------|--------------|----------------|------------------|
| Rest (a) - Momentary      | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 42° right       | 51-145.022D  | 257            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-145.025D2 | 257            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-146.025D2 | 113            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-148.025D2 | 258            |                  |
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-155.022D  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-155.025D2 | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-156.025D2 | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-157.025D2 | 115            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-158.025D2 | 116            |                  |
| Rest (a) - Maintained     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-255.022D  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-255.025D2 | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-256.025D2 | 108            |                  |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-257.025D2 | 115            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-258.025D2 | 116            |                  |
| Rest - Maintained (a)     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-355.022D  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-355.025D2 | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-356.025D2 | 108            |                  |
| Rest (a) - Maintained (a) | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-441.036D  | 112            | 27               |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-442.036D  | 111            | 27               |
| Rest (a) - Maintained     | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-444.036D  | 112            | 27               |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-445.036D  | 111            | 27               |

a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

| Switching action      | Contacts    | Terminal           | Switching system  | Switching angle | Part No.    | Wiring diagram | Component Layout |
|-----------------------|-------------|--------------------|-------------------|-----------------|-------------|----------------|------------------|
| Rest - Maintained (a) | 1 NC / 1 NO | Universal terminal | Low-level element | 90° right       | 51-448.036D | 111            | 27               |
| Rest (a) - Momentary  | 2 NO        | Universal terminal | Low-level element | 42° right       | 51-457.036D | 109            | 27               |
|                       | 1 NC / 1 NO | Universal terminal | Low-level element | 42° right       | 51-458.036D | 110            | 27               |

a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

Wiring diagram 107

Wiring diagram 108

Wiring diagram 109

Wiring diagram 110

Wiring diagram 111

Wiring diagram 112

Wiring diagram 113

Wiring diagram 115

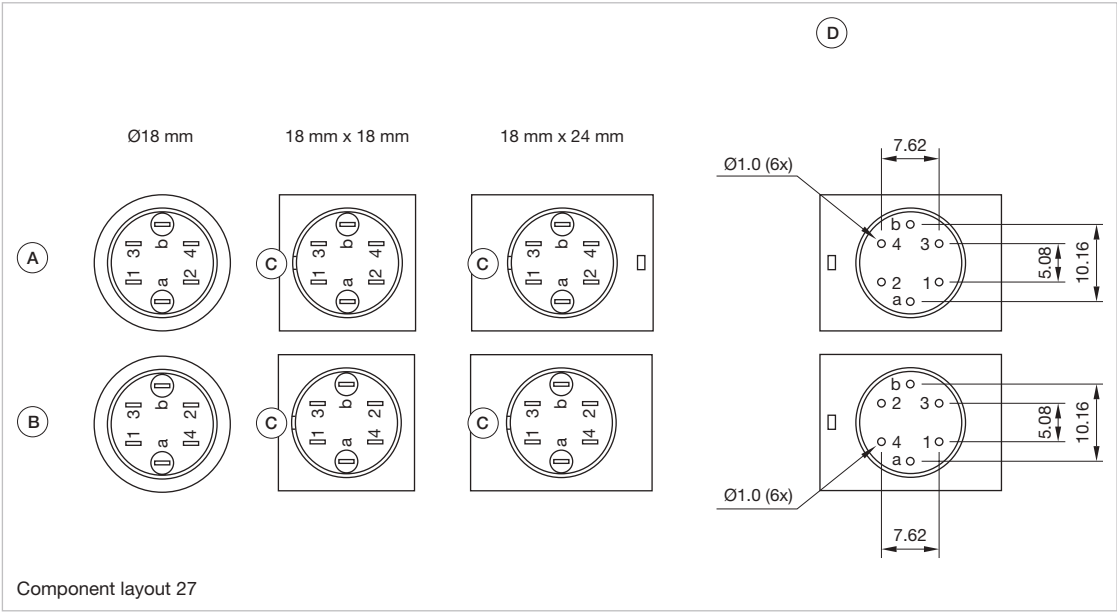
Wiring diagram 116

Wiring diagram 257

Wiring diagram 258

# 51 Raised design

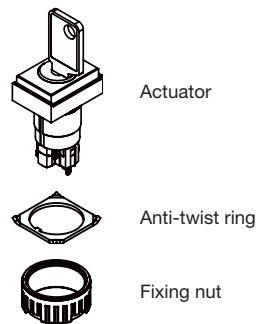
## Component layouts



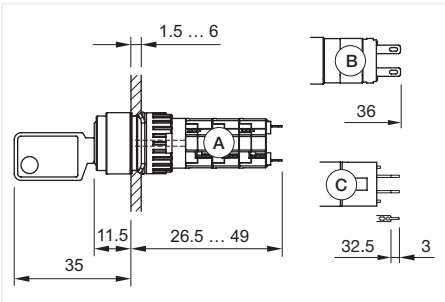
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

Keylock switch 2 positions rectangular, IP65

Equipment consisting of (schematic overview)



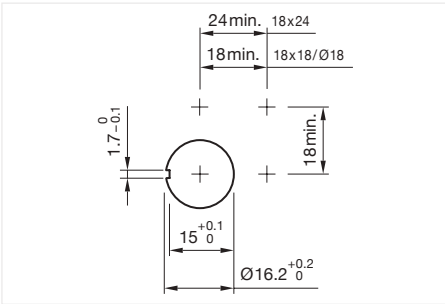
Each Part Number listed below includes all the black components shown in the 3D-drawing.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



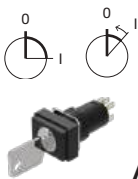
Product can differ from the current configuration.



Mounting cut-outs [mm]

General information

- Standard lock: DOM 311
- Front plastic black



Actuator, Front dimension 24 mm x 18 mm

| Switching action          | Contacts    | Terminal           | Switching system              | Switching angle | Part No.     | Wiring diagram | Com-<br>ponent<br>Layout |
|---------------------------|-------------|--------------------|-------------------------------|-----------------|--------------|----------------|--------------------------|
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-195.022D  | 107            | 27                       |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-195.025D2 | 107            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-196.025D2 | 108            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-197.025D2 | 115            |                          |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-198.025D2 | 116            |                          |
| Rest (a) - Maintained     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-295.022D  | 107            | 27                       |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-295.025D2 | 107            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-296.025D2 | 108            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-297.025D2 | 115            |                          |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-298.025D2 | 116            |                          |
| Rest - Maintained (a)     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-395.022D  | 107            | 27                       |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-395.025D2 | 107            |                          |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-396.025D2 | 108            |                          |
|                           | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-397.025D2 | 115            |                          |
| Rest (a) - Momentary      | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 42° right       | 51-495.022D  | 257            | 27                       |
| Rest (a) - Maintained (a) | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-401.036D  | 112            | 27                       |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-402.036D  | 111            | 27                       |
| Rest (a) - Maintained     | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-404.036D  | 112            | 27                       |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-405.036D  | 111            | 27                       |
| Rest - Maintained (a)     | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-407.036D  | 112            | 27                       |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-408.036D  | 111            | 27                       |
| Rest (a) - Momentary      | 2 NO        | Universal terminal | Low-level element             | 42° right       | 51-427.036D  | 109            | 27                       |

a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

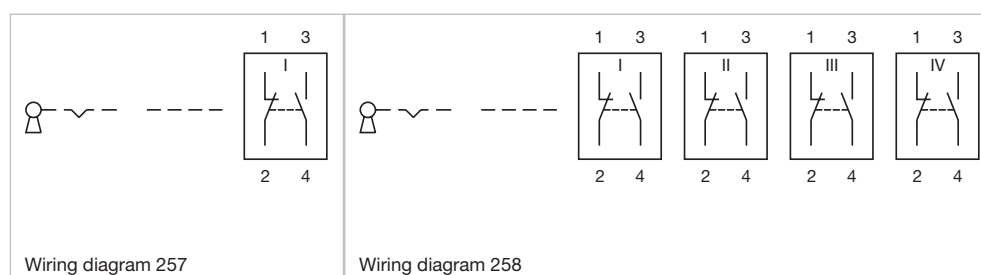
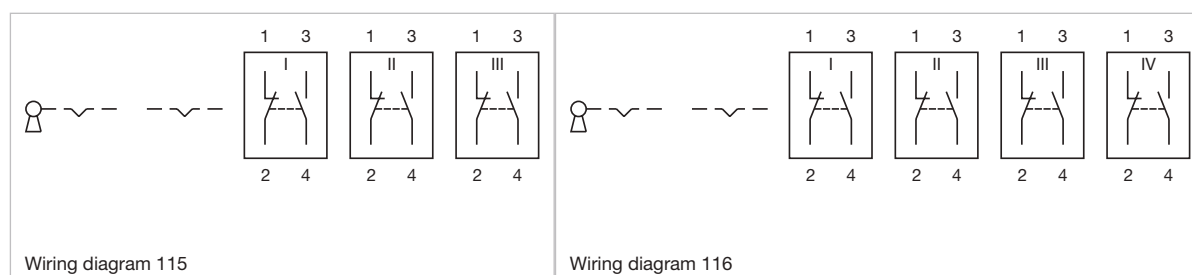
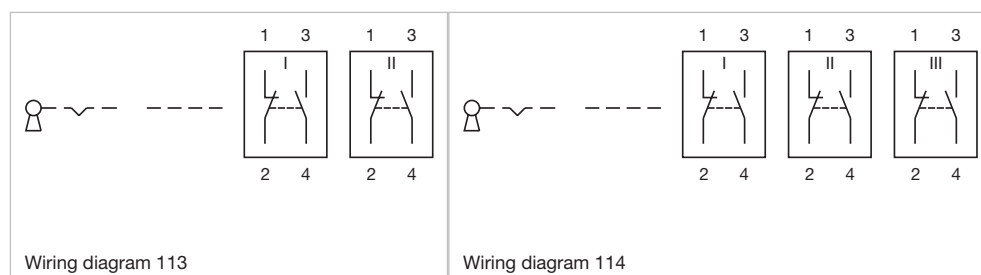
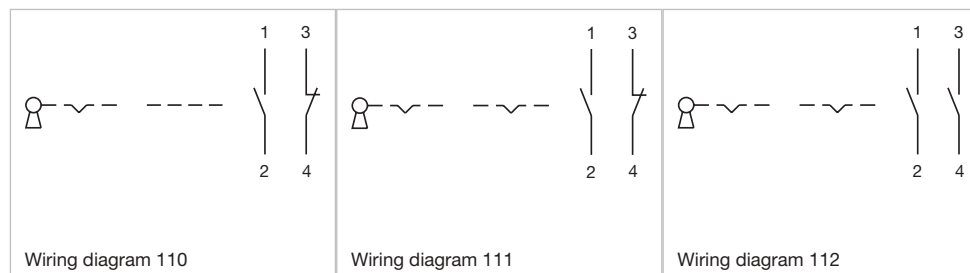
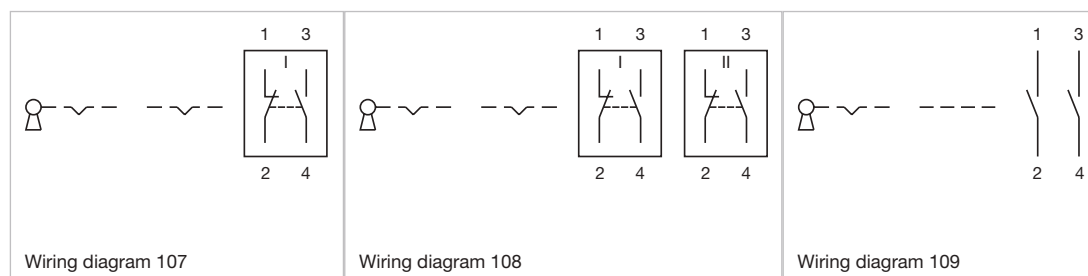
# 51 Raised design

| Switching action     | Contacts    | Terminal           | Switching system              | Switching angle | Part No.     | Wiring diagram | Component Layout |
|----------------------|-------------|--------------------|-------------------------------|-----------------|--------------|----------------|------------------|
| Rest (a) - Momentary | 1 NC / 1 NO | Universal terminal | Low-level element             | 42° right       | 51-428.036D  | 110            | 27               |
|                      | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-495.025D2 | 257            |                  |
|                      | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-496.025D2 | 113            |                  |
|                      | 3 NC / 3 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-497.025D2 | 114            |                  |
|                      | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-498.025D2 | 258            |                  |

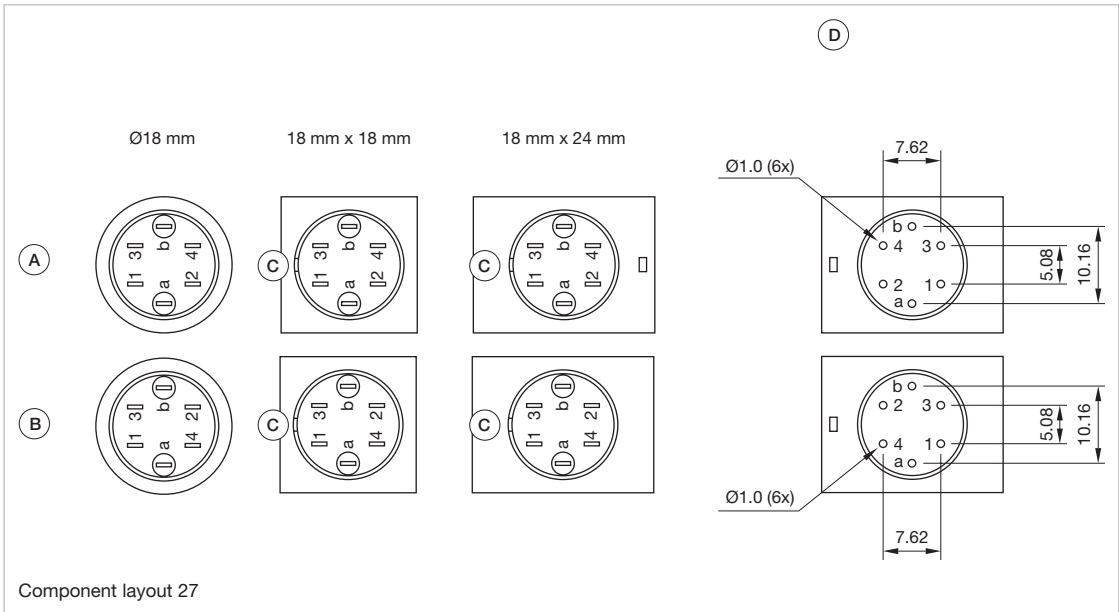
a = Key remove

Contacts: NC = Normally closed, NO = Normally open

## Wiring diagrams



Component layouts



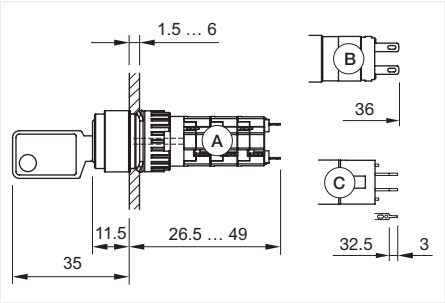
Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

# 51 Raised design

## Keylock switch 2 positions round, IP65

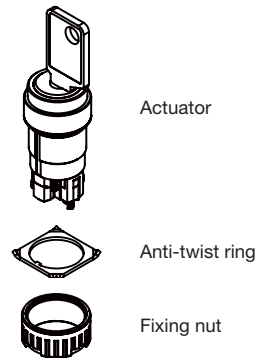


Product can differ from the current configuration.



