

Series 51

Versatile. Attractive and compact.

<https://eao.com/>



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

Components	653
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Accessories	662
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Technical data	669
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Marking	674
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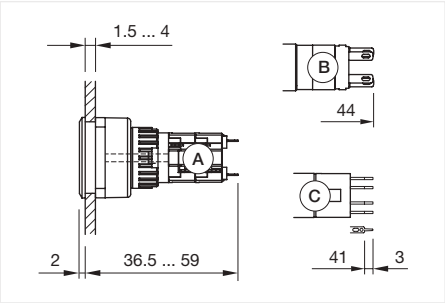
Application guidelines	675
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51 Flush design

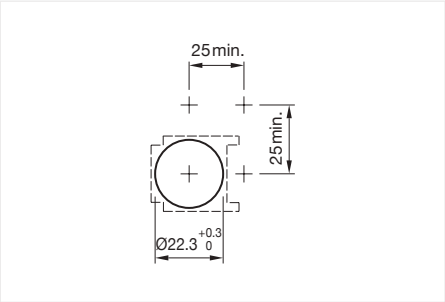
Pushbutton round, IP65



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



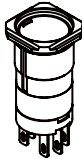
Mounting cut-outs [mm]

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

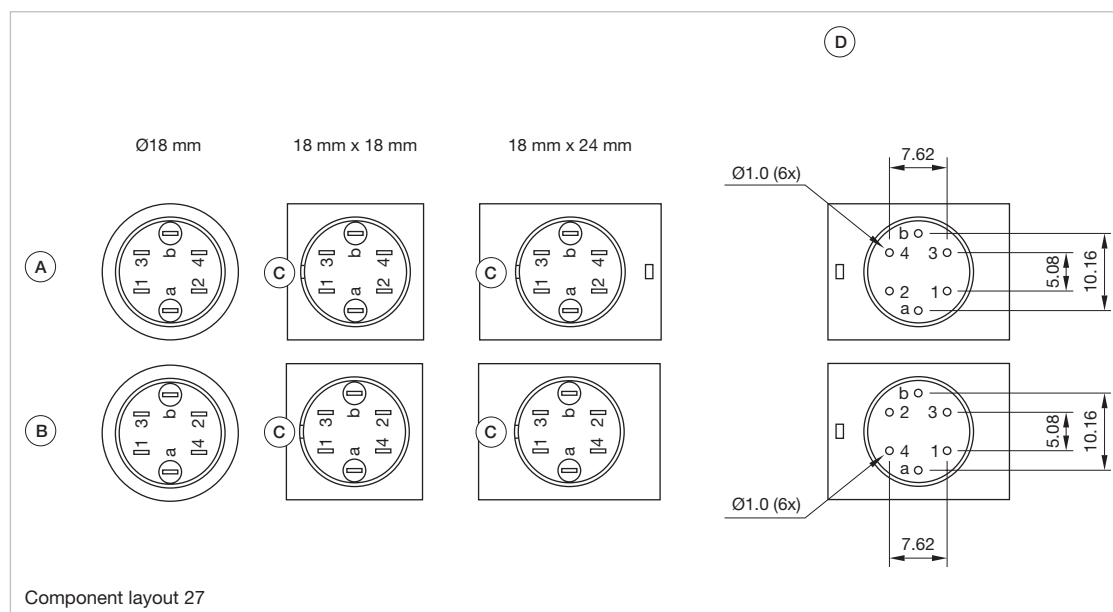
Contacts: NC = Normally closed, NO = Normally open

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	

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)



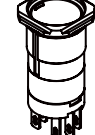
Lens

Page 653



LED

Page 660



Actuator



Front bezel set

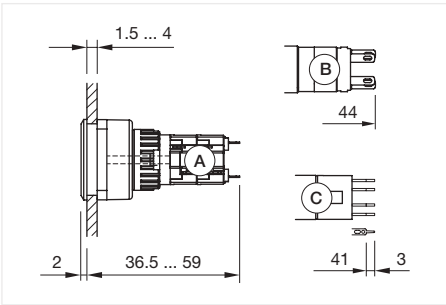
Page 658



Fixing nut

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

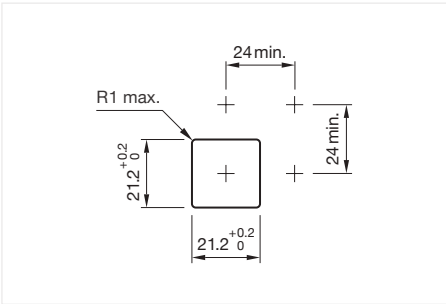
To obtain a complete unit, please select the red components from the pages shown.



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]



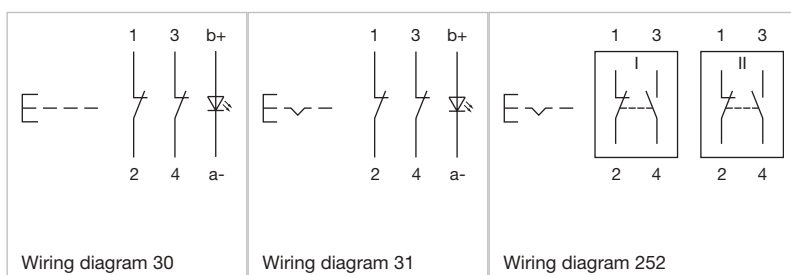
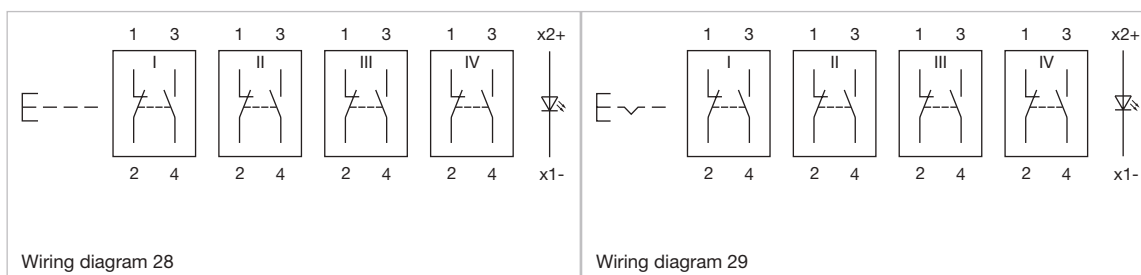
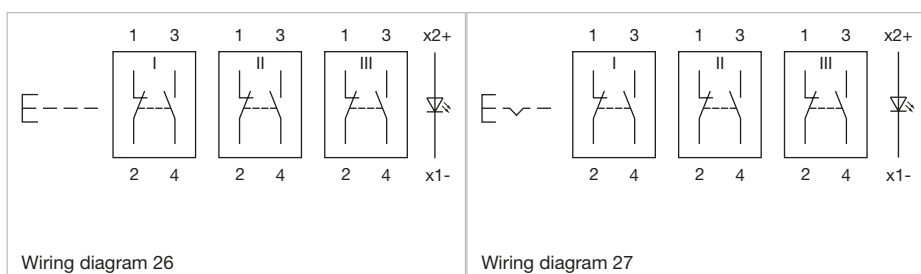
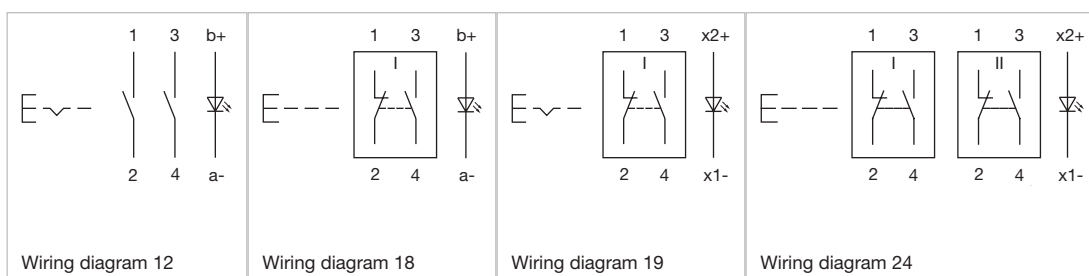
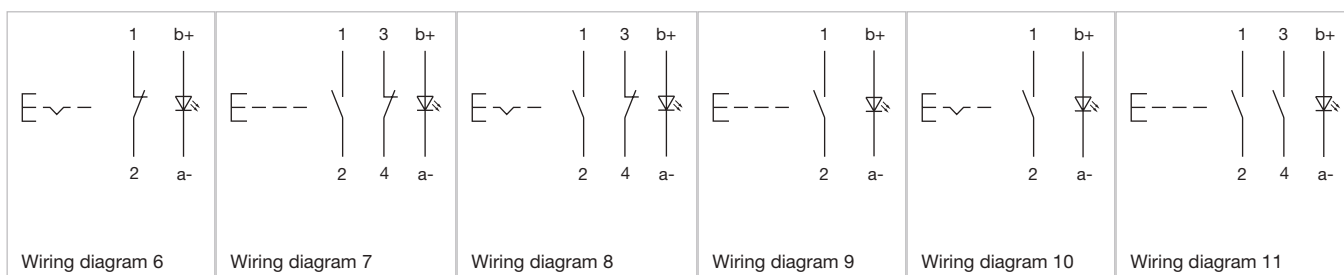
Actuator, Front dimension 24 mm x 24 mm

Switching action	Contacts	Terminal	Switching system	Part No.	Wiring diagram	Com- ponent 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

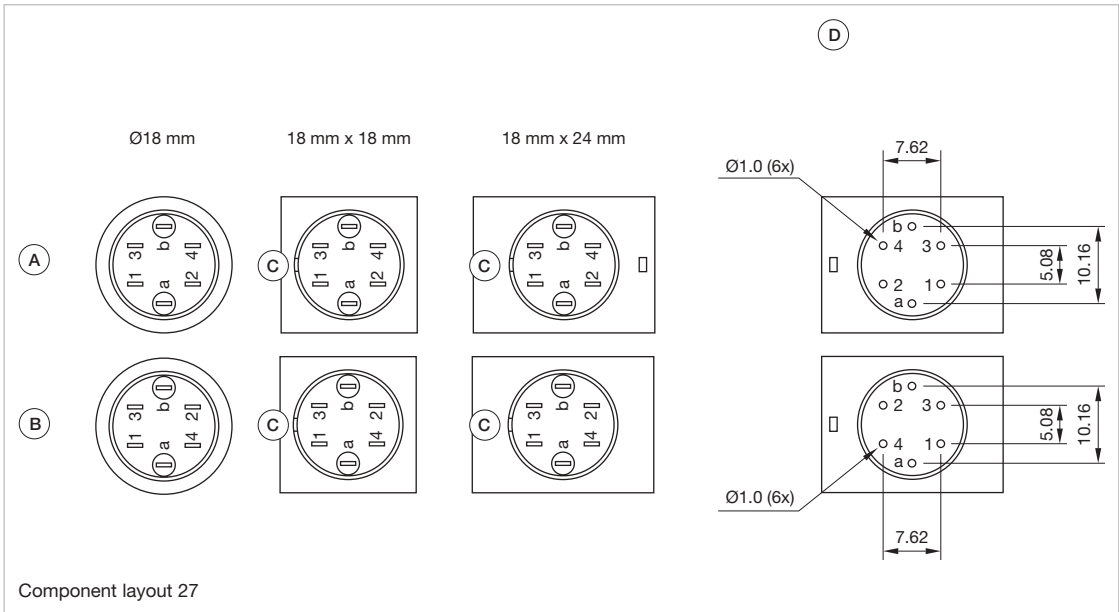
Contacts: NC = Normally closed, NO = Normally open

51 Flush design

Wiring diagrams



Component layouts



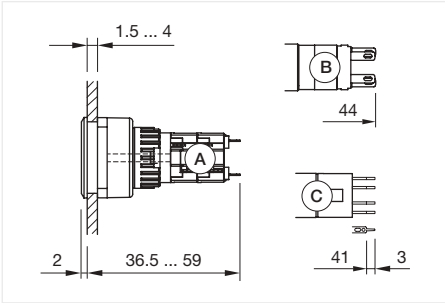
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

51 Flush design

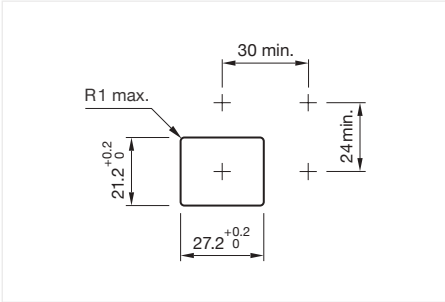
Illuminated pushbutton rectangular, IP65



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.

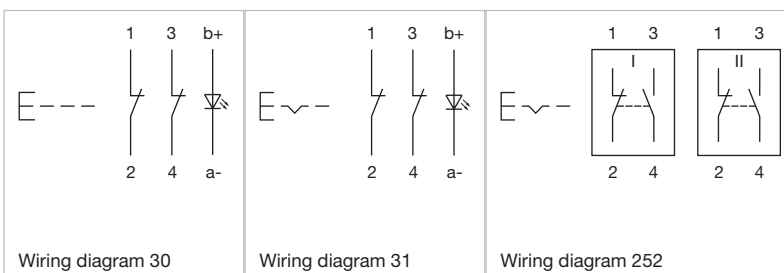
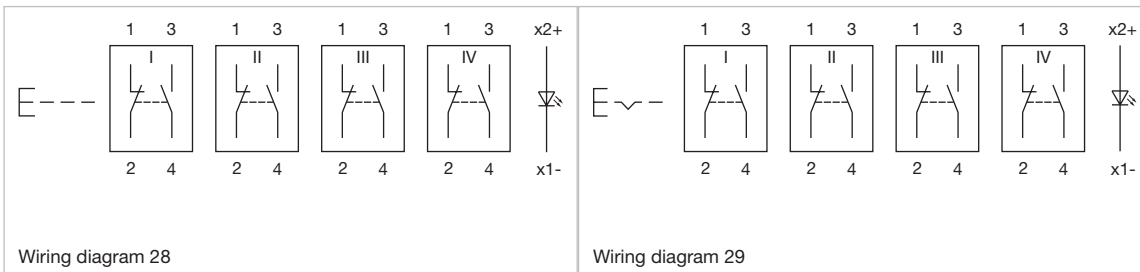
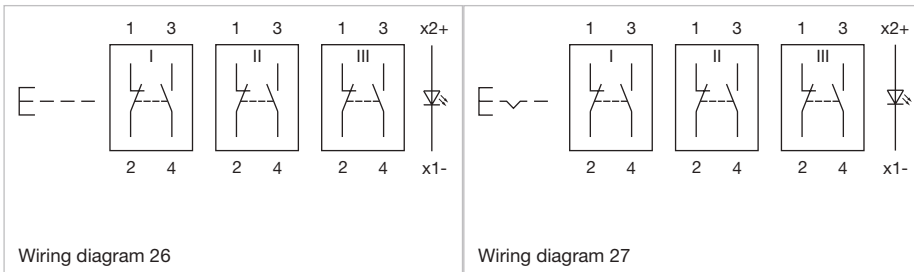
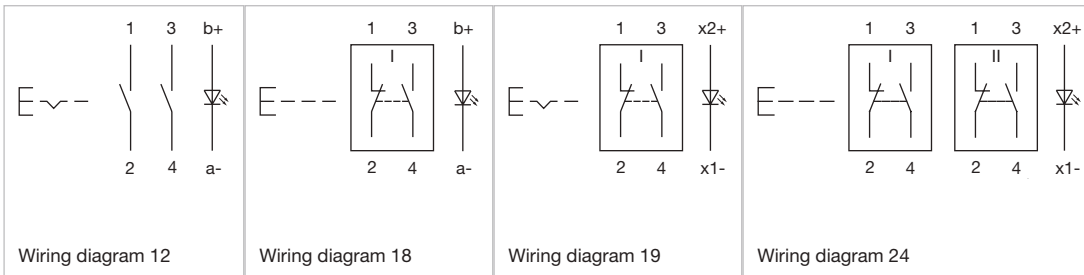
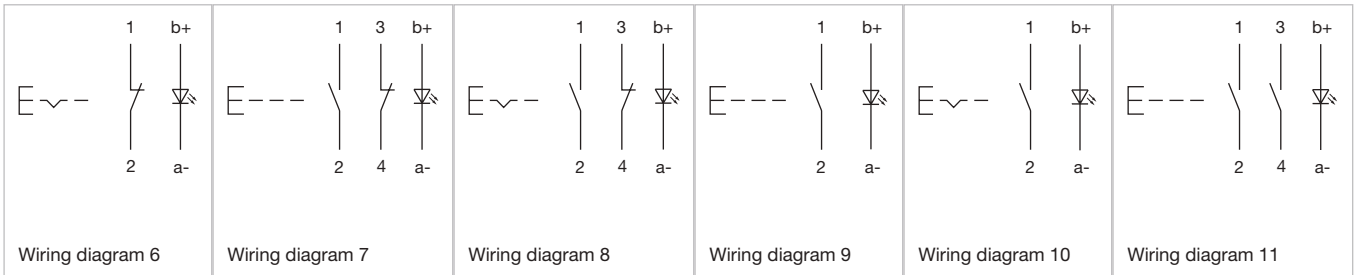


Actuator, Front dimension 30 mm x 24 mm

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

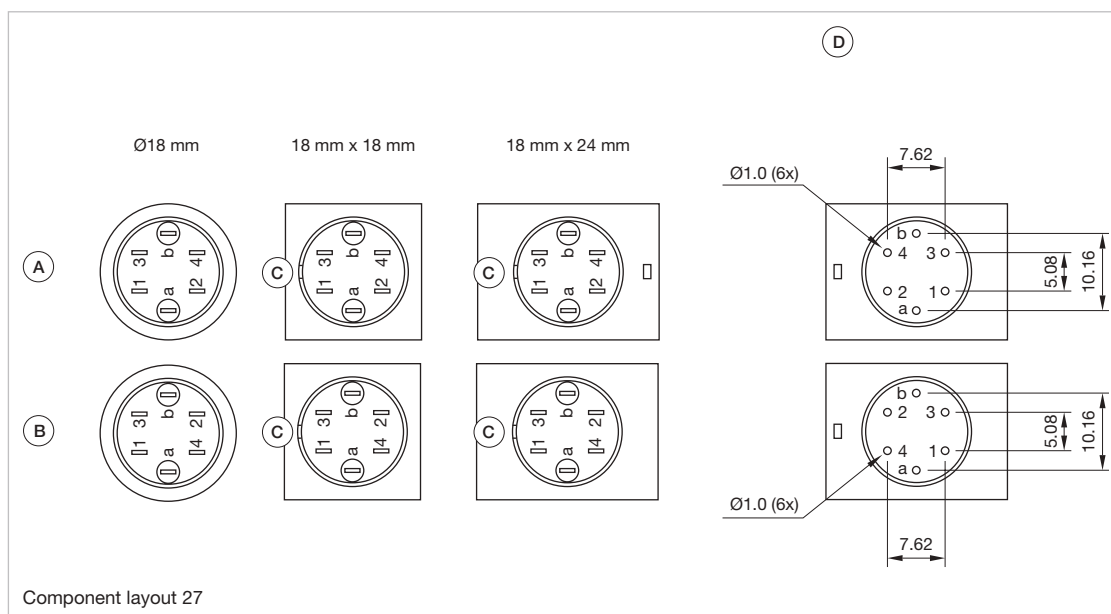
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



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

Illuminated pushbutton round, IP65

Equipment consisting of (schematic overview)



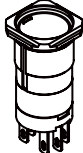
Lens

Page 653

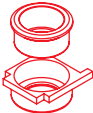


LED

Page 660



Actuator



Front bezel set

Page 658



Anti-twist ring

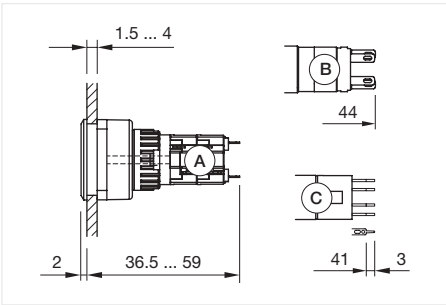
Page 659



Fixing nut

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

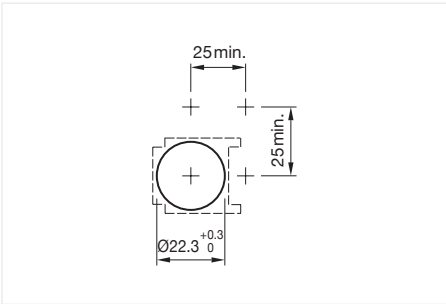
To obtain a complete unit, please select the red components from the pages shown.



