Series 51

Characteristics
The compact 16mm Series 51 is particularly suited for applications in the areas:

- Flush design
- Raised design
- PCB (with adaptor)

The low level switching element is laid out for low current applications.

Functions
The Series 51 incorporates the following functions:

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

Market segments
The EAO Series 51 is especially suited for applications in the segments:

- Machinery and Automation
- Panel building

Please refer to the EAO website to obtain detailed information regarding this series **www.products.eao.com**
Configure a product to your exact needs and request a quotation.

Overview

Flush design	
Indicator	4
Pushbutton	5
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Raised design	
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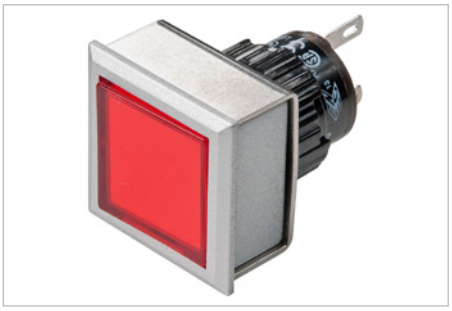
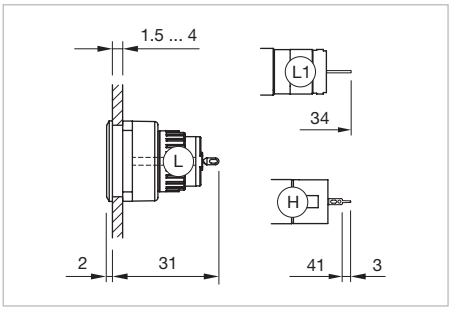
51 Flush design

Indicator square, IP 65



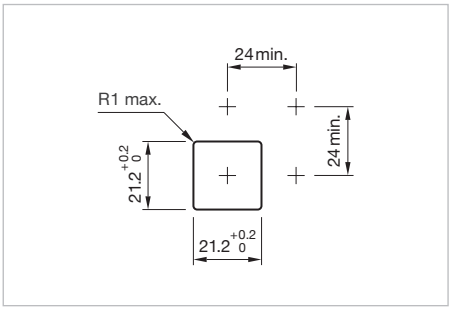
Product can differ from the current configuration.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Additional Information

- For front dimension 24 x 24 mm

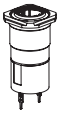


Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

Lens *page 52*

Single-LED *page 71*


Actuator

Front bezel set *page 60*

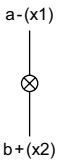
Fixing nut

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 page s shown.

Terminal	Part No.	Component layout	Wiring diagram	Weight
Indicator actuator square, flush design				
Solder 2.8 x 0.5 mm	**51-050.002F**		1	0.004 kg
Solder	**51-050.005F**		1	0.004 kg
Universal 2.0 x 0.5 mm	**51-051.006F**	4	1	0.005 kg

The component layouts you will find from page 76



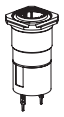
Wiring diagram 1

Indicator rectangular, IP 65

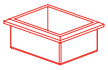
Equipment consisting of (schematic overview)

Lens *page 52*

Single-LED *page 71*



Actuator

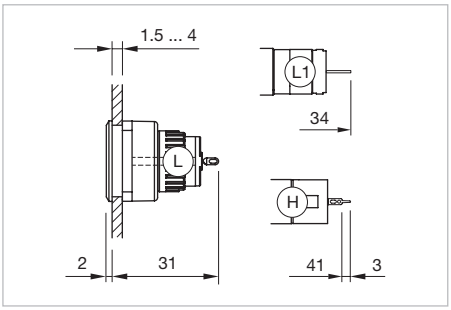


Front bezel set *page 60*

Fixing nut

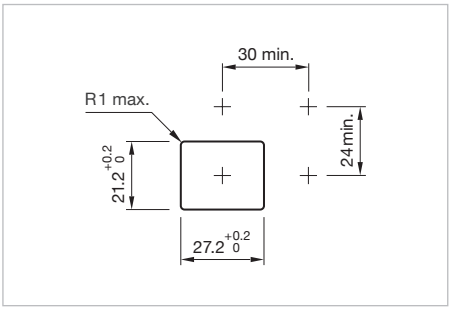
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Product can differ from the current configuration.



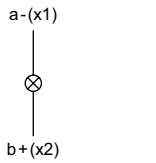
Mounting cut-outs [mm]

Additional Information

- For front dimension 24 x 30 mm

Terminal	Part No.	Component layout	Wiring diagram	Weight
Indicator actuator rectangular				
Solder 2.8 x 0.5 mm	**51-050.002F**		1	0.004 kg
Solder	**51-050.005F**		1	0.004 kg
Universal 2.0 x 0.5 mm	**51-051.006F**	4	1	0.005 kg

The component layouts you will find from page 76

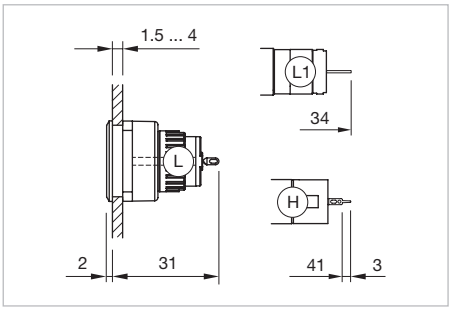


Wiring diagram 1

51 Flush design

Indicator round, IP 65

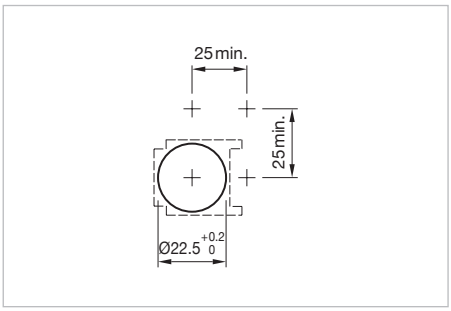
Product can differ from the current configuration.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Additional Information

- For front dimension Ø 25 mm

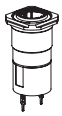


Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

Lens *page 52*

Single-LED *page 71*



Actuator

Front bezel set *page 60*

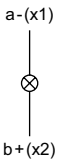
Fixing nut

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 page s shown.

Terminal	Part No.	Component layout	Wiring diagram	Weight
Indicator actuator round				
Solder 2.8 x 0.5 mm	**51-050.002F**		1	0.004 kg
Solder	**51-050.005F**		1	0.004 kg
Universal 2.0 x 0.5 mm	**51-051.006F**	4	1	0.005 kg

The component layouts you will find from page 76

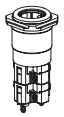


Wiring diagram 1

Pushbutton round, IP 65

Equipment consisting of (schematic overview)

Lens *page 52*



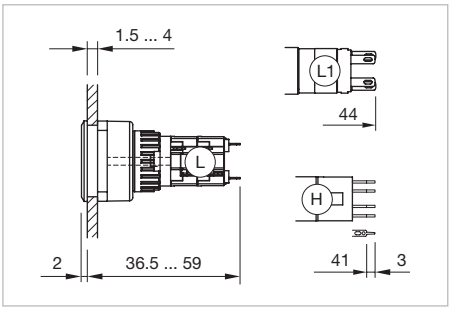
Actuator

Front bezel set *page 60*

Fixing nut

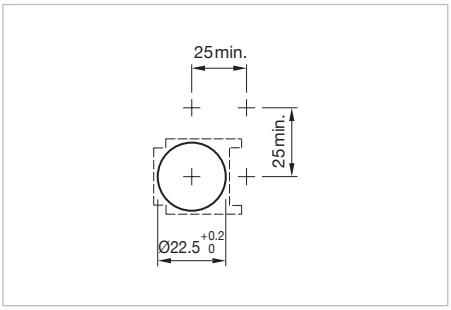
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Product can differ from the current configuration.



Mounting cut-outs [mm]

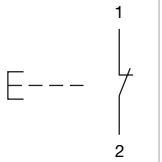
Additional Information

- For front dimension Ø 25 mm

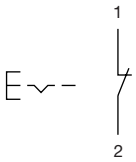
Switching system	Contacts	Switching action	Terminal	Part No.	Component layout	Wiring diagram	Weight
Illuminated pushbutton actuator round							
Low-level element	1 NC	B	Universal 2.0 x 0.5 mm	**51-456.036F**	1	1	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-486.036F**	1	2	0.006 kg
	1 NC + 1 NO	B	Universal 2.0 x 0.5 mm	**51-453.036F**	1	3	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-483.036F**	1	4	0.006 kg
	1 NO	B	Universal 2.0 x 0.5 mm	**51-455.036F**	1	5	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-485.036F**	1	6	0.006 kg
	2 NC	B	Universal 2.0 x 0.5 mm	**51-452.036F**	1	7	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-482.036F**	1	8	0.006 kg
	2 NO	B	Universal 2.0 x 0.5 mm	**51-451.036F**	1	9	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-481.036F**	1	10	0.006 kg
Snap-action switching element	1 NC + 1 NO	B	Solder 2.8 x 0.5 mm	**51-151.022F**		11	0.007 kg
		B	Solder	**51-151.0252F**		11	0.005 kg
	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-281.022F**		12	0.007 kg
		C	Solder	**51-281.0252F**		12	0.005 kg
	2 NC + 2 NO	B	Solder	**51-152.0252F**		13	0.008 kg
		C	Solder	**51-282.0252F**		14	0.008 kg
	3 NC + 3 NO	B	Solder	**51-153.0252F**		15	0.010 kg
		C	Solder	**51-283.0252F**		16	0.010 kg
	4 NC + 4 NO	B	Solder	**51-154.0252F**		17	0.012 kg
		C	Solder	**51-284.0252F**		18	0.012 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: B = Momentary, C = Maintained
The component layouts you will find from page 76

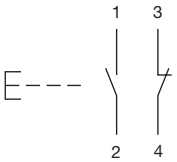
51 Flush design



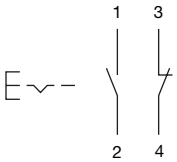
Wiring diagram 1



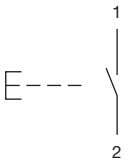
Wiring diagram 2



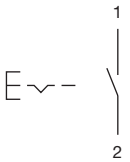
Wiring diagram 3



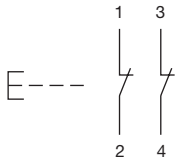
Wiring diagram 4



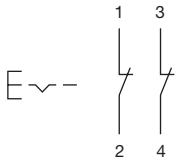
Wiring diagram 5



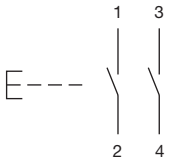
Wiring diagram 6



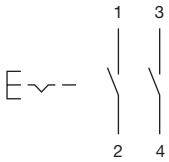
Wiring diagram 7



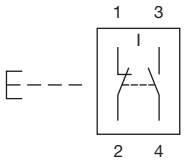
Wiring diagram 8



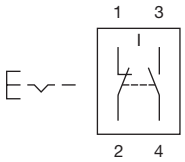
Wiring diagram 9



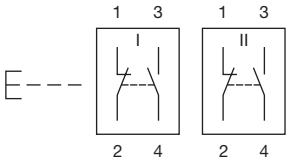
Wiring diagram 10



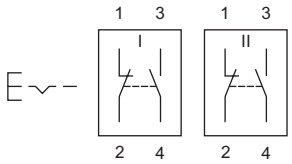
Wiring diagram 11



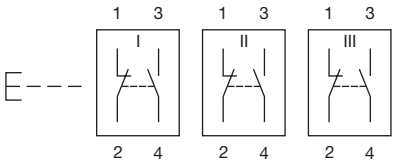
Wiring diagram 12



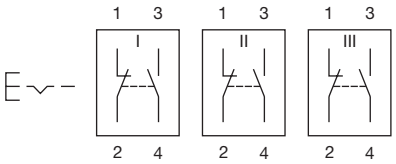
Wiring diagram 13



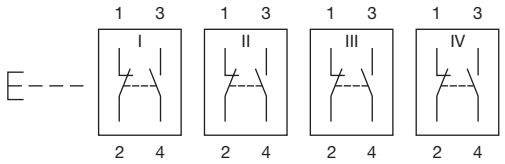
Wiring diagram 14



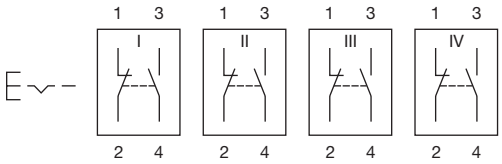
Wiring diagram 15



Wiring diagram 16



Wiring diagram 17



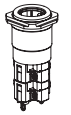
Wiring diagram 18

Illuminated pushbutton square, IP 65

Equipment consisting of (schematic overview)

Lens *page 52*

Single-LED *page 71*

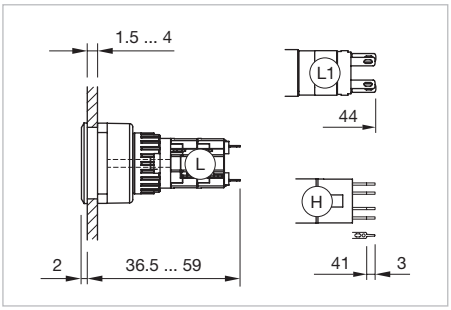

Actuator

Front bezel set *page 60*

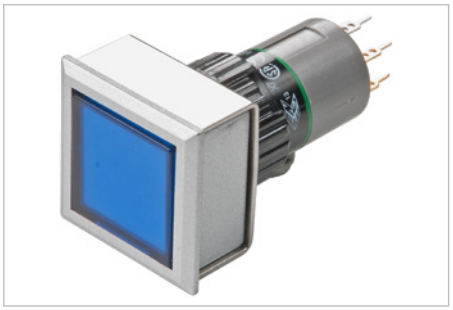
Fixing nut

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

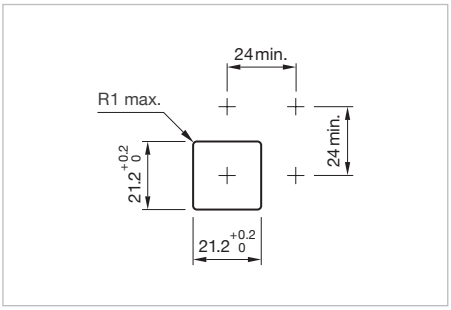
To obtain a complete unit, please select the red components from the page s shown.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]

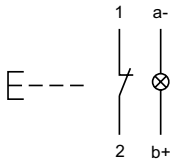
Additional Information

- For front dimension 24 x 24 mm

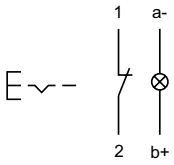
Switching system	Contacts	Switching action	Terminal	Part No.	Component layout	Wiring diagram	Weight
Illuminated pushbutton square							
Low-level element	1 NC	B	Universal 2.0 x 0.5 mm	**51-456.036F**	4	1	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-486.036F**	4	2	0.006 kg
	1 NC + 1 NO	B	Universal 2.0 x 0.5 mm	**51-453.036F**	4	3	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-483.036F**	4	4	0.006 kg
	1 NO	B	Universal 2.0 x 0.5 mm	**51-455.036F**	4	5	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-485.036F**	4	6	0.006 kg
	2 NC	B	Universal 2.0 x 0.5 mm	**51-452.036F**	4	7	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-482.036F**	4	8	0.006 kg
	2 NO	B	Universal 2.0 x 0.5 mm	**51-451.036F**	4	9	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-481.036F**	4	10	0.006 kg
Snap-action switching element	1 NC + 1 NO	B	Solder 2.8 x 0.5 mm	**51-151.022F**		11	0.007 kg
		B	Solder	**51-151.0252F**		12	0.005 kg
		C	Solder 2.8 x 0.5 mm	**51-281.022F**		13	0.007 kg
		C	Solder	**51-281.0252F**		14	0.005 kg
	2 NC + 2 NO	B	Solder	**51-152.0252F**		15	0.008 kg
		C	Solder	**51-282.0252F**		16	0.008 kg
	3 NC + 3 NO	B	Solder	**51-153.0252F**		17	0.010 kg
		C	Solder	**51-283.0252F**		18	0.010 kg
	4 NC + 4 NO	B	Solder	**51-154.0252F**		19	0.012 kg
		C	Solder	**51-284.0252F**		20	0.012 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: B = Momentary, C = Maintain
The component layouts you will find from page 76

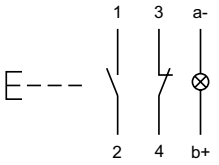
51 Flush design



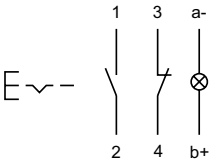
Wiring diagram 1



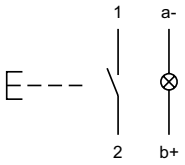
Wiring diagram 2



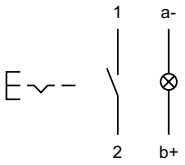
Wiring diagram 3



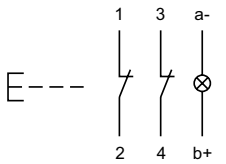
Wiring diagram 4



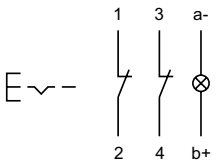
Wiring diagram 5



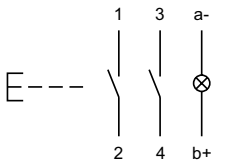
Wiring diagram 6



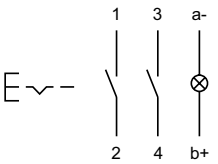
Wiring diagram 7



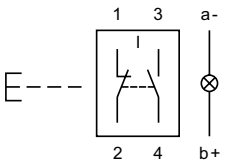
Wiring diagram 8



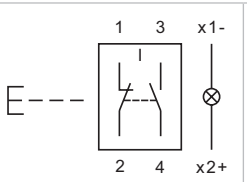
Wiring diagram 9



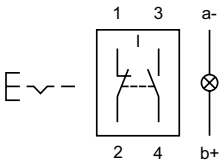
Wiring diagram 10



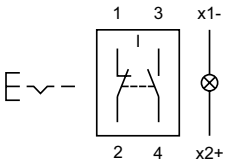
Wiring diagram 11



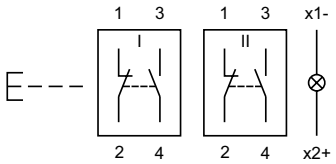
Wiring diagram 12



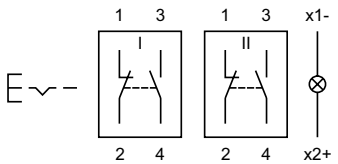
Wiring diagram 13



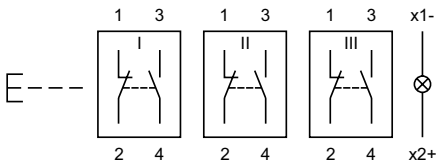
Wiring diagram 14



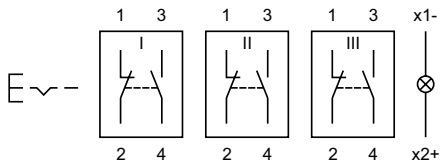
Wiring diagram 15



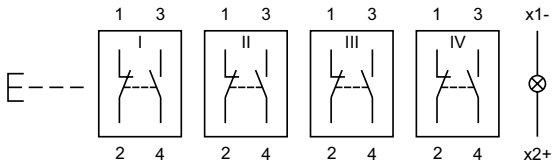
Wiring diagram 16



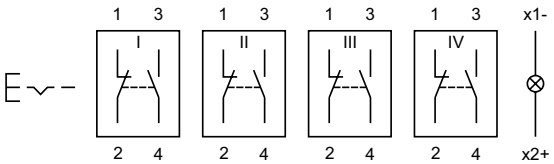
Wiring diagram 17



Wiring diagram 18



Wiring diagram 19



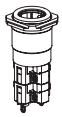
Wiring diagram 20

Illuminated pushbutton rectangular, IP 65

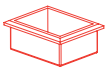
Equipment consisting of (schematic overview)

Lens *page 52*

Single-LED *page 71*



Actuator

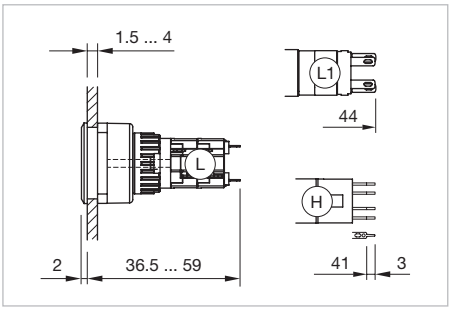


Front bezel set *page 60*

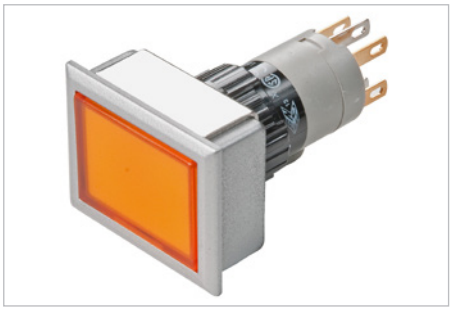
Fixing nut

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

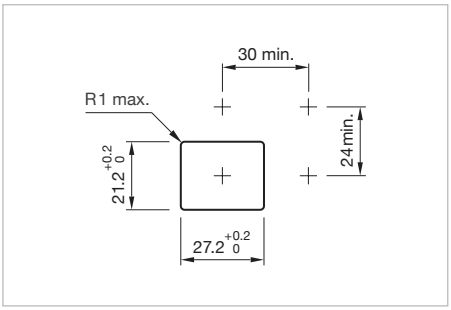
To obtain a complete unit, please select the red components from the page s shown.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]

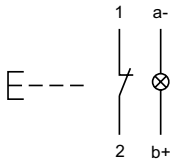
Additional Information

- For front dimension 24 x 30 mm

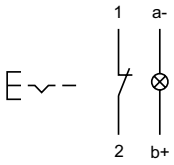
Switching system	Contacts	Switching action	Terminal	Part No.	Component layout	Wiring diagram	Weight
Illuminated pushbutton actuator rectangular							
Low-level element	1 NC	B	Universal 2.0 x 0.5 mm	**51-456.036F**	4	1	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-486.036F**	4	2	0.006 kg
	1 NC + 1 NO	B	Universal 2.0 x 0.5 mm	**51-453.036F**	4	3	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-483.036F**	4	4	0.006 kg
	1 NO	B	Universal 2.0 x 0.5 mm	**51-455.036F**	4	5	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-485.036F**	4	6	0.006 kg
	2 NC	B	Universal 2.0 x 0.5 mm	**51-452.036F**	4	7	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-482.036F**	4	8	0.006 kg
	2 NO	B	Universal 2.0 x 0.5 mm	**51-451.036F**	4	9	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-481.036F**	4	10	0.006 kg
Snap-action switching element	1 NC + 1 NO	B	Solder 2.8 x 0.5 mm	**51-151.022F**		11	0.007 kg
		B	Solder	**51-151.0252F**		12	0.005 kg
		C	Solder 2.8 x 0.5 mm	**51-281.022F**		13	0.007 kg
		C	Solder	**51-281.0252F**		14	0.005 kg
	2 NC + 2 NO	B	Solder	**51-152.0252F**		15	0.008 kg
		C	Solder	**51-282.0252F**		16	0.008 kg
	3 NC + 3 NO	B	Solder	**51-153.0252F**		17	0.010 kg
		C	Solder	**51-283.0252F**		18	0.010 kg
	4 NC + 4 NO	B	Solder	**51-154.0252F**		19	0.012 kg
		C	Solder	**51-284.0252F**		20	0.012 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: B = Momentary, C = Maintain
The component layouts you will find from page 76