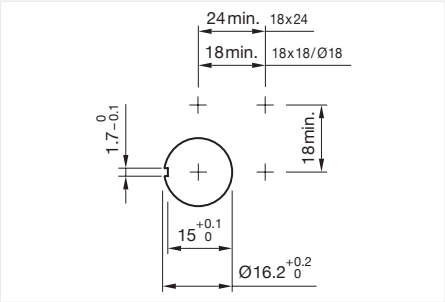
Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm

### Equipment consisting of (schematic overview)

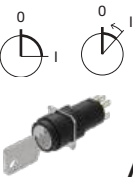


Each Part Number listed below includes all the black components shown in the 3D-drawing.

- General information
- Standard lock: DOM 311
  - Front plastic black



Mounting cut-outs [mm]



Actuator, Front dimension Ø 18 mm

| Switching action          | Contacts    | Terminal           | Switching system              | Switching angle | Part No.     | Wiring diagram | Component Layout |
|---------------------------|-------------|--------------------|-------------------------------|-----------------|--------------|----------------|------------------|
| Rest (a) - Maintained (a) | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-135.022D  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-135.025D2 | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-136.025D2 | 108            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-138.025D2 | 116            |                  |
| Rest (a) - Momentary      | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 42° right       | 51-141.022D  | 257            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-141.025D2 | 257            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-142.025D2 | 113            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 42° right       | 51-144.025D2 | 258            |                  |
| Rest (a) - Maintained     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-235.022D  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-235.025D2 | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-236.025D2 | 108            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-238.025D2 | 116            |                  |
| Rest - Maintained (a)     | 1 NC / 1 NO | Plug-in terminal   | Snap-action switching element | 90° right       | 51-335.022D  | 107            | 27               |
|                           | 1 NC / 1 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-335.025D2 | 107            |                  |
|                           | 2 NC / 2 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-336.025D2 | 108            |                  |
|                           | 4 NC / 4 NO | Soldering terminal | Snap-action switching element | 90° right       | 51-338.025D2 | 116            |                  |
| Rest (a) - Maintained (a) | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-411.036D  | 112            | 27               |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-412.036D  | 111            | 27               |
| Rest (a) - Maintained     | 2 NO        | Universal terminal | Low-level element             | 90° right       | 51-414.036D  | 112            | 27               |
|                           | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-415.036D  | 111            | 27               |
| Rest - Maintained (a)     | 1 NC / 1 NO | Universal terminal | Low-level element             | 90° right       | 51-418.036D  | 111            | 27               |
| Rest (a) - Momentary      | 1 NC / 1 NO | Universal terminal | Low-level element             | 42° right       | 51-438.036D  | 110            | 27               |

a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

| Switching action     | Contacts    | Terminal           | Switching system  | Switching angle | Part No.    | Wiring diagram | Com-<br>ponent<br>Layout |
|----------------------|-------------|--------------------|-------------------|-----------------|-------------|----------------|--------------------------|
| Rest (a) - Momentary | 1 NC / 1 NO | Universal terminal | Low-level element | 42° right       | 51-438.036D | 110            | 27                       |

a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

Wiring diagram 107

Wiring diagram 108

Wiring diagram 110

Wiring diagram 111

Wiring diagram 112

Wiring diagram 113

Wiring diagram 115

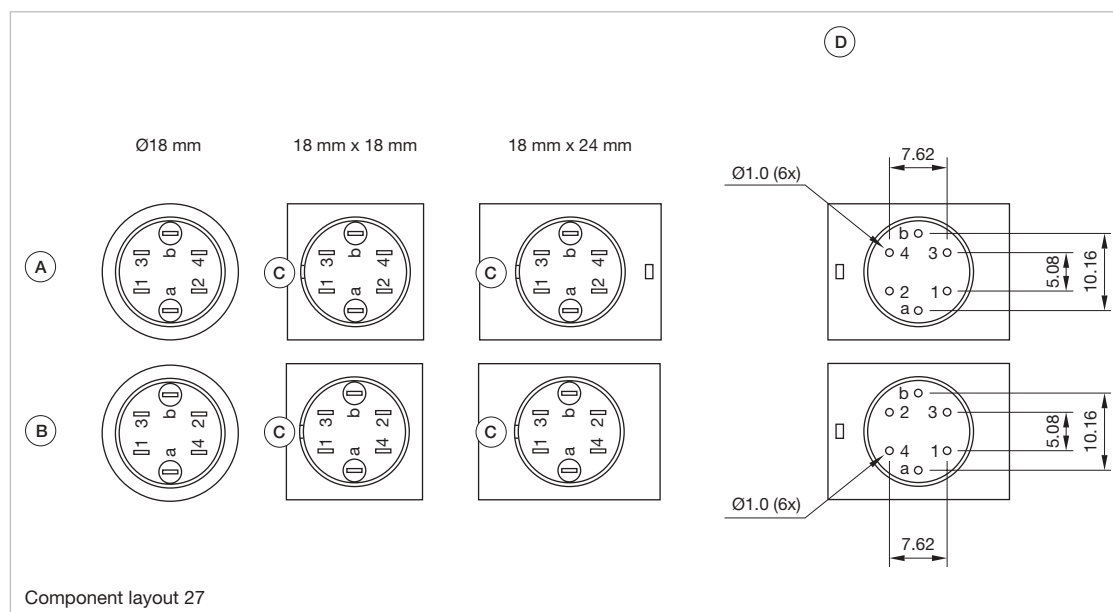
Wiring diagram 116

Wiring diagram 257

Wiring diagram 258

# 51 Raised design

## Component layouts



Dimensions [mm]  
 A = Universal terminal (rear side)  
 B = Plug-in terminal (rear side)  
 C = Anti twist device  
 D = Drilling plan

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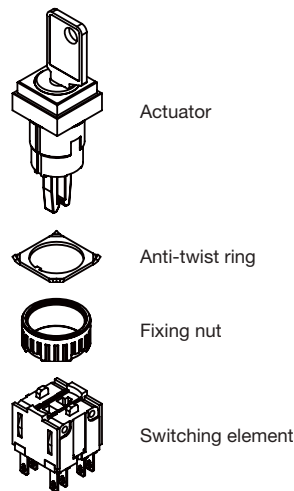
[www.eao.com](http://www.eao.com)

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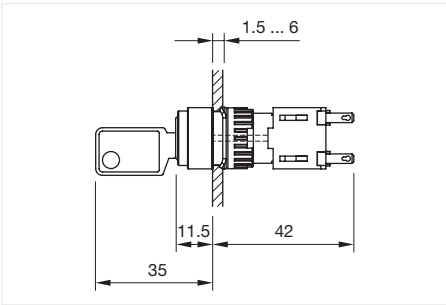
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Keylock switch 3 positions square, IP65

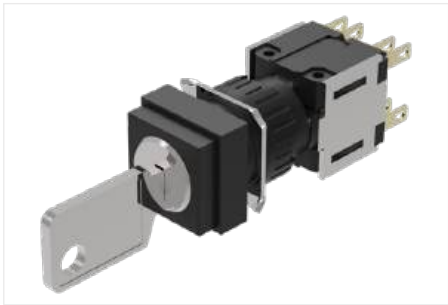
Equipment consisting of (schematic overview)



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



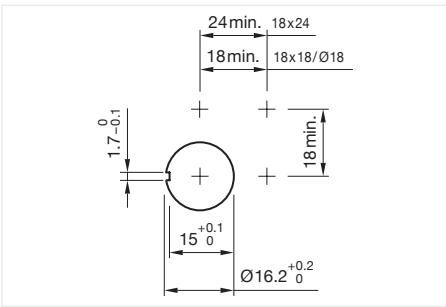
Dimensions [mm]



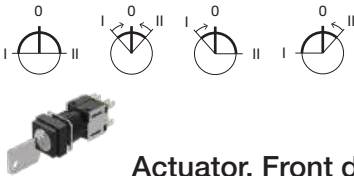
Product can differ from the current configuration.

General information

- Standard lock: DOM 311
- Front plastic black



Mounting cut-outs [mm]

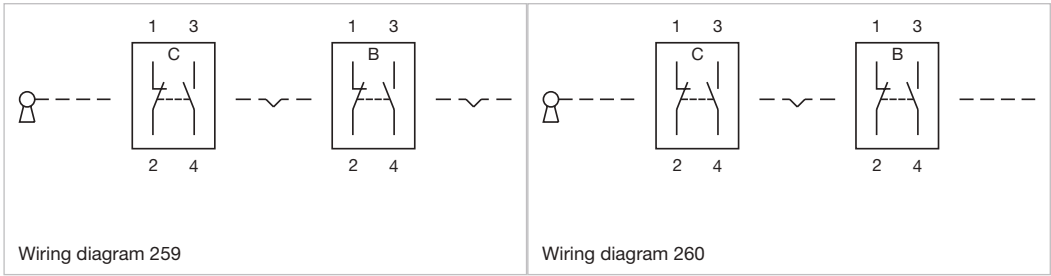


Actuator, Front dimension 18 mm x 18 mm

| Switching action                           | Contacts    | Terminal         | Switching system              | Switching angle      | Part No.    | Wiring diagram |
|--------------------------------------------|-------------|------------------|-------------------------------|----------------------|-------------|----------------|
| Maintained - Rest (a) - Maintained         | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-381.F22D | 262            |
| Maintained (a) - Rest (a) - Maintained (a) | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-382.F22D | 262            |
| Momentary - Rest (a) - Momentary           | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 42° right | 51-384.F22D | 260            |
| Momentary - Rest (a) - Maintained          | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 90° right | 51-385.F22D | 259            |
| Maintained (a) - Rest (a) - Momentary      | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 42° right | 51-388.F22D | 261            |

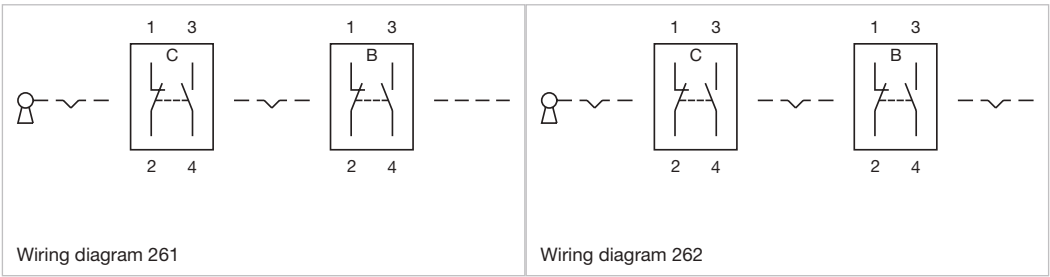
a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



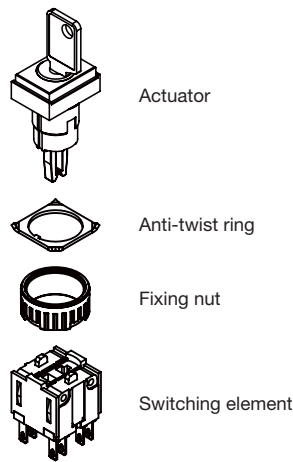
# 51 Raised design

## Wiring diagrams

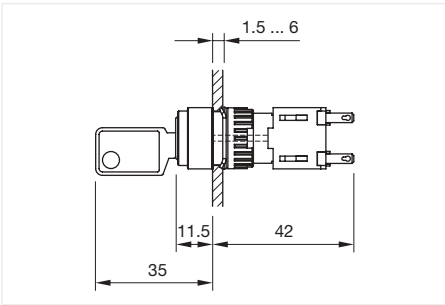


Keylock switch 3 positions rectangular, IP65

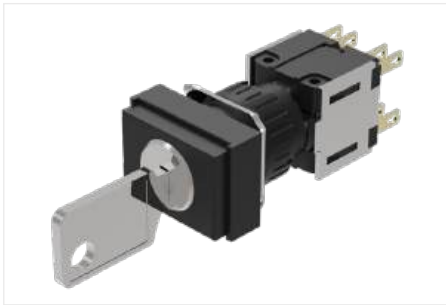
Equipment consisting of (schematic overview)



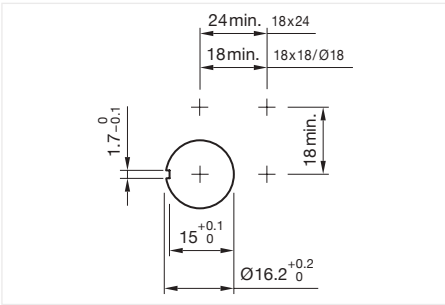
Each Part Number listed below includes all the black components shown in the 3D-drawing.