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]



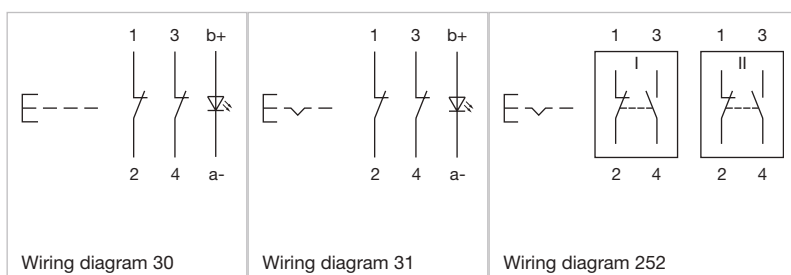
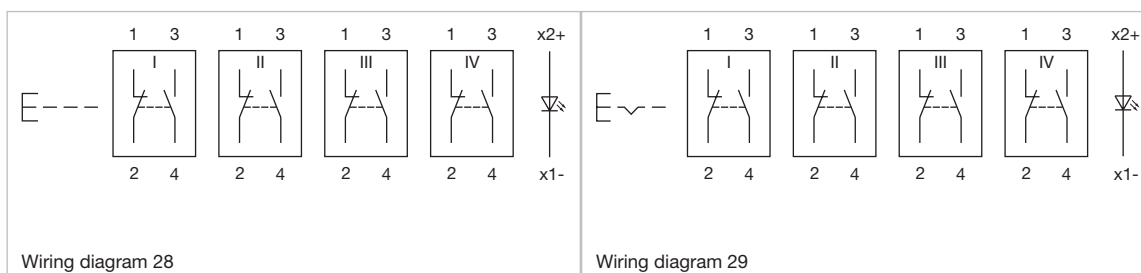
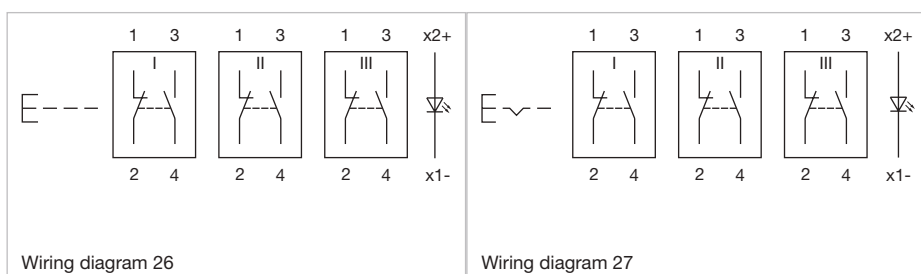
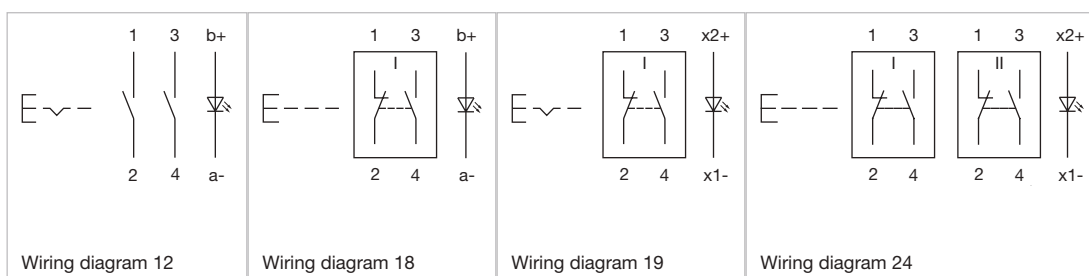
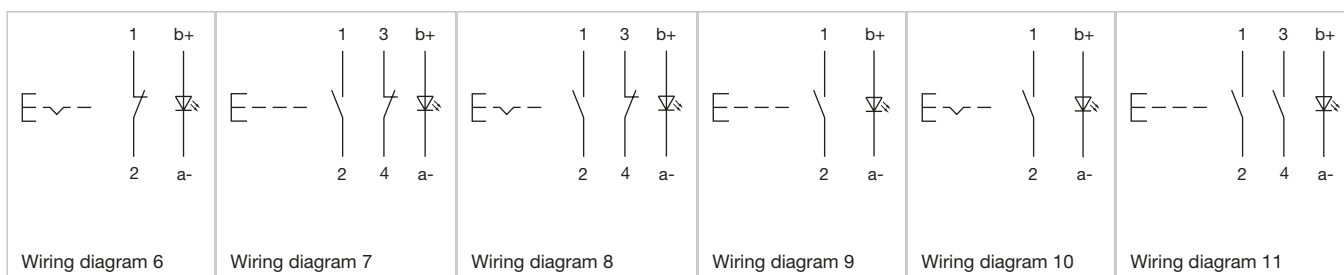
Actuator, Front dimension Ø 25 mm

Switching action	Contacts	Terminal	Switching system	Part No.	Wiring diagram	Com- ponent 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

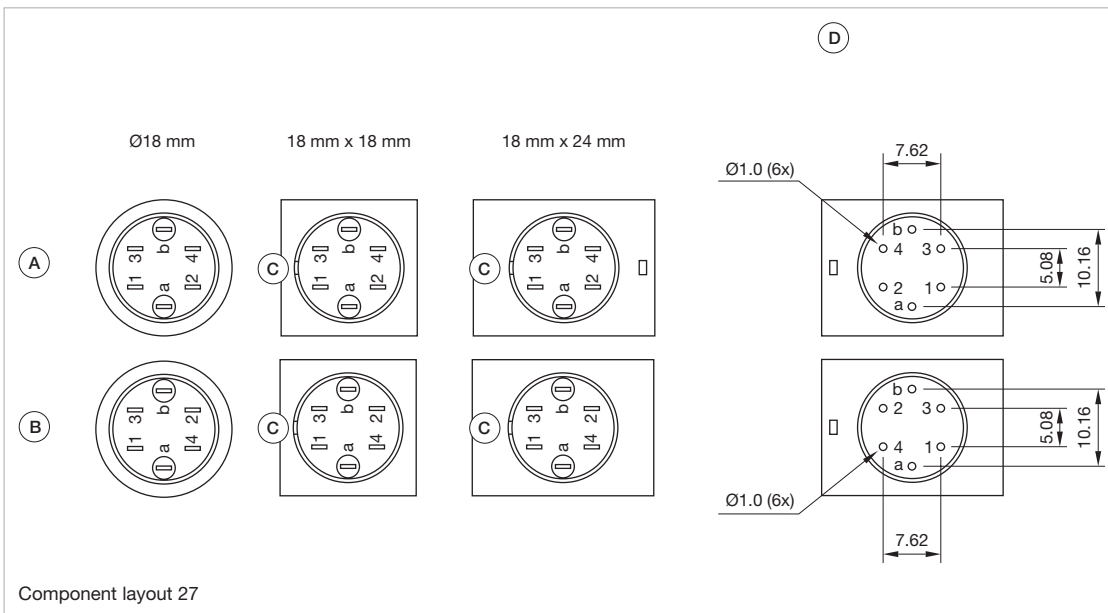
Contacts: NC = Normally closed, NO = Normally open

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

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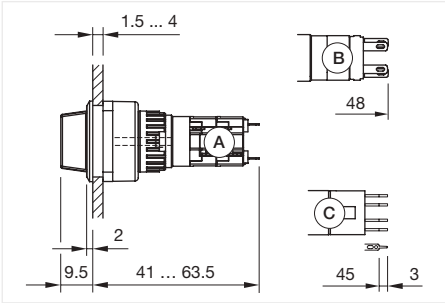
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51 Flush design

Selector switch 2 positions square, IP65



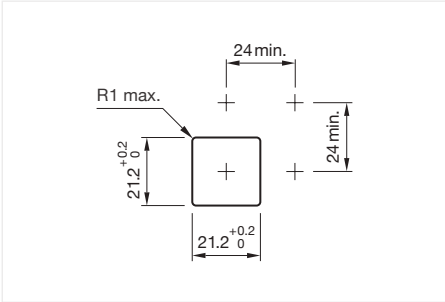
Product can differ from the current configuration.



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	

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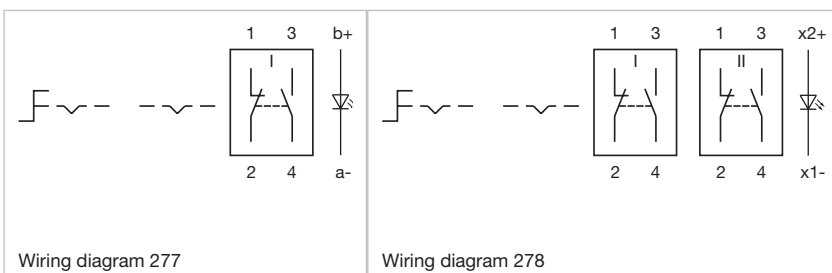
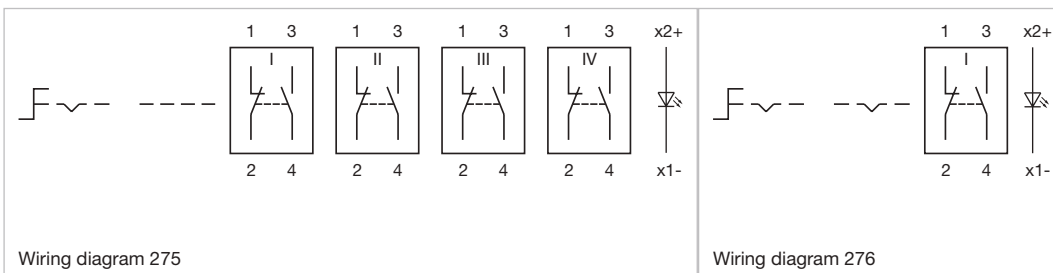
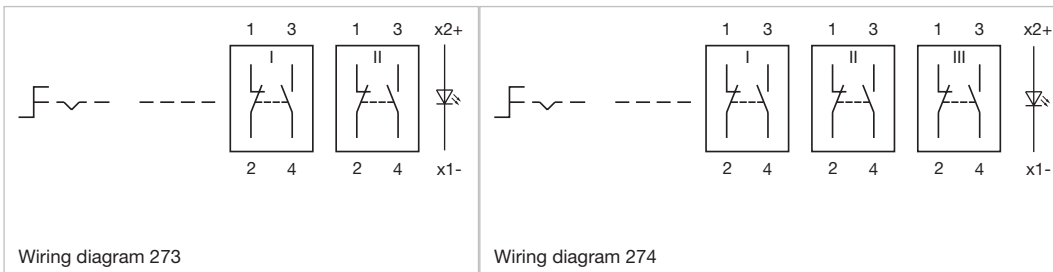
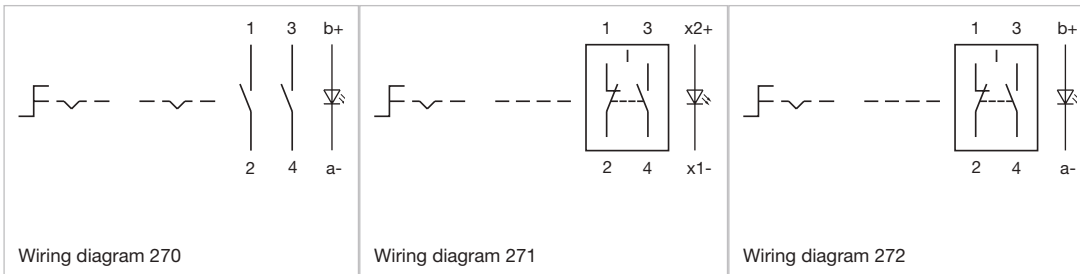
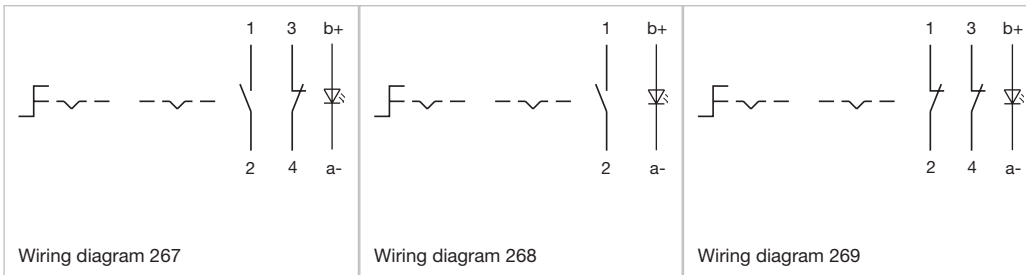
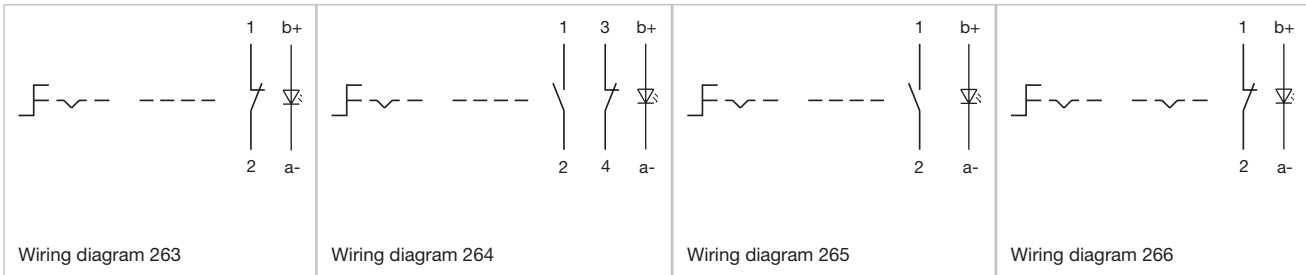


Actuator, Front dimension 24 mm x 24 mm

Switching action	Terminal	Switching system	Contacts	Switching angle	Part No.	Wiring diagram	Com- ponent 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

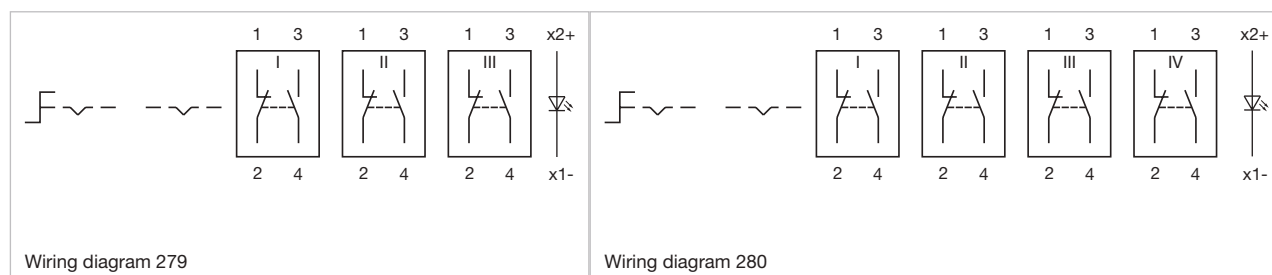
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

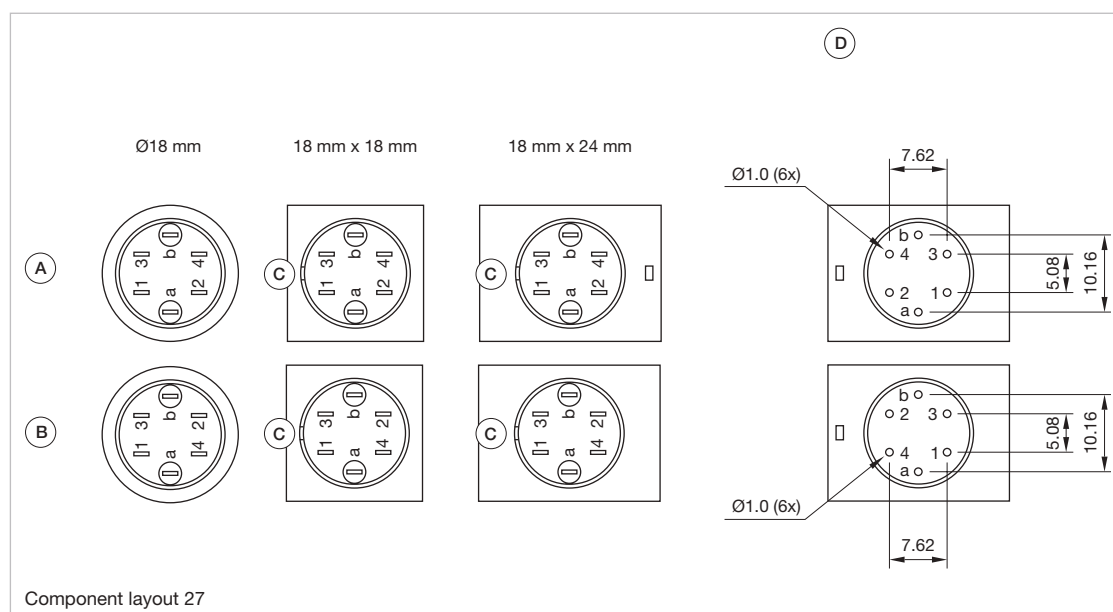


51 Flush design

Wiring diagrams



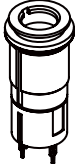
Component layouts



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

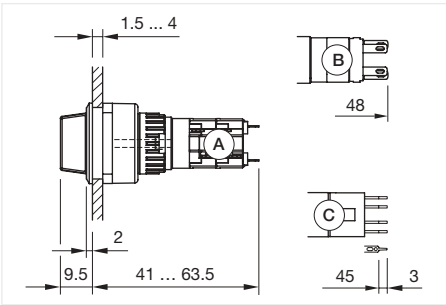
Selector switch 2 positions round, IP65

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.



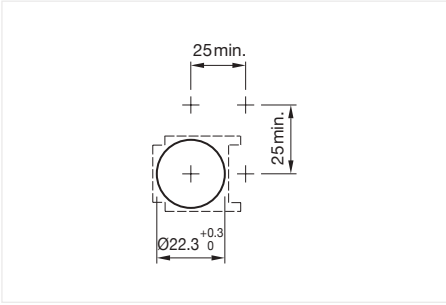
Dimensions [mm]
A = Solder terminal
B = Solder terminal 2.8 mm x 0.5 mm
C = Universal terminal 2.0 mm x 0.5 mm



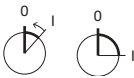
Product can differ from the current configuration.

General information

- Illuminative



Mounting cut-outs [mm]



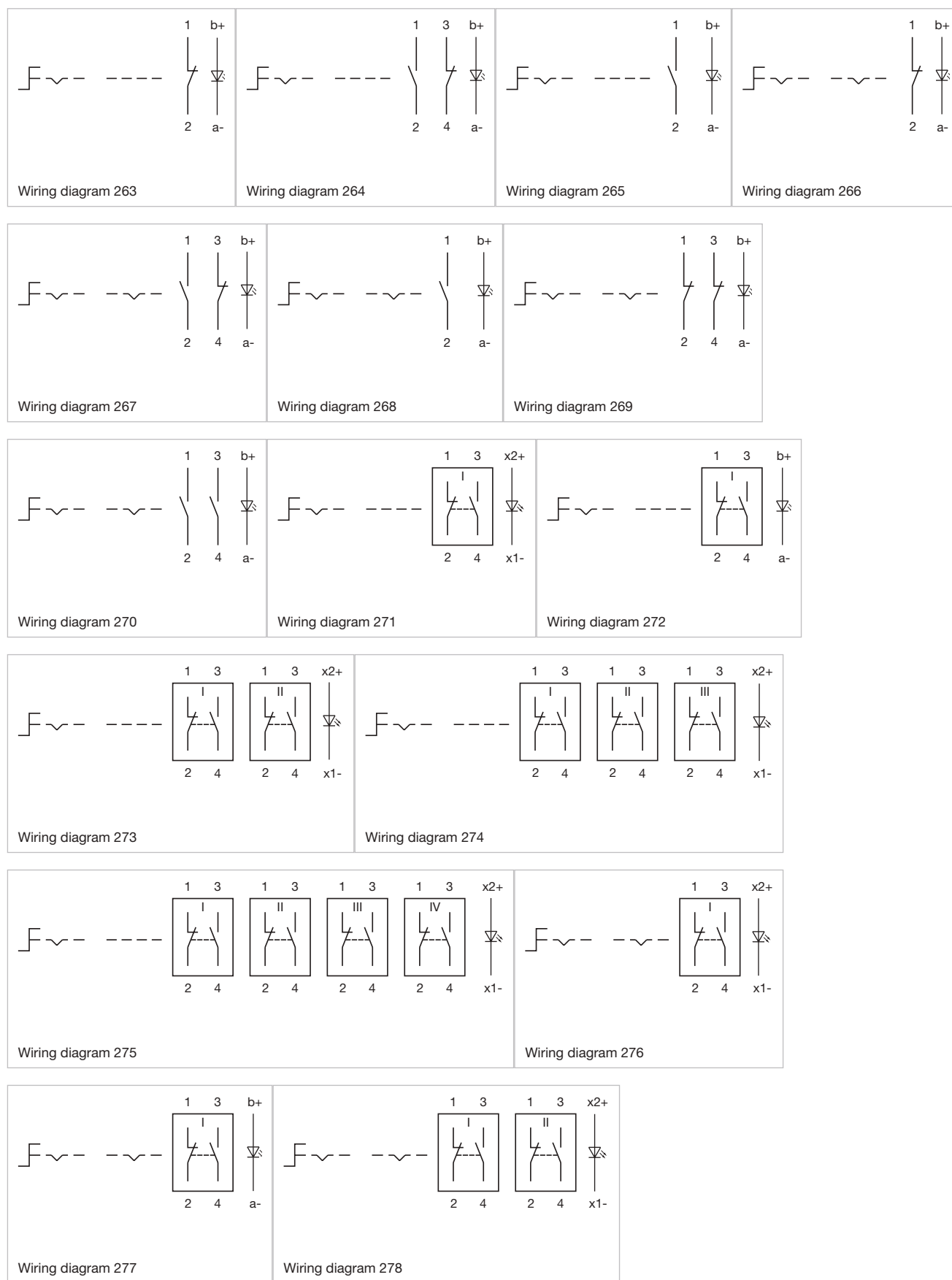
Actuator, Front dimension Ø 25 mm

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

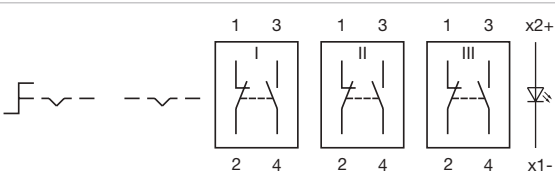
Contacts: NC = Normally closed, NO = Normally open

51 Flush design

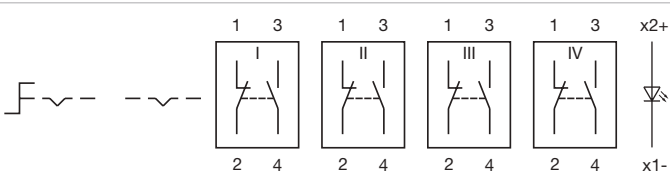
Wiring diagrams



Wiring diagrams

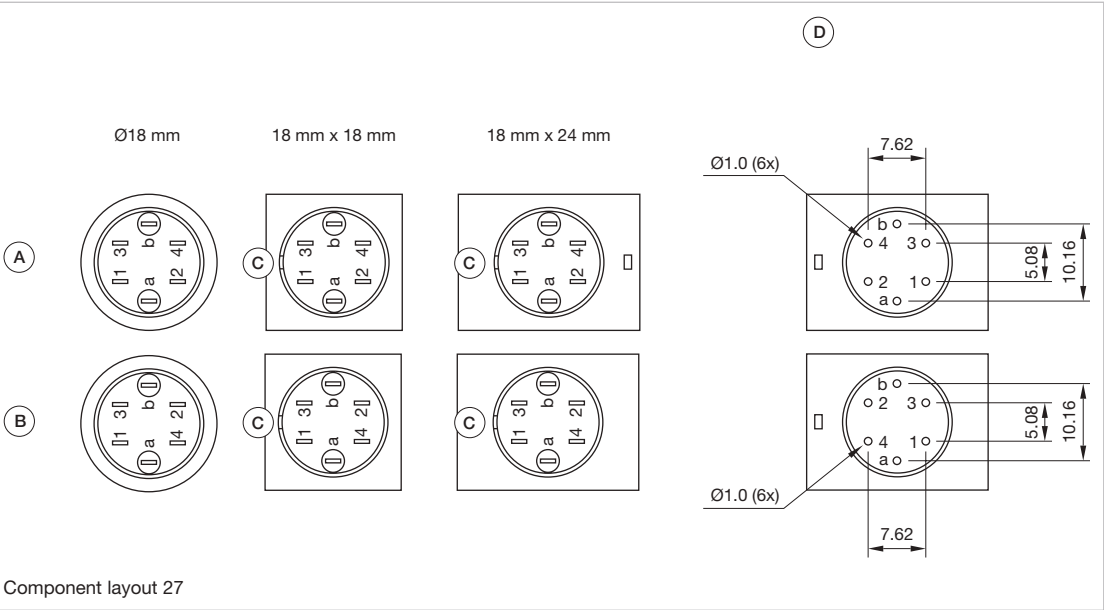


Wiring diagram 279



Wiring diagram 280

Component layouts



Component layout 27

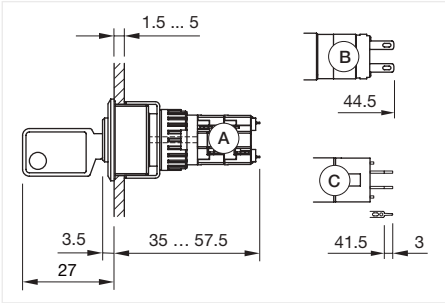
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

51 Flush design

Keylock switch 2 positions square, IP65

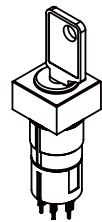


Product can differ from the current configuration.