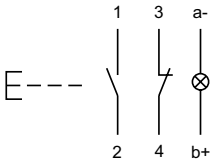
51 Flush design



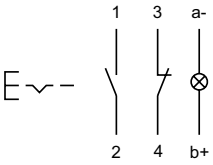
Wiring diagram 1



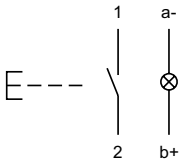
Wiring diagram 2



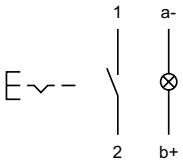
Wiring diagram 3



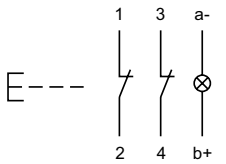
Wiring diagram 4



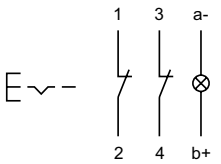
Wiring diagram 5



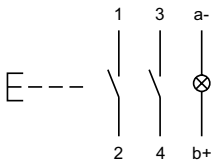
Wiring diagram 6



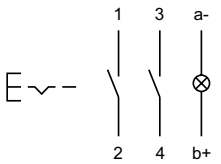
Wiring diagram 7



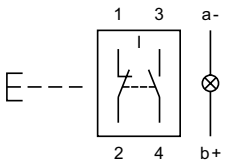
Wiring diagram 8



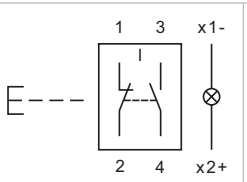
Wiring diagram 9



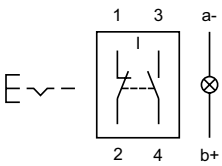
Wiring diagram 10



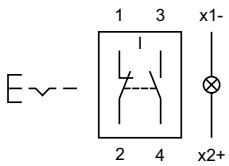
Wiring diagram 11



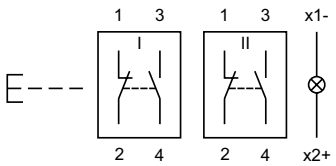
Wiring diagram 12



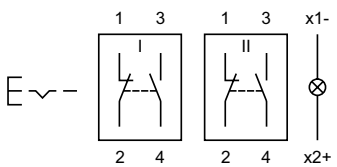
Wiring diagram 13



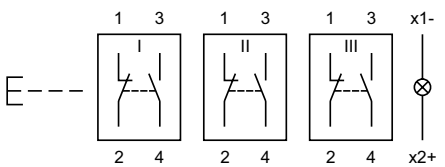
Wiring diagram 14



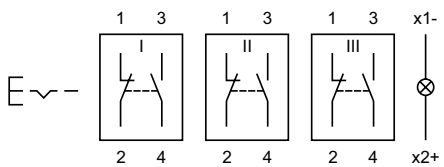
Wiring diagram 15



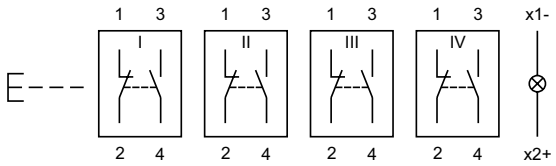
Wiring diagram 16



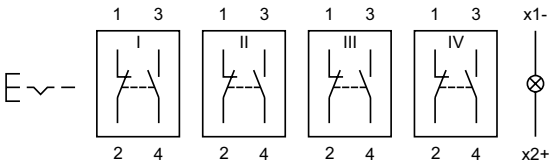
Wiring diagram 17



Wiring diagram 18



Wiring diagram 19



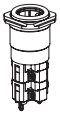
Wiring diagram 20

Illuminated pushbutton round, IP 65

Equipment consisting of (schematic overview)

Lens *page 52*

Single-LED *page 71*



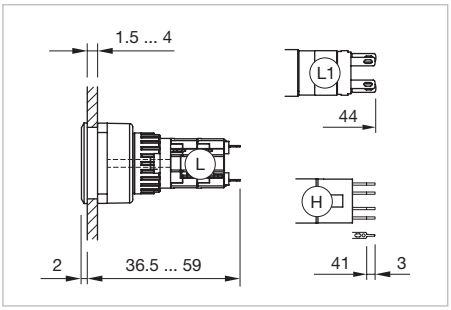
Actuator

Front bezel set *page 60*

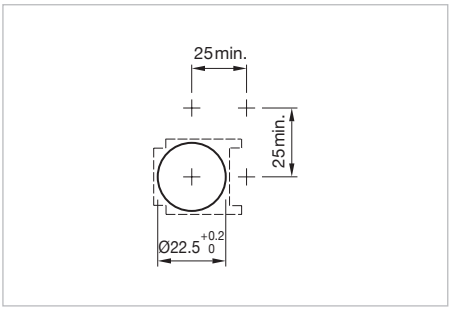
Fixing nut

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 page s shown.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm



Mounting cut-outs [mm]

Product can differ from the current configuration.

Additional Information

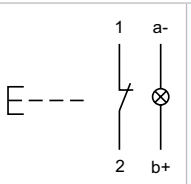
- For front dimension Ø 25 mm

Illuminated pushbutton round

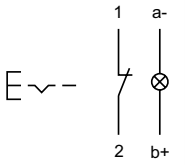
Switching system	Contacts	Switching action	Terminal	Part No.	Component layout	Wiring diagram	Weight
Low-level element	1 NC	B	Universal 2.0 x 0.5 mm	**51-456.036F**	4	1	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-486.036F**	4	2	0.006 kg
	1 NC + 1 NO	B	Universal 2.0 x 0.5 mm	**51-453.036F**	4	3	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-483.036F**	4	4	0.006 kg
	1 NO	B	Universal 2.0 x 0.5 mm	**51-455.036F**	4	5	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-485.036F**	4	6	0.006 kg
	2 NC	B	Universal 2.0 x 0.5 mm	**51-452.036F**	4	7	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-482.036F**	4	8	0.006 kg
	2 NO	B	Universal 2.0 x 0.5 mm	**51-451.036F**	4	9	0.006 kg
		C	Universal 2.0 x 0.5 mm	**51-481.036F**	4	10	0.006 kg
Snap-action switching element	1 NC + 1 NO	B	Solder 2.8 x 0.5 mm	**51-151.022F**		11	0.007 kg
		B	Solder	**51-151.0252F**		12	0.005 kg
		C	Solder 2.8 x 0.5 mm	**51-281.022F**		13	0.007 kg
		C	Solder	**51-281.0252F**		14	0.005 kg
	2 NC + 2 NO	B	Solder	**51-152.0252F**		15	0.008 kg
		C	Solder	**51-282.0252F**		16	0.008 kg
	3 NC + 3 NO	B	Solder	**51-153.0252F**		17	0.010 kg
		C	Solder	**51-283.0252F**		18	0.010 kg
	4 NC + 4 NO	B	Solder	**51-154.0252F**		19	0.012 kg
		C	Solder	**51-284.0252F**		20	0.012 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: B = Momentary, C = Maintain
The component layouts you will find from page 76

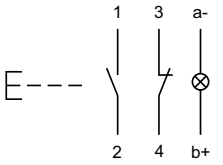
51 Flush design



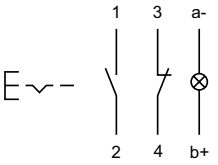
Wiring diagram 1



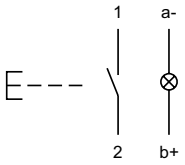
Wiring diagram 2



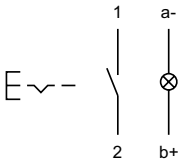
Wiring diagram 3



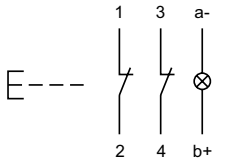
Wiring diagram 4



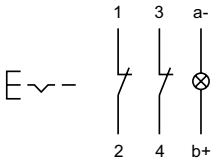
Wiring diagram 5



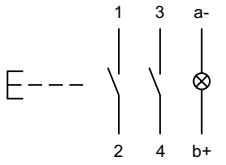
Wiring diagram 6



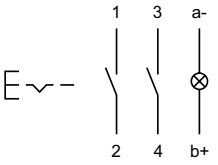
Wiring diagram 7



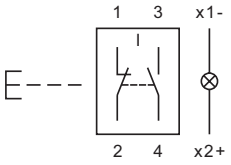
Wiring diagram 8



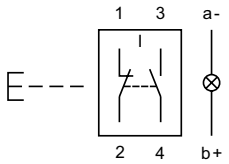
Wiring diagram 9



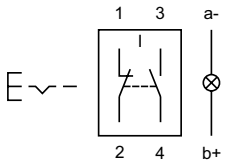
Wiring diagram 10



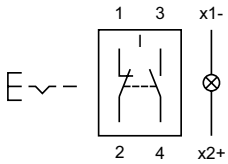
Wiring diagram 11



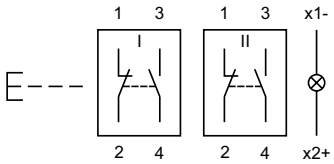
Wiring diagram 12



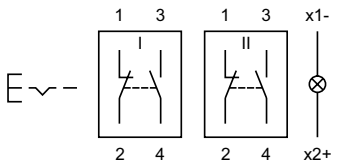
Wiring diagram 13



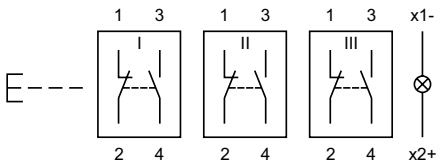
Wiring diagram 14



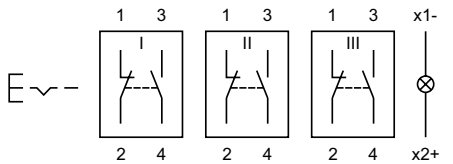
Wiring diagram 15



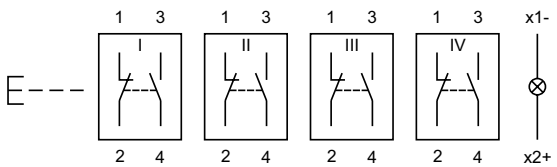
Wiring diagram 16



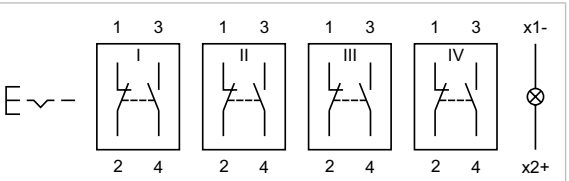
Wiring diagram 17



Wiring diagram 18



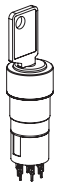
Wiring diagram 19



Wiring diagram 20

Keylock switch 2 positions, IP 65

Equipment consisting of (schematic overview)



Actuator

Front bezel set *page 62*

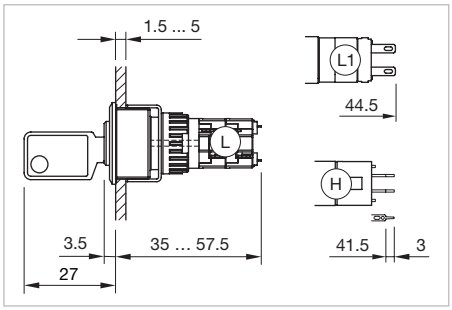
Anti-twist ring

Part of front bezel set

Fixing nut

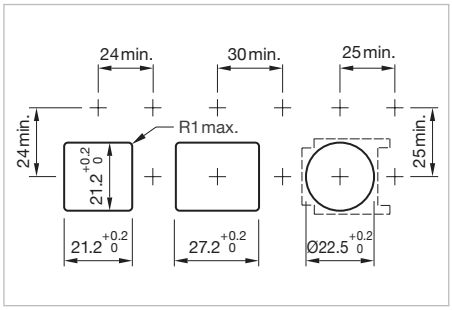
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

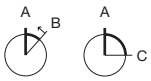
Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

- For front dimensions 24 x 24 mm, 24 x 30 mm, Ø 25 mm
- Front plastic black
- The standard lock: DOM 311
- Two keys are supplied with each key lock switch
- Optional lock numbers on request



Switching positions (A = Rest, B = Momentary, C = Maintained)

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Component layout	Wiring diagram	Weight
Keylock switch actuator 2 positions square, flush design									
Low-level element	1 NC + 1 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-458.036DF**	4	1	0.027 kg
	2 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-457.036DF**	4	2	0.027 kg
	1 NC + 1 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-445.036DF**	4	7	0.027 kg
				C	Universal 2.0 x 0.5 mm	**51-448.036DF**	4	7	0.027 kg
				A + C	Universal 2.0 x 0.5 mm	**51-442.036DF**	4	7	0.027 kg
	2 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-444.036DF**	4	8	0.027 kg
				C	Universal 2.0 x 0.5 mm	**51-447.036DF**	4	8	0.027 kg
				A + C	Universal 2.0 x 0.5 mm	**51-441.036DF**	4	8	0.027 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	A	Solder 2.8 x 0.5 mm	**51-145.022DF**		3	0.027 kg
				A	Solder	**51-145.025D2F**		3	0.027 kg
	2 NC + 2 NO	A - B	B = 42°	A	Solder	**51-146.025D2F**		4	0.027 kg
	3 NC + 3 NO	A - B	B = 42°	A	Solder	**51-147.025D2F**		5	0.027 kg
	4 NC + 4 NO	A - B	B = 42°	A	Solder	**51-148.025D2F**		6	0.027 kg
	1 NC + 1 NO	A - C	C = 90°	A	Solder	**51-255.025D2F**		9	0.027 kg
				C	Solder	**51-355.025D2F**		9	0.027 kg
				A + C	Solder	**51-155.025D2F**		9	0.027 kg
				A	Solder 2.8 x 0.5 mm	**51-255.022DF**		9	0.027 kg

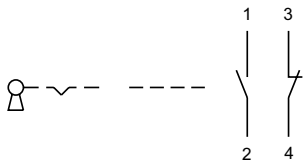
51 Flush design

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action switching element	1 NC + 1 NO	A - C	C = 90°	C	Solder 2.8 x 0.5 mm	**51-355.022DF**		9	0.027 kg
				A + C	Solder 2.8 x 0.5 mm	**51-155.022DF**		9	0.027 kg
	2 NC + 2 NO	A - C	C = 90°	A	Solder	**51-256.025D2F**		10	0.027 kg
				C	Solder	**51-356.025D2F**		10	0.027 kg
				A + C	Solder	**51-156.025D2F**		10	0.027 kg
	3 NC + 3 NO	A - C	C = 90°	A	Solder	**51-257.025D2F**		11	0.027 kg
				C	Solder	**51-357.025D2F**		11	0.027 kg
				A + C	Solder	**51-157.025D2F**		11	0.027 kg
	4 NC + 4 NO	A - C	C = 90°	A	Solder	**51-258.025D2F**		12	0.027 kg
				C	Solder	**51-358.025D2F**		12	0.027 kg
				A + C	Solder	**51-158.025D2F**		12	0.027 kg
Keylock switch actuator 2 positions rectangular, flush design									
Low-level element	1 NC + 1 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-428.036DF**	4	1	0.029 kg
	2 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-427.036DF**	4	2	0.029 kg
	1 NC + 1 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-405.036DF**	4	7	0.029 kg
				C	Universal 2.0 x 0.5 mm	**51-408.036DF**	4	7	0.029 kg
				A + C	Universal 2.0 x 0.5 mm	**51-402.036DF**	4	7	0.029 kg
	2 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-404.036DF**	4	8	0.029 kg
				C	Universal 2.0 x 0.5 mm	**51-407.036DF**	4	8	0.029 kg
				A + C	Universal 2.0 x 0.5 mm	**51-401.036DF**	4	8	0.029 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	A	Solder 2.8 x 0.5 mm	**51-495.022DF**		3	0.029 kg
				A	Solder	**51-495.025D2F**		3	0.029 kg
	2 NC + 2 NO	A - B	B = 42°	A	Solder	**51-496.025D2F**		4	0.029 kg
	3 NC + 3 NO	A - B	B = 42°	A	Solder	**51-497.025D2F**		5	0.029 kg
	4 NC + 4 NO	A - B	B = 42°	A	Solder	**51-498.025D2F**		6	0.029 kg
	1 NC + 1 NO	A - C	C = 90°	A	Solder	**51-295.025D2F**		9	0.029 kg
				C	Solder	**51-395.025D2F**		9	0.029 kg
				A + C	Solder	**51-195.025D2F**		9	0.029 kg
				A	Solder 2.8 x 0.5 mm	**51-295.022DF**		9	0.029 kg
				C	Solder 2.8 x 0.5 mm	**51-395.022DF**		9	0.029 kg
				A + C	Solder 2.8 x 0.5 mm	**51-195.022DF**		9	0.029 kg
	2 NC + 2 NO	A - C	C = 90°	A	Solder	**51-296.025D2F**		10	0.029 kg
				C	Solder	**51-396.025D2F**		10	0.029 kg
				A + C	Solder	**51-196.025D2F**		10	0.029 kg
	3 NC + 3 NO	A - C	C = 90°	A	Solder	**51-297.025D2F**		11	0.029 kg
				C	Solder	**51-397.025D2F**		11	0.029 kg
				A + C	Solder	**51-197.025D2F**		11	0.029 kg
	4 NC + 4 NO	A - C	C = 90°	A	Solder	**51-298.025D2F**		12	0.029 kg
				C	Solder	**51-398.025D2F**		12	0.029 kg
				A + C	Solder	**51-198.025D2F**		12	0.029 kg

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Keylock switch actuator 2 positions round, flush design									
Low-level element	1 NC + 1 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-438.036DF**	4	1	0.026 kg
	2 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-437.036DF**	4	2	0.026 kg
	1 NC + 1 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-415.036DF**	4	7	0.026 kg
				C	Universal 2.0 x 0.5 mm	**51-418.036DF**	4	7	0.026 kg
				A + C	Universal 2.0 x 0.5 mm	**51-412.036DF**	4	7	0.026 kg
	2 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-414.036DF**	4	8	0.026 kg
				C	Universal 2.0 x 0.5 mm	**51-417.036DF**	4	8	0.026 kg
				A + C	Universal 2.0 x 0.5 mm	**51-411.036DF**	4	8	0.026 kg
Snap-action swit-ching element	1 NC + 1 NO	A - B	B = 42°	A	Solder 2.8 x 0.5 mm	**51-141.022DF**		3	0.026 kg
				A	Solder	**51-141.025D2F**		3	0.026 kg
	2 NC + 2 NO	A - B	B = 42°	A	Solder	**51-142.025D2F**		4	0.026 kg
	3 NC + 3 NO	A - B	B = 42°	A	Solder	**51-143.025D2F**		5	0.026 kg
	4 NC + 4 NO	A - B	B = 42°	A	Solder	**51-144.025D2F**		6	0.026 kg
	1 NC + 1 NO	A - C	C = 90°	A	Solder	**51-235.025D2F**		9	0.026 kg
				C	Solder	**51-335.025D2F**		9	0.026 kg
				A + C	Solder	**51-135.025D2F**		9	0.026 kg
				A	Solder 2.8 x 0.5 mm	**51-235.022DF**		9	0.026 kg
				C	Solder 2.8 x 0.5 mm	**51-335.022DF**		9	0.026 kg
				A + C	Solder 2.8 x 0.5 mm	**51-135.022DF**		9	0.026 kg
	2 NC + 2 NO	A - C	C = 90°	A	Solder	**51-236.025D2F**		10	0.026 kg
				C	Solder	**51-336.025D2F**		10	0.026 kg
				A + C	Solder	**51-136.025D2F**		10	0.026 kg
	3 NC + 3 NO	A - C	C = 90°	A	Solder	**51-237.025D2F**		11	0.026 kg
				C	Solder	**51-337.025D2F**		11	0.026 kg
				A + C	Solder	**51-137.025D2F**		11	0.026 kg
	4 NC + 4 NO	A - C	C = 90°	A	Solder	**51-238.025D2F**		12	0.026 kg
				C	Solder	**51-338.025D2F**		12	0.026 kg
				A + C	Solder	**51-138.025D2F**		12	0.026 kg

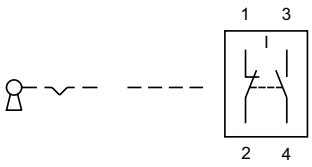
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain
The component layouts you will find from page 76

51 Flush design

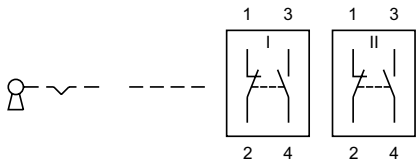


Wiring diagram 1

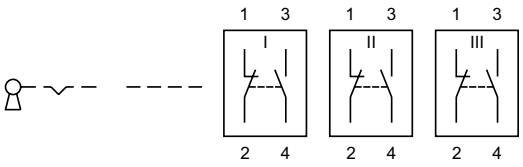
Wiring diagram 2



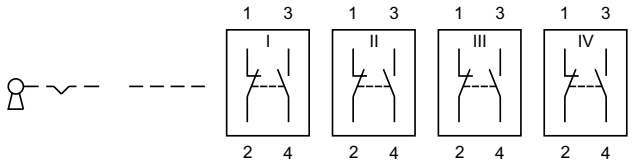
Wiring diagram 3



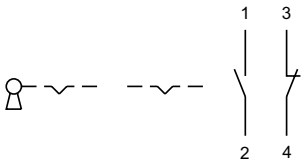
Wiring diagram 4



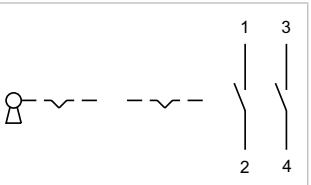
Wiring diagram 5



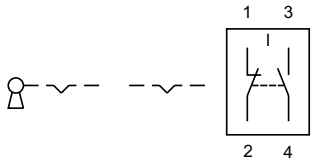
Wiring diagram 6



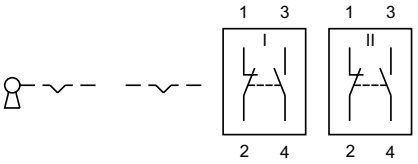
Wiring diagram 7



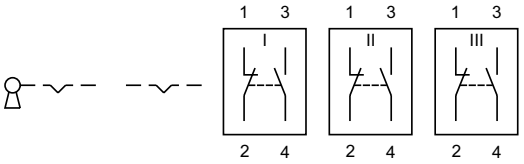
Wiring diagram 8



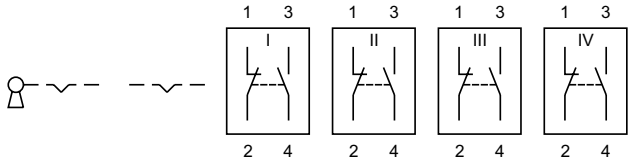
Wiring diagram 9



Wiring diagram 10



Wiring diagram 11



Wiring diagram 12

Keylock switch 3 positions, IP 65

Equipment consisting of (schematic overview)