Dimensions [mm]



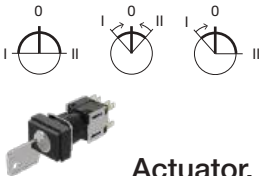
Product can differ from the current configuration.



Mounting cut-outs [mm]

General information

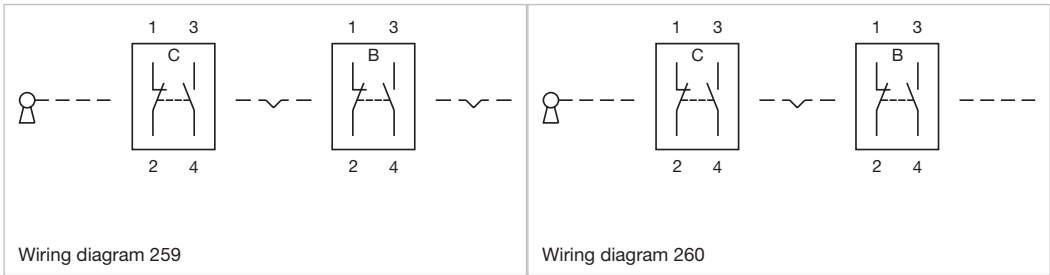
- Standard lock: DOM 311
- Front plastic black



| Switching action                           | Contacts    | Terminal         | Switching system              | Switching angle      | Part No.    | Wiring diagram |
|--------------------------------------------|-------------|------------------|-------------------------------|----------------------|-------------|----------------|
| Maintained - Rest (a) - Maintained         | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-361.F22D | 262            |
| Maintained (a) - Rest (a) - Maintained (a) | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-362.F22D | 262            |
| Maintained (a) - Rest - Maintained (a)     | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-363.F22D | 262            |
| Momentary - Rest (a) - Momentary           | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 42° right | 51-364.F22D | 260            |
| Momentary - Rest (a) - Maintained          | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 90° right | 51-365.F22D | 259            |
| Maintained (a) - Rest (a) - Momentary      | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 90° right | 51-366.F22D | 259            |

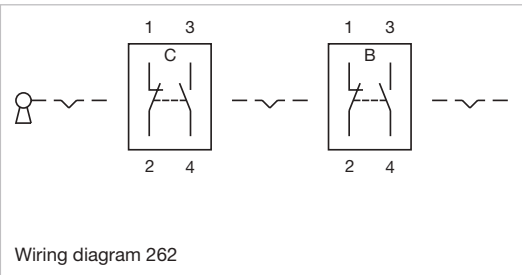
a = Key remove  
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



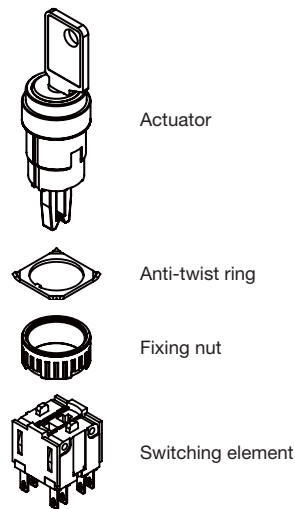
# 51 Raised design

## Wiring diagrams

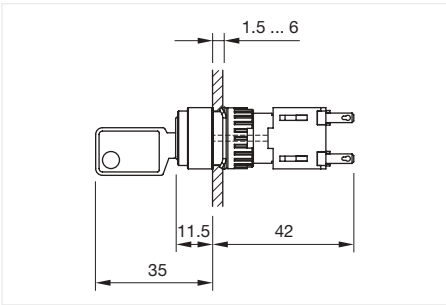


Keylock switch 3 positions round, IP65

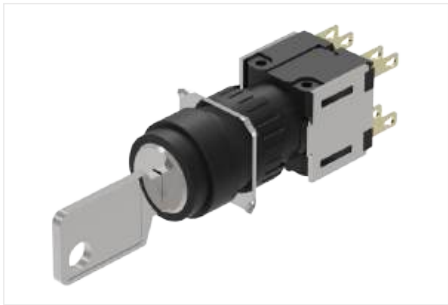
Equipment consisting of (schematic overview)



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



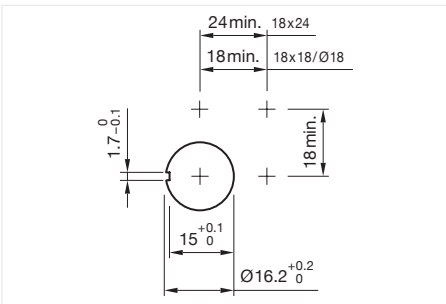
Dimensions [mm]



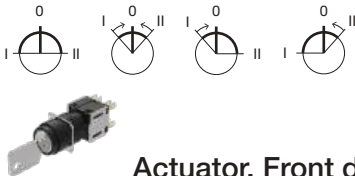
Product can differ from the current configuration.

General information

- Standard lock: DOM 311
- Front plastic black



Mounting cut-outs [mm]



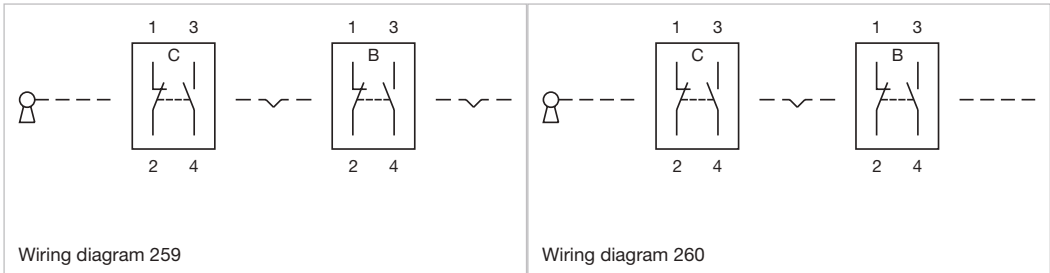
Actuator, Front dimension Ø 18 mm

| Switching action                           | Contacts    | Terminal         | Switching system              | Switching angle      | Part No.    | Wiring diagram |
|--------------------------------------------|-------------|------------------|-------------------------------|----------------------|-------------|----------------|
| Maintained - Rest (a) - Maintained         | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-371.F22D | 262            |
| Maintained (a) - Rest (a) - Maintained (a) | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-372.F22D | 262            |
| Maintained (a) - Rest - Maintained (a)     | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 90° right | 51-373.F22D | 262            |
| Momentary - Rest (a) - Momentary           | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 42° right | 51-374.F22D | 260            |
| Momentary - Rest (a) - Maintained (a)      | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 42° left / 90° right | 51-376.F22D | 259            |
| Maintained - Rest (a) - Momentary          | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 42° right | 51-377.F22D | 261            |
| Maintained (a) - Rest (a) - Momentary      | 2 NC / 2 NO | Plug-in terminal | Snap-action switching element | 90° left / 42° right | 51-378.F22D | 261            |

a = Key remove

Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

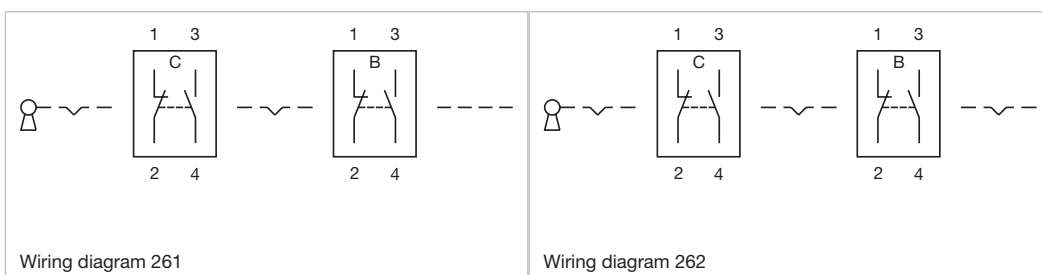


Wiring diagram 259

Wiring diagram 260

# 51 Raised design

## Wiring diagrams



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Indicator square, IP65

Equipment consisting of (schematic overview)



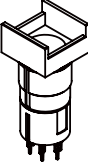
Lens

Page 653



LED

Page 660



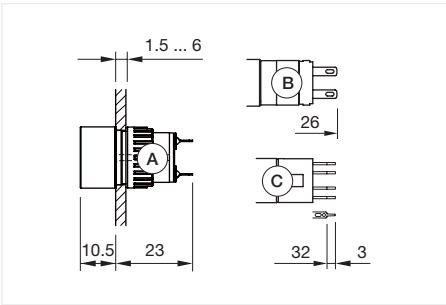
Actuator



Fixing nut

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

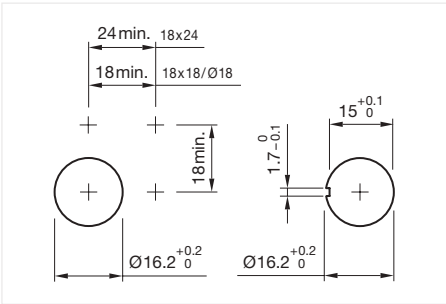
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]



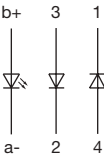
Actuator, Front dimension 18 mm x 18 mm

| Terminal           | Diode 1N4007 | Part No.   | Wiring diagram | Component Layout |
|--------------------|--------------|------------|----------------|------------------|
| Plug-in terminal   |              | 51-050.002 | 4              |                  |
| Soldering terminal |              | 51-050.005 | 4              |                  |
| Universal terminal |              | 51-051.006 | 3              | 27               |
|                    | 1            | 51-703.006 | 1              | 27               |
|                    | 2            | 51-704.006 | 2              | 27               |

Wiring diagrams



Wiring diagram 1



Wiring diagram 2



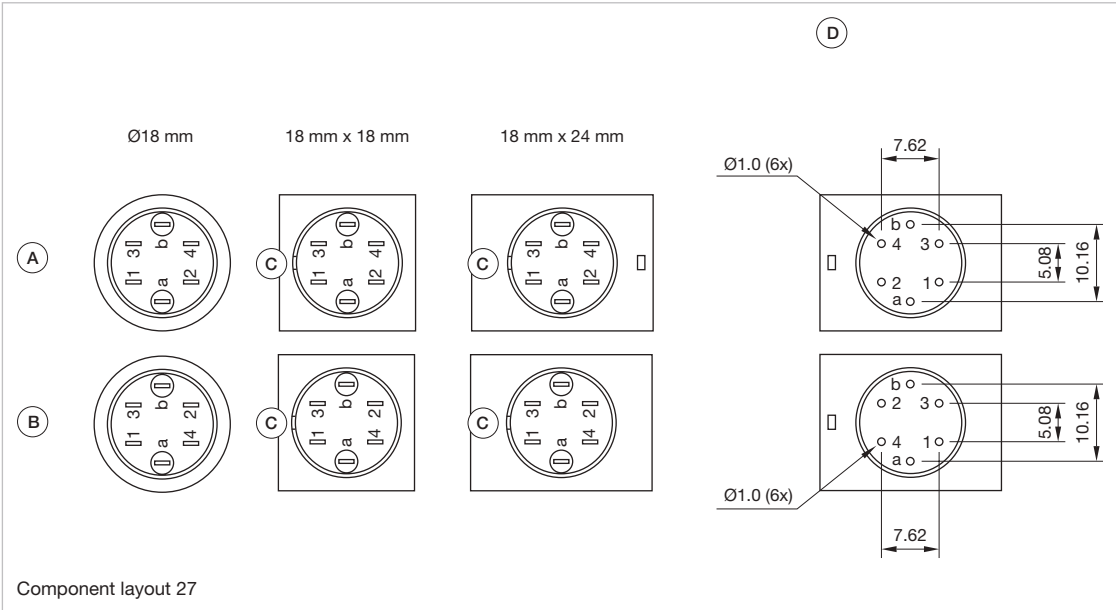
Wiring diagram 3



Wiring diagram 4

# 51 Raised design

## Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

Indicator rectangular, IP65

Equipment consisting of (schematic overview)



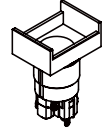
Lens

Page 653



LED

Page 660



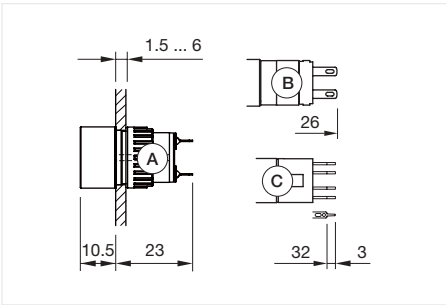
Actuator



Fixing nut

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

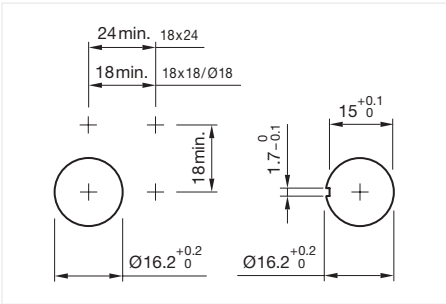
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



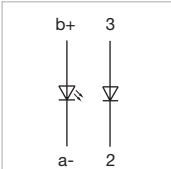
Mounting cut-outs [mm]



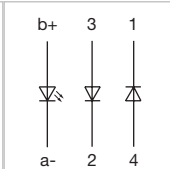
Actuator, Front dimension 24 mm x 18 mm

| Terminal           | Diode 1N4007 | Part No.   | Wiring diagram | Com-<br>ponent<br>Layout |
|--------------------|--------------|------------|----------------|--------------------------|
| Plug-in terminal   |              | 51-040.002 | 4              |                          |
| Soldering terminal |              | 51-040.005 | 4              |                          |
| Universal terminal |              | 51-041.006 | 3              | 27                       |
|                    | 1            | 51-701.006 | 1              | 27                       |
|                    | 2            | 51-702.006 | 2              | 27                       |