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



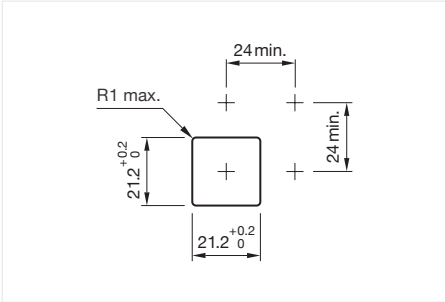
Fixing nut

Page 658

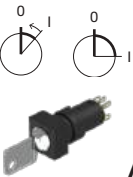
Each Part Number listed below includes all the black components shown in the 3D-drawing.
To obtain a complete unit, please select the red components from the pages shown.

General information

- Standard lock: DOM 311



Mounting cut-outs [mm]



Actuator, Front dimension 24 mm x 24 mm

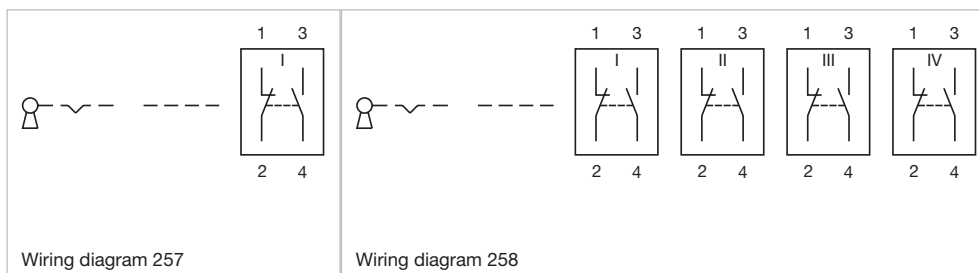
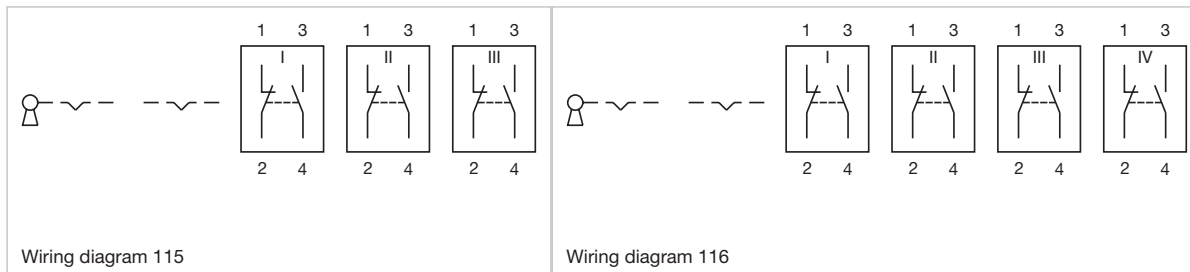
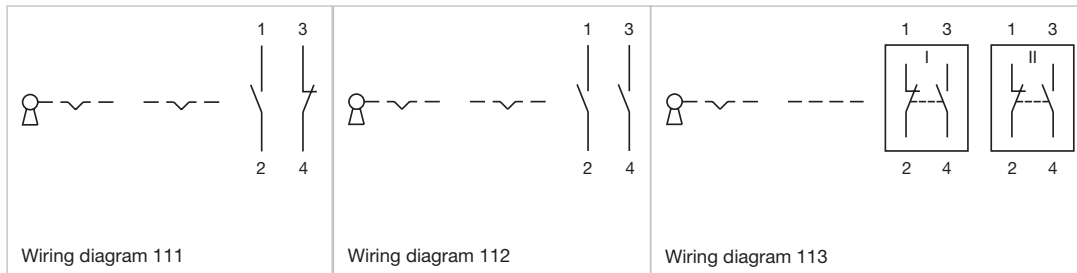
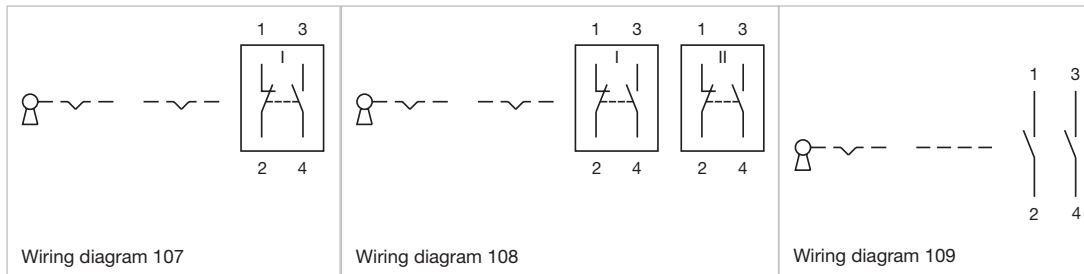
Switching action	Contacts	Terminal	Switching system	Switching angle	Part No.	Wiring diagram	Component Layout
Rest (a) - Momentary	1 NC / 1 NO	Soldering terminal	Snap-action switching element	42° right	51-145.025D2F	257	
	2 NC / 2 NO	Soldering terminal	Snap-action switching element	42° right	51-146.025D2F	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

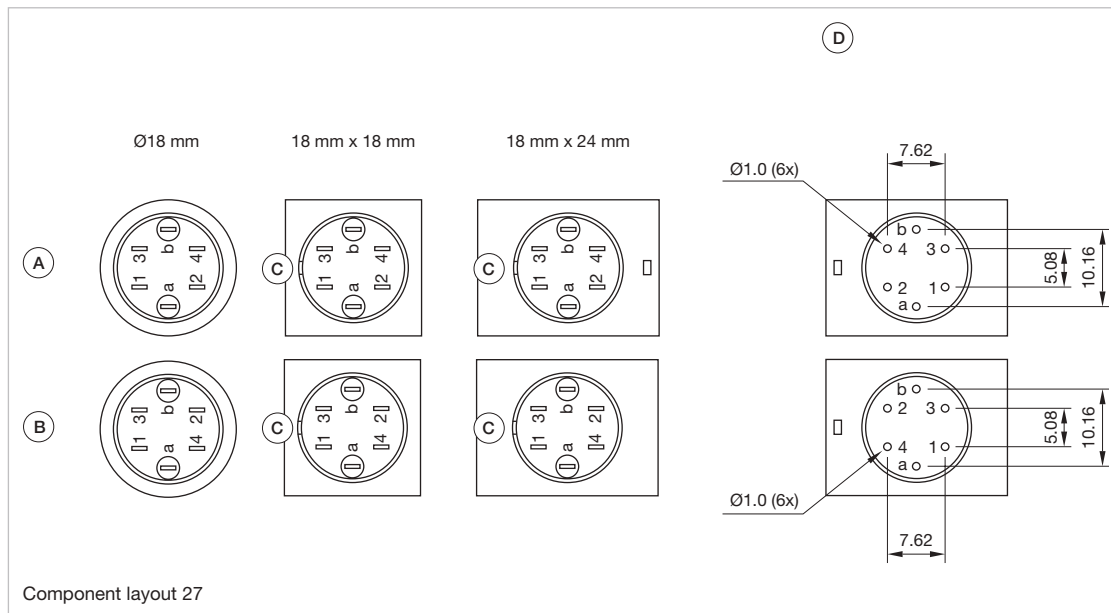
Contacts: NC = Normally closed, NO = Normally open
a = Key remove

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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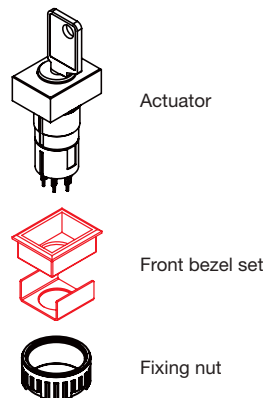
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Keylock switch 2 positions rectangular, IP65

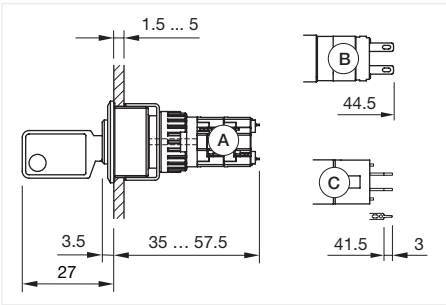
Equipment consisting of (schematic overview)



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



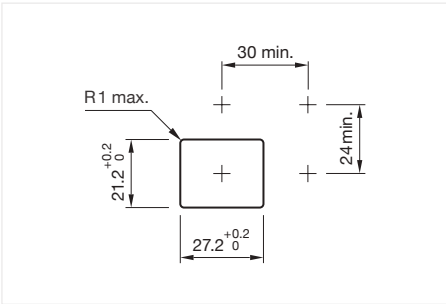
Dimensions [mm]
A = Solder terminal
B = Solder terminal 2.8 mm x 0.5 mm
C = Universal terminal 2.0 mm x 0.5 mm



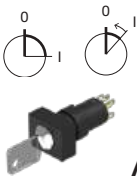
Product can differ from the current configuration.

General information

- Standard lock: DOM 311



Mounting cut-outs [mm]



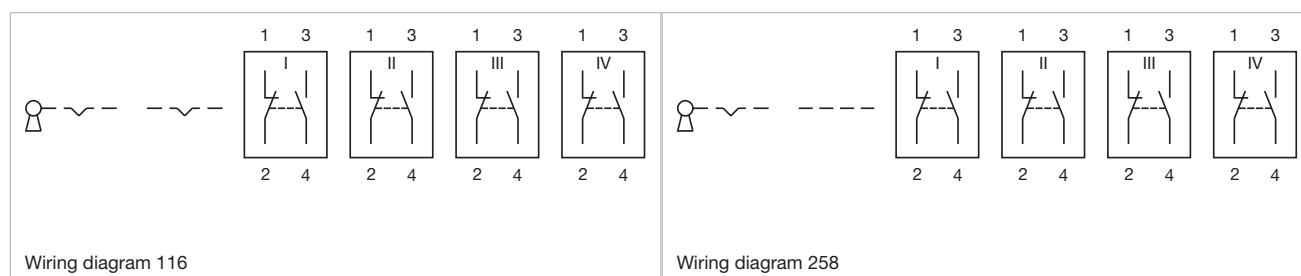
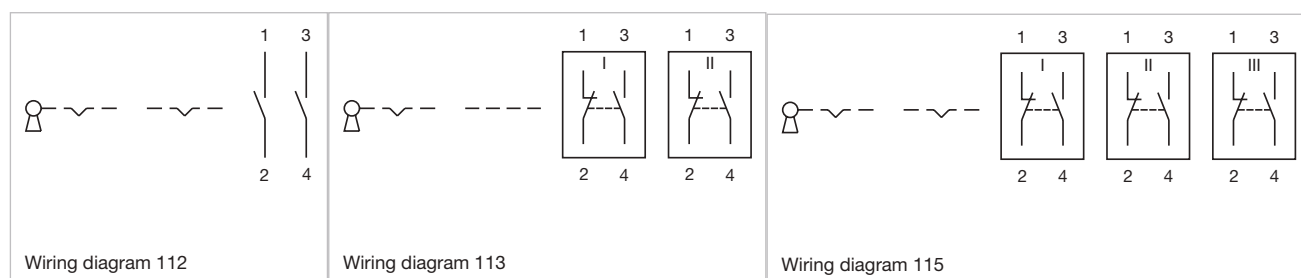
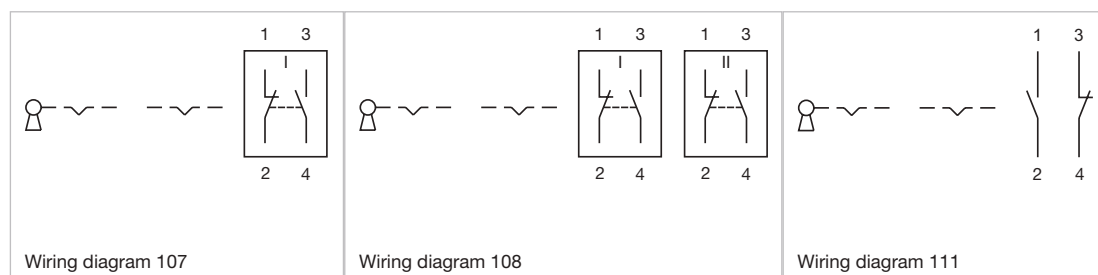
Actuator, Front dimension 30 mm x 24 mm

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	

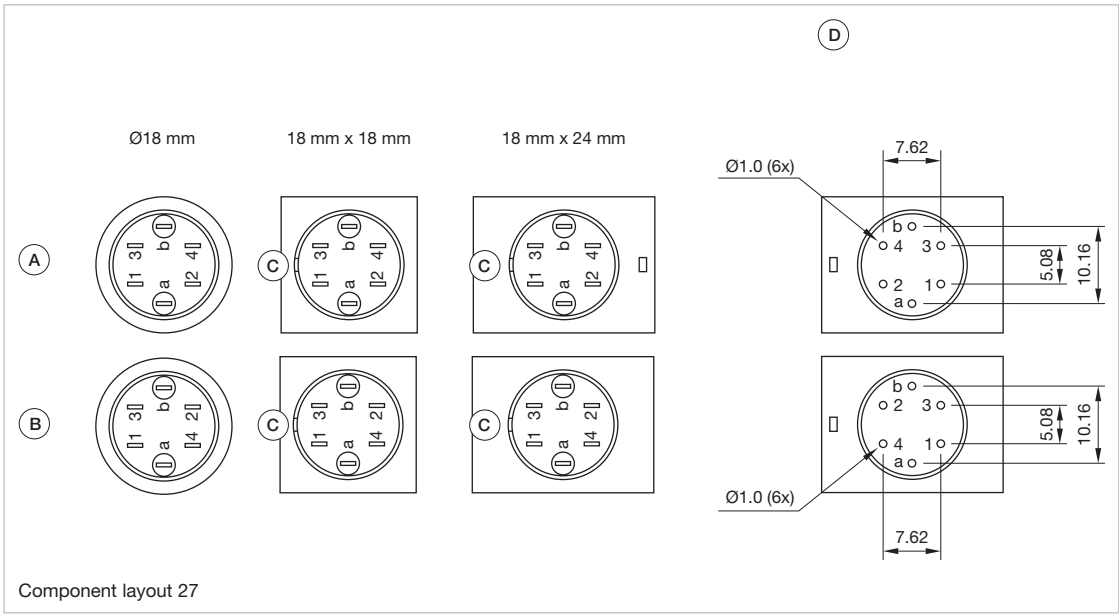
Contacts: NC = Normally closed, NO = Normally open
a = Key remove

51 Flush design

Wiring diagrams



Component layouts



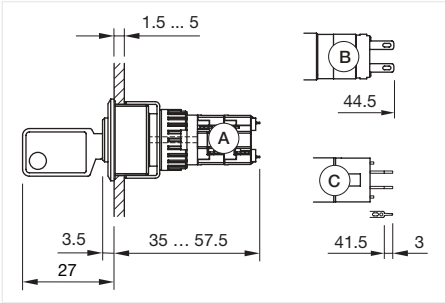
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

51 Flush design

Keylock switch 2 positions round, IP65

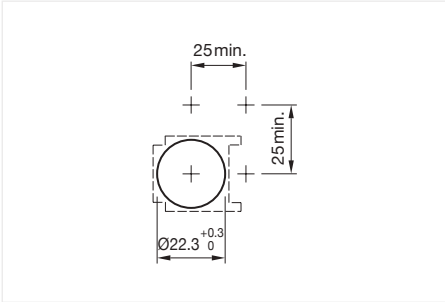


Product can differ from the current configuration.



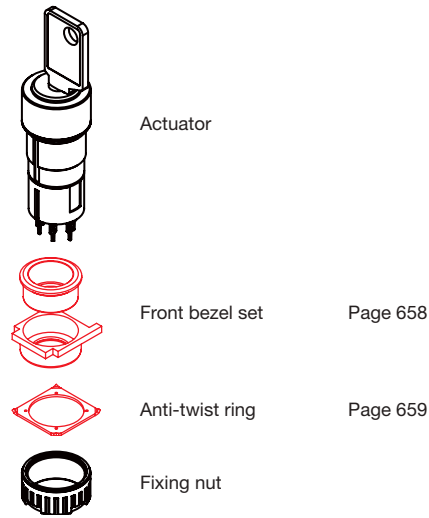
Dimensions [mm]
A = Solder terminal
B = Solder terminal 2.8 mm x 0.5 mm
C = Universal terminal 2.0 mm x 0.5 mm

- General information
- Standard lock: DOM 311

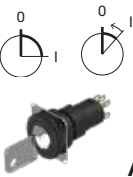


Mounting cut-outs [mm]

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.



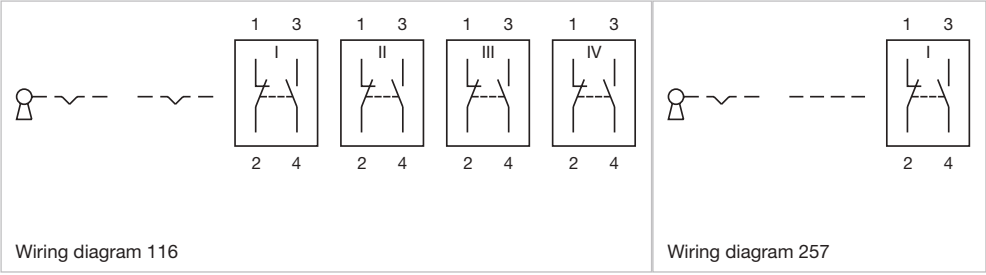
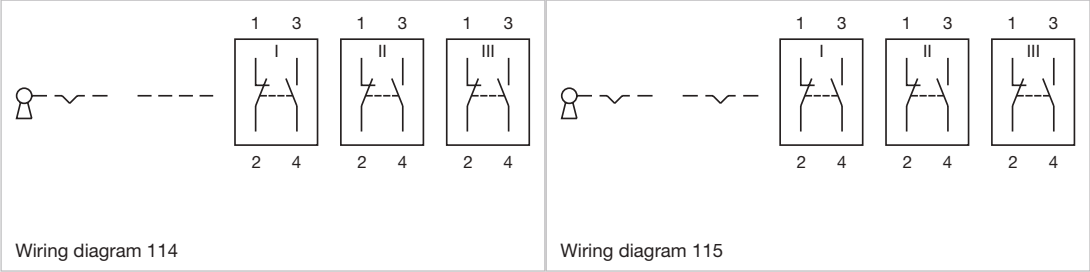
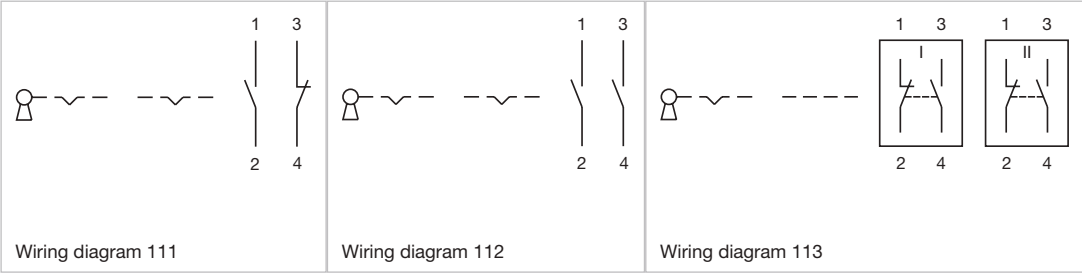
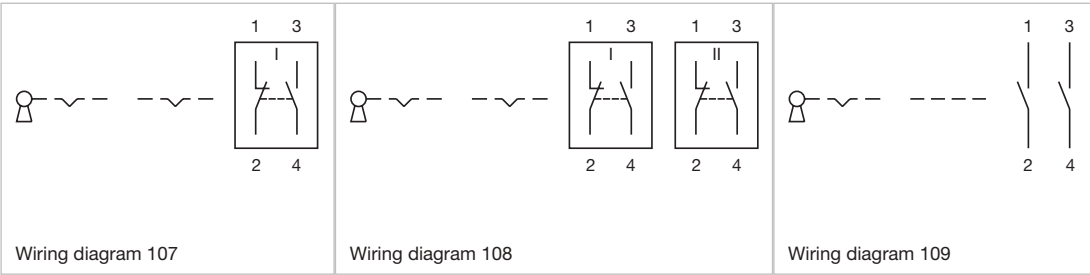
Actuator, Front dimension Ø 25 mm

Switching action	Contacts	Terminal	Switching system	Switching angle	Part No.	Wiring diagram	Com- ponent 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

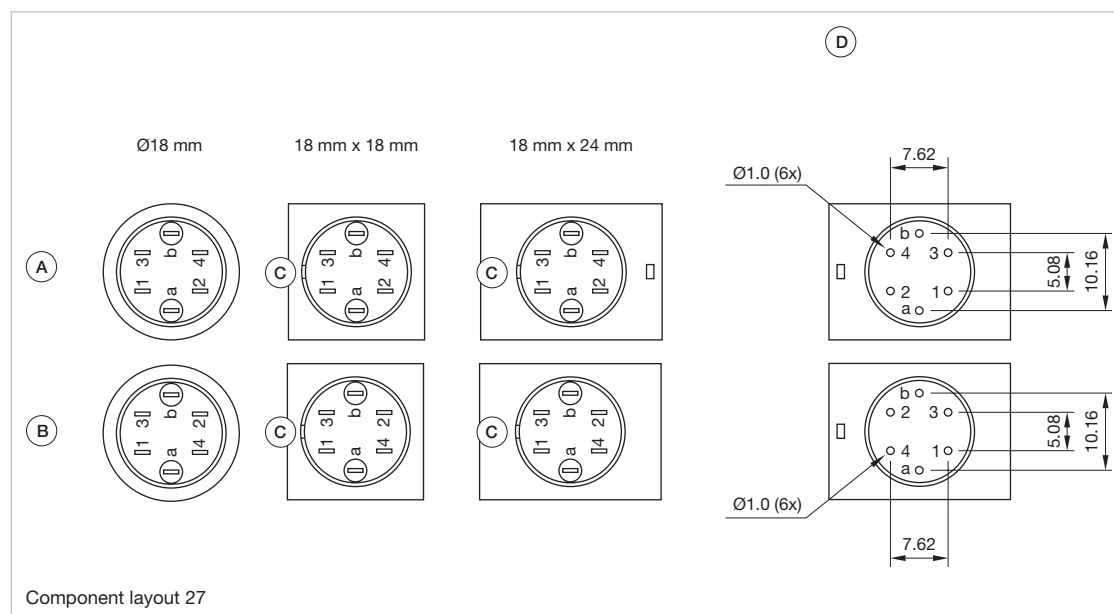
Contacts: NC = Normally closed, NO = Normally open
a = Key remove

Wiring diagrams



51 Flush design

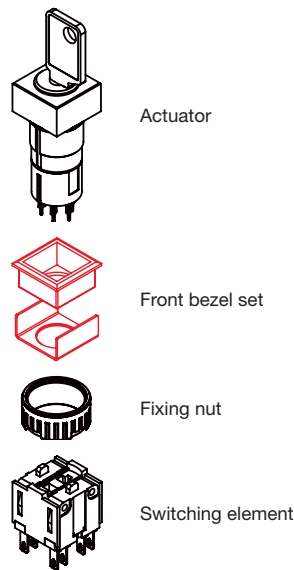
Component layouts



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

Keylock switch 3 positions square, IP65

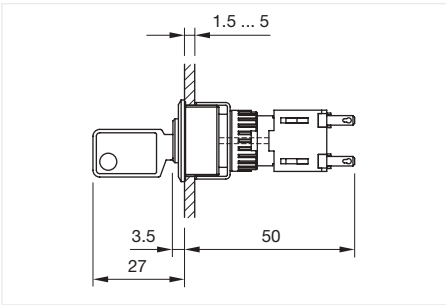
Equipment consisting of (schematic overview)



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



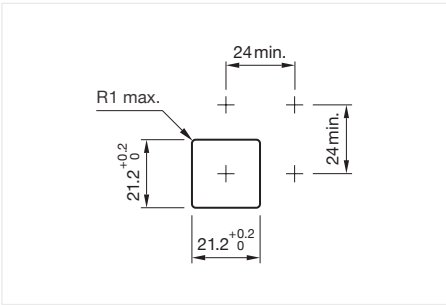
Dimensions [mm]



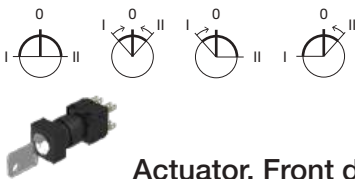
Product can differ from the current configuration.