Actuator

Front bezel set *page 62*

Anti-twist ring

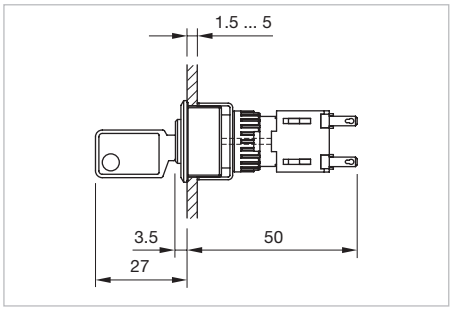
Part of front bezel set

Fixing nut

Switching element

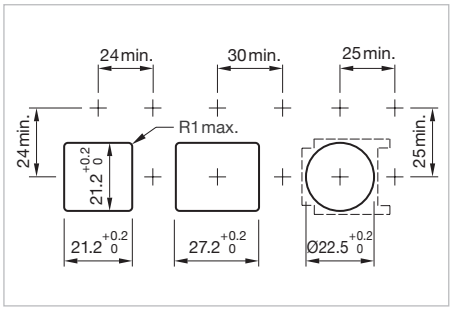
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]

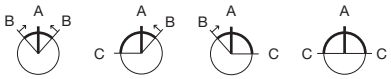
Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

- For front dimensions 24 x 24 mm, 24 x 30 mm, Ø 25 mm
- Front plastic black
- The standard lock: DOM 311
- Two keys are supplied with each key lock switch
- Optional lock numbers on request



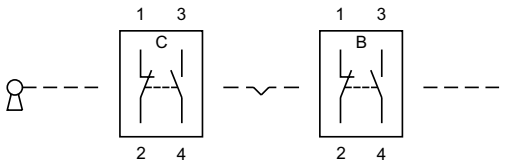
Switching positions (A = Rest, B = Momentary, C = Maintained)

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Wiring diagram	Weight
Keylock switch actuator 3 positions square, flush design								
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	A	Solder 2.8 x 0.5 mm	**51-384.022DF**	1	0.027 kg
		C - A - B	C = 90°, B = 42°	A	Solder 2.8 x 0.5 mm	**51-387.022DF**	2	0.027 kg
				C + A	Solder 2.8 x 0.5 mm	**51-388.022DF**	2	0.027 kg
		B - A - C	B = 42°, C = 90°	A	Solder 2.8 x 0.5 mm	**51-385.022DF**	3	0.027 kg
				A + C	Solder 2.8 x 0.5 mm	**51-386.022DF**	3	0.027 kg
		C - A - C	C = 90° / 90°	A	Solder 2.8 x 0.5 mm	**51-381.022DF**	4	0.027 kg
				C + A + C	Solder 2.8 x 0.5 mm	**51-382.022DF**	4	0.027 kg
				C + C	Solder 2.8 x 0.5 mm	**51-383.022DF**	4	0.027 kg

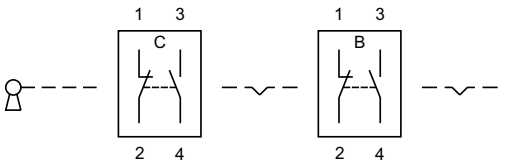
51 Flush design

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Wiring diagram	Weight
Keylock switch actuator 3 positions rectangular, flush design								
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	A	Solder 2.8 x 0.5 mm	**51-364.022DF**	1	0.027 kg
		C - A - B	C = 90°, B = 42°	A	Solder 2.8 x 0.5 mm	**51-367.022DF**	2	0.027 kg
				C + A	Solder 2.8 x 0.5 mm	**51-368.022DF**	2	0.027 kg
		B - A - C	B = 42°, C = 90°	A	Solder 2.8 x 0.5 mm	**51-365.022DF**	3	0.027 kg
				A + C	Solder 2.8 x 0.5 mm	**51-366.022DF**	3	0.027 kg
		C - A - C	C = 90° / 90°	A	Solder 2.8 x 0.5 mm	**51-361.022DF**	4	0.027 kg
				C + A + C	Solder 2.8 x 0.5 mm	**51-362.022DF**	4	0.027 kg
				C + C	Solder 2.8 x 0.5 mm	**51-363.022DF**	4	0.027 kg
Keylock switch actuator 3 positions round, flush design								
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	A	Solder 2.8 x 0.5 mm	**51-374.022DF**	1	0.027 kg
		C - A - B	C = 90°, B = 42°	A	Solder 2.8 x 0.5 mm	**51-377.022DF**	2	0.027 kg
				C + A	Solder 2.8 x 0.5 mm	**51-378.022DF**	2	0.027 kg
		B - A - C	B = 42°, C = 90°	A	Solder 2.8 x 0.5 mm	**51-375.022DF**	3	0.027 kg
				A + C	Solder 2.8 x 0.5 mm	**51-376.022DF**	3	0.027 kg
		C - A - C	C = 90° / 90°	A	Solder 2.8 x 0.5 mm	**51-371.022DF**	4	0.027 kg
				C + A + C	Solder 2.8 x 0.5 mm	**51-372.022DF**	4	0.027 kg
				C + C	Solder 2.8 x 0.5 mm	**51-373.022DF**	4	0.027 kg

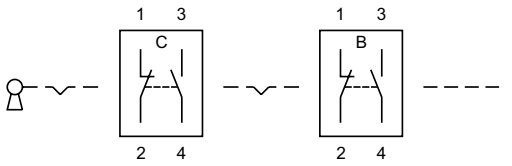
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain



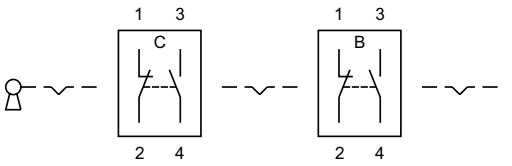
Wiring diagram 1



Wiring diagram 2



Wiring diagram 3



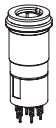
Wiring diagram 4

Selector switch 2 positions square, IP 65

Equipment consisting of (schematic overview)

Lever *page 58*

Single-LED *page 71*



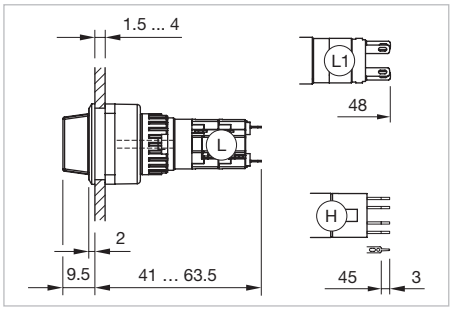
Actuator

Front bezel set *page 63*

Fixing nut

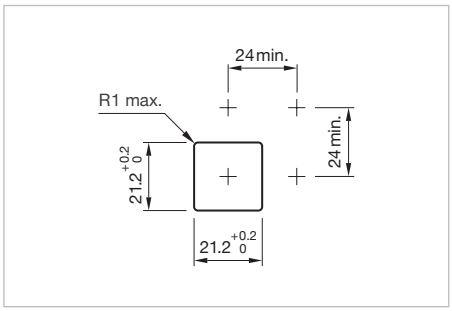
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

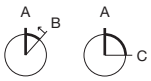
Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

- For front dimension 24 x 24 mm
- Illuminative



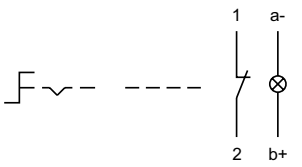
Switching positions (A = Rest, B = Momentary, C = Maintained)

Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Component layout	Wiring diagram	Weight
Selector switch actuator 2 positions square, flush design								
Low-level element	1 NC	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-436.036**	4	1	0.007 kg
	1 NC + 1 NO	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-433.036**	4	2	0.007 kg
	1 NO	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-435.036**	4	3	0.007 kg
	2 NC	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-432.036**	4	4	0.007 kg
	2 NO	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-431.036**	4	5	0.007 kg
	1 NC	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-476.036**	4	11	0.007 kg
	1 NC + 1 NO	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-473.036**	4	12	0.007 kg
	1 NO	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-475.036**	4	13	0.007 kg
	2 NC	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-472.036**	4	14	0.007 kg
	2 NO	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-471.036**	4	15	0.007 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	Solder	**52-131.0252**		6	0.006 kg
				Solder 2.8 x 0.5 mm	**52-131.022**		7	0.006 kg
	2 NC + 2 NO	A - B	B = 42°	Solder	**52-132.0252**		8	0.006 kg
	3 NC + 3 NO	A - B	B = 42°	Solder	**52-133.0252**		9	0.006 kg
	4 NC + 4 NO	A - B	B = 42°	Solder	**52-134.0252**		10	0.006 kg
	1 NC + 1 NO	A - C	C = 90°	Solder	**52-271.0252**		16	0.006 kg
				Solder 2.8 x 0.5 mm	**52-271.022**		17	0.006 kg

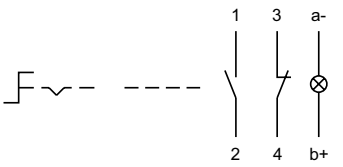
51 Flush design

Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action switching element	2 NC + 2 NO	A - C	C = 90°	Solder	**52-272.0252**		18	0.006 kg
	3 NC + 3 NO	A - C	C = 90°	Solder	**52-273.0252**		19	0.006 kg
	4 NC + 4 NO	A - C	C = 90°	Solder	**52-274.0252**		20	0.006 kg

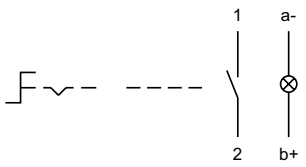
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain
The component layouts you will find from page 76



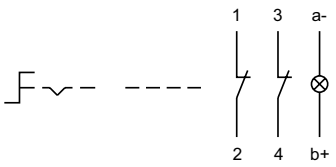
Wiring diagram 1



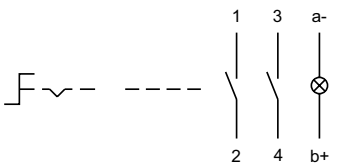
Wiring diagram 2



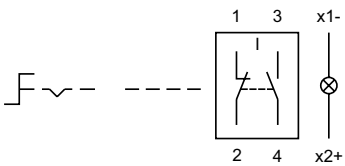
Wiring diagram 3



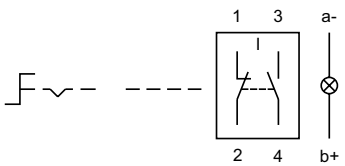
Wiring diagram 4



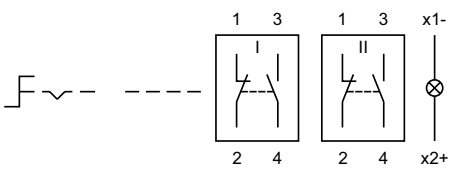
Wiring diagram 5



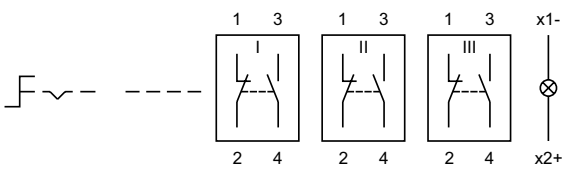
Wiring diagram 6



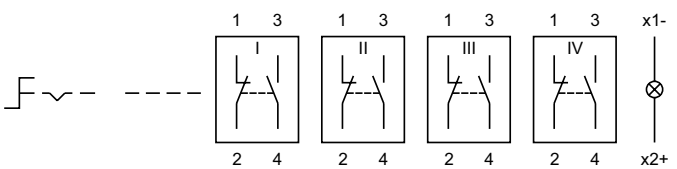
Wiring diagram 7



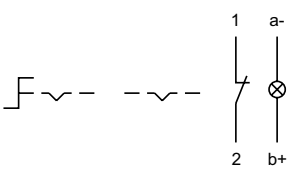
Wiring diagram 8



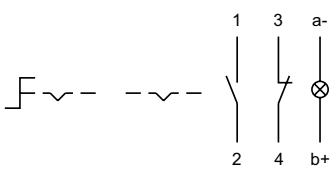
Wiring diagram 9



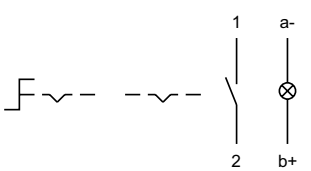
Wiring diagram 10



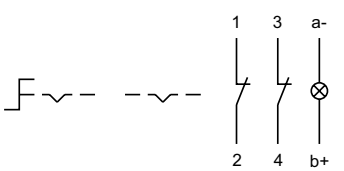
Wiring diagram 11



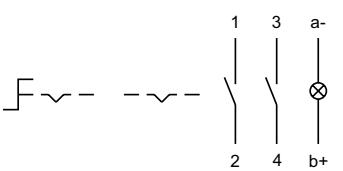
Wiring diagram 12



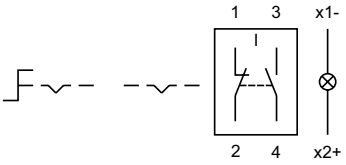
Wiring diagram 13



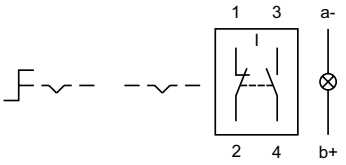
Wiring diagram 14



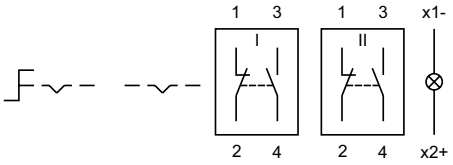
Wiring diagram 15



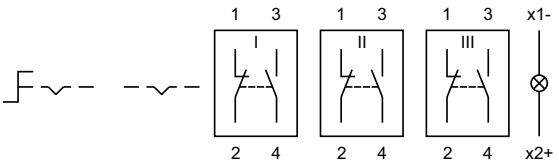
Wiring diagram 16



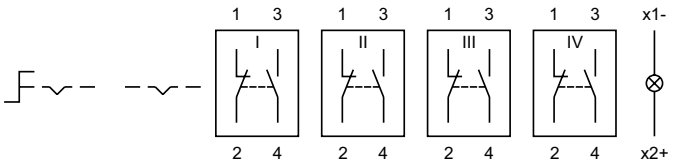
Wiring diagram 17



Wiring diagram 18



Wiring diagram 19

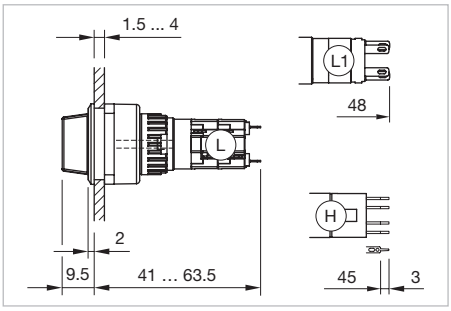


Wiring diagram 20

51 Flush design

Selector switch 2 positions round, IP 65

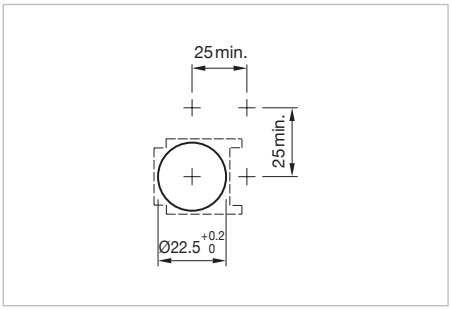
Product can differ from the current configuration.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Additional Information

- For front dimension Ø 25 mm
- Illuminative

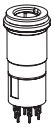


Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

Lever *page 58*

Single-LED *page 71*


Actuator

Front bezel set *page 63*

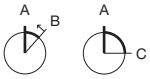
Anti-twist ring

Part of front bezel set

Fixing nut

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

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

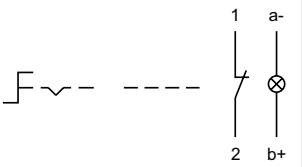


Switching positions (A = Rest, B = Momentary, C = Maintained)

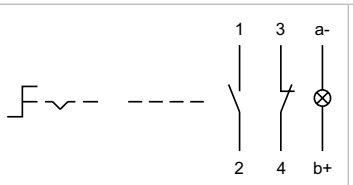
Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Component layout	Wiring diagram	Weight
Selector switch actuator 2 positions round, flush design								
Low-level element	1 NC	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-436.036**	4	1	0.007 kg
	1 NC + 1 NO	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-433.036**	4	2	0.007 kg
	1 NO	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-435.036**	4	3	0.007 kg
	2 NC	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-432.036**	4	4	0.007 kg
	2 NO	A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-431.036**	4	5	0.007 kg
	1 NC	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-476.036**	4	11	0.007 kg
	1 NC + 1 NO	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-473.036**	4	12	0.007 kg
	1 NO	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-475.036**	4	13	0.007 kg
	2 NC	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-472.036**	4	14	0.007 kg
	2 NO	A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-471.036**	4	15	0.007 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	Solder	**52-131.0252**		6	0.006 kg
				Solder 2.8 x 0.5 mm	**52-131.022**		7	0.006 kg
	2 NC + 2 NO	A - B	B = 42°	Solder	**52-132.0252**		8	0.006 kg
	3 NC + 3 NO	A - B	B = 42°	Solder	**52-133.0252**		9	0.006 kg
	4 NC + 4 NO	A - B	B = 42°	Solder	**52-134.0252**		10	0.006 kg
	1 NC + 1 NO	A - C	C = 90°	Solder	**52-271.0252**		16	0.006 kg
				Solder 2.8 x 0.5 mm	**52-271.022**		17	0.006 kg

Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action switching element	2 NC + 2 NO	A - C	C = 90°	Solder	**52-272.0252**		18	0.006 kg
	3 NC + 3 NO	A - C	C = 90°	Solder	**52-273.0252**		19	0.006 kg
	4 NC + 4 NO	A - C	C = 90°	Solder	**52-274.0252**		20	0.006 kg

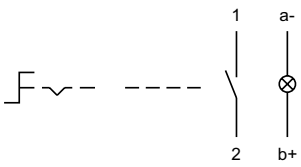
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain
The component layouts you will find from page 76



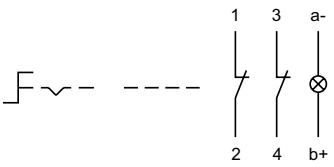
Wiring diagram 1



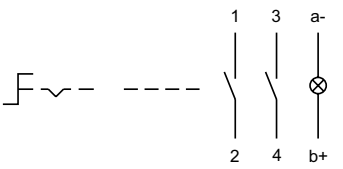
Wiring diagram 2



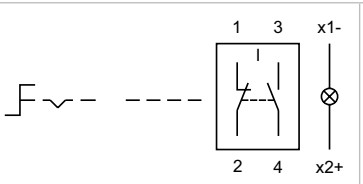
Wiring diagram 3



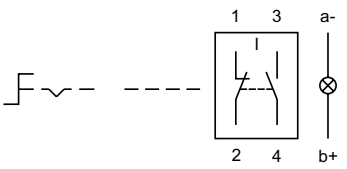
Wiring diagram 4



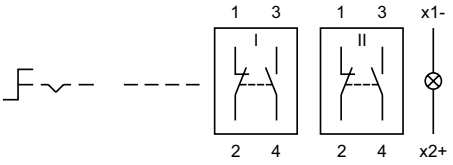
Wiring diagram 5



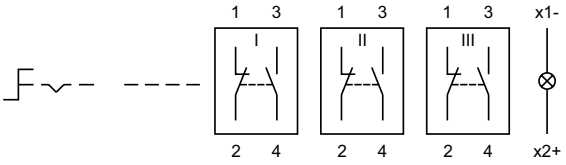
Wiring diagram 6



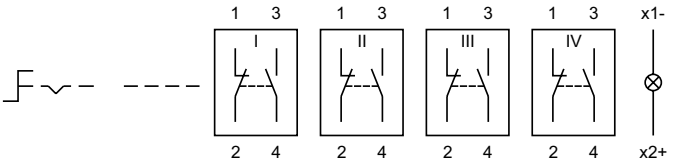
Wiring diagram 7



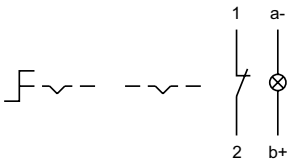
Wiring diagram 8



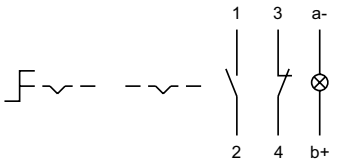
Wiring diagram 9



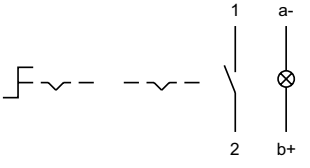
Wiring diagram 10



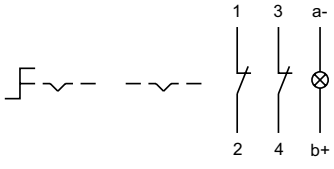
Wiring diagram 11



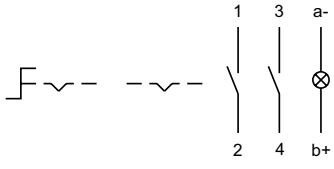
Wiring diagram 12



Wiring diagram 13

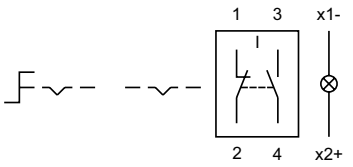


Wiring diagram 14

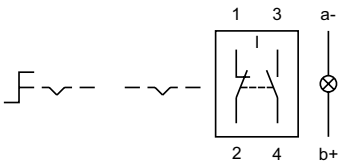


Wiring diagram 15

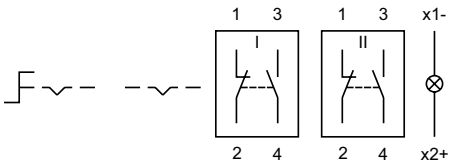
51 Flush design



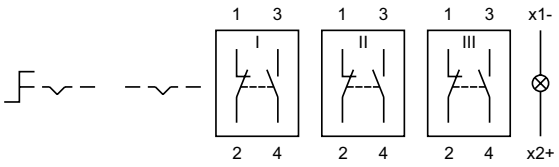
Wiring diagram 16



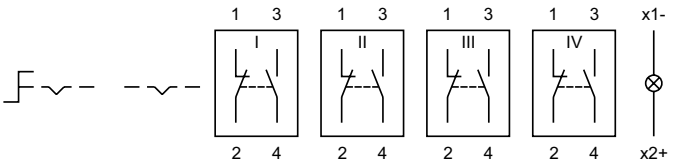
Wiring diagram 17



Wiring diagram 18



Wiring diagram 19



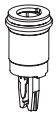
Wiring diagram 20

Selector switch 3 positions square, IP 40

Equipment consisting of (schematic overview)

Lever *page 58*

Single-LED *page 71*



Actuator

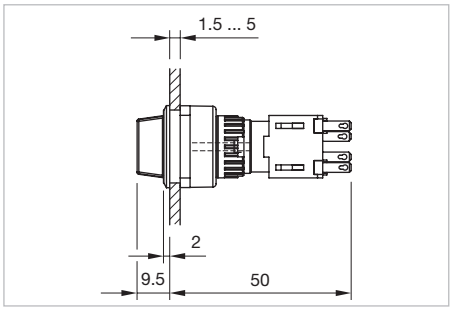
Front bezel set *page 63*

Fixing nut

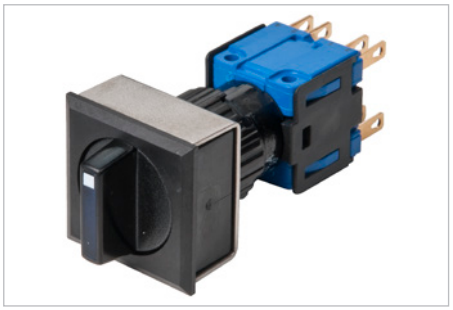
Switching element

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

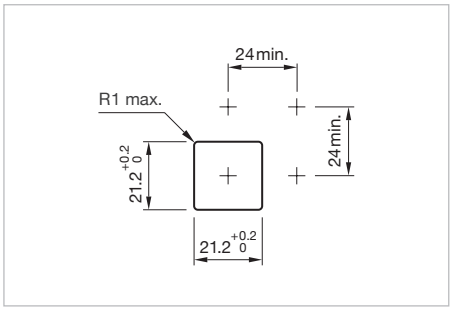
To obtain a complete unit, please select the red components from the page s shown.