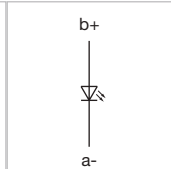
Wiring diagrams



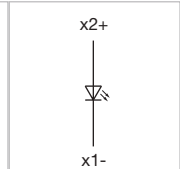
Wiring diagram 1



Wiring diagram 2



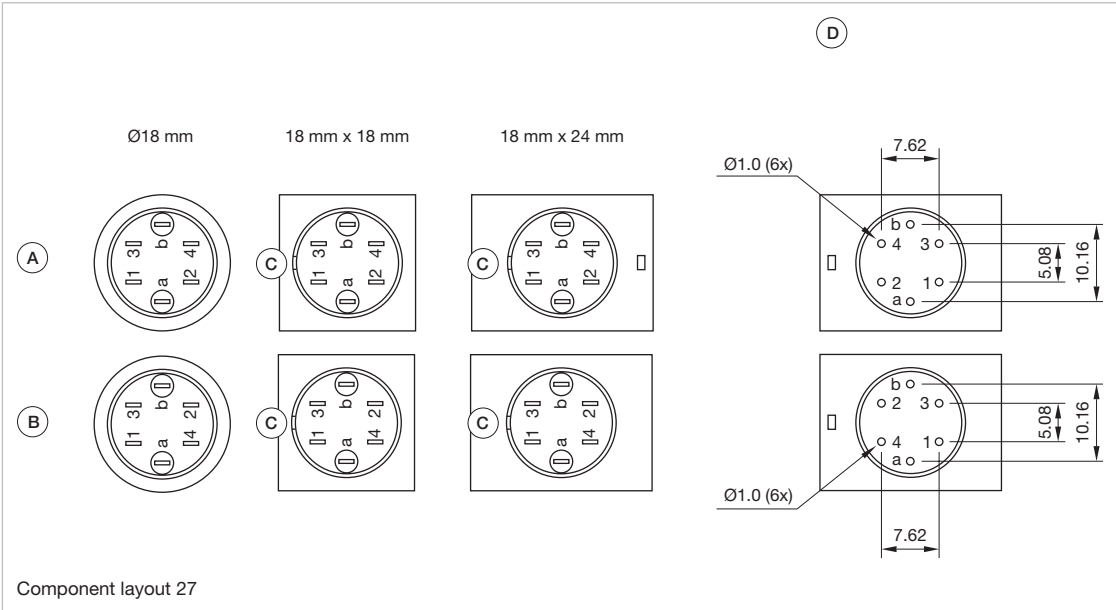
Wiring diagram 3



Wiring diagram 4

# 51 Raised design

## Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

Indicator round, IP65

Equipment consisting of (schematic overview)



Lens

Page 653



LED

Page 660



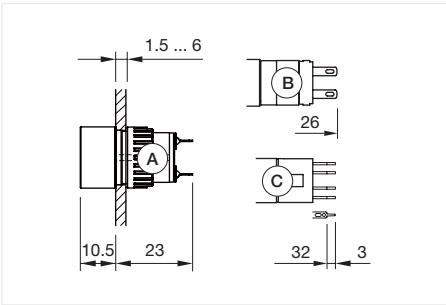
Actuator



Fixing nut

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

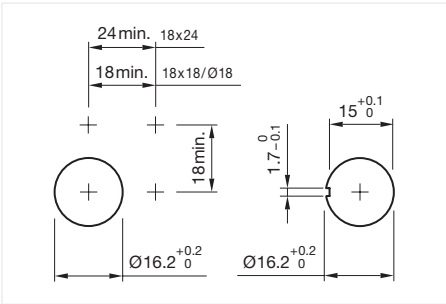
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



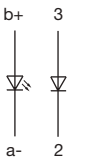
Mounting cut-outs [mm]



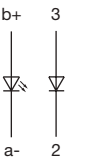
Actuator, Front dimension Ø 18 mm

| Terminal           | Diode 1N4007 | Part No.   | Wiring diagram | Com-<br>ponent<br>Layout |
|--------------------|--------------|------------|----------------|--------------------------|
| Plug-in terminal   |              | 51-030.002 | 4              |                          |
| Soldering terminal |              | 51-030.005 | 4              |                          |
| Universal terminal |              | 51-031.006 | 3              | 27                       |
|                    | 1            | 51-741.006 | 1              | 27                       |
|                    | 2            | 51-742.006 | 2              | 27                       |

Wiring diagrams



Wiring diagram 1



Wiring diagram 2



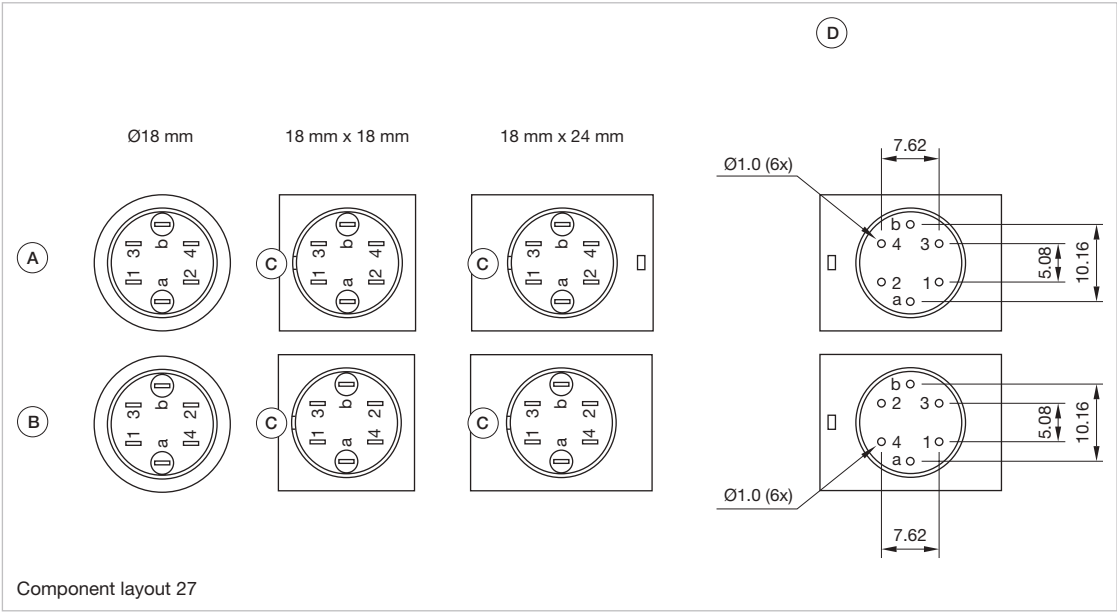
Wiring diagram 3



Wiring diagram 4

# 51 Raised design

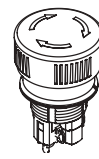
## Component layouts



Dimensions [mm]  
A = Universal terminal (rear side)  
B = Plug-in terminal (rear side)  
C = Anti twist device  
D = Drilling plan

Stop switch, IP65

Equipment consisting of (schematic overview)



Actuator

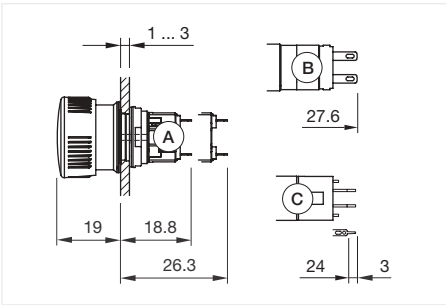


Anti-twist ring



Fixing nut

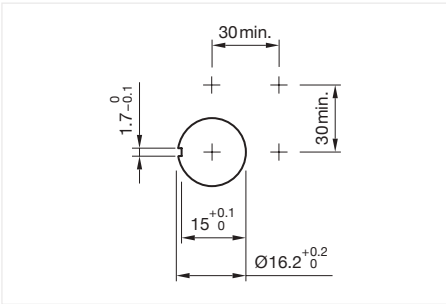
Each Part Number listed below includes all the black components shown in the 3D-drawing.



Dimensions [mm]  
A = Solder terminal  
B = Plug-in terminal 2.8 mm x 0.5 mm  
C = Universal terminal 2.0 mm x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]

General information

- Marking arrows



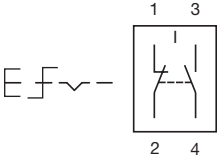
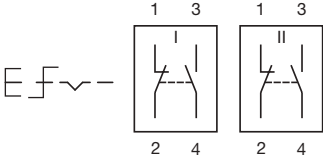
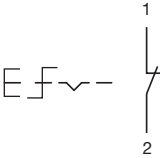
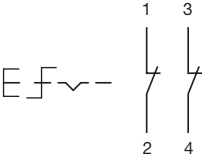
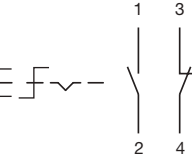
Actuator, Front dimension Ø 24,5 mm

| Contacts    | Terminal           | Lens colour | Switching system              | Part No.    | Wiring diagram |
|-------------|--------------------|-------------|-------------------------------|-------------|----------------|
| 2 NC        | Universal terminal | Red         | Low-level element             | 51-252.026  | 292            |
|             | Universal terminal | Black       | Low-level element             | 51-252.0260 | 292            |
|             | Universal terminal | Yellow      | Low-level element             | 51-252.0264 | 292            |
|             | Universal terminal | Green       | Low-level element             | 51-252.0265 | 292            |
|             | Universal terminal | Blue        | Low-level element             | 51-252.0266 | 292            |
|             | Universal terminal | Grey        | Low-level element             | 51-252.0268 | 292            |
| 1 NC / 1 NO | Plug-in terminal   | Red         | Snap-action switching element | 51-253.022  | 289            |
|             | Plug-in terminal   | Black       | Snap-action switching element | 51-253.0220 | 289            |
|             | Plug-in terminal   | Green       | Snap-action switching element | 51-253.0225 | 289            |
|             | Plug-in terminal   | Grey        | Snap-action switching element | 51-253.0228 | 289            |
|             | Universal terminal | Red         | Low-level element             | 51-253.026  | 293            |
|             | Universal terminal | Black       | Low-level element             | 51-253.0260 | 293            |
|             | Universal terminal | Yellow      | Low-level element             | 51-253.0264 | 293            |
|             | Universal terminal | Green       | Low-level element             | 51-253.0265 | 293            |
|             | Universal terminal | Grey        | Low-level element             | 51-253.0268 | 293            |
|             | Soldering terminal | Red         | Snap-action switching element | 51-256.025  | 289            |
|             | Soldering terminal | Black       | Snap-action switching element | 51-256.0250 | 289            |
|             | Soldering terminal | Yellow      | Snap-action switching element | 51-256.0254 | 289            |
|             | Soldering terminal | Green       | Snap-action switching element | 51-256.0255 | 289            |
|             | Soldering terminal | Blue        | Snap-action switching element | 51-256.0256 | 289            |
|             | Soldering terminal | Grey        | Snap-action switching element | 51-256.0258 | 289            |
| 1 NC        | Universal terminal | Red         | Low-level element             | 51-256.026  | 291            |
|             | Universal terminal | Green       | Low-level element             | 51-256.0265 | 291            |
|             | Universal terminal | Grey        | Low-level element             | 51-256.0268 | 291            |
| 2 NC / 2 NO | Soldering terminal | Red         | Snap-action switching element | 51-259.025  | 290            |
|             | Soldering terminal | Black       | Snap-action switching element | 51-259.0250 | 290            |

Contacts: NC = Normally closed, NO = Normally open

# 51 Raised design

## Wiring diagrams

|                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |
| Wiring diagram 289                                                                | Wiring diagram 290                                                                | Wiring diagram 291                                                                | Wiring diagram 292                                                                 | Wiring diagram 293                                                                  |



Lens square, raised design

| Product attributes              | Lens material | Lens colour  | Lens optics | Lens shape | Lens illumination | Dimensions        | Part No. |
|---------------------------------|---------------|--------------|-------------|------------|-------------------|-------------------|----------|
|                                 | Plastic       | Smokey black | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.1 |
|                                 | Plastic       | Red          | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.2 |
|                                 | Plastic       | Orange       | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.3 |
|                                 | Plastic       | Yellow       | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.4 |
|                                 | Plastic       | Green        | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.5 |
|                                 | Plastic       | Blue         | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.6 |
|                                 | Plastic       | Colourless   | transparent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-953.7 |
| Not recommended for film insert | Plastic       | Red          | translucent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-951.2 |
|                                 | Plastic       | Orange       | translucent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-951.3 |
|                                 | Plastic       | Yellow       | translucent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-951.4 |
|                                 | Plastic       | Green        | translucent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-951.5 |
|                                 | Plastic       | Blue         | translucent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-951.6 |
|                                 | Plastic       | White        | translucent | flush      | illuminative      | 15,3 mm x 15,3 mm | 51-951.9 |
|                                 | Plastic       | Black        | opaque      | flush      | non illuminative  | 15,3 mm x 15,3 mm | 51-951.0 |
|                                 | Plastic       | Grey         | opaque      | flush      | non illuminative  | 15,3 mm x 15,3 mm | 51-951.8 |
|                                 | Plastic       | Red          | transparent | concave    | illuminative      | 15,3 mm x 15,3 mm | 51-954.2 |
|                                 | Plastic       | Orange       | transparent | concave    | illuminative      | 15,3 mm x 15,3 mm | 51-954.3 |
|                                 | Plastic       | Yellow       | transparent | concave    | illuminative      | 15,3 mm x 15,3 mm | 51-954.4 |
|                                 | Plastic       | Green        | transparent | concave    | illuminative      | 15,3 mm x 15,3 mm | 51-954.5 |
|                                 | Plastic       | Blue         | transparent | concave    | illuminative      | 15,3 mm x 15,3 mm | 51-954.6 |
|                                 | Plastic       | Colourless   | transparent | concave    | illuminative      | 15,3 mm x 15,3 mm | 51-954.7 |