General information

- Standard lock: DOM 311

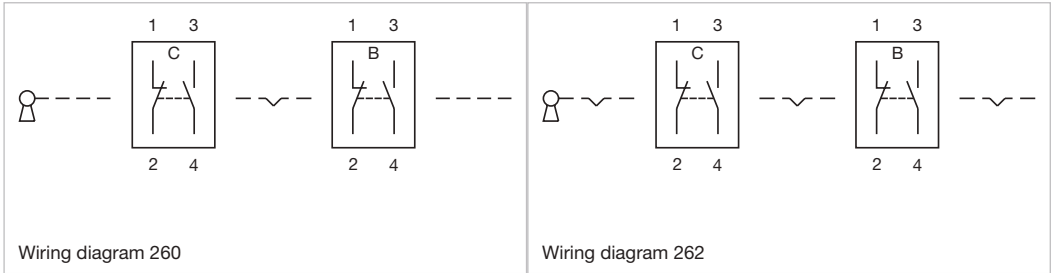


Mounting cut-outs [mm]



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

Wiring diagrams





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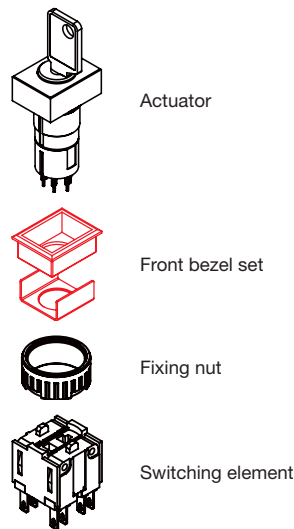
<https://www.youtube.com/user/eaoswitches>

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Keylock switch 3 positions rectangular, IP65

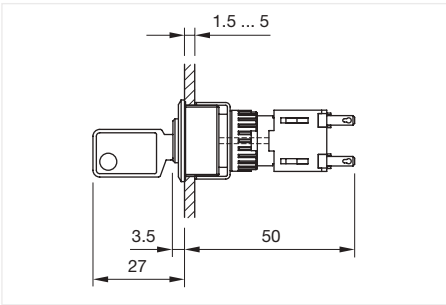
Equipment consisting of (schematic overview)



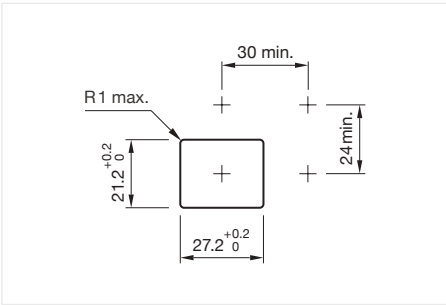
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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

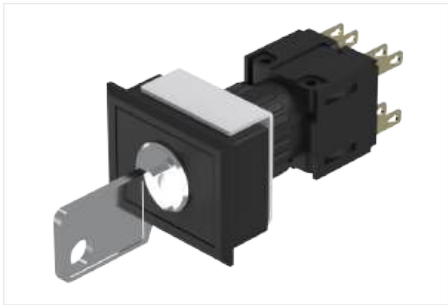
Page 658



Dimensions [mm]



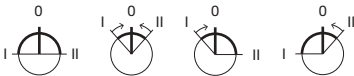
Mounting cut-outs [mm]



Product can differ from the current configuration.

General information

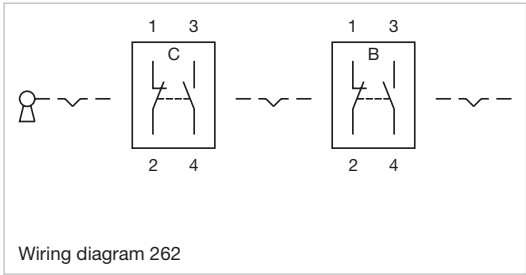
- Standard lock: DOM 311



Actuator, Front dimension 30 mm x 24 mm

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

Wiring diagrams





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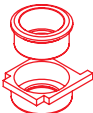
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Keylock switch 3 positions round, IP65

Equipment consisting of (schematic overview)



Actuator



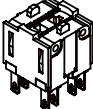
Front bezel set



Anti-twist ring



Fixing nut



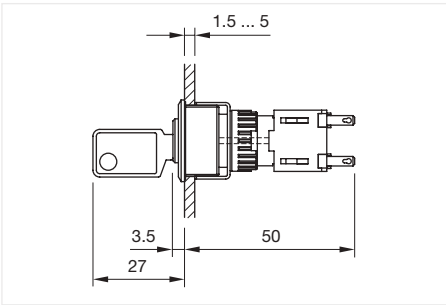
Switching element

Page 658

Page 659

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

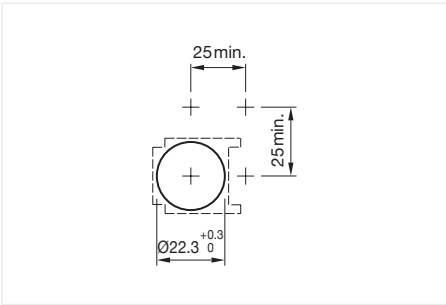
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]



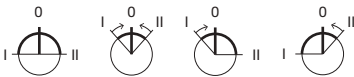
Product can differ from the current configuration.



Mounting cut-outs [mm]

General information

- Standard lock: DOM 311



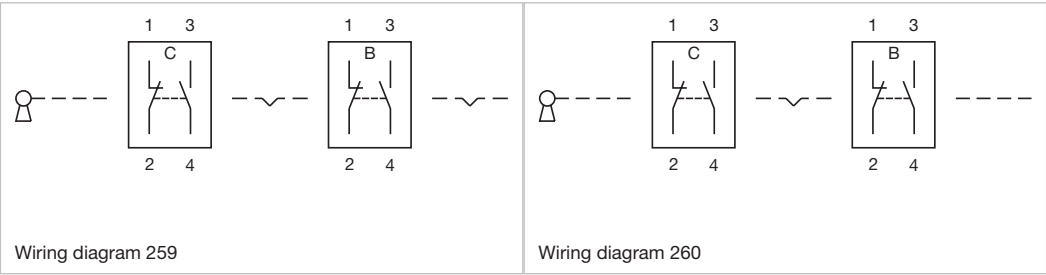
Actuator, Front dimension Ø 25 mm

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

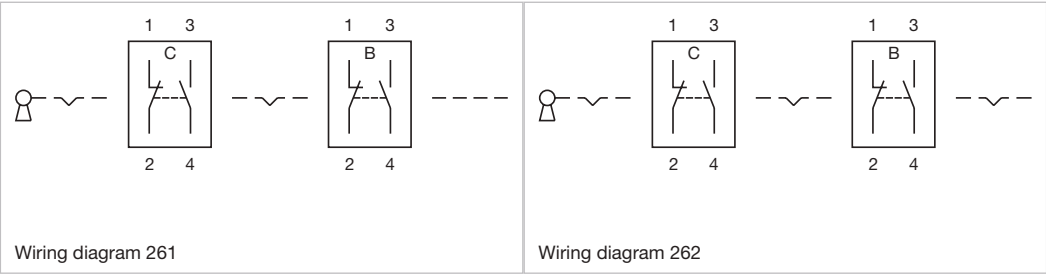
Contacts: NC = Normally closed, NO = Normally open

a = Key remove

Wiring diagrams

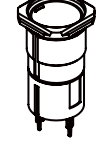


Wiring diagrams



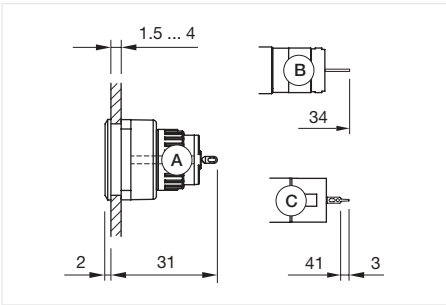
Indicator square, IP65

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.

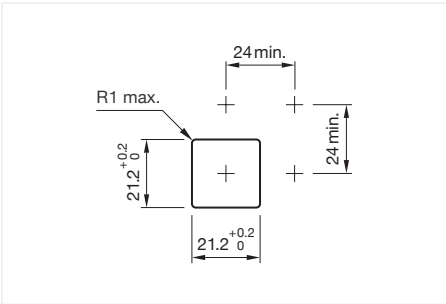
To obtain a complete unit, please select the red components from the pages shown.



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.



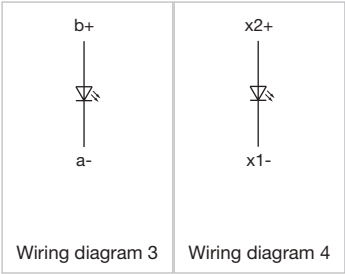
Mounting cut-outs [mm]



Actuator, Front dimension 24 mm x 24 mm

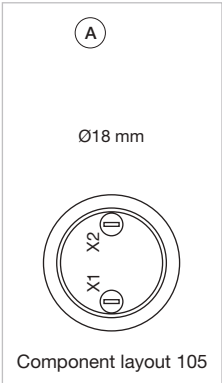
Terminal	Part No.	Wiring diagram	Component Layout
Plug-in terminal	51-050.002F	4	105
Soldering terminal	51-050.005F	4	105
Universal terminal	51-051.006F	3	105

Wiring diagrams



51 Flush design

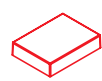
Component layouts



Dimensions [mm]
A = Terminals (rear side)

Indicator rectangular, IP65

Equipment consisting of (schematic overview)



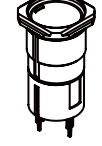
Lens

Page 653



LED

Page 660



Actuator



Front bezel set

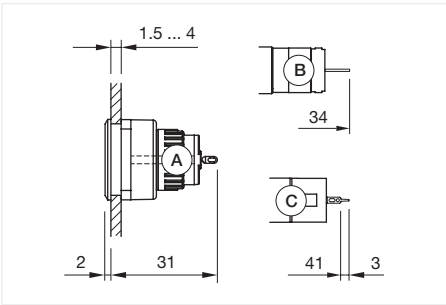
Page 658



Fixing nut

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

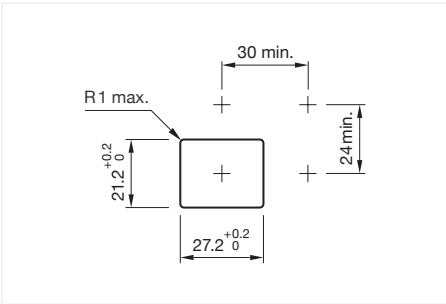
To obtain a complete unit, please select the red components from the pages shown.



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.



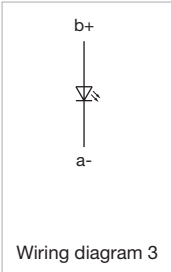
Mounting cut-outs [mm]



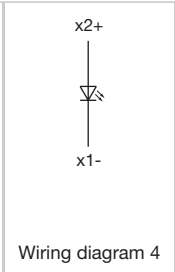
Actuator, Front dimension 30 mm x 24 mm

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



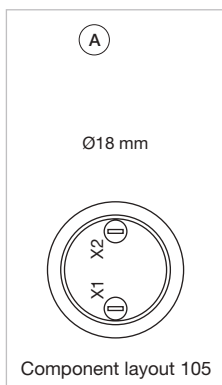
Wiring diagram 3



Wiring diagram 4

51 Flush design

Component layouts



Dimensions [mm]
A = Terminals (rear side)



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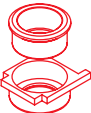
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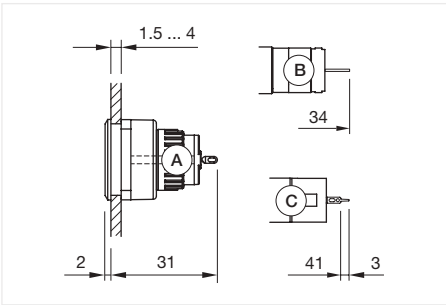
Indicator round, IP65

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.

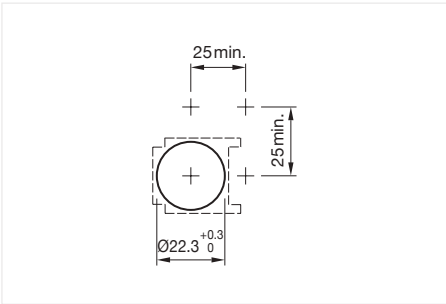
To obtain a complete unit, please select the red components from the pages shown.



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.



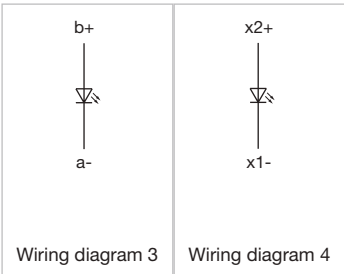
Mounting cut-outs [mm]



Actuator, Front dimension Ø 25 mm

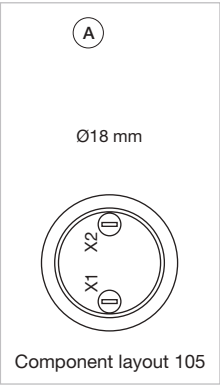
Terminal	Part No.	Wiring diagram	Component Layout
Plug-in terminal	51-050.002F	4	105
Soldering terminal	51-050.005F	4	105
Universal terminal	51-051.006F	3	105

Wiring diagrams



51 Flush design

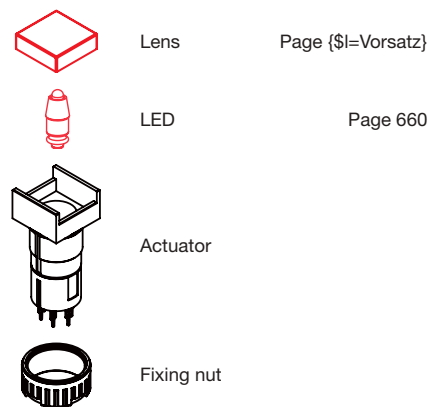
Component layouts



Dimensions [mm]
A = Terminals (rear side)

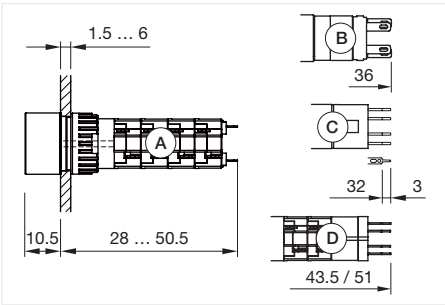
Illuminated pushbutton square, IP65

Equipment consisting of (schematic overview)



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

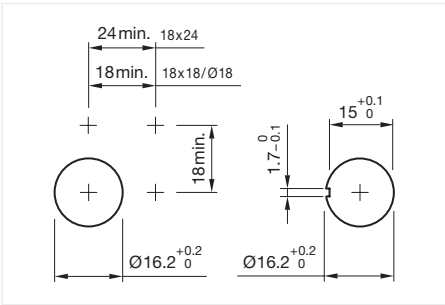
To obtain a complete unit, please select the red components from the pages shown.



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]



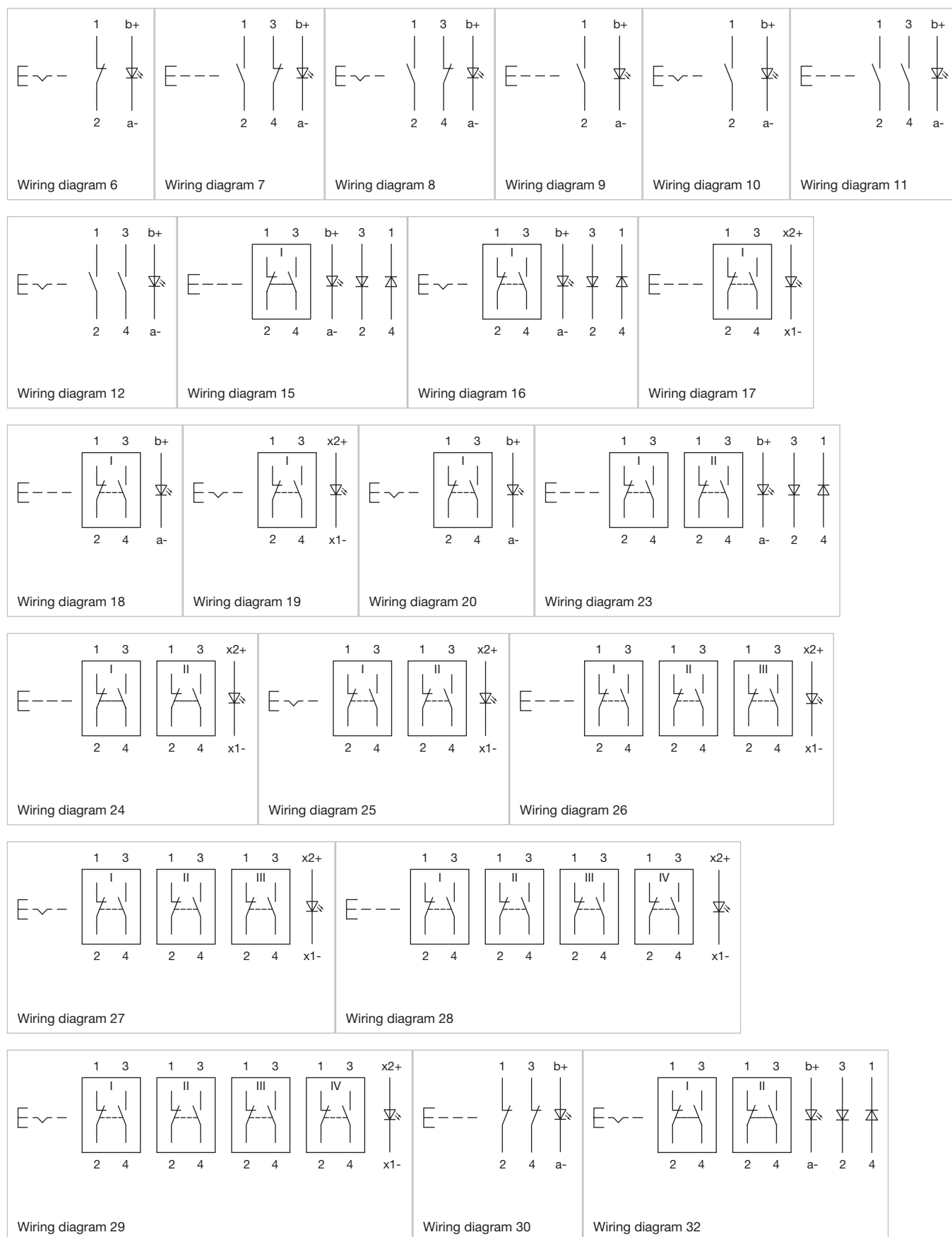
Actuator, Front dimension 18 mm x 18 mm

Switching action	Contacts	Terminal	Switching system	Diode 1N4007	Part No.	Wiring diagram	Com- ponent 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	

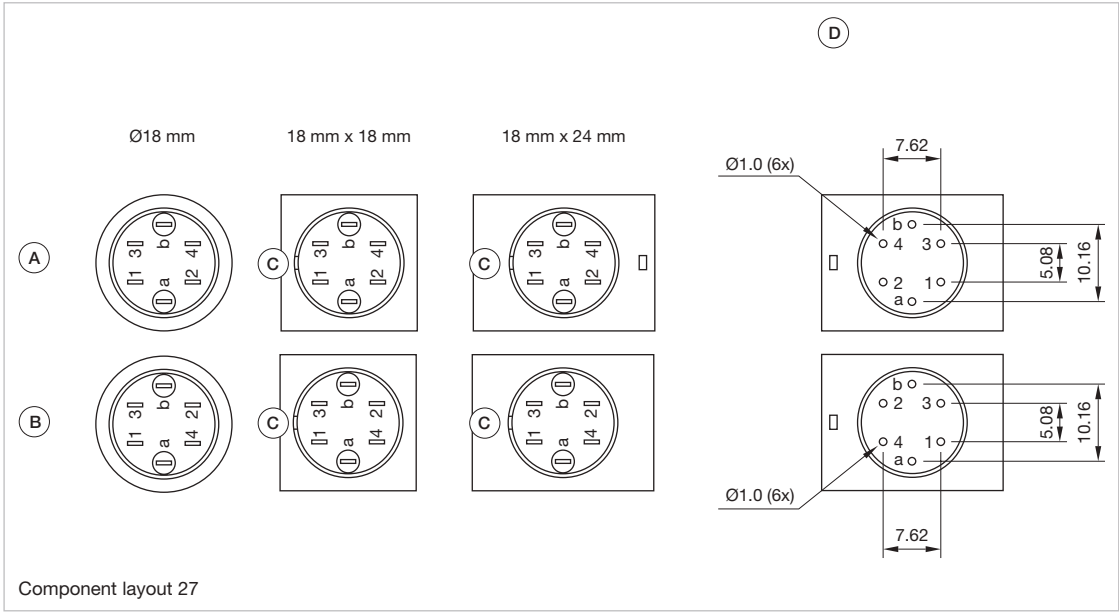
Contacts: NC = Normally closed, NO = Normally open

51 Raised design

Wiring diagrams



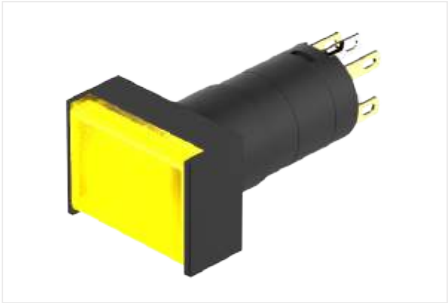
Component layouts



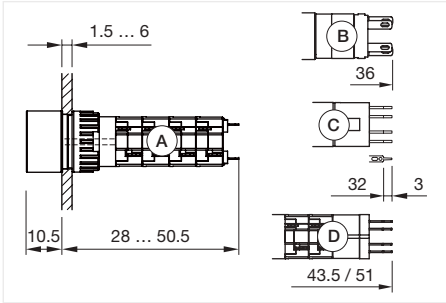
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

51 Raised design

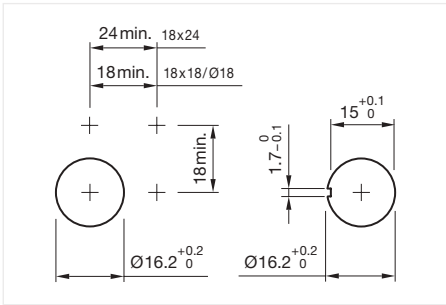
Illuminated pushbutton rectangular, IP65



Product can differ from the current configuration.