Dimensions [mm]



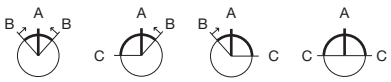
Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

- For front dimension 24 x 24 mm
- Illuminative

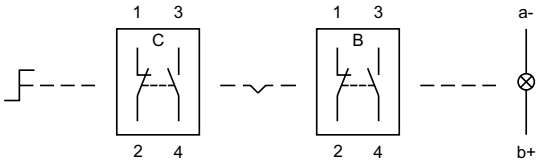


Switching positions (A = Rest, B = Momentary, C = Maintained)

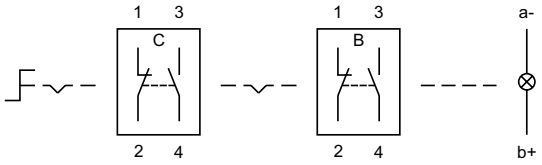
Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Wiring diagram	Weight
Selector switch actuator 3 positions square, flush design							
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	Solder 2.8 x 0.5 mm	**52-572.022A**	1	0.015 kg
		C - A - B	C = 90°, B = 42°	Solder 2.8 x 0.5 mm	**52-574.022A**	2	0.015 kg
		B - A - C	B = 42°, C = 90°	Solder 2.8 x 0.5 mm	**52-573.022A**	3	0.015 kg
		C - A - C	C = 90° / 90°	Solder 2.8 x 0.5 mm	**52-571.022A**	4	0.015 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain

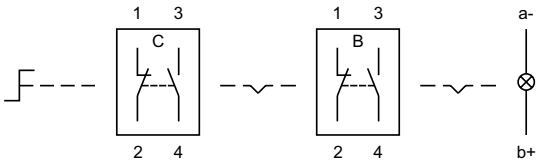
51 Flush design



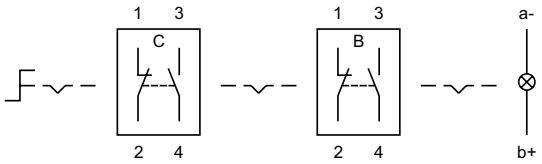
Wiring diagram 1



Wiring diagram 2



Wiring diagram 3



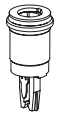
Wiring diagram 4

Selector switch 3 positions round, IP 40

Equipment consisting of (schematic overview)

Lever *page 58*

Single-LED *page 71*


Actuator

Front bezel set *page 63*

Anti-twist ring

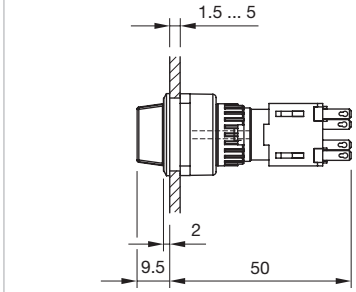
Part of front bezel set

Fixing nut

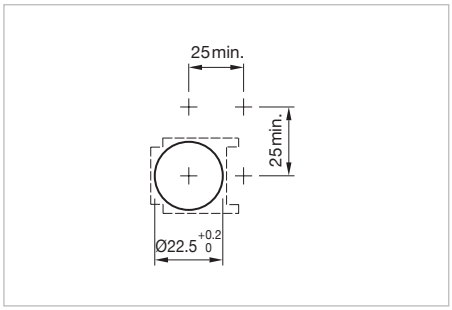
Switching element

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

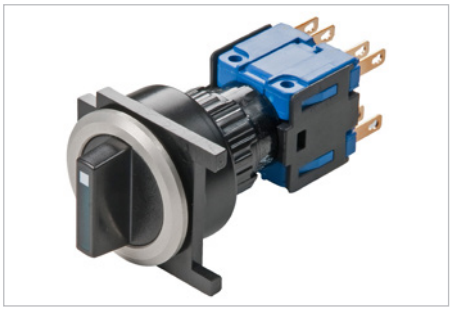
To obtain a complete unit, please select the red components from the page s shown.



Dimensions [mm]



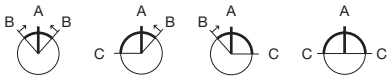
Mounting cut-outs [mm]



Product can differ from the current configuration.

Additional Information

- For front dimension Ø 25 mm
- Illuminative

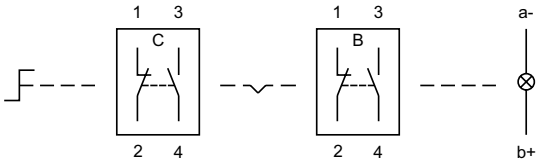


Switching positions (A = Rest, B = Momentary, C = Maintained)

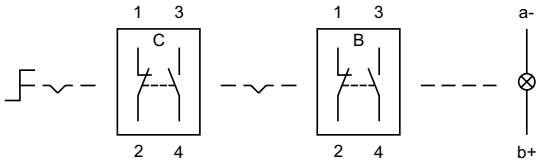
Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Wiring diagram	Weight
Selector switch actuator 3 positions round, flush design							
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	Solder 2.8 x 0.5 mm	**52-572.022A**	1	0.015 kg
		C - A - B	C = 90°, B = 42°	Solder 2.8 x 0.5 mm	**52-574.022A**	2	0.015 kg
		B - A - C	B = 42°, C = 90°	Solder 2.8 x 0.5 mm	**52-573.022A**	3	0.015 kg
		C - A - C	C = 90° / 90°	Solder 2.8 x 0.5 mm	**52-571.022A**	4	0.015 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain

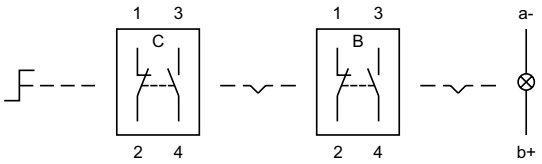
51 Flush design



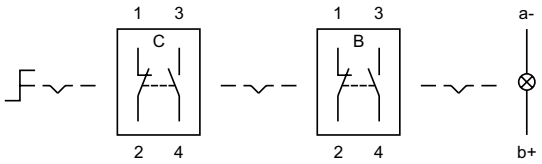
Wiring diagram 1



Wiring diagram 2



Wiring diagram 3



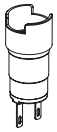
Wiring diagram 4

Indicator, IP 65

Equipment consisting of (schematic overview)

Lens *page 53*

Single-LED *page 71*

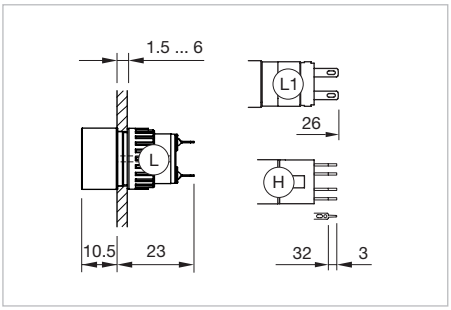


Actuator

Fixing nut

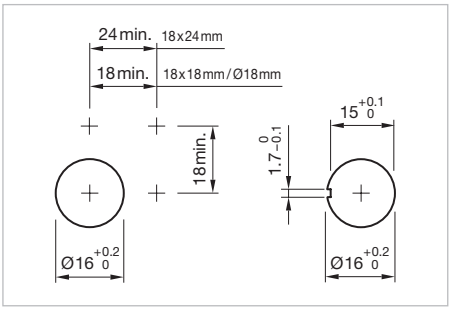
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Product can differ from the current configuration.



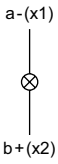
Mounting cut-outs [mm]

Diode 1N4007	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Indicator actuator, Front dimension 18 x 18 mm					
1	Universal 2.0 x 0.5 mm	**51-703.006**	4	3	0.006 kg
2	Universal 2.0 x 0.5 mm	**51-704.006**	4	2	0.006 kg
	Solder 2.8 x 0.5 mm	**51-050.002**		1	0.004 kg
	Solder	**51-050.005**		1	0.004 kg
	Universal 2.0 x 0.5 mm	**51-051.006**	4	1	0.005 kg
Indicator actuator, Front dimension 18 x 24 mm					
1	Universal 2.0 x 0.5 mm	**51-701.006**	4	3	0.006 kg
2	Universal 2.0 x 0.5 mm	**51-702.006**	4	2	0.006 kg
	Solder 2.8 x 0.5 mm	**51-040.002**		1	0.004 kg
	Solder	**51-040.005**		1	0.004 kg
	Universal 2.0 x 0.5 mm	**51-041.006**	4	1	0.005 kg

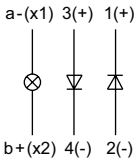
51 Raised design

Diode 1N4007	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Indicator actuator, Front dimension Ø 18 mm					
1	Universal 2.0 x 0.5 mm	**51-741.006**	4	3	0.006 kg
2	Universal 2.0 x 0.5 mm	**51-742.006**	4	2	0.006 kg
	Solder 2.8 x 0.5 mm	**51-030.002**		1	0.004 kg
	Solder	**51-030.005**		1	0.004 kg
	Universal 2.0 x 0.5 mm	**51-031.006**	4	1	0.005 kg

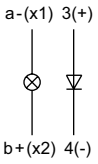
The component layouts you will find from page 76



Wiring diagram 1



Wiring diagram 2



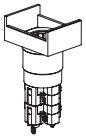
Wiring diagram 3

Illuminated pushbutton, IP 65

Equipment consisting of (schematic overview)

Lens *page 53*

Single-LED *page 71*

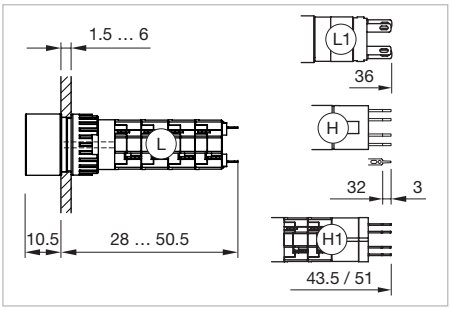


Actuator

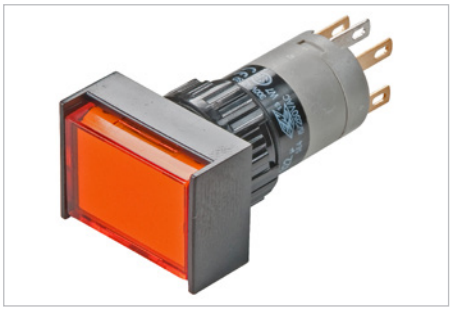
Fixing nut

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

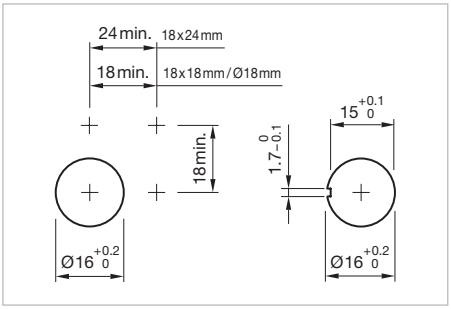
To obtain a complete unit, please select the red components from the page s shown.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
H1 = Universal-Solder terminal,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]

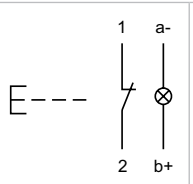
Switching system	Contacts	Diode 1N4007	Switching action	Terminal	Part No.	Component layout	Wiring diagram	Weight
Illuminated pushbutton actuator, Front dimension 18 x 18 mm								
Low-level element	1 NC		C	Universal 2.0 x 0.5 mm	**51-486.036**	4	2	0.007 kg
	1 NC + 1 NO		B	Universal 2.0 x 0.5 mm	**51-453.036**	4	3	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-483.036**	4	4	0.007 kg
	1 NO		B	Universal 2.0 x 0.5 mm	**51-455.036**	4	5	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-485.036**	4	6	0.007 kg
	2 NC		B	Universal 2.0 x 0.5 mm	**51-452.036**	4	7	0.007 kg
	2 NO		B	Universal 2.0 x 0.5 mm	**51-451.036**	4	9	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-481.036**	4	10	0.007 kg
Snap-action switching element	1 NC + 1 NO	2	C	Universal-Solder	**51-718.0292**		13	0.008 kg
			B	Universal-Solder	**51-710.0292**		14	0.008 kg
			B	Solder	**51-151.0252**		15	0.006 kg
			B	Solder 2.8 x 0.5 mm	**51-151.022**		16	0.006 kg
			C	Solder	**51-281.0252**		17	0.006 kg
			C	Solder 2.8 x 0.5 mm	**51-281.022**		18	0.006 kg
	2 NC + 2 NO	1	C	Universal-Solder	**51-719.0292**		20	0.010 kg
		2	B	Universal-Solder	**51-712.0292**		21	0.010 kg
			C	Universal-Solder	**51-720.0292**		22	0.010 kg
			B	Solder	**51-152.0252**		23	0.008 kg
			C	Solder	**51-282.0252**		24	0.008 kg

51 Raised design

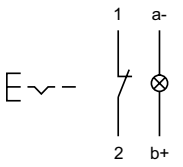
Switching system	Contacts	Diode 1N4007	Switching action	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action switching element	3 NC + 3 NO		B	Solder	**51-153.0252**		25	0.010 kg
			C	Solder	**51-283.0252**		26	0.010 kg
	4 NC + 4 NO		B	Solder	**51-154.0252**		27	0.012 kg
			C	Solder	**51-284.0252**		28	0.012 kg
Illuminated pushbutton actuator, Front dimension 18 x 24 mm								
Low-level element	1 NC		B	Universal 2.0 x 0.5 mm	**51-426.036**	4	1	0.007 kg
	1 NC + 1 NO		B	Universal 2.0 x 0.5 mm	**51-423.036**	4	3	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-463.036**	4	4	0.007 kg
	1 NO		B	Universal 2.0 x 0.5 mm	**51-425.036**	4	5	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-465.036**	4	6	0.007 kg
	2 NC		B	Universal 2.0 x 0.5 mm	**51-422.036**	4	7	0.007 kg
	2 NO		B	Universal 2.0 x 0.5 mm	**51-421.036**	4	9	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-461.036**	4	10	0.007 kg
Snap-action switching element	1 NC + 1 NO	1	B	Universal-Solder	**51-705.0292**		11	0.008 kg
		2	C	Universal-Solder	**51-714.0292**		13	0.008 kg
			B	Universal-Solder	**51-706.0292**		14	0.008 kg
			B	Solder	**51-121.0252**		15	0.006 kg
			B	Solder 2.8 x 0.5 mm	**51-121.022**		16	0.006 kg
			C	Solder	**51-261.0252**		17	0.006 kg
			C	Solder 2.8 x 0.5 mm	**51-261.022**		18	0.006 kg
	2 NC + 2 NO	1	B	Universal-Solder	**51-707.0292**		19	0.010 kg
			C	Universal-Solder	**51-715.0292**		20	0.010 kg
		2	B	Universal-Solder	**51-708.0292**		21	0.010 kg
			C	Universal-Solder	**51-716.0292**		22	0.010 kg
			B	Solder	**51-122.0252**		23	0.008 kg
			C	Solder	**51-262.0252**		24	0.008 kg
	3 NC + 3 NO		B	Solder	**51-123.0252**		25	0.010 kg
			C	Solder	**51-263.0252**		26	0.010 kg
	4 NC + 4 NO		B	Solder	**51-124.0252**		27	0.012 kg
			C	Solder	**51-264.0252**		28	0.012 kg
Illuminated pushbutton actuator, Front dimension Ø 18 mm								
Low-level element	1 NC		B	Universal 2.0 x 0.5 mm	**51-436.036**	4	1	0.007 kg
	1 NC + 1 NO		B	Universal 2.0 x 0.5 mm	**51-433.036**	4	3	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-473.036**	4	4	0.007 kg
	1 NO		B	Universal 2.0 x 0.5 mm	**51-435.036**	4	5	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-475.036**	4	6	0.007 kg
	2 NO		B	Universal 2.0 x 0.5 mm	**51-431.036**	4	9	0.007 kg
			C	Universal 2.0 x 0.5 mm	**51-471.036**	4	10	0.007 kg
Snap-action switching element	1 NC + 1 NO	1	C	Universal-Solder	**51-747.0292**		12	0.008 kg
			B	Solder	**51-131.0252**		15	0.006 kg
			B	Solder 2.8 x 0.5 mm	**51-131.022**		16	0.006 kg
			C	Solder	**51-271.0252**		17	0.006 kg
			C	Solder 2.8 x 0.5 mm	**51-271.022**		18	0.006 kg
	2 NC + 2 NO	1	C	Universal-Solder	**51-749.0292**		20	0.010 kg
		2	B	Universal-Solder	**51-746.0292**		21	0.010 kg
			C	Universal-Solder	**51-750.0292**		22	0.010 kg

Switching system	Contacts	Diode 1N4007	Switching action	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action switching element	2 NC + 2 NO		B	Solder	**51-132.0252**		23	0.008 kg
			C	Solder	**51-272.0252**		24	0.008 kg
	3 NC + 3 NO		B	Solder	**51-133.0252**		25	0.010 kg
			C	Solder	**51-273.0252**		26	0.010 kg
	4 NC + 4 NO		B	Solder	**51-134.0252**		27	0.012 kg
			C	Solder	**51-274.0252**		28	0.012 kg

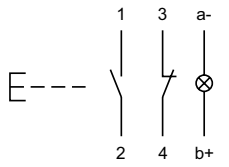
Contacts: NC = Normally closed, NO = Normally open
Switching action: B = Momentary, C = Maintain
The component layouts you will find from page 76