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# 51 Components



**Lens rectangular, raised design**

| Product attributes              | Lens material | Lens colour  | Lens optics | Lens shape | Lens illumination | Dimensions        | Part No. |
|---------------------------------|---------------|--------------|-------------|------------|-------------------|-------------------|----------|
|                                 | Plastic       | Smokey black | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.1 |
|                                 | Plastic       | Red          | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.2 |
|                                 | Plastic       | Orange       | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.3 |
|                                 | Plastic       | Yellow       | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.4 |
|                                 | Plastic       | Green        | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.5 |
|                                 | Plastic       | Blue         | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.6 |
|                                 | Plastic       | Colourless   | transparent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-903.7 |
| Not recommended for film insert | Plastic       | Red          | translucent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-901.2 |
|                                 | Plastic       | Orange       | translucent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-901.3 |
|                                 | Plastic       | Yellow       | translucent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-901.4 |
|                                 | Plastic       | Green        | translucent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-901.5 |
|                                 | Plastic       | Blue         | translucent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-901.6 |
|                                 | Plastic       | White        | translucent | flush      | illuminative      | 15,3 mm x 21,5 mm | 51-901.9 |
|                                 | Plastic       | Black        | opaque      | flush      | non illuminative  | 15,3 mm x 21,5 mm | 51-901.0 |
|                                 | Plastic       | Grey         | opaque      | flush      | non illuminative  | 15,3 mm x 21,5 mm | 51-901.8 |
|                                 | Plastic       | Red          | transparent | concave    | illuminative      | 15,3 mm x 21,5 mm | 51-904.2 |
|                                 | Plastic       | Orange       | transparent | concave    | illuminative      | 15,3 mm x 21,5 mm | 51-904.3 |
|                                 | Plastic       | Yellow       | transparent | concave    | illuminative      | 15,3 mm x 21,5 mm | 51-904.4 |
|                                 | Plastic       | Green        | transparent | concave    | illuminative      | 15,3 mm x 21,5 mm | 51-904.5 |
|                                 | Plastic       | Blue         | transparent | concave    | illuminative      | 15,3 mm x 21,5 mm | 51-904.6 |
|                                 | Plastic       | Colourless   | transparent | concave    | illuminative      | 15,3 mm x 21,5 mm | 51-904.7 |



**Lens round, raised design**

| Product attributes              | Lens material | Lens colour  | Lens optics | Lens shape | Lens illumination | Dimensions | Part No. |
|---------------------------------|---------------|--------------|-------------|------------|-------------------|------------|----------|
|                                 | Plastic       | Smokey black | transparent | flush      | illuminative      | Ø 15,8 mm  | 51-933.1 |
|                                 | Plastic       | Red          | transparent | flush      | illuminative      | Ø 15,8 mm  | 51-933.2 |
|                                 | Plastic       | Yellow       | transparent | flush      | illuminative      | Ø 15,8 mm  | 51-933.4 |
|                                 | Plastic       | Green        | transparent | flush      | illuminative      | Ø 15,8 mm  | 51-933.5 |
|                                 | Plastic       | Blue         | transparent | flush      | illuminative      | Ø 15,8 mm  | 51-933.6 |
|                                 | Plastic       | Colourless   | transparent | flush      | illuminative      | Ø 15,8 mm  | 51-933.7 |
| Not recommended for film insert | Plastic       | Red          | translucent | flush      | illuminative      | Ø 15,8 mm  | 51-931.2 |
|                                 | Plastic       | Yellow       | translucent | flush      | illuminative      | Ø 15,8 mm  | 51-931.4 |
|                                 | Plastic       | Blue         | translucent | flush      | illuminative      | Ø 15,8 mm  | 51-931.6 |
|                                 | Plastic       | White        | translucent | flush      | illuminative      | Ø 15,8 mm  | 51-931.9 |
|                                 | Plastic       | Black        | opaque      | flush      | non illuminative  | Ø 15,8 mm  | 51-931.0 |
|                                 | Plastic       | Grey         | opaque      | flush      | non illuminative  | Ø 15,8 mm  | 51-931.8 |



### Lens square, flush design

| Lens material | Lens colour  | Lens optics | Lens shape | Lens illumination | Dimensions    | Part No.  |
|---------------|--------------|-------------|------------|-------------------|---------------|-----------|
| Plastic       | Smokey black | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.1 |
|               | Red          | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.2 |
|               | Orange       | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.3 |
|               | Yellow       | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.4 |
|               | Green        | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.5 |
|               | Blue         | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.6 |
|               | Colourless   | transparent | flush      | illuminative      | 18 mm x 18 mm | 61-9671.7 |
|               | Black        | opaque      | flush      | non illuminative  | 18 mm x 18 mm | 61-9771.0 |
|               | White        | translucent | flush      | non illuminative  | 18 mm x 18 mm | 61-9771.9 |



### Lens rectangular, flush design

| Lens material | Lens colour  | Lens optics | Lens shape | Lens illumination | Dimensions    | Part No.  |
|---------------|--------------|-------------|------------|-------------------|---------------|-----------|
| Plastic       | Smokey black | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.1 |
|               | Red          | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.2 |
|               | Orange       | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.3 |
|               | Yellow       | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.4 |
|               | Green        | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.5 |
|               | Blue         | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.6 |
|               | Colourless   | transparent | flush      | illuminative      | 18 mm x 24 mm | 61-9681.7 |
|               | Black        | opaque      | flush      | non illuminative  | 18 mm x 24 mm | 61-9781.0 |
|               | White        | translucent | flush      | non illuminative  | 18 mm x 24 mm | 61-9781.9 |



### Lens round, flush design

| Lens material | Lens colour  | Lens optics | Lens shape | Lens illumination | Dimensions | Part No.  |
|---------------|--------------|-------------|------------|-------------------|------------|-----------|
| Plastic       | Smokey black | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.1 |
|               | Red          | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.2 |
|               | Orange       | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.3 |
|               | Yellow       | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.4 |
|               | Green        | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.5 |
|               | Blue         | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.6 |
|               | Colourless   | transparent | flush      | illuminative      | Ø 19,7 mm  | 61-9642.7 |

# 51 Components



Lens plastic with symbol

| Lens material | Lens colour | Lens optics | Lens shape | Lens illumination | Symbol  | Dimensions | Part No.    |
|---------------|-------------|-------------|------------|-------------------|---------|------------|-------------|
| Plastic       | Red         | transparent | flush      | illuminative      | Ring    | Ø 19,7 mm  | 61-9643.201 |
|               | Orange      | transparent | flush      | illuminative      | Ring    | Ø 19,7 mm  | 61-9643.301 |
|               | Yellow      | transparent | flush      | illuminative      | Ring    | Ø 19,7 mm  | 61-9643.401 |
|               | Green       | transparent | flush      | illuminative      | Ring    | Ø 19,7 mm  | 61-9643.501 |
|               | Blue        | transparent | flush      | illuminative      | Ring    | Ø 19,7 mm  | 61-9643.601 |
|               | Colourless  | transparent | flush      | illuminative      | Ring    | Ø 19,7 mm  | 61-9643.701 |
|               | Green       | transparent | flush      | illuminative      | ON/OFF  | Ø 19,7 mm  | 61-9643.502 |
|               | Blue        | transparent | flush      | illuminative      | ON/OFF  | Ø 19,7 mm  | 61-9643.602 |
|               | Colourless  | transparent | flush      | illuminative      | ON/OFF  | Ø 19,7 mm  | 61-9643.702 |
|               | Green       | transparent | flush      | illuminative      | Standby | Ø 19,7 mm  | 61-9643.503 |
|               | Blue        | transparent | flush      | illuminative      | Standby | Ø 19,7 mm  | 61-9643.603 |
|               | Colourless  | transparent | flush      | illuminative      | Standby | Ø 19,7 mm  | 61-9643.703 |

### Additional information

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



Lens metal

| Lens material | Lens colour | Lens optics | Lens shape | Lens illumination | Dimensions | Part No.  |
|---------------|-------------|-------------|------------|-------------------|------------|-----------|
| Aluminium     | Black       | opaque      | flush      | non illuminative  | Ø 19,7 mm  | 61-9841.0 |
|               | Red         | opaque      | flush      | non illuminative  | Ø 19,7 mm  | 61-9841.2 |
|               | Gold        | opaque      | flush      | non illuminative  | Ø 19,7 mm  | 61-9841.4 |
|               | Olive green | opaque      | flush      | non illuminative  | Ø 19,7 mm  | 61-9841.5 |
|               | Blue        | opaque      | flush      | non illuminative  | Ø 19,7 mm  | 61-9841.6 |
|               | Nature      | opaque      | flush      | non illuminative  | Ø 19,7 mm  | 61-9841.8 |
|               | Black       | opaque      | convex     | non illuminative  | Ø 19,7 mm  | 61-9842.0 |
|               | Red         | opaque      | convex     | non illuminative  | Ø 19,7 mm  | 61-9842.2 |
|               | Olive green | opaque      | convex     | non illuminative  | Ø 19,7 mm  | 61-9842.5 |
|               | Nature      | opaque      | convex     | non illuminative  | Ø 19,7 mm  | 61-9842.8 |

### Additional information

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



Lens metal with spot

| Lens material | Lens colour | Lens optics | Lens shape | Lens illumination | Dimensions | Part No.   |
|---------------|-------------|-------------|------------|-------------------|------------|------------|
| Aluminium     | Black       | opaque      | flush      | illuminative      | Ø 19,7 mm  | 61-9841.0A |
|               | Red         | opaque      | flush      | illuminative      | Ø 19,7 mm  | 61-9841.2A |
|               | Gold        | opaque      | flush      | illuminative      | Ø 19,7 mm  | 61-9841.4A |
|               | Olive green | opaque      | flush      | illuminative      | Ø 19,7 mm  | 61-9841.5A |
|               | Blue        | opaque      | flush      | illuminative      | Ø 19,7 mm  | 61-9841.6A |
|               | Nature      | opaque      | flush      | illuminative      | Ø 19,7 mm  | 61-9841.8A |

### Additional information

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



### Mushroom-head cap

| Lens material | Lens colour | Lens optics | Lens shape | Lens illumination | Part No.  |
|---------------|-------------|-------------|------------|-------------------|-----------|
| Plastic       | Black       | opaque      | flush      | non illuminative  | 61-9593.0 |
|               | Red         | opaque      | flush      | non illuminative  | 61-9593.2 |



### Lever raised design

| Lever material | Lever colour | Lever illumination | Lever bar colour | Lever shape | Part No.  |
|----------------|--------------|--------------------|------------------|-------------|-----------|
| plastic        | Black        | illuminative       | Red              | short       | 52-928.20 |
|                | Black        | illuminative       | Orange           | short       | 52-928.30 |
|                | Black        | illuminative       | Yellow           | short       | 52-928.40 |
|                | Black        | illuminative       | Green            | short       | 52-928.50 |
|                | Black        | illuminative       | Blue             | short       | 52-928.60 |
|                | Grey         | illuminative       | Red              | short       | 52-929.20 |
|                | Grey         | illuminative       | Orange           | short       | 52-929.30 |
|                | Grey         | illuminative       | Yellow           | short       | 52-929.40 |
|                | Grey         | illuminative       | Green            | short       | 52-929.50 |
|                | Grey         | illuminative       | Blue             | short       | 52-929.60 |
|                | Black        | non illuminative   | Black            | short       | 52-928.0  |
|                | Black        | non illuminative   | White            | short       | 52-928.9  |
|                | Grey         | non illuminative   | Grey             | short       | 52-929.8  |
|                | Grey         | non illuminative   | White            | short       | 52-929.9  |

#### Additional information

- With bar and marking dot



### Lever flush design

| Lever material | Lever colour | Lever illumination | Lever bar colour | Part No.   |
|----------------|--------------|--------------------|------------------|------------|
| plastic        | Black        | illuminative       | Red              | 61-9028.20 |
|                | Black        | illuminative       | Yellow           | 61-9028.40 |
|                | Black        | illuminative       | Green            | 61-9028.50 |
|                | Black        | illuminative       | Blue             | 61-9028.60 |
|                | Grey         | illuminative       | Red              | 61-9029.20 |
|                | Grey         | illuminative       | Orange           | 61-9029.30 |
|                | Grey         | illuminative       | Yellow           | 61-9029.40 |
|                | Black        | illuminative       | White            | 61-9028.9  |
|                | Black        | non illuminative   | Black            | 61-9028.0  |
|                | Grey         | non illuminative   | Grey             | 61-9029.8  |

#### Additional information

- With bar and marking dot

# 51 Components



Marking plate

| Marking plate material | Marking plate colour | Marking plate optics | Marking plate illumination | Part No.  |
|------------------------|----------------------|----------------------|----------------------------|-----------|
| Plastic                | Colourless           | transparent          | illuminative               | 61-9707.7 |

Additional information

- Can be hot stamped

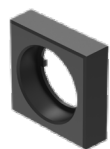


Front bezel set flush design

| Product attributes                                                                 | Front bezel material | Front bezel colour | Front bezel surface | Mounting cut-out | Dimensions    | Part No.   |
|------------------------------------------------------------------------------------|----------------------|--------------------|---------------------|------------------|---------------|------------|
| For indicator illuminated pushbutton and keylock switch                            | Plastic              | Black              |                     | 21 mm x 21 mm    | 24 mm x 24 mm | 61-9930.0  |
|                                                                                    | Plastic              | Silver             |                     | 21 mm x 21 mm    | 24 mm x 24 mm | 61-9930.4  |
|                                                                                    | Plastic              | Black              |                     | 21 mm x 27 mm    | 24 mm x 30 mm | 61-9931.0  |
|                                                                                    | Plastic              | Silver             |                     | 21 mm x 27 mm    | 24 mm x 30 mm | 61-9931.4  |
| For indicator, illuminated pushbutton, mushroom-head pushbutton and keylock switch | Aluminium            | Nature             | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9933.0  |
|                                                                                    | Aluminium            | Black              | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9933.1  |
|                                                                                    | Aluminium            | Red                | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9933.2  |
|                                                                                    | Aluminium            | Gold               | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9933.4  |
|                                                                                    | Aluminium            | Olive              | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9933.5  |
|                                                                                    | Aluminium            | Blue               | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9933.6  |
|                                                                                    | Plastic              | Black              |                     | Ø 22.3 mm        | Ø 25 mm       | 61-9933.10 |
| For selector switch                                                                | Aluminium            | Nature             | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.0  |
|                                                                                    | Aluminium            | Black              | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.1  |
|                                                                                    | Aluminium            | Red                | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.2  |
|                                                                                    | Aluminium            | Gold               | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.4  |
|                                                                                    | Aluminium            | Olive              | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.5  |
|                                                                                    | Aluminium            | Blue               | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.6  |
|                                                                                    | Plastic              | Black              | anodised            | Ø 22.3 mm        | Ø 25 mm       | 61-9932.10 |
|                                                                                    | Plastic              | Black              |                     | 21 mm x 21 mm    | 24 mm x 24 mm | 61-9936.0  |