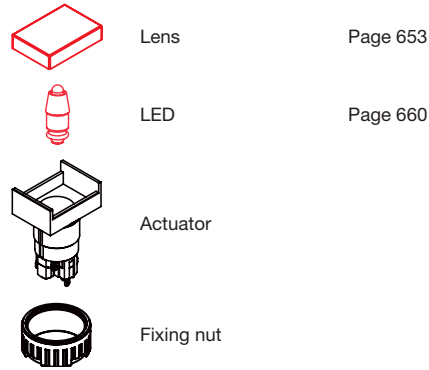


Dimensions [mm]
A = Solder terminal
B = Plug-in terminal 2.8 mm x 0.5 mm
C = Universal terminal 2.0 mm x 0.5 mm
D = Universal-Solder terminal



Mounting cut-outs [mm]

Equipment consisting of (schematic overview)



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.

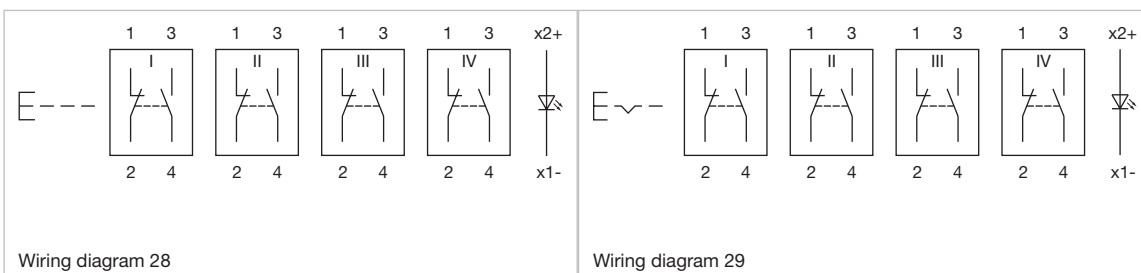
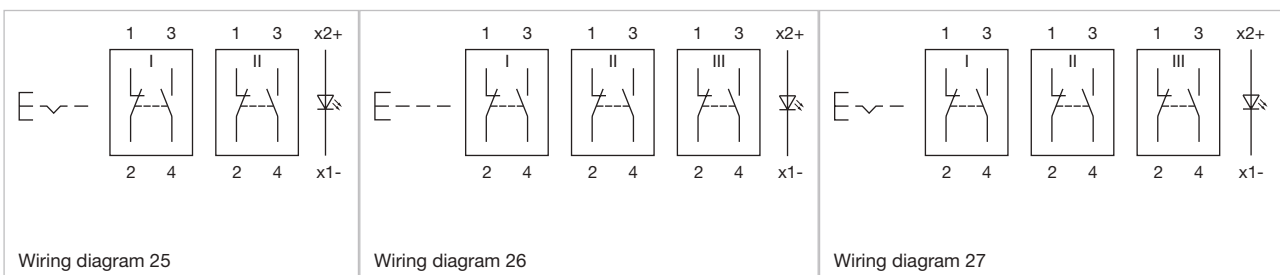
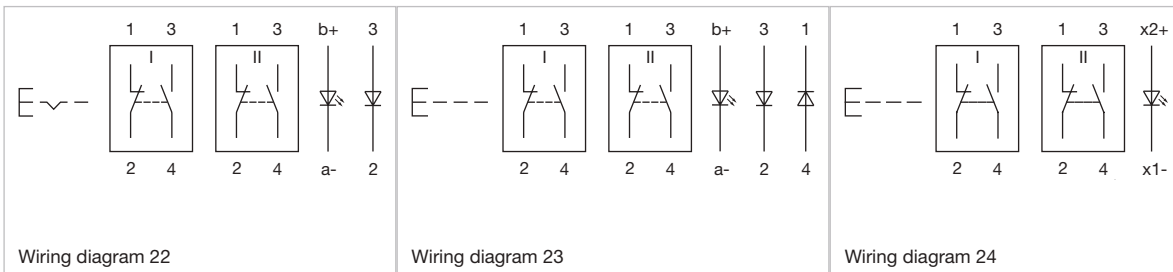
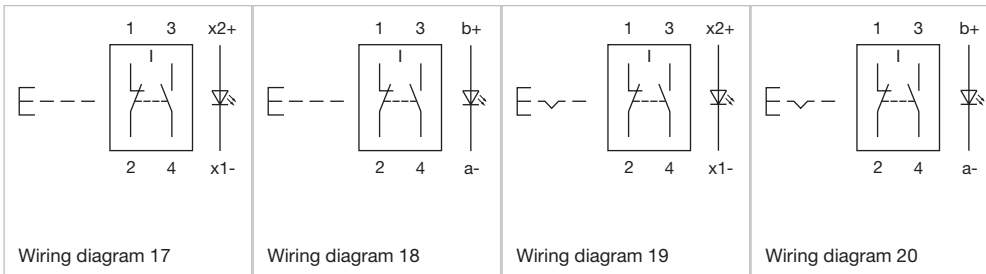
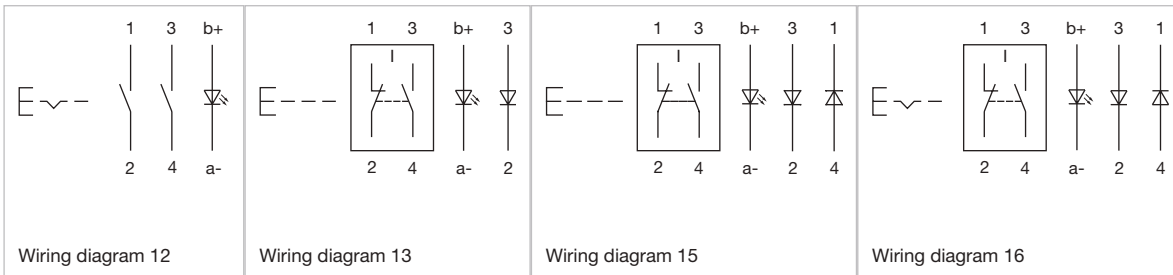
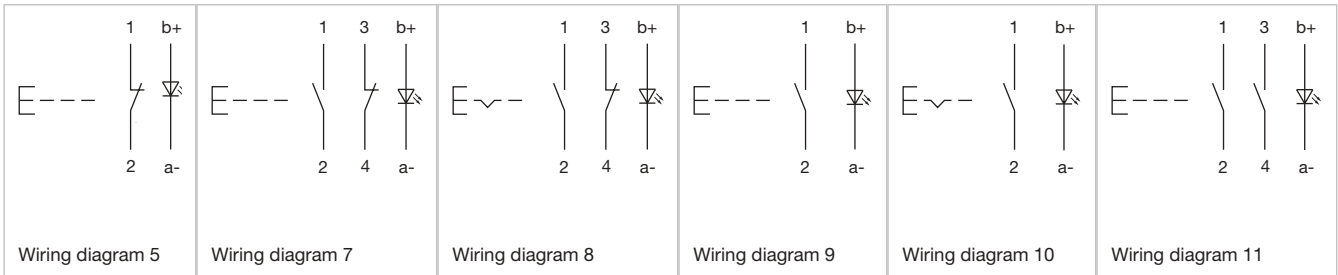


Actuator, Front dimension 24 mm x 18 mm

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	

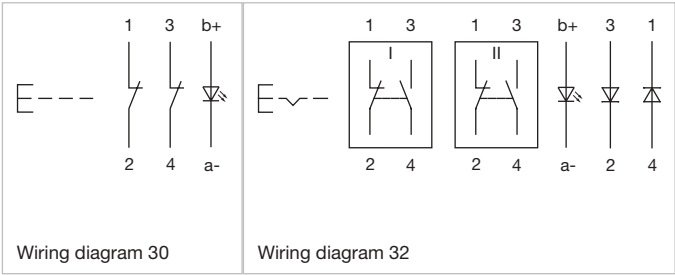
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

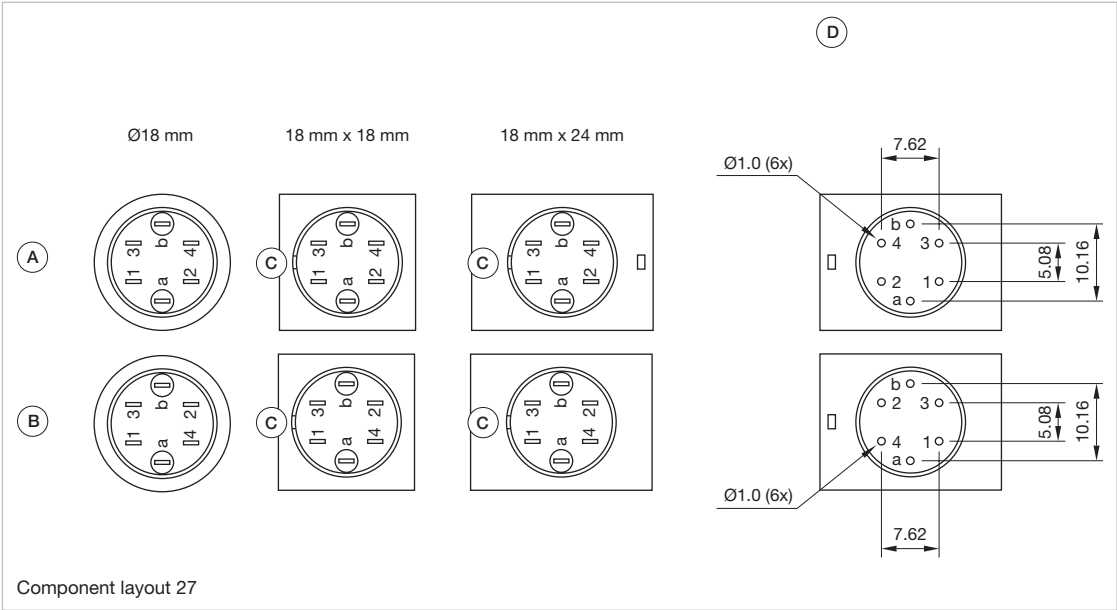


51 Raised design

Wiring diagrams



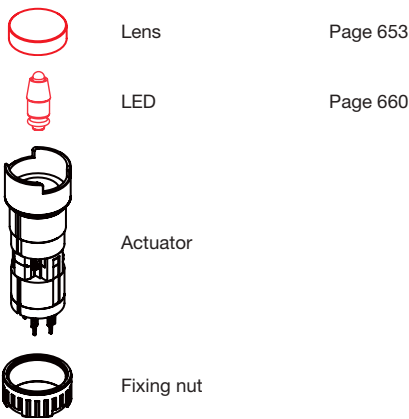
Component layouts



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

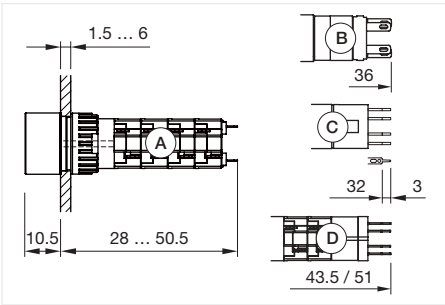
Illuminated pushbutton round, IP65

Equipment consisting of (schematic overview)



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

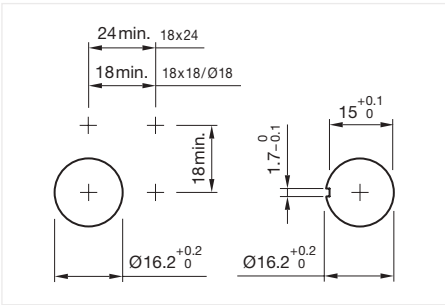
To obtain a complete unit, please select the red components from the pages shown.



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]



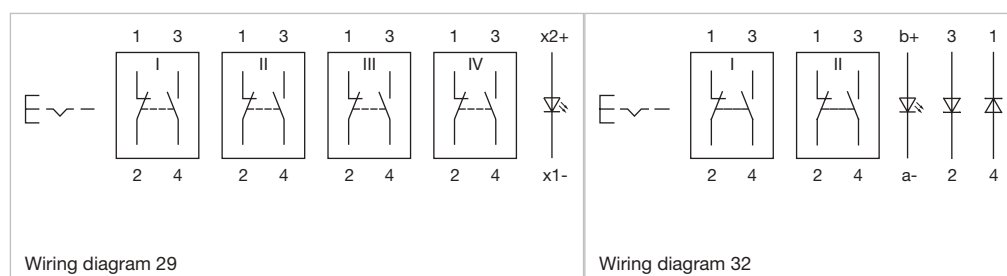
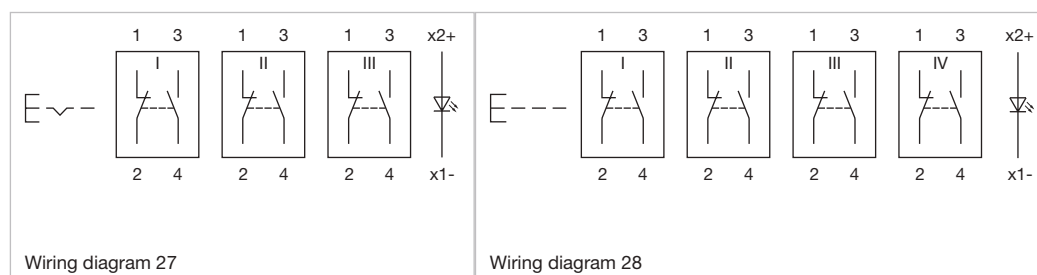
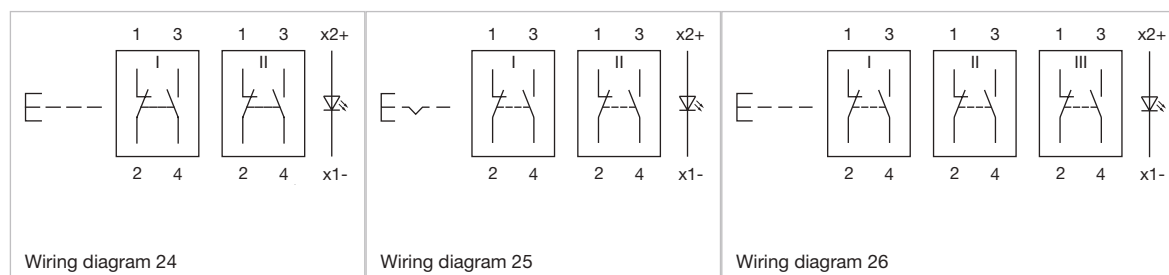
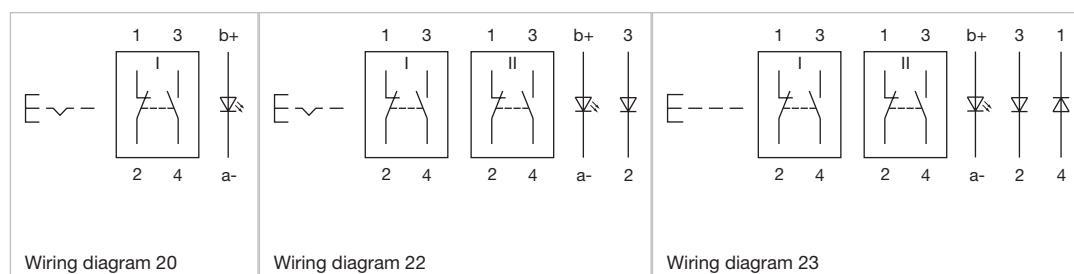
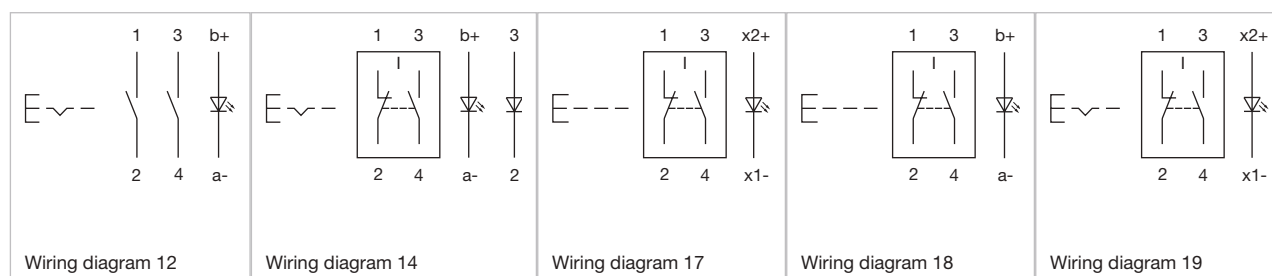
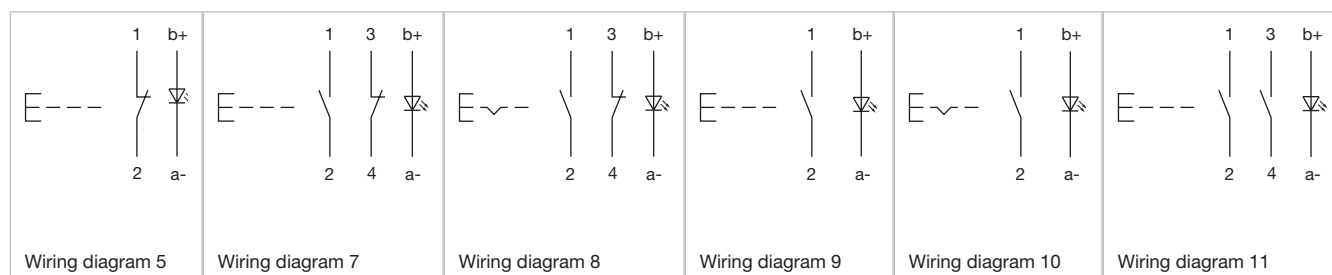
Actuator, Front dimension Ø 18 mm

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	

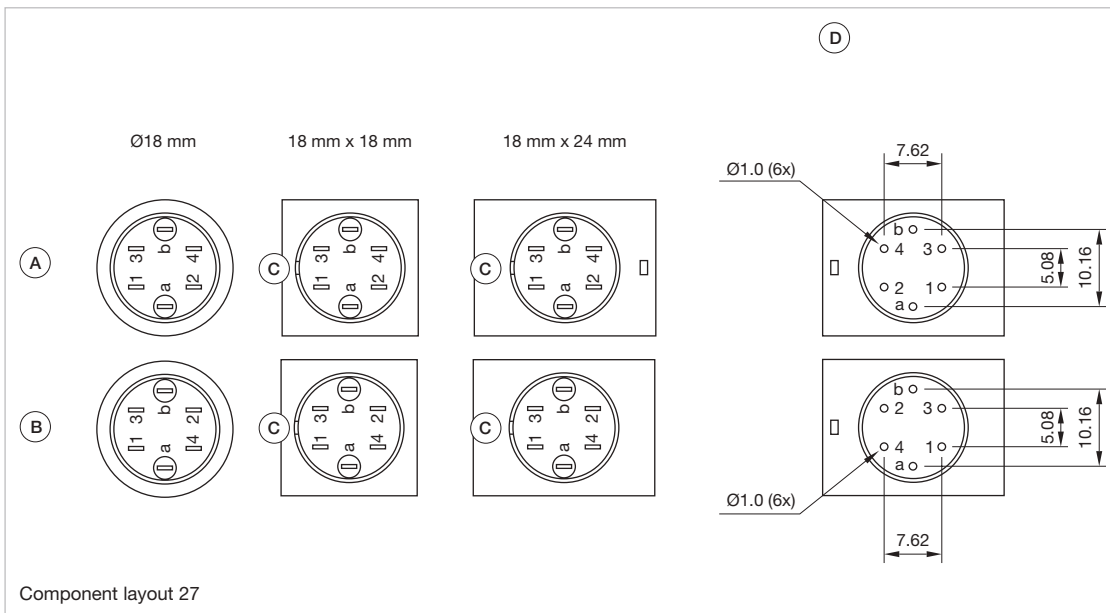
Contacts: NC = Normally closed, NO = Normally open

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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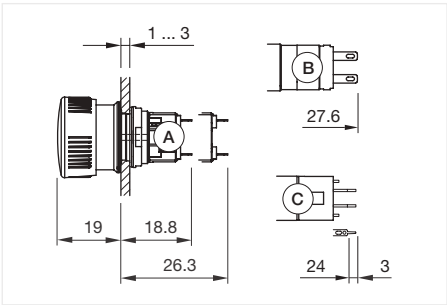
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51 Raised design

Mushroom-head pushbutton, IP65

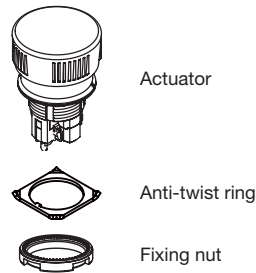


Product can differ from the current configuration.



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

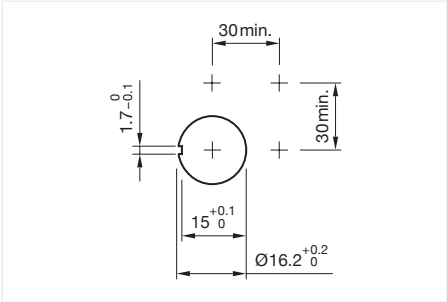
Equipment consisting of (schematic overview)



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]

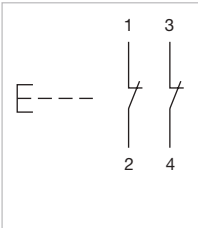
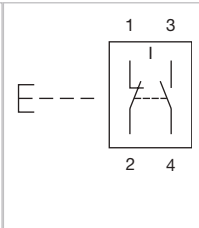
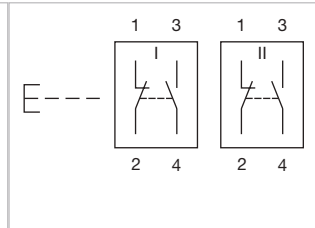
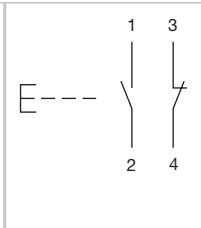


Actuator, Front dimension Ø 24,5 mm

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

 Wiring diagram 243	 Wiring diagram 247	 Wiring diagram 251	 Wiring diagram 406
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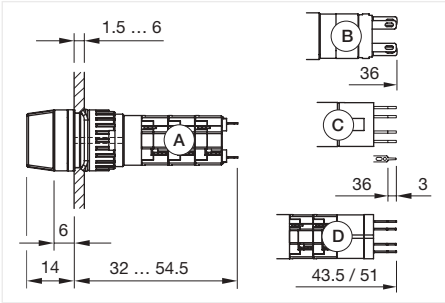
01
02
03
04
09
14
17
18
19
22
31
41
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51
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57
61
70
71
82
84
92
96

51 Raised design

Selector switch 2 positions, round, IP65



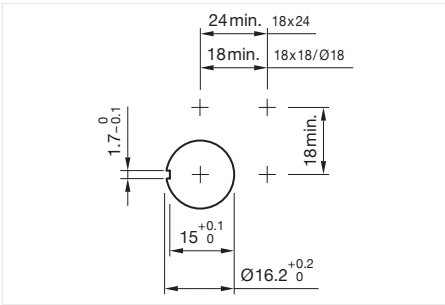
Product can differ from the current configuration.