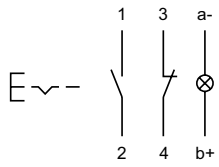
Wiring diagram 1



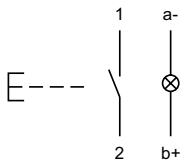
Wiring diagram 2



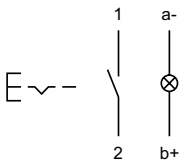
Wiring diagram 3



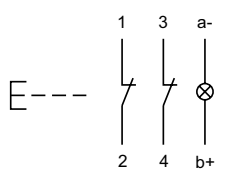
Wiring diagram 4



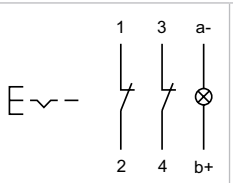
Wiring diagram 5



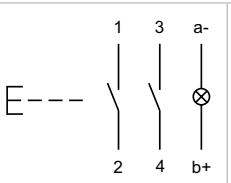
Wiring diagram 6



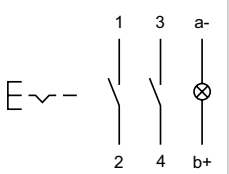
Wiring diagram 7



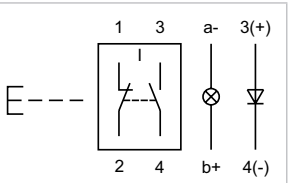
Wiring diagram 8



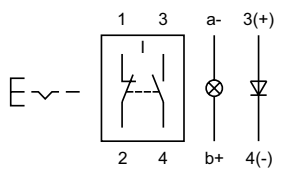
Wiring diagram 9



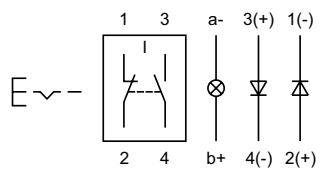
Wiring diagram 10



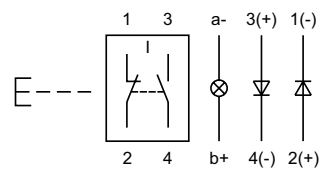
Wiring diagram 11



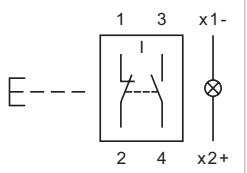
Wiring diagram 12



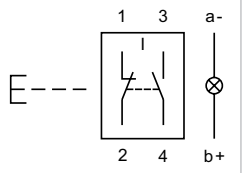
Wiring diagram 13



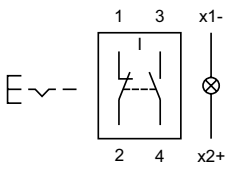
Wiring diagram 14



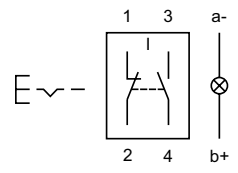
Wiring diagram 15



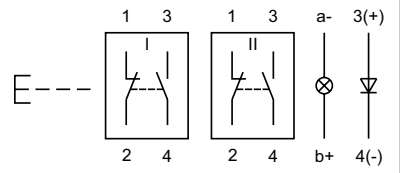
Wiring diagram 16



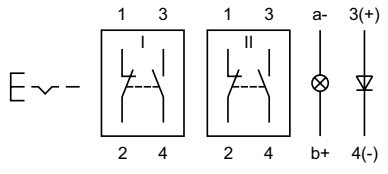
Wiring diagram 17



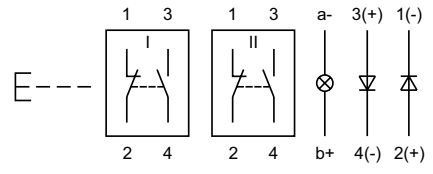
Wiring diagram 18



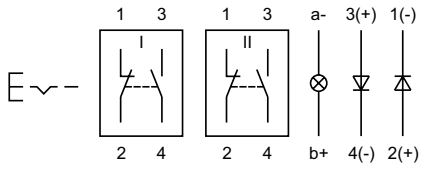
Wiring diagram 19



Wiring diagram 20

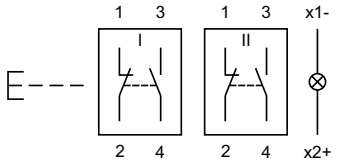


Wiring diagram 21

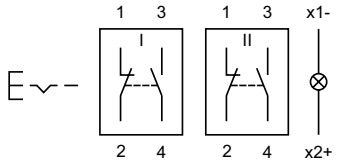


Wiring diagram 22

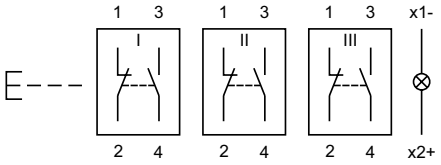
51 Raised design



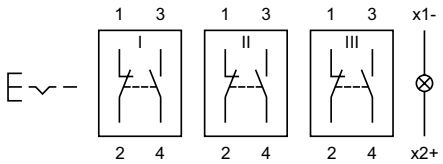
Wiring diagram 23



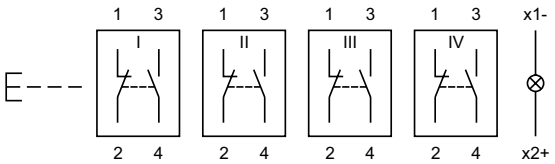
Wiring diagram 24



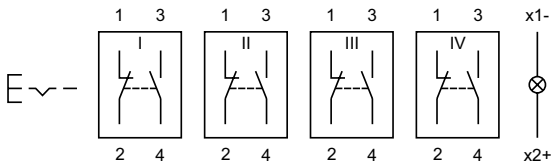
Wiring diagram 25



Wiring diagram 26



Wiring diagram 27



Wiring diagram 28

Stop switch complete, IP 65

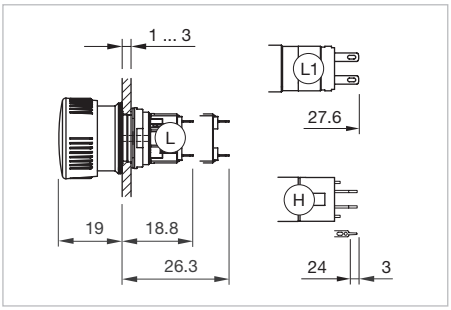
Equipment consisting of (schematic overview)

Actuator

Anti-twist ring

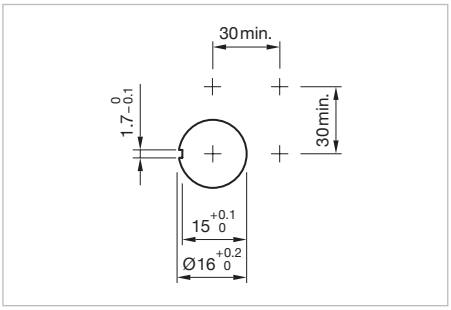
Fixing nut

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

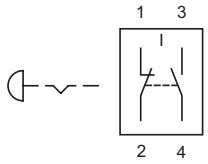
- Marking arrows
- If the anti-twist ring is not used the panel thickness increases to 4 mm

Lens	Switching system	Contacts	Switching action	Terminal	Part No.	Wiring diagram	Weight
Stop switch complete round, 24.5 mm							
Plastic red	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-256.026**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-253.026**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-252.026**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-253.022**	1	0.011 kg
		1 NC + 1 NO	C	Solder	**51-256.025**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-259.025**	2	0.011 kg
Plastic yellow	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-256.0264**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-253.0264**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-252.0264**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-253.0224**	1	0.011 kg
		1 NC + 1 NO	C	Solder	**51-256.0254**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-259.0254**	2	0.011 kg
Plastic green	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-256.0265**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-253.0265**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-252.0265**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-253.0225**	1	0.011 kg
		1 NC + 1 NO	C	Solder	**51-256.0255**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-259.0255**	2	0.011 kg

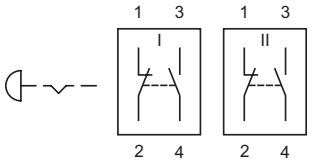
51 Raised design

Lens	Switching system	Contacts	Switching action	Terminal	Part No.	Wiring diagram	Weight
Plastic blue	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-256.0266**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-253.0266**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-252.0266**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-253.0226**	1	0.011 kg
		1 NC + 1 NO	C	Solder	**51-256.0256**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-259.0256**	2	0.011 kg
Plastic grey	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-256.0268**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-253.0268**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-252.0268**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-253.0228**	1	0.011 kg
		1 NC + 1 NO	C	Solder	**51-256.0258**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-259.0258**	2	0.011 kg
Plastic black	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-256.0260**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-253.0260**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-252.0260**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-253.0220**	1	0.011 kg
		1 NC + 1 NO	C	Solder	**51-256.0250**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-259.0250**	2	0.011 kg

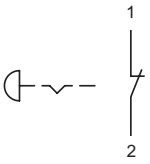
Contacts: NC = Normally closed, NO = Normally open
Switching action: C = Maintained



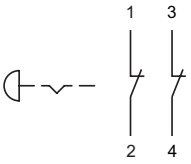
Wiring diagram 1



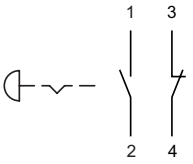
Wiring diagram 2



Wiring diagram 3



Wiring diagram 4



Wiring diagram 5

Mushroom-head complete, IP 65

Equipment consisting of (schematic overview)

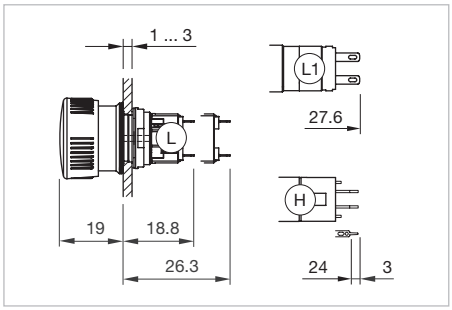
Actuator

Anti-twist ring

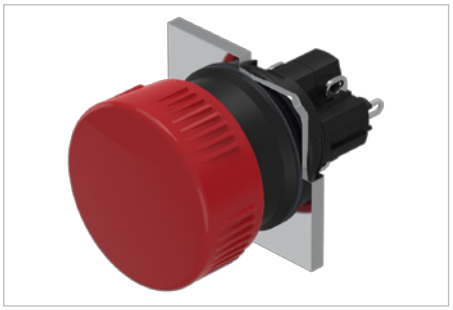
Fixing nut

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

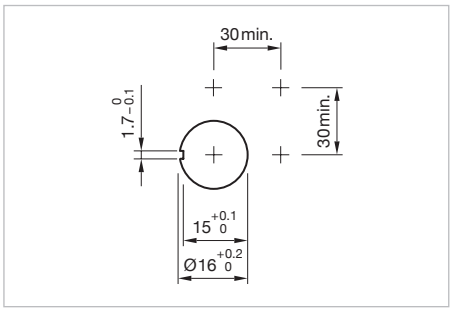
To obtain a complete unit, please select the red components from the pages shown.



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm



Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

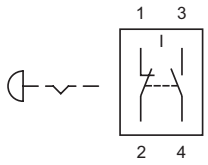
- If the anti-twist ring is not used the panel thickness increases to 4 mm

Lens	Switching system	Contacts	Switching action	Terminal	Part No.	Wiring diagram	Weight
Mushroom-head complete round, 24.5 mm							
Plastic red	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-156.0262**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-153.0262**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-152.0262**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-153.0222**	1	0.011 kg
		1 NC + 1 NO	B	Solder	**51-156.0252**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-159.0252**	2	0.011 kg
Plastic yellow	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-156.0264**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-153.0264**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-152.0264**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-153.0224**	1	0.011 kg
		1 NC + 1 NO	B	Solder	**51-156.0254**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-159.0254**	2	0.011 kg
Plastic green	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-156.0265**	3	0.010 kg
		1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-153.0265**	5	0.011 kg
		2 NC	C	Universal 2.0 x 0.5 mm	**51-152.0265**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-153.0225**	1	0.011 kg
		1 NC + 1 NO	B	Solder	**51-156.0255**	1	0.011 kg
		2 NC + 2 NO	C	Solder	**51-159.0255**	2	0.011 kg

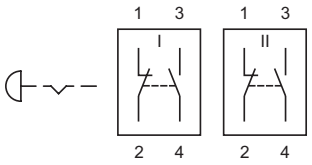
51 Raised design

Lens	Switching system	Contacts	Switching action	Terminal	Part No.	Wiring diagram	Weight
Plastic blue	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-156.0266**	3	0.010 kg
	Low-level element	1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-153.0266**	5	0.011 kg
	Low-level element	2 NC	C	Universal 2.0 x 0.5 mm	**51-152.0266**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-153.0226**	1	0.011 kg
	Snap-action switching element	1 NC + 1 NO	B	Solder	**51-156.0256**	1	0.011 kg
	Snap-action switching element	2 NC + 2 NO	C	Solder	**51-159.0256**	2	0.011 kg
Plastic grey	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-156.0268**	3	0.010 kg
	Low-level element	1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-153.0268**	5	0.011 kg
	Low-level element	2 NC	C	Universal 2.0 x 0.5 mm	**51-152.0268**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-153.0228**	1	0.011 kg
	Snap-action switching element	1 NC + 1 NO	B	Solder	**51-156.0258**	1	0.011 kg
	Snap-action switching element	2 NC + 2 NO	C	Solder	**51-159.0258**	2	0.011 kg
Plastic black	Low-level element	1 NC	C	Universal 2.0 x 0.5 mm	**51-156.0260**	3	0.010 kg
	Low-level element	1 NC + 1 NO	C	Universal 2.0 x 0.5 mm	**51-153.0260**	5	0.011 kg
	Low-level element	2 NC	C	Universal 2.0 x 0.5 mm	**51-152.0260**	4	0.011 kg
	Snap-action switching element	1 NC + 1 NO	C	Solder 2.8 x 0.5 mm	**51-153.0220**	1	0.011 kg
	Snap-action switching element	1 NC + 1 NO	B	Solder	**51-156.0250**	1	0.011 kg
	Snap-action switching element	2 NC + 2 NO	C	Solder	**51-159.0250**	2	0.011 kg

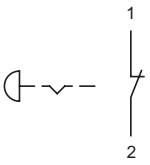
Contacts: NC = Normally closed, NO = Normally open
Switching action: B = Momentary
Switching action: B = Momentary, C = Maintained



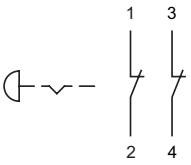
Wiring diagram 1



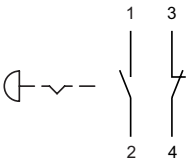
Wiring diagram 2



Wiring diagram 3



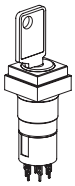
Wiring diagram 4



Wiring diagram 5

Keylock switch 2 positions, IP 65

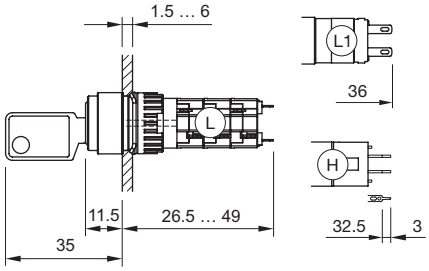
Equipment consisting of (schematic overview)



Actuator

Anti-twist ring

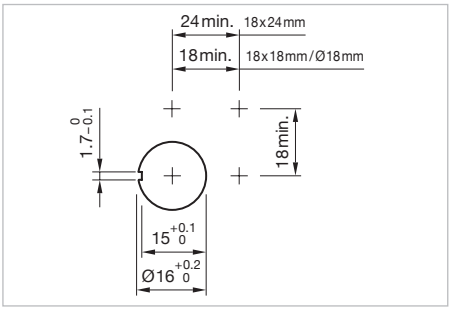
Fixing nut



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

Product can differ from the current configuration.

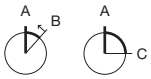
Each Part Number listed below includes all the black components shown in the 3D-drawing.



Mounting cut-outs [mm]

Additional Information

- Front plastic black
- The standard lock: DOM 311
- Two keys are supplied with each key lock switch
- Optional lock numbers on request



Switching positions (A = Rest, B = Momentary, C = Maintained)

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Component layout	Wiring diagram	Weight
Keylock switch 2 positions, Front dimension 18 x 18 mm									
Low-level element	1 NC + 1 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-458.036D**	4	1	0.017 kg
	2 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-457.036D**	4	2	0.017 kg
	1 NC + 1 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-445.036D**	4	7	0.017 kg
				C	Universal 2.0 x 0.5 mm	**51-448.036D**	4	7	0.017 kg
				A + C	Universal 2.0 x 0.5 mm	**51-442.036D**	4	7	0.017 kg
	2 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-444.036D**	4	8	0.017 kg
				A + C	Universal 2.0 x 0.5 mm	**51-441.036D**	4	8	0.017 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	A	Solder 2.8 x 0.5 mm	**51-145.022D**		3	0.016 kg
				A	Solder	**51-145.025D2**		3	0.016 kg
	2 NC + 2 NO	A - B	B = 42°	A	Solder	**51-146.025D2**		4	0.016 kg
	4 NC + 4 NO	A - B	B = 42°	A	Solder	**51-148.025D2**		6	0.016 kg
	1 NC + 1 NO	A - C	C = 90°	A	Solder	**51-255.025D2**		9	0.016 kg
				C	Solder	**51-355.025D2**		9	0.016 kg
				A + C	Solder	**51-155.025D2**		9	0.016 kg
				A	Solder 2.8 x 0.5 mm	**51-255.022D**		9	0.016 kg
				C	Solder 2.8 x 0.5 mm	**51-355.022D**		9	0.016 kg

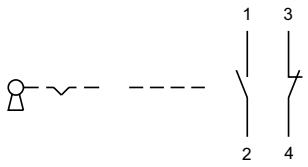
51 Raised design

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action switching element	1 NC + 1 NO	A - C	C = 90°	A + C	Solder 2.8 x 0.5 mm	**51-155.022D**		9	0.016 kg
	2 NC + 2 NO	A - C	C = 90°	A	Solder	**51-256.025D2**		10	0.016 kg
				C	Solder	**51-356.025D2**		10	0.016 kg
				A + C	Solder	**51-156.025D2**		10	0.016 kg
	3 NC + 3 NO	A - C	C = 90°	A	Solder	**51-257.025D2**		11	0.016 kg
				A + C	Solder	**51-157.025D2**		11	0.016 kg
	4 NC + 4 NO	A - C	C = 90°	A	Solder	**51-258.025D2**		12	0.016 kg
				C	Solder	**51-358.025D2**		12	0.016 kg
				A + C	Solder	**51-158.025D2**		12	0.016 kg
Keylock switch 2 positions, Front dimension 18 x 24 mm									
Low-level element	1 NC + 1 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-428.036D**	4	1	0.017 kg
	2 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-427.036D**	4	2	0.017 kg
	1 NC + 1 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-405.036D**	4	7	0.017 kg
				C	Universal 2.0 x 0.5 mm	**51-408.036D**	4	7	0.017 kg
				A + C	Universal 2.0 x 0.5 mm	**51-402.036D**	4	7	0.017 kg
	2 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-404.036D**	4	8	0.017 kg
				C	Universal 2.0 x 0.5 mm	**51-407.036D**	4	8	0.017 kg
				A + C	Universal 2.0 x 0.5 mm	**51-401.036D**	4	8	0.017 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	A	Solder 2.8 x 0.5 mm	**51-495.022D**		3	0.016 kg
				A	Solder	**51-495.025D2**		3	0.016 kg
	2 NC + 2 NO	A - B	B = 42°	A	Solder	**51-496.025D2**		4	0.016 kg
	3 NC + 3 NO	A - B	B = 42°	A	Solder	**51-497.025D2**		5	0.016 kg
	4 NC + 4 NO	A - B	B = 42°	A	Solder	**51-498.025D2**		6	0.016 kg
	1 NC + 1 NO	A - C	C = 90°	A	Solder	**51-295.025D2**		9	0.016 kg
				C	Solder	**51-395.025D2**		9	0.016 kg
				A + C	Solder	**51-195.025D2**		9	0.016 kg
				A	Solder 2.8 x 0.5 mm	**51-295.022D**		9	0.016 kg
				C	Solder 2.8 x 0.5 mm	**51-395.022D**		9	0.016 kg
				A + C	Solder 2.8 x 0.5 mm	**51-195.022D**		9	0.016 kg
	2 NC + 2 NO	A - C	C = 90°	A	Solder	**51-296.025D2**		10	0.016 kg
				C	Solder	**51-396.025D2**		10	0.016 kg
				A + C	Solder	**51-196.025D2**		10	0.016 kg
	3 NC + 3 NO	A - C	C = 90°	A	Solder	**51-297.025D2**		11	0.016 kg
				C	Solder	**51-397.025D2**		11	0.016 kg
				A + C	Solder	**51-197.025D2**		11	0.016 kg
	4 NC + 4 NO	A - C	C = 90°	A	Solder	**51-298.025D2**		12	0.016 kg
				A + C	Solder	**51-198.025D2**		12	0.016 kg

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Component layout	Wiring diagram	Weight
Keylock switch 2 positions, Front dimension Ø 18 mm									
Low-level element	1 NC + 1 NO	A - B	B = 42°	A	Universal 2.0 x 0.5 mm	**51-438.036D**	4	1	0.017 kg
		A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-415.036D**	4	7	0.017 kg
				C	Universal 2.0 x 0.5 mm	**51-418.036D**	4	7	0.017 kg
				A + C	Universal 2.0 x 0.5 mm	**51-412.036D**	4	7	0.017 kg
	2 NO	A - C	C = 90°	A	Universal 2.0 x 0.5 mm	**51-414.036D**	4	8	0.017 kg
				A + C	Universal 2.0 x 0.5 mm	**51-411.036D**	4	8	0.017 kg
Snap-action switching element	1 NC + 1 NO	A - B	B = 42°	A	Solder 2.8 x 0.5 mm	**51-141.022D**		3	0.016 kg
				A	Solder	**51-141.025D2**		3	0.016 kg
	2 NC + 2 NO	A - B	B = 42°	A	Solder	**51-142.025D2**		4	0.016 kg
	3 NC + 3 NO	A - B	B = 42°	A	Solder	**51-143.025D2**		5	0.016 kg
	4 NC + 4 NO	A - B	B = 42°	A	Solder	**51-144.025D2**		6	0.016 kg
	1 NC + 1 NO	A - C	C = 90°	A	Solder	**51-235.025D2**		9	0.016 kg
				C	Solder	**51-335.025D2**		9	0.016 kg
				A + C	Solder	**51-135.025D2**		9	0.016 kg
				A	Solder 2.8 x 0.5 mm	**51-235.022D**		9	0.016 kg
				C	Solder 2.8 x 0.5 mm	**51-335.022D**		9	0.016 kg
				A + C	Solder 2.8 x 0.5 mm	**51-135.022D**		9	0.016 kg
	2 NC + 2 NO	A - C	C = 90°	A	Solder	**51-236.025D2**		10	0.016 kg
				C	Solder	**51-336.025D2**		10	0.016 kg
				A + C	Solder	**51-136.025D2**		10	0.016 kg
	3 NC + 3 NO	A - C	C = 90°	A	Solder	**51-237.025D2**		11	0.016 kg
				A + C	Solder	**51-137.025D2**		11	0.016 kg
	4 NC + 4 NO	A - C	C = 90°	A	Solder	**51-238.025D2**		12	0.016 kg
				C	Solder	**51-338.025D2**		12	0.016 kg
				A + C	Solder	**51-138.025D2**		12	0.016 kg

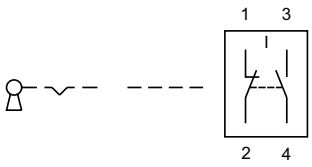
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain
The component layouts you will find from page 76

51 Raised design

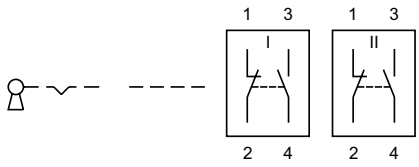


Wiring diagram 1

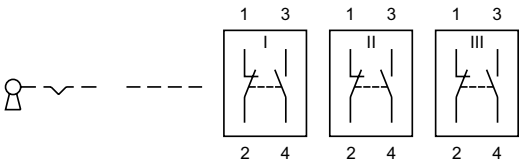
Wiring diagram 2



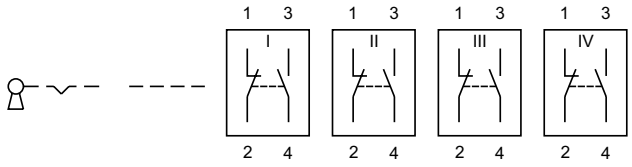
Wiring diagram 3



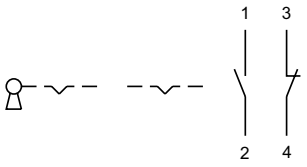
Wiring diagram 4



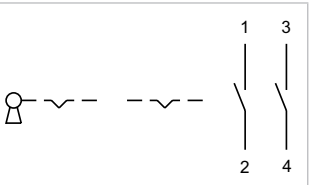
Wiring diagram 5



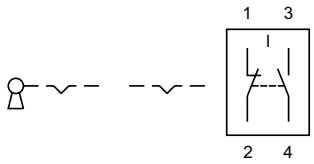
Wiring diagram 6



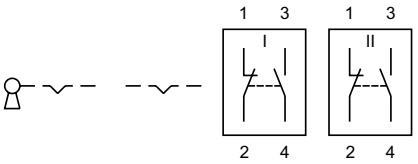
Wiring diagram 7



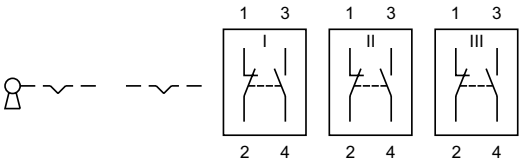
Wiring diagram 8



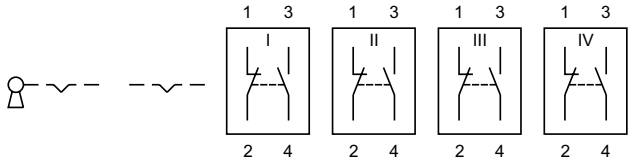
Wiring diagram 9



Wiring diagram 10



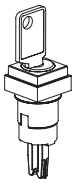
Wiring diagram 11



Wiring diagram 12

Keylock switch 3 positions, IP 65

Equipment consisting of (schematic overview)