Additional information

- Pitch of the front plate mounting holes must agree with the printed circuit board holes Ø 3.5 mm
- The colour of anodised aluminium parts can vary due to technical production reasons



Front bezel Lever switch

| Front bezel material | Front bezel colour | Dimensions    | Part No. |
|----------------------|--------------------|---------------|----------|
| Plastic              | Black              | 24 mm x 24 mm | 52-950.0 |
|                      | Black              | 26 mm x 26 mm | 52-952.0 |



### Front bezel set mushroom head pushbutton

| Front bezel material | Front bezel colour | Front bezel type | Dimensions | Part No.  |
|----------------------|--------------------|------------------|------------|-----------|
| Aluminium            | Nature             | flush            | Ø 40 mm    | 61-9934.8 |

#### Additional information

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



### Anti-twist ring

| Material | Mounting cut-out | Part No.  |
|----------|------------------|-----------|
| metal    | Ø 16.2 mm        | 51-910    |
|          | Ø 22.3 mm        | 61-9912.0 |

# 51 Components

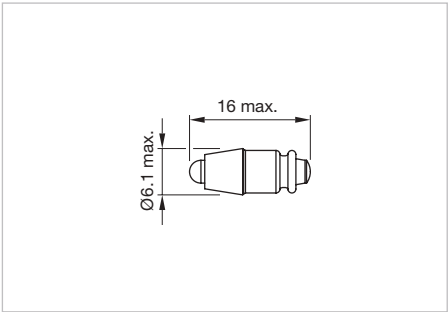


Single-LED, T1 3/4 MG

| Illumination colour | Operating voltage | Operation current | Lumi. Intensity | Dom. Wavelength      | Part No.     | Wiring diagram |
|---------------------|-------------------|-------------------|-----------------|----------------------|--------------|----------------|
| Red                 | 6 V DC +10%       | 15 mA ±15 %       | 350 mcd         | 630 nm               | 10-2J06.3142 | 55             |
|                     | 12 V AC/DC +10%   | 7 - 14 mA ±15 %   | 330 mcd         | 630 nm               | 10-2J09.1062 | 55             |
|                     | 24 V AC/DC +10%   | 7 - 14 mA ±15 %   | 330 mcd         | 630 nm               | 10-2J12.1062 | 55             |
|                     | 28 V AC/DC +10%   | 7 - 14 mA ±15 %   | 330 mcd         | 630 nm               | 10-2J13.1062 | 55             |
|                     | 48 V AC/DC +10%   | 4 - 8 mA ±15 %    | 200 mcd         | 630 nm               | 10-2J19.1042 | 55             |
| Yellow              | 6 V DC +10%       | 15 mA ±15 %       | 300 mcd         | 587 nm               | 10-2J06.3144 | 55             |
|                     | 12 V AC/DC +10%   | 7 - 14 mA ±15 %   | 280 mcd         | 587 nm               | 10-2J09.1064 | 55             |
|                     | 24 V AC/DC +10%   | 7 - 14 mA ±15 %   | 280 mcd         | 587 nm               | 10-2J12.1064 | 55             |
|                     | 28 V AC/DC +10%   | 7 - 14 mA ±15 %   | 280 mcd         | 587 nm               | 10-2J13.1064 | 55             |
|                     | 48 V AC/DC +10%   | 4 - 8 mA ±15 %    | 180 mcd         | 587 nm               | 10-2J19.1044 | 55             |
| Green               | 6 V DC +10%       | 7 mA ±15 %        | 1050 mcd        | 525 nm               | 10-2J06.3145 | 55             |
|                     | 12 V AC/DC +10%   | 4 - 7 mA ±15 %    | 1050 mcd        | 525 nm               | 10-2J09.1065 | 55             |
|                     | 24 V AC/DC +10%   | 4 - 7 mA ±15 %    | 1050 mcd        | 525 nm               | 10-2J12.1065 | 55             |
|                     | 28 V AC/DC +10%   | 4 - 7 mA ±15 %    | 1050 mcd        | 525 nm               | 10-2J13.1065 | 55             |
|                     | 48 V AC/DC +10%   | 2 - 4 mA ±15 %    | 600 mcd         | 525 nm               | 10-2J19.1045 | 55             |
| Blue                | 6 V DC +10%       | 15 mA ±15 %       | 680 mcd         | 470 nm               | 10-2J06.3146 | 55             |
|                     | 12 V AC/DC +10%   | 4 - 14 mA ±15 %   | 650 mcd         | 470 nm               | 10-2J09.1066 | 55             |
|                     | 24 V AC/DC +10%   | 7 - 14 mA ±15 %   | 650 mcd         | 470 nm               | 10-2J12.1066 | 55             |
|                     | 28 V AC/DC +10%   | 7 - 14 mA ±15 %   | 650 mcd         | 470 nm               | 10-2J13.1066 | 55             |
|                     | 48 V AC/DC +10%   | 4 - 8 mA ±15 %    | 400 mcd         | 470 nm               | 10-2J19.1046 | 55             |
| White               | 6 V DC +10%       | 6 mA ±15 %        | 900 mcd         | x: 0.31 / y: 0.32 nm | 10-2J06.3149 | 55             |
|                     | 12 V AC/DC +10%   | 3 - 6 mA ±15 %    | 900 mcd         | x: 0.31 / y: 0.32 nm | 10-2J09.1069 | 55             |
|                     | 24 V AC/DC +10%   | 2,5 - 5 mA ±15 %  | 750 mcd         | x: 0.31 / y: 0.32 nm | 10-2J12.1069 | 55             |
|                     | 28 V AC/DC +10%   | 2,5 - 5 mA ±15 %  | 750 mcd         | x: 0.31 / y: 0.32 nm | 10-2J13.1069 | 55             |
|                     | 48 V AC/DC +10%   | 2 - 4 mA ±15 %    | 600 mcd         | x: 0.31 / y: 0.32 nm | 10-2J19.1049 | 55             |
| Red / Green         | 24 V AC/DC +10%   | 15/14 mA ±15 %    | 600/630 mcd     | 625 / 525 nm         | 10-A312.314A | 171            |

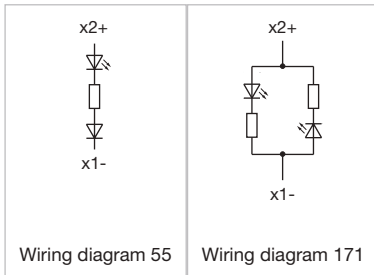
### Additional information

- Due to high surface temperatures, the series resistor must not be soldered directly to the terminals of the equipment (use a terminal plate)
- When using AC/DC types with AC operation, slight flickering can occur
- The luminous intensity stated is for when used with DC
- Electrical and optical data are measured at 25 °C
- The specified versions are built with a protection diode (half wave rectifier) in series and the LED
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination. The customer has to decide what resistor shall be used to the LED
- Where supply voltages are over 48 V, a voltage-reduction element (external protective series resistor) must be used.



Dimensions [mm]

## Wiring diagrams



|           |
|-----------|
| 01        |
| 02        |
| 03        |
| 04        |
| 09        |
| 14        |
| 17        |
| 18        |
| 19        |
| 22        |
| 31        |
| 41        |
| 45        |
| <b>51</b> |
| 56        |
| 57        |
| 61        |
| 70        |
| 71        |
| 82        |
| 84        |
| 92        |
| 96        |

# 51 Accessories

## Front side

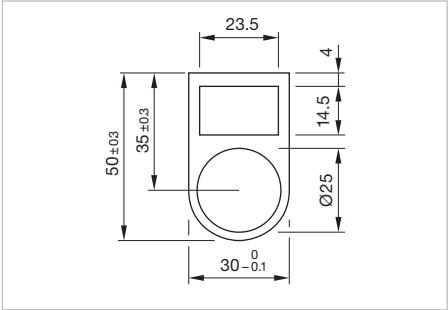


Legend frame

| Dimensions    | Material  | Colour | Surface  | Mounting type | Part No.  |
|---------------|-----------|--------|----------|---------------|-----------|
| 30 mm x 50 mm | aluminium | Black  | anodised | adhesive      | 61-9980.0 |

### Additional information

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



Dimensions [mm]



Legend plate

| Dimensions        | Material  | Colour | Surface  | Mounting type | Part No.  |
|-------------------|-----------|--------|----------|---------------|-----------|
| 14.5 mm x 23.5 mm | aluminium | Nature | anodised | adhesive      | 704.968.0 |
|                   | aluminium | Black  | anodised | adhesive      | 704.968.1 |

### Additional information

- For legend frame Part No.704.968.2 and 704.968.3
- The colour of anodised aluminium parts can vary due to technical production reasons



Blind plug raised design

| Dimensions    | Material | Colour | Mounting cut-out | Part No. |
|---------------|----------|--------|------------------|----------|
| 24 mm x 18 mm | plastic  | Black  | Ø 16.2 mm        | 51-947.0 |
| 18 mm x 18 mm | plastic  | Black  | Ø 16.2 mm        | 51-948.0 |
| Ø 18 mm       | plastic  | Black  | Ø 16.2 mm        | 51-949.0 |

### Additional information

- Blind plugs fit also in mounting cut-outs with anti-twist device

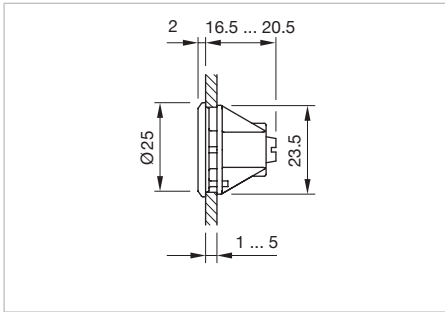


### Blind plug flush design

| Dimensions    | Material | Colour | Mounting cut-out | Part No.  |
|---------------|----------|--------|------------------|-----------|
| 24 mm x 24 mm | plastic  | Black  | 21 mm x 21 mm    | 61-9451.0 |
| 24 mm x 30 mm | plastic  | Black  | 21 mm x 27 mm    | 61-9452.0 |
| Ø 25 mm       | plastic  | Black  | Ø 25 mm          | 61-9453.0 |

#### Additional information

- Please note that bigger minimum distances are necessary



Dimensions [mm]  
for Part No. 61-9453.0



### EMC key protection cap

| Product attributes     | Material | Colour | Part No. |
|------------------------|----------|--------|----------|
| For standard lock: DOM | plastic  | Black  | 31-985.0 |



### Spare key

| Product attributes     | Material | Part No.   |
|------------------------|----------|------------|
| Standard lock: DOM 311 | metal    | 31-989.311 |

#### Additional information

- Optional lock numbers on request



### Master key

| Product attributes                 | Material | Part No.   |
|------------------------------------|----------|------------|
| For standard lock: DOM 311 ... 445 | metal    | 31-989.300 |



### Protective cap

| Product attributes                              | Material | Colour     | Optics      | Part No.  |
|-------------------------------------------------|----------|------------|-------------|-----------|
| For front bezel set 24 mm x 30 mm, flush design | silicone | Colourless | transparent | 61-9927.2 |
| For front bezel Ø 25 mm                         | silicone | Colourless | transparent | 84-9103.7 |

#### Additional information

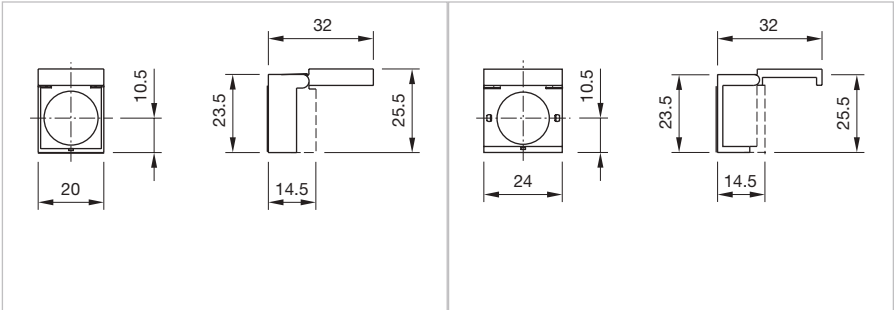
- For flat lens profil only
- When using the front protection cover the external sealing in the actuator has to be removed

# 51 Accessories



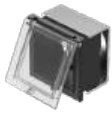
Protective cover raised design

| Product attributes             | Dimensions    | Material | Colour     | Optics      | Part No. |
|--------------------------------|---------------|----------|------------|-------------|----------|
| Hinged, with means for sealing | 18 mm x 18 mm | plastic  | Colourless | transparent | 51-920   |
|                                | 18 mm x 24 mm | plastic  | Colourless | transparent | 51-925   |