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

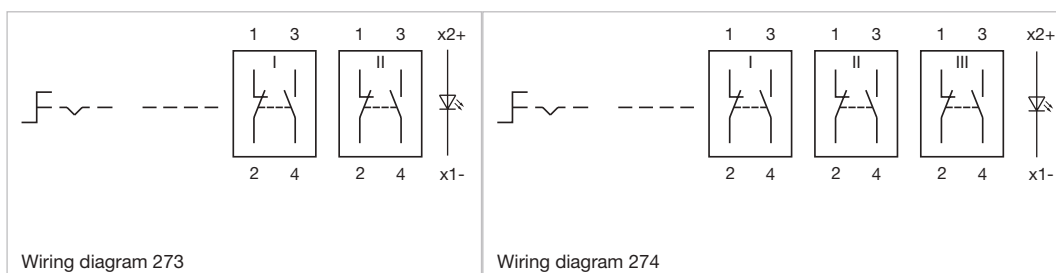
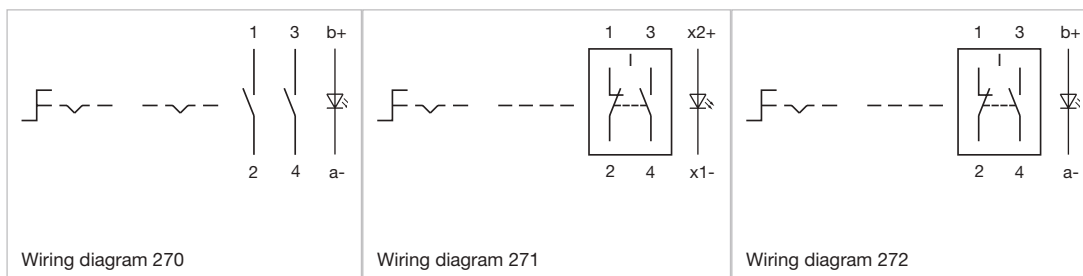
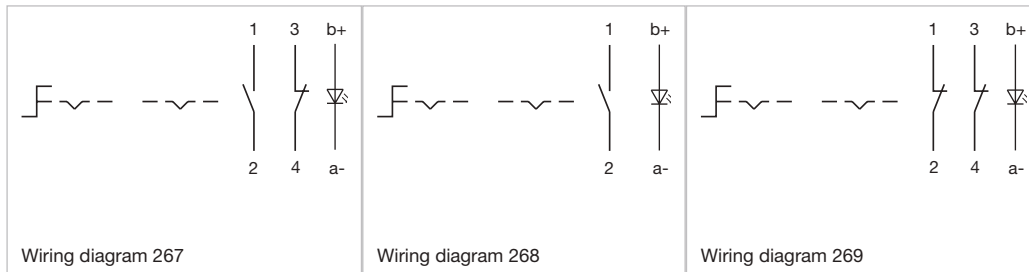
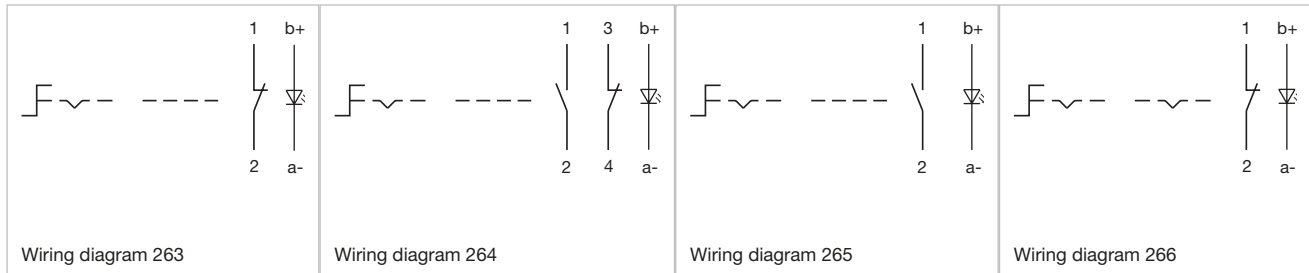
Switching action	Terminal	Switching system	Contacts	Switching angle	Diode 1N4007	Part No.	Wiring diagram	Component Layout
Rest - Momentary	Plug-in terminal	Snap-action switching element	1 NC / 1 NO	42° right		52-131.022	272	
	Soldering terminal	Snap-action switching element	1 NC / 1 NO	42° right		52-131.0252	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
	Universal terminal	Low-level element	1 NO	90° right		52-477.036	268	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	

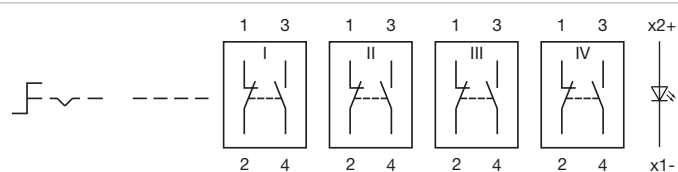
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams

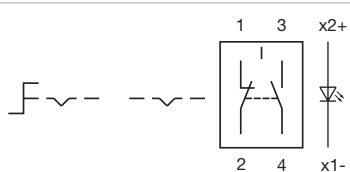


51 Raised design

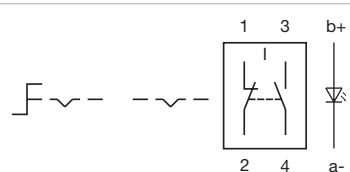
Wiring diagrams



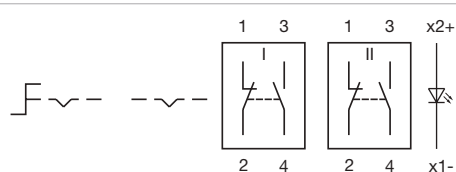
Wiring diagram 275



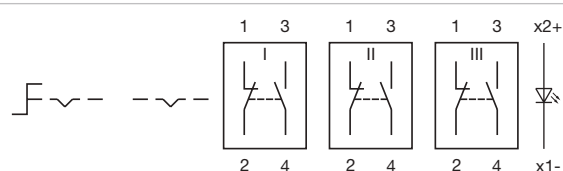
Wiring diagram 276



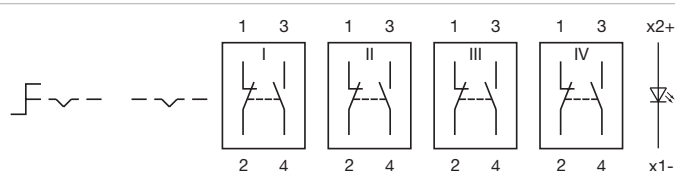
Wiring diagram 277



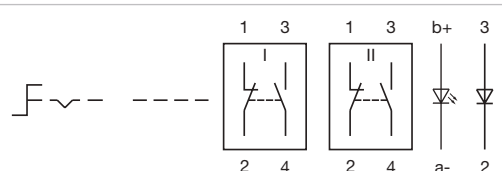
Wiring diagram 278



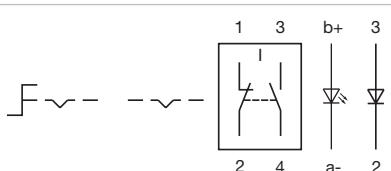
Wiring diagram 279



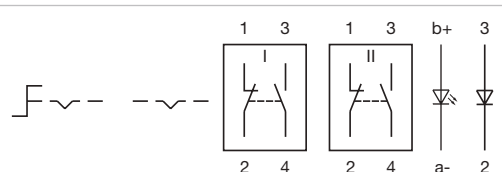
Wiring diagram 280



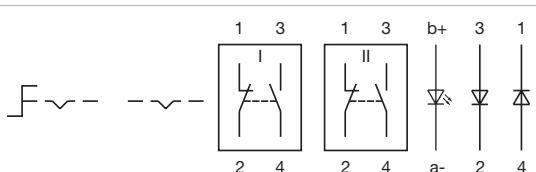
Wiring diagram 281



Wiring diagram 282

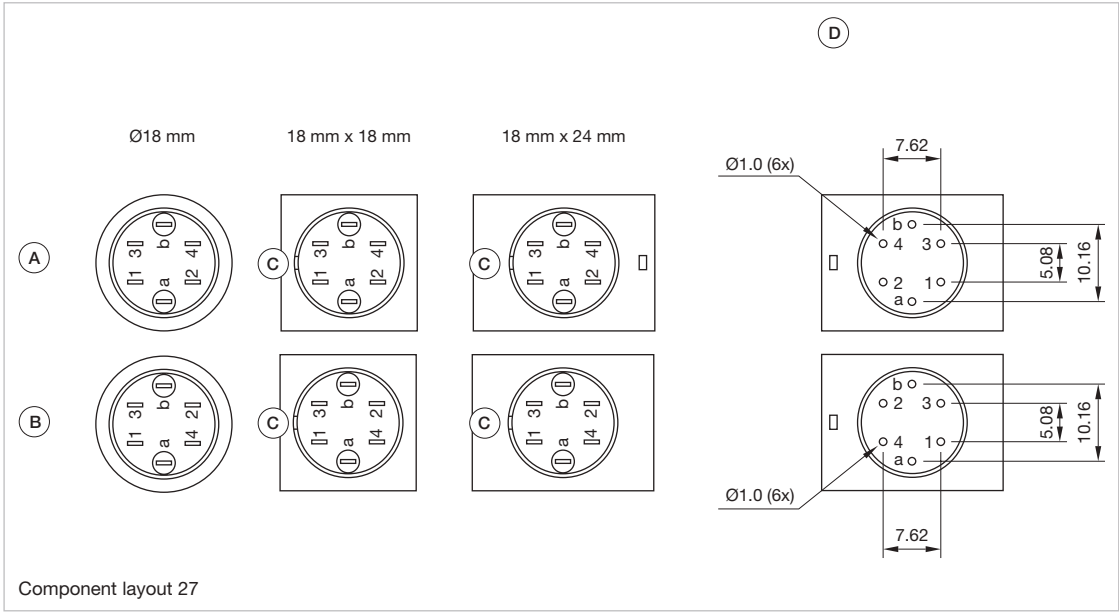


Wiring diagram 283



Wiring diagram 284

Component layouts



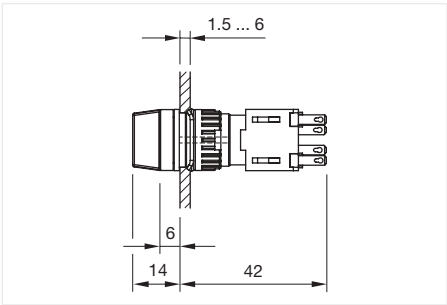
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

51 Raised design

Selector switch 3 positions, round, IP65

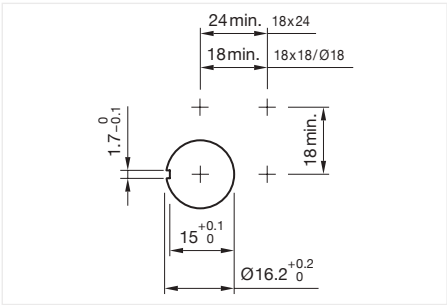


Product can differ from the current configuration.



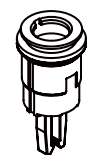
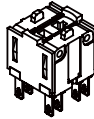
Dimensions [mm]

- General information
- Illuminative

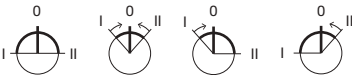


Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

- LeverPage 657
- LEDPage 660
- Actuator
- Anti-twist ringPage 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.

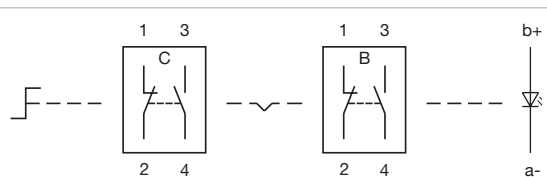


Actuator, Front dimension Ø 18 mm

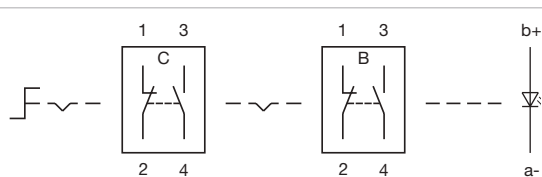
Switching action	Terminal	Switching system	Contacts	Switching angle	Part No.	Wiring diagram
Maintained - Rest - Maintained	Plug-in terminal	Snap-action switching element	2 NC / 2 NO	90° left / 90° right	52-571.F22A	288
Momentary - Rest - Momentary	Plug-in terminal	Snap-action switching element	2 NC /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

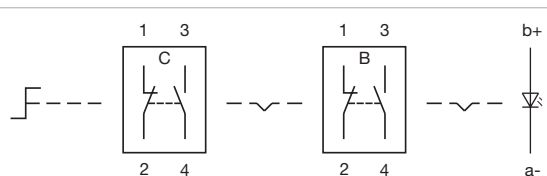
Wiring diagrams



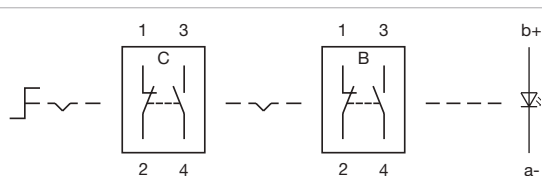
Wiring diagram 285



Wiring diagram 286



Wiring diagram 287



Wiring diagram 288

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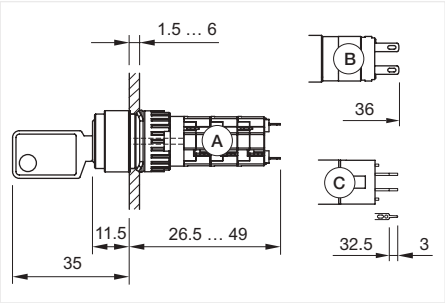
On our website you can download technical data, assembly instructions, catalogs, brochures and much more.

51 Raised design

Keylock switch 2 positions square, IP65

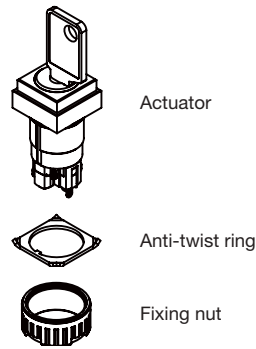


Product can differ from the current configuration.



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

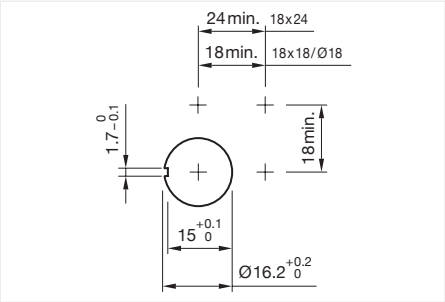
Equipment consisting of (schematic overview)



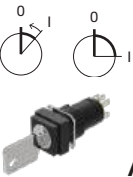
Each Part Number listed below includes all the black components shown in the 3D-drawing.

General information

- Standard lock: DOM 311
- Front plastic black



Mounting cut-outs [mm]



Actuator, Front dimension 18 mm x 18 mm

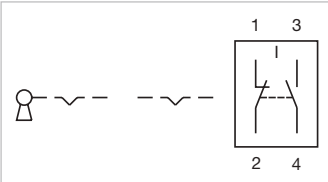
Switching action	Contacts	Terminal	Switching system	Switching angle	Part No.	Wiring diagram	Component Layout
Rest (a) - Momentary	1 NC / 1 NO	Plug-in terminal	Snap-action switching element	42° right	51-145.022D	257	27
	1 NC / 1 NO	Soldering terminal	Snap-action switching element	42° right	51-145.025D2	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

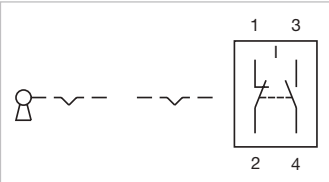
Switching action	Contacts	Terminal	Switching system	Switching angle	Part No.	Wiring diagram	Component Layout
Rest - Maintained (a)	1 NC / 1 NO	Universal terminal	Low-level element	90° right	51-448.036D	111	27
Rest (a) - Momentary	2 NO	Universal terminal	Low-level element	42° right	51-457.036D	109	27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



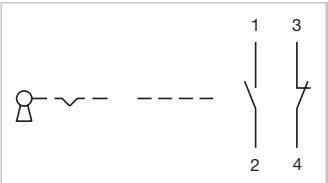
Wiring diagram 107



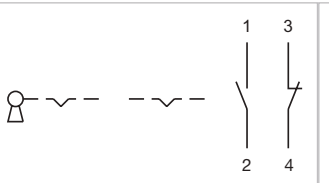
Wiring diagram 108



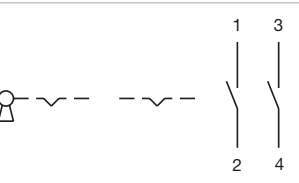
Wiring diagram 109



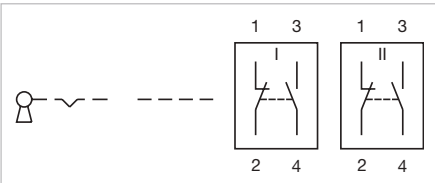
Wiring diagram 110



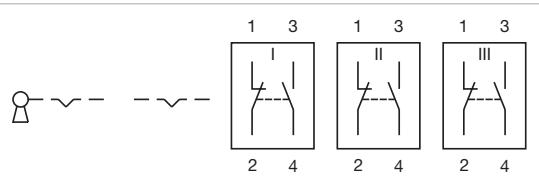
Wiring diagram 111



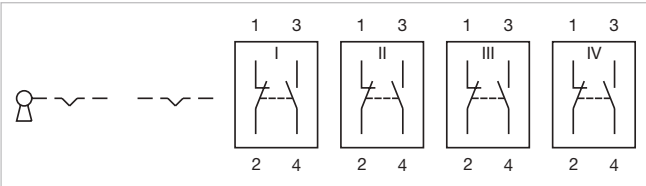
Wiring diagram 112



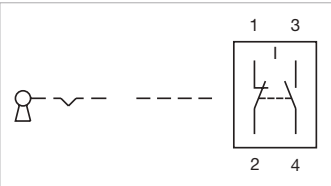
Wiring diagram 113



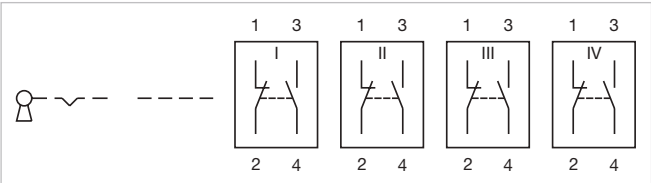
Wiring diagram 115



Wiring diagram 116



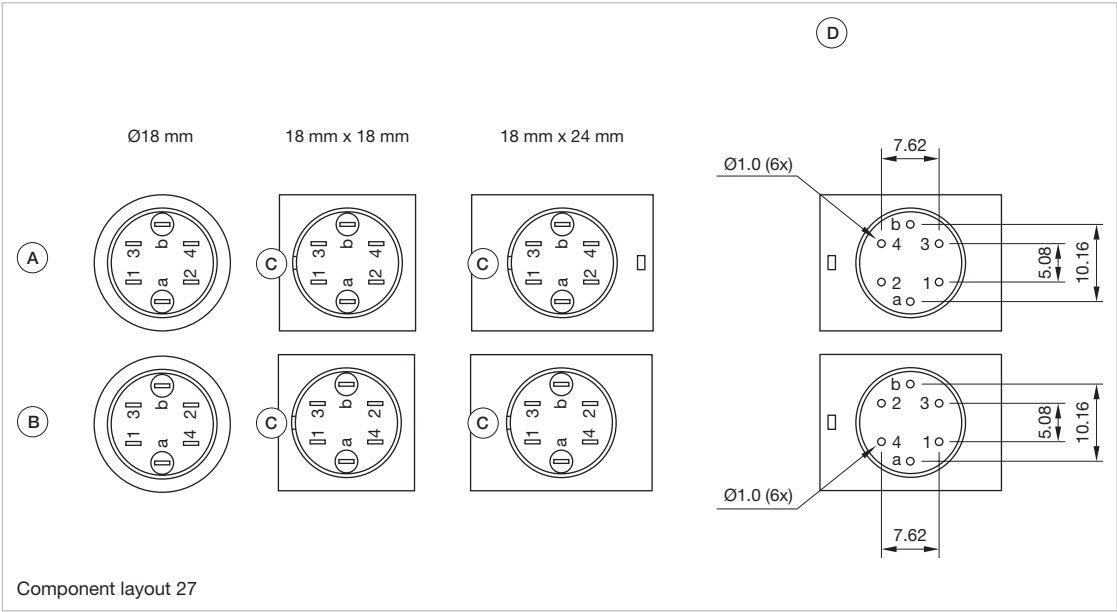
Wiring diagram 257



Wiring diagram 258

51 Raised design

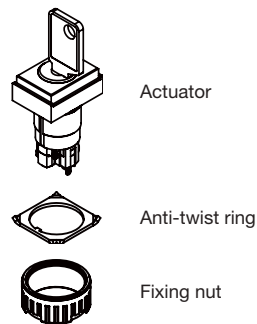
Component layouts



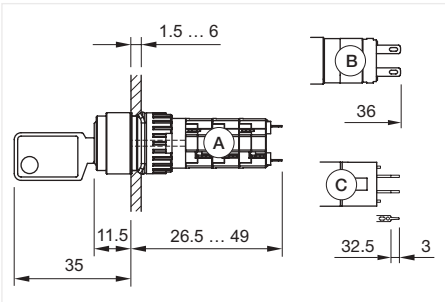
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

Keylock switch 2 positions rectangular, IP65

Equipment consisting of (schematic overview)



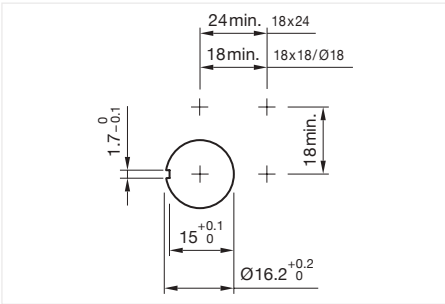
Each Part Number listed below includes all the black components shown in the 3D-drawing.



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



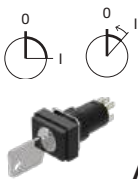
Product can differ from the current configuration.