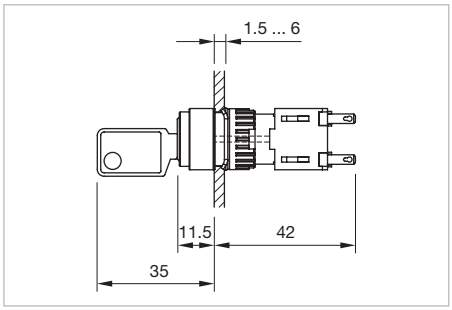
Actuator

Anti-twist ring

Fixing nut

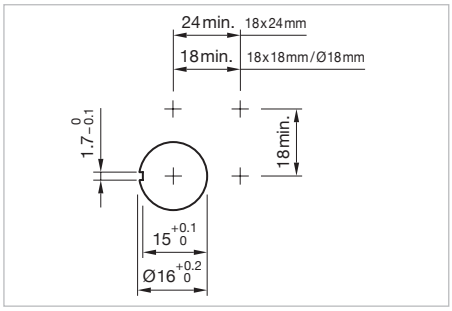
Switching element

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



Dimensions [mm]

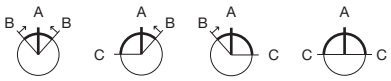
Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

- Front plastic black
- The standard lock: DOM 311
- Two keys are supplied with each key lock switch
- Optional lock numbers on request



Switching positions (A = Rest, B = Momentary, C = Maintained)

Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Wiring diagram	Weight
Keylock switch 3 positions, Front dimension 18 x 18 mm								
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	A	Solder 2.8 x 0.5 mm	**51-384.022D**	1	0.025 kg
		C - A - B	C = 90°, B = 42°	C + A	Solder 2.8 x 0.5 mm	**51-388.022D**	3	0.025 kg
		B - A - C	B = 42°, C = 90°	A	Solder 2.8 x 0.5 mm	**51-385.022D**	2	0.025 kg
		C - A - C	C = 90° / 90°	A	Solder 2.8 x 0.5 mm	**51-381.022D**	4	0.025 kg
				C + A + C	Solder 2.8 x 0.5 mm	**51-382.022D**	4	0.025 kg
Keylock switch 3 positions, Front dimension 18 x 24 mm								
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	A	Solder 2.8 x 0.5 mm	**51-364.022D**	1	0.025 kg
		B - A - C	B = 42°, C = 90°	A	Solder 2.8 x 0.5 mm	**51-365.022D**	2	0.025 kg
				A + C	Solder 2.8 x 0.5 mm	**51-366.022D**	2	0.025 kg
		C - A - C	C = 90° / 90°	A	Solder 2.8 x 0.5 mm	**51-361.022D**	4	0.025 kg
				C + A + C	Solder 2.8 x 0.5 mm	**51-362.022D**	4	0.025 kg
				C + C	Solder 2.8 x 0.5 mm	**51-363.022D**	4	0.025 kg

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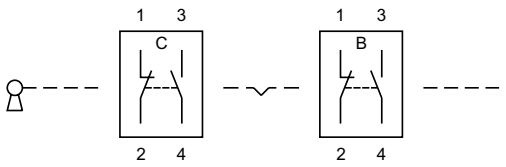
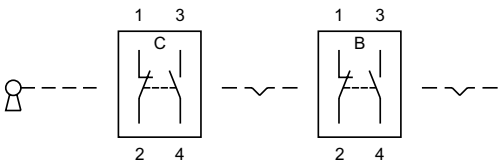
Switching system	Contacts	Switching action	Switching angle	Key remove	Terminal	Part No.	Wiring diagram	Weight
Keylock switch 3 positions, Front dimension Ø 18 mm								
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	A	Solder 2.8 x 0.5 mm	**51-374.022D**	1	0.025 kg
		C - A - B	C = 90°, B = 42°	A	Solder 2.8 x 0.5 mm	**51-377.022D**	3	0.025 kg
				C + A	Solder 2.8 x 0.5 mm	**51-378.022D**	3	0.025 kg
		B - A - C	B = 42°, C = 90°	A + C	Solder 2.8 x 0.5 mm	**51-376.022D**	2	0.025 kg
		C - A - C	C = 90° / 90°	A	Solder 2.8 x 0.5 mm	**51-371.022D**	4	0.025 kg
				C + A + C	Solder 2.8 x 0.5 mm	**51-372.022D**	4	0.025 kg
				C + C	Solder 2.8 x 0.5 mm	**51-373.022D**	4	0.025 kg

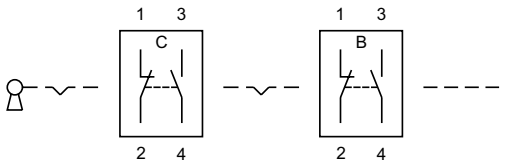
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain



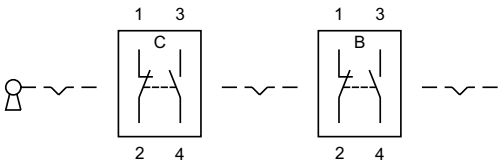
Wiring diagram 1



Wiring diagram 2



Wiring diagram 3



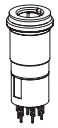
Wiring diagram 4

Selector switch 2 positions, IP 65

Equipment consisting of (schematic overview)

Lever *page 58*

Single-LED *page 71*



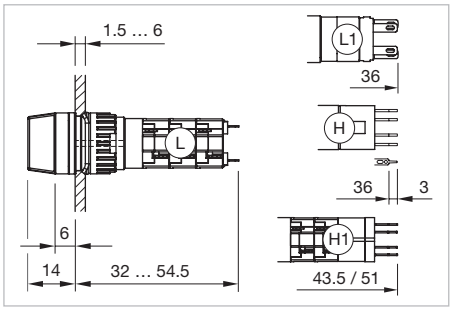
Actuator

Anti-twist ring

Fixing nut

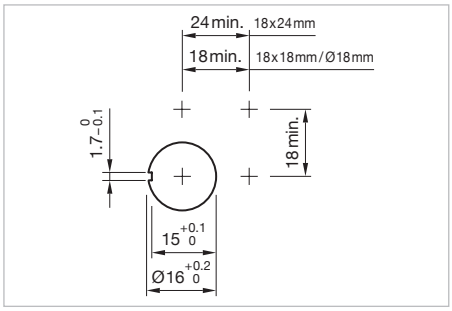
Each Part Number listed below includes all the black components shown in the 3D-drawing.

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



Dimensions [mm]
H = Universal terminal 2.0 x 0.5 mm,
H1 = Universal-Solder terminal,
L = Solder terminal,
L1 = Solder terminal 2.8 x 0.5 mm

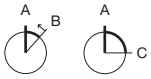
Product can differ from the current configuration.



Mounting cut-outs [mm]

Additional Information

- Illuminative



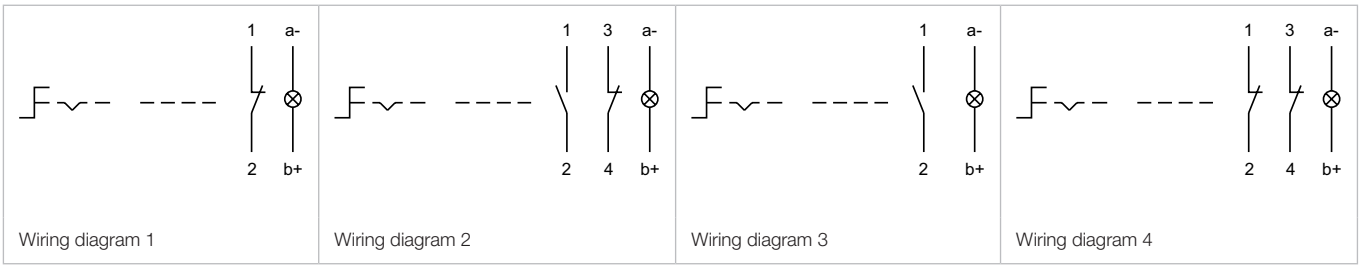
Switching positions (A = Rest, B = Momentary, C = Maintained)

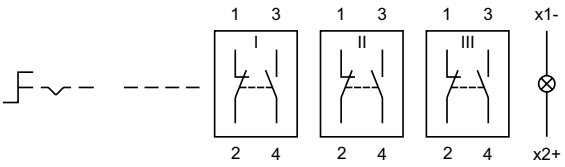
Switching system	Contacts	Diode 1N4007	Switching action	Switching angle	Terminal	Part No.	Component layout	Wiring diagram	Weight
Low-level element	1 NC		A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-436.036**	4	1	0.007 kg
	1 NC + 1 NO		A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-433.036**	4	2	0.007 kg
	1 NO		A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-435.036**	4	3	0.007 kg
	2 NC		A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-432.036**	4	4	0.007 kg
	2 NO		A - B	B = 42°	Universal 2.0 x 0.5 mm	**52-431.036**	4	5	0.007 kg
	1 NC		A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-476.036**	4	15	0.007 kg
	1 NC + 1 NO		A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-473.036**	4	16	0.007 kg
	1 NO		A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-475.036**	4	17	0.007 kg
	2 NC		A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-472.036**	4	18	0.007 kg
	2 NO		A - C	C = 90°	Universal 2.0 x 0.5 mm	**52-471.036**	4	19	0.007 kg
Snap-action switching element	1 NC + 1 NO	1	A - B	B = 42°	Universal-Solder	**52-743.0292**		6	0.008 kg
		2	A - B	B = 42°	Universal-Solder	**52-744.0292**		7	0.008 kg
			A - B	B = 42°	Solder	**52-131.0252**		8	0.006 kg
			A - B	B = 42°	Solder 2.8 x 0.5 mm	**52-131.022**		9	0.006 kg

51 Raised design

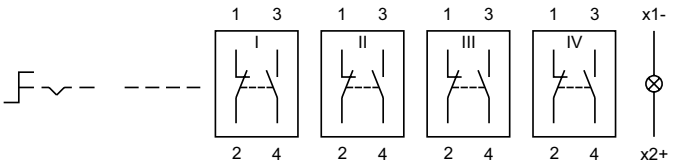
Switching system	Contacts	Diode 1N4007	Switching action	Switching angle	Terminal	Part No.	Compo-nent layout	Wiring diagram	Weight
Snap-action swit-ching element	2 NC + 2 NO	1	A - B	B = 42°	Universal-Solder	**52-745.0292**		10	0.010 kg
		2	A - B	B = 42°	Universal-Solder	**52-746.0292**		11	0.010 kg
			A - B	B = 42°	Solder	**52-132.0252**		12	0.006 kg
	3 NC + 3 NO		A - B	B = 42°	Solder	**52-133.0252**		13	0.006 kg
	4 NC + 4 NO		A - B	B = 42°	Solder	**52-134.0252**		14	0.006 kg
	1 NC + 1 NO	1	A - C	C = 90°	Universal-Solder	**52-747.0292**		20	0.008 kg
		2	A - C	C = 90°	Universal-Solder	**52-748.0292**		21	0.008 kg
			A - C	C = 90°	Solder	**52-271.0252**		22	0.006 kg
			A - C	C = 90°	Solder 2.8 x 0.5 mm	**52-271.022**		23	0.006 kg
	2 NC + 2 NO	1	A - C	C = 90°	Universal-Solder	**52-749.0292**		24	0.010 kg
		2	A - C	C = 90°	Universal-Solder	**52-750.0292**		25	0.010 kg
			A - C	C = 90°	Solder	**52-272.0252**		26	0.006 kg
	3 NC + 3 NO		A - C	C = 90°	Solder	**52-273.0252**		27	0.006 kg
	4 NC + 4 NO		A - C	C = 90°	Solder	**52-274.0252**		28	0.006 kg

Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain
The component layouts you will find from page 76

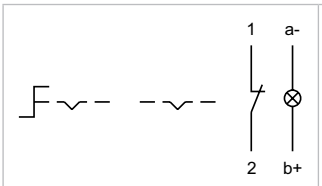




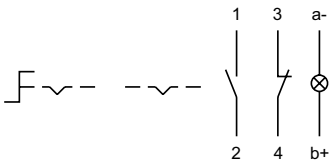
Wiring diagram 13



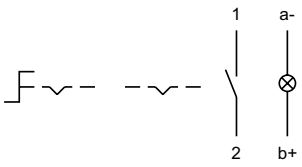
Wiring diagram 14



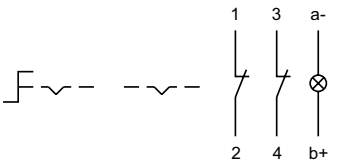
Wiring diagram 15



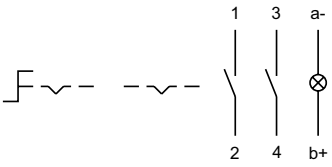
Wiring diagram 16



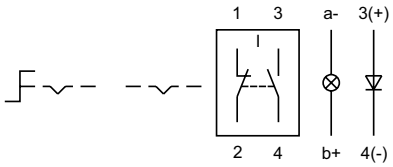
Wiring diagram 17



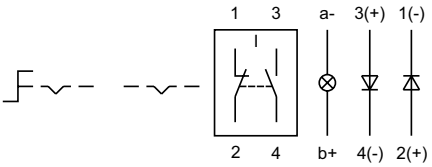
Wiring diagram 18



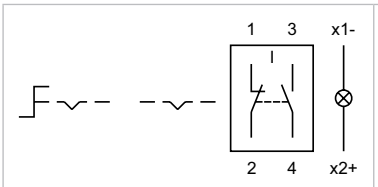
Wiring diagram 19



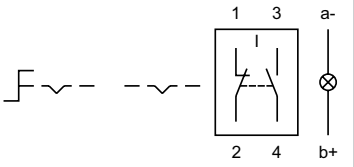
Wiring diagram 20



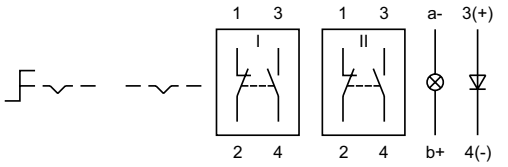
Wiring diagram 21



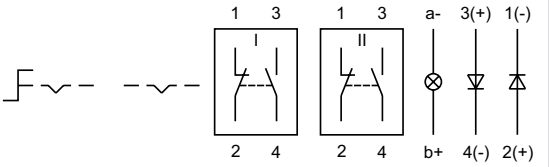
Wiring diagram 22



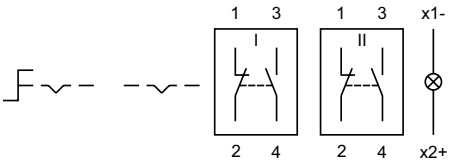
Wiring diagram 23



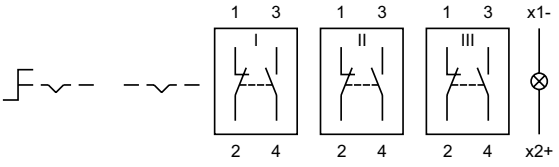
Wiring diagram 24



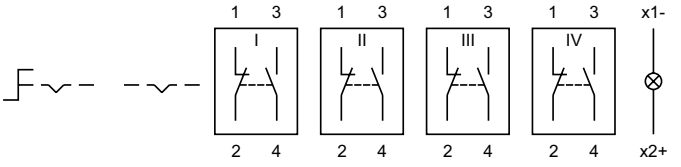
Wiring diagram 25



Wiring diagram 26



Wiring diagram 27

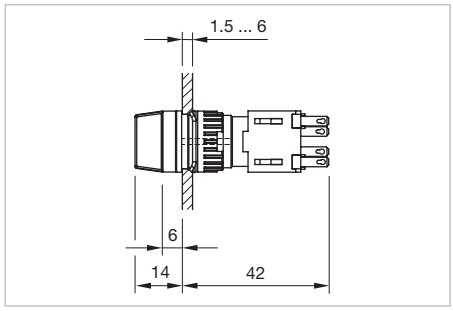


Wiring diagram 28

51 Raised design

Selector switch 3 positions, IP 65

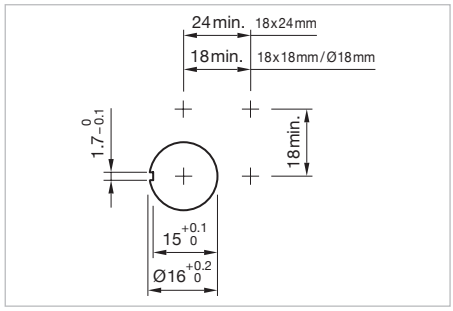
Product can differ from the current configuration.



Dimensions [mm]

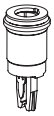
Additional Information

- Illuminative



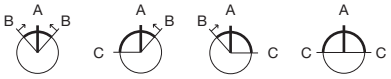
Mounting cut-outs [mm]

Equipment consisting of (schematic overview)

	Lever	*page 58*
	Single-LED	*page 71*
	**Actuator**	
	Anti-twist ring	
	Fixing nut	
	Switching element	

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

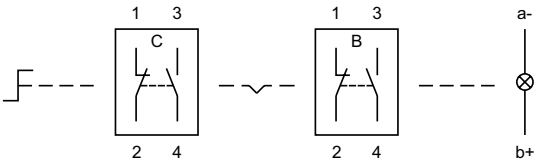
To obtain a complete unit, please select the red components from the page s shown.



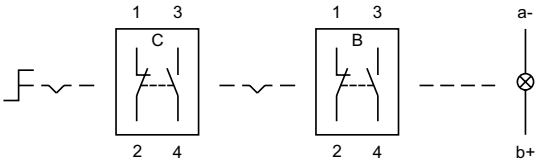
Switching positions (A = Rest, B = Momentary, C = Maintained)

Switching system	Contacts	Switching action	Switching angle	Terminal	Part No.	Wiring diagram	Weight
Selector switch 3 positions, Front dimension Ø 18 mm							
Snap-action switching element	2 NC + 2 NO	B - A - B	B = 42° / 42°	Solder 2.8 x 0.5 mm	**52-572.022A**	1	0.015 kg
		C - A - B	C = 90°, B = 42°	Solder 2.8 x 0.5 mm	**52-574.022A**	2	0.015 kg
		B - A - C	B = 42°, C = 90°	Solder 2.8 x 0.5 mm	**52-573.022A**	3	0.015 kg
		C - A - C	C = 90° / 90°	Solder 2.8 x 0.5 mm	**52-571.022A**	4	0.015 kg

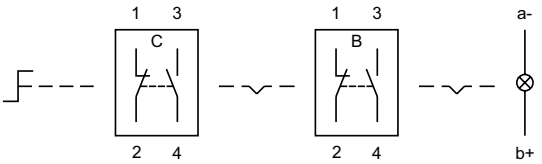
Contacts: NC = Normally closed, NO = Normally open
Switching action: A = Rest, B = Momentary, C = Maintain



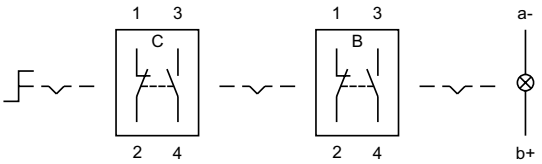
Wiring diagram 1



Wiring diagram 2



Wiring diagram 3



Wiring diagram 4

51 Raised design

Front

Lens flush design

Additional Information

- Lens surface mat
- Lens profile flat

Product attribute	Dimension	Lens	Part No.	Weight
Lens plastic, flush design				
illuminative	18 x 18 mm	smoked transparent	**61-9671.1**	0.002 kg
		red transparent	**61-9671.2**	0.002 kg
		orange transparent	**61-9671.3**	0.002 kg
		yellow transparent	**61-9671.4**	0.002 kg
		green transparent	**61-9671.5**	0.002 kg
		blue transparent	**61-9671.6**	0.002 kg
		colourless transparent	**61-9671.7**	0.002 kg
non-illuminative	18 x 18 mm	black opaque	**61-9771.0**	0.002 kg
		grey opaque	**61-9771.8**	0.002 kg
		white translucent	**61-9771.9**	0.002 kg
Lens plastic, flush design				
illuminative	18 x 24 mm	smoked transparent	**61-9681.1**	0.002 kg
		red transparent	**61-9681.2**	0.002 kg
		orange transparent	**61-9681.3**	0.002 kg
		yellow transparent	**61-9681.4**	0.002 kg
		green transparent	**61-9681.5**	0.002 kg
		blue transparent	**61-9681.6**	0.002 kg
		colourless transparent	**61-9681.7**	0.002 kg
non-illuminative	18 x 24 mm	black opaque	**61-9781.0**	0.002 kg
		white translucent	**61-9781.9**	0.002 kg
Lens plastic, flush design				
illuminative	Ø 19.7 mm	smoked transparent	**61-9642.1**	0.002 kg
		red transparent	**61-9642.2**	0.002 kg
		orange transparent	**61-9642.3**	0.002 kg
		yellow transparent	**61-9642.4**	0.002 kg
		green transparent	**61-9642.5**	0.002 kg
		blue transparent	**61-9642.6**	0.002 kg
		colourless transparent	**61-9642.7**	0.002 kg