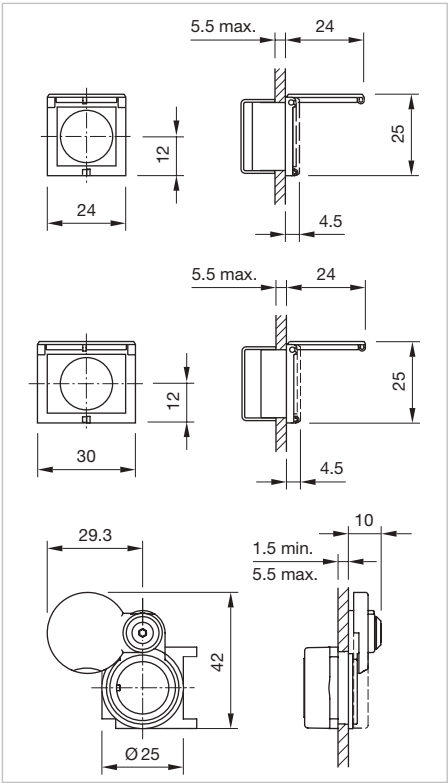
Dimensions [mm]

Dimensions [mm]



Protective cover flush design

| Product attributes                                                                 | Dimensions    | Material | Colour     | Optics      | Mounting cut-out | Part No.  |
|------------------------------------------------------------------------------------|---------------|----------|------------|-------------|------------------|-----------|
| Hinged, with means for sealing, for device with front dimension 24 mm x 24 mm      | 24 mm x 24 mm | plastic  | Colourless | transparent | 21 mm x 21 mm    | 61-9921.0 |
| Hinged, with means for sealing, for device with front dimension 24 mm x 30 mm      | 30 mm x 24 mm | plastic  | Colourless | transparent | 27 mm x 21 mm    | 61-9922.0 |
| Slide by side, without cover locking hole, for device with front dimension Ø 25 mm | Ø 25 mm       | plastic  | Colourless | transparent | Ø 22.3 mm        | 61-9924.0 |



Dimensions [mm]

**Rear side****Flat receptacle**

| Product attributes                                  | Material | Part No. |
|-----------------------------------------------------|----------|----------|
| 2.0 x 0.5 mm plug-in terminal                       | metal    | 31-945   |
| 2.8 x 0.5 mm plug-in terminal                       | metal    | 31-946   |
| 2.8 x 0.5 mm in combination with multi-plug housing | metal    | 51-943.1 |

**Insulation sleeve**

| Product attributes                                               | Material | Part No. |
|------------------------------------------------------------------|----------|----------|
| For flat receptacle 2.0 mm                                       | plastic  | 31-928   |
| For flat receptacle 2.8 mm                                       | plastic  | 31-929   |
| Cover plug-in terminals for snap-action switching element 2.8 mm | plastic  | 01-928   |

**Terminal cover**

| Product attributes                | Material | Part No. |
|-----------------------------------|----------|----------|
| For snap-action switching element | plastic  | 01-929   |

**Side terminal plate empty**

| Product attributes | Dimensions               | Part No. |
|--------------------|--------------------------|----------|
| 5 spaces           | 62.5 mm x 15 mm x 60 mm  | 02-912.1 |
| 10 spaces          | 125 mm x 15 mm x 60 mm   | 02-912.2 |
| 15 spaces          | 187.6 mm x 15 mm x 60 mm | 02-912.3 |
| 20 spaces          | 250 mm x 15 mm x 60 mm   | 02-912.4 |

**Multi-plug housing**

| Product attributes  | Part No. |
|---------------------|----------|
| For switching block | 51-943.0 |

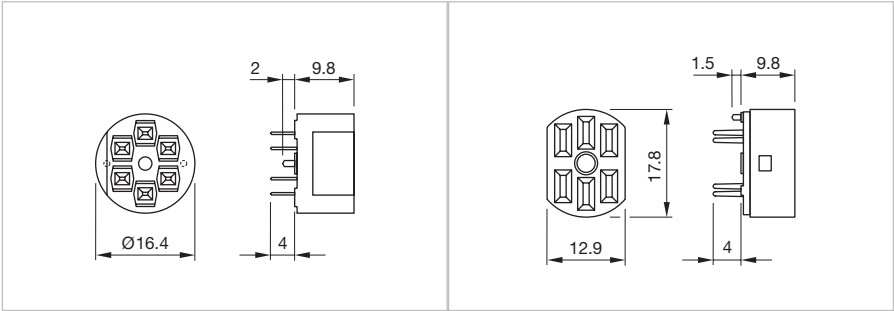


PCB plug-in base

| Product attributes                       | Terminal     | Pins  | Part No. | Com-<br>ponent<br>Layout |
|------------------------------------------|--------------|-------|----------|--------------------------|
| For low level switching element          | PCB terminal | Axial | 31-940   | 3                        |
| For snap-action switching element 2.8 mm | PCB terminal | Axial | 31-942   | 4                        |

Additional information

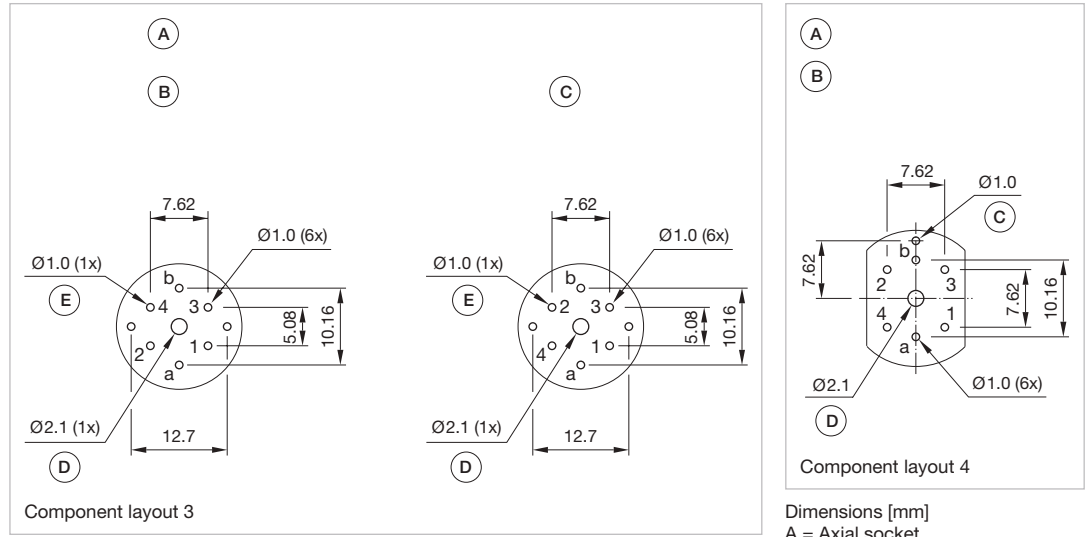
- PCB plug-in base pins right-angle: With the extendable mounting the distance between plug-in base and PCB can be varied up to 3 mm



Dimensions [mm]  
for Part No. 31-940

Dimensions [mm]  
for Part No. 31-942

Component layouts



Dimensions [mm]  
A = Axial socket  
B = Drilling-/occupancy plan (component side)  
C = Drilling-/occupancy plan diode block  
D = for central mounting with M2 screw, if desired  
E = non-metallic

Dimensions [mm]  
A = Axial socket  
B = Drilling-/occupancy plan (component side)  
C = non-metallic  
D = for central mounting with M2 screw, if desired

**Series resistor**

| Operating voltage | Resistance | Part No. |
|-------------------|------------|----------|
| 110 V AC          | 2.7 kOhm   | 02-904.0 |
| 125 V AC          | 3.3 kOhm   | 02-904.1 |
| 145 V AC          | 4.7 kOhm   | 02-904.3 |
| 240 V AC          | 10 kOhm    | 02-904.7 |

**Additional information**

- Only for filament lamp 48 VAC, 25 mA
- Due to high surface temperatures, the series resistor must not be soldered directly to the terminals of the equipment (use a terminal plate)
- Keep to the country specific safety instructions

# 51 Accessories

## Mounting



### Fixing nut

| Product attributes                       | Dimensions | Material | Colour | Part No. |
|------------------------------------------|------------|----------|--------|----------|
| Special recommended for keylock switches | Ø 16 mm    | metal    | Silver | 31-991   |
| Standard delivery                        |            | plastic  | Black  | 51-991   |



### Mounting tool

| Product attributes                                    | Dimensions | Material | Part No. |
|-------------------------------------------------------|------------|----------|----------|
| For tightening or loosening of the fixing nut Ø 16 mm | Ø 16 mm    | metal    | 01-907   |



### Dismantling tool

| Product attributes                                               | Part No. |
|------------------------------------------------------------------|----------|
| For dismantling of lens, lens holder and switching element block | 51-938   |



### Lens remover

| Product attributes | Material        | Part No.  |
|--------------------|-----------------|-----------|
| For raised design  | metal           | 02-905    |
| For flush design   | metal / plastic | 61-9730.0 |



### Lamp remover

| Product attributes                                   | Material | Part No.  |
|------------------------------------------------------|----------|-----------|
| A switching action may occur when replacing the lamp | plastic  | 61-9740.0 |

## Actuator with snap-action switching element block (Keylock- and Selector switch 3 positions)

### Switching system

Self-cleaning, double-break snap action switching system  
2 normally closed and 2 normally open contact per element.

### Material

**Material of contact**  
Gold plated hardsilver

**Switch housing**  
Plastic, heat-resistant and self-extinguishing

**Actuator housing**  
Plastic, self-extinguishing

### Mechanical characteristics

**Terminals**  
Soldering terminal which can also be used as plug-in terminal  
2.8 x 0.5 mm  
Max. wire diameter 2 wires of 1 mm  
Max. wire cross-section of stranded cable 2 x 0.75 mm<sup>2</sup>

**Tightening torque**  
For fixing nut max. 0.5 Nm

**Actuating torque**  
0.025 Nm ... 0.055 Nm, depending on the number of switching elements. Measured at the key or lever of the keylock- or selector switch.

**Actuating travel**  
Keylock-/selector switch actuator with 3 positions  
2 x ca. 42° deflection momentary action  
2 x ca. 90° deflection maintained action

**Mechanical lifetime**  
Keylock switch 50 000 cycles of operation  
Selector switch 100 000 cycles of operation

### Electrical characteristics

**Electrostatic discharge (ESD)**  
≤ 15 kV (Keylock switch)

**Thermal current I<sup>th</sup>**  
5 A

**Switching voltage and switching current**  
250 VAC, 5 A (cos φ 0.75)

**Electric strength**  
2500 VAC, 50 Hz, 1 min. between all terminals and earth, as per IEC 60512-2-11

**Protection class**  
II

### Ambient conditions

**Storage temperature**  
−40 °C ... +85 °C

**Operating temperature**  
−25 °C ... +55 °C  
For selector switches mounted as a block, make sure the heat can escape freely

**Protection degree**  
Front side, as per IEC 60529  
IP65 keylock switch  
IP65 selector switch

### Approvals

**Approbations**  
CB (IEC 61058-1)  
CSA  
CQC  
ENEC (EN 61058-1)  
DNV GL (previously Germanischer Lloyd)  
UL

**Conformities**  
CE  
2014/30/EC (EMC)  
2014/35/EC (LVD)  
2011/65/EC (RoHS)

# 51 Technical data

## Actuator with low-level switching element

### Switching system

This low-level switching element was designed for switching low powers in electronic circuits. The mechanism assures reliable switching of loads ranging from a few  $\mu\text{A}/\mu\text{V}$  up to 100 mA/ 42 VAC/ DC.

Single-break momentary contact, as normally open or normally closed with 4 independent points of contact. 2 momentary contacts per switching element; combination of normally open and normally closed is possible.

Special features are the long life, extremely short rebound time and stable contact resistance.

### Material

**Material of contact**  
Gold plated

**Switch housing**  
Plastic, heat-resistant and self-extinguishing

**Actuator housing**  
Plastic, self-extinguishing

### Mechanical characteristics

**Terminals**  
The universal terminals permit these units to be mounted on printed circuit boards (PCB). These terminals can also be used as soldering or plug-in terminals.

For these terminals we can also supply a plug-in base which, when soldered on to the board, enables the switch to be plugged in.

**Soldering terminal**  
Max. wire diameter 2 wires à 1 mm  
Max. wire cross-section of stranded cable 2 x 0.75 mm<sup>2</sup>

Plug-in terminal 2.0 mm x 0.5 mm

**Tightening torque**  
For fixing nut max. 0.5 Nm

**Actuating torque**  
2.5 Ncm ... 5.5 Ncm, measured at the key or lever of the keylock- or selector switch

**Actuating force**  
1.8 N ... 3.5 N

### Actuating travel

Illuminated pushbutton 3 mm  
Keylock-/selector switch actuator 2 positions  
1 x ca. 42° deflection momentary action  
1 x ca. 90° deflection maintained action

### Mechanical lifetime

|                   |                               |
|-------------------|-------------------------------|
| Momentary action  | 5 million cycles of operation |
| Maintained action | 1 million cycles of operation |
| Keylock switch    | 50 000 cycles of operation    |

### Electrical characteristics

**Electrostatic breakdown value**  
≤ 15 KV (Keylock switch)

**Switching voltage and switching current**  
100 mA at 42 VAC/VDC

**Electric strength**  
2500 VAC, 50 Hz, 1 minute between all terminals and earth, as per IEC 61058-1, part 15

### Ambient conditions

**Storage temperature**  
-40 °C ... +85 °C

**Operating temperature**  
-25 °C ... +55 °C  
For indicators and illuminated pushbuttons mounted as a block, make sure the heat can escape freely.

**Protection degree**  
IP65 front side, as per DIN/EN 60529

**Shock resistance**  
(Single impacts, semi-sinusoidal)  
15 g for 11 ms, as per DIN/EN 60512-4-3, DIN/EN 60068-2-27

## Actuator with snap-action switching element

### Switching system

Self-cleaning, double-break snap action switching system (with contact gap 2 x 0.5 mm).

1 normally closed and 1 normally open contact per element.

Snap-action switching elements with soldering terminals at the sides: up to 4 switching element can be on a pushbutton (max. 4 normally closed and 4 normally open contacts).

Snap-action switching element with axial plug-in terminals 2.8 mm is not stackable, only 1 switching element can be on a pushbutton.