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	Component 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

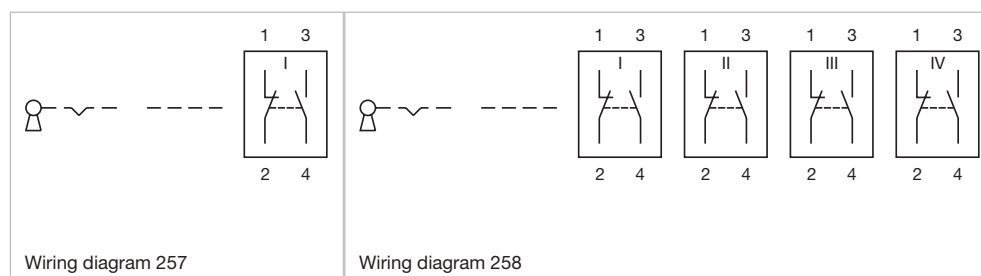
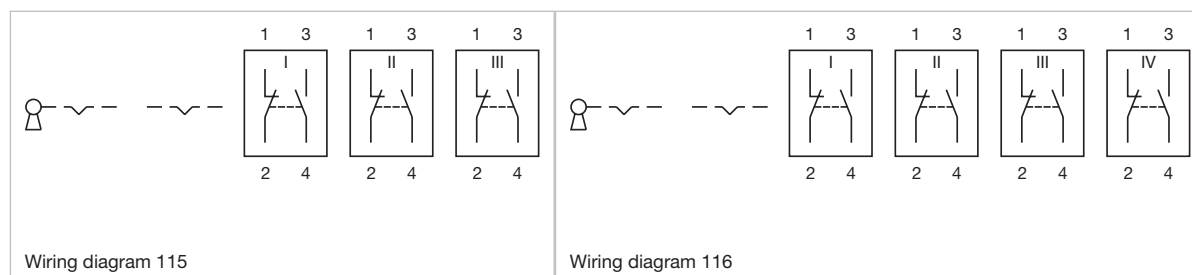
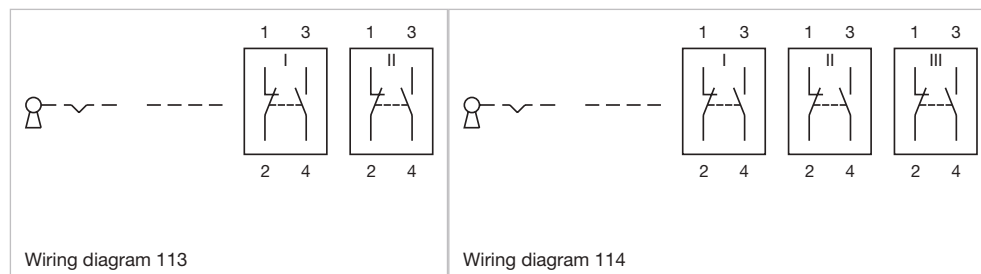
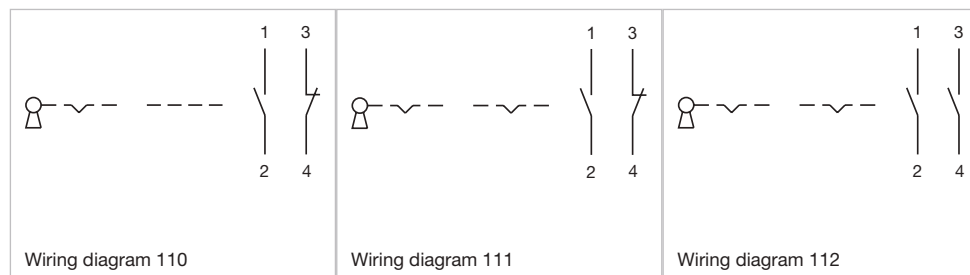
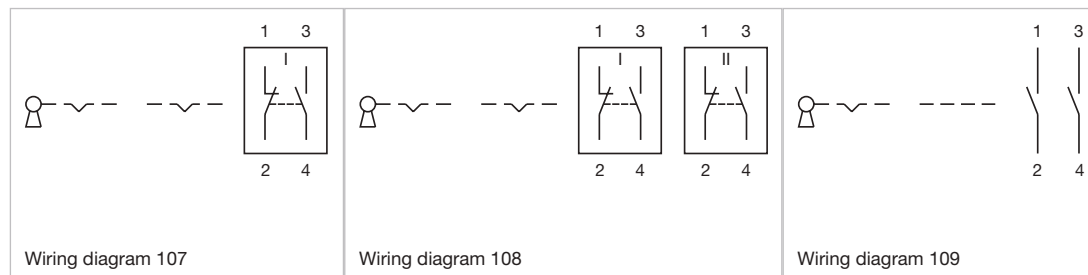
51 Raised design

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	

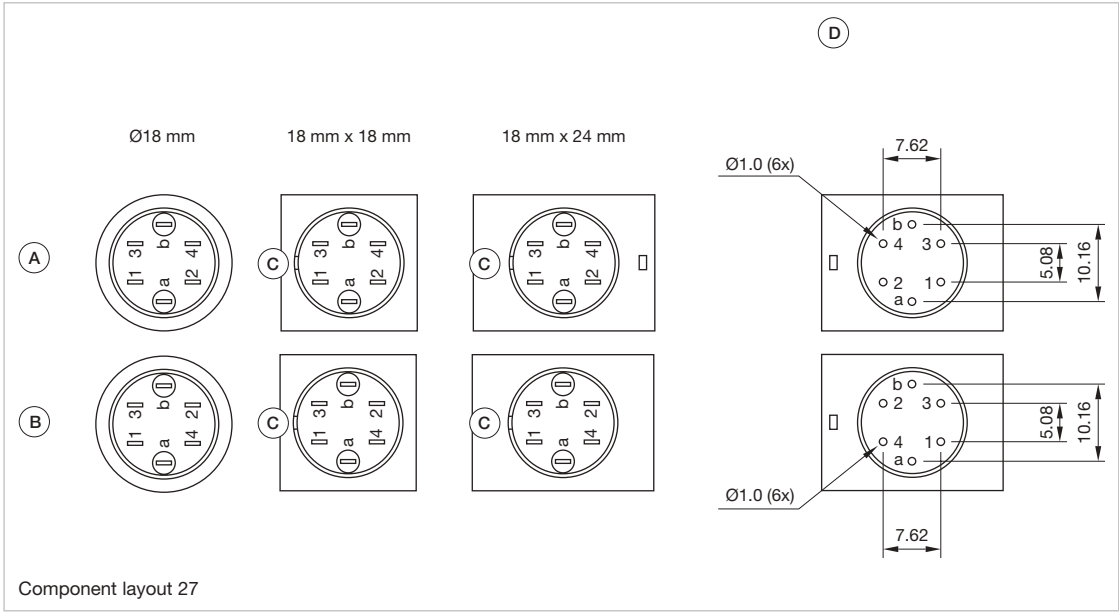
a = Key remove

Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



Component layouts



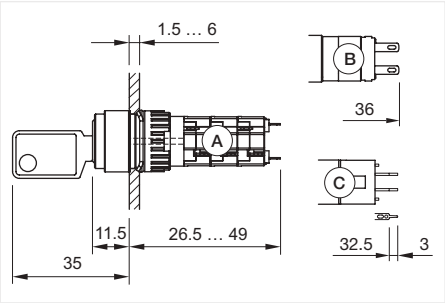
Dimensions [mm]
A = Universal terminal (rear side)
B = Plug-in terminal (rear side)
C = Anti twist device
D = Drilling plan

51 Raised design

Keylock switch 2 positions round, IP65

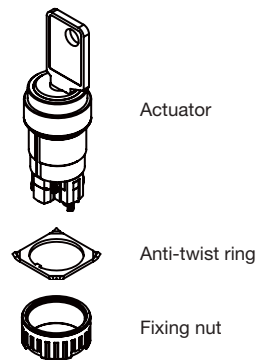


Product can differ from the current configuration.



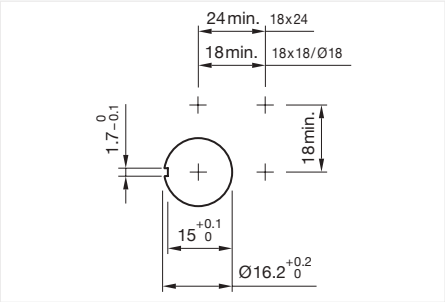
Dimensions [mm]
A = Solder terminal
B = Plug-in terminal 2.8 mm x 0.5 mm
C = Universal terminal 2.0 mm x 0.5 mm

Equipment consisting of (schematic overview)

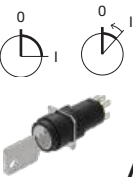


Each Part Number listed below includes all the black components shown in the 3D-drawing.

- 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- ponent 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

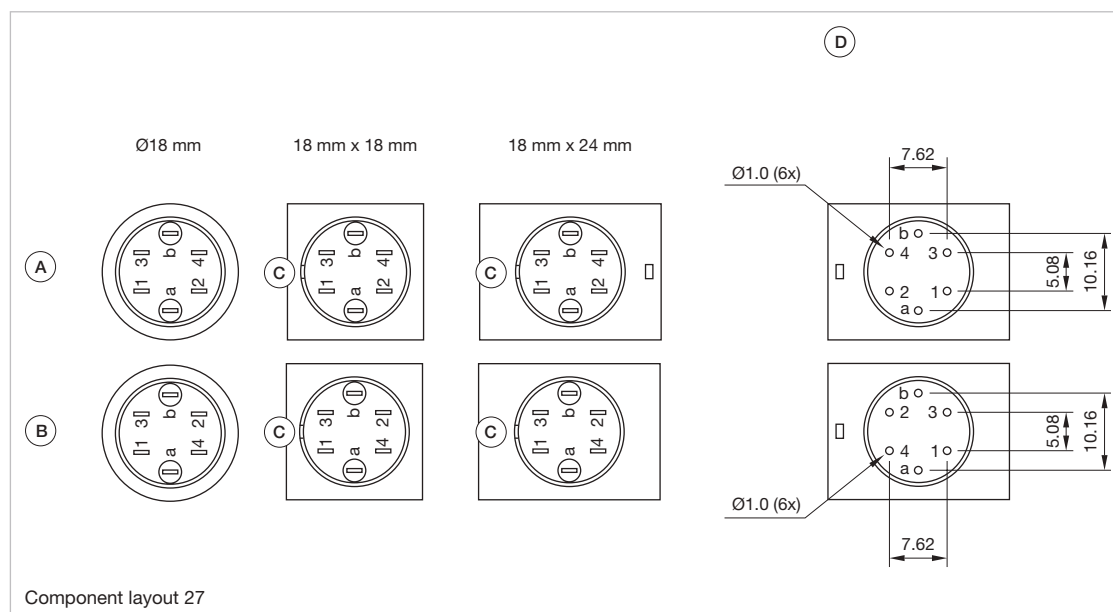
Wiring diagram 116

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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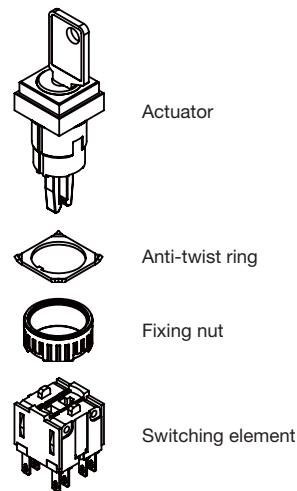
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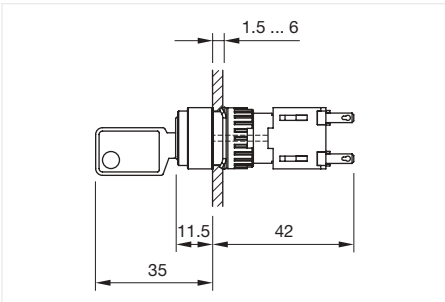
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Keylock switch 3 positions square, IP65

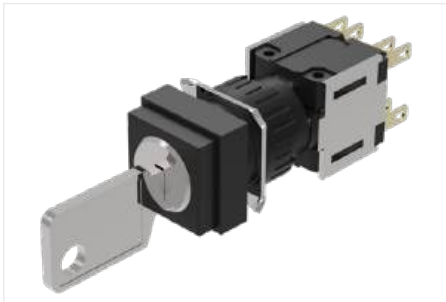
Equipment consisting of (schematic overview)



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



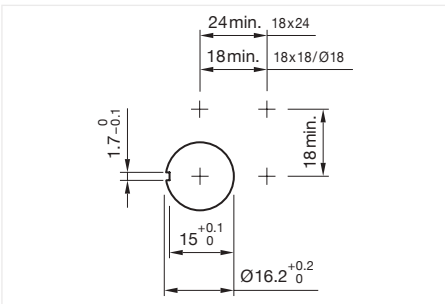
Dimensions [mm]



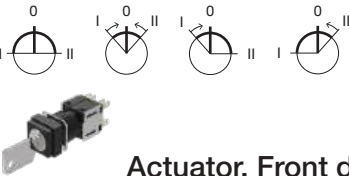
Product can differ from the current configuration.

General information

- Standard lock: DOM 311
- Front plastic black



Mounting cut-outs [mm]

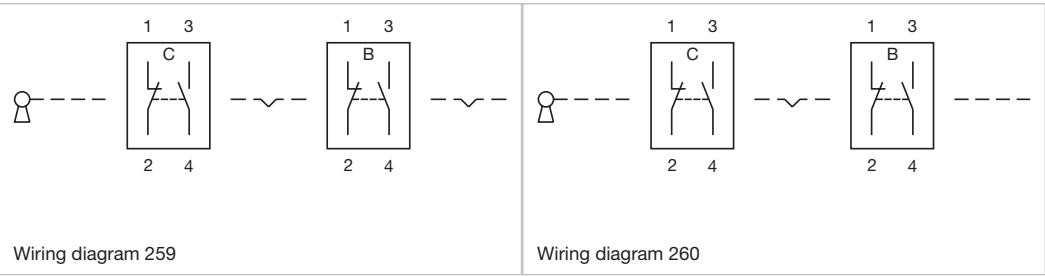


Actuator, Front dimension 18 mm x 18 mm

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

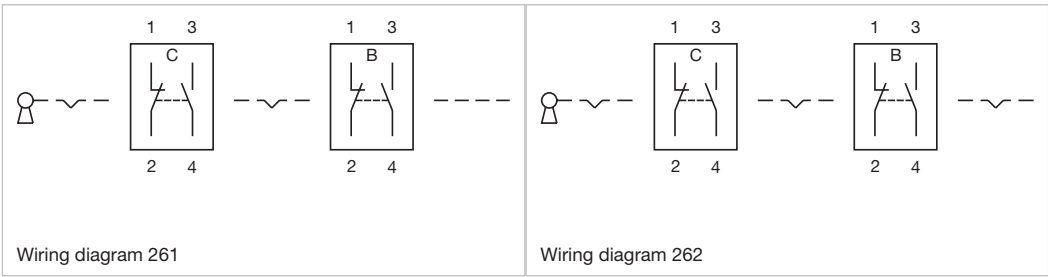
a = Key remove
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



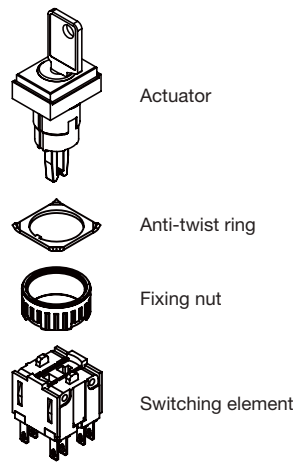
51 Raised design

Wiring diagrams

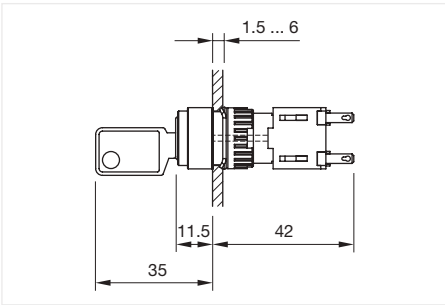


Keylock switch 3 positions rectangular, IP65

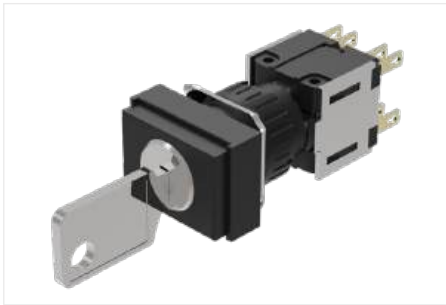
Equipment consisting of (schematic overview)



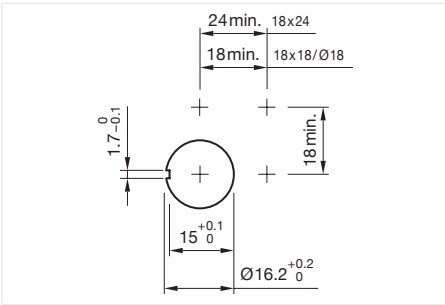
Each Part Number listed below includes all the black components shown in the 3D-drawing.



Dimensions [mm]



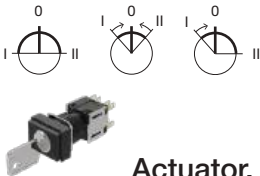
Product can differ from the current configuration.



Mounting cut-outs [mm]

General information

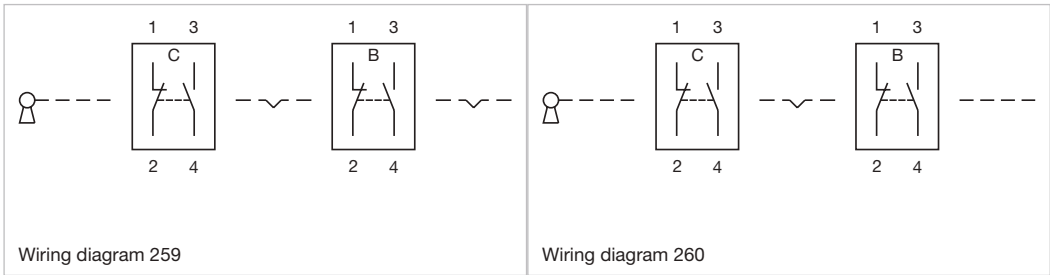
- Standard lock: DOM 311
- Front plastic black



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

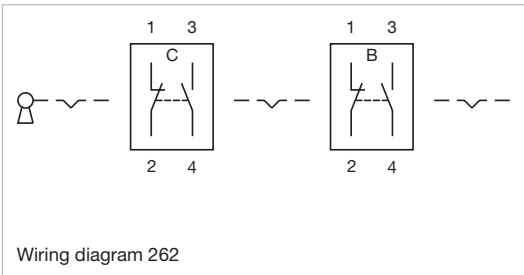
a = Key remove
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



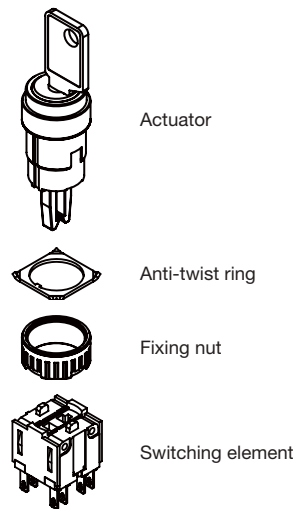
51 Raised design

Wiring diagrams

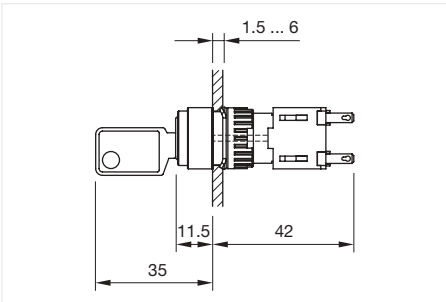


Keylock switch 3 positions round, IP65

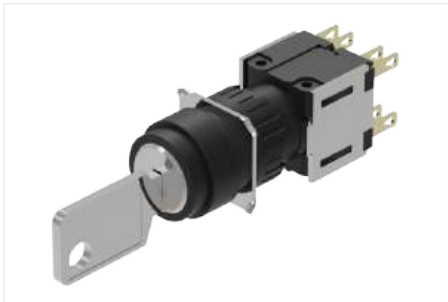
Equipment consisting of (schematic overview)



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



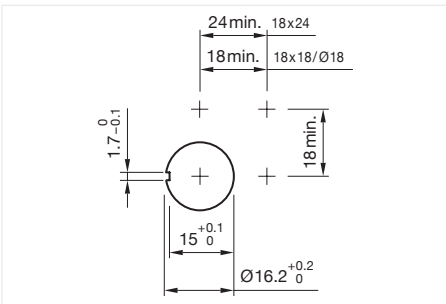
Dimensions [mm]



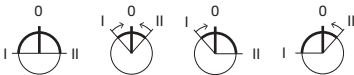
Product can differ from the current configuration.

General information

- Standard lock: DOM 311
- Front plastic black



Mounting cut-outs [mm]



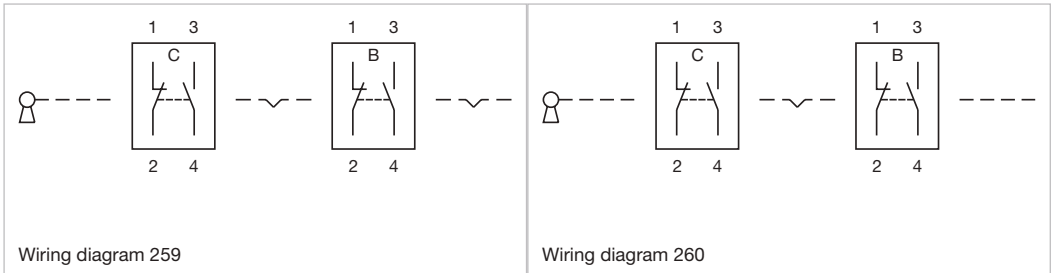
Actuator, Front dimension Ø 18 mm

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

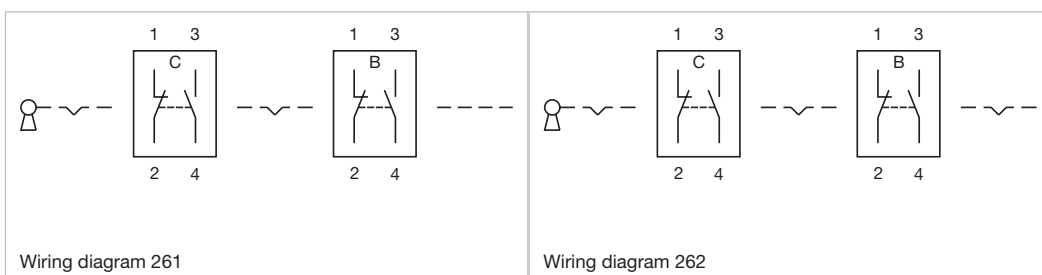
Contacts: NC = Normally closed, NO = Normally open

Wiring diagrams



51 Raised design

Wiring diagrams



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Indicator square, IP65

Equipment consisting of (schematic overview)



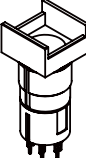
Lens

Page 653



LED

Page 660



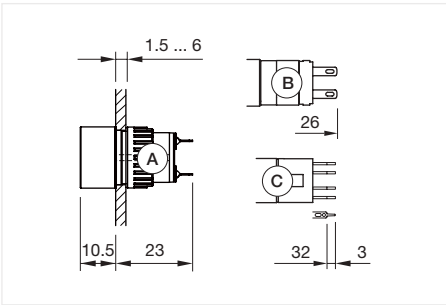
Actuator



Fixing nut

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

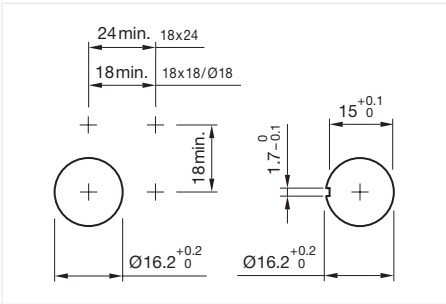
To obtain a complete unit, please select the red components from the pages shown.