Lens raised design

Product attribute	Dimension	Lens	Part No.	Weight
Lens plastic, raised design				
flat, illuminative	15.3 x 15.3 mm	smoked transparent	**51-953.1**	0.001 kg
		red transparent	**51-953.2**	0.001 kg
		orange transparent	**51-953.3**	0.001 kg
		yellow transparent	**51-953.4**	0.001 kg
		green transparent	**51-953.5**	0.001 kg
		blue transparent	**51-953.6**	0.001 kg
		colourless transparent	**51-953.7**	0.001 kg
flat, illuminative, not suitable for film insert	15.3 x 15.3 mm	red translucent	**51-951.2**	0.001 kg
		orange translucent	**51-951.3**	0.001 kg
		yellow translucent	**51-951.4**	0.001 kg
		green translucent	**51-951.5**	0.001 kg
		blue translucent	**51-951.6**	0.001 kg
		white translucent	**51-951.9**	0.001 kg
flat, illuminative, less suitable for film insert	15.3 x 15.3 mm	red transparent	**51-955.2**	0.001 kg
		yellow transparent	**51-955.4**	0.001 kg
		green transparent	**51-955.5**	0.001 kg
		colourless transparent	**51-955.7**	0.001 kg
flat, non-illuminative	15.3 x 15.3 mm	black opaque	**51-951.0**	0.001 kg
		grey opaque	**51-951.8**	0.001 kg
Lens plastic, raised design				
concave, illuminative	15.3 x 15.3 mm	red transparent	**51-954.2**	0.001 kg
		orange transparent	**51-954.3**	0.001 kg
		yellow transparent	**51-954.4**	0.001 kg
		green transparent	**51-954.5**	0.001 kg
		blue transparent	**51-954.6**	0.001 kg
		colourless transparent	**51-954.7**	0.001 kg
Lens plastic, raised design				
flat, illuminative	15.3 x 21.5 mm	smoked transparent	**51-903.1**	0.001 kg
		red transparent	**51-903.2**	0.001 kg
		orange transparent	**51-903.3**	0.001 kg
		yellow transparent	**51-903.4**	0.001 kg
		green transparent	**51-903.5**	0.001 kg
		blue transparent	**51-903.6**	0.001 kg
		colourless transparent	**51-903.7**	0.001 kg

51 Raised design

Product attribute	Dimension	Lens	Part No.	Weight
flat, illuminative, not suitable for film insert	15.3 x 21.5 mm	red translucent	**51-901.2**	0.001 kg
		orange translucent	**51-901.3**	0.001 kg
		yellow translucent	**51-901.4**	0.001 kg
		green translucent	**51-901.5**	0.001 kg
		blue translucent	**51-901.6**	0.001 kg
		white translucent	**51-901.9**	0.001 kg
flat, illuminative, less suitable for film insert	15.3 x 21.5 mm	red transparent	**51-905.2**	0.001 kg
		yellow transparent	**51-905.4**	0.001 kg
		green transparent	**51-905.5**	0.001 kg
		colourless transparent	**51-905.7**	0.001 kg
flat, non-illuminative	15.3 x 21.5 mm	black opaque	**51-901.0**	0.001 kg
		grey opaque	**51-901.8**	0.001 kg
Lens plastic, raised design				
concave, illuminative	15.3 x 21.5 mm	red transparent	**51-904.2**	0.001 kg
		orange transparent	**51-904.3**	0.001 kg
		yellow transparent	**51-904.4**	0.001 kg
		green transparent	**51-904.5**	0.001 kg
		blue transparent	**51-904.6**	0.001 kg
		colourless transparent	**51-904.7**	0.001 kg
concave, illuminative, less suitable for film insert	15.3 x 21.5 mm	red transparent	**51-906.2**	0.001 kg
		yellow transparent	**51-906.4**	0.001 kg
		green transparent	**51-906.5**	0.001 kg
		colourless transparent	**51-906.7**	0.001 kg
Lens plastic, raised design				
flat, illuminative	Ø 15.8 mm	smoked transparent	**51-933.1**	0.001 kg
		red transparent	**51-933.2**	0.001 kg
		orange transparent	**51-933.3**	0.001 kg
		yellow transparent	**51-933.4**	0.001 kg
		green transparent	**51-933.5**	0.001 kg
		blue transparent	**51-933.6**	0.001 kg
		colourless transparent	**51-933.7**	0.001 kg
flat, illuminative, not suitable for film insert	Ø 15.8 mm	red translucent	**51-931.2**	0.001 kg
		orange translucent	**51-931.3**	0.001 kg
		yellow translucent	**51-931.4**	0.001 kg
		green translucent	**51-931.5**	0.001 kg
		blue translucent	**51-931.6**	0.001 kg
		white translucent	**51-931.9**	0.001 kg
flat, illuminative, less suitable for film insert	Ø 15.8 mm	red transparent	**51-935.2**	0.001 kg
		yellow transparent	**51-935.4**	0.001 kg
		green transparent	**51-935.5**	0.001 kg
		colourless transparent	**51-935.7**	0.001 kg
flat, non-illuminative	Ø 15.8 mm	black opaque	**51-931.0**	0.001 kg
		grey opaque	**51-931.8**	0.001 kg

Lens plastic with symbol

Additional Information

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

Dimension	Lens	Symbol	Part No.	Weight
Lens plastic with symbol, flush design				
Ø 19.7 mm	red transparent	Ring	**61-9643.201**	0.002 kg
	orange transparent	Ring	**61-9643.301**	0.002 kg
	yellow transparent	Ring	**61-9643.401**	0.002 kg
	green transparent	Ring	**61-9643.501**	0.002 kg
	blue transparent	Ring	**61-9643.601**	0.002 kg
	colourless transparent	Ring	**61-9643.701**	0.002 kg
Lens plastic with symbol, flush design				
Ø 19.7 mm	red transparent	ON/OFF	**61-9643.202**	0.002 kg
	green transparent	ON/OFF	**61-9643.502**	0.002 kg
	blue transparent	ON/OFF	**61-9643.602**	0.002 kg
	colourless transparent	ON/OFF	**61-9643.702**	0.002 kg
Lens plastic with symbol, flush design				
Ø 19.7 mm	red transparent	Stand by	**61-9643.203**	0.002 kg
	green transparent	Stand by	**61-9643.503**	0.002 kg
	blue transparent	Stand by	**61-9643.603**	0.002 kg
	colourless transparent	Stand by	**61-9643.703**	0.002 kg

Marking plate

Additional Information

- Can be hot stamped
- Only applicable with lens round Part No. 61-9642.X

Marking plate	Part No.	Weight
Marking plate for lens plastic round, flush design		
colourless transparent	**61-9707.7**	0.001 kg

Lens metal with spot

Additional Information

- Lens surface mat
- Lens profile flat
- Illuminative

Dimension	Lens	Part No.	Weight
Lens metal with spot, flush design			
Ø 19.7 mm	Aluminium black anodized	**61-9841.0A**	0.002 kg
	Aluminium red anodized	**61-9841.2A**	0.002 kg
	Aluminium gold anodized	**61-9841.4A**	0.002 kg
	Aluminium olive-green anodized	**61-9841.5A**	0.002 kg
	Aluminium blue anodized	**61-9841.6A**	0.002 kg
	Aluminium natural anodized	**61-9841.8A**	0.002 kg

Lens metal

Additional Information

- Lens surface mat
- Non-illuminative
- The colour of anodized aluminium parts can vary due to technical production reasons

Product attribute	Dimension	Lens	Part No.	Weight
Lens metal, flush design				
flat	Ø 19.7 mm	Aluminium black anodized	**61-9841.0**	0.002 kg
		Aluminium red anodized	**61-9841.2**	0.002 kg
		Aluminium gold anodized	**61-9841.4**	0.002 kg
		Aluminium olive-green anodized	**61-9841.5**	0.002 kg
		Aluminium blue anodized	**61-9841.6**	0.002 kg
		Aluminium natural anodized	**61-9841.8**	0.002 kg
Lens metal, flush design				
convex (domed)	Ø 19.7 mm	Aluminium black anodized	**61-9842.0**	0.003 kg
		Aluminium red anodized	**61-9842.2**	0.003 kg
		Aluminium olive-green anodized	**61-9842.5**	0.003 kg
		Aluminium blue anodized	**61-9842.6**	0.003 kg
		Aluminium natural anodized	**61-9842.8**	0.003 kg

Mushroom-head cap

Additional Information

- Non-illuminative

Mushroom-head cap	Part No.	Weight
Mushroom-head cap, flush design, Front dimension Ø 32 mm		
Plastic black	**61-9593.0**	0.004 kg
Plastic red	**61-9593.2**	0.004 kg
Plastic yellow	**61-9593.4**	0.004 kg
Plastic green	**61-9593.5**	0.004 kg

Front bezel for selector switch square

Additional Information

- The dimensions of the mounting cut-outs are shown in the product details
- Please note that bigger minimum distances are necessary

Dimension	Front bezel	Part No.	Weight
Front bezel for selector switch square, raised design			
24 x 24 mm	Plastic black	**52-950.0**	0.001 kg
26 x 26 mm	Plastic black	**52-952.0**	0.001 kg

51 Accessories

Lever flush design

Additional Information

- With bar and marking dot

Lever illumination	Lever	Bar colour	Part No.	Weight
Lever flush design				
illuminative	Plastic black	red	**61-9028.20**	0.001 kg
		yellow	**61-9028.40**	0.001 kg
		green	**61-9028.50**	0.001 kg
		blue	**61-9028.60**	0.001 kg
	Plastic grey	red	**61-9029.20**	0.001 kg
		orange	**61-9029.30**	0.001 kg
		yellow	**61-9029.40**	0.001 kg
non-illuminative	Plastic black	black	**61-9028.0**	0.001 kg
		white	**61-9028.9**	0.001 kg
	Plastic grey	grey	**61-9029.8**	0.001 kg
		white	**61-9029.9**	0.001 kg

Lever raised design

Additional Information

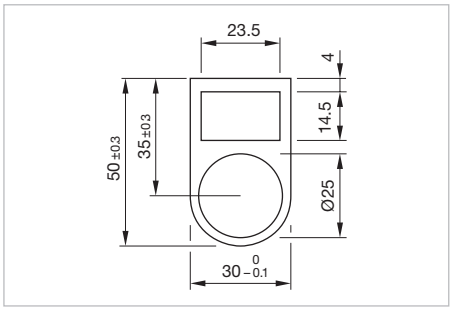
- With bar and marking dot

Lever illumination	Lever	Bar colour	Part No.	Weight
Lever raised design				
illuminative	Plastic black	red	**52-928.20**	0.001 kg
	Plastic black	orange	**52-928.30**	0.001 kg
	Plastic black	yellow	**52-928.40**	0.001 kg
	Plastic black	green	**52-928.50**	0.001 kg
	Plastic black	blue	**52-928.60**	0.001 kg
	Plastic grey	red	**52-929.20**	0.001 kg
	Plastic grey	orange	**52-929.30**	0.001 kg
	Plastic grey	yellow	**52-929.40**	0.001 kg
	Plastic grey	green	**52-929.50**	0.001 kg
	Plastic grey	blue	**52-929.60**	0.001 kg
non-illuminative	Plastic black	black	**52-928.0**	0.001 kg
	Plastic black	white	**52-928.9**	0.001 kg
	Plastic grey	grey	**52-929.8**	0.001 kg
	Plastic grey	white	**52-929.9**	0.001 kg

Legend frame

Additional Information

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



Dimensions [mm]

Dimension	Material	Colour	Mounting type	Part No.	Weight
Legend frame					
30 x 50 x 0.75 mm	Aluminium	black anodized	adhesive	**61-9980.0**	0.001 kg

Legend plate

Additional Information

- For legend frame Part No. 61-9980.0
- The colour of anodized aluminium parts can vary due to technical production reasons

Dimension	Material	Colour	Mounting type	Part No.	Weight
Legend plate for legend frame					
14.5 x 23.5 mm	Aluminium	natural anodized	adhesive	**704.968.0**	0.001 kg
		black anodized	adhesive	**704.968.1**	0.001 kg

51 Accessories

Front bezel set

Additional Information

- The dimensions of the mounting cut-outs are shown in the product details
- The colour of anodized aluminium parts can vary due to technical production reasons

Mounting cut-out	Front bezel	Part No.	Weight
Front bezel set for indicator and illuminated pushbutton, flush design, Front dimension 24 x 24 mm			
21 x 21 mm	Plastic black	**61-9930.0**	0.008 kg
	Plastic silver	**61-9930.4**	0.008 kg
Front bezel set for indicator and illuminated pushbutton, flush design, Front dimension 24 x 30 mm			
21 x 27 mm	Plastic black	**61-9931.0**	0.008 kg
	Plastic silver	**61-9931.4**	0.008 kg
Front bezel set for indicator and illuminated pushbutton, flush design, Front dimension Ø 25 mm			
Ø 22.5 mm	Aluminium natural anodized	**61-9933.0**	0.006 kg
	Aluminium black anodized	**61-9933.1**	0.006 kg
	Aluminium red anodized	**61-9933.2**	0.006 kg
	Aluminium gold anodized	**61-9933.4**	0.006 kg
	Aluminium olive-green anodized	**61-9933.5**	0.006 kg
	Aluminium blue anodized	**61-9933.6**	0.006 kg
	Plastic black	**61-9933.10**	0.008 kg

Front bezel set

Additional Information

- Please note that bigger minimum distances are necessary
- The colour of anodized aluminium parts can vary due to technical production reasons

Dimension	Mounting cut-out	Front bezel	Part No.	Weight
Front bezel set for mushroom-head pushbutton, flush design				
Ø 25 mm	Ø 22.5 mm	Aluminium natural anodized	**61-9933.0**	0.006 kg
		Aluminium black anodized	**61-9933.1**	0.006 kg
		Plastic black	**61-9933.10**	0.008 kg
		Aluminium red anodized	**61-9933.2**	0.006 kg
		Aluminium gold anodized	**61-9933.4**	0.006 kg
		Aluminium olive-green anodized	**61-9933.5**	0.006 kg
		Aluminium blue anodized	**61-9933.6**	0.006 kg
Front bezel set for mushroom-head pushbutton, flush design, Front dimension Ø 40 mm				
	Ø 22.5 mm	Aluminium natural anodized	**61-9934.8**	0.013 kg

Front bezel set keylock switch

Additional Information

- The Dimensions [mm] of the Mounting cut-outs [mm] are shown in the product details
- For the round front bezel sets the anti-twist ring is part of the sales-package
- The colour of anodized aluminium parts can vary due to technical production reasons

Mounting cut-out	Front bezel	Part No.	Weight
Front bezel set for keylock switch, flush design, Front dimension 24 x 24 mm			
21 x 21 mm	Plastic black	**61-9930.0**	0.008 kg
	Plastic silver	**61-9930.4**	0.008 kg
Front bezel set for keylock switch, flush design, Front dimension 24 x 30 mm			
21 x 27 mm	Plastic black	**61-9931.0**	0.008 kg
	Plastic silver	**61-9931.4**	0.008 kg
Front bezel set for keylock switch, flush design, Front dimension Ø 25 mm			
Ø 22.5 mm	Aluminium natural anodized	**61-9932.0**	0.006 kg
	Aluminium black anodized	**61-9932.1**	0.006 kg
	Aluminium red anodized	**61-9932.2**	0.006 kg
	Aluminium gold anodized	**61-9932.4**	0.006 kg
	Aluminium olive-green anodized	**61-9932.5**	0.006 kg
	Aluminium blue anodized	**61-9932.6**	0.006 kg
	Plastic black	**61-9932.10**	0.008 kg

Front bezel set for selector switch

Additional Information

- The dimensions of the mounting cut-outs are shown in the product details
- For the round front bezel sets the anti-twist ring is part of the sales-package
- The colour of anodized aluminium parts can vary due to technical production reasons

Mounting cut-out	Front bezel	Part No.	Weight
Front bezel set for selector switch, flush design, Front dimension 24 x 24 mm			
21 x 21 mm	Plastic black	**61-9936.0**	0.007 kg
Front bezel set for selector switch, flush design, Front dimension Ø 25 mm			
Ø 22.5 mm	Aluminium natural anodized	**61-9932.0**	0.006 kg
	Aluminium black anodized	**61-9932.1**	0.006 kg
	Aluminium red anodized	**61-9932.2**	0.006 kg
	Aluminium gold anodized	**61-9932.4**	0.006 kg
	Aluminium olive-green anodized	**61-9932.5**	0.006 kg
	Aluminium blue anodized	**61-9932.6**	0.006 kg
	Plastic black	**61-9932.10**	0.008 kg

Front protective cap, IP 68

Additional Information

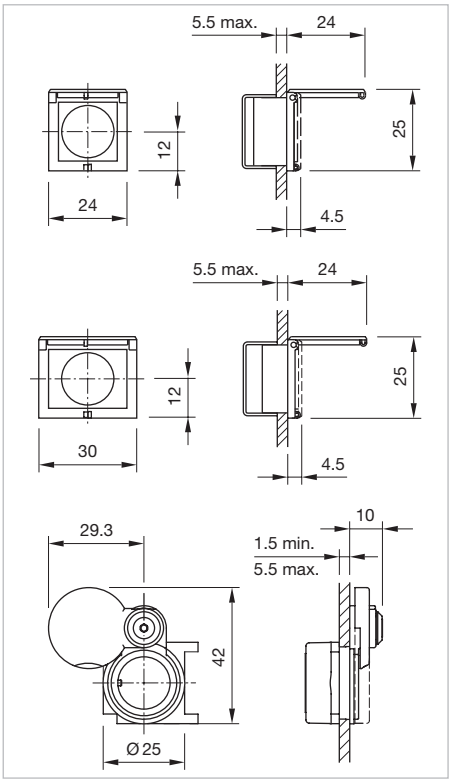
- For lenses with flat profile only
- When using the front protection cover for push buttons the external sealing in the front bezel set and the silicone bellows in the actuator are to be removed

Product attribute	Material	Colour	Optics	Part No.	Weight
Front protective cap					
for front bezel set 24 x 30 mm, flush design	Silicone	colourless	transparent	**61-9927.2**	0.001 kg
Front protective cap					
for front bezel set Ø 25 mm, flush design	Silicone	colourless	transparent	**84-9103.7**	0.001 kg

Protective cover flush design, IP 65

Additional Information

- The Dimensions [mm] of the Mounting cut-outs [mm] are shown in the product details
- Please note that bigger minimum distances are necessary



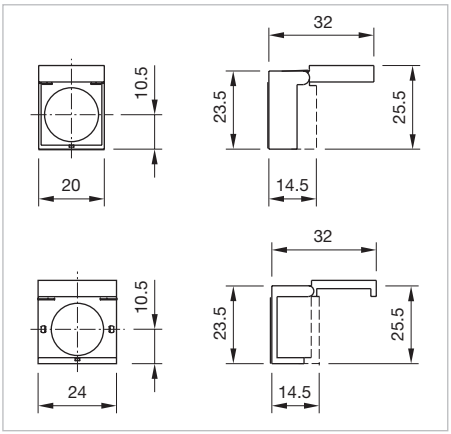
Dimensions [mm]

Product attribute	Dimension	Mounting cut-out	Material	Optics	Part No.	Weight
Protective cover flush design						
hinged, with means for sealing	24 x 24 mm	21 x 21 mm	Plastic	transparent	**61-9921.0**	0.006 kg
Protective cover flush design						
hinged, with means for sealing	24 x 30 mm	21 x 27 mm	Plastic	transparent	**61-9922.0**	0.006 kg
Protective cover flush design						
slide by side, with means not for sealing	Ø 25 mm	Ø 22.5 mm	Plastic	transparent	**61-9924.0**	0.006 kg

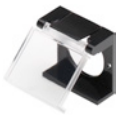
Protective cover raised design, IP 65

Additional Information

- Hinged, with means for sealing
- The dimensions of the mounting cut-outs are shown in the product details
- Please note that bigger minimum distances are necessary



Dimensions [mm]

Dimension	Mounting cut-out	Material	Optics	Part No.	Weight
Protective cover raised design					
18 x 18 mm	Ø 16 mm	Plastic	transparent	**51-920**	0.002 kg
 **Protective cover raised design**					
18 x 24 mm	Ø 16 mm	Plastic	transparent	**51-925**	0.002 kg

Blind plug flush design

Additional Information

- The dimensions of the mounting cut-outs are shown in the product details

Dimension	Mounting cut-out	Material	Colour	Part No.	Weight
Blind plug flush design					
24 x 24 mm	21 x 21 mm	Plastic	black	**61-9451.0**	0.006 kg
Blind plug flush design					
24 x 30 mm	21 x 27 mm	Plastic	black	**61-9452.0**	0.006 kg
Blind plug flush design					
Ø 25 mm	Ø 22.5 mm	Plastic	black	**61-9453.0**	0.006 kg

Blind plug raised design

Additional Information

- The dimensions of the mounting cut-outs are shown in the product details
- Blind plugs fit also in mounting cut-outs with anti-twist device

Dimension	Mounting cut-out	Material	Colour	Part No.	Weight
Blind plug raised design					
18 x 18 mm	Ø 16 mm	Plastic	black	**51-948.0**	0.003 kg
Blind plug raised design					
18 x 24 mm	Ø 16 mm	Plastic	black	**51-947.0**	0.003 kg
Blind plug raised design					
Ø 18 mm	Ø 16 mm	Plastic	black	**51-949.0**	0.003 kg

Master key

Additional Information

- For standard lock: DOM 311 ... 445

Part No.	Weight
Master key	
31-989.300	0.006 kg

Spare key

Additional Information

- For standard lock: DOM 311
- Optional lock numbers on request

Part No.	Weight
Spare key	
31-989.311	0.006 kg

EMC key protection cap

Additional Information

- Plastic black
- For standard lock: DOM

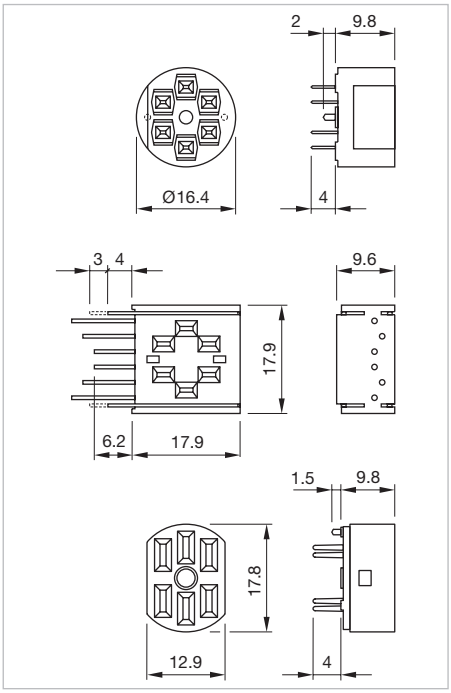
Part No.	Weight
EMC key protection cap	
31-985.0	0.005 kg

Rear side

PCB plug-in base

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

Product attribute	Pins	Terminal	Part No.	Component layout	Weight
PCB plug-in base					
for low level switching element	axial	PCB	**31-940**	3	0.002 kg
PCB plug-in base					
for low level switching element	right-angled	PCB	**31-941**	1	0.004 kg
PCB plug-in base					
for snap-action switching element 2.8 mm	axial	PCB	**31-942**	2	0.002 kg