### Material

**Material of contact**  
Gold plated silver

**Switch housing**  
Axial soldering-/plug-in terminal 2.8 mm  
Plastic, heat-resistant and self-extinguishing.

Soldering terminal: Plastic

**Actuator housing**  
Plastic, self-extinguishing

### Mechanical characteristics

**Terminals**  
Snap-action switching element with tinned soldering terminals at the sides  
Max. wire diameter 2 wires à 1.2 mm  
Max. wire cross-section of stranded cable 1 x 1 mm<sup>2</sup>

Snap-action switching element with axial soldering terminals, which can also be used as plug-in terminals 2.8 x 0.5 mm  
Max. wire diameter 2 wires of 1 mm  
Max. wire cross-section of stranded cable 2 of 0.75 mm<sup>2</sup> or 1 x 1.0 mm<sup>2</sup>

**Tightening torque**  
For fixing nut max. 0.5 Nm

**Actuating torque**  
0.025 Nm ... 0.055 Nm, depending on the number of switching elements. Measured at the key or lever of the keylock- or selector switch.

**Actuating force**  
1.8 N ... 6 N, depending on the number of switching elements

**Actuating travel**  
Illuminated pushbutton 3 mm

Keylock-/selector switch actuator 2 positions  
1 x ca. 42° deflection momentary action  
1 x ca. 90° deflection maintained action

**Mechanical lifetime**  
Momentary action 2 million cycles of operation  
Maintained action 1 million cycles of operation  
Keylock switch 50 000 cycles of operation

### Electrical characteristics

**Standards**  
EN/IEC 61058-1

**Rated voltage**  
250 VAC/VDC

**Rated current**  
≤ 5 A

**Electrostatic discharge (ESD)**  
≤ 15 kV (Keylock switch)

**Thermal current I<sub>th</sub>**  
≤ 5 A  
The maximum current in continuous operation and at ambient temperature not exceeding the quoted maximum values.

**Switching voltage and switching current**  
250 VAC, 5 A (ohmic)  
250 VAC, 3 A (Soldering terminal)  
250 VAC, 2 A (inductive, cos(φ) = 0.7)  
125 VAC, 3 A (inductive, cos(φ) = 0.7)  
220 VDC, 0.1 A (inductive, L:R = 30 ms)  
110 VDC, 0.2 A (inductive, L:R = 30 ms)  
60 VDC, 0.7 A (inductive, L:R = 30 ms)  
24 VDC, 2 A (inductive, L:R = 30 ms)

**Electric strength**  
2500 VAC, 50 Hz, 1 minute between all terminals and earth, as per IEC 61058-1, part 15

**Protection class**  
II

**Electrical lifetime**  
50 000 cycles of operation

# 51 Technical data

## Ambient conditions

### Storage temperature

−40 °C ... +85 °C

### Service temperature

−25 °C ... +55 °C

For indicators and illuminated pushbuttons mounted as a block, make sure the heat can escape freely.

### Protection degree

IP65 front side, as per DIN EN 60529

### Shock resistance

(Single impacts, semi-sinusoidal)

15 g for 11 ms, as per DIN EN 60512-4-3, DIN EN 60068-2-27

### Vibration resistance

(Sinusoidal)

10 g at 10 Hz ... 1500 Hz, amplitude 0.75 mm, as per DIN EN 60512-4-4, DIN EN 60068-2-6

### Climate resistance

Standard condition, as per DIN EN 60068-2-30

Changing condition, as per DIN EN 60068-2-14

## Approvals

### Approbations

CB (IEC 61058-1)

CSA

CQC

ENEC (EN 61058-1)

DNV GL (previously Germanischer Lloyd)

UL

### Conformities

CE

2014/30/EC (EMC)

2014/35/EC (LVD)

2011/65/EC (RoHS)

## Stop Switch

## Switching system

### Switching element SE16 with solder terminal

Self-cleaning, double-break snap-action switching system

1 NC contact and 1 NO contact per switching element.

Available with up to two switching elements (2 NC contact and 2 NO contact)

### Switching element SE 2.8 mm with solder-/ plug-in terminal

Self-cleaning, double-break snap-action switching system

(1 NC contact and 1 NO contact)

### Low-level switching element with universal terminal

Single-break momentary contact switch system. Two contacts per switching element with a combination of NC and NO contacts

## Material

### Actuator housing

Plastic

### Lens

Plastic

### Actuator

Plastic

### Label

Plastic

### Switching element

Solder terminal Polyamide (PA 6.6)

Solder-/plug-in interterminal Diallyl Phthalate (DAP), Polyamide (PA), Polysulfone (PSU)

Universal terminal Polysulfone (PSU)

### Contact material

Snap action solder terminal gold-plated silver

Snap action plug-in/solder terminal gold-plated silver

Low-level plug-in/solder/PCB terminal gold-plated

## Mechanical characteristics

### Terminals

Plug-in terminal, 2.8 mm × 0.5 mm

Universal terminal with 2.0 × 0.5 mm

Solder and PCB terminal

### Tightening torque

For fixing nut max. 0.5 Nm

### Actuating force

18 ... 21 N (depending on the switching element)

## Mechanical lifetime

100 000 cycles of operation

## Electrical characteristics

### Switching voltage and switching current

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| Solder terminal    | 250 VAC, 5 A (ohmic)<br>24 VDC, 2 A (inductive, L:R = 30 ms) |
| Plug-in terminal   | 250 VAC, 5 A (ohmic)<br>24 VDC, 2 A (inductive, L:R = 30 ms) |
| Universal terminal | 42 VAC/DC, 100 mA                                            |

## Ambient conditions

### Storage temperature

−40 °C ... +85 °C

### Operating temperature

−25 °C ... +55 °C

### Protection degree

IP65 front side

EAO reserves the right to alter specifications without further notice.

## Approvals

### Approbations

UL  
CSA  
CB (IEC 61058-1)  
ENEC (EN 61058-1)

### Conformities

CE  
2006/42/EC (MD)  
2011/65/EC (RoHS)

Approvals are not valid for Stop switches with low-level switching element.

General notes

1. Engraving

In addition to the most commonly used world languages, in DIN1451-3 close spacing, other typefaces are available as Scandinavian, Slavic, Greek, Russian and Polish. Red, blue and black lenses are filled with white colour. Other colour lenses are filled in black. Standard height of letters is 2 mm. If the height is not specified, we will supply 2 mm engraved letters.

2. Hot stamping

For larger series it is worth considering markings by means of hot stamping. We will be pleased to advise you. For letters and figures, typefaces with 2.5 mm, 3 mm and 4 mm are available.

3. Film inserts

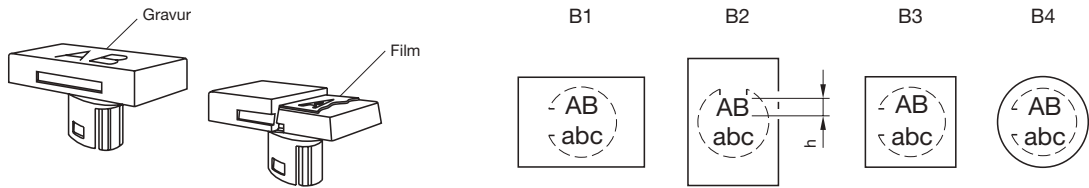
Instead of using engraving the lenses can be fitted with transparent film inserts, as an alternative. For this purpose, though, it is advisable to use transparent lenses. In the case of use of a smoke-black lens the fitted film becomes readable only if the lamp is on. The film thickness is 0.2 mm.

Important: Consider pushbutton mounting orientation before specifying engraving characters!

Lenses for indicators and illuminated pushbuttons, raised mounting

All dimensions in mm

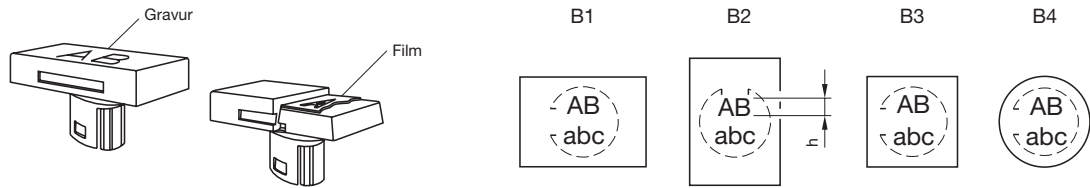
| Front size (Lens)     | Film insert max. size | Height of letters h | Number of lines | Number of capital letters per line (target value) | Number of small letters per line (target value) | Image |
|-----------------------|-----------------------|---------------------|-----------------|---------------------------------------------------|-------------------------------------------------|-------|
| 18 x 24 (12.8 x 18.8) | 12.7 x 18.7           | 2.5                 | 3               | 9                                                 | 10                                              | B1    |
|                       |                       | 3                   | 3               | 8                                                 | 8                                               | B1    |
|                       |                       | 4                   | 2               | 5                                                 | 6                                               | B1    |
|                       |                       | 5                   | 2               | 4                                                 | 5                                               | B1    |
|                       |                       | 6                   | 1               | 4                                                 | 4                                               | B1    |
|                       |                       | 8                   | 1               | 3                                                 | 3                                               | B1    |
|                       |                       | 2.5                 | 5               | 6                                                 | 7                                               | B2    |
|                       |                       | 3                   | 4               | 5                                                 | 6                                               | B2    |
|                       |                       | 4                   | 3               | 4                                                 | 4                                               | B2    |
|                       |                       | 5                   | 3               | 3                                                 | 3                                               | B2    |
|                       |                       | 6                   | 2               | 2                                                 | 3                                               | B2    |
|                       |                       | 8                   | 1               | 2                                                 | 2                                               | B2    |
| 18 x 18 (12.8 x 12.8) | 12.7 x 12.7           | 2.5                 | 3               | 6                                                 | 7                                               | B3    |
|                       |                       | 3                   | 3               | 5                                                 | 6                                               | B3    |
|                       |                       | 4                   | 2               | 4                                                 | 4                                               | B3    |
|                       |                       | 5                   | 2               | 3                                                 | 3                                               | B3    |
|                       |                       | 6                   | 1               | 2                                                 | 3                                               | B3    |
|                       |                       | 8                   | 1               | 2                                                 | 2                                               | B3    |
| Ø 18 (Ø 15.8)         | Ø 12.8                | 2.5                 | 3               | 4-5                                               | 5-6                                             | B4    |
|                       |                       | 3                   | 3               | 2-4                                               | 3-5                                             | B4    |
|                       |                       | 4                   | 2               | 2-3                                               | 3-4                                             | B4    |
|                       |                       | 5                   | 2               | 1-2                                               | 2-3                                             | B4    |
|                       |                       | 6                   | 1               | 2                                                 | 3                                               | B4    |
|                       |                       | 8                   | 1               | 2                                                 | 2                                               | B4    |



Lenses for indicators and illuminated pushbuttons, raised mounting

All dimensions in mm

| Front size (Lens)     | Film insert max. size | Height of letters h | Number of lines | Number of capital letters per line (target value) | Number of small letters per line (target value) | Image |
|-----------------------|-----------------------|---------------------|-----------------|---------------------------------------------------|-------------------------------------------------|-------|
| 18 x 24 (12.8 x 18.8) | 15.1 x 21             | 2.5                 | 4               | 10                                                | 11                                              | B1    |
|                       |                       | 3                   | 3               | 8                                                 | 9                                               | B1    |
|                       |                       | 4                   | 2               | 6                                                 | 7                                               | B1    |
|                       |                       | 5                   | 2               | 5                                                 | 6                                               | B1    |
|                       |                       | 6                   | 1               | 4                                                 | 5                                               | B1    |
|                       |                       | 8                   | 1               | 3                                                 | 3                                               | B1    |
|                       |                       | 2.5                 | 5               | 7                                                 | 8                                               | B2    |
|                       |                       | 3                   | 4               | 6                                                 | 7                                               | B2    |
|                       |                       | 4                   | 3               | 5                                                 | 5                                               | B2    |
|                       |                       | 5                   | 3               | 4                                                 | 4                                               | B2    |
|                       |                       | 6                   | 2               | 3                                                 | 3                                               | B2    |
|                       |                       | 8                   | 2               | 2                                                 | 2                                               | B2    |
| 18 x 18 (12.8 x 12.8) | 15.1 x 15.1           | 2.5                 | 4               | 7                                                 | 8                                               | B3    |
|                       |                       | 3                   | 3               | 6                                                 | 7                                               | B3    |
|                       |                       | 4                   | 2               | 5                                                 | 5                                               | B3    |
|                       |                       | 5                   | 2               | 4                                                 | 4                                               | B3    |
|                       |                       | 6                   | 1               | 3                                                 | 3                                               | B3    |
|                       |                       | 8                   | 1               | 2                                                 | 2                                               | B3    |
| Ø 18 (Ø 15.8)         | Ø 15.6                | 2.5                 | 3               | 6-7                                               | 6-8                                             | B4    |
|                       |                       | 3                   | 3               | 4-6                                               | 5-7                                             | B4    |
|                       |                       | 4                   | 2               | 4                                                 | 4-5                                             | B4    |
|                       |                       | 5                   | 2               | 2-3                                               | 3                                               | B4    |
|                       |                       | 6                   | 1               | 2                                                 | 2-3                                             | B4    |
|                       |                       | 8                   | 1               | 2                                                 | 2-3                                             | B4    |



# 51 Application guidelines

## 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.

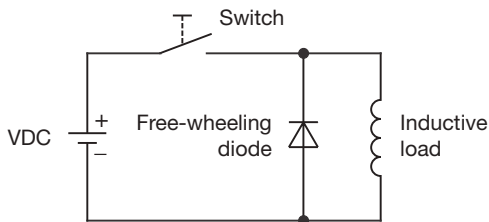
Fig. 1 shows an inductive load with a free-wheeling diode connected in parallel. This free-wheeling diode provides a path for the inductor current to flow when the current is interrupted by the switch. Without this free-wheeling diode, the voltage across the coil will be limited only by dielectric breakdown 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