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.



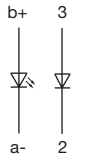
Mounting cut-outs [mm]



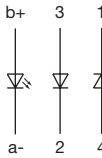
Actuator, Front dimension 18 mm x 18 mm

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

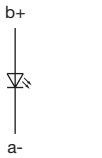
Wiring diagrams



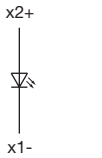
Wiring diagram 1



Wiring diagram 2



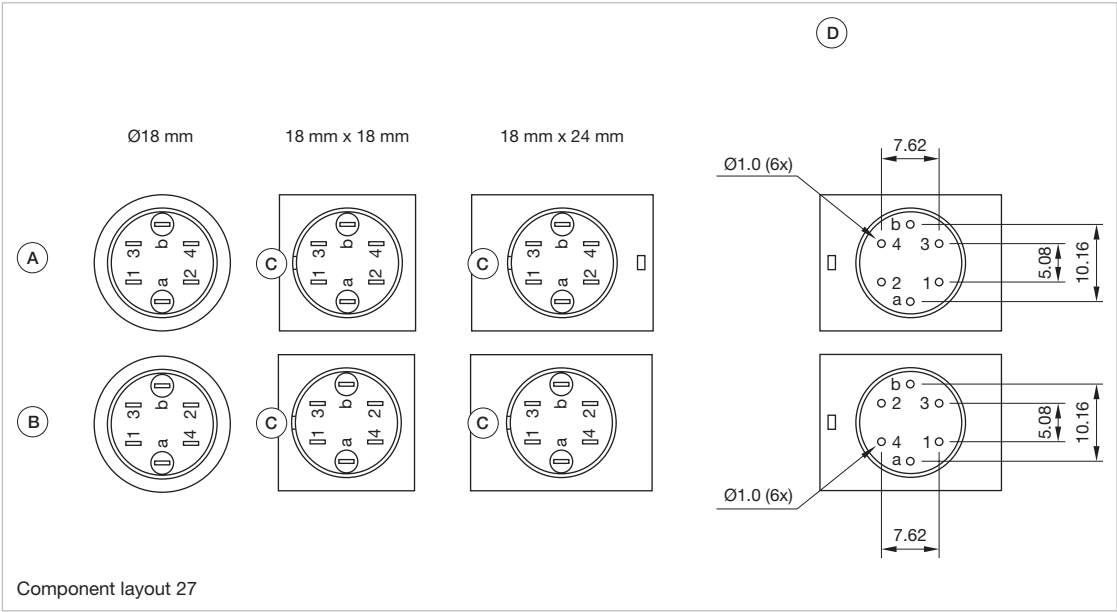
Wiring diagram 3



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

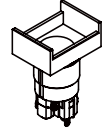
Equipment consisting of (schematic overview)



Lens



LED



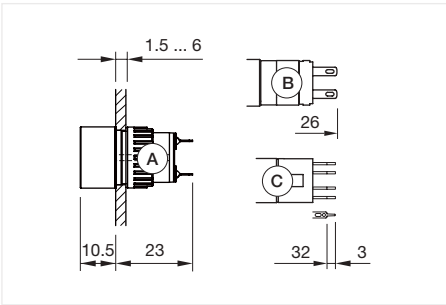
Actuator



Fixing nut

Page 653
Page 660

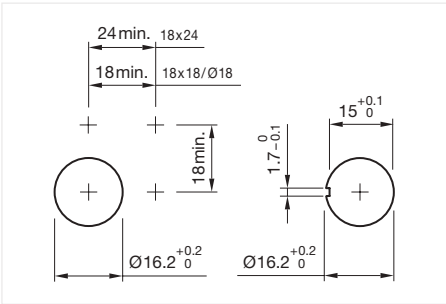
Each Part Number listed below includes all the black components shown in the 3D-drawing.
To obtain a complete unit, please select the red components from the pages shown.



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.



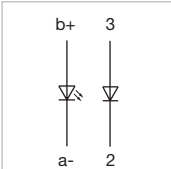
Mounting cut-outs [mm]



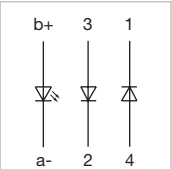
Actuator, Front dimension 24 mm x 18 mm

Terminal	Diode 1N4007	Part No.	Wiring diagram	Com- ponent 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

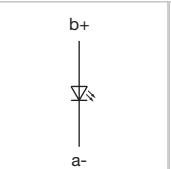
Wiring diagrams



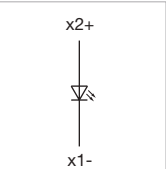
Wiring diagram 1



Wiring diagram 2



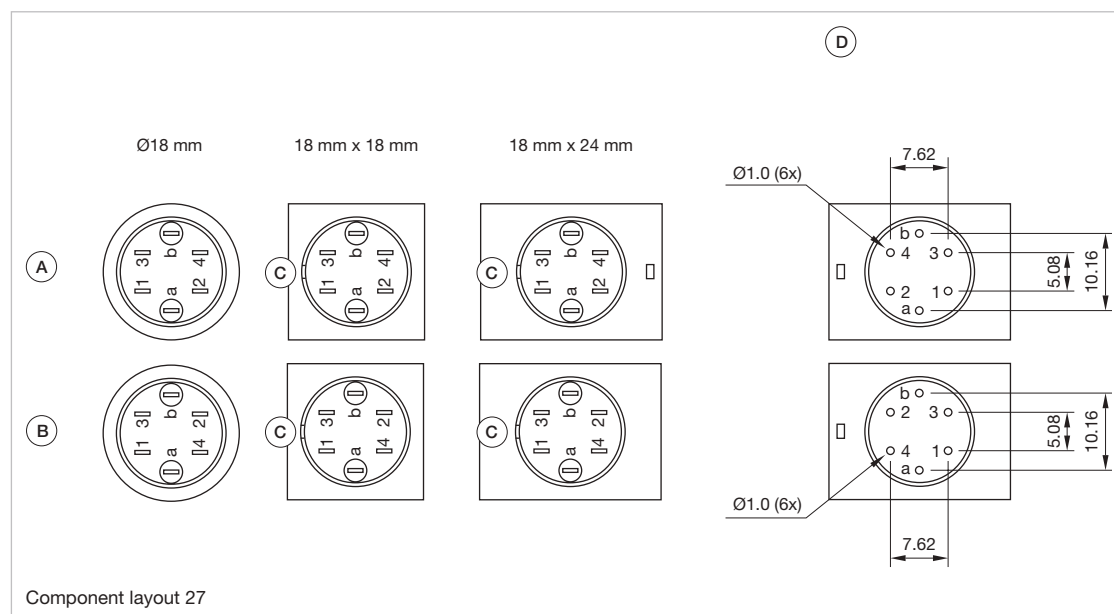
Wiring diagram 3



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



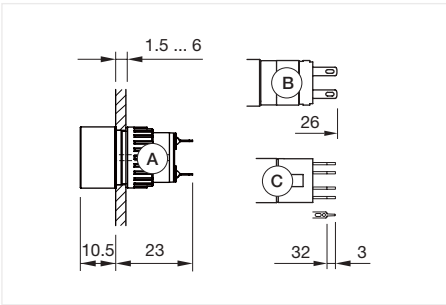
Actuator



Fixing nut

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

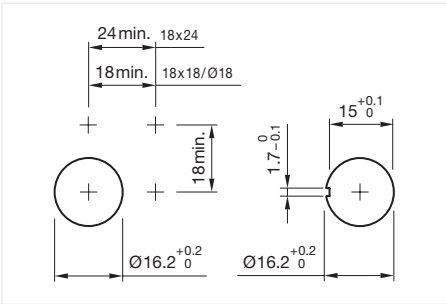
To obtain a complete unit, please select the red components from the pages shown.



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.



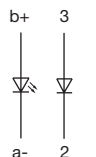
Mounting cut-outs [mm]



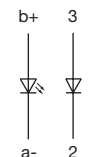
Actuator, Front dimension Ø 18 mm

Terminal	Diode 1N4007	Part No.	Wiring diagram	Com- ponent 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

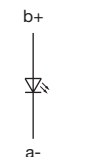
Wiring diagrams



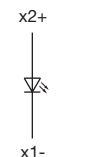
Wiring diagram 1



Wiring diagram 2



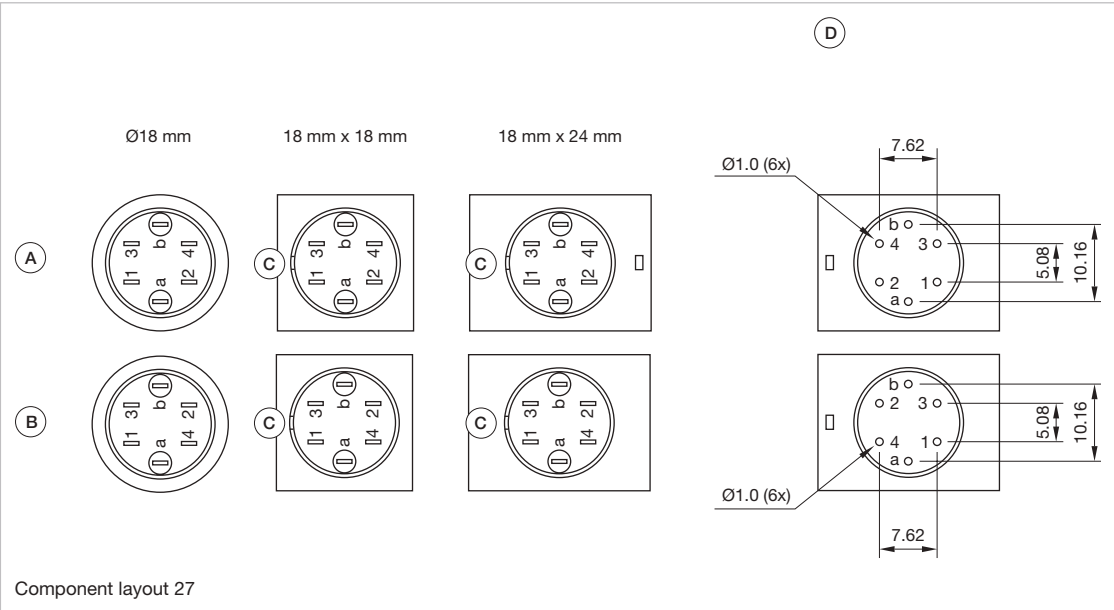
Wiring diagram 3



Wiring diagram 4

51 Raised design

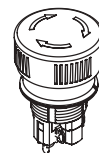
Component layouts



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

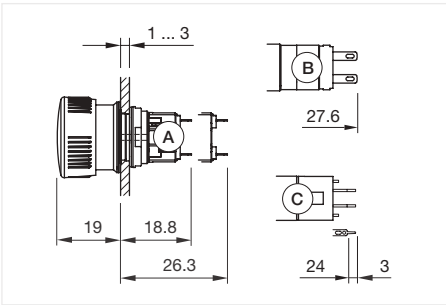


Anti-twist ring



Fixing nut

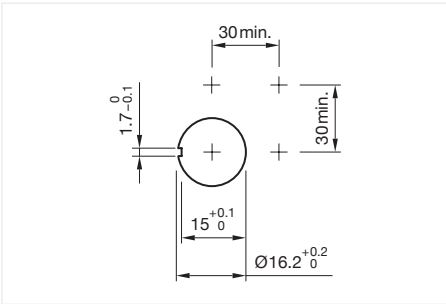
Each Part Number listed below includes all the black components shown in the 3D-drawing.



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



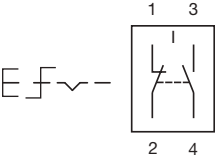
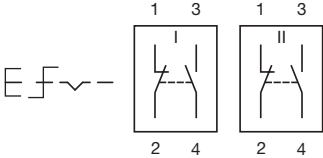
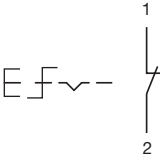
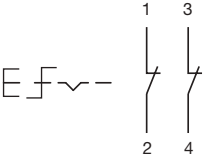
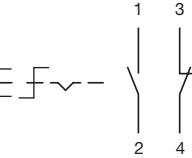
Actuator, Front dimension Ø 24,5 mm

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

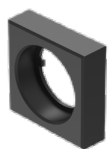


Front bezel set flush design

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

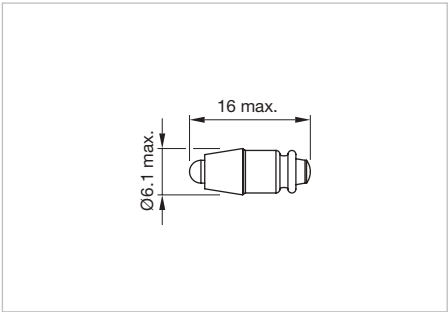


Single-LED, T1 3/4 MG

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

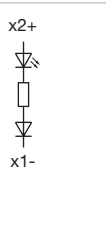
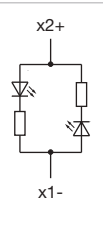
Additional information

- 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

 Wiring diagram 55	 Wiring diagram 171
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01
02
03
04
09
14
17
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19
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31
41
45
51
56
57
61
70
71
82
84
92
96

51 Accessories

Front side

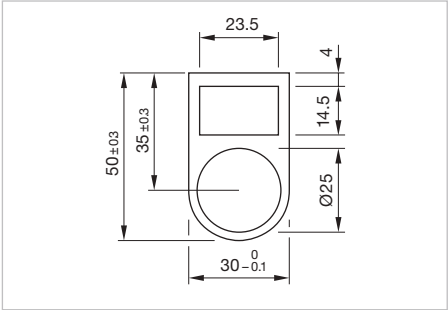


Legend frame

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

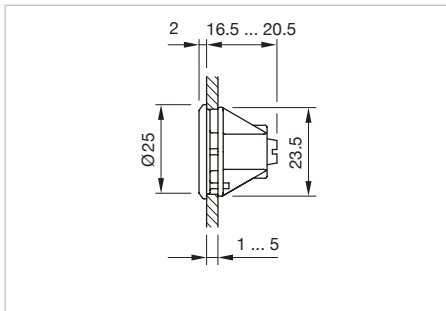


Blind plug flush design

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

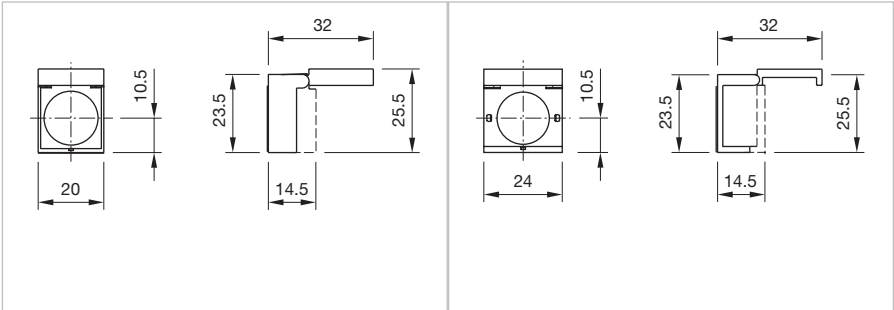
- For flat lens profil only
- When using the front protection cover the external sealing in the actuator has to be removed

51 Accessories



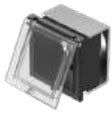
Protective cover raised design

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



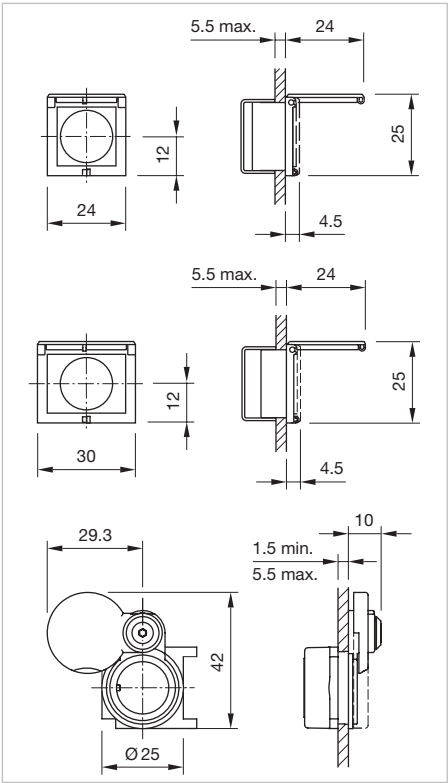
Dimensions [mm]

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

**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

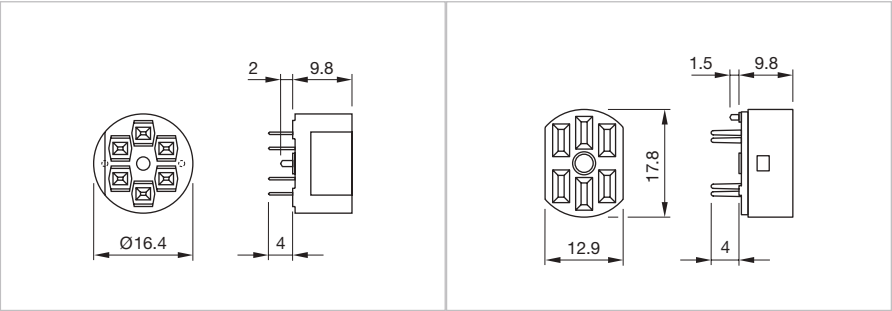


PCB plug-in base

Product attributes	Terminal	Pins	Part No.	Com- ponent 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

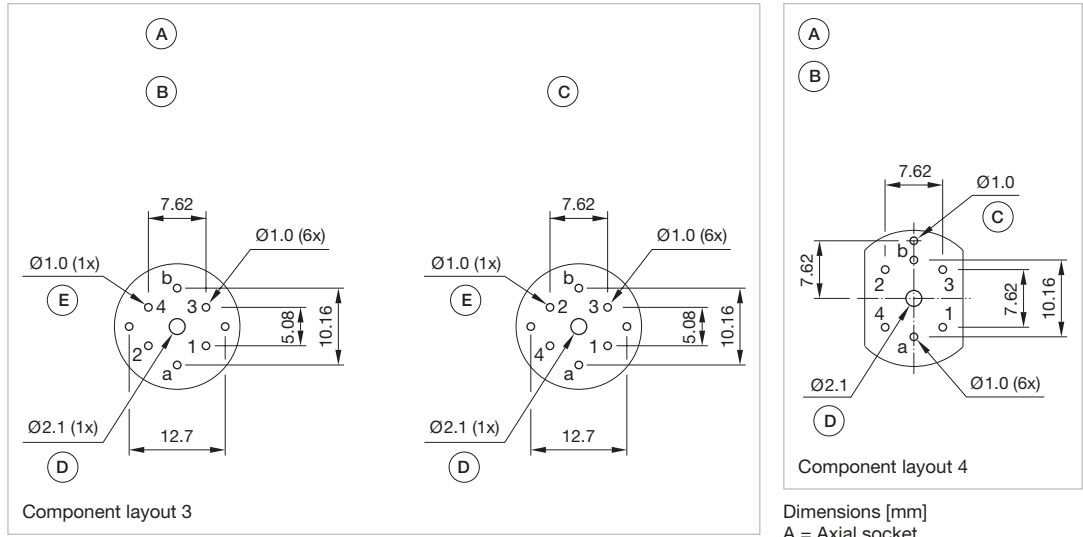
- PCB plug-in base pins right-angle: With the extendable mounting the distance between plug-in base and PCB can be varied up to 3 mm



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 mm²

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 Ith
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 mm²

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 mm²

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 mm² or 1 x 1.0 mm²

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_{th}

≤ 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) 24 VDC, 2 A (inductive, L:R = 30 ms)
Plug-in terminal	250 VAC, 5 A (ohmic) 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 pleased to advise you. For letters and figures, typefaces with 2.5 mm, 3 mm and 4 mm are available.

3. Film inserts

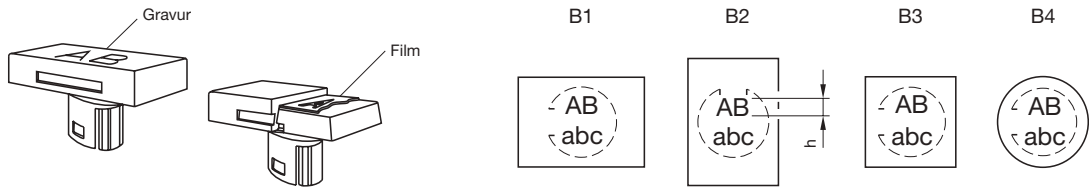
Instead of using engraving the lenses can be fitted with transparent film inserts, as an alternative. For this purpose, though, it is advisable to use transparent lenses. In the case of use of a smoke-black lens the fitted film becomes readable only if the lamp is on. The film thickness is 0.2 mm.

Important: Consider pushbutton mounting orientation before specifying engraving characters!

Lenses for indicators and illuminated pushbuttons, raised mounting

All dimensions in mm

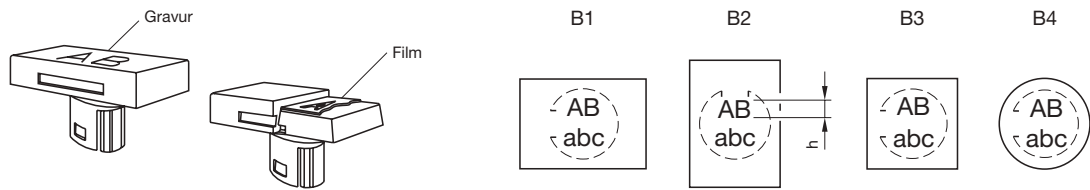
Front size (Lens)	Film insert max. size	Height of letters h	Number of lines	Number of capital letters per line (target value)	Number of small letters per line (target value)	Image
18 x 24 (12.8 x 18.8)	12.7 x 18.7	2.5	3	9	10	B1
		3	3	8	8	B1
		4	2	5	6	B1
		5	2	4	5	B1
		6	1	4	4	B1
		8	1	3	3	B1
		2.5	5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

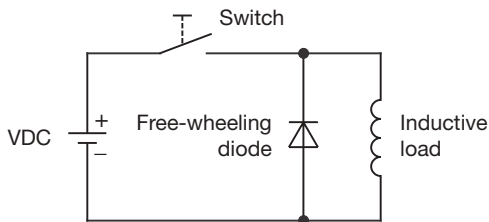
Fig. 1 shows an inductive load with a free-wheeling diode connected in parallel. This free-wheeling diode provides a path for the inductor current to flow when the current is interrupted by the switch. Without this free-wheeling diode, the voltage across the coil will be limited only by dielectric breakdown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