The component layouts you will find from page 76

Multi-plug housing

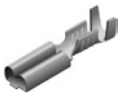
Additional Information

- For switching block

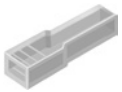
Part No.	Weight
Multi-plug housing	
51-943.0	0.005 kg

51 Accessories

Flat receptacle

Product attribute	Part No.	Weight
Flat receptacle		
2.0 x 0.5 mm plug-in terminal	**31-945**	0.001 kg
 **Flat receptacle**		
2.8 x 0.5 mm plug-in terminal	**31-946**	0.001 kg
Flat receptacle		
2.8 x 0.5 mm multi-plug housing	**51-943.1**	0.001 kg

Insulation sleeve

Product attribute	Part No.	Weight
Insulation sleeve		
Cover plug-in terminals for snap-action switching element 2.8 mm	**01-928**	0.001 kg
Insulation sleeve		
for flat receptacle 2.0 mm	**31-928**	0.001 kg
 **Insulation sleeve**		
for flat receptacle 2.8 mm	**31-929**	0.001 kg

Terminal cover

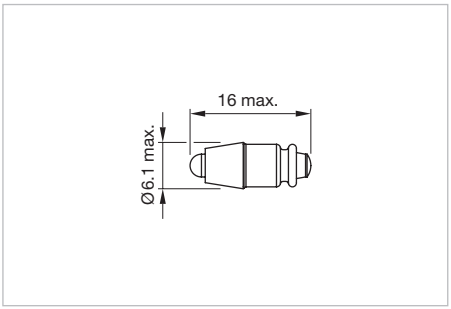
Part No.	Weight
Terminal cover for snap-action switching element 16	
01-929	0.010 kg

Illumination

LED, T1 3/4 MG

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 occure
- Luminous intensity data of the LEDs on direct voltage
- Electrical and optical data are measured at 25 °C
- The specified versions are built with a protection diode (halve wave rectifier) in series and the LED
- When using AC/DC types with AC operation, slight flickering can occure
- Luminosity and wave length variations caused by LED manufacturing processes may cause slight differences regarding the illumination
- For supply voltages above 48 V, it is necessary to use a voltage reduction element (external series resistor or transformer)
- If the 24VDC Bi-colour lamp is driven with normal polarity (plus on middle contact of the lamp) the first mentioned colour will light up, with inverted polarity the second colour will ligth up



Dimensions [mm]

LED colour	Operating voltage	Operation current	Lumi. intensity	Dom. wavelength	Part No.	Weight
Single-LED						
red	6 VDC +10 %	15 mA ±15 %	350 mcd	630 nm	**10-2J06.3142**	0.002 kg
	12 VAC/DC +10 %	7/14 mA ±15 %	330 mcd	630 nm	**10-2J09.1062**	0.002 kg
	24 VAC/DC +10 %	7/14 mA ±15 %	330 mcd	630 nm	**10-2J12.1062**	0.002 kg
	28 VAC/DC +10 %	7/14 mA ±15 %	330 mcd	630 nm	**10-2J13.1062**	0.002 kg
	48 VAC/DC +10 %	4/8 mA ±15 %	200 mcd	630 nm	**10-2J19.1042**	0.002 kg
yellow	6 VDC +10 %	15 mA ±15 %	300 mcd	587 nm	**10-2J06.3144**	0.002 kg
	12 VAC/DC +10 %	7/14 mA ±15 %	280 mcd	587 nm	**10-2J09.1064**	0.002 kg
	24 VAC/DC +10 %	7/14 mA ±15 %	280 mcd	587 nm	**10-2J12.1064**	0.002 kg
	28 VAC/DC +10 %	7/14 mA ±15 %	280 mcd	587 nm	**10-2J13.1064**	0.002 kg
	48 VAC/DC +10 %	4/8 mA ±15 %	180 mcd	587 nm	**10-2J19.1044**	0.002 kg
green	6 VDC +10 %	7 mA ±15 %	1050 mcd	525 nm	**10-2J06.3145**	0.002 kg
	12 VAC/DC +10 %	4/7 mA ±15 %	1050 mcd	525 nm	**10-2J09.1065**	0.002 kg
	24 VAC/DC +10 %	4/7 mA ±15 %	1050 mcd	525 nm	**10-2J12.1065**	0.002 kg
	28 VAC/DC +10 %	4/7 mA ±15 %	1050 mcd	525 nm	**10-2J13.1065**	0.002 kg
	48 VAC/DC +10 %	2/4 mA ±15 %	600 mcd	525 nm	**10-2J19.1045**	0.002 kg
blue	6 VDC +10 %	15 mA ±15 %	680 mcd	470 nm	**10-2J06.3146**	0.002 kg
	12 VAC/DC +10 %	7/14 mA ±15 %	650 mcd	470 nm	**10-2J09.1066**	0.002 kg
	24 VAC/DC +10 %	7/14 mA ±15 %	650 mcd	470 nm	**10-2J12.1066**	0.002 kg
	28 VAC/DC +10 %	7/14 mA ±15 %	650 mcd	470 nm	**10-2J13.1066**	0.002 kg
	48 VAC/DC +10 %	4/8 mA ±15 %	400 mcd	470 nm	**10-2J19.1046**	0.002 kg

LED colour	Operating voltage	Operation current	Lumi. intensity	Dom. wavelength	Part No.	Weight
white	6 VDC +10 %	6 mA ±15 %	900 mcd	x0.31/y0.32 nm	**10-2J06.3149**	0.002 kg
	12 VAC/DC +10 %	3/6 mA ±15 %	900 mcd	x0.31/y0.32 nm	**10-2J09.1069**	0.002 kg
	24 VAC/DC +10 %	2.5/5 mA ±15 %	750 mcd	x0.31/y0.32 nm	**10-2J12.1069**	0.002 kg
	28 VAC/DC +10 %	2.5/5 mA ±15 %	750 mcd	x0.31/y0.32 nm	**10-2J13.1069**	0.002 kg
	48 VAC/DC +10 %	4/8 mA±15 %	400 mcd	x0.31/y0.32 nm	**10-2J19.1049**	0.002 kg
Bi-colour LED						
red/green	24 VDC +10 %DC	15/14mA ±15 %	600/630 mcd	625/525 nm	**10-A312.314A**	0.002 kg

Filament lamp, T1 3/4 MG

Operating voltage	Operation current	Part No.	Weight
Filament lamp			
6 VAC/DC	120 mA ±10 %	**10-1306.1349**	0.001 kg
6.3 VAC/DC	200 mA ±10 %	**10-1307.1369**	0.001 kg
12 VAC/DC	75 mA ±10 %	**10-1309.1309**	0.001 kg
14 VAC/DC	80 mA ±10 %	**10-1310.1319**	0.001 kg
18 VAC/DC	40 mA ±10 %	**10-1311.1249**	0.001 kg
24 VAC/DC	35 mA ±10 %	**10-1312.1229**	0.001 kg
28 VAC/DC	30 mA ±10 %	**10-1313.1209**	0.001 kg
	40 mA ±10 %	**10-1313.1249**	0.001 kg
36 VAC/DC	20 mA ±10 %	**10-1316.1179**	0.001 kg
	30 mA ±10 %	**10-1316.1209**	0.001 kg
48 VAC/DC	20 mA ±10 %	**10-1319.1179**	0.001 kg
	25 mA ±10 %	**10-1319.1199**	0.001 kg

Series resistor

Additional Information

- Only for filament lamp 48 VAC, 25 mA
- For lamp voltage reduction
- Keep to the country specific safety instructions
- Due to high surface temperatures, the series resistors must be soldered directly to the terminals of the equipment (use a terminal plate)

Operating voltage	Resistance	Part No.	Weight
Series resistor			
110 VAC	2.7 kOhm	**02-904.0**	0.003 kg
125 VAC	3.3 kOhm	**02-904.1**	0.003 kg
145 VAC	4.7 kOhm	**02-904.3**	0.003 kg
240 VAC	10 kOhm	**02-904.7**	0.003 kg

Terminal plate empty

Additional Information

- For fitting with series resistors

Product attribute	Dimension	Part No.	Weight
Terminal plate empty			
5 spaces	62.5 x 60 x 15 mm	**02-912.1**	0.025 kg
10 spaces	125 x 60 x 15 mm	**02-912.2**	0.045 kg
15 spaces	187.6 x 60 x 15 mm	**02-912.3**	0.090 kg
20 spaces	250 x 60 x 15 mm	**02-912.4**	0.095 kg

51 Accessories

Mounting

Fixing nut

Additional Information

- Special recommended for keylock switches

Material	Part No.	Weight
Fixing nut		
Metal	**31-991**	0.005 kg
Fixing nut		
Plastic	**51-991**	0.005 kg

Anti-twist ring

Additional Information

- For key lock- and selector switch

Part No.	Weight
Anti-twist ring	
51-910	0.001 kg

Lens remover

Product attribute	Part No.	Weight
Lens remover		
for raised design	**02-905**	0.011 kg
Lens remover		
for flush design	**61-9730.0**	0.011 kg

Lamp remover

Additional Information

▲ **Caution:** A switching process might be released when replacing the lamp

Part No.	Weight
Lamp remover	
61-9740.0	0.003 kg

Mounting tool

Product attribute	Part No.	Weight
Mounting tool		
for tightening or loosening of the fixing nut	**01-907**	0.020 kg

Dismantling tool

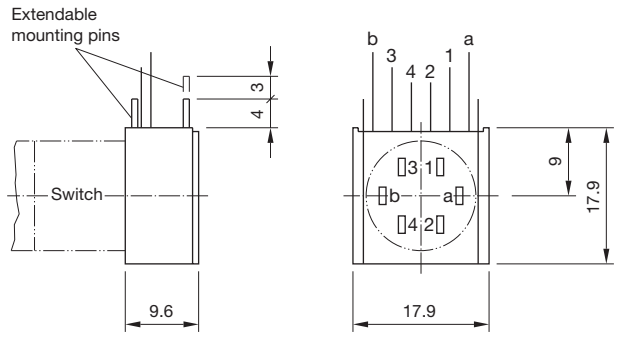
Additional Information

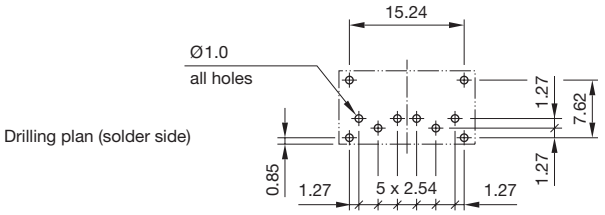
- For dismantling of ens, lens holder and switching element block

Part No.	Weight
Dismantling tool	
51-938	0.027 kg

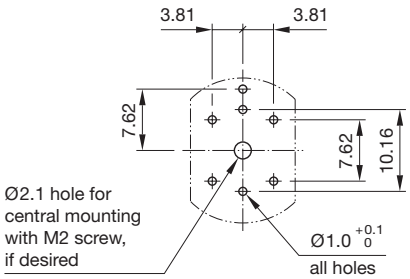
51 Drawings

Drawings

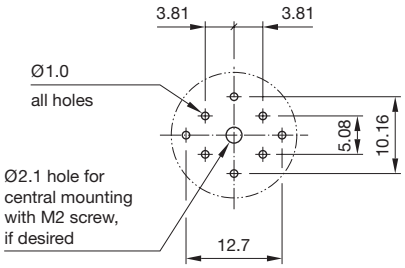




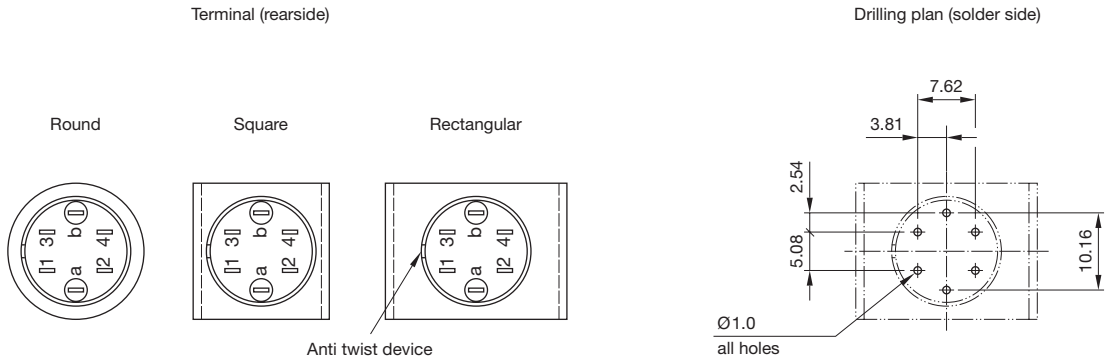
Component layout 1



Component layout 2



Component layout 3



Component layout 4

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

Switching system

Self-cleaning, double-break snap action switching system
1 normally closed and 1 normally open contact per element.

Material

Material of contact
Gold plated hardsilver

Switch housing
Diallylphthalate (DAP), heat-resistant and self-extinguishing

Actuator housing
Polyetherimide, self-extinguishing

Mechanical characteristics

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

Tightening torque
for fixing nut max. 50 Ncm

Actuating torque
2.5 Ncm … 5.5 Ncm, 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

Rebound time
≤ 5 ms

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)

Conventional free air thermal current
5 A
The maximum current in continuous operation and at ambient temperature not exceeding the quoted maximum values.

Switch rating
250 VAC, 5 A ($\cos\varphi$ 0.75)

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

Protection class
II

Environmental conditions

Storage temperature
-40 °C … +85 °C

Service 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
IP 65 keylock switch
IP 40 selector switch

Approvals

Approbations
CB (IEC 61058)
CSA
CQC
ENEC (EN 61058)
Germanischer Lloyd
UL

Declaration of conformity
CE

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 µA/µV 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
Polysulfone, heat-resistant and self-extinguishing

Actuator housing
Polyetherimide, 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 0.8 mm
Max. wire cross-section of stranded cable 1x 0.75 mm²

Plug-in terminal 2.0 x 0.5 mm

Tightening torque
for fixing nut max. 50 Ncm

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

Actuating force
3 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

Rebound time
Typ. < 100 µs

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

Contact resistance
Starting value (initial) ≤ 50 mΩ

Electrostatic breakdown value
≤ 15 KV (Keylock switch)

Switch rating
10 µA, 100 µV to 100 mA at 42 VAC/VDC

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

Environmental 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
IP 65 front side, as per IEC 60529

Shock resistance
(Single impacts, semi-sinusoidal)
15 g for 11 ms, as per IEC 60512-4-3, IEC 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:
Diallylphthalate DAP, Polyamide 66, Polysulfone, heat-resistant and self-extinguishing.

Soldering terminal: PA 6.6 Ultramid

Actuator housing
Polyetherimide, self-extinguishing

Mechanical characteristics

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

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

Tightening torque
for fixing nut max. 50 Ncm

Actuating torque
2.5 Ncm … 5.5 Ncm, depending on the number of switching elements. Measured at the key or lever of the keylock- or selector switch.

Actuating force
4 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

Rebound time
≤ 5 ms

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
IEC 61058, EN 61058

Rated voltage
250 VAC/VDC

Rated current
5 A

Contact resistance
Starting value (initial) ≤ 50 mΩ

Electrostatic discharge (ESD)
≤ 15 KV (Keylock switch)

Conventional free air thermal current
5 A
The maximum current in continuous operation and at ambient temperature not exceeding the quoted maximum values.

Switch rating
250 VAC, 5 A (cosφ 1)
250 VAC, 3 A (cosφ 0.3)

Switch rating AC (cosφ 0.7)

Voltage	125 VAC	250 VAC
Current	3 A	2 A

Switch rating DC (inductive) L: R = 30 ms

Voltage	24 VDC	60 VDC	110 VDC	220 VDC
Current	2 A	0.7 A	0.2 A	0.1 A

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

Protection class
II

Environmental 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
IP 65 front side, as per IEC 60529

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

Vibration resistance
(Sinusoidal)
10 g at 10 Hz … 1500 Hz, amplitude 0.75 mm,
as per IEC 60512-4-4, IEC 60068-2-6

Climate resistance
Standard condition, as per IEC 60068-2-3 and 2-30
Changing condition, as per IEC 60068-2-14 and 2-33

Approvals

Approbations
CB (IEC 61058)
CSA
ENEC (EN 61058)
Germanischer Lloyd
UL

Declaration of conformity
CE

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
Polyamide (PA66), Thermoplastic elastomer (TPE)

Lens
Polyamide (PA6)

Actuator
Polybutylene Terephthalate (PBT)

Label
R-640 polyester

Switching element

Solder terminal	Polyamide (PA 6.6)
Solder-/plug-in interminal	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
Solder or solder/plug terminal, 2.8 × 0.5 mm
Universal terminal with 2.0 × 0.5 mm plug-in/solder and PCB terminal

Tightening torque
for fixing nut max. 50 Ncm

Actuating force
4 … 6 N (depending on the switching element)

Mechanical lifetime
100 000 cycles of operation

Electrical characteristics

Switch rating

Solder terminal	min. 5 VAC/DC, 1 mA max. 250 VAC/DC, 5 A
Solder-/plug-in terminal	min. 5 VAC/DC, 1 mA max. 250 VAC/DC, 5 A
Universal terminal	min. 100 µV/10 µA max. 42 VAC/DC, 100 mA

Environmental conditions

Storage temperature
–40 °C … +85 °C

Operating temperature
–25 °C … +55 °C

Degree of front protection
IP 65

Approvals

Approbations
UL
CSA
CB
ENEC (EN 61058)

Declaration of conformity
CE

Approvals are not valid for Stop switches with Low-Level switching element.

EAO reserves the right to alter specifications without further notice.

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.

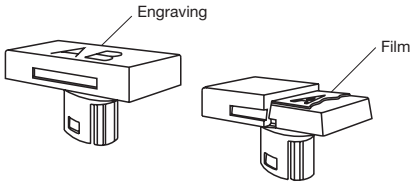
2. Hot stamping
For larger series it is worth considering markings by means of hot stamping. We will pleased to advise you. For letters and figures, typefaces with 2.5 mm, 3 mm and 4 mm are available.

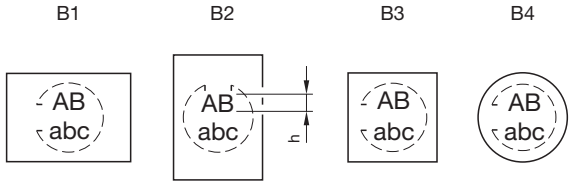
3. Film inserts
Instead of using engraving the lenses can be fitted with transparent film inserts, as an alternative. For this purpose, though, it is advisible to use transparent lenses. In the case of use of a smoke-black lens the fitted film becomes readable only if the lamp is on. The film thickness is 0.2 mm. Important : Consider push-button mounting orientation befor 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 18 (15.3 x 15.3)	12.7 x 12.7	2	4	7–8	8	B3
		3	3	6–7	7	B3
		4	2	4–5	5	B3
		5	2	3–4	4	B3
		6	1	3	3–4	B3
		8	1	2–3	2–3	B3
18 x 24 (15.3 x 21.5)	12.7 x 18.7	2	4	11	12	B1
			5	7–8	8	B2
		3	3	9–10	10–11	B1
			4	6–7	7	B2
		4	2	7	7–8	B1
			3	4–5	5	B2
		5	2	5–6	6	B1
				3–4	4	B2
		6	1	4–5	5	B1
			2	3	3–4	B2
		8	1	3–4	3–4	B1
				2–3	2–3	B2
Ø 18 (Ø 15.8)	Ø 12.8	2	3	6	6	B4
		3	2	5	6	B4
		4	2	3	4	B4
		5	1	2	3	B4
		6	1	2	2	B4
		8	1	2	2	B4

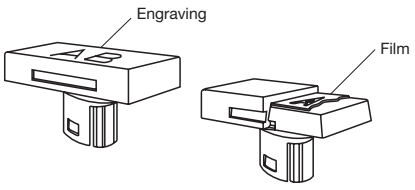


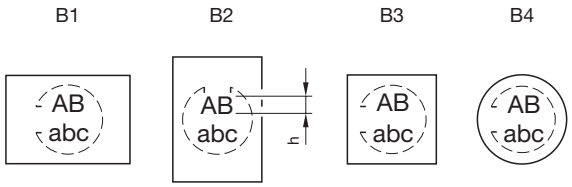


Lenses for indicators and illuminated pushbuttons, flush mounting

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
24 x 24 (18 x 18)	15.1 x 15.1	2	4	8–9	9	B3
		3	3	7–8	8	B3
		4	2	4–5	5	B3
		5	2	4	4–5	B3
		6	1	4	4	B3
		8	1	2–3	2–3	B3
24 x 30 (18 x 24)	15.1 x 21	2	4	12	13	B1
			5	8–9	9	B2
		3	3	10–11	11–12	B1
			4	7–8	8	B2
		4	2	7	8	B1
			3	4–5	5	B2
		5	2	5–6	6	B1
				4	4–5	B2
		6	1	4–5	5	B1
			2	3	3–4	B2
		8	1	3–4	3–4	B1
				2–3	2–3	B2
Ø 25 (Ø 19.7)	Marking plate	2	3	6	6	B4
		3	2	5	6	B4
		4	2	3	4	B4
		5	1	2	3	B4
		6	1	2	3	B4
		8	1	2	2	B4





Suppressor circuits

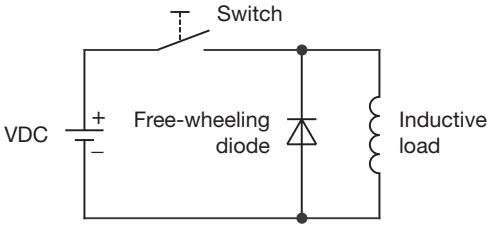
When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e. g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

Fig. 1 shows an inductive load with a free-wheeling diode connected in parallel. This free-wheeling diode provides a path for the inductor current to flow when the current is interrupted by the switch. Without this free-wheeling diode, the voltage across the coil will be limited only by dielectric breakdown voltages of the circuit or parasitic elements of the coil. This voltage can be kilovolts in amplitude even when nominal circuit voltages are low (e. g. 12 VDC) see Fig. 2.

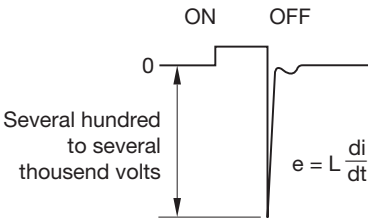
The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (VR) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current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

To get an efficient protection, the free-wheeling diode must be connected as close as possible to the inductive load!

Switching with inductive load
Fig. 1



Counter EMF
over load without free-wheeling diode
Fig. 2



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